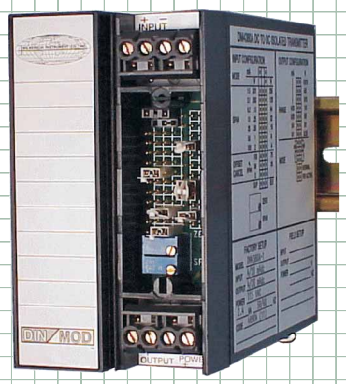
WILKERSON INSTRUMENT CO., INC.

www.wici.com

INSTRUMENTATION PRODUCTS



PRODUCTS

- WIRELESS DATA ACQUISITION
- DC/DC ISOLATORS
- SIGNAL CONDITIONERS
- ALARM TRIPS
- TWO-WIRE TRANSMITTERS
- PROCESS INDICATORS
- MATH FUNCTIONS
- POWER SUPPLIES
- INTEGRATORS
- LEVEL MONITOR / CONTROLLER
- LEVEL SENSORS
- 3 ∅ POWER PHASE MONITOR
- BACKUP PUMP CONTROLLER

WILKERSON INSTRUMENT CO., INC. EST. 1983

Over 25 Years of Service

TERMS AND CONDITIONS OF PURCHASE

2008 marks the 25th year Wilkerson Instrument Company has produced industrial grade process control instrumentation. It is our mission at our facility to produce the highest quality, most reliable products possible at a reasonable price and follow up that commitment with superior customer service, application support and outstanding warranty coverage. This is all part of the total package Wilkerson Instrument Company provides our customers with each and every purchase.

Joe E. Wilkerson

DELIVERY

Most orders are shipped in one (1) business day WITH NO HANDLING OR EXPEDITING CHARGES EVER. Delivery times will vary depending on the ship method chosen and customer's geographic location. Large quantities and special orders may require more time. Be sure to ask your sales representative if you require expedited service or need to request a specific ship date.

SHIPMENTS

Standard shipments are UPS Ground at our volume discounted rates. All other UPS services are also available, should you need expedited delivery. Fed Ex., DHL, and USPS are available if requested. Any of these services can be C.O.D. at additional cost.

TERMS

1%15 Net 30 days from invoice date for open account customers.
MasterCard, Visa, Discover and American Express are accepted for your convenience.
All prices are quoted F.O.B. Lakeland, Florida, USA.
PRICES AND SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

CANCELLATION OF ORDERS AND RESTOCKING

In most cases, our “next day” shipment commitment requires that we start manufacturing your order the day we receive it. **Please be sure of your needs and specifications before ordering.**

All returned orders are subject to a restocking charge of 15%.
Specials cannot be returned for credit.
Scheduled orders with requested ship dates cancelled 5 business days or less before scheduled shipment are subject to a cancellation charge of 15%.

NEW CUSTOMERS

New customers desiring to open an account should supply:

Three “trade” credit references.
Bank reference and account number.
Names of Accounts Payable Supervisor and Controller.

Credit checks are usually done by fax and require approximately three days.

WARRANTY

Our products carry a limited 5 year warranty against material defects and workmanship. This warranty is extended to 10 years for Mighty Module products. Field rangeable products carry a limited permanent warranty.

During the warranty period, the company will repair or replace any unit, at its option, free of charge in the event of a warranty failure. The company further warrants, for an additional period of 5 years, to repair any unit at a fixed cost of 25% of the original purchase price in the event of a warranty failure.

All accessories carry a limited 90 day warranty. Relays are not covered by the warranty.

Lightening strikes, power surges, and all incorrect user wiring are not covered under this warranty.

DOCUMENTATION

Each product is shipped with appropriate information for installation, operation, and calibration. Please contact the factory regarding any inquires or additional questions you may have. All documentation can be downloaded from www.wici.com.

CASE STYLE IDENTIFICATION

MIGHTY MODULE

· Relay Socket Mount
MM, FR

DIS SERIES™

· 1/8 DIN Panel Mount
DIS

DIN/MOD™

· DIN Rail Mount
DM

LP SERIES™

LP

· Field Mount Enclosure

LP

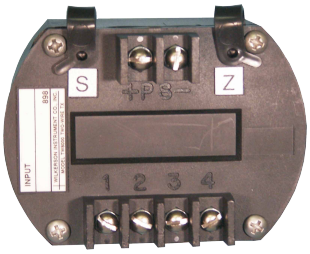
· Explosion-Proof Housing

DR SERIES

DR

TW SERIES™

· Hockey Puck Style



TW

· 50 mm x 50 mm
Square

TW

Silver Series™

· 50 mm Diameter
Mini Hockey Puck
SR

· Hockey Puck Style
SC

· 50 mm Diameter
Slim Profile
Mini Hockey Puck
SF

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DIS471

DC INPUT PROCESS INDICATOR

FEATURES

- **Provides 3½ Digit Display Calibrated in Engineering Units (°F, °C, %, PSI, etc.) Proportional to DC Input**
- **Unlimited* Choice of Input Ranges via Interchangeable Range Cards**
- **Fits Standard 1/8 DIN Cutout (Oversize Bezel)**
- **Mount, Wire, and Calibrate from Front**
- **Rated NEMA-4, Splashproof when Properly Installed**
- **5 Year Warranty**

DESCRIPTION

The DIS471 provides a display proportional to a DC input signal. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. The digital display utilizes an auto-zero dual-slope integrating A/D converter for accuracy and stability.

All DIS instruments are NEMA-4 splashproof. ZERO and SPAN controls are accessible by removing a gasketed front access panel. The display controls are wide-ranging so that it can be calibrated to display engineering units. Decimal point selection is made with a switch, accessible from the rear.

A complete set of engineering unit labels is sent with each DIS. Terminations are made to a screw terminal connector on the rear of the case.

TYPICAL APPLICATIONS

DC voltage, current and process indication.

SPECIFICATIONS

INPUT RANGE

INPUTS		
Voltage	Current	Shunt Ohms
0/.2 V	0/1 mA	1000
0/.5 V	0/2 mA	500
0/1 V	0/5 mA	200
0/2 V	0/10 mA	100
1/5 V	4/20 mA	61.9
0/5 V	0/20 mA	50
0/10 V	0/50 mA	20
0/20 V	0/100 mA	10
0/50 V		
0/100 V		
0/200 V		

INPUT IMPEDANCE

Voltage
200 kilohms for spans 1 V and above
125 kilohms for 500 mV span
50 kilohms for 200 mV span

Current
R=1 V/span. See input shunt values.

ISOLATION

Input-to-Line Breakdown Voltage
1500 VAC rms

ACCURACY

±0.05% of span plus 1 digit

LINEARITY

±1 digit

COMMON MODE REJECTION

120 dB, DC to 60 Hz

DISPLAY

Digit Size
.56" LED, 3½ digits, ±1999

Decimal Point
±1.9.9.9

Control Range

Zero
±1999

Span
min span 10; max span 1999

Update Rate
3/sec

Reverse Display
Rear-panel jumper selectable. Reads downscale with increasing input.

OPERATING TEMPERATURE

14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY

±0.02% of span/°C max

POWER

115 VAC ±10%, 50 or 60 Hz (4 W max)

230 VAC ±10%, 50 or 60 Hz (4 W max)

** Within specified range limits.*

ORDERING INFORMATION

POWER

☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

_____ Zero Scale

_____ Full Scale

DISPLAY

Enter Display

_____ Zero Scale

_____ Full Scale

Select Display Logic

☐ Normal Acting
☐ Reverse Acting

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

ACCESSORIES

DIS471

DIS-CARD 471 Range Card for DIS471 DC Process Indicator Qty____

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

_____ Zero Scale

_____ Full Scale

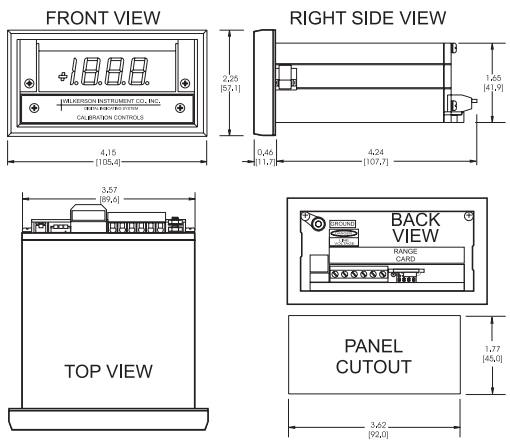
MOUNTING

The DIS471 is designed to be mounted from the front panel through a standard horizontal 3.62 X 1.77 inches (1/8 DIN) cutout. Two mounting cam-screws allow the securing of the DIS471 to the panel from the front.

DIMENSIONS

Inches [mm]

DIS SERIES I PROCESS INDICATORS



CONNECTIONS

TERM 1	Power AC L1
TERM 2	Power AC L2
TERM 3	Input -
TERM 4	Input +

DIS471-24

DC INPUT PROCESS INDICATOR WITH 24 VDC POWER SUPPLY FOR TWO-WIRE TRANSMITTER

FEATURES

- **Provides 3½ Digit Display Calibrated in Engineering Units (°F, °C, %, PSI, etc.) Proportional to DC Input**
- **24 VDC Power Supply for Two-Wire Transmitters**
- **Fits Standard 1/8 DIN Cutout (Oversize Bezel)**
- **Mount, Wire and Calibrate from Front**
- **Rated NEMA-4, Splashproof when Properly Installed**
- **5 Year Warranty**

DESCRIPTION

The DIS471-24 provides a display proportional to a DC input signal. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. The digital display utilizes an auto-zero dual-slope integrating A/D converter for accuracy and stability. The instrument contains a 24 VDC transmitter power supply specifically designed for use with two-wire process transmitters.

All DIS instruments are gasketed and, when properly installed, are NEMA-4 splashproof. ZERO and SPAN controls are accessible by removing a gasketed front access panel. The display's controls are wide-ranging so that it can be calibrated to display engineering units. Decimal point selection is made with a switch accessible from the rear.

A complete set of engineering unit labels is sent with each DIS. Terminations are made to a screw terminal connector on the rear of the case.

TYPICAL APPLICATIONS

DC process indication, monitoring, two-wire excitation.

SPECIFICATIONS

INPUT RANGE
4/20 mA

INPUT IMPEDANCE
61.9 ohms

ISOLATION
Input-to-Line Breakdown Voltage
1500 VAC rms

ACCURACY
±0.05% of span plus 1 digit

LINEARITY
±1 digit

COMMON MODE REJECTION
120 dB, DC to 60 Hz

DIS471-24
24 V output ±5%, 30 mA max

DISPLAY
Digit Size
.56" LED, 3½ digits, ±1999

Decimal Point
±1.9.9.9

Control Range
Zero
±1999

Span
min span 10; max span 1999

Update Rate
3/sec

Reverse Display
Rear-panel jumper selectable. Reads downscale with increasing input.

OPERATING TEMPERATURE
14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C max

POWER
115 VAC ±10%, 50 or 60 Hz
(4 W max)
230 VAC ±10%, 50 or 60 Hz
(4 W max)

ORDERING INFORMATION

POWER

☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power

DISPLAY

Enter Display

☐ Zero Scale

☐ Full Scale

Select Display Logic

☐ Normal Acting
☐ Reverse Acting

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

ACCESSORIES

DIS471-24

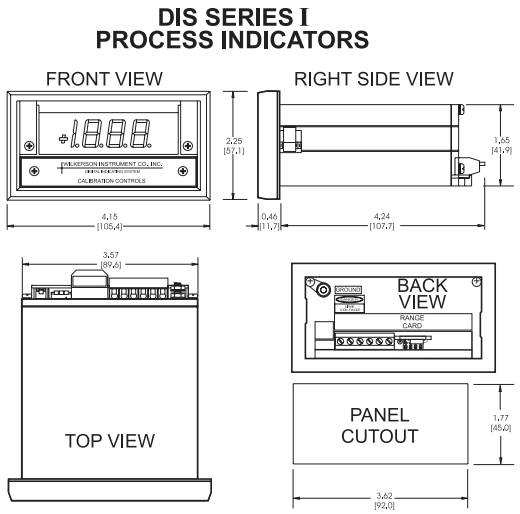
No accessories available at this time.

MOUNTING

The DIS471 is designed to be mounted from the front panel through a standard horizontal 3.62 X 1.77 inches ($^1/_8$ DIN) cutout. Two mounting cam-screws allow the securing of the DIS471 to the panel from the front.

DIMENSIONS

Inches [mm]



CONNECTIONS

TERM 1	Power AC L1
TERM 2	Power AC L2
TERM 3	Input -
TERM 4	Input +
TERM 5	Transmitter Power -
TERM 6	Transmitter Power +

DIS471B- ( )

DC INPUT
PROCESS INDICATOR

FEATURES

- **Factory Set Input Span - User Adjustable Display**
- **Provides 3½ Digit Display Calibrated in Engineering Units (°F, °C, %, PSI, etc.) Proportional to DC Input**
- **Wide Choice of Inputs Available**
- **Fits Standard 1/8 DIN Cutout (Oversize Bezel)**
- **All Calibrate on Front of Control Panel**
- **Rated NEMA-4, Splashproof when Properly Installed**
- **5 Year Warranty**

DESCRIPTION

The DIS471B- ( ) provides a 3½ display proportional to a DC input signal. Span of the input is factory set. The display controls are wide-ranging so that it can be calibrated to display engineering units. A complete set of engineering units labels is shipped with each DIS.

All controls for calibration of the display are accessible by removing a gasketed front access panel. DIS instruments are gasketed and, when properly installed, are NEMA-4 splashproof.

Terminations are made to a screw terminal connector on the rear of the case.

TYPICAL APPLICATINS

Monitor a process DC voltage or current and indicate the value of the process measurement in appropriate engineering units.

SPECIFICATIONS

INPUT RANGE

Voltage

0/50 mV	0/100mV
0/1V	1/5V
0/5V	0/10V
-10/10V	0/20V
0/100V	0/200V

Current

0/1mA	4/20mA
0/20mA	0/50mA
10/50mA	0/100mA
0/500mA	0/1 A

INPUT IMPEDANCE

Voltage
1 megohm

Current	Shunt Resistance
0.8 mA to 32 mA	61.9 ohm
32 mA to 256 mA	4 ohm
256 mA to 1 A	0.25 ohm

ACCURACY

±0.05% of span plus 1 digit

LINEARITY

±1 digit

COMMON MODE REJECTION

100 dB, DC to 60 Hz

DISPLAY

Digit Size
.56" LED, 3½" digits

Decimal Points
1.9.9.9

Control Range

Zero
-1999 to +1999

Span
min span 100/max 1999

Update Rate
3/sec

Reverse Display
Switch selectable
Reads downscale with increasing input

OPERATING TEMPERATURE

14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY

±0.02% of span/°C max

BREAKDOWN VOLTAGE

INPUT-TO-LINE
1500 VAC rms

POWER

24 VDC ±10%
(2 W max)

ORDERING INFORMATION

INPUT
Select Input

Current
- ☐ - 1 4/20mA
- ☐ - 2 0/20mA
- ☐ - 3 0/1mA
- ☐ - 4 0/50mA
- ☐ - 5 0/100mA
- ☐ - 6 0/500mA
- ☐ - 7 0/1A
- ☐ - 8 10/50mA

Voltage
- ☐ - 10 0/10V
- ☐ - 11 0/5V
- ☐ - 12 1/5V
- ☐ - 13 0/1V
- ☐ - 14 0/100mV
- ☐ - 15 0/50mV
- ☐ - 16 -10/10V
- ☐ - 17 0/20V
- ☐ - 18 0/50V
- ☐ - 19 0/100V
- ☐ - 20 0/200V

DISPLAY
Enter Display

☐ ZeroScale

☐ FullScale

Select Display Logic
- ☐ Normal Acting
- ☐ Reverse Acting

OPTIONS
- ☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)

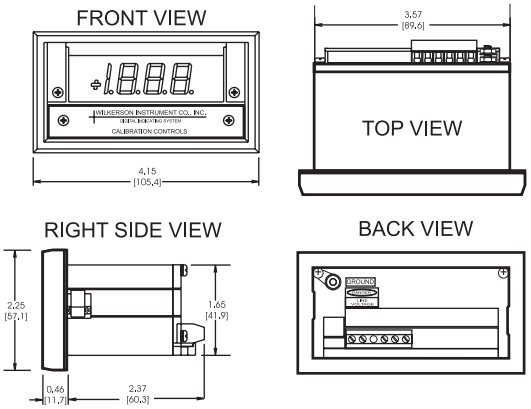
ACCESSORIES

DIS471B
No accessories available at this time.

MOUNTING
The DIS471B is designed to be mounted from the front panel through a standard horizontal 3.62 X 1.77 inches (1/8 DIN) cutout. Two mounting cam-screws allow the securing of the DIS471 to the panel from the front.

DIMENSIONS

Inches [mm]



CONNECTIONS

TERM 1	Power AC L1
TERM 2	Power AC L2
TERM 3	NC
TERM 4	Shield
TERM 5	Input -
TERM 6	Input +

DIS471B-R

DC INPUT, FIELD RANGEABLE PROCESS INDICATOR

FEATURES

- **Provides 3½ Digit Display Calibrated in Engineering Units (°F, °C, %, PSI, etc.) Proportional to DC Input**
- **USER RANGEABLE -32 mV to 256 VDC and 0.8 mA to 1 ADC**
- **Fits Standard 1/8 DIN Cutout (Oversize Bezel)**
- **Calibrate from Front of Control Panel**
- **Rated NEMA-4, Splashproof when Properly Installed**
- **5 Year Warranty**

DESCRIPTION

The DIS471B-R provides a 3½ display proportional to a DC input signal. Span of the input is selected by a moveable jumper on the rear of the housing. The display controls are wide-ranging so that it can be calibrated to display engineering units. A complete set of engineering units labels is shipped with each DIS.

All controls for calibration of the display are accessible by removing a gasketed front access panel. DIS instruments are gasketed and, when properly installed, are NEMA-4 splashproof.

Terminations are made to a screw terminal connector on the rear of the case.

TYPICAL APPLICATINS

Monitor a process DC voltage or current and indicate the value of the process measurement in appropriate engineering units.

SPECIFICATIONS

INPUT RANGE

Voltage
±32 mV to ±128 VDC
Current
±0.8 mA to ± 1 ADC

INPUT IMPEDANCE

Voltage
1 megohm

Current	Shunt Resistance
0.8 mA to 32 mA	61.9 ohm
32 mA to 256 mA	4 ohm
256 mA to 1 A	0.25 ohm

ACCURACY

±0.05% of span plus 1 digit

LINEARITY

±1 digit

COMMON MODE REJECTION

100 dB, DC to 60 Hz

DISPLAY

Digit Size
.56" LED, 3½" digits, ±1999 indication
Decimal Point
1.9.9.9
Control Range
Zero
-1999 to +1999
Span
min span 100/max 1999
Update Rate
3/sec
Reverse Display
Switch selectable
Reads downscale with increasing input

OPERATING TEMPERATURE

14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY

±0.02% of span/°C max

BREAKDOWN VOLTAGE

INPUT-TO-LINE
1500 VAC rms

POWER

24 VDC ±10%
(2 W max)

ORDERING INFORMATION

INPUT
Select Units
☐ VDC ☐ mADC
Enter Input
☐ Zero Scale
☐ Full Scale

DISPLAY
Enter Display
☐ Zero Scale
☐ Full Scale
Select Display Logic
☐ Normal Acting
☐ Reverse Acting

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)
☐

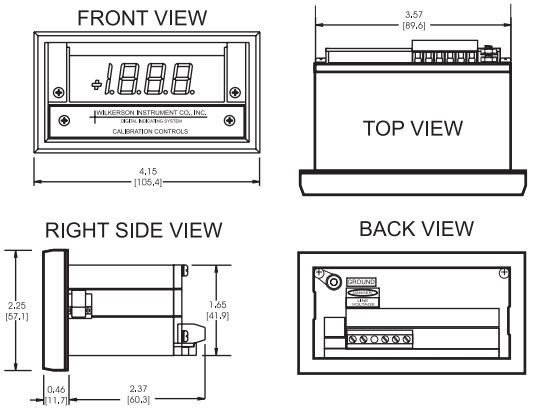
ACCESSORIES

DIS471B
No accessories available at this time.

MOUNTING
The DIS471B is designed to be mounted from the front panel through a standard horizontal 3.62 X 1.77 inches ($^1/_8$ DIN) cutout. Two mounting cam-screws allow the securing of the DIS471 to the panel from the front.

DIMENSIONS

Inches [mm]



CONNECTIONS

TERM 1	Power AC L1
TERM 2	Power AC L2
TERM 3	NC
TERM 4	Shield
TERM 5	Input -
TERM 6	Input +

DIS871 AND DIS971

DC INPUT PROCESS INDICATORS

FEATURES

- Provides 3½ Digit or 4½ Digit Display
- Display Calibrated in Engineering Units (°F,°C, %, PSI, etc.) Proportional to DC Input
- Mount, Wire and Calibrate from Front
- Fully Isolated Output and/or 0, 1, or 2 Alarms (Optional)
- Alarm Setpoints Adjustable without Disturbing Transmitter Output
- Fail-Safe Alarm Operation
- LED Alarm Status Indicator
- Adjustable Deadband
- 50 mV or 1 mA Minimum Input Span (10 mV available)
- Unlimited* Choice of Input / Output Ranges
- Wide Range Input Available
- Fits Standard 1/8 DIN Cutout
- Rated NEMA-4, Splashproof when Properly Installed
- 5 Year Warranty

DESCRIPTION

The DIS871 and DIS971 provide a display, optional isolated DC output voltage or current proportional to a DC input signal, and optional alarm setpoints. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. The digital display utilizes an auto-zero dual-slope integrating A/D converter for accuracy and stability.

All controls are accessible by removing the gasketed front access panel. The display controls are wide-ranging so that it can be calibrated to display engineering units. Decimal point selection is made with a switch, also accessible from the front.

A complete set of engineering unit labels is sent with each DIS. Once the display has been adjusted to read the correct engineering units, the alarm setpoints can be adjusted without test equipment and without disturbing the transmitter output. Either setpoint may be displayed by use of the SP CAL switch. Each setpoint has an LED to indicate alarm status. The alarms have adjustable deadbands. Terminations are made to a screw terminal connector on the rear of the case.

TYPICAL APPLICATIONS

DC process indication, control, monitoring, voltage/current scaling, isolation, buffering, noise reduction, driving, DC monitor/current limit, level/position control, HI/LO pressure alarm, power demand warning.

SPECIFICATIONS

INPUT RANGE
Voltage
select any range between ±250 V max (min span 50 mV)
typical inputs: 0-1 V, 0-5 V,0-10 V
Current
select any range between ±5 A max
(min span 1 mA, internal shunt)
Low Input
(Option S)
select any range between ±20 V max (min span 10 mV)

INPUT IMPEDANCE
Voltage
200 kilohms
Current

Current Input	Current Shunt Value
1 mA	100 Ohm
10 mA	10 Ohm
20 mA	5 Ohm
4/20 mA	61.9 Ohm
100 mA	1 Ohm
1 A	0.1 Ohm
5 A	0.01 Ohm

OPTIONS SA, DA SETPOINT
each alarm 0 to 100% of span

DEADBAND
0.25% to 100% of span

RELAY CONTACTS (spdt)
Resistive Load
5 A max, 150 W max,
240 VAC max, 30 VDC max
Inductive Load
1/8 HP max at 120/240 VAC

OPTION TX OUTPUT RANGE
Voltage
select any range between ±10 V, 10 mA max load (min span 0.2 V)
Current
select any range from 0 to 20 mA max,
>24 V Compliance
(1200 ohms max at 20 mA)

OUTPUT RIPPLE (Peak-to-Peak)
<0.1% of span

ISOLATION
Output/Input
>500 megohms
Breakdown Voltage
>600 VAC rms

RESPONSE TIME (Range Dependent)
£100 ms
WR £200 ms

ACCURACY
±0.1% of span

LINEARITY
Display
±0.01% of span
Output
±0.025% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

DISPLAY (871)
Digit Size
.56" LED, 3½ digits, ±1999
Decimal Point
±1.9.9.9
Control Range
Zero
±1999
Span
min span 10/max span 2000

DISPLAY (971)
Digit Size
.56" LED, 4½ digits, ±19999
Decimal Point
±1.9.9.9.9
Control Range
Zero
±19999
Span
min span 100/max span 20000
Display Update 3/sec

OPERATING TEMPERATURE
14°F to 140°F /-10°C to 60°C

TEMPERATURE STABILITY
±(0.02% of span +30 µV)/°C max
Low Input (Option S)
±(0.02% of span + 1.3 µV)/°C max

POWER
115 VAC ±10%, 50 or 60 Hz
(4 W max)
230 VAC ±10%, 50 or 60 Hz
(4 W max)

** Within specified range limits.*

ORDERING INFORMATION

POWER
☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power

INPUT
Select Units
☐ VDC ☐ mADC
Enter Input
_____ Zero Scale
_____ Full Scale

OUTPUT (Option TX)
Analog Output
☐ Yes ☐ No
Select Units
☐ VDC ☐ mADC
Enter Output
_____ Zero Scale
_____ Full Scale

Select Output Logic
☐ Normal Acting
☐ Reverse Acting

DISPLAY
Select Digits
☐ 3.5 Digits (DIS871)
☐ 4.5 Digits (DIS971)
Enter Display
_____ Zero Scale
_____ Full Scale
Select Display Logic
☐ Normal Acting
☐ Reverse Acting

ALARMS (Option SA, DA)
Alarm Output
☐ Yes ☐ No
Alarm Selection Quantity
☐ Single (SA) ☐ Dual (DA)

Alarm Action
Alarm 1
☐ High ☐ Low
Alarm 2
☐ High ☐ Low

Alarm Logic
☐ Normal - De-energize on Alarm
☐ Reverse - Energize on Alarm
Enter Setpoint Input Level
_____ Setpoint 1
_____ Setpoint 2

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)
_____

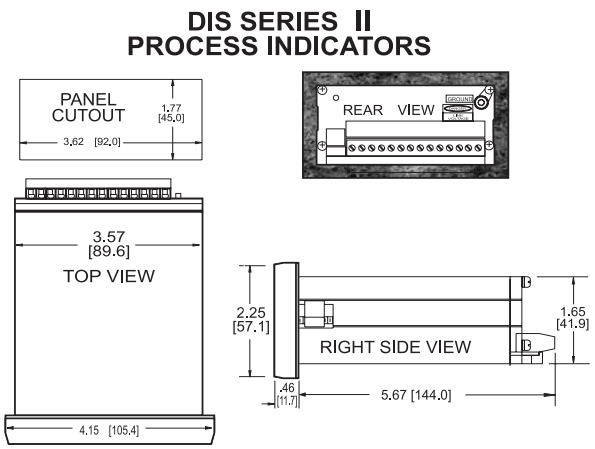
ACCESSORIES

DIS871 AND DIS971
No accessories available at this time.

MOUNTING
The DIS is designed to be mounted from the front panel through a standard horizontal 3.62 X 1.77 inches ($^1/_8$ DIN) cutout. Two mounting cam-screws allow the securing of the DIS to the panel from the front.

DIMENSIONS

Inches [mm]



CONNECTIONS

TERM 1	Output -
TERM 2	Output +
TERM 4	Input +
TERM 5	Input -
TERM 6	Shield
TERM 7	Alarm 1 NC
TERM 8	Alarm 1 C
TERM 9	Alarm 1 NO
TERM 10	Alarm 2 NC
TERM 11	Alarm 2 C
TERM 12	Alarm 2 NO
TERM 13	Power AC L1
TERM 14	Power AC L2

DIS871-24 AND DIS971-24

4/20 mA DC INPUT PROCESS INDICATOR WITH 24 VDC POWER SUPPLY FOR TWO-WIRE TRANSMITTER

FEATURES

- Provides 3½ Digit or 4½ Digit Display
- Display Calibrated in Engineering Units (°F,°C,%,PSI, etc.) Proportional to DC Input
- Mount, Wire and Calibrate from Front
- Fully Isolated Output and/or 0, 1, or 2 Alarms
- Alarm Setpoints Adjustable without Disturbing Transmitter Output
- Fail-Safe Alarm Operation
- LED Alarm Status Indicator
- Adjustable Deadband
- 24 VDC Power Supply for Two-Wire Transmitters
- 4/20 mA Input Range
- Unlimited* Choice of Input / Output Ranges
- Fits Standard 1/8 DIN Cutout
- Rated NEMA-4, Splashproof when Properly Installed
- 5 Year Warranty

DESCRIPTION

The DIS871-24 and DIS971-24 provide a display, optional isolated DC output voltage or current proportional to a DC input signal, and optional alarm setpoints. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. The digital display utilizes an auto-zero dual-slope integrating A/D converter for accuracy and stability. The instrument contains a 24 VDC transmitter power supply specifically designed for use with two-wire and other 24 VDC powered transmitters.

All controls are accessible by removing the gasketed front access panel. The display controls are wide-ranging so that they can be calibrated to display engineering units. Decimal point selection is made with a switch, also accessible from the front.

A complete set of engineering unit labels is sent with each DIS. Once the display has been adjusted to read the correct engineering units, the alarm setpoints can be adjusted without test equipment and without disturbing the output voltage or current.

Either setpoint may be displayed by use of the SP CAL switch. Each setpoint has an LED to indicate alarm status. The alarms have adjustable deadbands. Terminations are made to a screw terminal connector on the rear of the case.

TYPICAL APPLICATIONS

DC process indication, control, monitoring, isolation, DC monitor/current limit, two-wire excitation.

SPECIFICATIONS

INPUT RANGE
4/20 mA
INPUT IMPEDANCE
61.9 ohms
TRANSMITTER POWER SUPPLY
24 VDC regulated, 30 mA max
OPTIONS SA, DA SETPOINT
each alarm 0 to 100% of span
DEADBAND
0.25% to 100% of span
RELAY CONTACTS (spdt)
Resistive Load
5 A max, 150 W max,
240 VAC max
30 VDC max
Inductive Load
1/8 HP max at 120/240 VAC
OPTION TX OUTPUT RANGE
Voltage
select any range between ±10 V,10 mA max load (min span 0.2 V)
Current
select any range from 0 to 20 mA max, >24V compliance (1200 ohms max at 20 mA) (min span 1 mA)
OUTPUT RIPPLE (Peak-to-Peak)
<0.1% of span
ISOLATION
Output / Input
>500 megohms
Breakdown Voltage
>600 VAC rms
RESPONSE TIME
(Range Dependent)
£100 ms
ACCURACY
±0.1% of span
LINEARITY
Display
±0.01% of span
Output
±0.025% of span
COMMON MODE REJECTION
120 dB, DC to 60 Hz
DISPLAY (871)
Digit Size
.56" LED, 3½ digits, ±1999
Decimal Point ±1.9.9.9
Control Range
Zero ±1999
Span
min span 10/max span 2000
DISPLAY (971)
Digit Size
.56" LED, 4½ digits, ±19999
Decimal Point ±1.9.9.9.9
Control Range
Zero ±19999
Span
min span 100/max span 20000
DISPLAY
Update 3/sec
OPERATING TEMPERATURE
14°F to 140°F/-10°C to 60°C
TEMPERATURE STABILITY
±0.02% of span/°C max
POWER
115 VAC ±10%, 50 or 60 Hz (4 W max)
230 VAC ±10%, 50 or 60 Hz (4 W max)

** Within specified range limits.*

ORDERING INFORMATION

POWER
☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power

OUTPUT (Option TX)
Analog Output
☐ Yes ☐ No
Select Units
☐ VDC ☐ mADC
Enter Output
☐ Zero Scale
☐ Full Scale
Select Output Logic
☐ Normal Acting
☐ Reverse Acting

DISPLAY
Select Digits
☐ 3.5 Digits (DIS871-24)
☐ 4.5 Digits (DIS971-24)

Enter Display
☐ Zero Scale
☐ Full Scale
Select Display Logic
☐ Normal Acting
☐ Reverse Acting

ALARMS (Option SA, DA)
Alarm Output
☐ Yes ☐ No
Alarm Selection Quantity
☐ Single (SA) ☐ Dual (DA)
Alarm Action
Alarm 1
☐ High ☐ Low
Alarm 2
☐ High ☐ Low
Alarm Logic
☐ Normal - De-energize on Alarm
☐ Reverse - Energize on Alarm

Enter Setpoint Input Level
☐ Setpoint 1
☐ Setpoint 2

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)

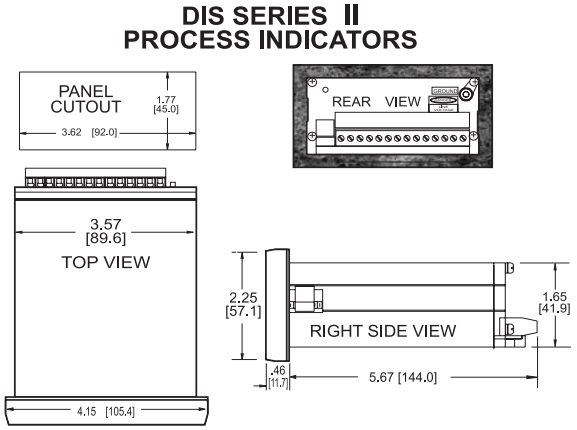
ACCESSORIES

DIS871-24 AND DIS971-24
No accessories available at this time.

MOUNTING
The DIS is designed to be mounted from the front panel through a standard horizontal 3.62 X 1.77 inches ($^1/_8$ DIN) cutout. Two mounting cam-screws allow the securing of the DIS to the panel from the front.

DIMENSIONS

Inches [mm]



CONNECTIONS

TERM 1	Output -
TERM 2	Output +
TERM 3	24 VDC +
TERM 4	24 VDC -
TERM 5	Input +
TERM 6	Input -
TERM 7	Alarm 1 NC
TERM 8	Alarm 1 C
TERM 9	Alarm 1 NO
TERM 10	Alarm 2 NC
TERM 11	Alarm 2 C
TERM 12	Alarm 2 NO
TERM 13	Power AC L1
TERM 14	Power AC L2

LP400

LOOP POWERED DISPLAY

FEATURES

- **Provides 3½ Digit Liquid Crystal Display (LCD) Proportional to a Process Loop Current**
- **Loop Powered**
- **Easy-to-Read 0.8" Digits**
- **Trailing Dummy Zero (±19990)**
- **Switch-Selectable Engineering Units / Loop Current Display**
- **Splashproof and Corrosion Resistant Housing**
- **5 Year Warranty**

DESCRIPTION

The LP400 Loop Powered Display provides digital indication of a 4/20 mA or 10/50 mA process loop signal. The display takes its operating power from the loop current and requires no other source of power.

Wide-ranging zero and span adjustments plus switch selectable decimal point location and trailing zero allow the display to be calibrated in engineering units. A front panel Engineering Units/Loop Current switch permits a quick check of the process signal without recalibration.

Designed for field mounting, the LP400 is splashproof and corrosion resistant and operates from -40 to 185°F (-40 to 85°C). The circuit board is conformal coated for protection from humidity and contamination. Optional accessories include a pipe mounting kit, and a mounting plate which allows a Wilkerson Instrument Company two-wire transmitter to be installed within the LP400's housing.

TYPICAL APPLICATIONS

Displaying process variables where line power is NOT available.

SPECIFICATIONS

INPUT RANGE
4/20 mA or
10/50 mA

INPUT VOLTAGE DROP
3.5 V max. (equivalent to 175 ohms at 20 mA or 70 ohms at 50 mA)

ACCURACY
±(0.05% of reading plus 1 digit)

DISPLAY

Digit Size
0.8" LCD,
3½ digits,
±1999

Switchable Decimal Points and Trailing Zero
±1.9.9.9 0

Control Range Zero
±1999

Span
(full scale minus zero)
min span 10/max span 3998

Update
3/sec

DISPLAY SWITCH
Allows quick check of loop current (400/1999 or 100/500)

Decimal point remains in engineering units position

OPERATING TEMPERATURE
-40°F to 185°F/-40°C to 85°C

TEMPERATURE STABILITY
±(0.01% of span plus 0.01% of display zero offset)/°C

POWER
Supplied by input current
no separate power required

HOUSING
Splashproof and corrosion resistant

ORDERING INFORMATION

INPUT
Select Units
☐ 4/20 mADC ☐ 10/50 mADC

DISPLAY
Enter Display
[ ] Zero Scale

[ ] Full Scale
Select Display Logic
☐ Normal Acting
☐ Reverse Acting

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)
[ ]

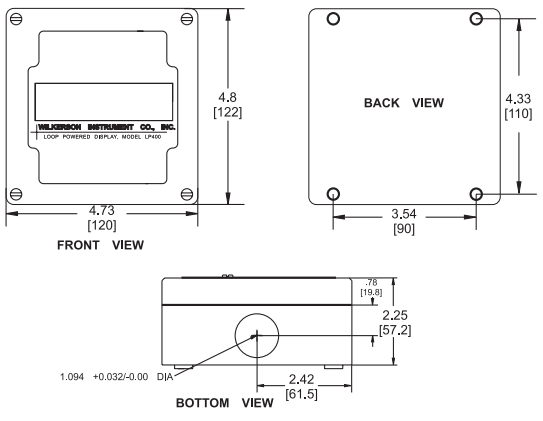
ACCESSORIES

LP400

PMK400	Pipe Mounting Kit for LP400	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN +	Input +
PIN -	Input -
PIN Center Pins	Tie Points

LP420

LOOP POWERED DISPLAY

FEATURES

- **Provides 3½ Digit Liquid Crystal (LCD) Readout Proportional to a Process Loop Current**
- **Loop Powered**
- **Trailing Dummy Zero (±19990)**
- **Switch-Selectable Engineering Units/Loop Current Display**
- **Explosion-Proof Housing**
- **5 Year Warranty**

DESCRIPTION

The LP420 Loop Powered Display provides digital indication of a 4/20 mA or 10/50 mA process loop signal. The display takes its operating power from the loop current and requires no other source of power.

Wide-ranging zero and span adjustments plus switch- selectable decimal point location and trailing zero allow the display to be calibrated in engineering units. An Engineering Units/Loop Current switch permits a quick check of the process signal without recalibration.

The LP420 is mounted in an explosion-proof housing and operates from -40° to 185°F (-40 to 85°C). The circuit boards are conformal coated for protection from humidity and contamination.

TYPICAL APPLICATIONS

Displaying process variables where line power is NOT available, and in hazardous (explosive) atmospheres.

SPECIFICATIONS

INPUT RANGE
4/20 mA or 10/50 mA

INPUT VOLTAGE DROP
3.5 V max
(equivalent to 175 ohms at 20 mA or 70 ohms at 50 mA)

ACCURACY
±(0.05% of reading plus 1 digit)

DISPLAY
Digit Size
0.35" LCD,
3½ digits, ±1999
Switchable Decimal Points and
Trailing Zero
±1.9.9.9 0
Control Range
Zero ±1999
Span (full scale minus zero) min span 10/max span 3998
Update 3/sec

DISPLAY SWITCH
Allows quick check of loop current (400/1999 or 100/500). Decimal point remains in "Engineering Units" position.

OPERATING TEMPERATURE
-40°F to 185°F/-40°C to 85°C

TEMPERATURE STABILITY
±(0.01% of span plus 0.01% of display zero offset)/°C

POWER
Supplied by input current no separate power required

HOUSING
Explosion-proof
(Killark HK Series)
Housing is:
FM Approved and CSA Certified for the following locations:
Class I, Divisions 1 and 2; Groups B, C, and D
Class II, Divisions 1 and 2; Groups E, F, and G
Class III,
Nema 3, 4, 7, and 9
International Approvals (IEC)

***** HK series enclosures are designed to meet flameproof requirements as defined by CENELEC (EURONORM Standard 50018)

* BASEEFA Certified

ORDERING INFORMATION

INPUT
Select Units
☐ 4/20 mADC ☐ 10/50 mADC

DISPLAY
Enter Display
☐ Zero Scale

☐ Full Scale
Select Display Logic
☐ Normal Acting
☐ Reverse Acting

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

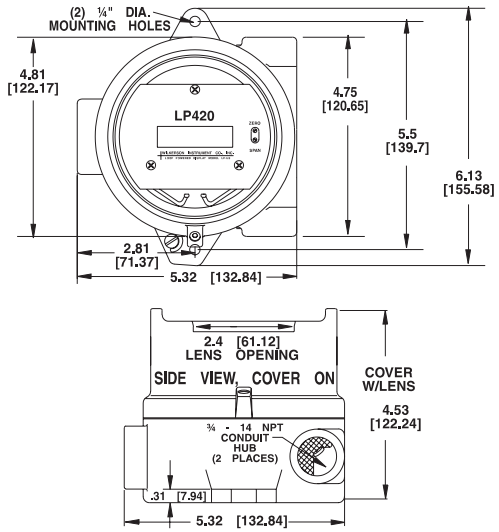
Enter Tag Number(s)

ACCESSORIES

LP420
No accessories available at this time.

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN +	Input +
PIN -	Input -
PIN Center Pins	Tie Points

DM4300A AND DM4300A-HS

DC INPUT FIXED RANGE ISOLATED TRANSMITTER

FEATURES

- **User Write-On Label**
- **High Speed Version with 150 microseconds Response**
- **Provides a Fully Isolated DC Output Proportional to DC Input**
- **Plug-In Terminal Blocks**
- **Standard DIN-Rail Mount with Easy Snap-On Snap-Off**
- **Connections Readily Accessible from the Front**
- **Choice of Power Options**
- **Permanent Warranty**

DESCRIPTION

The DM4300A is a fixed range DC to DC isolator that provides an isolated current or voltage output proportional to a current or voltage input.

The DM4300A is also available in a high speed version that is useful in motor control feedback circuits and other applications that require fast response time.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. It utilizes a feedback VCO to develop a pulse train with a duty cycle proportional to the input signal amplitude. This pulse train is coupled through a pulse transformer to the output circuitry, where the duty cycle data is converted to a proportional DC output level.

Connections are made via two 4-pin terminal blocks. These terminal blocks allow the product to be removed without unwiring the connections.

TYPICAL APPLICATIONS

Useful for motor control feedback and applications requiring fast response time.

SPECIFICATIONS

INPUT RANGE
4/20 mA and 0/10 V

SPAN ADJUSTMENT
±15% of span

ZERO ADJUSTMENT
±15% of span

INPUT IMPEDANCE
4/20 mA: 61.9 ohms
0/10 V: 500 kilohms

OUTPUT RANGE
4/20 mA and 0/10 V

DRIVE CAPABILITY
Voltage
5 mA
(2 kilohms at 10V)
Current
>24 V compliance
(1200 ohms max. at 20 mA)

OUTPUT RIPPLE (Peak-to-Peak)
<0.15% of span

ISOLATION
Output / Input
>500 megohms
Breakdown, Output / Input
>1000 VAC rms Sinewave
Breakdown, Power / Circuitry
>1500 VAC rms Sinewave

RESPONSE TIME (99.9%)
DM4300A
100 ms
DM4300A-HS
150 microseconds

ACCURACY
±0.1% of span
(exclusive of user-supplied calibration instruments)

LINEARITY
+ 0.02% of span

COMMON MODE REJECTION
>100dB, dc TO 60 Hz

OPERATING TEMPERATURE
14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY
± (0.01% of span)/°C

POWER
Standard
115 VAC ± 10%, 50/60 Hz
230 VAC ± 10%, 50/60 Hz
Optional
115/230 VAC Selectable
±10%, 50/60 Hz
24 VAC ± 10%, 50/60 Hz
24 VDC (21 to 32 VDC)
12 VDC (10 to 16 VDC)
Wattage
2.5 W max

ORDERING INFORMATION

MODEL

☐ DM4300A ☐ DM4300A-HS

POWER

☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power
☐ 24 VAC, 50/60 Hz Power
☐ 24 VDC, Power, Transformer Isolated
☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Input

☐ 0/10 VDC ☐ 4/20mA

OUTPUT

Select Output

☐ 0/10 VDC ☐ 4/20mA

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

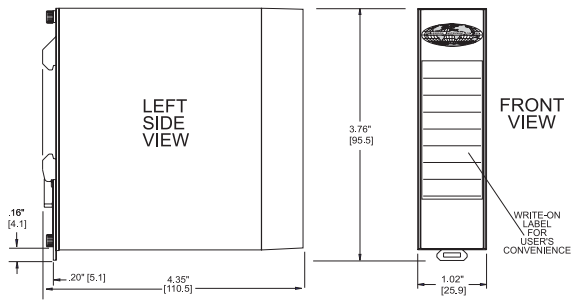
ACCESSORIES

DM4300A AND DM4300A-HS

DR1 DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter) Qty____

DIMENSIONS

Inches [mm]



CONNECTIONS

TERM 1	Input +
TERM 2	Input -
TERM 3	Shield
TERM 4	No Connection
TERM 5	Output +
TERM 6	Output -
TERM 7	Power AC L1 or DC +
TERM 8	Power AC L2 or DC -

DM4380A

DC INPUT FIELD RANGEABLE ISOLATED TRANSMITTER

FEATURES

- Allows Inputs to ±256 V or ±100 mA
- 15 mV or 0.8 mA Minimum Full Scale Input
- Provides a Fully Isolated DC Output Proportional to DC Input
- Plug-In Terminal Blocks
- Standard DIN-Rail Mount with Easy Snap-On Snap-Off
- User-Settable Input and Output Ranges
- Fully Labeled Jumper Positions for Easy Range Settings
- Connections and Ranging Readily Accessible from the Front
- Choice of Power Options
- User Write-On Label
- Permanent Warranty

DESCRIPTION

The DM4380A provides a DC output proportional to a DC input. The output is fully isolated from input, line power and ground. The unit is useful in eliminating ground loops and common mode signals.

Input and output ranges are user-settable. Each may be voltage or current, with or without offset. The output response may be normal or reverse-acting. A fully-labeled set of jumpers selects the input and output ranges.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. It utilizes a feedback VCO to develop a pulse train with a duty cycle proportional to the input signal amplitude. This pulse train is coupled through a pulse transformer to the output circuitry, where the duty cycle data is converted to a proportional DC output level.

Connections are made via two 4-pin plug-in terminal blocks. These terminal blocks allow the product to be removed without unwiring the connections.

TYPICAL APPLICATIONS

Eliminates ground loops and common mode signals. Use for voltage/current scaling and conversion with isolation for buffering and noise reduction. Single-unit replacement module provides field rangeability for all normal input and output ranges.

SPECIFICATIONS

INPUT RANGE

Limits (User-Settable)
select any voltage between -256 and +256 VDC
select any current between -100 and +100 mADC

Span
Voltage
any voltage span from 15 mV to 256 V
Current
any current span from 0.8 mA to 100 mA

INPUT OFFSET

±0, 25, 75, 100% F.S.

INPUT IMPEDANCE

Voltage
1 megohm
Current
20 ohms

OUTPUT

Voltage	Current
0/.25 V	0/1 mA
0/1 V	0/4 mA
1/5 V	4/20 mA
0/5 V	0/20 mA
0/10 V	
-5/+5 V	
-10/+10 V	

OUTPUT LOAD

Voltage
10 mA max.
(1 kilohm at 10 V)
Current
>24 V compliance
(1200 ohms max. at 20 mA)

OUTPUT RESPONSE (User Settable)

normal or reverse–acting
(example 10 to 0 VDC)

OUTPUT RIPPLE (Peak–to–Peak)

<0.1% of span

ISOLATION

Output / Input
>500 megohms
Breakdown, Output / Input
>1000 VAC rms Sinewave
Breakdown, Power / Circuitry
>1500 VAC rms Sinewave

RESPONSE TIME

(Range Dependent)
<100 ms

ACCURACY

±0.1% of span
(exclusive of user–supplied calibration instruments)

LINEARITY

±0.05% of span

COMMON MODE REJECTION

120 dB, DC to 60 Hz

OPERATING TEMPERATURE

14°F to 140°F /-25/75°C

TEMPERATURE STABILITY

±(0.02% of span + 2 µV)/°C max

POWER

Standard
115 VAC ± 10%, 50/60 Hz
230 VAC ± 10%, 50/60 Hz
Optional
115/230 VAC Selectable ±10%, 50/60 Hz
24 VAC ± 10%, 50/60 Hz
24 VDC (21 to 32 VDC)
12 VDC (10 to 16 VDC)
Wattage
2.5 W max

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

☐ Zero Scale

☐ Full Scale

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

☐ Zero Scale

☐ Full Scale

Select Output Logic

- ☐ Normal Acting
- ☐ Reverse Acting

OPTIONS

- ☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

☐

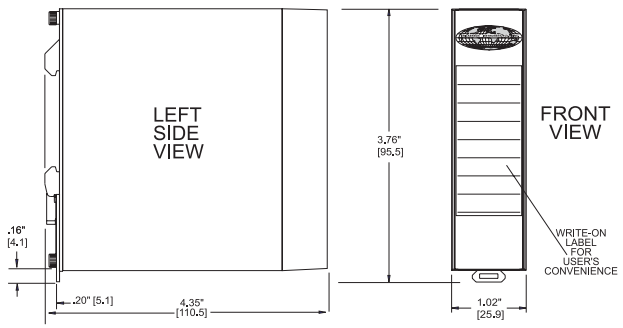
ACCESSORIES

DM4380A

DR1 DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter) Qty____

DIMENSIONS

Inches [mm]



CONNECTIONS

TERM 1	Input +
TERM 2	Input -
TERM 3	Shield
TERM 4	No Connection
TERM 5	Output +
TERM 6	Output -
TERM 7	Power AC L1 or DC +
TERM 8	Power AC L2 or DC -

DM4391

4/20 mA DC INPUT / OUTPUT LOOP POWERED ISOLATOR

FEATURES

- **Provides a Fully Isolated 4/20 mAdc Output Proportional to 4/20 mAdc Input**
- **Operating Power Derived from the Input Current**
- **Single or Dual Channel**
- **Plug-In Terminal Blocks**
- **Standard DIN-Rail Mount with Easy Snap-On Snap-Off**
- **User Write-On Label**
- **Connections Readily Accessible from the Front**
- **Permanent Warranty**

DESCRIPTION

The DM4391 is a loop powered isolator that provides an isolated 4/20mA output proportional to a 4/20 mA input.

All operating power for the circuit is derived from the 4/20 mA input current.

The product is useful for breaking ground loops and for creating a 4/20 mA output in locations where primary power is not available.

A unique feedback system allows the DM4391 to achieve the same linearity as powered isolators and to drive loads from 0 ohms to 1000 ohms without affecting linearity.

The product is available as a single channel or a dual channel unit. The dual channel unit has two totally separate circuits that are fully isolated from each other.

Connections are made via two 4-pin plug-in terminal blocks. These terminal blocks allow the product to be removed without unwiring the connections.

TYPICAL APPLICATIONS

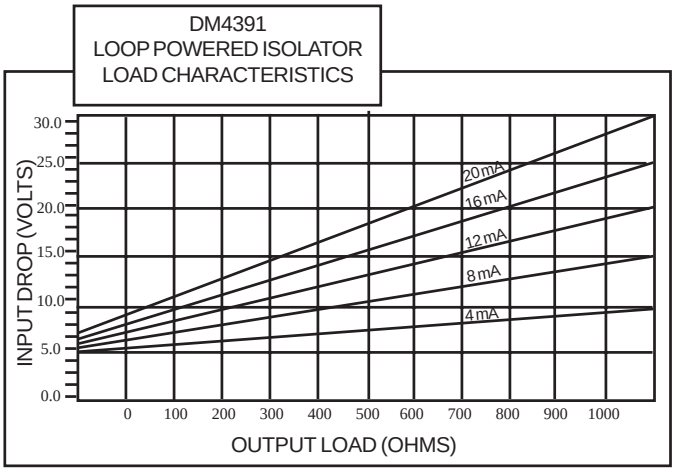
Eliminates ground loops and common mode signals in 4/20 mA current loops for isolation, buffering, noise reduction, especially where line power is NOT available.

SPECIFICATIONS

INPUT
4/20 mA

INPUT VOLTAGE DROP
5+(I(mA)*(Load+7.65)/850)

Typical Drop	
Drop (V)	Load(ohms) at 20 mA
6.8	0
9.2	100
12.7	250
18.6	500
24.5	750
30.3	1000



OUTPUT CURRENT
4/20 mA

DRIVE CAPABILITY
0 to 1000 ohms

OUTPUT RIPPLE (Peak-to-Peak)
<0.1% of span

ISOLATION
Breakdown, Output / Input
>1000 VAC rms sinewave
Resistance
>500 megohms

LINEARITY
± 0.02% of span

COMMON MODE REJECTION
>100 dB, DC to 60 Hz
Voltage Rating
>1000 VAC sinewave

OPERATING TEMPERATURE
14 to 140 °F/-10 to +60 °C

TEMPERATURE STABILITY
± (0.02% of span)/°C

ORDERING INFORMATION

MODEL
Specify Model
☐ Single Channel ☐ Dual Channel

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

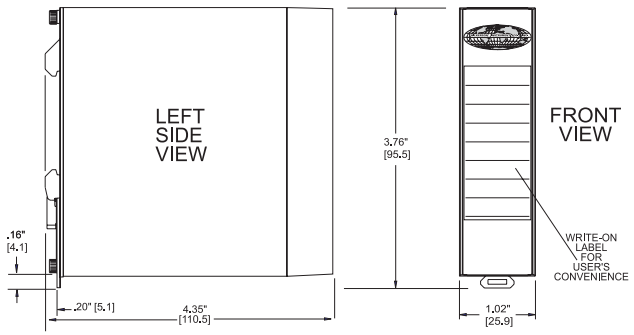
Enter Tag Number(s)

ACCESSORIES

DM4391
DR1 DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter) Qty____

DIMENSIONS

Inches [mm]



CONNECTIONS

	SINGLE	DUAL
TERM 1	Input +	Input 1 +
TERM 2	Input -	Input 1 -
TERM 3	No Connection	Input 2 +
TERM 4	No Connection	Input 2 -
TERM 5	Output +	Output 1 +
TERM 6	Output -	Output 1 -
TERM 7	No Connection	Output 2 +
TERM 8	No Connection	Output 2 -

DR4300

DC INPUT ISOLATED TRANSMITTER

FEATURES

- Provides a Galvanic Isolated DC Output Proportional to DC Input
- 50 mV or 1 mA Minimum Input Span
- 265 V or 250 mA Maximum Input Span
- Voltage or Current Output
- High Compliance Output
- Plug-in Screw Terminal Blocks
- Choice of Input/Output Ranges
- DIN Rail Mount - Case Only 0.5" Wide
- Steel Mounting Clip
- 5 Year Warranty
- UL/cUL Recognized

DESCRIPTION

The DR4300 provides a DC output, proportional to a DC input, with 3 way isolation between input, power, and output. The unit is useful in eliminating ground loops and measuring signals with large common mode voltages.

All of the DR Series of products provide transient protection to help eliminate damage from lightning and from other transients created on the power and signal leads.

TYPICAL APPLICATIONS

Use for reducing noise created by ground loops. Also use for signal conversion (voltage to current, current to voltage, level change, etc.) and increasing drive capacity.

MOUNTING

All DR Series products are designed to mount on a 35 mm DIN rail.

The products feature a steel mounting clip, with a compression spring, for secure mounting.

SPECIFICATIONS

INPUT RANGE

Voltage

Select any range between ± 50 mV to ± 256 V
(Minimum span 50 mV)
(Maximum span 256 V)

Current

Select any range between ± 1 mA to ± 250 mA, internal shunt
(Minimum span 1 mA)
(Maximum span 250 mA)

INPUT IMPEDANCE

Voltage

400 kilohms

Current

Current Input	Input Shunt Value
1 mA	1000 OHM
10 mA	100 OHM
20 mA	50 OHM
4/20 mA	61.9 OHM
100 mA	10 OHM
250 mA	3.3 OHM

OUTPUT RANGE

Voltage

Select any range from -10 V to +10 V, 5 mA max load (min span 1 V)

Current

Select any range from 0 to 20 mA
(min span 1 mA)
Compliance > 20 V
(Drive 1000 ohm at 20 mA)

BANDWIDTH

-3db at 3 Hz

OUTPUT RIPPLE

(peak to peak)

<0.1% of span

ACCURACY

±0.1% of span

LINEARITY

±0.05% of span

COMMON MODE REJECTION

100 dB, DC to 60 Hz

ISOLATION, OUTPUT/INPUT/POWER

>500 megohms
Output / Power - 1000 V Peak
Input / Power / Common 1500 Vac

OPERATING TEMPERATURE

14°F to 158°F
-10°C to 70°C

TEMPERATURE STABILITY

±(0.01% of span)/°C max

POWER

24 VDC (Limits 21 to 28 VDC)
60 mA max
12 VDC (Limits 10 to 15 VDC)
60 mA max

ORDERING INFORMATION

INPUT - Standard Ranges
Select Input

Current - DC

- ☐ - 01 0/1 mA
- ☐ - 02 4/20 mA
- ☐ - 03 0/20 mA
- ☐ - 04 10/50 mA
- ☐ - 05 0/50 mA
- ☐ - 06 0/100 mA
- ☐ - 09 0/250 mA

Voltage - DC

- ☐ - 10 0/50 mV
- ☐ - 11 0/100 mV
- ☐ - 12 0/1 V
- ☐ - 13 1/5 V
- ☐ - 14 0/5 V
- ☐ - 15 0/10 V
- ☐ - 16 -10/10 V
- ☐ - 17 0/20 V
- ☐ - 18 0/50 V
- ☐ - 19 0/100 V
- ☐ - 20 0/200 V

OUTPUT - Standard Ranges
Select Output

Current - DC

- ☐ - A 0/1 mA
- ☐ - B 4/20 mA
- ☐ - C 0/20 mA

Voltage - DC

- ☐ - E 0/5 V
- ☐ - F 1/5 V
- ☐ - G -5/5 V
- ☐ - H 0/10 V
- ☐ - I -10/10V

POWER

- ☐ 12 VDC
- ☐ 24 VDC

Other Input Range
(must be within minimum to maximum specification)

☐ VDC ☐ mADC

☐ Zero Scale

☐ Full Scale

ACCESSORIES

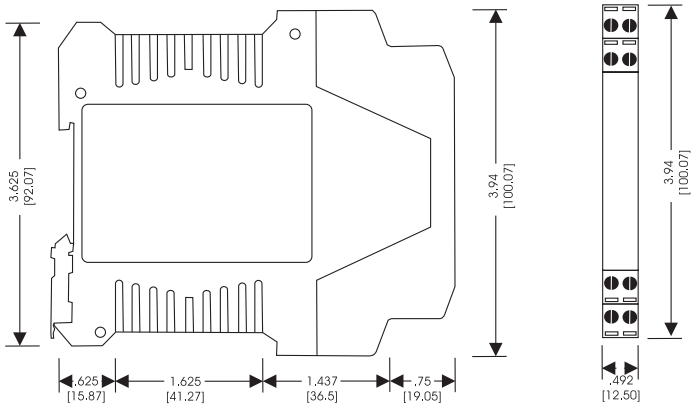
DR4300

DR1 DIN-Rail, 35 mm Symmetrical, 39 inches (1meter) Qty ____

MM9046 24VDC Regulated Power Supply Qty ____

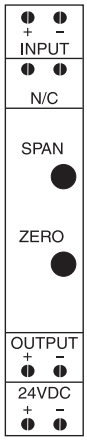
DIMENSIONS

Inches [mm]



CONNECTIONS

TERM 1	INPUT +
TERM 2	INPUT -
TERM 3	NC
TERM 4	NC
TERM 5	OUTPUT +
TERM 6	OUTPUT -
TERM 7	24 VDC +
TERM 8	24 VDC -



DR4302

DUAL OUTPUT ISOLATED TRANSMITTER (SPLITTER)

FEATURES

- **Provides Two Individual Galvanic Isolated DC Outputs Proportional to DC Input**
- **Plug-in Screw Terminal Blocks**
- **DIN Rail Mount - Case Only 0.5" Wide**
- **Steel Mounting Clip**
- **5 Year Warranty**
- **UL/cUL Recognized**

DESCRIPTION

The DR4302 provides two individually isolated DC outputs, proportional to a DC input, with 4 way isolation between input, power, and outputs. The unit is useful in eliminating ground loops and measuring signals with large common mode voltages.

All of the DR Series of products provide transient protection to help eliminate damage from lightning and from other transients coupled onto the power and signal leads by system wiring.

TYPICAL APPLICATIONS

Provides isolation between field instrumentation and control room. Use for reducing noise created by ground loops. Also use for signal conversion (voltage to current) and increasing drive capacity.

MOUNTING

All DR Series products are designed to mount on a 35 mm DIN rail.

The products feature a steel mounting clip, with a compression spring, for secure mounting.

SPECIFICATIONS

INPUT RANGE

Voltage

1/5 V, 0/10 V

Current

0/1 mA, 0/20 mA,
4/20 mA, 10/50 mA

INPUT IMPEDANCE

Voltage

600 kilohms

Current

Current Input	Input Shunt Value
0/1 mA	1000 OHM
0/20 mA	100 OHM
4/20 mA	125 OHM
10/50 mA	20 OHM

OUTPUT

Current

4/20 mA

Compliance > 12 V Per Output
at 24 V Power

BANDWIDTH

-3db at 3 Hz

OUTPUT RIPPLE

(peak to peak)

<0.1% of span

ACCURACY

±0.1% of span

LINEARITY

±0.05% of span

COMMON MODE REJECTION

100 dB, DC to 60 Hz

OPERATING TEMPERATURE

14°F to 158°F

-10°C to 70°C

TEMPERATURE STABILITY

±(0.01% of span)/°C max

ISOLATION,

>500 megohms
1000 V Peak

POWER

24 VDC (Limits 21 to 28 VDC)
60 mA max
12 VDC (Limits 10 to 15 VDC)
60 mA max

ORDERING INFORMATION

INPUT - Standard Ranges
Select Input

Current - DC

- ☐ - 01 0/1 mA
- ☐ - 02 4/20 mA
- ☐ - 03 0/20 mA
- ☐ - 04 10/50 mA

Voltage - DC

- ☐ - 13 1/5 V
- ☐ - 15 0/10 V

POWER

- ☐ 12 VDC
- ☐ 24 VDC

ACCESSORIES

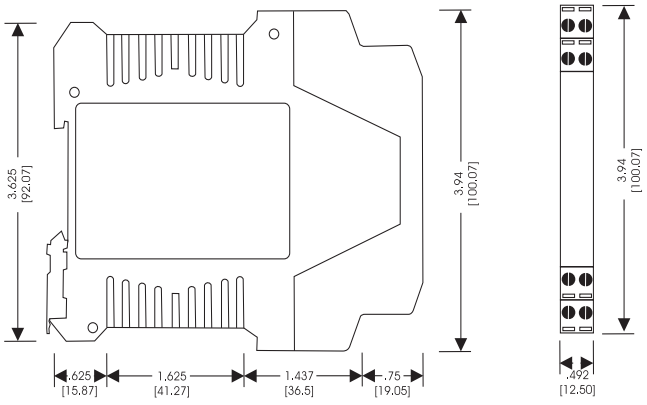
DR4302

DR1 DIN-Rail, 35 mm Symmetrical, 39 inches (1meter) Qty ____

MM9046 24VDC Regulated Power Supply Qty ____

DIMENSIONS

Inches [mm]



CONNECTIONS

TERM 1	INPUT +
TERM 2	INPUT -
TERM 3	OUTPUT 1 +
TERM 4	OUTPUT 1 -
TERM 5	OUTPUT 2 +
TERM 6	OUTPUT 2 -
TERM 7	24 VDC +
TERM 8	24 VDC -

DR4380A

DC INPUT FIELD RANGEABLE ISOLATED TRANSMITTER

FEATURES

- **Provides a Galvanic Isolated DC Output Proportional to DC Input**
- **50 mV or 1 mA Minimum Input Span**
- **256 V or 100 mA Maximum Input Span**
- **Voltage or Current Output**
- **Plug-in Screw Terminal Blocks**
- **Choice of Input/Output Ranges**
- **DIN Rail Mount - Case Only 0.5" Wide**
- **Steel Mounting Clip**
- **Permanent Warranty**
- **UL/cUL Recognized**

DESCRIPTION

The DR4380A provides an isolated DC voltage or current output proportional to a DC voltage or current input. The input and output can be ranged in the field utilizing slide DIP switches.

All of the DR Series of products provide transient protection to help eliminate damage from lightning and from other transients created on the power and signal leads.

TYPICAL APPLICATIONS

The DR4380A provides 3 way isolation between input, output, and power source. The isolation makes the product useful for measuring input signals with high common mode voltages and for breaking ground connections to eliminate ground loops.

Its wide choice of inputs and outputs allow signal conversion and scaling as well.

MOUNTING

All DR Series products are designed to mount on a 35 mm DIN rail.

The products feature a steel mounting clip, with a compression spring, for secure mounting.

SPECIFICATIONS

INPUT RANGE

Voltage

Select any range between ± 50 mV to ± 256 V
(Minimum span 50 mV)
(Maximum span 256 V)

Current

Select any range between ± 1 mA to ± 100 mA, internal shunt
(Minimum span 1 mA)
(Maximum span 100 mA)

INPUT IMPEDANCE

Voltage

1 megohm

Current

Current Input 40 ohms

OUTPUT RANGE

Voltage

1/5 V 0/10 V
0/5 V -10/10 V
-5/5 V

Current

0/1 mA
4/20 mA
0/20 mA

Compliance > 10 V
(Drive 500 ohms at 20 mA)

BANDWIDTH

-3dB at 3 Hz

OUTPUT RIPPLE

(peak to peak)
<0.1% of span

ACCURACY

±0.1% of span

LINEARITY

±0.05% of span

COMMON MODE REJECTION

100 dB, DC to 60 Hz

ISOLATION, OUTPUT/INPUT/POWER

>500 megohms
1000 V peak

OPERATING TEMPERATURE

14°F to 158°F
-10°C to 70°C

TEMPERATURE STABILITY

±(0.01% of span)/°C max

POWER

24 VDC (Limits 21 to 28 VDC)
60 mA max
12 VDC (Limits 10 to 15 VDC)
60 mA max

ORDERING INFORMATION

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

(must be within minimum to maximum specification)

☐ Zero Scale

☐ Full Scale

POWER

☐ 12 VDC
☐ 24 VDC

OUTPUT

Select Output

☐ 1/5 V
☐ 0/5 V
☐ -5/5 V
☐ 0/10 V
☐ -10/10 V
☐ 0/1 mA
☐ 4/20 mA
☐ 0/20 mA

ACCESSORIES

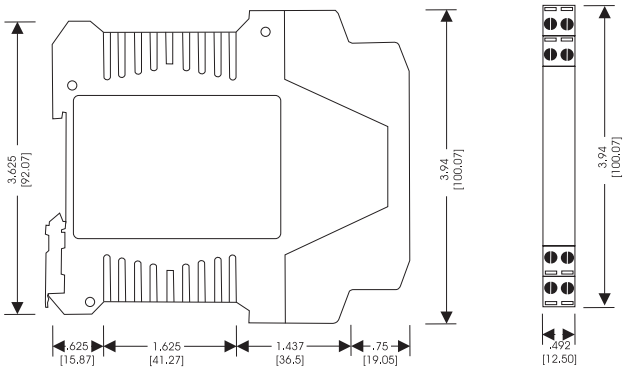
DR4380A

DR1 DIN-Rail, 35 mm Symmetrical, 39 inches (1meter) Qty ____

MM9046 24VDC Regulated Power Supply Qty ____

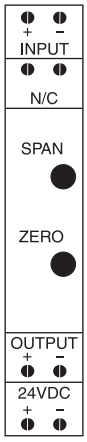
DIMENSIONS

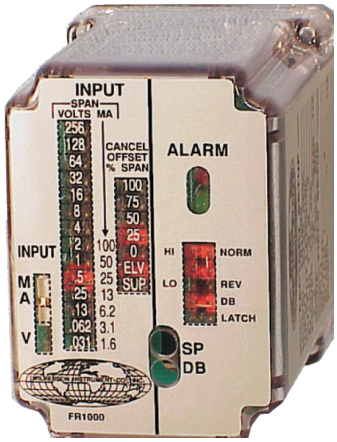
Inches [mm]



CONNECTIONS

TERM 1	INPUT +
TERM 2	INPUT -
TERM 5	OUTPUT +
TERM 6	OUTPUT -
TERM 7	24 VDC + PWR
TERM 8	24 VDC - PWR





FR1000

DC INPUT, FIELD RANGEABLE SINGLE ALARM, DPDT RELAY LATCHING OR NON-LATCHING

FEATURES

- Allows Inputs to ±256 V or ±100 mA
- 16 mV or 0.8 mA Minimum Input Span
- Red and Green LED Alarm Status Indicators
- Adjustable Deadband
- Provides Relay Contact Closures at Preset DC Input
- Configure as HI or LO Alarm
- Alarm Normal or Reverse Acting
- Configure as Latching Alarm
- Fully Labeled Jumper Positions for Easy Range and Configuration Settings
- Choice of Power Options
- Size, Pinouts, and Performance Identical to MM1000
- Permanent Warranty

DESCRIPTION

The FR1000 monitors a DC input signal and provides one dpdt, 5 A alarm relay with an independently adjustable setpoint. The setpoint has a set of red/green LEDs to indicate alarm status. The configuration of the alarm relay is user-settable as follows:

High or Low - High selects alarm on an increasing signal. Low selects alarm on a decreasing signal.

Normal or Reverse - Normal position selects fail-safe operation (loss of power will result in alarm condition). The relay is energized in the non-alarm condition. When the setpoint is exceeded, the relay de-energizes. Selecting the reverse position reverses this logic.

Deadband or Latching - Deadband selects the independently adjustable deadband control. Deadband for the alarm is adjustable from 0.1% to 100% of the input span. The deadband is symmetrical about the setpoint. With latching selected, the alarm will latch when the setpoint is exceeded, and can not be reset unless the input no longer exceeds the setpoint. Reset may be accomplished by remote contact closure or by momentary power interruption. (Several reset inputs may be tied to one reset contact, but note that all negative inputs will be tied together.)

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

SPECIFICATIONS

INPUTS

Limits

select any voltage between -256 and +256 VDC

select any current between -100 and +100 mA

Span (Selectable Ranges)

Voltage	Current
16-32 mV	.8-1.6 mA
32-64 mV	1.6-3.2 mA
64-128 mV	3.2-6.4 mA
128-256 mV	6.4-12.8 mA
256-512 mV	12.8-25 mA
.5-1 V	25-50 mA
1-2 V	50-100 mA
2-4 V	
4-8 V	
8-16 V	
16-32 V	
32-64 V	
64-128 V	
128-256 V	

INPUT OFFSET

±0, 25, 50, 75, 100% of F.S.

INPUT IMPEDANCE

Voltage

1 megohm

Current

20 ohms

SETPOINT

0 to 100% of span

DEADBAND

0.1% to 100% of span

LATCHING ALARM

Reset by remote contact closure or by momentary power interruption

RELAY CONTACTS

One dpdt

Resistive Load

5 A max, 150 W max,

240 VAC max, 30 VDC max

Inductive Load

1/8 HP max at 120/240 VAC

RESPONSE TIME

20 ms typical

ACCURACY

±0.1% of span

COMMON MODE REJECTION

120 dB, DC to 60 Hz

OPERATING TEMPERATURE

14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY

±(0.02% of span +30 µV)/°C max

POWER

115 VAC ±10%, 50 or 60 Hz (2.5 W max)

230 VAC ±10%, 50 or 60 Hz (2.5 W max)

24 VAC ±10%, 50 or 60 Hz (2.5 W max)

115/230 VAC (Selectable)

(DC Power Option)

24 VDC (limits 21-32 VDC)

12 VDC (limits 10-16 VDC)

(2.5 W max)

Isolation, DC power supply to input common: 100 megohm

ORDERING INFORMATION

POWER

☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power
☐ 24 VAC, 50/60 Hz Power
☐ 24 VDC, Power, Transformer Isolated
☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

_____ Zero Scale

_____ Full Scale

ALARMS

Alarm Type

☐ High ☐ Low

Alarm Logic

☐ Normal - De-energize On Alarm
☐ Reverse - Energize On Alarm

Enter Setpoint Input Level

_____ Setpoint 1

Latching Mode

☐ Latching ☐ Non-Latching

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

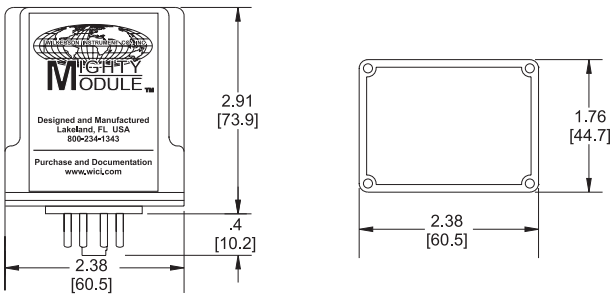
ACCESSORIES

FR1000

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	Qty____
MP011	Plastic Socket, 11-Pin, Panel Mount or PVC Snap Track	Qty____
TRK48	PVC Snap-Track, 4 ft, for MP008, MP011, & DMP8500	Qty____
DMP011	DIN-Rail Mounting Socket, 11-Pin, 35 mm Symmetrical Rail	Qty____
CLP1	Holddown Assembly for MP008 and MP011	Qty____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	Qty____

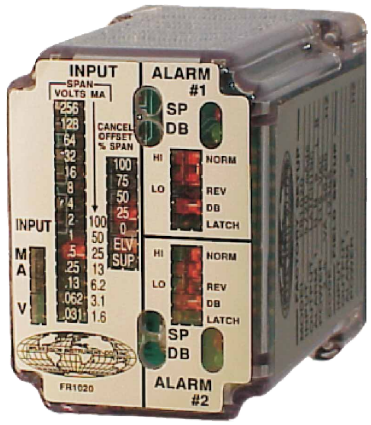
DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	Latch Reset
PIN 3	Power AC L2 or DC -
PIN 4	Input +
PIN 5	Input -
PIN 6	Relay Set 1 NO
PIN 7	Relay Set 1 C
PIN 8	Relay Set 1 NC
PIN 9	Relay Set 2 NO
PIN 10	Relay Set 2 C
PIN 11	Relay Set 2 NC



FR1020

DC INPUT, FIELD RANGEABLE DUAL ALARM LATCHING OR NON-LATCHING

FEATURES

- **Allows Inputs to ±256 V or ±100 mA**
- **16 mV or 0.8 mA Minimum Input Span**
- **Red and Green LED Alarm Status Indicators**
- **Adjustable Deadband**
- **Provides Relay Contact Closures at Preset DC Input**
- **Configure Alarms as HI/HI; HI/LO; LO/LO**
- **Alarms Normal or Reverse Acting**
- **Configure as Latching Alarm**
- **Fully Labeled Jumper Positions for Easy Range and Configuration Settings**
- **Choice of Power Options**
- **Size, Pinouts and Performance Identical to MM1020**
- **Permanent Warranty**

DESCRIPTION

The FR1020 monitors a DC input signal and provides two sets of SPDT, 5 A alarm relays with two independently adjustable setpoints. Each setpoint has a set of red/green LEDs to indicate alarm status. The configuration of each alarm relay is user-settable as follows:

High or Low - High selects alarm on an increasing signal. Low selects alarm on a decreasing signal.

Normal or Reverse - Normal position selects fail-safe operation (loss of power will result in alarm condition). The relays are energized in the non-alarm condition. When the setpoints are exceeded, the relays de-energize. Selecting the reverse position reverses this logic.

Deadband or Latching - Deadband selects two independently adjustable deadband controls. Deadband for each alarm is adjustable from 0.1% to 100% of the input span. The deadband is symmetrical about the setpoint. With latching selected the alarms will latch when a setpoint is exceeded, and can not be reset unless the input no longer exceeds a setpoint. Reset may be accomplished by remote contact closure or by momentary power interruption. (Several reset inputs may be tied to one reset contact, but note that all negative inputs will be tied together.) All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

SPECIFICATIONS

INPUT

Limits

select any voltage between -256 and +256 VDC

select any current between -100 and +100 mA

Span (Selectable Ranges)

Voltage	Current
16-32 mV	.8-1.6 mA
32-64 mV	1.6-3.2 mA
64-128 mV	3.2-6.4 mA
128-256 mV	6.4-12.8 mA
256-512 mV	12.8-25 mA
.5-1 V	25-50 mA
1-2 V	50-100 mA
2-4 V	
4-8 V	
8-16 V	
16-32 V	
32-64 V	
64-128 V	
128-256 V	

INPUT OFFSET

± 0, 25, 50, 75, 100% of F.S.

INPUT IMPEDANCE

Voltage

1 megohm

Current

20 ohms

SETPOINT

0 to 100% of span

DEADBAND

0.1% to 100% of span

LATCHING ALARM

Reset by remote contact closure or by momentary power interruption

RELAY CONTACTS

Two spdt

Resistive Load

5 A max, 150 W max, 240 VAC max, 30 VDC max

Inductive Load

1/8 HP max at 120/240 VAC

RESPONSE TIME

20 ms typical

ACCURACY

±0.1% of span

COMMON MODE REJECTION

120 dB, DC to 60 Hz

OPERATING TEMPERATURE

14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY

±(0.02% of span +30 µV)/°C max

POWER

115 VAC ±10%, 50 or 60 Hz (2.5 W max)

230 VAC ±10%, 50 or 60 Hz (2.5 W max)

24 VAC ±10%, 50 or 60 Hz (2.5 W max)

115/230 VAC selectable

(DC Power Option)

24 VDC (limits 21-32 VDC)

12 VDC (limits 10-16 VDC)

(2.5 W max)

Isolation, DC power supply to input common: 100 megohm

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

_____ Zero Scale

_____ Full Scale

ALARMS

Alarm Type

- ☐ High/Low
- ☐ High/High
- ☐ Low/Low

Alarm Logic

- ☐ Normal - De-energize On Alarm
- ☐ Reverse - Energize On Alarm

Enter Setpoint Input Level

_____ Setpoint 1

_____ Setpoint 2

Latching Mode

☐ Latching ☐ Non-Latching

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

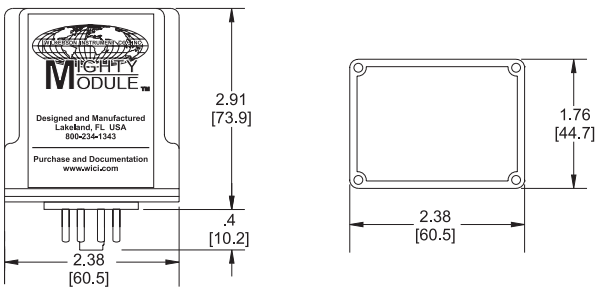
ACCESSORIES

FR1020

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	Qty____
MP011	Plastic Socket, 11-Pin, fPanel Mount or PVC Snap Track	Qty____
TRK48	PVC Snap-Track, 4 ft, for MP008, MP011, & DMP8500	Qty____
DMP011	DIN-Rail Mounting Socket, 11-Pin, 35 mm Symmetrical Rail	Qty____
CLP1	Holddown Assembly for MP008 and MP011	Qty____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	Qty____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	Latch Reset
PIN 3	Power AC L2 or DC -
PIN 4	Input +
PIN 5	Input -
PIN 6	Relay Set 1 NO
PIN 7	Relay Set 1 C
PIN 8	Relay Set 1 NC
PIN 9	Relay Set 2 NO
PIN 10	Relay Set 2 C
PIN 11	Relay Set 2 NC

MM1000

DC INPUT SINGLE ALARM FIXED RANGE, DPDT RELAY

FEATURES

- **Provides a DPDT Relay Contact Closure at a Preset DC Input**
- **Standard Fail-Safe Operation**
- **Red and Green LED Alarm Status Indicators**
- **Adjustable Deadband**
- **50 mV or 1 mA Minimum Input Span**
- **Unlimited* Choice of Input Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM1000 monitors a DC input signal and trips a dpdt, 5 A relay when the input exceeds the desired level. Normal operation has the relay energized for the non-alarm condition and de-energized for an alarm condition. This provides a fail-safe alarm condition for loss of power to the module. Option R reverses this module of operation. The alarm has a set of red/green LEDs to indicate alarm status.

The MM1000 deadband adjustment allows a deadband of 0.5% to 100% of span to be set into the module. The deadband is symmetrical about the setpoint.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

TYPICAL APPLICATIONS

DC Motor/current limit, level/position control, HI/LO pressure alarm, power demand warning.

SPECIFICATIONS

INPUT RANGE

Voltage
select any range between ±250 V max
(min span 50 mV)

Current
select any range between ±5 A max (min span 1 mA)

INPUT IMPEDANCE

Voltage
200 kilohms

Current

Current Input	Input Shunt Value
1 mA	100 Ohm
10 mA	10 Ohm
20 mA	5 Ohm
4/20 mA	61.9 Ohm
100 mA	1 Ohm
1 A	0.1 Ohm
5 A	0.01 Ohm

SETPOINT

0 to 100% of span

DEADBAND

0.5% to 100% of span

RELAY CONTACTS (dpdt)

Resistive Load
5 A max, 150 W max,
220 VAC max, 30 VDC

Inductive Load
(Power factor ³ 0.4)
2.5 A max, 75 W max,
220 VAC max, 30 VDC max

TRANSISTOR OUTPUT

Open-collector output sink
30mA, 30 V supply max

RESPONSE TIME

(Range Dependent)
20 ms typical

ACCURACY

±0.01% of span

COMMON MODE REJECTION

120 dB, DC to 60 Hz

OPERATING TEMPERATURE

14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY

±(0.02% of span
+ 30 ㎷)/°C max

POWER

115 VAC ±10%, 50/60 Hz
(2.5 W max)

230 VAC ±10%, 50/60 Hz
(2.5 W max)

(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 kilohms

** Within specified range limits.*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

_____ Zero Scale

_____ Full Scale

ALARMS

Alarm Selection - Output

- ☐ Relay
- ☐ Transistor, O.C.

Alarm Type

☐ High ☐ Low

Alarm Logic

- ☐ Normal - Energize On Alarm
- ☐ Reverse - De-energize On Alarm

Enter Setpoint Input Level

_____ Setpoint 1

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

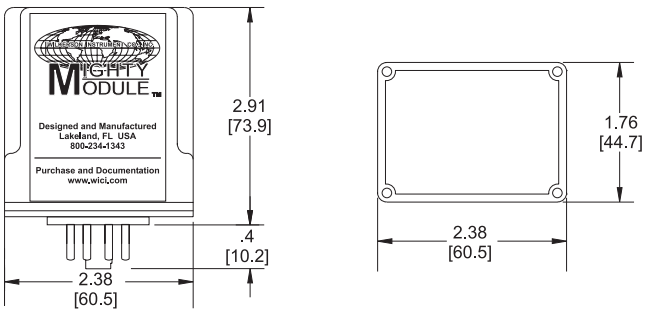
ACCESSORIES

MM1000

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	Qty____
MP011	Plastic Socket, 11-Pin, Panel Mount or PVC Snap Track	Qty____
TRK48	PVC Snap-Track, 4 ft, for MP008, MP011, & DMP8500	Qty____
DMP011	DIN-Rail Mounting Socket, 11-Pin, 35 mm Symmetrical Rail	Qty____
CLP1	Holddown Assembly for MP008 and MP011	Qty____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	Qty____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
PIN 4	Input +
PIN 5	Input -
PIN 6	Relay Set 1 NO
PIN 7	Relay Set 1 C
PIN 8	Relay Set 1 NC
PIN 9	Relay Set 2 NO
PIN 10	Relay Set 2 C
PIN 11	Relay Set 2 NC

MM1000A

DC INPUT SINGLE ALARM FIXED RANGE, DPDT RELAY

FEATURES

- **Provides a DPDT Relay Contact Closure at a Preset DC Input**
- **Standard Fail-Safe Operation**
- **Green LED Relay Status Indicator**
- **Adjustable Deadband**
- **1 V or 1 mA Minimum Input Span**
- **Unlimited* Choice of Input Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM1000A is a lower cost alternative to the MM1000 DC limit alarm for standard applications. The MM1000A monitors a DC input and trips a dpdt, 5 A relay when the input exceeds the desired level. The alarm has a green LED to indicate relay status.

Setpoint adjustment is provided by a 25-turn trimpot, adjustable from below 0% to above 100% of span.

Deadband, also a 25-turn trimpot, is adjustable from below 1% to above 100% of span. A user-changeable jumper may be changed to provide high or low trip.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

For options or input ranges not provided by MM1000A, refer to MM1000 or FR1000.

TYPICAL APPLICATIONS

DC Motor/current limit, level/position control, HI/LO pressure alarm, power demand warning.

SPECIFICATIONS

INPUT RANGE

Select any input range within the following limits:

Voltage

Min span 1 V
Max input 250 V
Offset 0 V min,
100% of span max
(example, +10/+20 V)

Current

Min span 1 mA
Max input 100 mA
Offset 0 mA min,
100% of span max
(example, +50/+100 mA)

INPUT IMPEDANCE

Voltage

200 kilohms

Current

Current Input	Input Shunt Value
1 mA	100 Ohm
10 mA	10 Ohm
20 mA	5 Ohm
4/20 mA	61.9 Ohm
0/100 mA	2 Ohm
0/200 mA	1 Ohm
0/500 mA	0.1 Ohm
1 A	0.1 Ohm
2 A	0.05 Ohm
5 A	0.01 Ohm

SETPOINT

0 to 100% of span, min

DEADBAND

1% to 100% of span, min

RELAY CONTACTS (dpdt)

Resistive Load

5 A max, 150 W max,
220 VAC max, 30 VDC max

Inductive Load

(Power factor 0.4)
2.5 A max, 75 W max,
220 VAC max, 30 VDC max

RESPONSE TIME

20 ms typical

ACCURACY

±0.1% of span

COMMON MODE REJECTION

120 dB, DC to 60 Hz

OPERATING TEMPERATURE

14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY

±0.02% of span/°C max

POWER

115 VAC 10%, 50 or 60 Hz
(2.5 W max)

230 VAC 10%, 50 or 60 Hz
(2.5 W max)

115/230 VAC (Selectable)

(DC Power Option)
24 VDC
(limits 21 VDC to 32 VDC)
(2.5 W max)
12 VDC
(limits 10 VDC to 15 VDC)

Isolation, DC power supply to input common: 10 kilohms

** Within specified range limits.*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

☐ Zero Scale

☐ Full Scale

ALARMS

Alarm Type

- ☐ High Normal / Low Reverse
- ☐ Low Normal / High Reverse

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

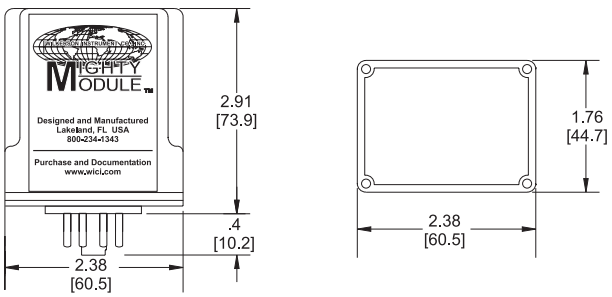
ACCESSORIES

MM1000A

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	Qty____
MP011	Plastic Socket, 11-Pin, Panel Mount or PVC Snap Track	Qty____
TRK48	PVC Snap-Track, 4 ft, for MP008, MP011, & DMP8500	Qty____
DMP011	DIN-Rail Mounting Socket, 11-Pin, 35 mm Symmetrical Rail	Qty____
CLP1	Holddown Assembly for MP008 and MP011	Qty____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	Qty____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
PIN 4	Input +
PIN 5	Input -
PIN 6	Relay Set 1 NO
PIN 7	Relay Set 1 C
PIN 8	Relay Set 1 NC
PIN 9	Relay Set 2 NO
PIN 10	Relay Set 2 C
PIN 11	Relay Set 2 NC

MM1005

4 to 20 mA SINGLE ALARM WITH 24 VDC POWER SUPPLY FOR TWO-WIRE TRANSMITTER

FEATURES

- **Provides a DPDT Relay Contact Closure at a Preset DC Current Input**
- **Standard Fail-Safe Operation**
- **Red and Green LED Alarm Status Indicators**
- **Adjustable Deadband**
- **24 VDC Power Supply for Two-Wire Transmitters**
- **4/20 mA Input Range**
- **10 Year Warranty**

DESCRIPTION

The MM1005 monitors a DC current input and trips a dpdt, 5 A relay when the input exceeds the desired level. Normal operation has the relay energized for the non-alarm condition and it de-energizes for an alarm condition. This provides a fail-safe alarm condition for loss of power to the module. The alarm has a set of red/green LEDs to indicate alarm status.

The module contains a 24 VDC transmitter power supply specifically designed for use with two-wire and other 24 VDC powered transmitters.

The deadband adjustment allows a deadband of 0.5% to 100% of span to be set into the module. The deadband is symmetrical about the setpoint.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

TYPICAL APPLICATIONS

HI/LO pressure alarm, level/position control, temperature alarm, etc.

SPECIFICATIONS

INPUT RANGE
4/20 mA

INPUT IMPEDANCE
61.9 ohms

TRANSMITTER POWER SUPPLY
24 VDC regulated,
30 mA max

SETPOINT
0 to 100% of span

DEADBAND
0.5% to 100% of span

RELAY CONTACTS (dpdt)
Resistive Load
5 A max, 150 W max,
220 VAC max, 30 VDC max
Inductive Load
(Power Factor ³0.4)
2.5 max, 75 W max,
220 VAC max, 30 VDC max

TRANSISTOR OUTPUT (Option V)
Relay driver
(12 V coil, ³ 220 ohms)
or open-collector outputs sink
100 mA, 30 V supply max

RESPONSE TIME
20 ms typical

ACCURACY
±0.1% of span or 10 µV
whichever is greater

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY
±(0.02% of span + 30 µV)/°C
max

POWER
115 VAC ±10%, 50 or 60 Hz
(2.5 W max)
230 VAC ±10%, 50 or 60 Hz
(2.5 W max)

ORDERING INFORMATION

POWER

☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power

ALARMS

Alarm Selection - Output

☐ Relay
☐ Transistor, O.C.

Alarm Type

☐ High ☐ Low

Alarm Logic

☐ Normal - De-energize On Alarm
☐ Reverse - Energize On Alarm

Enter Setpoint Input Level

_____ Setpoint 1

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

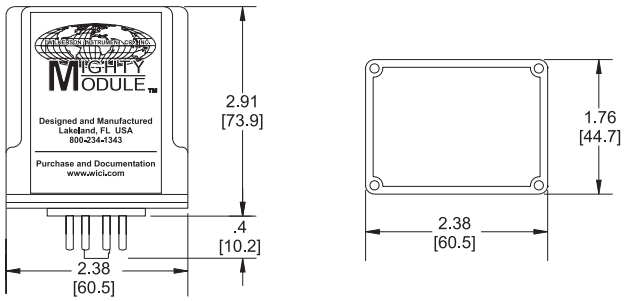
ACCESSORIES

MM1005

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	Qty____
MP011	Plastic Socket, 11-Pin, Panel Mount or PVC Snap Track	Qty____
TRK48	PVC Snap-Track, 4 ft, for MP008, MP011, & DMP8500	Qty____
DMP011	DIN-Rail Mounting Socket, 11-Pin, 35 mm Symmetrical Rail	Qty____
CLP1	Holddown Assembly for MP008 and MP011	Qty____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	Qty____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1
PIN 2	24 VDC +
PIN 3	Power AC L2
PIN 4	Input +
PIN 5	Input - & 24 VDC -
PIN 6	Relay Set 1 NO
PIN 7	Relay Set 1 C
PIN 8	Relay Set 1 NC
PIN 9	Relay Set 2 NO
PIN 10	Relay Set 2 C
PIN 11	Relay Set 2 NC

MM1020

DC INPUT DUAL SINGLE ALARM TWO SPDT RELAYS, FIXED RANGE

FEATURES

- **Provides Relay Contact Closures at Preset DC Input**
- **Fail-Safe, Latching and Adjustable Deadband Available**
- **Red and Green LED Alarm Status Indicators**
- **50 mV or 1 mA Minimum Input Span**
- **Unlimited* Choice of Input Ranges**
- **Wide Range Input Available**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM1020 monitors a DC input signal and provides two sets of spdt, 5 A alarm relays with two independently adjustable setpoints. Each setpoint has a set of red/green LEDs to indicate alarm status. When the input is between the setpoints, the relays are normally de-energized. When the signal exceeds a particular setpoint, the relay becomes energized. To provide a "fail-safe" operation (loss of power resulting in an alarm state), select Option R. The module can be supplied as a HI/HI, HI/LO, or LO/LO alarm (HI/LO supplied if not specified).

Standard deadband on both alarms is fixed at 0.5% of span. (Option A provides adjustable deadband of 0.5% to 100% span.) Option D, latching alarms, has no deadband control. Once the limit has been reached the alarm latches and power to the module must be momentarily interrupted to reset the alarm.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

TYPICAL APPLICATIONS

DC motor/current limit, level/position control, HI/LO pressure alarm, power demand warning, etc.

SPECIFICATIONS

INPUT RANGE

Voltage
select any range between ±250 V max (min span 50 mV)
Current
select any range between ±5 A max (min span 1 mA, internal shunt)

INPUT IMPEDANCE

Voltage
200 kilohms
Current

Current Input	Input Shunt Value
1 mA	100 Ohm
10 mA	10 Ohm
20 mA	5 Ohm
4/20 mA	61.9 Ohm
100 mA	1 Ohm
1 A	0.1 Ohm
5 A	0.1 Ohm

SETPOINT

Each alarm 0 to 100% of span

DEADBAND

Standard
fixed 0.5% of span
(Option A)
0.5% to 100% of span
(Option D)
Latching. Interrupt power to reset.

RELAY CONTACTS (spdt)

Resistive Load
5 A max, 150 W max, 240 VAC max, 30 VDC max
Inductive Load
1/8 HP max at 120/240 VAC

TRANSISTOR OUTPUT (Option V)

Relay driver (12 V coil, 3220 ohms)or open-collector outputs sink 100 mA, 30 V supply max

RESPONSE TIME

(Range Dependent)
20 ms typical
WR £200 ms

ACCURACY

±0.1% of span

LINEARITY (Option T)

±0.01% of span

COMMON MODE REJECTION

120 dB, DC to 60 Hz

OPERATING TEMPERATURE

14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY

±(0.02% of span +30 µV)/°C max

POWER

115 VAC ±10%, 50 or 60 Hz (2.5 W max)
230 VAC ±10%, 50 or 60 Hz (2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC) (2.5 W max)
12 VDC (limits 10-16 VDC) (2.5 W max)
Isolation, DC power supply to input common: 10 kilohms

** Within specified range limits.*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

_____ Zero Scale

_____ Full Scale

ALARMS

Alarm Selection - Output

- ☐ Relay
- ☐ Transistor, O.C.

Alarm Type

- ☐ High/Low
- ☐ High/High
- ☐ Low/Low

Alarm Logic

- ☐ Normal - Energize On Alarm
- ☐ Reverse - De-energize On Alarm

Enter Setpoint Input Level

_____ Setpoint 1

_____ Setpoint 2

Adjustable Deadband (Option A)

☐ Yes ☐ No

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

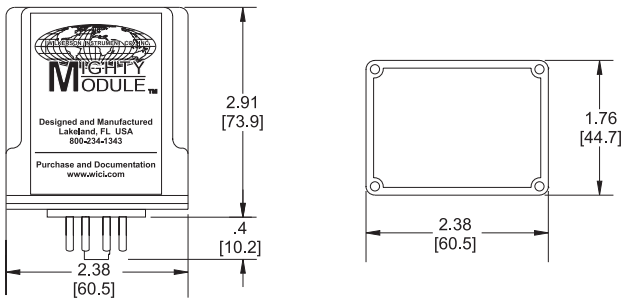
ACCESSORIES

MM1020

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	Qty____
MP011	Plastic Socket, 11-pin, Panel Mount or PVC Snap Track	Qty____
TRK48	PVC Snap-Track, 4 ft, for MP008, MP011, & DMP8500	Qty____
DMP011	DIN-Rail Mounting Socket, 11-Pin, 35 mm Symmetrical Rail	Qty____
CLP1	Holddown Assembly for MP008 and MP011	Qty____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	Qty____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
PIN 4	Input +
PIN 5	Input -
PIN 6	Relay Set 1 NO
PIN 7	Relay Set 1 C
PIN 8	Relay Set 1 NC
PIN 9	Relay Set 2 NO
PIN 10	Relay Set 2 C
PIN 11	Relay Set 2 NC

MM4010

DC INPUT
NON-ISOLATED TRANSMITTER

FEATURES

- **Provides DC Output Proportional to DC Input**
- **NOT Isolated (for Isolated I/O use MM4380A, MM4300 or MM4300A)**
- **50 mV or 1 mA Minimum Input Span**
- **Unlimited* Choice of Input / Output Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM4010 provides a DC Output voltage proportional to a DC input signal. It is useful in converting a voltage to a current, a current to a voltage, or for scaling signal levels from one amplitude to another.

All Wilkerson products are designed with RFI filters and lighting protection to reduce susceptibility to electrical noise and damage by lightning.

TYPICAL APPLICATIONS
Voltage/current scaling or level conversion, buffering, noise reduction.

SPECIFICATIONS

INPUT RANGE
Voltage
select any range between ±10 V max**
Current
select any range between ±5 A max (min span 1 mA)

INPUT IMPEDANCE
Voltage
200 kilohms
Current

Current Input	Input Shunt Value
1 mA	100 Ohm
10 mA	10 Ohm
20 mA	5 Ohm
4/20 mA	61.9 Ohm
100 mA	1 Ohm
1 A	0.1 Ohm
5 A	0.01 Ohm

OUTPUT RANGE
Voltage
select any range from -10 V to +15 V, 10 mA max load (min span 0.2 V)
Current
select any range from 0 to 50 mA max, >24 V compliance (1200 ohms max at 20 mA)

ISOLATION
Breakdown, Power / Circuitry
>1500 VAC rms

RESPONSE TIME (Range Dependent)
£ 100 ms
WR £ 200 ms

ACCURACY
±0.1% of span

LINEARITY
± 0.01% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY
±(0.02% of span + 30 mV)/°C max

POWER
115 VAC ±10%, 50/60 Hz (2.5 W max)

230 VAC ±10%, 50/60 Hz (2.5 W max)

(DC Power Option)
24 VDC (limits 21-32 VDC) (2.5 W max)

12 VDC (limits 10-16 VDC) (2.5 W max)

Isolation, DC power supply to input common: 10 megohms.

* *Within specified range limits.*

** *For input values greater than ±10V use MM4380A wide-ranging isolated transmitter.*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

	Zero Scale
	Full Scale

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

	Zero Scale
	Full Scale

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

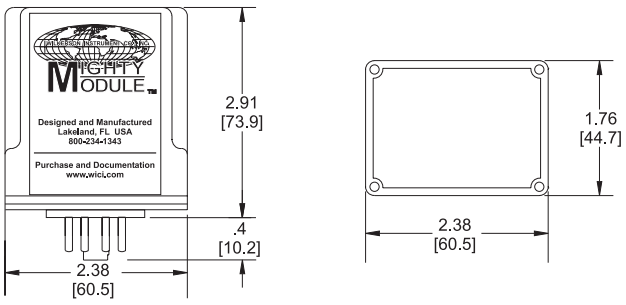
ACCESSORIES

MM4010

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	Qty____
MP008	Plastic Socket, 8-Pin, Panel Mount or PVC Snap Track	Qty____
TRK48	PVC Snap-Track, 4 ft, for MP008, MP011, & DMP8500	Qty____
DMP008	DIN-Rail Mounting Socket, 8-Pin, 35 mm Symmetrical Rail	Qty____
CLP1	Holddown Assembly for MP008 and MP011	Qty____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	Qty____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
PIN 4	No Connection
PIN 5	Signal Input +
PIN 6	Signal Input -
PIN 7	Signal Output +
PIN 8	Signal Output -

MM4050

DC INPUT, LOW INPUT SPAN, FIXED RANGE NON-ISOLATED DC TRANSMITTER

FEATURES

- **Provides DC Output Proportional to DC Input**
- **NOT Isolated (for Isolated I/O use MM4310 or MM4380A)**
- **10 mV Minimum Input Span**
- **Unlimited* Choice of Input / Output Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM4050 provides a DC output voltage or current proportional to a DC input signal. It is useful in converting a voltage to a current, a current to a voltage, or for scaling signal levels from one amplitude to another and for increasing drive capability.

The MM4050 contains a superior input amplifier for narrow span inputs down to 10 mV.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

TYPICAL APPLICATIONS

Use for voltage / current scaling or level conversion, buffering and noise reduction.

SPECIFICATIONS

INPUT RANGE

Voltage
select any range between ±10 V max** (min span 10 mV)

Current
select any range between ±5 A max (min span 1 mA internal shunt)

INPUT IMPEDANCE

Voltage
200 kilohms

Current

Current Input	Input Shunt Value
1 mA	100 Ohm
10 mA	10 Ohm
20 mA	5 Ohm
4/20 mA	61.9 Ohm
100 mA	1 Ohm
1 A	0.1 Ohm
5 A	0.01 Ohm

OUTPUT RANGE

Voltage
select any range between -10 V to +15 V, 10 mA max load (min span 0.2 V)

Current
select any range from 0 to 50 mA max, >24 V compliance (1200 ohms max at 20 mA)

ISOLATION

Breakdown, Power / Circuitry
>1500 VAC rms

RESPONSE TIME

(Range Dependent)
£100 ms

ACCURACY

±0.1% of span

LINEARITY

± 0.01% of span

COMMON MODE REJECTION

120 dB, DC to 60 Hz

OPERATING TEMPERATURE

14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY

±(0.02% of span +1.3 mV)/°C max

POWER

115 VAC ±10%, 50/60 Hz (2.5 W max)

230 VAC ±10%, 50/60 Hz (2.5 W max)

(DC Power Option)
24 VDC (limits 21-32 VDC) (2.5 W max)
12 VDC (limits 10-16 VDC) (2.5 W max)

Isolation, DC power supply to input common: 10 megohms

* *Within specified range limits.*

** *For input values greater than ±10 V use MM4380A wide-ranging isolated transmitter.*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

	Zero Scale
	Full Scale

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

	Zero Scale
	Full Scale

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

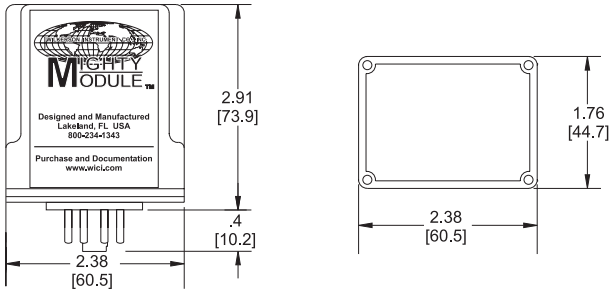
ACCESSORIES

MM4050

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	Qty____
MP008	Plastic Socket, 8-Pin, Panel Mount or PVC Snap Track	Qty____
TRK48	PVC Snap-Track, 4 ft, for MP008, MP011, & DMP8500	Qty____
DMP008	DIN-Rail Mounting Socket, 8-Pin, 35 mm Symmetrical Rail	Qty____
CLP1	Holddown Assembly for MP008 and MP011	Qty____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	Qty____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC+
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
PIN 4	No Connection
PIN 5	Signal Input +
PIN 6	Signal Input -
PIN 7	Signal Output +
PIN 8	Signal Output -

MM4300

DC INPUT, FIXED RANGE ISOLATED TRANSMITTER

FEATURES

- **Provides a Fully Isolated DC Output Proportional to DC Input**
- **50 mV or 1 mA Minimum Input Span**
- **Unlimited* Choice of Input/ Output Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM4300 provides a DC output, fully isolated from input, line power and ground, proportional to a DC input. It is useful in eliminating ground loops and common mode signals.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

It utilizes pulse width modulation to develop a pulse train with a duty cycle proportional to the input signal amplitude. This pulse train is coupled through a pulse transformer where the duty cycle data is converted to a proportional DC level in the output circuits.

TYPICAL APPLICATIONS

Eliminates ground loops and large common mode signals. Use for large common voltage / current scaling and conversion with isolation for buffering and noise reduction.

SPECIFICATIONS

INPUT RANGE

Voltage
select any range between ±250 V max (min span 50 mV)

Current
select any range between ±5 A max (min span 1 mA)

INPUT IMPEDANCE

Voltage
200 kilohms

Current

Current Input	Input Shunt Value
1 mA	100 Ohm
10 mA	10 Ohm
20 mA	5 Ohm
4/20 mA	61.9 Ohm
100 mA	1 Ohm
1 A	0.1 Ohm
5 A	0.01 Ohm

OUTPUT RANGE

Voltage
select any range from -10 V to +15 V, 10 mA max load (min span 0.2 V)

Current
select any range from 0 to 50 mA max, >24 V compliance (1200 ohms max at 20 mA)

OUTPUT RIPPLE (Peak-to-Peak)

<0.1% of span

ISOLATION

Breakdown, Output / Input
>500 megohms
>1000 VAC rms

Breakdown, Power / Circuitry
>1500 VAC rms

RESPONSE TIME

(Range Dependent)
£100 ms

ACCURACY

±0.1% of span

LINEARITY

±0.05% of span

COMMON MODE REJECTION

120 dB, DC to 60 Hz

OPERATING TEMPERATURE

14°F to 140°F
-10°C to 60°C

TEMPERATURE STABILITY

±(0.02% of span +30 µV)/°C max

POWER

115 VAC ±10%, 50/60 Hz (2.5 W max)

230 VAC ±10%, 50/60 Hz (2.5 W max)

(DC Power Option)

24 VDC (limits 21-32 VDC) (2.5 W max)

12 VDC** (limits 10-16 VDC) (2.5 W max)

Isolation, DC power supply to input common: 10 megohms

** Within specified range limits.*
*** Not UL Recognized*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

[ ] Zero Scale

[ ] Full Scale

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

[ ] Zero Scale

[ ] Full Scale

Select Output Logic

- ☐ Normal Acting
- ☐ Reverse Acting

OPTIONS

- ☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

[ ]

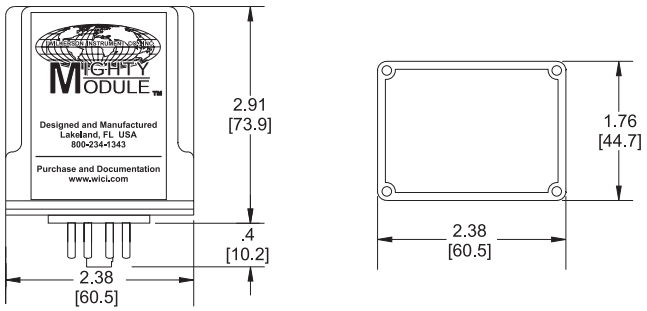
ACCESSORIES

MM4300

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	Qty____
MP008	Plastic Socket, 8-Pin, Panel Mount or PVC Snap Track	Qty____
TRK48	PVC Snap-Track, 4 ft, for MP008, MP011, & DMP8500	Qty____
DMP008	DIN-Rail Mounting Socket, 8-Pin, 35 mm Symmetrical Rai	Qty____
CLP1	Holddown Assembly for MP008 and MP011	Qty____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	Qty____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC or DC+
PIN 2	No Connection
PIN 3	Power AC or DC -
PIN 4	No Connection
PIN 5	Signal Input +
PIN 6	Signal Input -
PIN 7	Signal Output +
PIN 8	Signal Output -

MM4300A

DC INPUT, FIXED RANGE, ISOLATED TRANSMITTER

FEATURES

- **Provides a Fully Isolated DC Output Proportional to DC Input**
- **4/20 mA and 0/10 V Versions Available**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM4300A provides a DC output, fully isolated from input, line power and ground, proportional to a DC input. It is useful in eliminating ground loops and common mode signals.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

It utilizes pulse width modulation to develop a pulse train with a duty cycle proportional to the input signal amplitude. This pulse train is coupled through a pulse transformer where the duty cycle data is converted to a proportional DC level in the output circuits.

TYPICAL APPLICATIONS
Eliminates ground loops and large common mode signals. Use for voltage/current scaling and conversion with isolation for buffering and noise reduction.

SPECIFICATIONS

INPUT RANGE
Voltage
0/10 VDC
Current
4/20 mA

OUTPUT RANGE
Voltage
0/10 VDC
2 kilohms minimum load
Current
4/20 mA
>24 V compliance
(1200 ohms max at 20 mA)

OUTPUT RIPPLE (Peak-to-Peak)
<0.1% of span

ISOLATION
Breakdown, Output / Input
>500 megohms
>1000 VAC
Breakdown, Power / Circuitry
>1500 VAC rms

RESPONSE TIME
£100 ms

ACCURACY
±0.1% of span

LINEARITY
±0.05% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span +30 mV)/°C max

POWER
115 VAC ±10%, 50/60 Hz (2.5W max)
230 VAC ±10%, 50/60 Hz (2.5W max)
24 VAC ±10%, 50/60 Hz (2.5W max)
(DC Power Option)
24 VDC (limits 21-32 VDC) (2.5 W max)
12 VDC (limits 10-16 VDC) (2.5 W max)

ORDERING INFORMATION

POWER
- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT
Select Input
☐ 0/10 VDC ☐ 4/20 mADC

OUTPUT
Select Output
☐ 0/10 VDC ☐ 4/20 mADC

OPTIONS
- ☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)

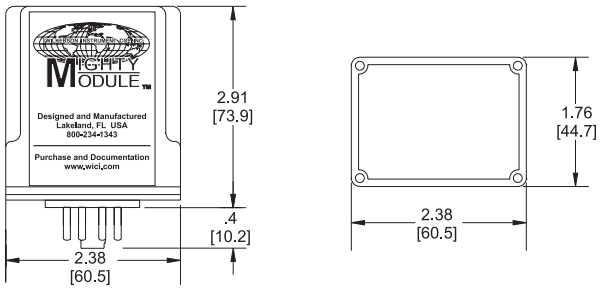
ACCESSORIES

MM4300A

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	Qty____
MP008	Plastic Socket, 8-Pin, Panel Mount or PVC Snap Track	Qty____
TRK48	PVC Snap-Track, 4 ft, for MP008, MP011, & DMP8500	Qty____
DMP008	DIN-Rail Mounting Socket, 8-Pin, 35 mm Symmetrical Rail	Qty____
CLP1	Holddown Assembly for MP008 and MP011	Qty____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	Qty____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L1 or DC -
PIN 4	No Connection
PIN 5	Signal Input +
PIN 6	Signal Input -
PIN 7	Signal Output +
PIN 8	Signal Output -

MM4310

DC INPUT, LOW INPUT SPAN FIXED RANGE, ISOLATED TRANSMITTER

FEATURES

- **Provides a Fully Isolated DC Output Proportional to DC Input**
- **10 mV Minimum Input Span**
- **Unlimited* Choice of Input/ Output Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM4310 provides a DC output, fully isolated from input, line power and ground, proportional to a DC input. It is useful in eliminating ground loops and common mode signals.

The MM4310 contains a superior input amplifier for narrow span inputs down to 10 mV.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. It utilizes pulse width modulation to develop a pulse train with a duty cycle proportional to the input signal amplitude. This pulse train is coupled through a pulse trans former where the duty cycle data is converted to a proportional DC level in the output circuits.

TYPICAL APPLICATIONS

Eliminates ground loops and large common mode signals. Use for voltage/ current scaling and conversion with isolation for buffering and noise reduction.

SPECIFICATIONS

INPUT RANGE

Voltage
select any range between ±20 V max (min span 10 mV)

Current
select any range between ±5 A max (min span 1 mA, internal shunt)

INPUT IMPEDANCE

Voltage: 200 kilohms
Current:

Input	Input Shunt Value
1 mA	100 Ohm
10 mA	10 Ohm
20 mA	5 Ohm
4/20 mA	61.9 Ohm
100 mA	1 Ohm
1 A	0.1 Ohm
5 A	0.01 Ohm

OUTPUT RANGE

Voltage
select any range from -10 V to +15 V, 10 mA max load (min span 0.2 V)

Current
select any range from 0 to 50 mA max, >24 V compliance (1200 ohms max at 20 mA)
18 V compliance if full-scale output > 20 mA

OUTPUT RIPPLE (Peak-to-Peak)

<0.1% of span

ISOLATION

Breakdown, Output / Input
>500 megohms
>1000 VAC rms

Breakdown, Power / Circuitry
>1500 VAC rms

RESPONSE TIME

(Range Dependent)
£100 ms

ACCURACY

±0.1% of span

LINEARITY

±0.05% of span

COMMON MODE REJECTION

120 dB, DC to 60 Hz

OPERATING TEMPERATURE

14°F to 140°F
-10°C to 60°C

TEMPERATURE STABILITY

±(0.02% of span +1.3 µV)/°C max

POWER

115 VAC ±10%, 50/60 Hz (2.5 W max)

230 VAC ±10%, 50/60 Hz (2.5 W max)

(DC Power Option)

24 VDC (limits 21-32 VDC) (2.5 W max)

12 VDC (limits 10-16 VDC) (2.5 W max)

Isolation, DC power supply to input common: 10 megohms

** Within specified range limits.*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

_____ Zero Scale

_____ Full Scale

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

_____ Zero Scale

_____ Full Scale

Select Output Logic

- ☐ Normal Acting
- ☐ Reverse Acting

OPTIONS

- ☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

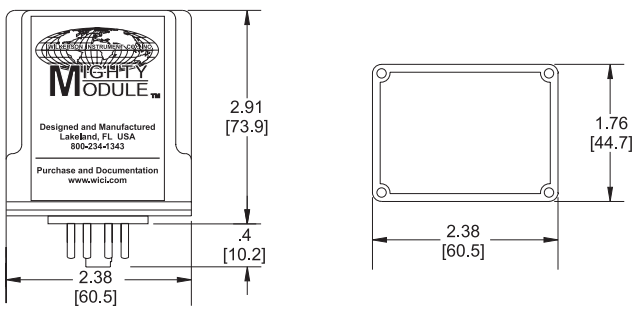
ACCESSORIES

MM4310

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	Qty____
MP008	Plastic Socket, 8-Pin, Panel Mount or PVC Snap Track	Qty____
TRK48	PVC Snap-Track, 4 ft, for MP008, MP011, & DMP8500	Qty____
DMP008	DIN-Rail Mounting Socket, 8-Pin, 35 mm Symmetrical Rail	Qty____
CLP1	Holddown Assembly for MP008 and MP011	Qty____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	Qty____

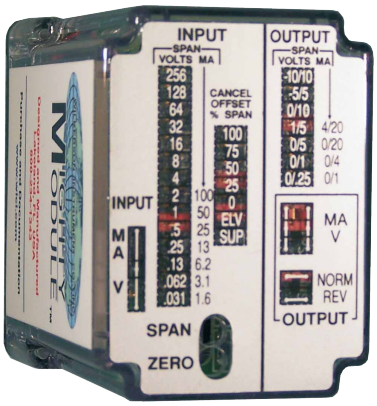
DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC or DC+
PIN 2	No Connection
PIN 3	Power AC or DC -
PIN 4	No Connection
PIN 5	Signal Input +
PIN 6	Signal Input -
PIN 7	Signal Output +
PIN 8	Signal Output -



MM4380A

DC INPUT, FIELD RANGEABLE ISOLATED TRANSMITTER

FEATURES

- **Allows Inputs to ±256 V or ±100 mA**
- **15 mV or 0.8 mA Minimum Input Span**
- **Size, Pinouts and Performance Identical to MM4300 & MM4300A**
- **User-Settable Input and Output Ranges**
- **Fully Labeled Jumper Positions for Easy Range Settings**
- **Provides a Fully Isolated DC Output Proportional to DC Input**
- **Choice of Power Options**
- **Permanent Warranty**

DESCRIPTION

The MM4380A provides a DC output proportional to a DC input. The output is fully isolated from input, line power and ground. The unit is useful in eliminating ground loops and common mode signals.

Input and output ranges are user-settable. Each may be voltage or current, with or without offset. The output response may be normal or reverse-acting. A fully-labeled set of jumpers selects the input and output ranges. The MM4380A is identical in size and fully interchangeable with fixed-range modules such as the MM4300 and MM4300A.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. It utilizes a feedback VCO to develop a pulse train with a duty cycle proportional to the input signal amplitude. This pulse train is coupled through a pulse transformer to the output circuitry, where the duty cycle data is converted to a proportional DC output level.

TYPICAL APPLICATIONS

Eliminates ground loops and common mode signals. Use for voltage/current scaling and conversion with isolation for buffering and noise reduction. Single-unit replacement module provides field rangeability for all normal input and output ranges.

SPECIFICATIONS

INPUT RANGE

Limits

any voltage between –256 and +256 VDC

any current between –100 and +100 mAdc

Span

any voltage span from 15 mV to 256 V

any current span from 0.8 mA to 100 mAdc

Offset

can cancel any input offset between -110% and +110% of span

INPUT IMPEDANCE

Voltage 1 megohm

Current 20 ohms

OUTPUT RANGE

Voltage	Current
0/.25 V	0/1 mA
0/1 V	0/4 mA
0/5 V	0/20 mA
1/5 V	4/20 mA
0/10 V	
-5/+5 V	
-10/+10 V	

OUTPUT LOAD

Voltage

10 mA max. (1 kilohm at 10 V)

Current

>24 V compliance

(1200 ohms max. at 20 mA)

OUTPUT RESPONSE

(User Settable)

normal or reverse acting

(example 10 to 0 VDC)

OUTPUT RIPPLE (Peak-to-Peak)

< 0.1% of span

ISOLATION

Output / Input

>500 megohms

Breakdown, Output / Input

>1000 VAC rms

Breakdown, Power Circuitry

>1500 VAC rms

RESPONSE TIME

<100 ms

ACCURACY

±0.1% of span

LINEARITY

±0.05% of span

COMMON MODE REJECTION

120 dB, DC to 60 Hz

OPERATING TEMPERATURE

14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY

±(0.02% of span + 2 µV)/°C max

POWER

115 VAC ±10%, 50/60 Hz (2.5w max)

230 VAC ±10%, 50/60 Hz (2.5W max)

24 VAC ** ±10%, 50/60 Hz (2.5W max)

(DC Power Option)

24 VDC ** (limits 21-32 VDC) (2.5W max)

12 VDC ** (limits 10-16 VDC) (2.5W max)

** *Not UL Recognized*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VAC, 50/60 Hz Power
- ☐ 24 VDC Power, Transformer Isolated
- ☐ 12 VDC Power, Transformer Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

_____ Zero Scale

_____ Full Scale

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

_____ Zero Scale

_____ Full Scale

Select Output Logic

- ☐ Normal Acting
- ☐ Reverse Acting

OPTIONS

- ☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

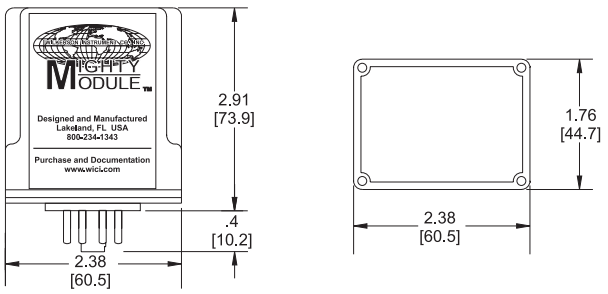
ACCESSORIES

MM4380A

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	Qty____
MP008	Plastic Socket, 8-Pin, Panel Mount or PVC Snap Track	Qty____
TRK48	PVC Snap-Track, 4 ft, for MP008, MP011, & DMP8500	Qty____
DMP008	DIN-Rail Mounting Socket, 8-Pin, 35 mm Symmetrical Rail	Qty____
CLP1	Holddown Assembly for MP008 and MP011	Qty____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	Qty____

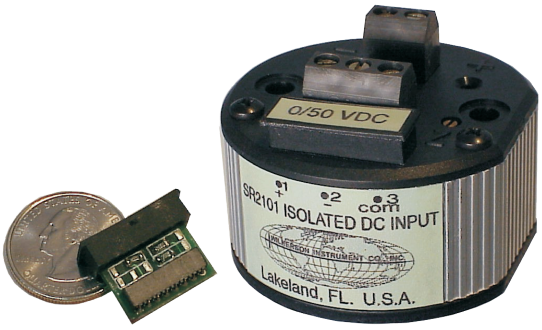
DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
PIN 4	No Connection
PIN 5	Input +
PIN 6	Input -
PIN 7	Output +
PIN 8	Output -



SR2101

DC INPUT, ISOLATED, TWO-WIRE TRANSMITTER, 50 mm DIAMETER CASE

FEATURES

- **Provides DC Output Proportional to a DC Voltage or Current Input**
- **Fully Isolated Input/Output**
- **Unlimited * Choice of Input Ranges via Interchangeable Range Cards**
- **Reverse Polarity Protected**
- **Test Points for Loop Current Monitoring without Breaking Loop Circuit**
- **50 mm Diameter Case - 33 mm Mounting Hole Spacing**
- **NEMA-4 Connection Head and Explosion-Proof Housing Available**
- **Low Cost**
- **5 Year Warranty**

DESCRIPTION

The SR2101 is a low-cost, reliable, DC input two-wire transmitter for field or panel mounting in various industrial housings and enclosures. It provides a DC output current (4/20 mA) proportional to an DC voltage or current input.

The output is galvanically isolated from the input.

Test points located on the SR2101 front panel allow monitoring of loop current value, using a current meter, without breaking the loop.

A plug-in range card permits user ranging to the required voltage or current input range. The output ZERO and SPAN controls are accessible through the top of the case.

The SR2101 is enclosed in an extruded aluminum housing with an aluminum back. A DIN rail mounting clip is available.

TYPICAL APPLICATION

Remote data acquisition. Distance limited by wire resistance. Voltage to current conversion. Isolation between input and output. Elimination of ground loops. Measurement of signals with high common mode voltages.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

SPECIFICATIONS

INPUT RANGE

Voltage
any range between ±128V max
(min. full scale span 16 mV)

Current
(internal shunt) any range between ±0.1 A max
(min. full scale span 10 µA)

INPUT OFFSET

can cancel any offset from -100% to +100% of span

INPUT IMPEDANCE

V In < 1 V: ³ 10 megohms
V In > 1 V: > 1 megohm

I In: range dependent

Current Input	Input Shunt Value
0/1 mA	100.0 Ohm
0/5 mA	49.9 Ohm
4/20 mA	61.9 Ohm
10/50 mA	20.0 Ohm
1/100 mA	20.0 Ohm

OUTPUT RANGE

4/20 mA
Current Limited = 28 mA

ISOLATION

Output / Input
1000 Volts RMS sinewave

MAX LOAD RESISTANCE

= [*(V supply - 10)*/20 mA] kilohms

RESPONSE TIME

(Range Dependent)
- Step Change
150 ms for 99% of final value

ACCURACY

±0.1% of span

LINEARITY

Better than ±0.05% of span

COMMON MODE REJECTION

120 dB, DC to 60 Hz

OPERATING TEMPERATURE

-13°F to 176°F/-25°C to 80°C

TEMPERATURE STABILITY

±0.015% of span per °C

POWER

10 to 36 VDC, Polarity-Protected

SUPPLY VOLTAGE EFFECT

0.02% of span max, 10 to 36 V

** Within specified range limits.*

ORDERING INFORMATION

INPUT
Select Units
☐ VDC ☐ mADC
Enter Input
[ ] Zero Scale

[ ] Full Scale

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)
[ ]

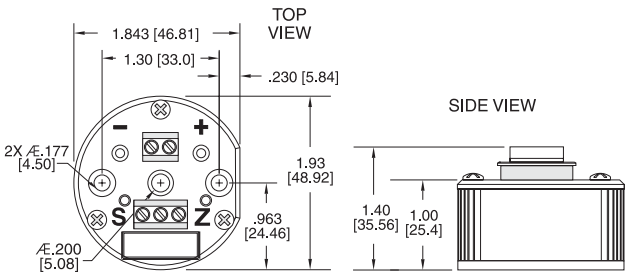
ACCESSORIES

SR2101

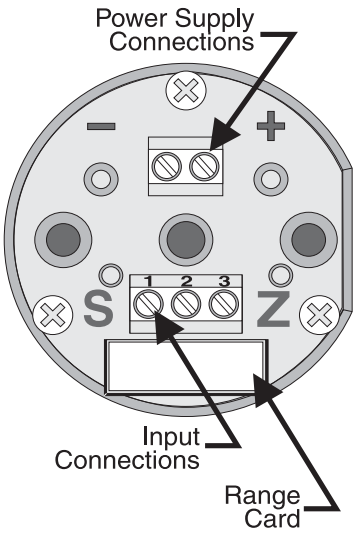
DMP2000	Mounting Plate, DIN-Rail (SR2000 & TW300)	Qty____
TSH-A6L	NEMA-4 Aluminum Connection Head (SR2000 & TW300)	Qty____
SR-CARD	Silver Series Transmitter Range Card (SR2000)	Qty____
DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	Qty____
XJAY	Explosion-Proof Housing for SR2000 and TW300 Series	Qty____

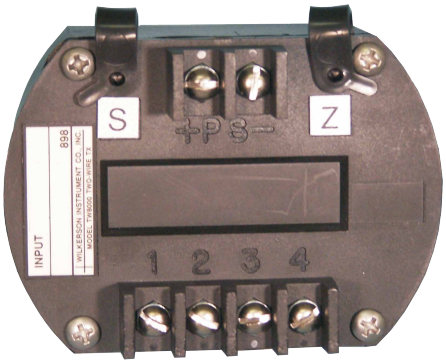
DIMENSIONS

Inches [mm]



CONNECTIONS





TW810X

DC INPUT TWO-WIRE TRANSMITTER

FEATURES

- **Provides DC Current Output Proportional to DC Input**
- **Fully Isolated Input / Output Available (TW8101)**
- **2 mV or 10 microamps Minimum Input Span**
- **Unlimited* Choice of Input Ranges**
- **Low-Drift Chopper-Stabilized Input**
- **NEMA-4X Splashproof and Corrosion Resistant**
- **5 Year Warranty**

DESCRIPTION

The TW810X provides a DC output current proportional to a DC input signal.

Optional isolation is also available in the transmitter. The transmitter is protected by a gasketed, NEMA-4X glass-filled polyester housing and operates from -40°C to +85°C. Optional conformal coating of the electronic components makes the TW810X extremely reliable and resistant to the corrosion, moisture and fungus associated with many industrial environments.

The chopper-stabilized input amplifier provides accurate, low-drift operation. All Wilkerson Products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

The output ZERO and SPAN controls are accessible through the top of the housing.

Terminations are made to screw terminal connectors on the top of the case.

TYPICAL APPLICATIONS

Remote data acquisition. Voltage to current conversion and isolation. Elimination of ground loops and common mode signals.

SPECIFICATIONS

INPUT RANGE

Voltage
select any range from
±250 V max
(min span 2 mV)

Current
±5 A max**
(min span 10 µA, internal shunt)

INPUT IMPENDANCE

Voltage
1 megohm

Current

Input Value	Input Shunt Value
1 mA	100 Ohm
10 mA	10 Ohm
20 mA	5 Ohm
4/20 mA	61.9 Ohm
100 mA	1 Ohm
1 A	0.1 Ohm
5 A	0.1 Ohm

OUTPUT RANGE

4/20 mA
10/50 mA (Optional)

OUTPUT RIPPLE

(Peak-to-Peak)
<0.1% of span

ISOLATION (Optional)

Breakdown Voltage
>600 VAC rms

Resistance
>500 megohms

MAX LOAD RESISTANCE

= [(Vsupply - 12)/I out mA] kilohms

RESPONSE TIME

10 ms typical

ACCURACY

±0.05% of span

LINEARITY

±0.01% of span

COMMON MODE REJECTION

120 dB, DC to 60

OPERATING TEMPERATURE

-40°F to 185°F / -40°C to 85°C

TEMPERATURE STABILITY

±0.01% of span / °C max

POWER REQUIRED

12 to 48 VDC, polarity protected

SUPPLY VOLTAGE EFFECT

0.01% of span max

---

* *Within Specified Range Limits.*

** *For input values greater than 1A rms select appropriate external shunt resistor and use with 0-500 mV input.*

ORDERING INFORMATION

MODEL

☐ TW8100 - Non-Isolated
☐ TW8101 - Input/Output Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

_____ Zero Scale

_____ Full Scale

OUTPUT

☐ 4/20 mADC
☐ 10/50 mADC

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

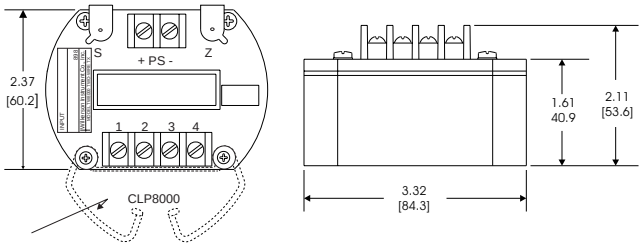
ACCESSORIES

TW810X

DMP8500	Mounting Plate, DIN-Rail & Surface (SC5000 & TW8000)	QTY _____
HKB-HFC	Killark Explosion-Proof Housing, no Window (TW8000)	QTY _____
HKB-HKGL	Killark Explosion-Proof Housing with Window (TW8000)	QTY _____
DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN PS +	Power Supply +
PIN PS -	Power Supply -
PIN 1	Input
PIN 2	Input
PIN 3	No Connection
PIN 4	Shield

DIS474

THERMOCOUPLE INPUT PROCESS INDICATOR

FEATURES

- **Provides 3½ Digit Display Calibrated in Temperature**
- **°C/°F Switch**
- **Linearized for All Standard Thermocouple Types**
- **Cold Junction Compensated**
- **0.1 Degree Resolution Available (T/C Types J, K, T, E & N)**
- **Plug-In Card Changes T/C Type & Range**
- **Fits Standard 1/8 DIN Cutout**
- **Rated NEMA-4, Splashproof when Properly Installed**
- **5 Year Warranty**

DESCRIPTION

The DIS474 displays temperature as measured by a thermocouple input. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. The digital display utilizes an auto-zero dual-slope integrating A/D converter for accuracy and stability.

A unique analog thermocouple circuit with digital linearity compensation provides the optimum combination of resolution and thermocouple linearization. Linearization is better than ±1°C from –200°C (–328°F) to the thermocouple's upper limit on all ranges. 0.1°C/0.1°F resolution is available for thermocouple types J, K, T, E and N (–199.9 to +199.9°C/°F). A temperature-sensing I.C. potted inside the input connector provides optimum cold-junction compensation.

All DIS instruments are gasketed and, when properly installed, are NEMA-4 splashproof. ZERO and SPAN controls are accessible by removing a gasketed front access panel.

A plug-in range card, accessible without opening the case, permits user recalibration for all thermocouple types and ranges. °C or °F is selected using switches accessible from the rear. A rear-panel jumper selects upscale or downscale burnout indication.

A complete set of engineering unit labels is sent with each DIS. Terminations are made to a screw terminal connector on the rear of the case.

TYPICAL APPLICATIONS

Temperature indication and monitoring.

SPECIFICATIONS

INPUT RANGE

Wide
any standard thermocouple type, full temperature range above –200°C (–328°F) to +1999°C/°F

Narrow
-199.9 to +199.9°C/°F types J, K, T, E and N

ACCURACY

Wide
±(0.1% of reading plus 1°C or 2°F)
(Includes T/C linearization)

Narrow
±0.5°C or 0.9°F

BURNOUT INDICATION

jumper selectable upscale/downscale

COMMON MODE REJECTION

120 dB, DC to 60 Hz

ISOLATION

Input-to-Line Breakdown Voltage
1500 VAC rms

DISPLAY

Digit Size
.56" LED, 3½ digits, ±1999°C/°F switch selectable

Update Rate
3/sec

OPERATING TEMPERATURE

14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY

±0.02% of span/°C MAX

POWER

115 VAC ± 10%, 50 or 60 Hz (4 W max)
230 VAC ± 10%, 50 or 60 Hz (4 W max)

ORDERING INFORMATION

POWER
☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power

INPUT
Select Units
☐Deg C ☐Deg F
Enter Input
☐ Zero Scale
☐ Full Scale
Select Sensor
☐ J TC
☐ K TC
☐ R TC
☐ S TC
☐ T TC
☐ E TC
☐ N TC
☐ B TC
☐ Other - Specify Notes

DISPLAY
Enter Display
☐ Zero Scale
☐ Full Scale
Select Display Logic
☐ Normal Acting
☐ Reverse Acting

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)

ACCESSORIES

DIS474

DIS-CARD 474 Range Card for DIS474 Thermocouple Process Indicator QTY _____

INPUT
Select Units
☐Deg C ☐Deg F
Enter Input
☐ Zero Scale
☐ Full Scale

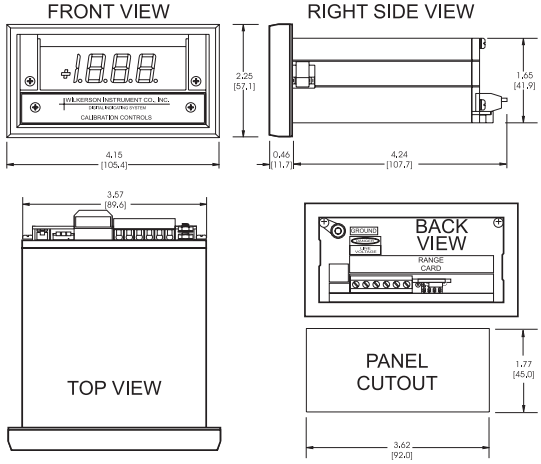
Select Sensor
☐ J TC ☐ E TC
☐ K TC ☐ N TC
☐ R TC ☐ B TC
☐ S TC ☐ Other - Specify Notes
☐ T TC

MOUNTING
The DIS is designed to be mounted from the front of the panel through a standard horizontal 3.62 x 1.77 inches (1/8 DIN) cutout. Two mounting cam-screws allow the securing of the DIS to the panel from the front.

DIMENSIONS

Inches [mm]

DIS SERIES I PROCESS INDICATORS



CONNECTIONS

TERM 1	Power AC L1
TERM 2	Power AC L2
TERM 3	Shield (Common)
TERM 4	T/C -
TERM 5	T/C -

DIS874 AND DIS974

THERMOCOUPLE INPUT PROCESS INDICATOR
3½ AND 4½ DIGIT DISPLAYS

FEATURES

- Provides 3½ Digit or 4½ Digit Display
- Display Calibrated in Engineering Units (°C, °F, °K, etc.)
- Proportional to any Thermocouple
- Input Cold Junction Compensated
- Fully Isolated Output and/or 0, 1, or 2 Alarms (Optional)
- Alarm Setpoints Adjustable without Disturbing Transmitter Output
- Fail-Safe Alarm Operation
- LED Alarm Status Indicator
- Adjustable Deadband
- 5 mV Minimum Input Span
- Unlimited* Choice of Input / Output Ranges
- Upscale Burnout Protection (Downscale Available)
- Analog and Digital Linearization Options Available
- Fits Standard ⅛ DIN Cutout
- Rated NEMA-4, Splashproof when Properly Installed
- 5 Year Warranty

DESCRIPTION

The DIS874 and DIS974 provide a display, optional isolated DC output voltage or current proportional to any thermocouple input signal, and optional alarm setpoints. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. The digital display utilizes an auto-zero dual-slope integrating A/D converter for accuracy and stability.

All controls are accessible by removing the gasketed front access panel. The display controls are wide ranging so that they can be calibrated to display engineering units. Decimal point selection is made with a switch, also accessible from the front. A complete set of engineering unit labels is sent with each DIS. Once the display has been adjusted to read the correct engineering units, the alarm setpoints can be adjusted without test equipment and without disturbing the output voltage or current.

Either setpoint may be displayed by use of the SP CAL switch. Each setpoint has an LED to indicate alarm status. The alarms have adjustable deadbands. Terminations are made to a screw terminal connector on the rear of the case.

Upscale burnout protection is provided as standard. In the event the thermocouple opens, the unit behaves as though the input goes offscale high. Option B provides downscale burnout protection (unit behaves as though the input goes low).

Standard DIS874 and DIS974 provide thermocouple linearization using analog circuitry, which has certain limitations. Its specifications are summarized in Table 1. Option LL, digital linearization, provides superior performance as listed under the specifications.

TYPICAL APPLICATIONS

Temperature indication, monitoring, control, data acquisition, HI/LO control, etc.

SPECIFICATIONS

INPUT RANGE
select any type thermocouple (minimum span 5 mV)
OPTIONS SA, DA SETPOINT
each alarm 0 to 100% of span
DEADBAND
0.25% to 100% of span
RELAY CONTACTS (spdt)
Resistive Load
5 A max, 150 W max,
240 VAC max, 30 VDC max
Inductive Load
⅛ HP max at 120/240 VAC
OPTION TX OUTPUT RANGE
Voltage
select any range between ±10 V, 10 mA max load (min span 0.2 V)
Current
select any range from 0 to 20 mA max, >24 V compliance (1200 ohms max at 20 mA)
OUTPUT RIPPLE (Peak-to-Peak)
<0.1% of span
ISOLATION
Output / Input
>500 megohms
Breakdown Voltage
>600 VAC rms
RESPONSE TIME (Range Dependent)
£100 ms
OPEN SENSOR INDICATION
³ full scale
ACCURACY
±0.1% of span at endpoints

LINEARITY
Standard
LINEARITY (Option LL)
±2°C (3.6°F) or better ±0.5°C (0.9°F) for types J, K, T, E or N if range is between –200 and +200°C (–328 and +392°F)
COMMON MODE REJECTION
120 dB, DC to 60 Hz
DISPLAY (874)
Digit Size
.56" LED, 3½ digits, ±1999
Decimal Point ±1.9.9.9
Control Range
Zero ±1999
Span
min span 10/max span 2000

DISPLAY (974)
Digit Size
.56" LED, 4½ digits, ±19999
Decimal Point ±1.9.9.9.9
Control Range
Zero ±19999
Span
min span 100/max span 20000
DISPLAY
Update 3/sec
OPERATING TEMPERATURE
14°F to 140°F/-10°C to 60°C
TEMPERATURE STABILITY
±(0.02% of span + 1.3 µV)/°C max
POWER
115 VAC ±10%, 50 or 60 Hz (4 W max)
230 VAC ±10%, 50 or 60 Hz (4 W max)

* *Within specified range limits.*

DIS874/974 STANDARD LINEARIZATION ACCURACY, BASE-METAL THERMOCOUPLES

T/C TYPE	ZERO BASED RANGES		LOW TEMP RANGES (HIGH END = 0°C)
	LIMIT FOR ±1% OF SPAN	LIMIT FOR ±2% OF SPAN	LIMIT FOR ±5% OF SPAN
E	0/500°C 32/392°F	0/1000°C 32/1832°F	-100/0°C -148/32°F
J	0/1000°C 32/1832°F	0/1200°C 32/2192°F	-100/0°C -148/32°F
K	0/800°C 32/1472°F Cannot linearize Type K Above 800°C (1472°F)		-100/0°C -148/32°F
N	0/500°C 32/932°F	0/1200°C 32/2192°F	-100/0°C -148/32°F
T	0/400°C 0/752°F	0/400°C 0/752°F	-100/0°C -148/32°F

DIS874 AND DIS974 LINEARIZATION ACCURACY, PLATINUM THERMOCOUPLES

T/C TYPE	ZERO BASED RANGES	ELEVATED-ZERO RANGES
B	- N.A.-	±3% of span for 500/1820°C (932/3308°F) ±1.5% of span for 800/1820°C (1472/3308°F)
R & S	±2.5% of span or better, any zero-based range	±1.5% of span or better, any range starting above 200°C (392°F)

ORDERING INFORMATION

POWER
☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power

INPUT
Select Units
☐ Deg C ☐ Deg F
Enter Input
☐ Zero Scale
☐ Full Scale
Select Sensor
☐ J TC
☐ K TC
☐ R TC
☐ S TC
☐ T TC
☐ E TC
☐ N TC
☐ B TC
☐ Other - Specify Notes
Open Sensor Response
☐ Upscale ☐ Downscale

OUTPUT (Option TX)
Analog Output
☐ Yes ☐ No
Select Units
☐ VDC ☐ mADC
Enter Output
☐ Zero Scale
☐ Full Scale
Select Output Logic
☐ Normal Acting
☐ Reverse Acting

ALARMS (Option SA, DA)
Alarm Output
☐ Yes ☐ No
Alarm Selection Quantity
☐ Single (SA) ☐ Dual (DA)
Alarm Action
Alarm 1
☐ High ☐ Low
Alarm 2
☐ High ☐ Low
Alarm Logic
☐ Normal - De-energize On Alarm
☐ Reverse - Energize On Alarm

Enter Setpoint Input Level
☐ Setpoint 1
☐ Setpoint 2

DISPLAY
Enter Display
☐ Zero Scale
☐ Full Scale
Select Display Logic
☐ Normal Acting
☐ Reverse Acting

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)

ACCESSORIES

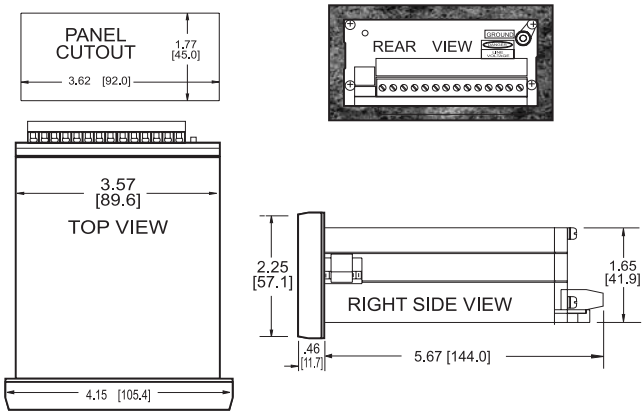
DIS874 AND DIS974
No accessories available at this time.

MOUNTING
The DIS is designed to be mounted from the front of the panel through a standard horizontal 3.62 x 1.77 inches ($^1/_8$ DIN) cutout. Two mounting cam-screws allow the securing of the DIS to the panel from the front.

DIMENSIONS

Inches [mm]

DIS SERIES II
PROCESS INDICATORS



CONNECTIONS

TERM 1	Output -
TERM 2	Output +
TERM 4	T/C Input +
TERM 5	T/C Input -
TERM 6	Shield (Common)
TERM 7	Alarm 1 NC
TERM 8	Alarm 1 C
TERM 9	Alarm 1 NO
TERM 10	Alarm 2 NC
TERM 11	Alarm 2 C
TERM 12	Alarm 2 NO
TERM 13	Power AC L1
TERM 14	Power AC L2

DM4130

THERMOCOUPLE INPUT FIELD RANGEABLE ISOLATED TRANSMITTER

FEATURES

- Spans from 6.25% to 100% of T/C Range
- Linearized for J, K, R, S, T, E, and N Thermocouples
- Provides a Fully Isolated DC Output Proportional to T/C Input
- Plug-In Output Terminal Block
- Standard DIN-Rail Mount with Easy Snap-On Snap-Off
- Connections and Ranging Readily Accessible from the Front
- User-Settable Input and Output Ranges
- Fully Labeled Jumper Positions for Easy Range Settings
- Choice of Power Options
- User Write-On Label
- Permanent Warranty

DESCRIPTION

The DM4130 provides an isolated voltage or current output proportional to temperature as measured with a thermocouple. Any thermocouple may be used, and types J, K, R, S, T, E, and N can be linearized.

A microprocessor controls span and offset settings, performs cold junction compensation calculations, and performs a table look-up for linearization.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. It utilizes a feedback VCO to develop a pulse train with a duty cycle proportional to the input signal amplitude. This pulse train is coupled through a pulse transformer to the output circuitry, where the duty cycle data is converted to a proportional DC output level.

Connections are made via two 4-pin terminal blocks. The lower terminal blocks allow the product to be removed without unwiring the connections.

TYPICAL APPLICATIONS

Useful for temperature monitoring, control and data acquisition.

SPECIFICATIONS

INPUT

Span Adjustment
Minimum
(5 mV input minimum)
Maximum
100% of T/C range

Offset Adjustment
0% to 90% of T/C range

COLD JUNCTION COMPENSATION

± 0.25°C accuracy

IMPEDANCE

1 megohm

UPDATE PERIOD

4/sec

OUTPUT

Voltage	Current (mA)
0/.25	0/1
0/1	0/4
1/5	4/20
0/5	0/20
0/10	
-5/5	
-10/10	

OUTPUT LOGIC

Normal or Reverse Acting

DRIVE CAPABILITY

Voltage 5 mA
Current >24 V Compliance

OUTPUT RIPPLE (Peak-to-Peak)

<0.1% of full scale

ISOLATION

Resistance
>500 megohms

Voltage Rating
>1000 VAC rms sine wave

ACCURACY

±0.1% of span

LINEARIZATION

+ 0.25°C of NIST tables
full range of J, K, R, S, T, E, N

COMMON MODE REJECTION

>120 dB, DC to 60 Hz

OPERATING TEMPERATURE

14 to 140 °F (-10 to 60 °C)

TEMPERATURE STABILITY

±(0.01% of span)/°C

POWER

Standard
115 VAC ± 10%, 50/60 Hz
230 VAC ± 10%, 50/60 Hz

Optional
115/230 VAC Selectable
±10%, 50/60 Hz
24 VAC ± 10%, 50/60 Hz
24 VDC (21 to 32 VDC)
12 VDC (10 to 16 VDC)

Wattage
2.5 W max

ORDERING INFORMATION

POWER
- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT
Select Units
☐ Deg C ☐ Deg F
Enter Input
_____ Zero Scale
_____ Full Scale
Select Sensor
- ☐ J TC
- ☐ K TC
- ☐ R TC
- ☐ S TC
- ☐ T TC
- ☐ E TC
- ☐ N TC
- ☐ B TC
- ☐ Other - Specify Notes

Open Sensor Response
☐ Upscale ☐ Downscale

OUTPUT
Select Units
☐ VDC ☐ mADC
Enter Output
_____ Zero Scale
_____ Full Scale
Select Output Logic
- ☐ Normal Acting
- ☐ Reverse Acting

OPTIONS
- ☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)
_____

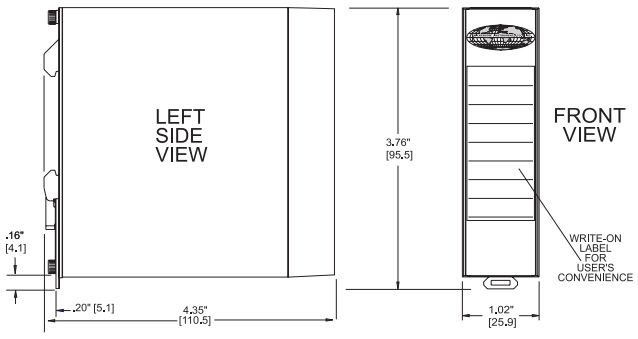
ACCESSORIES

DM4130

DR1	DIN-Rail, 35 mm Symmetcical, 39 inches (1 meter)	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

TERM 1	Shield
TERM 2	T/C Input +
TERM 3	No Connection
TERM 4	T/C Input -
TERM 5	Output +
TERM 6	Output -
TERM 7	Power AC L1 or DC +
TERM 8	Power AC L2 or DC -

MM1200

THERMOCOUPLE INPUT LIMIT ALARM

FEATURES

- **Provides a DPDT Relay Contact Closure at a Preset Thermocouple Input**
- **Cold Junction Compensated**
- **Standard Fail-Safe Operation**
- **Red and Green LED Alarm Status Indicators**
- **Adjustable Deadband**
- **Latching Alarm Available (MM1210)**
- **5 mV Minimum Input Span**
- **Unlimited* Choice of Input / Output Ranges**
- **Upscale Burnout Protection (Downscale Available)**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM1200 monitors any thermocouple input signal and trips a dpdt, 5 A relay when the input exceeds the desired level. Normal operation has the relay energized for the non-alarm condition and de-energized for an alarm condition. This provides a fail-safe alarm condition for loss of power to the module. The alarm has a set of red/green LEDs to indicate the alarm status.

A deadband adjustment allows a deadband of 0.5% to 100% of span to be set into the module. The deadband is symmetrical about the setpoint.

With the latching option, the alarm has no deadband control. Once the limit has been reached, the alarm latches and power must be momentarily interrupted to reset the alarm.

Cold junction compensation is provided by a solid state temperature sensor embedded in the thermocouple terminal strip. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

Upscale burnout protection is provided as standard. In the event the thermocouple opens, the module behaves as though the input goes offscale high. Option B provides downscale burnout protection (module behaves as though the input goes low).

TYPICAL APPLICATIONS

Heater/cooler control, HI/LO temperature alarm.

SPECIFICATIONS

INPUT RANGE
select any type thermocouple (min span 5 mV)

SETPOINT
0 to 100% of span

DEADBAND
0.5% to 100% of span

RELAY CONTACTS (dpdt)
Resistive Load
5 A max, 150 W max,
220 VAC max, 30 VDC max
Inductive Load
(power factor ³0.4)
2.5 A max, 75 W max,
220 VAC max, 30 VDC max

ACCURACY
±0.1% of span

TRANSISTOR OUTPUT (Option V)
relay driver (12 V coil, ³220 ohms) or open-collector outputs
sink 100 mA, 30 V supply max

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY
±(0.02% of span + 1.3 µV)/°C max

POWER
115 VAC ±10%, 50/60 Hz
(2.5 W max)
230 VAC ±10%, 50/60 Hz
(2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

** Within specified range limits.*

ORDERING INFORMATION

POWER
- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Units

☐ Deg C ☐ Deg F

Enter Input

☐ Zero Scale

☐ Full Scale

Select Sensor
- ☐ J TC
- ☐ K TC
- ☐ R TC
- ☐ S TC
- ☐ T TC
- ☐ E TC
- ☐ N TC
- ☐ B TC
- ☐ Other - Specify Notes

Open Sensor Response

☐ Upscale ☐ Downscale

ALARMS

Alarm Selection - Output
- ☐ Relay
- ☐ Transistor, O.C.

Alarm Type
- ☐ High
- ☐ Low

Alarm Logic
- ☐ Normal - De-Energize On Alarm
- ☐ Reverse - Energize On Alarm

Enter Setpoint Input Level

☐ Setpoint 1

OPTIONS
- ☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

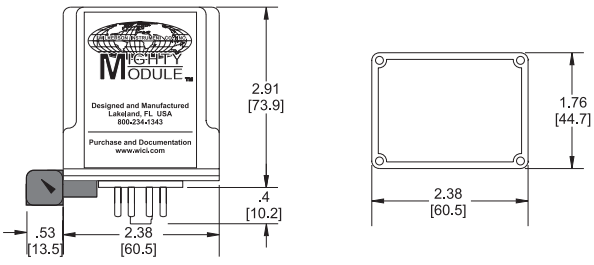
ACCESSORIES

MM1200

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP011	Plastic Socket, 11-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. for MP008, MP011 & DMP8500	QTY _____
DMP011	DIN-Rail Mounting Socket, 11-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
T/C Input +	T/C Terminal +
T/C Input -	T/C Terminal -
PIN 6	Relay Set 1 NO
PIN 7	Relay Set 1 C
PIN 8	Relay Set 1 NC
PIN 9	Relay Set 2 NO
PIN 10	Relay Set 2 C
PIN 11	Relay Set 2 NC

MM1220

THERMOCOUPLE INPUT DUAL LIMIT ALARM

FEATURES

- **Provides Relay Contact Closures at Preset Thermocouple Input**
- **Cold Junction Compensated**
- **Fail-Safe, Latching, and Adjustable Deadband Available**
- **Red and Green LED Alarm Status Indicators**
- **5 mV Minimum Input Span**
- **Unlimited* Choice of Input Ranges**
- **Upscale Burnout Protection (Downscale Available)**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM122X monitors any thermocouple input signal and provides two sets of spdt, 5 A alarm relays with two independently adjustable setpoints. Each setpoint has a set of red/green LEDs to indicate alarm status. When the input is between the setpoints, the relays are normally de-energized. When the signal exceeds a particular setpoint, the relay becomes energized. To provide a fail-safe operation (loss of power resulting in alarm state), select Option R. The module can be supplied as a HI/HI, HI/LO, or LO/LO alarm (HI/LO supplied if not specified).

Standard deadband on both alarms is fixed at 0.5% of span. (Option A provides adjustable deadband of 0.5% to 100% of span.) Option D, latching alarms, has no deadband control. Once the limit has been reached, the alarm latches and power to the module must be momentarily interrupted to reset the alarm.

Cold junction compensation is provided by a solid state temperature sensor embedded in the thermocouple terminal strip. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

Upscale burnout protection is provided as standard. In the event the thermocouple opens, the module behaves as though the input goes offscale high. Option B provides downscale burnout protection (module behaves as though the input goes low).

TYPICAL APPLICATIONS

Heater/cooler control, HI/LO temperature alarm.

SPECIFICATIONS

INPUT RANGE
select any type thermocouple (min span 5 mV)

SETPOINT
each alarm 0 to 100% of span

RELAY CONTACTS (spdt)
Resistive Load
5 A max, 150 W max, 240 VAC max, 30 VDC max
Inductive Load
1/8 HP max at 120/240 VAC

DEADBAND
Standard
fixed 0.5% of span
(Option A)
0.5% to 100% of span
(Option D)
Latching,
Interrupt power to reset

TRANSISTOR OUTPUT (Option V)
relay driver
(12 V coil, 3 220 ohms)
or open-collector outputs sink 100 mA, 30 V supply max

ACCURACY
±0.1% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F / –10°C to 60°C

TEMPERATURE STABILITY
±(0.02% of span + 1.3 µV)/°C max

POWER
115 VAC ±10%, 50/60 Hz (2.5 W max)
230 VAC ±10%, 50/60 Hz (2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

** Within specified range limits.*

ORDERING INFORMATION

POWER
- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Units

☐ Deg C ☐ Deg F

Enter Input

_____ Zero Scale

_____ Full Scale

Select Sensor
- ☐ J TC
- ☐ K TC
- ☐ R TC
- ☐ S TC
- ☐ T TC
- ☐ E TC
- ☐ N TC
- ☐ B TC
- ☐ Other - Specify Notes

Open Sensor Response

☐ Upscale ☐ Downscale

ALARMS

Alarm Selection - Output
- ☐ Relay
- ☐ Transistor, O.C.

Alarm Type
- ☐ High/Low
- ☐ High/High
- ☐ Low/High

Alarm Logic
- ☐ Normal - Energize On Alarm
- ☐ Reverse - De-Energize On Alarm

Enter Setpoint Input Level

_____ Setpoint 1

_____ Setpoint 2

Adjustable Deadband (Option A)

☐ Yes ☐ No

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

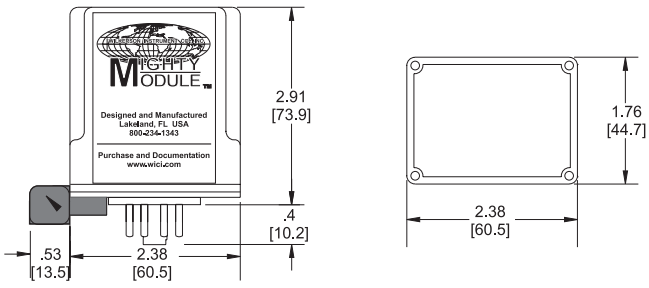
ACCESSORIES

MM1220

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP011	Plastic Socket, 11-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. for MP008, MP011 & DMP8500	QTY _____
DMP011	DIN-Rail Mounting Socket, 11-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
T/C Input +	T/C Terminal +
T/C Input -	T/C Terminal -
PIN 6	Relay Set 1 NO
PIN 7	Relay Set 1 C
PIN 8	Relay Set 1 NC
PIN 9	Relay Set 2 NO
PIN 10	Relay Set 2 C
PIN 11	Relay Set 2 NC

MM4100 AND MM4100L

THERMOCOUPLE TRANSMITTERS

FEATURES

- **Provides a DC Output Proportional to any Thermocouple Input**
- **Analog Linearization Option Available**
- **Cold Junction Compensated**
- **NOT Isolated (for Isolated I/O, use MM4130 or MM4130L)**
- **5 mV Minimum Input Span**
- **Unlimited* Choice of Input / Output Ranges**
- **Upscale Burnout Protection (Downscale Available)**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM4100 and MM4100L provide a DC output voltage or current, proportional to a thermocouple input signal. It is useful in measuring temperatures with any type of thermocouple. Cold junction compensation is provided by a solid state temperature sensor embedded in the thermocouple terminal strip. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

Upscale burnout protection is provided as standard. In the event the thermocouple opens, the transmitter output will go offscale high. Option B provides downscale burnout protection (transmitter output grows low). Model MM4100L provides an output linear with temperature.

TYPICAL APPLICATIONS

Temperature monitoring, control and data acquisition.

SPECIFICATIONS

INPUT RANGE
select any type thermocouple
(min span 5 mV)

OUTPUT RANGE
Voltage
select any range from -10 V to + 15 V, 10 mA max load
(min. span 0.2V)
Current
select any range from
0 to 50 mA max.,
>24 V compliance
(1200 ohms max at 20 mA)

ACCURACY
±0.1% of span at endpoints

LINEARITY
Output / Input
±0.01% of span
(nonlinearized)

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
4°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY
±(0.02% of span + 1.3 µV)/°C max

POWER
115 VAC ±10%, 50/60 Hz
(2.5 W max)
230 VAC ±10%, 50/60 Hz
(2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

* *Within specified range limits.*

MM4100L LINEARIZATION ACCURACY, BASE-METAL THERMOCOUPLES			
T/C TYPE	ZERO BASED RANGES		LOW TEMP RANGES (HIGH END = 0°C)
	LIMIT FOR ±1% OF SPAN	LIMIT FOR ±2% OF SPAN	LIMIT FOR ±5% OF SPAN
E	0/500°C 32/392°F	0/1000°C 32/1832°F	-100/0°C -148/32°F
J	0/1000°C 32/1832°F	01200°C 32/2192°F	-100/0°C -148/32°F
K	0/800°C 32/1472°F Cannot linearize Type K Above 800°C (1472°F)		-100/0°C -148/32°F
N	0/500°C 32/392°F	0/1200°C 32/2192°F	-100/0°C -148/32°F
T	0/400°C 0/752°F	0/400°C 0/752°F	-100/0°C -148/32°F
MM4100L LINEARIZATION ACCURACY, PLATINUM THERMOCOUPLES			
T/C TYPE	ZERO BASED RANGES		ELEVATED-ZERO RANGES
B	- N.A.-		±3% of span for 500/1820°C (932/3308°F) ±1.5% of span for 800/1820°C (1472/3308°F)
R & S	±2.5% of span or better, any zero-based range		±1.5% of span or better, any range starting above 200°C (392°F)

Table 1. MM4100L LINEARIZATION ACCURACY

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Units

☐ Deg C ☐ Deg F

Enter Output

☐ Zero Scale

☐ Full Scale

Select Sensor

- ☐ J TC
- ☐ K TC
- ☐ R TC
- ☐ S TC
- ☐ T TC
- ☐ E TC
- ☐ N TC
- ☐ B TC
- ☐ Other - Specify in Notes

Open Sensor Response

☐ Upscale ☐ Downscale

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Input

☐ Zero Scale

☐ Full Scale

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

☐

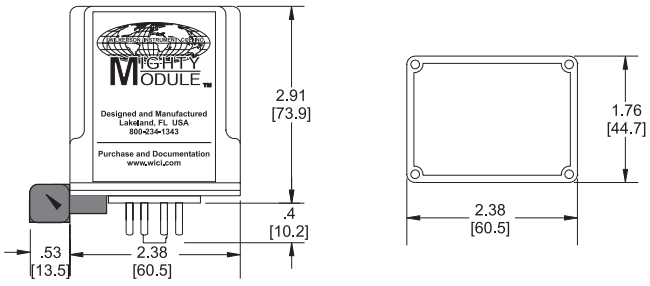
ACCESSORIES

MM4100 AND MM4100L

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP008	Plastic Socket, 8-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. for MP008, MP011 & DMP8500	QTY _____
DMP008	DIN-Rail Mounting Socket, 8-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power Input AC or +
PIN 2	No Connection
PIN 3	Power Input AC or -
T/C TERM +	Thermocouple +
T/C TERM -	Thermocouple -
PIN 6	No Connection
PIN 7	Output +
PIN 8	Output -

MM4130 AND MM4130L

ISOLATED THERMOCOUPLE TRANSMITTERS

FEATURES

- **Provides a Fully Isolated DC Output Proportional to any Thermocouple Input**
- **Analog and Digital Linearization Options Available**
- **Cold Junction Compensated**
- **5 mV Minimum Input Span**
- **Unlimited* Choice of Input / Output Ranges**
- **Upscale Burnout Protection (Downscale Available)**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM4130 provides a DC output voltage or current, fully isolated from input, line power and ground, proportional to a thermocouple input signal. It is useful in measuring temperatures with any type of thermocouple. Cold junction compensation is provided by a solid state temperature sensor embedded in the thermocouple terminal strip. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

The module utilizes a feedback VCO to develop a pulse train with a duty cycle proportional to the input signal amplitude. This pulse train is coupled through an isolator where the duty cycle is converted to a proportional DC level in the output circuits. This isolated output eliminates ground loops, large common mode signals and other types of interference.

Upscale burnout protection is provided as standard. In the event the thermocouple opens, the transmitter output will go offscale high. Option B provides downscale burnout protection (transmitter output grows low).

The MM4130L provides a linearized output. Standard linearization uses analog circuitry, which has certain limitations. Its specifications are summarized in Table 1. Option LL, digital linearization, provides superior preformance as listed under the specifications.

TYPICAL APPLICATIONS

Eliminates ground loops and common mode signals for temperature monitoring, control and data acquisition.

SPECIFICATIONS

INPUT RANGE
select any type thermocouple
(min span 5 mV)

OUTPUT RANGE
Voltage
select any range from -10 V to + 15 V, 10 mA max load
(min. span 0.2V)
Current
select any range from 0 to 50 mA max., >24 V compliance
(1200 ohms max at 20 mA)
18 V compliance if full scale output > 20 mA

OUTPUT RIPPLE (Peak-to-Peak)
< 0.1% of span

ISOLATION
Output / Input
> 500 megohms
Breakdown Voltage
> 1000 VAC rms
Breakdown, Power / Circuitry
> 1500 VAC rms

ACCURACY
±0.1% of span at endpoints

LINEARITY, MM4130L
Standard Output / Temp - See Table

LINEARITY (Option LL)
Output / Temp
±2°C (3.6°F) or better
±0.5°C (0.9°F) for types
J, K, T, E or N if range is between -200 and +200°C (-328 and +392°F)

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY
±(0.02% of span + 1.3 µV)/°C max

POWER
115 VAC ±10%, 50/60 Hz
(2.5 W max)
230 VAC ±10%, 50/60 Hz
(2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)
Isolation, DC power supply to input common: 10 megohms

** Within specified range limits.*

MM4130L STANDARD LINEARIZATION ACCURACY, BASE-METAL THERMOCOUPLES

T/C TYPE	ZERO BASED RANGES		LOW TEMP RANGES (HIGH END = 0°C)
	LIMIT FOR ±1% OF SPAN	LIMIT FOR ±2% OF SPAN	LIMIT FOR ±5% OF SPAN
E	0/500°C 32/392°F	0/1000°C 32/1832°F	-100/0°C -148/32°F
J	0/1000°C 32/1832°F	01200°C 32/2192°F	-100/0°C -148/32°F
K	0/800°C 32/1472°F Cannot linearize Type K Above 800°C (1472°F)		-100/0°C -148/32°F
N	0/500°C 32/932°F	0/1200°C 32/2192°F	-100/0°C -148/32°F
T	0/400°C 0/752°F	0/400°C 0/752°F	-100/0°C -148/32°F

MM4130L LINEARIZATION ACCURACY, PLATINUM THERMOCOUPLES

T/C TYPE	ZERO BASED RANGES	ELEVATED-ZERO RANGES
B	- N.A.-	±3% of span for 500/1820°C (932/3308°F) ±1.5% of span for 800/1820°C (1472/3308°F)
R & S	±2.5% of span or better, any zero-based range	±1.5% of span or better, any range starting above 200°C (392°F)

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Units

☐ Deg C ☐ Deg F

Enter Input

☐ Zero Scale

☐ Full Scale

Select Sensor

- ☐ J TC
- ☐ K TC
- ☐ R TC
- ☐ S TC
- ☐ T TC
- ☐ E TC
- ☐ N TC
- ☐ B TC
- ☐ Other - Specify in Notes

Open Sensor Response

☐ Upscale ☐ Downscale

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

☐ Zero Scale

☐ Full Scale

Enter Output Logic

- ☐ Normal Acting
- ☐ Reverse Acting

OPTIONS

- ☐ Conformal Coating
- ☐ Option LL (MM4130L only)

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

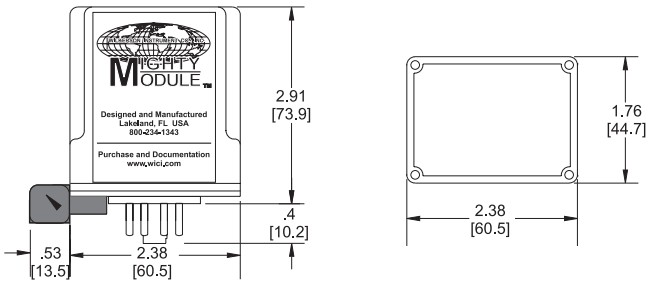
ACCESSORIES

MM4130 AND MM4130L

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP008	Plastic Socket, 8-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. for MP008, MP011 & DMP8500	QTY _____
DMP008	DIN-Rail Mounting Socket, 8-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	QTY _____

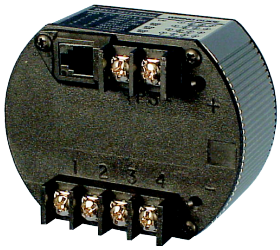
DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
T/C Term +	Input +
T/C Term -	Input -
PIN 6	No Connection
PIN 7	Output +
PIN 8	Output -



FM
APPROVED

SC5000 AND SC5010

THERMOCOUPLE AND RTD INPUT TWO-WIRE TRANSMITTERS

FEATURES

- Provides DC Output Proportional to a Thermocouple or Platinum RTD Input
- Linearized for J, K, R, S, T, E, and N Thermocouples or Platinum RTDs
- 2, 3, or 4 Wire RTD Inputs
- Full Galvanic Isolation
- Microprocessor Based
- Field Rangeable
- Displays Temperature in Linear Mode *(SC5010)*
- Displays Current Output in Nonlinear Mode *(SC5010)*
- Test Points for Loop Current Monitoring Without Breaking Loop Circuit
- On-board Configuration via Membrane Keyboard *(SC5010)*
- Upscale or Downscale Burnout Indication
- Intrinsically Safe Design
- Permanent Warranty

DESCRIPTION

The SC5000 series of products provide a DC output current 4/20 mADC proportional to a thermocouple or RTD, using microprocessor based, digital circuitry in a hockey puck case. The output can be linearized for both thermocouples and platinum RTDs, and the SC5010 LCD display indicates temperature in °C or °F when operated in the linearized mode, or output current when in the nonlinearized mode.

The input and output are isolated.

The user may select thermocouple types J, K, R, S, T, E, N or 100 ohm Pt RTDs as the input sensor. RTD connections for 2-wire, 3-wire and 4-wire sensors are provided. The transmitter compensates for the lead wire resistance in the 3-wire configuration and provides true measurement of the resistive element without lead wire error in the 4-wire configuration.

The SC5010 4½ digit display is an accurate temperature indicator that functions over the entire range of the selected sensor. Its display capability is independent of the selected temperature range for the 4 to 20 mADC output. Even if the output goes overrange, the display continues to accurately indicate the sensor temperature.

Linearization is accomplished through a 256 point "look up table" program.

The SC5010 can be configured by the user through four different methods.

These are:

1. On-board set-up via membrane keyboard and display in the linearized mode.
2. On-board set-up via membrane keyboard, display and temperature tables in the non-linearized mode.
3. Set-up via membrane keyboard using a calibrator.

SPECIFICATIONS

INPUT

Thermocouple
Types J, K, R, S, T, E, & N

Spans
5 mV minimum to maximum usable range

Linearization
Maximum linearized range

J	-210 °C to +760 °C
K	-250 °C to+1372 °C
R	-50 °C to+1768 °C
S	-50 °C to+1768 °C
T	-270 °C to +400 °C
E	-260 °C to+1000 °C
N	-250 °C to+1300 °C

Reference Junction Compensation
Accuracy
± 0.25 °C

Impedance
> 1 megohm

Span Adjustment
Continuous from 6.25% to 100% of T/C range (5 mV minimum span)

RTD
100 Ohm Platinum, .00385 and .00392 alpha, 2, 3, or 4 wire connection

Maximum usable range
-200 °C to +850 °C

Minimum Usable Range
45 °C

Zero Adjustment
Continuous from 0% to 90% of temperature sensor range

OUTPUT
4/20 mADC

Modes (User Configured)
Normal / Reverse acting
Linear / Non-linear

Burnout Indication
(User Configured)
Upscale / Downscale

Linearity
±0.25 °C of NIST Tables

Accuracy
±0.05% of span

Repeatability
±0.01% of span

Input to output linearity
±0.01% of span

Response time
<1 sec

Ripple (Peak-to-Peak)
<0.1% of full scale

Power Supply Effect
<0.001% of span / Volt

Ambient Temperature Effect
±0.005% of span / °C

Long term stability
±0.0005% of span / 6 months

COMMON MODE REJECTION
120 dB, DC to 60 Hz

ISOLATION, OUTPUT / INPUT
Breakdown, Output/Input
>1000 Volts rms sinewave
Resistance
>500 megohms

DISPLAY (SC5010)
Digit size
0.35 inches high, 4½ digits
Update rate
3 / second
Operating temperature
-20 °C to +80 °C/-4 °F to +176 °F

OPERATING TEMPERATURE
-40 °F to +176 °F/-40 °C to +80 °C

RFI IMMUNITY
Filtering and shielding to reject RFI interference

POWER
10-36 VDC, polarity-protected (current limited to 30 mADC max.)

ORDERING INFORMATION

INPUT

Select Units

☐ Deg C ☐ Deg F

Enter Input

☐ Zero Scale

☐ Full Scale

Select Sensor

☐ J TC
☐ K TC
☐ R TC
☐ S TC
☐ T TC
☐ E TC
☐ N TC
☐ B TC

Open Sensor Response

☐ Upscale ☐ Downscale

OUTPUT

Select Output Logic

☐ Normal Acting
☐ Reverse Acting
☐ Linearized Output
☐ Nonlinearized Output

DISPLAY

Select Display

☐ Yes ☐ No

BURNOUT

Select Burnout

☐ Upscale ☐ Downscale

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

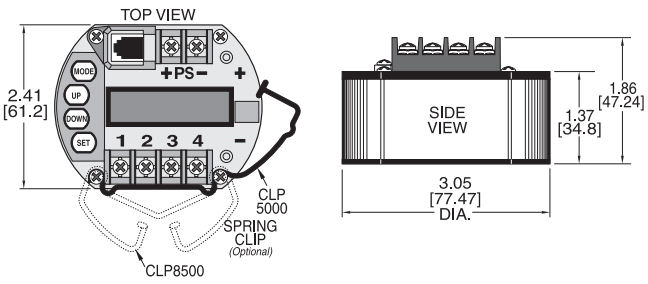
ACCESSORIES

SC5000 AND SC5010

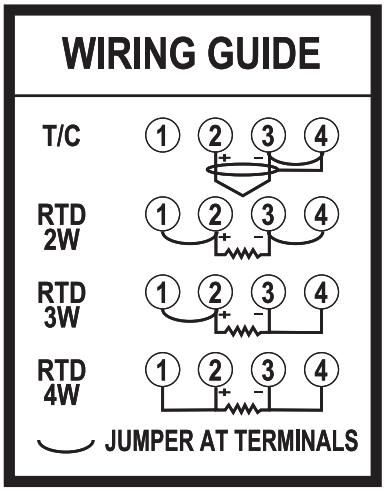
DMP8500	Mounting Plate, DIN-Rail & Surface (SC5000 & TW8000)	QTY _____
XIHFCX2L	Adalet Explosion-Proof Housing, no Window, (SC5000)	QTY _____
CLP5000	Mounting Clip (Adalet) for SC5000 Series	QTY _____
CLP8500	Mounting Clip (Killark) for SC5000 Series	QTY _____
DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS



SR2400 AND SR2401

THERMOCOUPLE INPUT TWO-WIRE TRANSMITTERS

FEATURES

- Provides DC Output Proportional to any Thermocouple Input**
- Fully Isolated Input / Output (SR2401)
- Unlimited * Choice of Input Ranges via Interchangeable Range Cards
- Reverse Polarity-Protected
- Upscale or Downscale Burnout Protection
- Test Points for Loop Current Monitoring without Breaking Loop Circuit
- 50 mm Diameter Case - 33 mm Mounting Hole Spacing
- NEMA-4 Connection Head and Explosion-Proof Housing Available
- Intrinsically Safe Design with FM & CSA Approvals Pending
- Low Cost
- 5 Year Warranty

DESCRIPTION

The SR2400 and SR2401 are low-cost, reliable, thermocouple input two-wire transmitters for field or panel mounting in various industrial housings and enclosures. They provide a DC output current (4/20 mA) proportional to a thermocouple input. On model SR2401 the output is galvanically isolated from the input.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. Model SR2401 provides isolation by using a feedback VCO to develop a pulse train with a duty cycle proportional to the input signal amplitude. This pulse train is coupled through a pulse transformer to output circuitry, where the duty cycle data is converted to a 4/20 mADC output level proportional to the millivolt signal from the thermocouple.

Ranging is accomplished via a plug-in range card which characterizes the input to the desired thermocouple types and sets the temperature range and burnout protection (upscale and downscale). Cold junction compensation is provided by a solid state temperature sensor embedded in the thermocouple input terminal strip.

The output ZERO and SPAN controls are accessible through the top of the case. Terminations are made to screw terminal connectors on top of the case.

Test points located on the transmitter's front panel allow verification of loop current value, using a millameter, without breaking the loop current.

TYPICAL APPLICATIONS

Remote temperature data acquisition. Elimination of ground loops and common mode signals *(SR2401).*

SPECIFICATIONS

INPUT RANGE
select any type thermocouple (min span 5 mV)

INPUT IMPEDANCE
10 megohms

OUTPUT RANGE
4/20 mA
Current limited = 35mA

ISOLATION (SR2401)
Output / Input
1000 Volts RMS sinewave

MAX LOAD RESISTANCE
= [*(V supply - 10)*/20 mA] kilohms

RESPONSE TIME
Step Change
250 ms for 99% of final value

ACCURACY
±0.1% of span

LINEARITY
Better than ±0.05% of span (mV) (input to output)

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
-13°F to 176°F / -25°C to 80°C

TEMPERATURE STABILITY
±0.01% of span per°C

POWER
10-36 VDC, polarity-protected

SUPPLY VOLTAGE EFFECT
0.02% of span max,10-36 VDC

** Within specified range limits.*

*** For linearized output see SC5000 series.*

ORDERING INFORMATION

INPUT

Select Units

☐ Deg C ☐ Deg F

Enter Input

_____ Zero Scale

_____ Full Scale

Select Sensor

☐ J TC
☐ K TC
☐ R TC
☐ S TC
☐ T TC
☐ E TC
☐ N TC
☐ B TC

Open Sensor Response

☐ Upscale ☐ Downscale

ISOLATION

Select Isolation

☐ Yes ☐ No

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

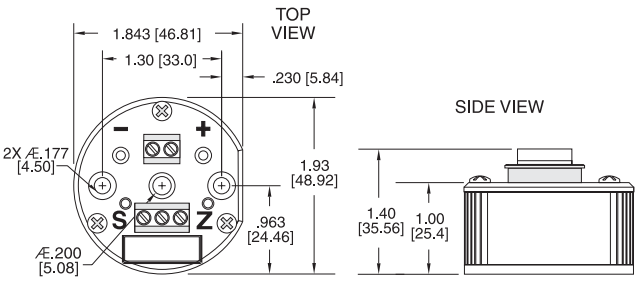
ACCESSORIES

SR2400 AND SR2401

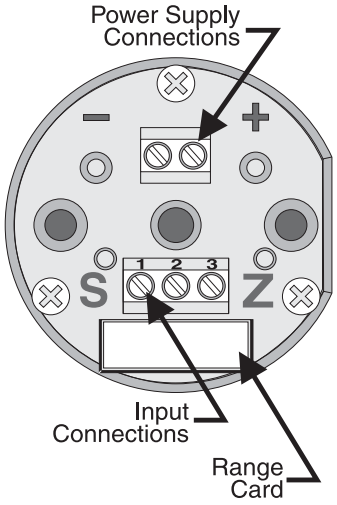
DMP2000	Mounting Plate, DIN-Rail & Surface (SR2000 & TW300)	QTY _____
TSH-A6L	NEMA-4 Aluminum Connection Head (SR2000 & TW300)	QTY _____
SR-CARD	Silver Series Transmitter Range Card (SR2000)	QTY _____
DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
XJAY	Explosion-Proof Housing (SR2000 & TW300 Series)	QTY _____

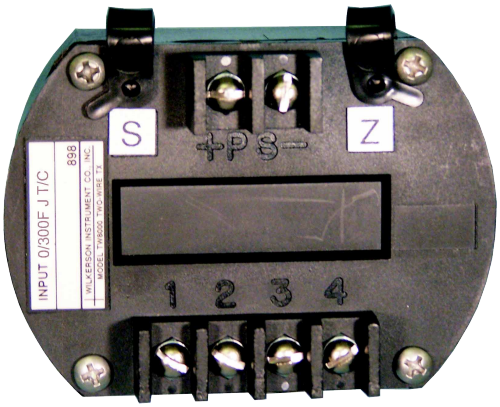
DIMENSIONS

Inches [mm]



CONNECTIONS





SR8401

THERMOCOUPLE INPUT
HIGH VIBRATION AND G FORCE TOLERANCE
ISOLATED TWO-WIRE TRANSMITTER

FEATURES

- **Withstand High Vibration and G Force (Shock) Environment**
- **Provides DC Output Proportional to any Thermocouple Input***
- **Fully Isolated Input / Output**
- **Reverse Polarity-Protected**
- **Upscale or Downscale Burnout Protection**
- **5 Year Warranty**

DESCRIPTION

The SR8401 is a low-cost, reliable, thermocouple input two-wire transmitter designed specifically for high vibration and G force environments.The unit is suitable for field or panel mounting in various industrial housings and enclosures. It provides a DC output current (4/20 mA) proportional to a thermocouple input. The SR8401 output is galvanically isolated from the input.

Cold junction compensation is provided by a solid state temperature sensor embedded in the thermocouple input terminal strip. The output ZERO and SPAN controls are accessible through the top of the case. Terminations are made to screw terminals on the top of the case.

The circuit board is conformal coated for protection from humidity and contamination.

TYPICAL APPLICATIONS

Remote temperature data aquisition. Elimination of ground loops and common mode signals.

SPECIFICATIONS

INPUT RANGE
select any type thermocouple (min span 5 mV)

INPUT IMPEDANCE
10 megohms

OUTPUT RANGE
4/20 mA
Current limited = 35mA

ISOLATION OUTPUT / INPUT
Output / Input
1000 Volts RMS sinewave

MAX LOAD RESISTANCE
= [*(V supply - 10)*/20 mA] kilohms

RESPONSE TIME
Step Change
250 ms for 99% of final value

ACCURACY
±0.1% of span

LINEARITY
Better than ±0.05% of span (mV) (input to output)

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
-13°F to 176°F / -25°C to 80°C

TEMPERATURE STABILITY
±0.01% of span per°C

POWER
10-36 VDC, polarity-protected

SUPPLY VOLTAGE EFFECT
0.02% of span max,10-36 VDC

** Within specified range limits.*

ORDERING INFORMATION

INPUT

Select Units

☐ Deg C ☐ Deg F

Enter Input

_____ Zero Scale

_____ Full Scale

Select Sensor

☐ J TC
☐ K TC
☐ R TC
☐ S TC
☐ T TC
☐ E TC
☐ N TC
☐ B TC

Open Sensor Response

☐ Upscale ☐ Downscale

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

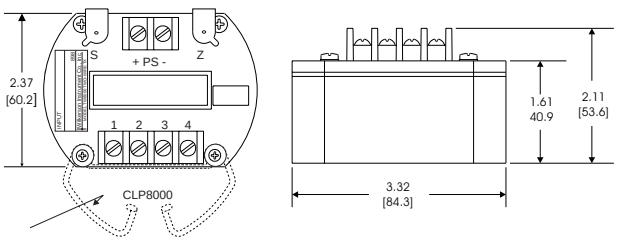
ACCESSORIES

SR8401

DMP8500	Mounting Plate, DIN-Rail & Surface (SC5000 & TW8000)	QTY _____
HKB-HFC	Killark Explosion-Proof Housing, no Window (TW8000)	QTY _____
HKB-HKGL	Killark Explosion-Proof Housing with Window (TW8000)	QTY _____
DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN PS +	Power Supply +
PIN PS -	Power Supply -
PIN 1	T/C Input +
PIN 2	No Connection
PIN 3	T/C Input -
PIN 4	Shield

TW304

THERMOCOUPLE INPUT TWO-WIRE TRANSMITTER

FEATURES

- **Provides DC Output Proportional to any Thermocouple Input**
- **Cold Junction Compensated**
- **5 mV Minimum Input Span**
- **Unlimited* Choice of Input Ranges**
- **50 mm X 50 mm Case**
- **Upscale Burnout Protection**
- **Low-Drift Chopper Stabilized Input**
- **NEMA-4 Connection Head and Explosion-Proof Housing Available**
- **Low Cost**
- **5 Year Warranty**

DESCRIPTION

The TW304 is a low cost, reliable, thermocouple input, 2-wire transmitter for field or panel mounting in various industrial housings and enclosures. It provides a DC output current proportional to any thermocouple input signal.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. Optional coating of the electronic components makes the TW304 extremely reliable and resistant to the corrosion, moisture and fungus associated with many industrial environments.

The output ZERO and SPAN controls are accessible through the top of the case. Terminations are made to screw terminal connectors on the top of the case. Cold junction compensation is provided by a solid state temperature sensor embedded in the thermocouple terminal strip. Upscale burnout protection is provided as standard. In the event the thermocouple opens, the transmitter output will go offscale high.

TYPICAL APPLICATION

Remote temperature data acquisition.

SPECIFICATIONS

INPUT RANGE
select any type thermocouple (min span 5 mV)

OUTPUT RANGE
4/20 mA

MAX LOAD RESISTANCE
Rmax= [(Vsupply - 12V)/.020mA] kilohms

RESPONSE TIME
150 ms typical

ACCURACY
±0.1% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
-13°F to 176°F / -25°C to 80°C

TEMPERATURE STABILITY
±0.02% of span or 0.025°C/°C, whichever is greater

POWER REQUIRED
12 to 48 VDC, polarity protected

SUPPLY VOLTAGE EFFECT
0.02% of span max, 12 to 48 VDC

** Within specified range limits.*

ORDERING INFORMATION

INPUT

Select Units

☐ Deg C ☐ Deg F

Enter Input

☐ Zero Scale

☐ Full Scale

Select Sensor

☐ J TC
☐ K TC
☐ R TC
☐ S TC
☐ T TC
☐ E TC
☐ N TC
☐ B TC
☐ Other - Specify in Notes

Open Sensor Response

☐ Upscale ☐ Downscale

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

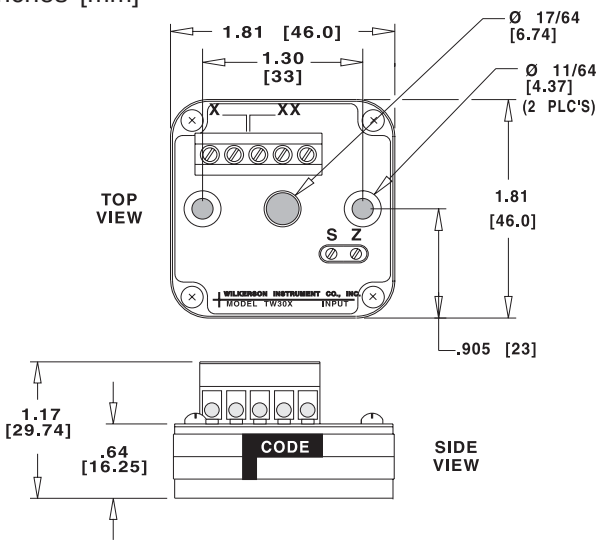
ACCESSORIES

TW304

DMP2000	Mounting Plate, DIN-Rail & Surface (SR2000 & TW300)	QTY _____
TSH-A6L	NEMA-4 Aluminum Connection Head (SR2000 & TW300)	QTY _____
DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
XJAY	Explosion-Proof Housing (SR2000 & TW300 Series)	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN P.S. +	Power Supply +
PIN P.S. -	Power Supply -
PIN T/C +	Input +
PIN T/C -	Input -

DIS873 AND DIS973

RTD INPUT
PROCESS INDICATORS

FEATURES

- Provides 3½ Digit or 4½ Digit Display
- Display Calibrated in Engineering Units (°C, °F, °K, etc.) Proportional to an RTD Input
- 3-Wire or 2-Wire, 10 ohms to 2000 ohms RTDs
- Linearized for Platinum RTDs
- Fully Isolated Output and/or 0, 1, or 2 Alarms
- Alarm Setpoints Adjustable without Disturbing Transmitter Output
- Fail-Safe Alarm Operation
- LED Alarm Status Indicator
- Adjustable Deadband
- Unlimited* Choice of Input / Output Ranges
- Fits Standard 1/8 DIN Cutout
- Rated NEMA-4, Splashproof when Properly Installed
- 5 Year Warranty

DESCRIPTION

The DIS873 and DIS973 provide a display, optional isolated DC output voltage or current proportional to an RTD input signal, and optional alarm setpoints. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. The digital display utilizes an auto-zero dual-slope integrating A/D converter for accuracy and stability.

All controls are accessible by removing a gasketed front access panel. The display controls are wide ranging so that they can be calibrated to display engineering units. Decimal point selection is made with a switch, also accessible from the front. A complete set of engineering unit labels is sent with each DIS. Once the display has been adjusted to read the correct engineering units, the alarm setpoints can be adjusted without test equipment and without disturbing the output voltage or current.

Either setpoint may be displayed by use of the SP CAL switch. Each setpoint has an LED to indicate alarm status. The alarms have adjustable deadbands. Terminations are made to a screw terminal connector on the rear of the case.

TYPICAL APPLICATIONS

Temperature indication, control, monitoring, data acquisition and warning for HVAC, pumps, motors, etc.

SPECIFICATIONS

RTD INPUT
3-Wire or 2-Wire,
10 ohms to 2000 ohms

INPUT RANGE
select any range within RTD limit [min span 25°F/14°C (100°F/55°C with 10 ohms RTD)]

OPTIONS SA, DA SETPOINT
each alarm 0 to 100% of span

DEADBAND
0.25% to 100% of span

RELAY CONTACTS (spdt)
Resistive Load
5 A max, 150 W max,
240 VAC max, 30 VDC max
Inductive Load
1/8 HP max at 120/240 VAC

OPTION TX OUTPUT RANGE
Voltage
select any range between ±10 V,10 mA max load (min span 0.2 V)
Current
select any range from 0 to 20 mA max, 24 V compliance (min span 1 mA)

EXCITATION CURRENT

10 ohms	10 mA
100 ohms	5 mA
1000 ohms	0.5 mA
2000 ohms	0.2 mA

OUTPUT RIPPLE (Peak-to-Peak)
<0.1% of span

ISOLATION
Output / Input
>500 megohms
Breakdown Voltage
>600 VAC rms

RESPONSE TIME (Range Dependent)
£100 ms

OPEN SENSOR OUTPUT
³full scale

ACCURACY
±0.1% of span

LINEARITY
(Pt RTD, output vs temp)
±0.05% of span
(temp ³32°F /0°C)
±0.15% of span
(temp <32°F/0°C)
(others, output vs res)
±0.01% (display)
±0.05% (transmitter output)

COMMON MODE REJECTION
120 dB, DC to 60 Hz

DISPLAY (873)
Digit Size
.56" LED, 3½ digits, ±1999
Decimal Point ±1.9.9.9
Control Range Zero ±1999
Span
min span 10/max span 2000

DISPLAY (973)
Digit Size
.56" LED, 4½ digits, ±19999
Decimal Point ±1.9.9.9.9
Control Range Zero ±19999
Span
min span 100/max span 20000

DISPLAY
Update 3/sec

OPERATING TEMPERATURE
14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span or 0.025°C/°C, whichever is greater

POWER
115 VAC ±10%, 50 or 60 Hz (4 W max)
230 VAC ±10%, 50 or 60 Hz (4 W max)

* *Within specified range limits.*

ORDERING INFORMATION

POWER
☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power

INPUT
Select Units
☐ Deg C ☐ Deg F
Enter Input
[ ] Zero Scale
[ ] Full Scale
Select Sensor
☐ 100 ohm Pt., .00385 Alpha
☐ 100 ohm Pt., .00392 Alpha
☐ 100 ohm Pt., .00375 Alpha
☐ 1000 ohm Pt., .00385 Alpha
☐ 1000 ohm Pt., .00392 Alpha
☐ 10 ohm Cu.
☐ Other - Specify in "Notes"

Open Sensor Response
☐ Upscale ☐ Downscale

OUTPUT (Option TX)
Analog Output
☐ Yes ☐ No
Select Units
☐ VDC ☐ mADC
Enter Output
[ ] Zero Scale
[ ] Full Scale
Select Output Logic
☐ Normal Acting ☐ Reverse Acting

DISPLAY
Select Digits
☐ 3.5 Digits (DIS873)
☐ 4.5 Digits (DIS973)
Enter Display
[ ] Zero Scale
[ ] Full Scale
Select Display Logic
☐ Normal Acting
☐ Reverse Acting

ALARMS (Options SA, DA)
Alarm Output
☐ Yes ☐ No

Alarm Selection Quantity
☐ Single (SA) ☐ Dual (DA)
Alarm Action
Alarm 1
☐ High ☐ Low
Alarm 2
☐ High ☐ Low
Alarm Logic
☐ Normal - De-EnergizeOn Alarm
☐ Reverse - Energize On Alarm
Enter Setpoint Input Level
[ ] Setpoint 1
[ ] Setpoint 2

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)
[ ]

ACCESSORIES

DIS873 AND DIS973

No accessories available at this time.

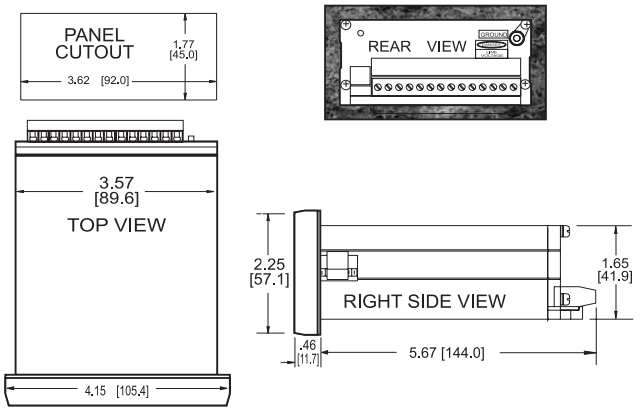
MOUNTING

The DIS is designed to be mounted from the front of the panel through a standard horizontal 3.62 x 1.77 inches ($^1/_8$ DIN) cutout. Two mounting cam-screws allow the securing of the DIS to the panel from the front.

DIMENSIONS

Inches [mm]

DIS SERIES II PROCESS INDICATORS



CONNECTIONS

TERM 1	Output - (Optional)
TERM 2	Output + (Optional)
TERM 4	RTD Input +
TERM 5	RTD Input -
TERM 6	RTD Lead Compensation
TERM 7	Alarm 1 NC (Optional)
TERM 8	Alarm 1 C (Optional)
TERM 9	Alarm 1 NO (Optional)
TERM 10	Alarm 2 NC (Optional)
TERM 11	Alarm 2 C (Optional)
TERM 12	Alarm 2 NO (Optional)
TERM 13	Power AC L1
TERM 14	Power AC L2

DM4001

RTD INPUT, ISOLATED FIELD RANGEABLE TRANSMITTER

FEATURES

- Spans from 8°C to 1024°C
- Linearized for Platinum RTDs
- Provides a Fully Isolated DC Output Proportional to RTD Input
- Plug-In Terminal Blocks
- 2, 3, or 4 Wire Connections
- User-Settable Input and Output Ranges
- Fully Labeled Jumper Positions for Easy Range Settings
- Standard DIN-Rail Mount with Easy Snap-On Snap-Off
- Connections and Ranging Readily Accessible from the Front
- Choice of Power Options
- User Write-On Label
- Permanent Warranty

DESCRIPTION

The DM4001 provides an isolated voltage or current output proportional to temperature as measured with an RTD.

The product can measure 2, 3, or 4 wire resistance elements. The 3 wire configuration provides compensation for lead wire resistance. The 4 wire configuration provides true measurement of the resistance element without lead wire error.

Linearization is provided for .00385 and .00393 alpha platinum resistance elements.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. It utilizes a feedback VCO to develop a pulse train with a duty cycle proportional to the input signal amplitude. This pulse train is coupled through a pulse transformer to the output circuitry, where the duty cycle data is converted to a proportional DC output level.

Connections are made via two 4-pin plug-in terminal blocks. These terminal blocks allow the product to be removed without unwiring the connections.

TYPICAL APPLICATIONS

Useful for temperature monitoring, control and data acquisition.

SPECIFICATIONS

RTD INPUT

100 & 1000 ohm Pt., 10 ohm Cu.
.00385 or .00393 alpha
2, 3, or 4 wire

INPUT

Span Ranges (°C)
8, 16, 32, 64,
128, 256, 512, 1024

Linearization Error
< ± .2%

Open RTD Protection
Upscale or Downscale

EXCITATION

10 ohm 10 mA
100 ohm 1 mA
1000 ohm .1 mA

INPUT OFFSET

± 0%, 20%, 40%, 60% of span

SPAN ADJUSTMENT

+5% to -55% of selected range

ZERO ADJUSTMENT

± 30% of selected offset

OUTPUT

Voltage	Current (mA)
0/.25	0/1
0/1	0/4
1/5	4/20
0/5	0/20
0/10	
-5/+5	
-10/+10	

OUTPUT LOGIC

Normal or Reverse Acting

DRIVE CAPABILITY

Voltage
5 mA
Current
>24 V Compliance

OUTPUT RIPPLE (Peak-to-Peak)

<0.1% of full scale

ISOLATION

Resistance
>500 megohms
Voltage Rating
>1000 VAC rms sinewave

ACCURACY

±0.1% of span

COMMON MODE REJECTION

>100 dB, DC to 60 Hz

OPERATING TEMPERATURE

14 to 140 °F/-10 to +60 °C

TEMPERATURE STABILITY

±(0.01% of span) /°C

POWER

Standard
115 VAC ± 10%, 50/60 Hz
230 VAC ± 10%, 50/60 Hz
Optional
115/230 VAC Selectable
±10%, 50/60 Hz
24 VAC ± 10%, 50/60 Hz
24 VDC (21 to 32 VDC)
12 VDC (10 to 16 VDC)
Wattage
2.5 W max

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Units

☐ Deg C ☐ Deg F

Enter Input

☐ Zero Scale

☐ Full Scale

Select Sensor

- ☐ 100 ohm Pt., .00385 Alpha
- ☐ 100 ohm Pt., .00392 Alpha
- ☐ 100 ohm Pt., .00375 Alpha
- ☐ 1000 ohm Pt., .00385 Alpha
- ☐ 1000 ohm Pt., .00392 Alpha
- ☐ 10 ohm Cu.
- ☐ Other - Specify in Notes

Open Sensor Response

☐ Upscale ☐ Downscale

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

☐ Zero Scale

☐ Full Scale

Select Output Logic

- ☐ Normal Acting
- ☐ Reverse Acting

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

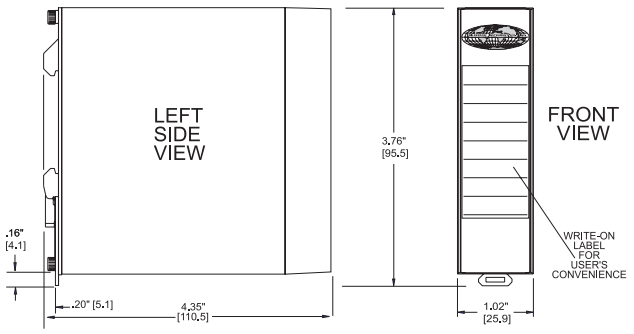
ACCESSORIES

DM4001

DR1 DIN-Rail, 35 mm Symmetrical, 39 inchs (1 meter) QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

TERM L1	Power AC L1 or DC +
TERM L2	Power AC L1 or DC -
TERM 1	Current Supply +
TERM 2	Input +
TERM 3	Input -
TERM 4	Current Supply -
Output +	Output +
Output -	Output -

MM1400

RTD INPUT
SINGLE ALARM

FEATURES

- **Provides a DPDT Relay Contact Closure at a Preset RTD Input**
- **3-Wire or 2-Wire, 10 ohms to 2000 ohms RTDs**
- **Standard Fail-Safe Operation**
- **Red and Green LED Alarm Status Indicators**
- **Adjustable Deadband**
- **Latching Alarm Available (MM1410)**
- **Unlimited* Choice of Input Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM1400 monitors an RTD input signal and trips a dpdt, 5 A relay when the input exceeds the desired level. Normal operation has the relay energized for the non-alarm condition and de-energized for an alarm condition. This provides a fail-safe alarm condition for loss of power to the module. The alarm has a set of red/green LEDs to indicate alarm status.

For the MM1400, a deadband adjustment allows a deadband of 0.5% to 100% of span to be set into the module. The deadband is symmetrical about the setpoint.

With the latching alarm option, the alarm has no deadband control. Once the limit has been reached, the alarm latches and power must be momentarily interrupted to reset the alarm.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptability to electrical noise and damage by lightning.

TYPICAL APPLICATIONS

Temperature control, monitoring or warning for HVAC, pumps, motors, etc.

SPECIFICATIONS

RTD INPUT
3-Wire or 2-Wire,
10 ohms to 2000 ohms

INPUT RANGE
select any range within RTD limit
[min span 25°F/14°C
(100°F/55°C with 10 ohms RTD)]

EXCITATION CURRENT

10 ohms	10 mA
100 ohms	5 mA
1000 ohms	0.5 mA
2000 ohms	0.2 mA

SETPOINT
0 to 100% of span

DEADBAND
0.5% to 100% of span

OPEN SENSOR OUTPUT
³full scale

ACCURACY
±0.1% of span or 0.02 ohms,
whichever is greater

COMMON MODE REJECTION
120 dB, DC to 60 Hz

RELAY CONTACTS (dpdt)
Resistive Load
5 A max, 150 W max, 220 VAC max, 30 VDC max
Inductive Load
(Power Factor ³0.4)
2.5 A max, 75 W max, 220 VAC max, 30 VDC max

TRANSISTOR OUTPUT
(Option V)
relay driver (12 V coil, ³220 ohms) or open-collector outputs sink 100 mA, 30 V supply max

OPERATING TEMPERATURE
14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span or 0.025°C/°C, whichever is greater

POWER
115 VAC ±10%, 50/60 Hz
(2.5 W max)
230 VAC ±10%, 50/60 Hz
(2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

** Within specified range limits.*

ORDERING INFORMATION

POWER

☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power
☐ 24 VDC, Power, Transformer Isolated
☐ 12 VDC, Power, Transformer Isolated

INPUT

Select Units

☐ Deg C ☐ Deg F

Enter Input

_____ Zero Scale

_____ Full Scale

Select Sensor

☐ 100 ohm Pt., .00385 Alpha
☐ 100 ohm Pt., .00392 Alpha
☐ 100 ohm Pt., .00375 Alpha
☐ 1000 ohm Pt., .00385 Alpha
☐ 1000 ohm Pt., .00392 Alpha
☐ 10 ohm Cu.
☐ Other - Specify in Notes

ALARMS

Specify Alarm Header Option

☐ 11-Pin ☐ 20-Pin

Alarm Selection - Output

☐ Relay
☐ Transistor, O.C.

Alarm Type

☐ High
☐ Low

Alarm Logic

☐ Normal - De-Energize On Alarm
☐ Reverse - Energize On Alarm

Enter Setpoint Input Level

_____ Setpoint 1

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

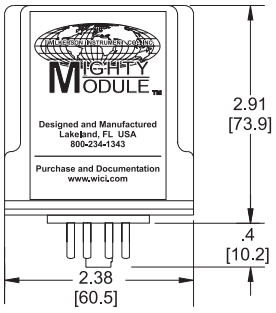
ACCESSORIES

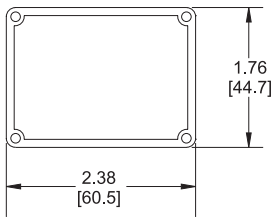
MM1400

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP011	Plastic Socket, 11-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. for MP008, MP011 & DMP8500	QTY _____
DMP011	DIN-Rail Mounting Socket, 11-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	QTY _____

DIMENSIONS

Inches [mm]





CONNECTIONS

11 PIN (Option E)

PIN 1	Power AC L1 or DC +	PIN 6	Relay Set 1 NO
PIN 2	RTD Compensating Lead	PIN 7	Relay Set 1 C
		PIN 8	Relay Set 1 NC
PIN 3	Power AC L2 or DC -	PIN 9	Relay Set 2 NO
PIN 4	RTD	PIN 10	Relay Set 2 C
PIN 5	RTD	PIN 11	Relay Set 2 NC

20 PIN

PIN 1	Power AC L1 or DC +	PIN 15	Relay Set 1 NC
PIN 3	Power AC L2 or DC -	PIN 17	Relay Set 2 NO
PIN 9	RTD	PIN 18	Relay Set 2 C
PIN 11	RTD	PIN 19	Relay Set 2 NC
PIN 13	Relay Set 1 NO	PIN 20	RTD Compensating Lead
PIN 14	Relay Set 1 C		

MM1420

RTD INPUT
DUAL ALARM

FEATURES

- **Provides Relay Contact Closures at Preset RTD Input**
- **3-Wire or 2-Wire, 10 ohms to 2000 ohms RTDs**
- **Fail-Safe, Latching and Adjustable Deadband Available**
- **Red and Green LED Alarm Status Indicators**
- **Unlimited* Choice of Input Ranges**
- **Upscale Burnout Protection**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM1420 monitors an RTD input signal and provides two sets of spdt, 5 A alarm relays with two independently adjustable setpoints. Each setpoint has a set of red/green LEDs to indicate alarm status. When the input is between the setpoints, the relays are normally de-energized. When the signal exceeds a particular setpoint, the relay becomes energized. To provide a fail-safe operation (loss of power resulting in an alarm state), select Option R. The module can be supplied as a HI/HI, HI/LO, or LO/LO alarm (HI/LO supplied if not specified).

Standard deadband on both alarms is fixed at 0.5% of span (Option A provides adjustable deadband of 0.5% to 100% of span.) Option D, latching alarms, has no deadband control. Once the limit has been reached, the alarm latches and power to the module must be momentarily interrupted to reset the alarm.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptability to electrical noise and damage by lightning.

TYPICAL APPLICATIONS

Temperature control, monitoring or warning for HVAC, pumps, motors, etc.

SPECIFICATIONS

RTD INPUT
3-Wire or 2-Wire,
10 ohms to 2000 ohms

INPUT RANGE
select any range within RTD limit [min span 25°F/14°C (100°F/55°C with 10 ohms RTD)]

EXCITATION CURRENT

10 ohms	10 mA
100 ohms	5 mA
1000 ohms	0.5 mA
2000 ohms	0.2 mA

SETPOINT
each alarm 0 to 100% of span

DEADBAND
Standard
fixed 0.5% of span
(Option A)
0.5% to 100% of span
(Option D)
Latching. Interrupt power to reset.

OPEN SENSOR OUTPUT
[3]full scale

ACCURACY
±0.1% of span or 0.02 ohms, whichever is greater

COMMON MODE REJECTION
120 dB, DC to 60 Hz

RELAY CONTACTS (spdt)
Resistive Load
5 A max, 150 W max,
240 VAC max, 30 VDC max
Inductive Load
1/8 HP max at 120/240 VAC

TRANSISTOR OUTPUT (Option V)
relay driver (12 V coil, [3]220 ohms) or open-collector outputs sink 100 mA, 30 V supply max

OPERATING TEMPERATURE
14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span or 0.025°C/°C, whichever is greater

POWER
115 VAC ±10%, 50/60 Hz
(2.5 W max)
230 VAC ±10%, 50/60 Hz
(2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

** Within specified range limits.*

ORDERING INFORMATION

POWER
- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT
Select Units
☐ Deg C ☐ Deg F
Enter Input
☐ Zero Scale
☐ Full Scale
Select Sensor
- ☐ 100 ohm Pt., .00385 Alpha
- ☐ 100 ohm Pt., .00392 Alpha
- ☐ 100 ohm Pt., .00375 Alpha
- ☐ 1000 ohm Pt., .00385 Alpha
- ☐ 1000 ohm Pt., .00392 Alpha
- ☐ 10 ohm Cu.
- ☐ Other - Specify in Notes

ALARMS
Specify Alarm Header Option
☐ 11-Pin ☐ 20-Pin
Alarm Selection - Output
- ☐ Relay
- ☐ Transistor, O.C.

Alarm Type
- ☐ High/Low
- ☐ High/High
- ☐ Low/Low

Alarm Logic
- ☐ Normal - Energize On Alarm
- ☐ Reverse - De-Energize On Alarm

Enter Setpoint Input Level
☐ Setpoint 1
☐ Setpoint 2
Adjustable Deadband (Option A)
☐ Yes ☐ No

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)

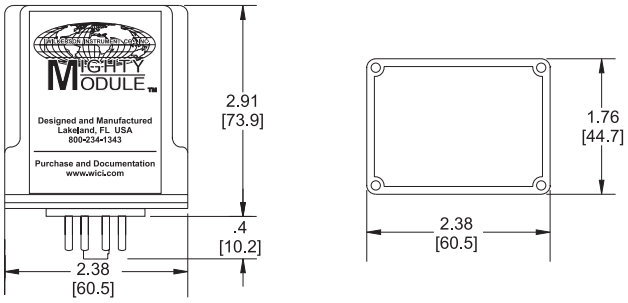
ACCESSORIES

MM1420

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP011	Plastic Socket, 11-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. for MP008, MP011 & DMP8500	QTY _____
DMP011	DIN-Rail Mounting Socket, 11-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

11 PIN (Option E)

PIN 1	Power AC L1 or DC +	PIN 6	Relay 1 NO
PIN 2	RTD Compensating Lead	PIN 7	Relay 1 C
PIN 3	Power AC L2 or DC -	PIN 8	Relay 1 NC
PIN 4	RTD	PIN 9	Relay 2 NO
PIN 5	RTD	PIN 10	Relay 2 C
		PIN 11	Relay 2 NC

20 PIN

PIN 1	Power AC L1 or DC +	PIN 15	Relay 1 NC
PIN 3	Power AC L2 or DC -	PIN 17	Relay 2 NO
PIN 9	RTD	PIN 18	Relay 2 C
PIN 11	RTD	PIN 19	Relay 2 NC
PIN 13	Relay 1 NO	PIN 20	RTD Compensating Lead
PIN 14	Relay 1 C		

MM4001

RTD INPUT TRANSMITTER

FEATURES

- **Provides DC Output Proportional to an RTD Input**
- **3-Wire or 2-Wire, 10 ohms to 2000 ohms RTDs**
- **Unlimited* Choice of Input / Output Ranges**
- **Linearized for Platinum RTDs**
- **Fully Isolated Output Available**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM4001 provides an output voltage or current proportional to an RTD input signal. It is useful in measuring temperatures with a variety of RTDs.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptability to electrical noise and damage by lightning.

The module utilizes a single constant current source to excite the RTD. An accurate and stable lead wire compensation circuit uses the third lead of the 3-wire RTD to compensate for the RTD lead resistance.

TYPICAL APPLICATIONS

Temperature control, monitoring, and data acquisition.

SPECIFICATIONS

RTD INPUT
3-Wire or 2-Wire,
10 ohms to 2000 ohms

INPUT RANGE
select any range within RTD limit [min span 25°F/14°C (100°F/55°C with 10 ohms RTD)]

OUTPUT RANGE
Voltage
select any range from -10 V to +15 V, 10 mA max load (min span 0.2 V)

Current
select any range from 0 to 50 mA max, >24 V compliance (1200 ohms max at 20mA)
18 V compliance for ISO option if full scale output >20 mA

EXCITATION CURRENT

10 ohms	10 mA
100 ohms	5 mA
1000 ohms	0.5 mA
2000 ohms	0.2 mA

ISOLATION (Optional)
Output / Input
>500 megohms
Breakdown Voltage
>1000 VAC rms
Breakdown, Power / Circuitry
>1500 VAC rms

OPEN SENSOR OUTPUT
≥full scale

ACCURACY
±0.1% of span

LINEARITY
±0.05% of span
(Pt RTD, output vs temp)
±0.05% of span, (temp ≥32°F/0°C)
±0.15% of span, (temp <32°F/0°C)
(others, output vs res)
±0.01% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OUTPUT RIPPLE (Peak-to-Peak)
<0.1% of span

OPERATING TEMPERATURE
14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span or 0.025°C/°C, whichever is greater

POWER
115 VAC ±10%, 50/60 Hz (2.5 W max)
230 VAC ±10%, 50/60 Hz (2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

* *Within specified range limits.*

ORDERING INFORMATION

POWER
- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC, Power, Transformer Isolated
- ☐ 12 VDC, Power, Transformer Isolated

INPUT
Select Units
☐ Deg C ☐ Deg F
Enter Input

☐ Zero Scale

☐ Full Scale

Select Sensor
- ☐ 100 ohm Pt., .00385 Alpha
- ☐ 100 ohm Pt., .00392 Alpha
- ☐ 100 ohm Pt., .00375 Alpha
- ☐ 1000 ohm Pt., .00385 Alpha
- ☐ 1000 ohm Pt., .00392 Alpha
- ☐ 10 ohm Cu.
- ☐ Other - Specify in Notes

Open Sensor Response
☐ Upscale ☐ Downscale

OUTPUT
Select Units
☐ VDC ☐ mADC
Enter Output

☐ Zero Scale

☐ Full Scale

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)

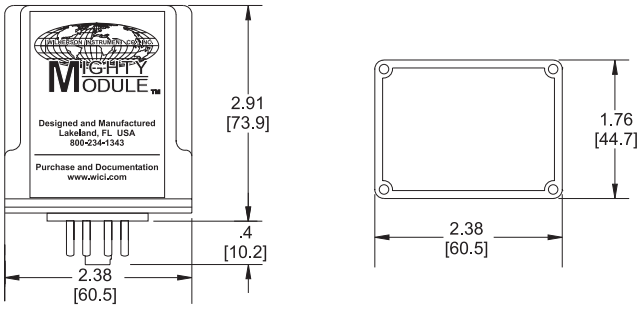
ACCESSORIES

MM4001

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP008	Plastic Socket, 8-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. for MP008, MP011 & DMP8500	QTY _____
DMP008	DIN-Rail Mounting Socket, 8-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	QTY _____

DIMENSIONS

Inches [mm]

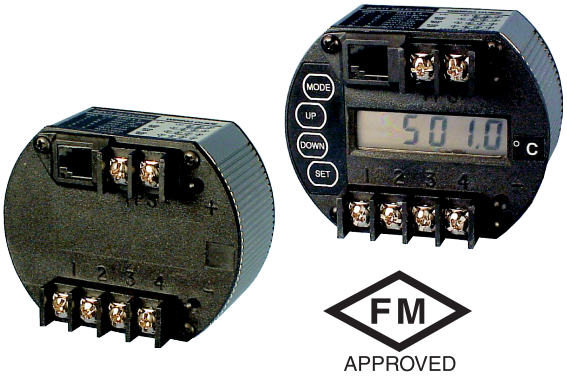


CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
PIN 4	RTD Lead Compensation
PIN 5	RTD -
PIN 6	RTD +
PIN 7	Output +
PIN 8	Output -

SC5000 AND SC5010

THERMOCOUPLE AND RTD INPUT TWO-WIRE TRANSMITTERS



FEATURES

- Provides DC Output Proportional to a Thermocouple or Platinum RTD Input
- Linearized for J, K, R, S, T, E, and N Thermocouples or Platinum RTDs
- 2, 3, or 4 Wire RTD Inputs
- Full Galvanic Isolation
- Microprocessor Based
- Field Rangeable *(SC5010)*
- Displays Temperature in Linear Mode *(SC5010)*
- Displays Current Output in Nonlinear Mode *(SC5010)*
- Test Points for Loop Current Monitoring without Breaking Loop Circuit
- On-Board Configuration via Membrane Keyboard *(SC5010)*
- Upscale or Downscale Burnout Indication
- Intrinsically Safe Design
- Permanent Warranty

DESCRIPTION

The SC5000 series of products provide a DC output current 4/20 mADC proportional to a thermocouple or RTD, using microprocessor based, digital circuitry in a “hockey puck” case. The output can be linearized for both thermocouples and platinum RTDs, and the SC5010 LCD display indicates temperature in °C or °F when operated in the linearized mode, or output current when in the nonlinearized mode. The input and output are isolated. The user may select thermocouple types J, K, R, S, T, E, N or 100 ohm Pt RTDs as the input sensor. RTD connections for 2-wire, 3-wire and 4-wire sensors are provided. The transmitter compensates for the lead wire resistance in the 3-wire configuration and provides true measurement of the resistive element without lead wire error in the 4-wire configuration.

The SC5010 4½ digit display is an accurate temperature indicator that functions over the entire range of the selected sensor. Its display capability is independent of the selected temperature range for the 4 to 20 mADC output. Even if the output goes overrange, the display continues to accurately indicate the sensor temperature.

Linearization is accomplished through a 256 point “look up table” program.

The SC5010 can be configured by the user through four different methods.

These are:

1. On-board set-up via membrane keyboard and display in the linearized mode.
2. On-board set-up via membrane keyboard, display and temperature tables in the non-linearized mode.
3. Set-up via membrane keyboard using a calibrator.

SPECIFICATIONS

INPUT

Thermocouple
Types J, K, R, S, T, E, & N

Spans
5 mV minimum to maximum usable range

Linearization
Maximum Linearized Range

J	-210 °C to +760 °C
K	-250 °C to+1372 °C
R	-50 °C to+1768 °C
S	-50 °C to+1768 °C
T	-270 °C to +400 °C
E	-260 °C to+1000 °C
N	-250 °C to+1300 °C

Reference Junction Compensation
Accuracy
±0.25 °C

Impedance
>1 megohm

Span Adjustment
Continuous from 6.25% to 100% of T/C range (5 mV minimum span)

RTD
100 Ohm Platinum, 0.00385 and 0.00392 alpha, 2, 3, or 4 wire connection

Maximum Usable Range
-200 °C to +850 °C

Minimum Usage Range
45 °C

Zero Adjustment
Continuous from 0% to 90% of temperature sensor range

OUTPUT

Range
4/20 mADC

Modes (User Configured)
Normal / Reverse acting
Linear / Non-linear

Burnout Indication
(User Configured)
Upscale / Downscale

Linearity
±0.25 °C of NIST Tables

Accuracy
±0.05% of span

Repeatability
±0.01% of span

Input to Output Linearity
±0.01% of span

Response Time
<1 sec.

Ripple (Peak-to-Peak)
<0.1% of full scale

Power Supply Effect
<0.001% of span / Volt

Ambient Temperature Effect
±0.005% of span / °C

Long Term Stability
±0.0005% of span / 6 months

ISOLATION

Output / Input
> 500 megohms
Breakdown, Output / Input
> 1000 Volts RMS sinewave
Resistance
>500 megohms

COMMON MODE REJECTION

120 dB, DC to 60 Hz

DISPLAY *(SC5010)*

Digit Size
0.35 inches high, 4½ digits

Update Rate
3 / second

Operating Temperature
-20 °C to +80 °C/-4 °F to +176 °F

OPERATING TEMPERATURE

-40 °F to +176 °F / -40 °C to +80 °C

RFI IMMUNITY

Filtering and shielding to reject RFI interference

POWER

10-36 VDC, Polarity-Protected (current limited to 30 mA max.)

ORDERING INFORMATION

INPUT

Select Units

☐ Deg C ☐ Deg F

Enter Input

[ ] Zero Scale

[ ] Full Scale

Select Sensor

☐ 100 ohm Pt, .00385, 2 Wire Input
☐ 100 ohm Pt. .00385, 3 Wire Input
☐ 100 ohm Pt, .00385, 4 Wire Input
☐ 100 ohm Pt. .00392, 2 Wire Input
☐ 100 ohm Pt, .00392, 3 Wire Input
☐ 100 ohm Pt. .00392, 4 Wire Input

Open Sensor Response

☐ Upscale ☐ Downscale

OUTPUT

Select Output Logic

☐ Normal Acting
☐ Reverse Acting
☐ Linearized Output
☐ Nonlinearized Output

DISPLAY

Select Display

☐ Yes ☐ No

BURNOUT

Select Burnout

☐ Upscale ☐ Downscale

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

[ ]

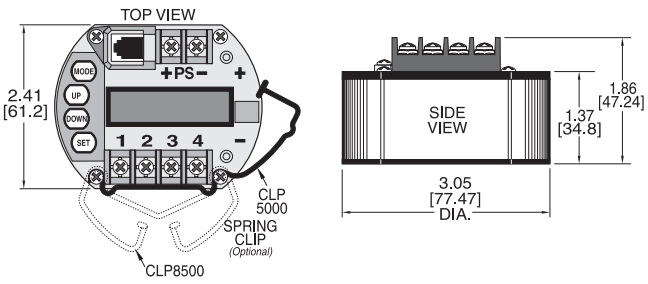
ACCESSORIES

SC5000 AND SC5010

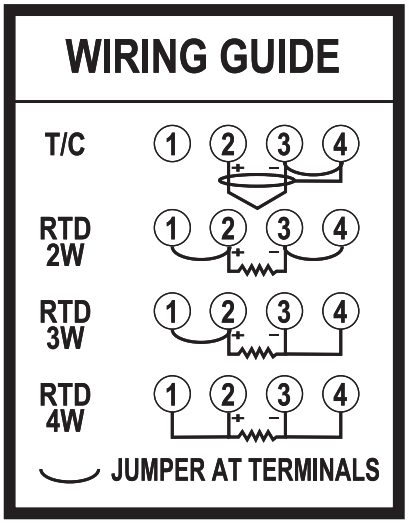
DMP8500	Mounting Plate, DIN-Rail & Surface (SC5000 & TW8000)	QTY _____
XIHFCX2L	Adalet Explosion-Proof Housing, no Window, (SC5000)	QTY _____
CLP5000	Mounting Clip (Adalet) for SC5000 Series	QTY _____
CLP8500	Mounting Clip (Killark) for SC5000 Series	QTY _____
DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS



SF1302

RTD INPUT
SLIM PROFILE
TWO-WIRE TRANSMITTER

FEATURES

- Provides 4/20 mA DC Output Proportional to a Two-Wire RTD Input
- 5/8" Thick Low Profile Design Allows Mounting of Two Transmitters in a Single Standard Size Connection Head for use with Dual RTD's
- 2-Wire, 10 ohms to 1000 ohms RTD's
- Linearized for Platinum RTD's
- NEMA-4 Connection Head Available
- 50 mm DIN Diameter Case - 33 mm Mounting Hole Spacing
- Low Cost
- 5 Year Warranty

DESCRIPTION

The SF1302 is a low-cost, reliable, RTD input two-wire transmitter designed with the OEM in mind. These transmitters are housed in a low profile, 50 mm diameter extruded aluminum case. This thin design allows two transmitters to be stacked in one standard connection head for use with dual RTD sensors.

The SF1302 provides a DC output current (4/20 mA) proportional to a two-wire RTD input. Filtering and conditioning to reduce susceptability to transients and noisy operations provides accurate, trouble-free operation. Linearization is provided for platinum RTDs.

The SF1302 utilizes a single constant current source to excite the RTD. The output ZERO and SPAN controls are located on the top of the case. Terminations are made to screw terminal connectors on the top of the case. A center hole provides clearance for ¼ inch diameter and smaller sensors.

An optional DIN-rail mounting kit allows the SF1302 to be mounted on standard 35 mm rails. Two transmitters can also be stacked in the DIN-rail if space is limited.

TYPICAL APPLICATIONS

Remote temperature data acquisition.

SPECIFICATIONS

INPUT
2-Wire, 10 ohms to 1000 ohms Pt, Ni, Cu
(100 Ohm Pt RTD lead resistance = 0.1 ohms max. ie: 24 in. Probe with 24 awg Leads)

OUTPUT
4/20 mA

INPUT RANGE
specify any range within RTD limit (min. 50°F / 28°C Span)

EXCITATION CURRENT
2.65 mA

MAX LOAD RESISTANCE
Rmax = (V supply-12V / .020 mA) kilohms

ACCURACY
±0.1% of span or 0.2 ohms, whichever is greater

LINEARITY
(Platinum RTD, output vs. temp.)
±0.05% of span (-50 to 500°C)
±0.15% of span (0 to 900°C)

COMMON MODE REJECTION
100 dB, DC to 60 Hz

OPERATING TEMPERATURE
-13°F to 176°F / -26°C to 80°C

TEMPERATURE STABILITY
±0.02% of span or 0.025°C/ °C, whichever is greater

POWER
12 - 32 VDC, polarity protected

SUPPLY VOLTAGE EFFECT
0.02% of span max., 12 to 32 VDC

ORDERING INFORMATION

INPUT

Select Units

☐ Deg C ☐ Deg F

Enter Input

☐ Zero Scale

☐ Full Scale

Select Sensor

☐ 100 ohm Pt., .00385 Alpha
☐ 100 ohm Pt., .00392 Alpha
☐ 100 ohm Pt., .00375 Alpha
☐ 1000 ohm Pt., .00385 Alpha
☐ 1000 ohm Pt., .00392 Alpha
☐ 10 ohm Cu.
☐ Other - Specify in Notes

OPTIONS

☐ Conformal Coating

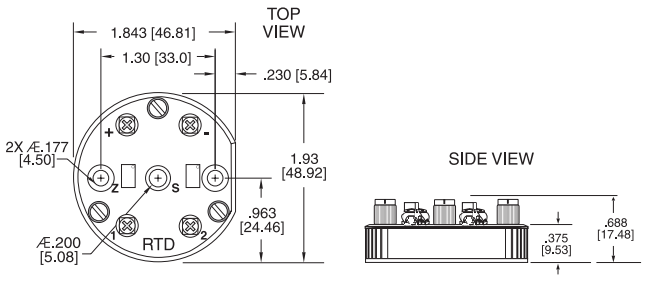
ACCESSORIES

SF1302

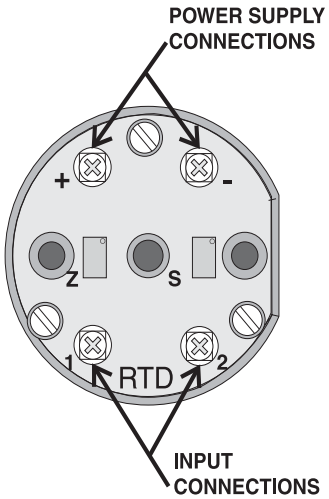
DMP2000	Mounting Plate, DIN-Rail & Surface (SR2000 & TW300)	QTY _____
TSH-A6L	NEMA-4 Aluminum Connection Head (SR2000 & TW300)	QTY _____
DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
XJAY	Explosion-Proof Housing (SR2000 & TW300 Series)	QTY _____

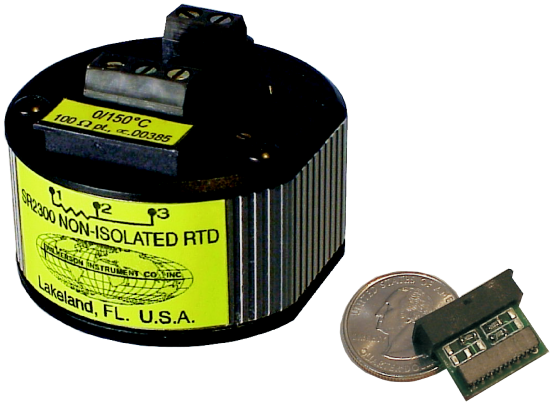
DIMENSIONS

Inches [mm]



CONNECTIONS





SR2300

RTD INPUT, FIELD RANGEABLE TWO-WIRE TRANSMITTER

FEATURES

- Provides DC Output Proportional to an RTD Input
- 3-Wire or 2-Wire, 10 ohms to 1000 ohms RTDs
- Test Points for Loop Current Monitoring without Breaking Loop Circuit
- Linearized for Platinum RTDs
- Unlimited* Choice of Input Ranges via Interchangeable Range Cards
- Reverse Polarity-Protected
- 50 mm Diameter Case - 33 mm Mounting Hole Spacing
- NEMA-4 Connection Head and Explosion-Proof Housing Available
- Low Cost
- Intrinsically Safe Design with FM and CSA Approvals Pending
- 5 Year Warranty

DESCRIPTION

The SR2300 is a low-cost, reliable, RTD input two-wire transmitter for field or panel mounting in various industrial housings and enclosures. It provide a DC output current (4/20 mA) proportional to an RTD input.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. Ranging is accomplished via plug-in card which characterizes the input for the desired RTD type and sets the temperature range. Linearization is provided for platinum RTDs.

The SR2300 utilizes a single constant current source to excite the RTD. An accurate and stable leadwire compensation circuit uses the third lead of a 3-wire RTD to compensate for the RTD lead resistance. The output ZERO and SPAN controls are accessible through the top of the case. A Zero is adjustable ±20% and Span ±15%. Terminations are made to screw terminal connectors on the top of the case.

Test points located on the SR2300 front panel allow verification of loop current value, using a millammeter, without breaking the loop current.

TYPICAL APPLICATIONS

Remote temperature data aquisition.

SPECIFICATIONS

RTD INPUT
3-Wire or 2-Wire,
10 ohms to 1000 ohms
Pt, Ni, Cu

INPUT RANGE
select any range from
-100°C to +850°C
*(*min span 20°F/10°C)

EXCITATION CURRENT
2.4 mA (10 ohms to 500 ohms)
0.24 mA (> 500 ohms)

OUTPUT RANGE
4/20 mA
Current limited = 35 mA

MAX LOAD RESISTANCE
= [*(V supply - 10)*/20 mA] kilohms

RESPONSE TIME
Step Change
150 ms for 99% of final value

ACCURACY
±0.1% of span or 0.02 ohms, whichever is greater

LINEARITY
(Pt RTD, output vs. temp)
±0.03% of span
(fullscale temp < 400°C)
±0.075% of span
(fullscale temp > 400°C)
(Others, output vs. resistance)
±0.01% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
-13°F to 176°F / -25°C to 80°C

TEMPERATURE STABILITY
±0.02% of span per °C

POWER
10 to 36 VDC, polarity-protected

SUPPLY VOLTAGE EFFECT
0.02% of span max, 10 to 36 V

** Within specified range limits.*

ORDERING INFORMATION

INPUT

Select Units

☐ Deg C ☐ Deg F

Enter Input

[ ] Zero Scale

[ ] Full Scale

Select Sensor

☐ 100 ohm Pt., .00385 Alpha
☐ 100 ohm Pt., .00392 Alpha
☐ 100 ohm Pt., .00375 Alpha
☐ 1000 ohm Pt., .00385 Alpha
☐ 1000 ohm Pt., .00392 Alpha
☐ 10 ohm Cu.
☐ Other - Specify in Notes

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

[ ]

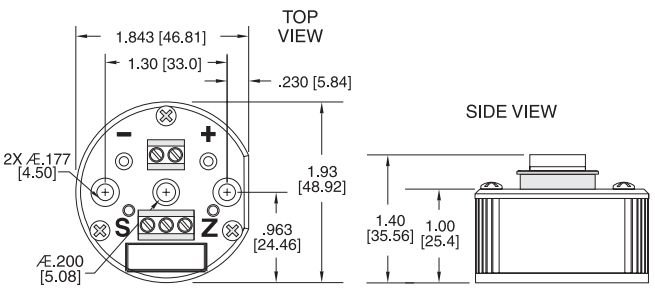
ACCESSORIES

SR2300

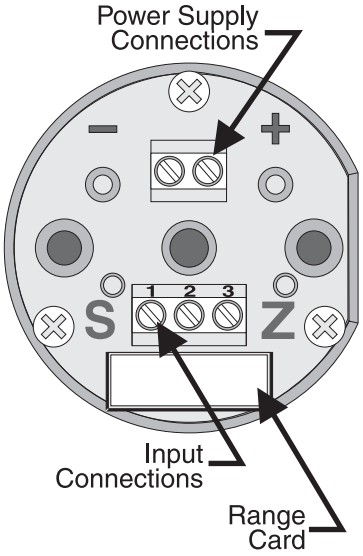
DMP2000	Mounting Plate, DIN-Rail & Surface (SR2000 & TW300)	QTY _____
TSH-A6L	NEMA-4 Aluminum Connection Head (SR2000 & TW300)	QTY _____
SR-CARD	Silver Series Transmitter Range Card (SR2000)	QTY _____
DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
XJAY	Explosion-Proof Housing (SR2000 & TW300 Series)	QTY _____

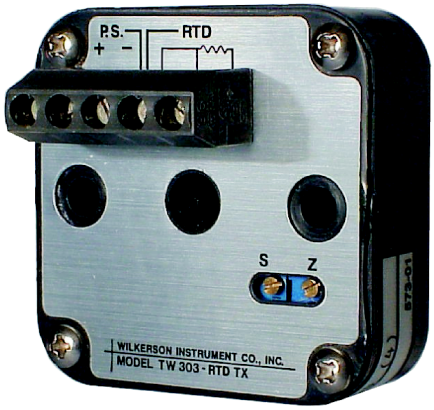
DIMENSIONS

Inches [mm]



CONNECTIONS





TW303

RTD INPUT
TWO-WIRE TRANSMITTER

FEATURES

- Provides DC Output Proportional to an RTD Input
- 3-Wire or 2-Wire, 100 ohms to 2000 ohms RTDs
- Linearized for Platinum RTDs
- Unlimited* Choice of Input Ranges
- 50 mm X 50 mm Case
- Low-Drift Chopper-Stabilized Input
- NEMA-4 Connection Head and Explosion-Proof Housing Available
- Low Cost
- 5 Year Warranty

DESCRIPTION

The TW303 is a low-cost, reliable, RTD input, 2-Wire transmitter for field or panel mounting in various industrial housings and enclosures. It provides a DC output current proportional to an RTD input signal.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. Optional conformal coating of the electronic components makes the TW303 extremely reliable and resistant to the corrosion, moisture and fungus associated with many industrial environments.

The module utilizes a single constant current source to excite the RTD. An accurate and stable leadwire compensation circuit uses the third lead of the 3-Wire RTD to compensate for the RTD lead resistance. The output ZERO and SPAN controls are accessible through the top of the case. Terminations are made to screw terminal connectors on the top of the case.

TYPICAL APPLICATION

Remote temperature data acquisition.

SPECIFICATIONS

RTD INPUT
3-wire or 2-wire,
100 ohms to 2000 ohms

INPUT RANGE
max span RTD limit
min span 50°F/ 28°C

EXCITATION CURRENT

100 ohms	1 mA
500 ohms	1 mA
1000 ohms	0.5 mA
2000 ohms	0.2 mA

OUTPUT RANGE
4/20 mA

MAX LOAD RESISTANCE
Rmax= [(Vsupply - 12)/20 mA] kilohms

RESPONSE TIME
50 ms typical

OPEN SENSOR RESPONSE
Upscale

ACCURACY
±0.1% of span or 0.02 ohms, whichever is greater

LINEARITY
(Pt RTD, output vs temp)
±0.05% of span
(temp > = 32°F/0°C)
±0.15% of span
(temp < 32°F/0°C)
(Others, output vs res)
±0.01% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
-13°F to 176°F/-25°C to 80°C

TEMPERATURE STABILITY
±0.02% of span or 0.025°C/°C, whichever is greater

POWER
12-48 VDC, polarity protected

SUPPLY VOLTAGE EFFECT
0.02% of span max, 12 to 48 V

** Within specified range limits*

ORDERING INFORMATION

INPUT

Select Units

☐ Deg C ☐ Deg F

Enter Input

☐ Zero Scale

☐ Full Scale

Select Sensor

☐ 100 ohm Pt., .00385 Alpha
☐ 100 ohm Pt., .00392 Alpha
☐ 100 ohm Pt., .00375 Alpha
☐ 1000 ohm Pt., .00385 Alpha
☐ 1000 ohm Pt., .00392 Alpha
☐ 10 ohm Cu.
☐ Other - Specify in Notes

Open Sensor Response

☐ Upscale

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

☐

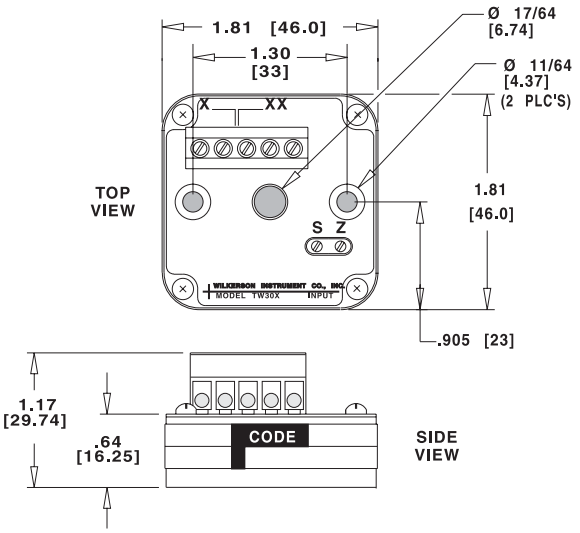
ACCESSORIES

TW303

DMP2000	Mounting Plate, DIN-Rail & Surface (SR2000 & TW300)	QTY _____
TSH-A6L	NEMA-4 Aluminum Connecti on Head (SR2000 & TW300)	QTY _____
DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
XJAY	Explosion-Proof Housing (SR2000 & TW300 Series)	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN P.S. 1	Power Supply +
PIN P.S. 2	Power Supply -
PIN RTD 1	Excitation/RTD Input
PIN RTD 2	Input -
PIN RTD 3	Lead Compensation

DIS872 AND DIS972

AC INPUT PROCESS INDICATORS

FEATURES

- Provides 3½ Digit or 4½ Digit Display
- Display Calibrated in Engineering Units (V, mA, %, etc.)
- Proportional to AC Input
- Fully Isolated Output and/or 0, 1, or 2 Alarms (Optional)
- Alarm Setpoints Adjustable Without Disturbing Transmitter Output
- Fail-Safe Alarm Operation
- LED Alarm Status Indicator
- Adjustable Deadband
- 50 mV or 1 mA Minimum Input Span
- Unlimited* Choice of Input / Output Ranges
- Fits Standard 1/8 DIN Cutout
- Rated NEMA-4X, Splashproof and Corrosion Resistant when Properly Installed
- 5 Year Warranty

DESCRIPTION

The DIS872 and DIS972 provide a display, optional isolated DC output voltage or current proportional to an AC input signal, and optional alarm setpoints. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptability to electrical noise and damage by lightning. The digital display utilizes an auto-zero dual-slope integrating A/D converter for accuracy and stability. All controls are accessible by removing a gasketed front access panel. The display controls are wide-ranging so that they can be calibrated to display engineering units. Decimal point selection is made with a switch, also accessible from the front.

A complete set of engineering unit labels is sent with each DIS. Once the display has been adjusted to read the correct engineering units, the alarm setpoints can be adjusted without test equipment and without disturbing the output voltage or current.

Either setpoint may be displayed by use of the SP CAL switch. Each setpoint has an LED to indicate alarm status. The alarms have adjustable deadbands. Terminations are made to a screw terminal connector on the rear of the case.

TYPICAL APPLICATIONS

AC process indication, control, monitoring of electrical devices such as motors, pumps or heaters, etc.

SPECIFICATIONS

INPUT RANGE
Voltage
select any range from 0 to 250 V rms max (min span 50mV)
Current
select any range from 0 to 5 A rms max (min span 1 mA, internal shunt)

INPUT FREQUENCY
40 Hz to 1 kHz sine wave

INPUT IMPEDANCE
Voltage
200 kilohms
Current

Current Input	Input Shunt Value
100 microamp	1000 ohm
1 mA	100 ohm
10 mA	10 ohm
100 mA	1 ohm
1 mA	0.1 ohm
5 mA	0.01 ohm

OPTION SA, DA SETPOINT
each alarm 0 to 100% of span

DEADBAND
0.25% to 100% of span

RELAY CONTACTS (spdt)
Resistive Load
5 A max, 150 W max, 240 VAC max, 30 VDC max
Inductive Load
1/8 HP max at 120/240 VAC

OPTION TX OUTPUT RANGE
Voltage
select any range between ±10 V
10 mA max load (min span 0.2 V)
Current
select any range from 0 to 20 mA max,
>24 V compliance
(1200 ohms max at 20 mA)

OUTPUT RIPPLE (Peak-to-Peak)
<0.1% of span

RESPONSE TIME
1 sec typical

ISOLATION OUTPUT / INPUT
Output / Input
>500 megohms

ACCURACY
±0.5% of span

LINEARITY
±0.05% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C max

DISPLAY (872)
Digit Size
.56" LED, 3½ digits, ±1999
Decimal Point
±1.9.9.9
Control Range
Zero
±1999
Span
min span 10/max span 2000

DISPLAY (972)
Digit Size
.56" LED, 4½ digits, ±19999
Decimal Point
±1.9.9.9.9
Control Range
Zero
±19999
Span
min span 100/max span 20000

DISPLAY
Update 3/sec

POWER
115 VAC ±10%, 50 or 60 Hz
230 VAC ±10%, 50 or 60 Hz
(4 W max)

** Within specified range limits.*

ORDERING INFORMATION

POWER
☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power

INPUT
Select Units
☐ VAC ☐ mAAC ☐ AAC
Enter Input
_____ Zero Scale
_____ Full Scale

OUTPUT (Option TX)
Analog Output
☐ Yes ☐ No
Select Units
☐ VDC ☐ mADC
Enter Output
_____ Zero Scale
_____ Full Scale

Select Output Logic
☐ Normal - Energize on Alarm
☐ Reverse - De-energize on Alarm

DISPLAY
Select Digits
☐ 3.5 Digits (DIS872)
☐ 4.5 Digits (DIS972)
Enter Display
_____ Zero Scale
_____ Full Scale
Select Display Logic
☐ Normal Acting
☐ Reverse Acting

ALARMS (Option SA, DA)
Alarm Output
☐ Yes ☐ No
Alarm Selection - Quantity
☐ Single (SA) ☐ Dual (DA)

Alarm Action
Alarm 1
☐ High ☐ Low
Alarm 2
☐ High ☐ Low
Alarm Logic
☐ Reverse - De-energize on Alarm
☐ Normal - Energize on Alarm
Enter Setpoint - Input Level
_____ Setpoint 1
_____ Setpoint 2

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)
_____

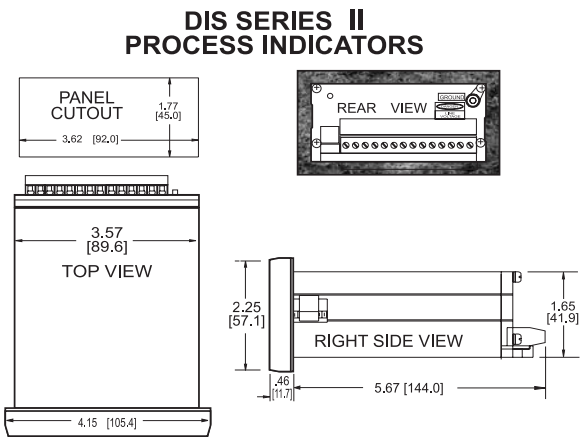
ACCESSORIES

DIS872 AND DIS972
No accessories available at this time.

MOUNTING
The DIS is designed to be mounted from the front of the panel through a standard horizontal 3.62 x 1.77 inches (1/8 DIN) cutout. Two mounting cam-screws allow the securing of the DIS to the panel from the front.

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Output -
PIN 2	Output +
PIN 4	Input
PIN 5	Input Common
PIN 6	Shield
PIN 7	Alarm 1 NC
PIN 8	Alarm 1 C
PIN 9	Alarm 1 NO
PIN 10	Alarm 2 NC
PIN 11	Alarm 2 C
PIN 12	Alarm 2 NO
PIN 13	Power AC L1
PIN 14	Power AC L2

DM6010

AC TRUE RMS INPUT, ISOLATED FIELD RANGEABLE TRANSMITTER

FEATURES

- **Spans from 0.16 V rms to 256 Vrms**
- **Selectable Response Time & Filter**
- **Plug-In Terminal Blocks**
- **Standard DIN-Rail Mount with Easy Snap-On Snap-Off**
- **User-Settable Input and Output Ranges**
- **Fully Labeled Jumper Positions for Easy Range Settings**
- **Connections and Ranging Readily Accessible from the Front**
- **Choice of Power Options**
- **User Write-On Label**
- **Permanent Warranty**

DESCRIPTION

The DM6010 provides an isolated voltage or current output proportional to the RMS value of an AC voltage or current input. The true RMS measurement capability allows accurate measurements of distorted sine wave sources as well as complex wave shapes such as a phase angle modulated SCR drive output.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptability to electrical noise and damage by lightning. It utilizes a feedback VCO to develop a pulse train with a duty cycle proportional to the input signal amplitude. This pulse train is coupled through a pulse transformer to the output circuitry, where the duty cycle data is converted to a proportional DC output level.

Connections are made via two 4-pin plug-in terminal blocks. These terminal blocks allow the product to be removed without unwiring the connections.

TYPICAL APPLICATIONS

Useful for measuring and control, accurate AC measurements, and data acquisition.

SPECIFICATIONS

INPUT
Span
Voltage
0.016 V to 256 V
Current
0.8mA to 100 mA
Frequency
47 Hz to 1000 Hz

SPAN ADJUSTMENT
+5% to -55% of selected range

ZERO ADJUSTMENT
50% elevated

INPUT IMPEDANCE
Voltage
1 megohm
Current
20 ohms

CREST FACTOR
PEAK/RMS + 6.3 max
(±1% accuracy)

OUTPUT

Voltage	Current (mA)
0/.25	0/1
0/1	0/4
1/5	4/20
0/5	0/20
0/10	
-5/+5	
-10/+10	

OUTPUT LOGIC
Normal or Reverse Acting

DRIVE CAPABILITY
Voltage: 5 mA
Current: >24 Compliance

OUTPUT RIPPLE (Peak-to-Peak)
<0.1% of full scale

ISOLATION
Resistance
>500 megohms
Voltage Rating
>1000 VAC rms Sinewave

ACCURACY
±0.3% of span

OPERATING TEMPERATURE
14 to 140 °F/-10 to +60 °C

TEMPERATURE STABILITY
±(0.01% of span) /°C

POWER
Standard
115 VAC ± 10%, 50/60 Hz
230 VAC ± 10%, 50/60 Hz
Optional
115/230 VAC Selectable
±10%, 50/60 Hz
24 VAC ± 10%, 50/60 Hz
24 VDC (21 to 32 VDC)
12 VDC (10 to 16 VDC)
Wattage
2.5 W max

* *For inputs above 100 mA, use P/N689 0.1 ohm Shunt.*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VAC, 50/60 Hz Power
- ☐ 24 VDC Power, Transformer Isolated
- ☐ 12 VDC Power, Transformer Isolated

INPUT

Select Units

☐ VAC ☐ mAAC ☐ AAC

Enter Input

☐ Zero Scale

☐ Full Scale

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

☐ Zero Scale

☐ Full Scale

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

☐

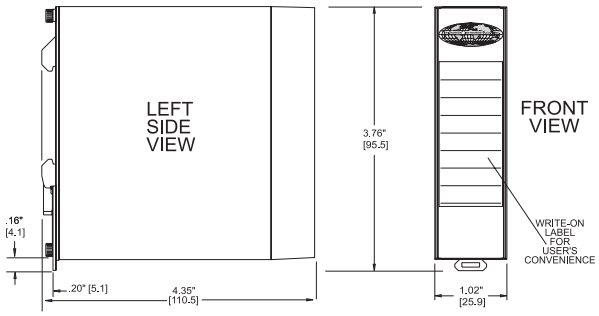
ACCESSORIES

DM6010

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

TERM HI V	High Range Input
TERM Common	Input Common
TERM Common	Input Common
TERM LO V /CUR	Low Range Input
TERM Output +	Output +
TERM Output -	Output -
TERM L1	Power AC L1 or DC +
TERM L2	Power AC L2 or DC -

MM1600

AC INPUT
SINGLE ALARM

FEATURES

- **Provides a DPDT Relay Contact Closure at a Preset AC Input**
- **Standard Fail-Safe Operation**
- **Red and Green LED Alarm Status Indicators**
- **Adjustable Deadband**
- **Latching Alarm Available (MM1610)**
- **50 mV or 1 mA Minimum Input Span**
- **Unlimited* Choice of Input / Output Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM1600 and MM1610 monitor an AC input signal and trip a dpdt, 5 A relay when the input exceeds the desired level. Normal operation has the relay energized for the non-alarm condition and de-energized for an alarm condition. This provides a "fail-safe" alarm condition for loss of power to the module. The alarm has a set of red/green LEDs to indicate alarm status.

A deadband adjustment allows a deadband of 0.5% to 100% of span to be set into the module. The deadband is symmetrical about the setpoint.

With the latching option, the alarm has no deadband control. Once the limit has been reached the alarm latches and power to the module must be momentarily interrupted to reset the alarm.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptability to electrical noise and damage by lightning.

TYPICAL APPLICATIONS

AC motor/current limit, AC power status or demand warning.

SPECIFICATIONS

INPUT RANGE
Voltage
select any range from 0 to 250 V rms max (min span 50 mV)
Current
select any range from 0 to 1 A rms max** (min span 1 mA, internal shunt)

INPUT FREQUENCY
40 Hz to 1 kHz sine wave

INPUT IMPEDANCE
Voltage
200 kilohms
Current

Current Input Value	Current Shunt
1 mA	100 OHM
10 mA	10 OHM
20 mA	5 OHM
100 mA	1 OHM
1 A	0.1 OHM

SETPOINT
0 to 100% of span

DEADBAND
0.5% to 100% of span

RELAY CONTACTS (dpdt)
Resistive Load:
5 A max, 150 W max, 220 VAC max,30 VDC max
Inductive Load:
(Power factor ³0.4):
2.5 A max, 75 W max, 220 VAC max, 30 VDC max

TRANSISTOR OUTPUT (Option V)
relay driver (12 V coil, ³220 ohms) or open-collector outputs sink 100 mA, 30 V supply max

RESPONSE TIME
1 sec typical

ACCURACY
±0.5% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C max

POWER
115 VAC ±10%, 50/60 Hz (2.5 W max)
230 VAC ±10%, 50/60 Hz (2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

* *Within specified range limits.*

** *For input values greater than 1 A rms select appropriate external shunt resistor and use with 0-500 mV rms input.*

ORDERING INFORMATION

POWER

☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power
☐ 24 VDC Power, Transformer Isolated
☐ 12 VDC Power, Transformer Isolated

INPUT

Select Units

☐ VAC ☐ mAAC ☐ AAC

Enter Input

[ ] Zero Scale

[ ] Full Scale

ALARMS

Alarm Selection Output

☐ Relay ☐ Transistor, O.C.

Alarm Type

☐ High ☐ Low

Alarm Logic

☐ Normal - De-energize on Alarm
☐ Reverse - Energize on Alarm

Enter Setpoint - Input Level

[ ] Setpoint 1

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

[ ]

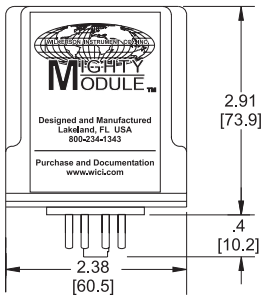
ACCESSORIES

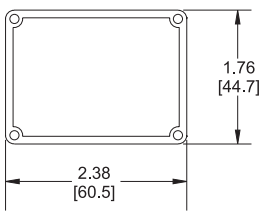
MM1600

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP011	Plastic Socket, 11-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. (MP008, MP011 & DMP8500)	QTY _____
DMP011	DIN-Rail Mounting Socket, 11-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	QTY _____

DIMENSIONS

Inches [mm]





CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
PIN 4	Input Signal
PIN 5	Input Common
PIN 6	Relay Set 1 NO
PIN 7	Relay Set 1 C
PIN 8	Relay Set 1 NC
PIN 9	Relay Set 2 NO
PIN 10	Relay Set 2 C
PIN 11	Relay Set 2 NC

MM1620

AC INPUT
DUAL ALARM

FEATURES

- **Provides Relay Contact Closures at Preset AC Input**
- **Fail-Safe, Latching and Adjustable Deadband Available**
- **Red and Green LED Alarm Status Indicators**
- **50 mV or 1 mA Minimum Input Span**
- **Unlimited* Choice of Input Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM1620 monitors an AC input signal and provides two sets of spdt, 5 A alarm relays with two independently adjustable setpoints. Each setpoint has a set of red/green LEDs to indicate alarm status. When the input is between the setpoints, the relays are normally de-energized. When the signal exceeds a particular setpoint, the relay becomes energized. To provide a "fail-safe" operation (loss of power resulting in an alarm state), select Option R. The module can be supplied as a HI/HI, HI/LO, or LO/LO alarm (HI/LO supplied if not specified).

Standard deadband on both alarms is fixed at 0.5% of span. (Option A provides adjustable deadband of 0.5% to 100% of span.) Option D, latching alarms, has no deadband control. Once the limit has been reached, the alarm latches and power to the module must be momentarily interrupted to reset the alarm.

All Wilkerson Products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

TYPICAL APPLICATIONS

AC motor/current limit, AC power status or demand warning.

SPECIFICATIONS

INPUT RANGE
Voltage
select any range from
0 to 250 V rms max
(min span 50 mV)

Current
select any range from
0 to 1 A rms max**
(min span 1 mA, internal shunt)

INPUT FREQUENCY
40 Hz to 1 kHz Sinewave

INPUT IMPEDANCE
Voltage
200 kilohms

Current

Current Input	Current Shunt Value
1 mA	100 OHM
10 mA	10 OHM
20 mA	5 OHM
100 mA	1 OHM
1 A	0.1 OHM

SETPOINT
each alarm 0 to 100% of span

DEADBAND
Standard
fixed 0.5% of span

(Option A)
0.5% to 100% of span

(Option D)
Latching. Interrupt power to reset.

RELAY CONTACTS (spdt)
Resistive Load
5 A max, 150 W max,
240 VAC max, 30 VDC max

Inductive Load
1/8 HP max at 120/240 VAC

TRANSISTOR OUTPUT
(Option V)
relay driver
(12 V coil, ³ 220ohms)
or open-collect or outputs sink
100 mA, 30 V supply max

RESPONSE TIME
1 sec typical

ACCURACY
±0.5% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F / -10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span / °C max

POWER
115 VAC ±10%, 50/60 Hz
(2.5 W max)

230 VAC ±10%, 50/60 Hz
(2.5 W max)

(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

** Within specified range limits.*

*** For input values greater than 1 A rms select appropriate external shunt resistor and use with 0-500 mV rms input.*

ORDERING INFORMATION

POWER
- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC Power, Transformer Isolated
- ☐ 12 VDC Power, Transformer Isolated

INPUT
Select Units
☐ VAC ☐ mAAC ☐ AAC
Enter Input
☐ Zero Scale
☐ Full Scale

ALARMS
Alarm Selection Output
☐ Relay ☐ Transistor, O.C.
Alarm Type
- ☐ High/Low
- ☐ High/High
- ☐ Low/Low

Alarm Logic
- ☐ Normal - Energize on Alarm
- ☐ Reverse - De-energize on Alarm

Enter Setpoint - Input Level
☐ Setpoint 1
☐ Setpoint 2

Adjustable Deadband (Option A)
☐ Yes ☐ No

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)
☐

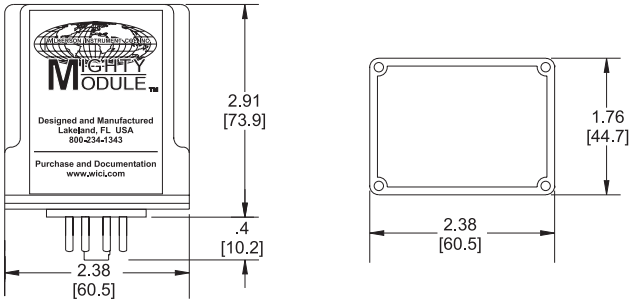
ACCESSORIES

MM1620

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP011	Plastic Socket, 11-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. (MP008, MP011 & DMP8500)	QTY _____
DMP011	DIN-Rail Mounting Socket, 11-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
PIN 4	Input Signal
PIN 5	Input Common
PIN 6	Relay 1 NO
PIN 7	Relay 1 C
PIN 8	Relay 1 NC
PIN 9	Relay 2 NO
PIN 10	Relay 2 C
PIN 11	Relay 2 NC

MM6010

AC INPUT ISOLATED TRANSMITTER

FEATURES

- **Provides DC Output Proportional to AC Input Voltage or Current**
- **Fully Isolated Output**
- **50 mV or 1 mA Minimum Input Span**
- **Unlimited* Choice of Input / Output Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM6010 provides a DC output voltage or current proportional to an AC input signal. It is useful in measuring AC voltages or currents and converting them to DC levels for driving controllers, recorders, meters, or other instruments. All Wilkerson Products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. It utilizes a precision rectifier system to provide accurate and stable rectification of the AC input signal. The module provides an output signal proportional to the average level of the input signal. It is calibrated assuming a sinusoidal input signal will be applied. Other calibrations are available.

The MM6010 utilizes a feedback VCO to develop a pulse train with a duty cycle proportional to the input signal amplitude. This pulse train is coupled through a pulse transformer to the output circuitry, where the duty cycle data is converted to a proportional DC level in the input level circuit.

TYPICAL APPLICATIONS

Monitoring power line or power supply voltages and currents. Measuring the output of self-generating process sensors or transducers which generate AC current and measuring current consumption of electrical devices such as motors, pumps or heaters.

SPECIFICATIONS

INPUT RANGE

Voltage
select any range from
0 to 250 V max
(min span 50 mV)

Current
select any range from
0 to 1 A rms max**
(min span 1 mA, internal shunt)

INPUT FREQUENCY
40 Hz to 1 kHz sine wave

INPUT IMPEDANCE

Voltage
200 kilohms

Current

Current Input	Current Shunt Value
1 mA	100 Ohm
10 mA	10 Ohm
20 mA	5 Ohm
100 mA	1 Ohm
1 A	0.1 Ohm

OUTPUT RANGE

Voltage
select any range from -10 V to +15 V, 10 mA max load
(min span 0.2 V)

Current
select any range from
0 to 50 mA max, (min span 1 mA)
18 V compliance***
if full scale output >20 mA

RESPONSE TIME
1 sec typical

ACCURACY
±0.5% of span

LINEARITY
±0.5% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

ISOLATION

Output / Input
>500 megohms

Breakdown Voltage
>1000 VAC rms

Breakdown, Power / Circuitry
>1500 VAC rms

OUTPUT RIPPLE (Peak-to-Peak)
±0.05% of span

OPERATING TEMPERATURE
14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C

POWER
115 VAC ±10%, 50/60 Hz
(2.5 W max)

230 VAC ±10%, 50/60 Hz
(2.5 W max)

(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

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* *Within specified range limits.*

** *For input values greater than 1A rms select appropriate external shunt resistor and use with 0-500 mV rms input.*

*** *Compliance: The sum of all voltage drops in the output loop cannot exceed 18V at rated current (900 ohms at 20 mA).*

ORDERING INFORMATION

POWER
- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC Power, Transformer Isolated
- ☐ 12 VDC Power, Transformer Isolated

INPUT
Select Units
☐ VAC ☐ mAAC ☐ AAC
Enter Input
_____ Zero Scale
_____ Full Scale

OUTPUT
Select Units
☐ VDC ☐ mADC
Enter Output
_____ Zero Scale
_____ Full Scale

Select Output Logic
- ☐ Normal Acting
- ☐ Reverse Acting

OPTIONS
- ☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)
_____

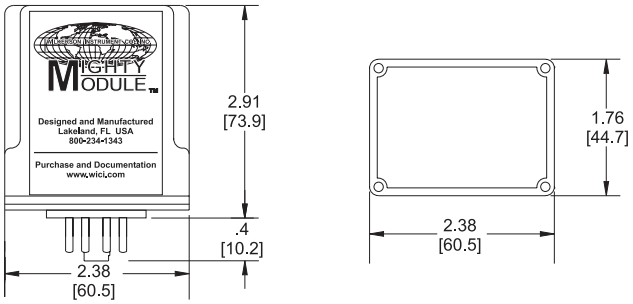
ACCESSORIES

MM6010

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP008	Plastic Socket, 8-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. (MP008, MP011 & DMP8500)	QTY _____
DMP008	DIN-Rail Mounting Socket, 8-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	QTY _____

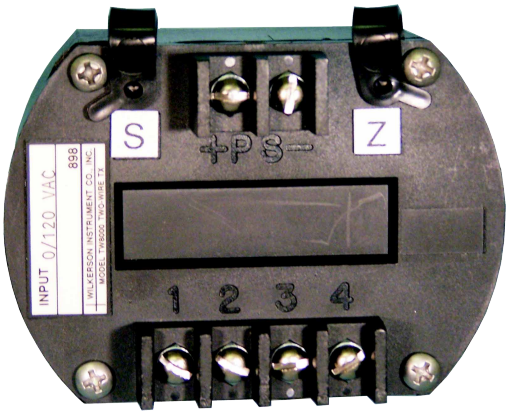
DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 3	Power AC L2 or DC -
PIN 5	Input Signal
PIN 6	Input Common
PIN 7	Output +
PIN 8	Output -



TW8201

AC INPUT ISOLATED TWO-WIRE TRANSMITTER

FEATURES

- **Provides DC Current Output Proportional to AC Input**
- **Fully Isolated Input / Output**
- **100 mV or 100 microamps Minimum Input Span**
- **Unlimited* Choice of Input Ranges**
- **Low-Drift Chopper-Stabilized Input**
- **NEMA-4X Splashproof and Corrosion Resistant**
- **5 Year Warranty**

DESCRIPTION

The TW8201 provides a DC output current proportional to an AC input signal.

Isolation is provided in the transmitter. The transmitter is protected by a gasketed, NEMA-4X glass-filled polyester housing and operates from -40°C to +85°C. Optional conformal coating of the electronic components makes the TW8201 extremely reliable and resistant to the corrosion, moisture and fungus associated with many industrial environments.

The chopper-stabilized input amplifier provides accurate, low-drift operation. All Wilkerson Products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

The output ZERO and SPAN controls are accessible through the top of the housing.

Terminations are made to screw terminal connectors on the top of the case.

TYPICAL APPLICATIONS

Remote AC data acquisition, isolation, AC motor status and control.

SPECIFICATIONS

INPUT RANGE

Voltage
select any range from
0 to 250 V rms max
(min span 100 mV)

Current
select any range 0 to 5 A rms max**
(min span 100 µA, internal shunt)

INPUT FREQUENCY

40 Hz to 1 kHz Sinewave

INPUT IMPENDANCE

Voltage
1 megohm

Current

Input Value	Input Shunt Value
1 mA	100 OHM
10 mA	10 OHM
20 mA	5 OHM
100 mA	1 OHM
1 A	0.1 OHM

OUTPUT RANGE

4/20 mA

OUTPUT RIPPLE (Peak-to-Peak)
<0.1% of span

ISOLATION

Breakdown Voltage
>600 VAC rms

Resistance
>500 megohms

MAX LOAD RESISTANCE
= [(Vsupply - 12)/I out mA] kilohms

RESPONSE TIME
700 ms typical

ACCURACY
±0.05% of span

LINEARITY
±0.01% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
-40°F to 185°F / -40°C to 85°C

TEMPERATURE STABILITY
±0.01% of span / °C max

POWER REQUIRED
12 to 48 VDC, polarity protected

SUPPLY VOLTAGE EFFECT
0.01% of span max

---

* *Within Specified Range Limits.*

** *For input values greater than 1A rms select appropriate external shunt resistor and use with 0-500 mV rms input.*

ORDERING INFORMATION

INPUT
Select Units
☐ VAC ☐ mAAC ☐ AAC
Enter Input
_____ Zero Scale

_____ Full Scale

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)
_____

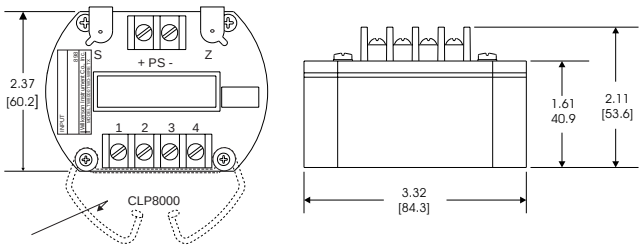
ACCESSORIES

TW8201

DMP8500	Mounting Plate, DIN-Rail & Surface (SC5000 & TW8000)	QTY _____
HKB-HFC	Killark Explosion-Proof Housing, no Window (TW8000)	QTY _____
HKB-HKGL	Killark Explosion-Proof Housing with Window (TW8000)	QTY _____
DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN PS +	Power Supply +
PIN PS -	Power Supply -
PIN 1	Input
PIN 2	Input
PIN 3	No Connection
PIN 4	Shield

DIS878 AND DIS978

STRAIN GAUGE (BRIDGE) INPUT PROCESS INDICATORS

FEATURES

- Provides 3½ Digit or 4½ Digit Display
- Display Calibrated in Engineering Units (psi, kg, klb, etc.)
- Proportional to a Strain Gauge Bridge Input
- 0.5 mV/V to 1 V/V Input Span
- Fully Isolated Output and/or 0, 1, or 2 Alarms (Optional)
- Alarm Setpoints Adjustable without Disturbing Transmitter Output
- Fail-Safe Alarm Operation
- LED Alarm Status Indicator
- Adjustable Deadband
- Unlimited* Choice of Input / Output Ranges
- Fits Standard ⅛ DIN Cutout
- Rated NEMA-4, Splashproof when Properly Installed
- 5 Year Warranty

DESCRIPTION

The DIS878 and DIS978 provide a display, optional isolated DC output voltage or current proportional to the output of a strain gauge bridge, and optional alarm setpoints. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptability to electrical noise and damage by lightning. The unit has a well regulated excitation voltage for the strain gauge and a high quality differential preamplifier to condition the low level output from the bridge. The digital display utilizes an auto-zero dual-slope integrating A/D converter for accuracy and stability.

All controls are accessible by removing a gasketed front access panel. The display controls are wide ranging so that they can be calibrated to display engineering units. Decimal point selection is made with a switch, also accessible from the front. A complete set of engineering unit labels is sent with each DIS. Once the display has been adjusted to read the correct engineering units, the alarm setpoints can be adjusted without test equipment and without disturbing the output voltage or current.

Either setpoint may be displayed by use of the SP CAL switch. Each setpoint has a red LED to indicate alarm status. The alarms have adjustable deadbands. Terminations are made to a screw terminal connector on the rear of the case.

TYPICAL APPLICATIONS

Weight and pressure indication, control, monitoring, data acquisition and warning.

SPECIFICATIONS

INPUT SPAN
0.5 mV/V to 1 V/V

INPUT IMPEDANCE
200 kilohms

OPTION SA, DA SETPOINT
each alarm 0 to 100% of span

DEADBAND
0.25% to 100% of span

RELAY CONTACTS (spdt)
Resistive Load
5 A max, 150 W max, 240 VAC max, 30 VDC max
Inductive Load
⅛ HP max at 120/240 VAC

OPTION TX OUTPUT RANGE
Voltage
select any range between ±10 V, 10 mA max load (min span 0.2 V)
Current
select any range from 0 to 20 mA max, >24 V compliance (1200 ohms max at 20 mA)

OUTPUT RIPPLE(Peak-to-Peak)
<0.1% of span

ISOLATION
Output / Input
>500 megohms
Breakdown Voltage
>600 VAC rms

EXCITATION
fixed 10 V, 40 mA max load

EXCITATION STABILITY
±0.005% / °C

RESPONSE TIME
[3]500 ms

ACCURACY
±0.1% of span

LINEARITY
Display
±0.01% of span
Output
±0.025% of span

DISPLAY (878)
Digit Size
.56" LED, 3½ digits, ±1999
Decimal Point
±1.9.9.9
Control Range
Zero
±1999
Span
min span 10/max span 2000

DISPLAY (978)
Digit Size
.56" LED, 4½ digits, ±19999
Decimal Point
±1.9.9.9.9
Control Range
Zero
±19999
Span
min span 100/max span 20000

DISPLAY
Update
3/sec

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY
±(0.02% of span + 1.3 µV)/°C max

POWER
115 VAC ±10%, 50 or 60 Hz
230 VAC ±10%, 50 or 60 Hz
(4 W max)

* *Within Specified Range Limits.*

ORDERING INFORMATION

POWER
☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power

INPUT
Select Units
☐ mV/V ☐ mV
Enter Input
☐ Zero Scale
☐ Full Scale
Enter Excitation Voltage
☐ Excitation

OUTPUT (Option TX)
Analog Output
☐ Yes ☐ No
Select Units
☐ VDC ☐ mADC
Enter Output
☐ Zero Scale
☐ Full Scale

Select Output Logic
☐ Normal Acting
☐ Reverse Acting

ALARMS (Option SA, DA)
Alarm Output
☐ Yes ☐ No
Alarm Selection - Quantity
☐ Single (SA) ☐ Dual (DA)
Alarm Action
Alarm 1
☐ High ☐ Low
Alarm 2
☐ High ☐ Low
Alarm Logic
☐ Normal - De-Energize on Alarm
☐ Reverse - Energize on Alarm
Enter Setpoint
☐ Setpoint 1
☐ Setpoint 2

DISPLAY
Select Digits
☐ 3.5 Digits (DIS878)
☐ 4.5 Digits (DIS978)

Enter Display
☐ Zero Zcale
☐ Full Scale
Select Display Logic
☐ Normal Acting
☐ Reverse Acting

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Number
Tag number is typed on product label at no charge.

Enter Tag Number(s)

ACCESSORIES

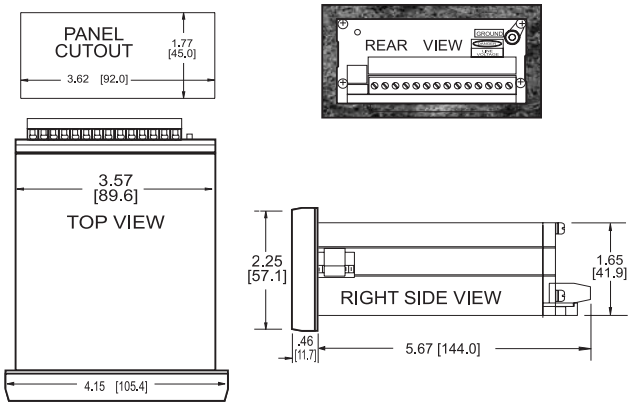
DIS878 AND DIS978
No accessories available at this time.

MOUNTING
The DIS is designed to be mounted from the front of the panel through a standard horizontal 3.62 x 1.77 inches (1/8 DIN) cutout. Two mounting cam-screws allow the securing of the DIS to the panel from the front.

DIMENSIONS

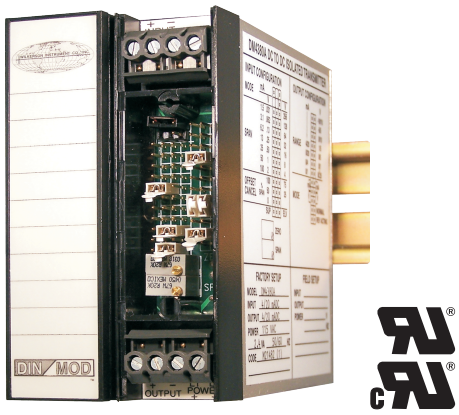
Inches [mm]

DIS SERIES II PROCESS INDICATORS



CONNECTIONS

TERM 1	Output -
TERM 2	Output +
TERM 3	Excitation +
TERM 4	Excitation -
TERM 5	Input +
TERM 6	Input -
TERM 7	Alarm 1 NC
TERM 8	Alarm 1 C
TERM 9	Alarm 1 NO
TERM 10	Alarm 2 NC
TERM 11	Alarm 2 C
TERM 12	Alarm 2 NO
TERM 13	Power AC L1
TERM 14	Power AC L2



DM4051

STRAIN GAUGE (BRIDGE) INPUT FIELD RANGEABLE ISOLATED TRANSMITTER

FEATURES

- Allows Inputs of 0.5mV/V to 128mV/V
- Provides a Fully Isolated DC Output Proportional to Strain Gauge Input
- Selectable Response Time / Filter
- Plug-In Terminal Blocks
- Connections and Ranging Readily Accessible from the Front
- User Write-On Label
- Fully Labeled Jumper Positions for Easy Range Settings
- User-Settable Input and Output Ranges
- Standard DIN-Rail Mount with Easy Snap-On Snap-Off
- Choice of Power Options
- Permanent Warranty

DESCRIPTION

The DM4051 provides an isolated voltage or current output proportional to a strain gauge (bridge) input.

The field rangeable product provides 10V excitation and has gold plated jumpers to select the following ranges and functions.

Input/Output Range
Elevated or Suppressed Offset
Bandwidth Range
Voltage or Current Output
Normal or Reverse Acting Output

Connections are made via two 4-pin plug-in terminal blocks. These terminal blocks allow the product to be removed without unwiring the connections.

TYPICAL APPLICATIONS

Measurement of output from load cells, pressure transmitters, and strain gauge sensors. Eliminates ground loops and common mode signals. Single-unit replacement module provides all normal input and output ranges.

SPECIFICATIONS

INPUT IMPEDANCE (User Settable)
>5 megohms

INPUT RANGE
0.5 mV/V to 128 mV/V

EXCITATION
10 VDC, 35 mA max

INPUT OFFSET
+ 0% to + 100% of span

SPAN ADJUSTMENT
+5% to -55%
of selected span

ZERO ADJUSTMENT
+30% of selected span

OUTPUT

Voltage	Current (mA)
0/.25	0/1
0/1	0/4
1/5	4/20
0/5	0/20
0/10	
-5/+5	
-10/+10	

OUTPUT LOGIC
Normal or Reverse Acting

DRIVE CAPABILITY
Voltage
5 mA max.
Current
>24 V compliance

OUTPUT RIPPLE (Peak-to-Peak)
<0.1% of full scale

ISOLATION
Resistance
>500 megohms
Voltage Rating
>1000 VAC rms sinewave

RESPONSE TIME (99%)
0.02, 0.2, 2, 20 sec

ACCURACY
±0.1% of span

LINEARITY
+0.01% of span

COMMON MODE REJECTION
>120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY
+ 0.01% of span per °C

POWER
Standard
115 VAC + 10%, 50/60 Hz
230 VAC + 10%, 50/60 Hz
Optional
115/230 VAC Selectable
±10%, 50/60 Hz
24 VAC + 10%, 50/60 Hz
24 VDC (21 to 32 VDC)
12 VDC (10 to 16 VDC)
Wattage
2.5 W max

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VAC, 50/60 Hz Power
- ☐ 24 VDC Power, Transformer Isolated
- ☐ 12 VDC Power, Transformer Isolated

INPUT

Select Units

☐ mV/V ☐ mV

Enter Input

_____ Zero Scale

_____ Full Scale

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

_____ Zero Scale

_____ Full Scale

Select Output Logic

- ☐ Normal Acting
- ☐ Reverse Acting

OPTIONS

- ☐ Conformal Coating

TAGS

Specify Tag Number

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

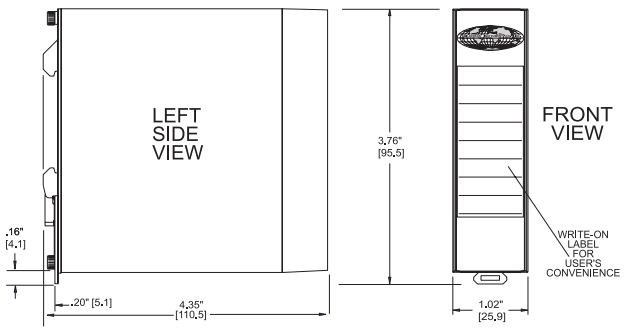
ACCESSORIES

DM4051

DR1 DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter) QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

TERM Input +	Input +
TERM Input -	Input -
TERM Exc. +	Excitation +
TERM Exc. -	Excitation -
TERM Output +	Output +
TERM Output -	Output -
TERM L1	Power AC L1 or DC +
TERM L2	Power AC L2 or DC -

MM1500

STRAIN GAUGE (BRIDGE) INPUT SINGLE ALARM

FEATURES

- **Provides a DPDT Relay Contact Closure at a Preset Strain Gauge Bridge Input**
- **0.5 mV/V to 1 V/V Input Span**
- **Standard Fail-Safe Operation**
- **Red and Green LED Alarm Status Indicators**
- **Unlimited* Choice of Input / Output Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM1500 monitors the DC input signal from a strain gauge bridge and trips a dpdt, 5 A relay when the input exceeds the desired level. Normal operation has the relay energized for the non-alarm condition and de-energized for an alarm condition. This provides a fail-safe alarm condition for loss of power to the module. The alarm has a set of red/green LEDs to indicate alarm status.

A deadband adjustment allows a deadband of 0.5% to 100% of span to be set into the module. The deadband is symmetrical about the setpoint.

With the latching option, the alarm has no deadband control. Once the limit has been reached, the alarm latches and power to the module must be momentarily interrupted to reset the alarm.

All Wilkerson products are designed with RFI filter and lightning protection to reduce susceptibility to electrical noise and damage by lightning. They also provide a well regulated excitation voltage for the strain gauge and a high quality differential preamplifier to condition the low level output from the bridge.

TYPICAL APPLICATIONS

Weight and pressure control, monitoring or warning.

SPECIFICATIONS

INPUT SPAN
0.5 mV/V to 1 V/V

INPUT IMPEDANCE
200 kilohms

SETPOINT
0 to 100% of span

DEADBAND
0.5% to 100% of span

RELAY CONTACTS (dpdt)**
Resistive Load
5 A max, 150 W max, 220 VAC max, 30 VDC max
Inductive Load
(Power factor ³0.4)
2.5 A max, 75 W max, 220 VAC max, 30 VDC max

TRANSISTOR OUTPUT
(Option V)
2.5 A max, 75 W max, 220 VAC max, 30 VDC max relay driver (12 V coil, ³220 ohms) or open-collector outputs sink 100 mA, 30 V supply max

EXCITATION
adjustable 4 V to 12 V, 40 mA max load

EXCITATION STABILITY
±0.005%/°C

RESPONSE TIME
£500 ms

ACCURACY
±0.1% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C max

POWER
115 VAC ±10%, 50/60 Hz (2.5 W max)
230 VAC ±10%, 50/60 Hz (2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

** Within specified range limits.*

*** Due to pins available, only one set of contacts are available for relay set #2. Specify NO (Normally Open) or NC (Normally Closed).*

ORDERING INFORMATION

POWER
- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC Power, Transformer Isolated
- ☐ 12 VDC Power, Transformer Isolated

INPUT

Select Units

☐ mV/V ☐ mV

Enter Input

_____ Zero Scale

_____ Full Scale

Enter Excitation Voltage

_____ Excitation

ALARMS

Alarm Selection - Output
- ☐ Relay
- ☐ Transistor, O.C.

Alarm Type

☐ High ☐ Low

Alarm Logic
- ☐ Normal - De-Energize on Alarm
- ☐ Reverse - Energize on Alarm

Enter Setpoint - Input Level

_____ Setpoint 1

OPTIONS
- ☐ Conformal Coating

TAGS

Specify Tag Number

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

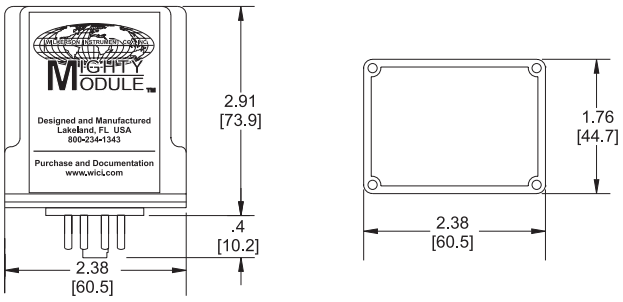
ACCESSORIES

MM1500

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP011	Plastic Socket, 11-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. (MP008, MP011 & DMP8500)	QTY _____
DMP011	DIN-Rail Mounting Socket, 11-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	Relay Set 2 NO or NC
PIN 3	Power AC L2 or DC -
PIN 4	Input + Signal
PIN 5	Input - Signal
PIN 6	No Connection
PIN 7	+ Excitation
PIN 8	- Excitation
PIN 9	Relay 1 NO
PIN 10	Relay 1 C
PIN 11	Relay 1 NC

MM1520

STRAIN GAUGE (BRIDGE) INPUT DUAL ALARM

FEATURES

- **Provides Relay Contact Closures at Preset Strain Gauge Bridge Input**
- **0.5 mV/V to 1 V/V Input Span**
- **Fail-Safe, Latching and Adjustable Deadband Available**
- **Red and Green LED Alarm Status Indicators**
- **Unlimited* Choice of Input Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM1520 monitors the DC input signal from a strain gauge bridge and provides two sets of spdt, 5 A alarm relays with two independently adjustable setpoints. Each setpoint has a set of red/green LEDs to indicate alarm status. When the input is between the setpoints, the relays are normally de-energized. When the signal exceeds a particular setpoint, the relay becomes energized. To provide a "fail-safe" operation (loss of power resulting in an alarm state), select Option R. The module can be supplied as a HI/HI, HI/LO, or LO/LO alarm (HI/LO supplied if not specified).

Standard deadband on both alarms is fixed at 0.5% of span. (Option A provides adjustable deadband of 0.5% to 100% of span.) Option D, latching alarms, has no deadband control. Once the limit has been reached, the alarm latches and power to the module must be momentarily interrupted to reset the alarm.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. It also provides a well regulated excitation voltage for the strain gauge and a high quality differential preamplifier to condition the low level output from the bridge.

TYPICAL APPLICATIONS

Weight and pressure control, monitoring or warning.

SPECIFICATIONS

INPUT SPAN
0.5 mV/V to 1 V/V

INPUT IMPEDANCE
200 kilohms

SETPOINT
each alarm 0 to 100% of span

DEADBAND
Standard
fixed 0.5% of span
(Option A)
0.5% to 100% of span
(Option D)
Latching. Interrupt power to reset.

RELAY CONTACTS (spdt)**
Resistive Load
5 A max, 150 W max,
240 VAC max, 30 VDC max
Inductive Load
1/8 HP max at 120/240 VAC

TRANSISTOR OUTPUT (Option V)
relay driver (12 V coil, ³220 ohms) or open-collector outputs sink 100 mA, 30 V supply max

EXCITATION
adjustable 4 V to 12 V, 40 mA max load

EXCITATION STABILITY
±0.005% / °C

RESPONSE TIME
£500 ms

ACCURACY
±0.1% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C max

POWER
115 VAC ±10%, 50/60 Hz (2.5 W max)
230 VAC ±10%, 50/60 Hz (2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

* *Within specified range limits.*

** *Due to pins available, only one set of contacts are available for relay. Specify NO (Normally Open) or NC (Normally Closed).*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC Power, Transformer Isolated
- ☐ 12 VDC Power, Transformer Isolated

INPUT

Select Units

☐ mV/V ☐ mV

Enter Input

☐ Zero Scale

☐ Full Scale

Enter Excitation Voltage

☐ Excitation

ALARMS

Alarm Selection - Output

- ☐ Relay
- ☐ Transistor, O.C.

Alarm Type

- ☐ High/Low
- ☐ High/High
- ☐ Low/Low

Alarm Logic

- ☐ Normal - Energize on Alarm
- ☐ Reverse - De-Energize on Alarm

Enter Setpoint - Input Level

☐ Setpoint 1

☐ Setpoint 2

Adjustable Deadband (Option A)

☐ Yes ☐ No

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

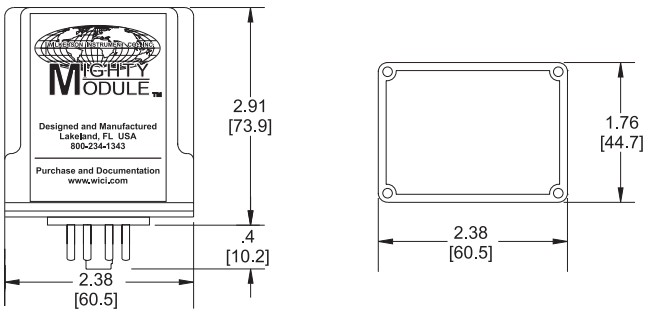
ACCESSORIES

MM1520

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP011	Plastic Socket, 11-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. (MP008, MP011 & DMP8500)	QTY _____
DMP011	DIN-Rail Mounting Socket, 11-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	Relay 2 C
PIN 3	Power AC L2 or DC -
PIN 4	Input + Signal
PIN 5	Input - Signal
PIN 6	No Connection
PIN 7	+ Excitation
PIN 8	- Excitation
PIN 9	Relay 1 NO or NC
PIN 10	Relay 1 C

MM4051

STRAIN GAUGE (BRIDGE) INPUT TRANSMITTER

FEATURES

- **Provides DC Output Proportional to a Strain Gauge Bridge Input**
- **0.5 mV/V to 1 V/V Input Span**
- **Unlimited* Choice of Input/Output Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM4051 provides an output voltage or current proportional to the output of a strain gauge bridge. It is useful in monitoring load cells, pressure transducers, and other strain gauge sensors.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. The MM4051 provides a well regulated excitation voltage for the strain gauge and a high quality differential preamplifier to condition the low level output from the bridge.

TYPICAL APPLICATIONS

Weight and pressure control, monitoring and data acquisition.

SPECIFICATIONS

INPUT SPAN
0.5 mV/V to 1 V/V

INPUT IMPEDANCE
200 kilohms

OUTPUT RANGE
Voltage
select any range from -10 V to +15 V, 10 mA max load (min span 0.2 V)
Current
select any range from 0 to 50 mA max, >24 V compliance (1200 ohms max at 20 mA)

EXCITATION
adjustable 4 V to 12 V, 40 mA max

EXCITATION STABILITY
±0.005% / °C

RESPONSE TIME
£500 ms

ACCURACY
±0.1% of span

LINEARITY
±0.01% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

TEMPERATURE STABILITY
±0.02% of span / °C max

OPERATING TEMPERATURE
14°F to 140°F / -10°C to 60°C

POWER
115 VAC ±10%, 50/60 Hz (2.5 W max)
230 VAC ±10%, 50/60 Hz (2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

** Within specified range limits.*

ORDERING INFORMATION

POWER

☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power
☐ 24 VDC Power, Transformer Isolated
☐ 12 VDC Power, Transformer Isolated

INPUT

Select Units

☐ mV/V ☐ mV

Enter Input

_____ Zero Scale

_____ Full Scale

Enter Excitation Voltage

_____ Excitation

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

_____ Zero Scale

_____ Full Scale

Select Output Logic

☐ Normal - Energize on Alarm
☐ Reverse - De-Energize on Alarm

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

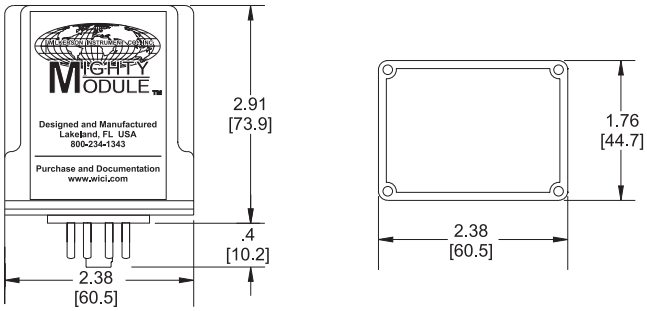
ACCESSORIES

MM4051

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP011	Plastic Socket, 11-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. (MP008, MP011 & DMP8500)	QTY _____
DMP011	DIN-Rail Mounting Socket, 11-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
PIN 4	Input Signal +
PIN 5	Input Signal -
PIN 6	No Connection
PIN 7	Excitation +
PIN 8	Excitation -
PIN 9	Output +
PIN 10	Output -

DIS875 AND DIS975

FREQUENCY INPUT PROCESS INDICATORS

FEATURES

- Provides 3½ Digit or 4½ Digit Display
- Display Calibrated in Engineering Units (rpm, fps, ips, mps, etc.) Proportional to Frequency Input
- Fully Isolated Output and/or 0, 1, or 2 Alarms
- 50 mV to 100 V Peak Input Sensitivity
- Selectable Sensitivity for Low Noise Level Rejection
- Frequency Limit 60 kHz
- Alarm Setpoints Adjustable Without Disturbing Transmitter Output
- Fail-safe Alarm Operation
- LED Alarm Status Indicator
- Adjustable Deadband
- Unlimited* Choice of Input/Output Ranges
- Fits Standard ⅛ DIN Cutout
- Rated NEMA-4, Splashproof When Properly Installed
- 5 Year Warranty

DESCRIPTION

The DIS875 and DIS975 provide a display, optional isolated DC output voltage or current proportional to a frequency input signal, and optional alarm setpoints. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. The digital display utilizes an auto-zero dual-slope integrating A/D converter for accuracy and stability.

All controls are accessible by removing a gasketed front access panel. The display controls are wide-ranging so that it can be calibrated to display engineering units. Decimal point selection is made with a switch, also accessible from the front. A complete set of engineering unit labels is sent with each DIS. Once the display has been adjusted to read the correct engineering units, the alarm setpoints can be adjusted without test equipment and without disturbing the output voltage or current.

The wide range input sensitivity allows the DIS to be driven from low level magnetic pickups as well as logic level signals. A choice of three input sensitivities allows the user to trade off sensitivity versus noise rejection. A built-in pullup resistor is connected to a spare input terminal to permit use with contact closure or open-collector inputs.

Either setpoint may be displayed by use of the SP CAL switch. Each setpoint has an LED to indicate alarm status. The alarms have adjustable deadbands. Terminations are made to a screw terminal connector on the rear of the case.

TYPICAL APPLICATIONS:

Flow, speed of motors, conveyors, etc., indication, control, HI/LO alarm.

SPECIFICATIONS

INPUT RANGE
Select any range from 0 to 10 Hz min to 0 to 60 kHz max

INPUT SENSITIVITY
Any voltage from 15 mV to 250 V rms

INPUT IMPEDANCE
100 kilohms or greater

PULLUP RESISTOR
10 kilohms to 6.5 VDC

OPTION SA, DA SETPOINT
each alarm 0 to 100% of span

DEADBAND
0.25% to 100% of span

RELAY CONTACTS (spdt)
Resistive Load
5 A max, 150 W max,240 VAC max, 30 VDC max
Inductive Load
⅛ HP max at 120/240 VAC

OUTPUT RIPPLE (Peak-to-Peak)
<0.1% of span

OPTION TX OUTPUT RANGE
Voltage
Select any range between ±10 V,10 mA max load (min span 0.2 V)
Current
Select any range from 0 to 20 mA max, >24V compliance (1200 ohms max at 20 mA)

ISOLATION
Output / Input
>500 megohms
Breakdown Voltage
>600 VAC rms

ACCURACY
±0.1% of span

LINEARITY
±0.1% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

DISPLAY
Update 3/sec

DISPLAY (875)
Digit Size
.56" LED, 3½ digits, ±1999
Decimal Point ±1.9.9.9
Control Range
Zero ±1999
Span min span 10/max span 2000

DISPLAY (975)
Digit Size
.56" LED, 4½ digits, ±19999
Decimal Point ±1.9.9.9.9
Control Range
Zero ±19999
Span min span 100/max span 20000

OPERATING TEMPERATURE
14°F to 140°F / -10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C max

POWER
115 VAC ±10%, 50 or 60 Hz
230 VAC ±10%, 50 or 60 Hz
(4 W max)

* *Within specified range limits.*

ORDERING INFORMATION

POWER
☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power

INPUT
Select Units
☐ Hz ☐ KHz
Enter Input
_____ Full Scale

OUTPUT (Option TX)
Analog Output
☐ Yes ☐ No
Select Units
☐ VDC ☐ mADC
Enter Output
_____ Zero Scale
_____ Full Scale

Select Output Logic
☐ Normal Acting
☐ Reverse Acting

ALARM (Option SA, DA)
Alarm Output
☐ Yes ☐ No
Alarm Selection - Quantity
☐ Single (SA) ☐ Dual (DA)
Alarm Action
Alarm 1
☐ High ☐ Low
Alarm 2
☐ High ☐ Low
Alarm Logic
☐ Normal - De-Energize On Alarm
☐ Reverse - Energize On Alarm
Enter Setpoint - Input Level
_____ Setpoint 1
_____ Setpoint 2

DISPLAY
Enter Display
_____ Zero Scale
_____ Full Scale
Select Display Logic
☐ Normal Acting
☐ Reverse Acting

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag Number is typed on product label at no charge.

Enter Tag Number(s)
_____

ACCESSORIES

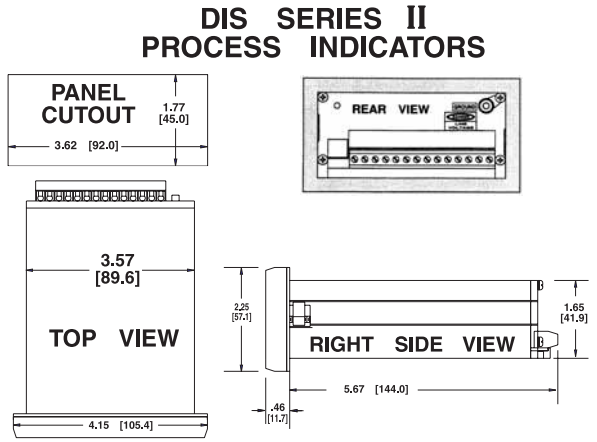
DIS875 AND 975

No accessories available at this time.

MOUNTING
The DIS is designed to be mounted from the front of the panel through a standard horizontal 3.62 x 1.77 inches (1/8 DIN) cutout. Two mounting cam-screws allow the securing of the DIS to the panel from the front.

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Output -	PIN 8	Alarm 1 C
PIN 2	Output +	PIN 9	Alarm 1 NO
PIN 3	Pullup Resistor A	PIN 10	Alarm 2 NC
PIN 4	Input B +	PIN 1	Alarm 2 C
PIN 5	Input C -	PIN 12	Alarm 2 NO
PIN 6	Input Common	PIN 13	Power AC L1
PIN 7	Alarm 1 NC	PIN 14	Power AC L2

Recommended Input Amplitude	Threshold Sensitivity	Connect Input To Terminals	Jumper
Low: 25mV to 1V peak 15mV to 0.7V rms sine	15mV	C and COM	NONE
Med: 250 mV to 10V peak 150mV to 7V rms sine	150mV	B and COM	NONE
High: 2.5mV to 10V peak 1.5V to 250V rms sine	1.5V	B and COM	C to COM
Contact Closure or Open-Collector	1.5V	B(+) and COM(-)	A to B C to COM

DM7010

FREQUENCY INPUT FIELD RANGEABLE ISOLATED TRANSMITTER

FEATURES

- Spans from 10 Hz to 50 KHz
- Selectable Response Time & Filter
- Plug-In Terminal Blocks
- Standard DIN-Rail Mount with Easy Snap-On Snap-Off
- User-Settable Input and Output Ranges
- Fully Labeled Jumper Positions for Easy Range Settings
- User Write-On Label
- Connections and Ranging Readily Accessible from the Front
- Choice of Power Options
- Permanent Warranty

DESCRIPTION

The DM7010 is a field rangeable frequency input signal conditioner. It provides several choices of voltage or current ouputs proportional to the frequency of the input. A Normal - Reverse selection is available which reverses the output signal logic (ie 20 - 4mA vs 4 - 20mA). The input is galvanically isolated from the output and power source.

Response time can be set by the user with a selection of jumpers on the front panel.

The wide input voltage range allows the product to be used with low level magnetic pickups, for flow or speed applications, as well as digital signals or direct power line monitoring.

A selectable pull-up resistor allows the product to be driven from a switch closure or open collector transistor. It will also accept CMOS or TTL digital inputs.

The DM7010 is housed in an aluminum case with a stainless steel DIN rail mount.

The terminals on the front are pluggable, for ease in wiring. The snap-on front cover has a write-on label.

Several power input options are available.

TYPICAL APPLICATIONS

Typical applications for the DM7010 are monitoring flow, conveyor speed, power line frequency on portable generators, and motor rotation speed.

SPECIFICATIONS

INPUT

Frequency Range
10 Hz to 50 kHz

Impedance
100,000 ohms

Coupling
AC

Voltage range
50 mV to 700 V p-p

Span Select
(User settable)
12, 25, 50, 100, 200, 400, 800, 1600, 3200, 6400, 12500, 25000 and 50000 Hz

Span adjustment
+5%, -55% of selected span

Zero adjustment
±30% of selected span

Offsets
(User settable)
None

Pull-Up Resistor
4.7 kilohm (+5 VDC)

OUTPUT

Modes
Normal/
Reverse Acting

Range
(User settable)
0/.25, 0/1, 0/5, 0/10, -5/5, & -10/10 VDC
0/1, 0/4, 0/20, & 4/20 mAdc

Accuracy
0.1% of span

Step response time
see FILTER CAPACITOR SELECTION CHART

Ripple
(peak-to-peak)
see FILTER CAPACITOR SELECTION CHART

Input to Output Linearity
±0.01% of span

COMMON MODE REJECTION

120 dB DC to 60 Hz

ISOLATION, OUTPUT / INPUT

>500 megohms

BREAKDOWN, OUTPUT TO INPUT

>1000 volts RMS sinewave

BREAKDOWN, POWER CIRCUITRY

>1500 volts RMS sinewave

OPERATING TEMPERATURE

-13° to 140°F
(-25° to 60°C)

TEMPERATURE STABILITY

±(0.01% of span)/°C

POWER

Wattage
2.5 W max

AC Options

115 VAC	±10%,	50/60 Hz
230 VAC	±10%,	50/60 Hz
24 VAC	±10%,	50/60 Hz

DC Options
12 VDC nominal
(10 to 15 VDC)
24 VDC nominal
(21 to 28 VDC)

FILTER CAPACITOR SELECTION CHART

FREQUENCY SPAN SETTING	MINIMUM CAPACITOR* SETTING FOR LESS THAN 0.1% RIPPLE PEAK-PEAK		MINIMUM CAPACITOR* SETTING FOR LESS THAN 0.5% RIPPLE PEAK-PEAK	
HERTZ	CAPACITOR (uF)	RESPONSE TO 99% (*SEC) **	CAPACITOR (uF)	RESPONSE TO 99% (*SEC) **
12	2.2	110	1.0	50
25	2.2	110	1.0	50
50	1.0	50	0.47	24
100	1.0	50	0.47	24
200	0.47	24	0.47	24
400	0.47	24	1.0	5
800	0.47	24	0.047	2.4
1600	0.1	5	0.047	2.4
3200	0.047	2.4	0.047	2.4
6400	0.047	2.4	0.01	0.5
12500	0.01	0.5	0.0047	0.24
25000	0.01	0.5	0.0047	0.24
50000	0.0047	0.24	0.001	0.05

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VAC, 50/60 Hz Power
- ☐ 24 VDC Power Transformer Isolated
- ☐ 12 VDC Power Transformer Isolated

INPUT

Select Units

☐ Hz ☐ KHz

Enter Input

[ ] Full Scale

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

[ ] Zero Scale

[ ] Full Scale

Select Output Logic

- ☐ Normal Acting
- ☐ Reverse Acting

OPTIONS

- ☐ Conformal Coating

TAGS

Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)

[ ]

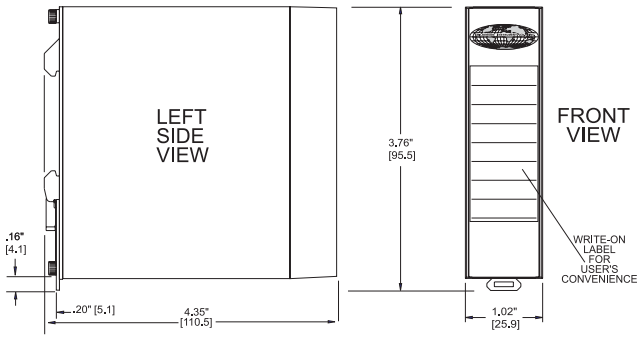
ACCESSORIES

DM7010

DR1 DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter) QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

Input +	Input +
Input -	Input -
SHLD	Shield
TERM 4	No Connection
Output +	Output +
Output -	Output -
TERM L1 +	Power AC L1 or DC +
TERM L2 -	Power AC L2 or DC -

MM1700

FREQUENCY INPUT SINGLE ALARM

FEATURES

- Provides a DPDT Relay Contact Closure at a Preset Frequency Input
- Standard Fail-Safe Operation
- Red and Green LED Alarm Status Indicators
- Adjustable Deadband
- Frequency Limit 60 kHz
- 50 mV to 100 V Peak Input Sensitivity
- Adjustable Threshold for Low Level Noise Rejection
- Unlimited* Choice of Input Ranges
- Input Pullup Resistor Available
- Choice of Power Options
- 10 Year Warranty

DESCRIPTION

The MM1700 monitors a frequency input signal and trips a DPDT, 5 A relay when the input reaches the desired frequency. Alarms may be High acting (alarm trips on an increasing input frequency) or Low acting (alarm trips on an decreasing input frequency). Normal operation has the relay energized for the non-alarm condition and de-energized for an alarm condition. This provides a fail-safe alarm condition for loss of power to the module. The alarm has a set of red/green LEDs to indicate alarm status.

A deadband adjustment allows a deadband of 0.5 %to 100% of span to be set into the module. The deadband is symmetrical about the setpoint.

The wide range of input sensitivity allows the MM1700 to be driven from low level magnetic pickups as well as logic level signals. A threshold adjustment sets the minimum input tamplitude the module will process. This allows the user to trade off sensitivity versus noise rejection. An optional pullup resistor (Option P) permits use with contact-closure or open-collector inputs.

All Wilkerson products are designed with RFI filters and lightning to reduce susceptibility to electrical noise and damage by lightning.

TYPICAL APPLICATIONS

Flow rate, motor speed, conveyor speed, power line frequency on portable generators.

SPECIFICATIONS

INPUT RANGE
select any range from 0 to 10 Hz min to 0 to 60 kHz max

INPUT SENSITIVITY
any voltage from 50 mV to 100 V peak

INPUT IMPEDANCE
100 kilohms

OPTION P
Pullup resistor to + input
10 kilohms to +12 VDC

SETPOINT
0 to 100% of span

DEADBAND
0.5% to 100% of span

RELAY CONTACTS (DPDT)
Resistive Load
5 A max, 150 W max,
220 VAC max, 30 VDC max

Inductive Load
(Power Factor ³ 0.4)
2.5 A max, 75 W max,
220 VAC max, 30 VDC max

ACCURACY
±0.1% of span

TRANSISTOR OUTPUT
(Option V)
Relay driver
(12 V coil, 220 ohms)
or open-collector outputs sink
100 mA, 30 V supply max

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C max

POWER
115 VAC ±10%, 50/60 Hz
(2.5 W max)

230 VAC ±10%, 50/60 Hz
(2.5 W max)

(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

** Within specified range limits.*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC Power, Transformer Isolated
- ☐ 12 VDC Power, Transformer Isolated

INPUT

Select Units

☐ Hz ☐ KHz

Enter Input

[ ] Full Scale

ALARM

Alarm Selection - Output

☐ Relay ☐ Transistor, O.C.

AlarmType

☐ High ☐ Low

Alarm Logic

- ☐ Normal - De-Energize On Alarm
- ☐ Reverse - Energize On Alarm

Enter Setpoint - Input Level

[ ] Setpoint 1

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)

[ ]

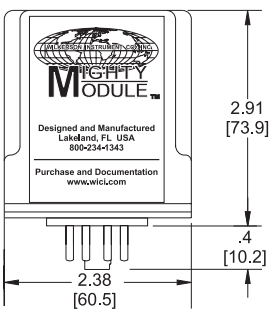
ACCESSORIES

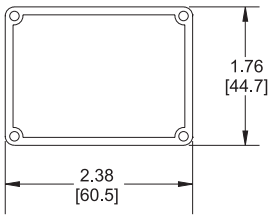
MM1700

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP011	Plastic Socket,, 11-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. (MP008, MP011 & DMP8500)	QTY _____
DMP011	DIN-Rail Mounting Socket, 11-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-11	Explosion-Proof Housing with MP008 Installed	QTY _____

DIMENSIONS

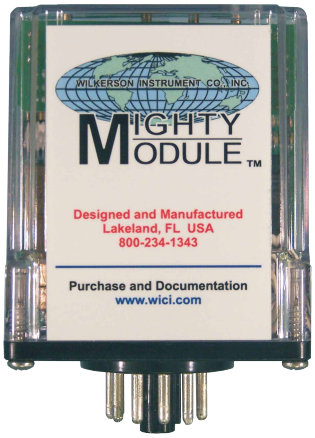
Inches [mm]





CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
PIN 4	Input +
PIN 5	Input -
PIN 6	Relay Set 1 NO
PIN 7	Relay Set 1 C
PIN 8	Relay Set 1 NC
PIN 9	Relay Set 2 NO
PIN 10	Relay Set 2 C
PIN 11	Relay Set 2 NC



MM1720

FREQUENCY INPUT DUAL ALARM

FEATURES

- **Provides Relay Contact Closures at Preset Frequency Input**
- **Fail-Safe, Latching, and Adjustable Deadband Available**
- **Red and Green LED Alarm Status Indicators**
- **Frequency Limit 60 kHz**
- **50 mV to 100 V Peak Input Sensitivity**
- **Adjustable Threshold for Low Level Noise Rejection**
- **Unlimited* Choice of Input/Output Ranges**
- **Input Pullup Resistor Available**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM1720 monitors a frequency input signal and provides two sets of spdt, 5 A alarm relays with two independently adjustable setpoints. Each setpoint has a set of red/green LEDs to indicate alarm status. When the input is between the setpoints, the relays are normally de-energized. When the signal exceeds a particular setpoint, the relays become energized. To provide a fail-safe operation (loss of power resulting in an alarm state), select Option R. The module can be supplied as a HI/HI, HI/LO, or LO/LO alarm (HI/LO supplied if not specified).

Standard deadband on both alarms is fixed at 0.5% of span (Option A provides adjustable deadband of 0.5% to 100% of span.) Option D, latching alarms, has no deadband control. Once the limit has been reached, the alarm latches and power to the module must be momentarily interrupted to reset the alarm.

The wide range of input sensitivity allows the MM1720 to be driven from low level magnetic pickups as well as logic level signals. A threshold adjustment sets the minimum input amplitude the module will process. This allows the user to trade off sensitivity versus noise rejection. An optional pullup resistor (Option P) permits use with contact-closure or open-collector inputs.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

TYPICAL APPLICATIONS

Flow, speed of motors, conveyors, etc. control HI/LO limit alarm.

SPECIFICATIONS

INPUT RANGE
select any range from 0 to 10 Hz min to 0 to 60 kHz max

INPUT SENSITIVITY
any voltage from 50 mV to 100 V peak

INPUT IMPEDANCE
100 kilohms

OPTION P
Pullup resistor to + input
10 kilohms

Open-circuit voltage
+12 VDC

SETPOINT
each alarm 0 to 100% of span

DEADBAND
Standard
fixed 0.5% of span

(Option A)
0.5% to 100% of span

(Option D)
Latching.
Interrupt power to reset.

RELAY CONTACTS
(spdt)

Resistive Load
5 A max, 150 W max,
240 VAC max, 30 VDC max
Inductive Load
1/8 HP max at 120/240 VAC

TRANSISTOR OUTPUT
(Option V)
relay driver
(12 V coil, ±220 ohms) or
open-collector outputs sink
100 mA, 30 V supply max

ACCURACY
±0.1% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C max

POWER
115 VAC ±10%, 50/60 Hz
(2.5 W max)

230 VAC ±10%, 50/60 Hz
(2.5 W max)

(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

** Within specified range limits.*

ORDERING INFORMATION

POWER
- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC Power, Transformer Isolated
- ☐ 12 VDC Power, Transformer Isolated

INPUT
Specify Input - Select Units
☐ Hz ☐ KHz
Enter Input
☐ Zero Scale
☐ Full Scale

ALARM
Alarm Selection - Output
☐ Relay ☐ Transistor, O.C.
AlarmType
- ☐ High/Low
- ☐ High/High
- ☐ Low/Low

Alarm Logic
- ☐ Normal - Energize On Alarm
- ☐ Reverse - De-energize On Alarm

Enter Setpoint - Input Level
☐ Setpoint 1
☐ Setpoint 2

Adjustable Deadband (Option A)
☐ Yes ☐ No

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag number is typed on product label at no charge.

Enter Tag Number(s)

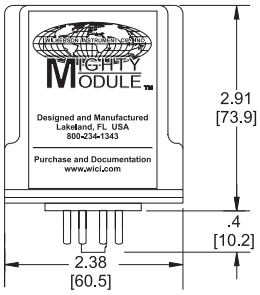
ACCESSORIES

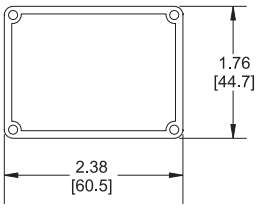
MM1720

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP011	Plastic Socket,, 11-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. (MP008, MP011 & DMP8500)	QTY _____
DMP011	DIN-Rail Mounting Socket, 11-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-11	Explosion-Proof Housing with MP008 Installed	QTY _____

DIMENSIONS

Inches [mm]





CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
PIN 4	Input +
PIN 5	Input -
PIN 6	Relay 1 NO
PIN 7	Relay 1 C
PIN 8	Relay 1 NC
PIN 9	Relay 2 NO
PIN 10	Relay 2 C
PIN 11	Relay 2 NC

MM7010

FREQUENCY INPUT TRANSMITTER

FEATURES

- **Provides DC Output Proportional to Frequency Input**
- **Fully Isolated Output Available**
- **Frequency Limit 60 kHz**
- **50 mV to 100 V Peak Input Sensitivity**
- **Adjustable Threshold for Low Level Noise Rejection**
- **Input Pullup Resistor Available**
- **Unlimited* Choice of Input/Output Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM7010 provides a DC output voltage or current proportional to the frequency of the input signal. It is useful for measuring flow, speed of motors, conveyors, or other devices that can create a periodic signal proportional to the desired function. The wide range of input sensitivity allows the MM7010 to be driven from low level magnetic pickups as well as logic level signals.

A threshold adjustment sets the minimum input amplitude the module will process. This allows the user to trade off sensitivity versus noise rejection. An optional pullup resistor (Option P) permits use with contact closure or open-collector inputs.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

TYPICAL APPLICATIONS

Measuring or monitoring flow, speed of motors, conveyors, etc.

SPECIFICATIONS

INPUT RANGE
select any range from
0 to 10 Hz min to 0 to 60 kHz max

INPUT SENSITIVITY (Threshold)
any voltage from 50 mV
to 100 V peak

INPUT IMPEDANCE
100 kilohms

OPTION P
10 kilohms pullup resistor
to +6.5 V

OUTPUT RANGE
Voltage
select any range from
-10 V to +15 V,
10 mA max load
(min span 0.2 V)

Current
select any range from
0 to 50 mA max, >24 V compliance
(1200 ohms max at 20 mA)
18 V compliance for ISO option
if full-scale output >20 mA

ACCURACY
±0.1% of span

LINEARITY
±0.1% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

ISOLATION
(Optional)
Output / Input
>500 megohms
Breakdown Voltage
>1000 VAC rms
Breakdown, Power / Circuitry
>1500 VAC rms

OPERATING TEMPERATURE
14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C max

POWER
115 VAC ±10%, 50/60 Hz
(2.5 W max)
230 VAC ±10%, 50/60 Hz
(2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

** Within specified range limits*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC Power, Transformer Isolated
- ☐ 12 VDC Power, Transformer Isolated

INPUT

Select Units

☐ Hz ☐ KHz

Enter Input

_____ Full Scale

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

_____ Zero Scale

_____ Full Scale

OPTIONS

- ☐ Isolated Output
- ☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

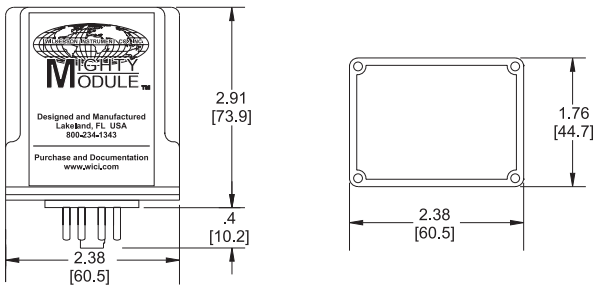
ACCESSORIES

MM7010

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP008	Plastic Socket,, 8-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. (MP008, MP011 & DMP8500)	QTY _____
DMP008	DIN-Rail Mounting Socket, 8-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-11	Explosion-Proof Housing with MP008 Installed	QTY _____

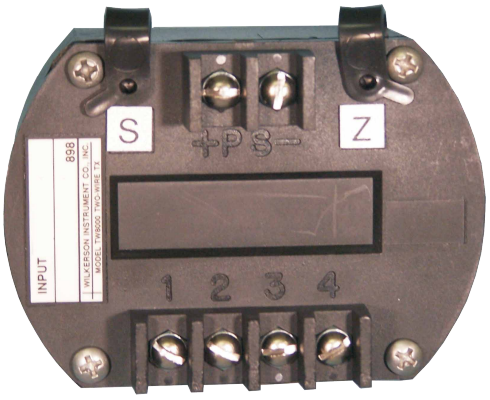
DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
PIN 5	Input +
PIN 6	Input -
PIN 7	Output +
PIN 8	Output -



TW850X

FREQUENCY INPUT TWO-WIRE TRANSMITTER

FEATURES

- **Provides DC Output Proportional to Frequency Input**
- **Fully Isolated Input/Output Available**
- **30 mV to 500 V Peak Input Sensitivity**
- **Three Threshold Ranges**
- **Pullup Resistor**
- **Unlimited* Choice of Input Ranges**
- **Low-Drift Copper-Stabilized Input**
- **NEMA-4X Splashproof and Corrosion Resistant**
- **5 Year Warranty**

DESCRIPTION

The TW850X provides a DC output current proportional to a frequency input signal with an optional display in a "hockey puck" case. Optional isolation is also available for the transmitter. The transmitter is protected by a gasketed, NEMA-4X glass-filled polyester housing and operates from -40°C to +85°C. The chopper-stabilized input amplifier provides accurate, low-drift operation.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

The output ZERO and SPAN controls are accessible through the top of the housing.

Optional conformal coating of the electronic components makes the TW850X extremely reliable and resistant to the corrosion, moisture and fungus associated with many industrial environments. A built-in pullup resistor is provided to permit use with contact-closure or open-collector inputs.

Terminations are made to screw terminal connectors on the top of the case.

TYPICAL APPLICATIONS

Remote motor, conveyor speed, data acquisition, isolation.

SPECIFICATIONS

INPUT RANGE
select any range from 0 to 5 kHz
min to 0 to 10 Hz

INPUT SENSITIVITY (Peak-to-Peak)
any voltage from 30 mV to 500 V

MAX DC OFFSET
High Range
±250 VDC
Low and Medium Range
±30 VDC

INPUT IMPEDANCE
High and Medium Range
100 kilohms
Low Range
10K ohms
Biult-In Pullup Resistor
10K ohms
Open-Circuit Voltage
6.5 VDC

OUTPUT RANGE
4/20 mA (10/50 mA optional)

ISOLATION (Optional)
Output / Input
>500 megohms
Breakdown Voltage
>600 VAC rms

MAX LOAD RESISTANCE
R_L max= (V supply - 12)/I out max

RESPONSE TIME (Range Dependant)
£1.5 sec

ACCURACY
±0.1% of span

LINEARITY
±0.1% of span

OUPUT RIPPLE (Peak-to-Peak)
0.1% of span

LINEARITY
±0.5% of span

OPERATING TEMPERATURE
Display
14°F to 140°F/–10°C to 60°C
W/O Display
-40°F to 185°F/-40°C to 85°C

TEMPERATURE STABILITY
±0.01% of span/°C max

POWER
12 to 48 VDC

SUPPLY VOLTAGE EFFECT
0.01% of span max, 12 TO 48 VDC

* *Within specified range limits.*

ORDERING INFORMATION

INPUT

Select Units

☐ Hz ☐ KHz

Enter Input

_____ Zero Scale

_____ Full Scale

OUTPUT

☐ Non-Isolated (TW8500)

☐ Isolated (TW8501)

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

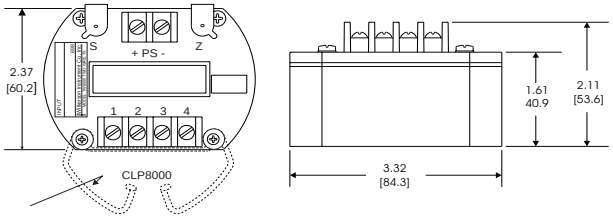
ACCESSORIES

TW850X

DMP8500	Mounting Plate, DIN-Rail & Surface (SC5000 & TW8000)	QTY _____
DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
HKB-HFC	Killark Explosion-Proof Housing, no Window (TW8000)	QTY _____
HKB-HKGL	Killark Explosion-Proof Housing with Window (TW8000)	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN PS + Power Supply +

PIN PS - Power Supply -

INPUT CONNECTION		
Input Amplitude	Connect Input to Terminals:	Jumper:
Low: 30 mV to 5V pk-pk 10 mV to 1.7 V rms sine	3 and 4	none
Med: 300 mV to 50V pk-pk 100 mV to 17 V rms sine	2 and 4	none
High: 3 V to 500V pk-pk 1 V to 170 V rms sine	2 and 4	3 and 4
Contact Closure or Open Collector	2 (+) and 4 (-)	1 to 2

MM4402 AND MM4408

ADDER/SUBTRACTER TRANSMITTERS

FEATURES

- **Provides DC Output Proportional to Math Function**
- **1 V or 1 mA Minimum Input Span**
- **Unlimited* Choice of Input / Output Ranges**
- **Choice of Power Options**
- **10 +Year Warranty**

DESCRIPTION

The MM4402 and MM4408 provide a DC output voltage or current proportional to the sum or difference of the DC inputs. Typical input ranges are 4/20 mA, 10/50 mA, 0-1 V, 0-5 V and 0-10 VDC. Other ranges are available down to minimum spans of 1 V or 1 mA DC.

MM4402 Output = (A+B)/2
MM4408 Output = A–B

Seven other models are available, offering combinations of additive and subtractive inputs. Contact Factory.

Standard calibration provides 0% output when all inputs are at 0%. Full scale (100%) output occurs when all additive inputs are at 100% and all subtractive inputs are at 0%. Other calibrations are available.

All Wilkerson products are designed with RFI filters and lighting protection to reduce susceptibility to electrical noise and damage by lighting.

TYPICAL APPLICATIONS

Adding and subtracting flows, weights, etc. for process monitoring, control and data acquisition.

SPECIFICATIONS

INPUT RANGE

Voltage
select any range between ±250 V (min span 1 V)
Typical inputs:
0-1 V, 0-5 V, 0-10 V

Current
select any range between ±100 mA max (min span 1 mA)
Typical inputs:
4/20 mA or 10/50 mA

INPUT IMPEDANCE

Voltage
100 kilohms

Current
1.25 V drop typical, others available

OUTPUT RANGE

Voltage
select any range from -10 V to +15V,10 mA max load (min span 0.2 V)

Current
select any range from 0 to 50 mA max, >24 V compliance (1200 ohms max at 20 mA)
18 V compliance for ISO option if full scale output >20 mA

RESPONSE TIME

(Range Dependent)
£100 ms

BALANCE BETWEEN INPUTS

£0.2%

LINEARITY

±0.01% of span

ISOLATION

Breakdown, Power / Circuitry
>1500 VAC rms

OPERATING TEMPERATURE

14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY

±0.02% of span/°C max

POWER

115 VAC ±10%, 50/60 Hz (2.5 W max)
230 VAC ±10%, 50/60 Hz (2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms*

* *Within specified range limits.*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC Power, Transformer Isolated
- ☐ 12 VDC Power, Transformer Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

_____ Zero Scale

_____ Full Scale

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

_____ Zero Scale

_____ Full Scale

OPTIONS

- ☐ Conformal Coating
- ☐ Isolation

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

Attach equation that defines the math function desired. Also include any tables or charts.

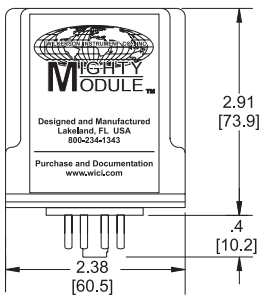
ACCESSORIES

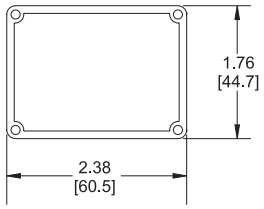
MM4402 AND MM4408

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP011	Plastic Socket,, 11-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. (MP008, MP011 & DMP8500)	QTY _____
DMP011	DIN-Rail Mounting Socket, 11-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	QTY _____

DIMENSIONS

Inches [mm]





CONNECTIONS

PIN 1	AC L1 or DC +
PIN 2	No Connection
PIN 3	AC L2 or DC -
PIN 4	Input A +
PIN 5	Input Common
PIN 6	Input B +
PIN 7	No Connection
PIN 8	No Connection
PIN 9	Output +
PIN 10	Output -

MM4410

DC INPUT MULTIPLIER TRANSMITTER OUTPUT = A x B

FEATURES

- **Provides DC Output Proportional to the Product of Two DC Inputs (Output = A x B)**
- **Fully Isolated Output Available**
- **1 V or 1 mA Minimum Input Span**
- **Unlimited* Choice of Input/ Output Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM4410 provides a DC output voltage or current proportional to the product of two DC inputs. Typical input ranges are 4/20 mA, 10/50 mA, 0-1 V, 0-5 V, and 0-10 VDC. Other ranges are available down to minimum spans of 1 V or 1 mA DC. Standard calibration provides the output at full scale (100%) when both inputs are at full scale (100%). Other calibrations are available.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

TYPICAL APPLICATIONS

Calculating power (current x voltage), mass flow (flow rate x density), etc.

SPECIFICATIONS

INPUT RANGE
Voltage
select any range between ±250 V max (min span 1 V)
typical inputs: 0-1 V, 0-5 V, 0-10V
Current
select any range between ±100 mA max (min span 1 mA)
typical inputs: 4/20 mA or 10/50mA

INPUT IMPEDANCE
Voltage
100 kilohms min
Current
1.25 V drop typical
others available

OUTPUT RANGE
Voltage
select any range from -10 V to +15 V,10 mA max load (min span 0.2 V)
Current
select any range from 0 to 50 mA max, >24 V compliance (1200 ohms at 20mA max)
18 V compliance for ISO option if full scale output >20 mA

RESPONSE TIME
(Range Dependent)
£150 ms

ACCURACY
± 0.25% of span

ISOLATION
Output / Input
>500 megohms
Breakdown Voltage
>1000 VAC rms

OUTPUT RIPPLE (Peak-to-Peak)
<0.1% of span

ISOLATION
Breakdown, Power / Circuitry
>1500 VAC rms

OPERATING TEMPERATURE
14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C max

POWER
115 VAC ±10%, 50/60 Hz (2.5 W max)
230 VAC ±10%, 50/60 Hz (2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

* *Within specified range limits.*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC Power, Transformer Isolated
- ☐ 12 VDC Power, Transformer Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

_____ Zero Scale

_____ Full Scale

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

_____ Zero Scale

_____ Full Scale

OPTIONS

- ☐ Conformal Coating
- ☐ Isolationm

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

Attach equation that defines the math function desired. Also include any tables or charts.

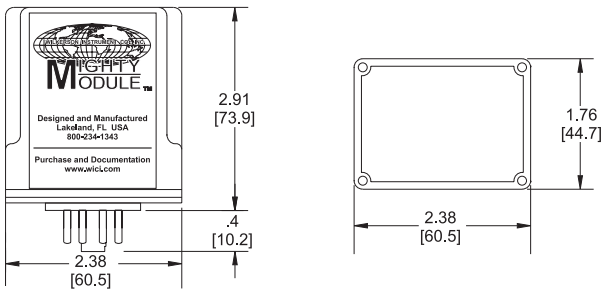
ACCESSORIES

MM4410

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP008	Plastic Socket,, 8-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-track, 4 ft. (MP008, MP011 & DMP8500)	QTY _____
DMP008	DIN-Rail Mounting Socket, 8-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	AC L1 or DC +
PIN 2	AC L2 or DC -
PIN 3	No Connection
PIN 4	Input A +
PIN 5	Input B +
PIN 6	Input -
PIN 7	Output +
PIN 8	Output -

MM4420

DC INPUT
DIVIDER TRANSMITTER
OUTPUT = A / B

FEATURES

- **Provides DC Output Proportional to the Quotient (Ratio) of Two DC Inputs (Output = A/B)**
- **Fully Isolated Output Available**
- **1 V or 1 mA Minimum Input Span**
- **Unlimited* Choice of Input/ Output Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM4420 provides a DC output voltage or current proportional to the quotient (ratio) of two DC inputs. Typical input ranges are 4/20 mA, 10/50 mA, 0-1 V, 0-5 V, and 0-10 VDC. Other ranges are available down to minimum spans of 1 V or 1 mA DC. Standard calibration provides the output at full scale (100%) when both inputs are at full scale (100%). Other calibrations are available.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

TYPICAL APPLICATIONS

Controlling relative speed, mixing rates, compensating flow readings for temperature changes (mass flow = flow rate/temperature), etc.

SPECIFICATIONS

INPUT RANGE

Voltage
select any range between ±250 V max (min span 1 V)
Typical inputs:
0-1 V, 0-5 V, 0-10 V

Current
select any range between ±100 mA max
(min span 1 mA)
Typical inputs:
4/20 mA or 10/50 mA

INPUT IMPEDANCE

Voltage
100 kilohms min
Current
1.25 V drop typical
others available

OUTPUT RANGE

Voltage
select any range from -10 V to +15 V,10 mA max load
(min span 0.2 V)

Current
select any range from 0 to 50 mA max, 24 V compliance
(1200 ohms at 12 mA max)
18 V compliance for ISO option if full scale output >20 mA

RESPONSE TIME

(Range Dependent)
£150 ms

ACCURACY

Inputs @ ³10%
± 0.25% of span

ISOLATION (Optional)

Output / Input
>500 megohms
Breakdown Voltage
>1000 VAC rms
Breakdown, Power / Circuitry
>1500 VAC rms

OUTPUT RIPPLE (Peak-to-Peak)

<0.1% of span

OPERATING TEMPERATURE

14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY

±0.02% of span/°C max

POWER

115 VAC ±10%, 50 or 60 Hz (2.5 W max)
230 VAC ±10%, 50 or 60 Hz (2.5 W max)
(DC Power Option)
24 VDC (limits 21 VDC to 32 VDC) (2.5 W max)
12 VDC
Isolation, DC power supply to inputcommon: 10 megohms

* *Within specified range limits.*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC Power, Transformer Isolated
- ☐ 12 VDC Power, Transformer Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

☐ Zero Scale

☐ Full Scale

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

☐ Zero Scale

☐ Full Scale

OPTIONS

- ☐ Conformal Coating
- ☐ Isolation

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

Attach equation that defines the math function desired. Also include any tables or charts.

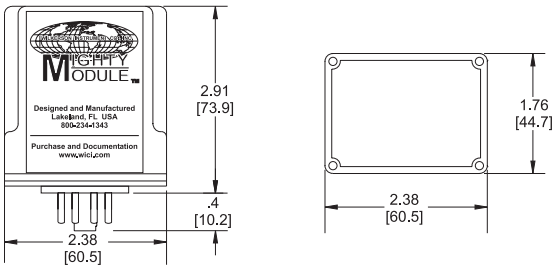
ACCESSORIES

MM4420

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP008	Plastic Socket,, 8-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. (MP008, MP011 & DMP8500)	QTY _____
DMP008	DIN-Rail Mounting Socket, 8-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	AC L1 or DC +
PIN 2	No Connection
PIN 3	AC L2 or DC -
PIN 4	Input B +
PIN 5	Input A +
PIN 6	Input -
PIN 7	Output +
PIN 8	Output -

MM4431

DC INPUT
POWER FUNCTION EXPONENTIATOR
TRANSMITTER Y = X^m

FEATURES

- **Provides a DC Output Proportional to the Exponent of the DC Input (Output = X^m)**
- **Fully Isolated Output Available**
- **1 V or 1 mA Minimum Input Span**
- **Unlimited* Choice of Input / Output Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM4431 provides a DC output voltage or current proportional to the exponent (^{m}) of the DC input. Typical input ranges are 4/20 mA, 10/50 mA, 0-1 V, 0-5 V, and 0-10 V DC. Other ranges are available down to minimum spans of 1 V or 1 mA DC.

The exponent (^{m}) can be a value between 0.2 and 5. This range covers the most common requirements for measuring differential pressure in flow applications such as encountered in orifice plate or pitot tubes. The range of (^{m}) also includes the ranges used to provide flow data from Parshall flumes and V-notch weirs. In a Parshall flume, the flow is related to the height of the liquid level by the 3/2 power of the height. In a V-notch weir, flow is related by the 5/2 power to the liquid height.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

TYPICAL APPLICATIONS

Flow measurements, etc.

SPECIFICATIONS

INPUT RANGE
Voltage
select any range between ±10 V max (min span 1 V)
Typical inputs: 0-1 V, 0-5 V, 0-10 V
Current
select any range between ±100 mA max (min span 1 mA)
Typical inputs: 4/20 mA or 10/50 mA

INPUT IMPEDANCE
Voltage
100 kilohms min
Current
1.25 V drop typical, others available

OUTPUT RANGE
Voltage
select any range from –10 V to +15 V,10 mA max load (min span 0.2 V)
Current
select any range from 0 to 50 mA max
24 V compliance (1200 ohms at 20 mA max)
18 V compliance for ISO option if full scale output >20 mA

RESPONSE TIME
(Range Dependent)
£150 ms

ACCURACY
(0.2 £ ^{m} £5.0)
± 0.15% of span

ISOLATION (Optional)
Breakdown Power / Circuitry
>1500 VAC rms
Breakdown Voltage
>1000 VAC rms

OUTPUT RIPPLE (Peak-to-Peak)
<0.1% of span

OPERATING TEMPERATURE
14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C max

POWER
115 VAC ±10%, 50/60 Hz (2.5 W max)
230 VAC ±10%, 50/60 Hz (2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

* *Within specified range limits.*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC Power, Transformer Isolated
- ☐ 12 VDC Power, Transformer Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

_____ Zero Scale

_____ Full Scale

Enter Exponent

_____ Exponent

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

_____ Zero Scale

_____ Full Scale

OPTIONS

- ☐ Conformal Coating
- ☐ Isolation

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

_____

Attach equation that defines the math function desired. Also include any tables or charts.

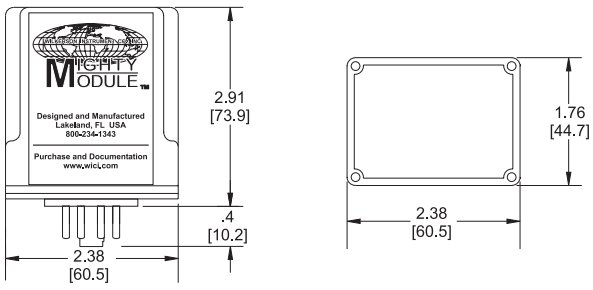
ACCESSORIES

MM4431

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP008	Plastic Socket,, 8-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. (MP008, MP011 & DMP8500)	QTY _____
DMP008	DIN-Rail Mounting Socket, 8-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Clip for MP008 and MP011	QTY _____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	AC L1 or DC +
PIN 2	No Connection
PIN 3	AC L2 or DC -
PIN 4	No Connection
PIN 5	Input +
PIN 6	Input -
PIN 7	Output +
PIN 8	Output -

MM7501

DC INPUT INTEGRATING TOTALIZER PULSE OUTPUT TRANSMITTER

FEATURES

- **Provides an Output Pulse Rate Proportional to the DC Input**
- **1 V or 1 mA Minimum Input Span**
- **Unlimited* Choice of Input/Output Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM7501 is used, together with a counter, to integrate or totalize flow and other signals. Its output is a pulse rate proportional to a DC input. When totalized on a counter, the pulses indicate the total flow or other quantity being measured.

Typical input ranges are 4/20 mA, 10/50 mA, 0-1 V, 0-5 V, and 0-10 VDC. Other ranges are available down to minimum spans of 1 V or 1 mA DC.

The MM7501 includes a frequency scaler (binary pulse rate divider) which, together with wide-ranging zero and span controls, provides a 4096:1 range of output pulse rate adjustment. This allows the output to be scaled in engineering units (one pulse equals 1,000 gallons, for example). The output may be an spdt relay, a voltage pulse suitable for driving a 12 V electromechanical counter or an open collector output.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. An integrating DC to frequency converter generates the basic pulse rate.

TYPICAL APPLICATIONS

Totalizing flow, BTU, or any other quantity that can be represented in quantity per unit time.

SPECIFICATIONS

INPUT RANGE

Voltage
select any range from
0 to 10 V max (min span 1 V)
Typical inputs:
0-1 V, 0-5 V, 0-10 V

Current
select any range from
0 to 100 mA max
(min span 1 mA)
Typical inputs:
4/20 mA or 10/50 mA

INPUT IMPEDANCE

Voltage
1 megohm

Current
2.0 V drop typical,
others available

OUTPUT RANGE

7 pph min to 8 pps max
@ 20 mA input
(user adjustable:
1 pps max with relay)

TYPE OUTPUT

Relay (standard)
spdt, 1 A contact

Transistor (Option OC)
open-collector npn transistor,
sink 0.5 A, 24 V max

Pulse (Option V)
12V
60 msec pulse width
others available

ACCURACY

±0.1% of span

LINEARITY

±0.1% of span

COMMON MODE REJECTION

120 dB, DC to 60 Hz

OPERATING TEMPERATURE

14°F to 140°F/–10°C to 60°C

TEMPERATURE STABILITY

±0.04% of span/°C max

POWER

115 VAC ±10%, 50/60 Hz
(2.5 W max)

230 VAC ±10%, 50/60 Hz
(2.5 W max)

(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

** Within specified range limits.*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 12 VDC Power, Transformer Isolated
- ☐ 24 VDC Power, Transformer Isolated

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

☐ Zero Scale

☐ Full Scale

OUTPUT

Select Output Units

☐ PPS ☐ PPM ☐ PPH

Enter Output

☐ Zero Scale

☐ Full Scale

Select Type Output

- ☐ Relay (SPDT)
- ☐ O.C. (NPN)/Pulse

OPTIONS

- ☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

☐

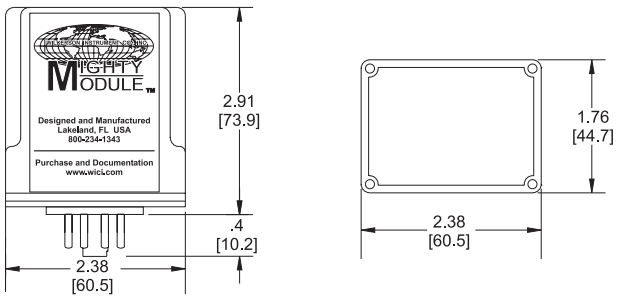
ACCESSORIES

MM7501

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP008	Plastic Socket,, 8-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-track, 4 ft. (MP008, MP011 & DMP8500)	QTY _____
DMP008	DIN-Rail Mounting Socket, 8-pin, 35 mm Symmetrical Rail	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	AC L1 or DC +
PIN 2	No Connection
PIN 3	AC L2 or DC -
PIN 4	Input +
PIN 5	Input -
PIN 6	Relay NC
PIN 7	Relay C
PIN 8	Relay NO

DIS876 AND DIS976

POTENTIOMETER POSITION INPUT PROCESS INDICATORS

FEATURES

- Provides 3½ Digit or 4½ Digit Display
- Display Calibrated in Engineering Units (%, gph, klb, etc.)
- Proportional to a Potentiometer Position Input
- Potentiometer Values from 100 ohms to 100 kilohms
- Fully Isolated Output and/or 0, 1, or 2 Alarms
- Alarm Setpoints Adjustable without Disturbing Transmitter Output
- Fail-Safe Alarm Operation
- LED Alarm Status Indicator
- Adjustable Deadband
- Unlimited* Choice of Input / Output Ranges
- Fits Standard 1/8 DIN Cutout
- Splashproof Front Panel
- Rated NEMA-4, Splashproof when Properly Installed
- 5 Year Warranty

DESCRIPTION

The DIS876 and DIS976 provide a display, optional isolated DC output voltage or current proportional to the slide position of a potentiometer, and optional alarm setpoints. All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning, as well as a stable 1 V power supply to excite the potentiometer. Any value potentiometer from 100 ohms to 100 kilohms can be used. The digital display utilizes an auto-zero dual-slope integrating A/D converter for accuracy and stability.

All controls are accessible by removing the gasketed front access panel. The display controls are wide-ranging so that they can be calibrated to display engineering units. Decimal point selection is made with a switch, also accessible from the front. A complete set of engineering unit labels is sent with each DIS. Once the display has been adjusted to read the correct engineering units, the alarm setpoints can be adjusted without test equipment and without disturbing the output voltage or current.

Either setpoint may be displayed by use of the SP CAL switch. Each setpoint has an LED to indicate alarm status. The alarms have adjustable deadbands. Terminations are made to a screw terminal connector on the rear of the case.

TYPICAL APPLICATIONS

Tank level, valve or actuator position indication, control, monitoring, data acquisition and warning, creating and displaying test signals.

SPECIFICATIONS

INPUT POTENTIOMETER RESISTANCE
any value from 100 ohms to 100 kilohms

SPAN ADJUSTMENT
70% to 100% of pot rotation

OFFSET ADJUSTMENT
0 to 25% of pot rotation

INPUT IMPEDANCE
>10 megohms

OPTIONS SA, DA SETPOINT
each alarm 0 to 100% of span

DEADBAND
0.25% to 100% of span

RELAY CONTACTS (spdt)
Resistive Load
5 A max, 150 W max,
240 VAC max,
30 VDC max
Inductive Load
1/8 HP max at 120/240 VAC

OPTION TX OUTPUT RANGE
Voltage
select any range between ±10 V, 10 mA max load (min span 0.2 V)
Current
select any range from 0 to 20 mA max, >24 V compliance (1200 ohms at max 20 mA)

OUTPUT RIPPLE (Peak-to-Peak)
<0.1% of span

ISOLATION
Output / Input
>500 megohms
Breakdown Voltage
>600 VAC rms

EXCITATION
1 V, 10 mA max load

RESPONSE TIME (Range Dependent)
£100 ms

ACCURACY
±0.1% of span

LINEARITY
Display
±0.01% of span
Output
±0.025% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

DISPLAY (876)
Digit Size
.56" LED, 3½ digits, ±1999
Decimal Point
±1.9.9.9
Control Range
Zero ±1999
Span min span 10/max span 2000

DISPLAY (976)
Digit Size
.56" LED, 4½ digits, ±19999
Decimal Point
±1.9.9.9.9
Control Range
Zero ±19999
Span min span 100/max span 20000

DISPLAY
Update 3/sec

OPERATING TEMPERATURE
14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C max

POWER
115 VAC ±10%, 50 or 60 Hz (4 W max)
230 VAC ±10%, 50 or 60 Hz (4 W max)

** Within specified range limits.*

ORDERING INFORMATION

POWER
☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power

INPUT
Specify Input
Potentiometer input products are calibrated assuming 0 to 100% rotation. Final calibration should be done using the actual system potentiometer.

OUTPUT (Option TX)
Analog Output
☐ Yes ☐ No
Select Units
☐ VDC ☐ mADC
Enter Output
_____ Zero Scale
_____ Full Scale

Select Output Logic
☐ Normal Acting
☐ Reverse Acting

ALARMS (Option SA, DA)
Alarm Output
☐ Yes ☐ No
Alarm Selection - Quantity
☐ Single (SA) ☐ Dual (DA)
Alarm Logic
☐ Normal - De-Energize On Alarm
☐ Reverse - Energize On Alarm
Alarm Action
Alarm 1
☐ High ☐ Low
Alarm 2
☐ Hign ☐ Low

Enter Setpoint Input Level
_____ Setpoint 1
_____ Setpoint 2

DISPLAY
Enter Display
_____ Zero Scale
_____ Full Scale
Select Display Logic
☐ Normal Acting
☐ Reverse Acting

OPTIONS
☐ Conformal Coating

TAGS
Specify Tag Numbers
Tag Number is typed on product label at no charge.

Enter Tag Number(s)
_____

ACCESSORIES

DIS876 AND DIS 976

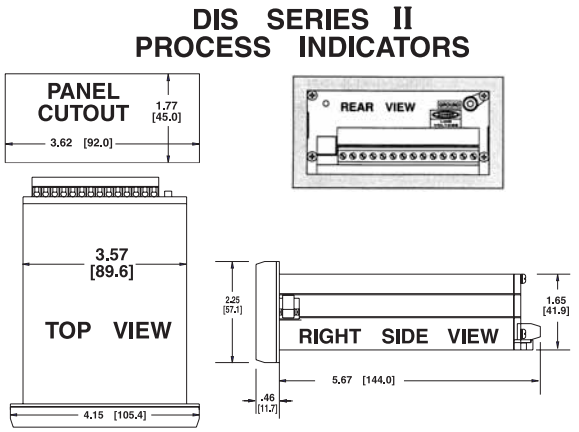
No accessories available at this time.

MOUNTING

The DIS is designed to be mounted from the front of a panel through a standard horizontal 3.62 x 1.77 inch (1/8 DIN cutout. Two mounting cam-screws secure the DIS to the panel.

DIMENSIONS

Inches [mm]



CONNECTIONS

TERM 1	Output -
TERM 2	Output +
TERM 3	FS
TERM 4	Wiper
TERM 5	Zero
TERM 6	Potentiometer Shield
TERM 7	Alarm 1 NC
TERM 8	Alarm 1 C
TERM 9	Alarm 1 NO
TERM 10	Alarm 2 NC
TERM 11	Alarm 2 C
TERM 12	Alarm 2 NO
TERM 13	Power AC L1
TERM 14	Power AC L2

DM4003

POTENTIOMETER POSITION INPUT FIELD RANGEABLE TRANSMITTER

FEATURES

- 100 ohm to 100 kilohm Potentiometer
- Selectable Response Time/Filter
- Provides a Fully Isolated DC Output Proportional to Wiper Position
- User Write-On Label
- User-Settable Input and Output Ranges
- Fully Labeled Jumper Positions for Easy Range Settings
- Plug-In Terminal Blocks
- Standard DIN-Rail Mount with Easy Snap-On Snap-Off
- Connections and Ranging Readily Accessible from the Front
- Choice of Power Options
- Permanent Warranty

DESCRIPTION

The DM4003 provides an isolated voltage or current output proportional to the position of a potentiometer wiper. The output is fully isolated from input, line power and ground. The unit is useful in eliminating ground loops and common mode signals.

Input and output ranges are user-settable. The output response may be normal or reverse-acting. A fully-labeled set of jumpers selects the input and output ranges.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. It utilizes a feedback VCO to develop a pulse train with a duty cycle proportional to the input signal amplitude. This pulse train is coupled through a pulse transformer to the output circuitry, where the duty cycle data is converted to a proportional DC output level.

Connections are made via two 4-pin plug-in terminal blocks. These terminal blocks allow the product to be removed without unwiring the connections.

TYPICAL APPLICATIONS

A useful interface for monitoring valve and actuator position, or for generating test signals.

SPECIFICATIONS

INPUT

Input Potentiometer Value
100 ohm to 100 kilohm
Excitation
1 VDC
Span Selections for Full Scale Output (% rotation)
25%, 50%, 75% & 100%
Offset
±0% to 100% of span

OUTPUT

Voltage	Current (mA)
0/.25	0/1
0/1	0/4
1/5	4/20
0/5	0/20
0/10	
-5/+5	
-10/+10	

OUTPUT LOGIC

Normal or Reverse Acting

DRIVE CAPABILITY

Voltage
5 mA
Current
>24 V compliance

OUTPUT RIPPLE (Peak-to-Peak)

<0.1% of full scale

ISOLATION

Resistance
>500 megohms
Voltage Rating
>1000 VAC sinewave

RESPONSE TIME (99%)

2, 20, 50, 500 milliseconds

ACCURACY

±0.1% of span

LINEARITY

±0.1% of span

COMMON MODE REJECTION

>100 dB, DC to 60 Hz

OPERATING TEMPERATURE

14 to 140 °F/-10 to 60 °C

TEMPERATURE STABILITY

±0.01% of span/°C

POWER

Standard
115 VAC ± 10%, 50/60 Hz
230 VAC ± 10%, 50/60 Hz
Optional
115/230 VAC Selectable ±10%, 50/60 Hz
24 VAC ± 10%, 50/60 Hz
24 VDC (21 to 32 VDC)
12 VDC (10 to 16 VDC)
Wattage
2.5 W max

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VAC, 50/60 Hz Power
- ☐ 24 VDC Power, Transformer Isolated
- ☐ 12 VDC Power, Transformer Isolated

INPUT

Specify Input

Potentiometer input products are calibrated assuming 0 to 100% rotation. Final calibration should be done using the actual system potentiometer.

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

☐ Zero Scale

☐ Full Scale

Select Output Logic

- ☐ Normal Acting
- ☐ Reverse Acting

OPTIONS

- ☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag Number is typed on product label at no charge.

Enter Tag Number(s)

☐

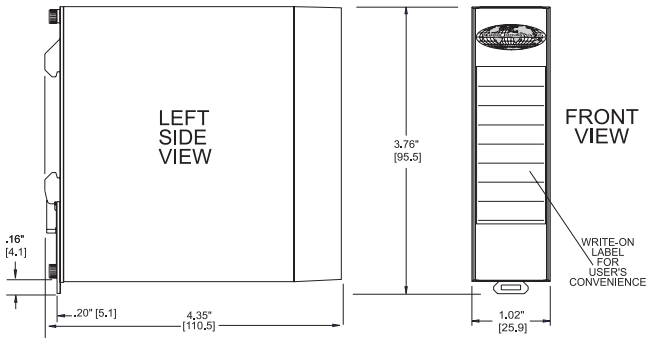
ACCESSORIES

DM4003

DR1 DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter) QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

TERM 1	Input FS
TERM 2	Input Wiper
TERM 3	Input Zero
TERM 4	Input Shield
Output +	Output +
Output -	Output -
L1	Power AC L1 or DC +
L2	Power AC L2 or DC -

MM1800

POTENTIOMETER POSITION INPUT

SINGLE ALARM

FEATURES

- Provides a DPDT Relay Contact Closure at a Preset Potentiometer Position Input
- Potentiometer Values from 100 ohms to 100 kilohms
- Standard Fail-Safe Operation
- Adjustable Deadband
- Red and Green LED Alarm Status Indicators
- Latching Alarm Available (MM1810)
- Unlimited* Choice of Input Ranges
- Choice of Power Options
- 10 Year Warranty

DESCRIPTION

The MM1800 monitors the slide position of a potentiometer and trips a dpdt, 5 A relay when the input exceeds the desired level. Normal operation has the relay energized for the non-alarm condition and de-energized for an alarm condition. This provides a fail-safe alarm condition for loss of power to the module. The alarm has a set of red/green LEDs to indicate alarm status.

A deadband adjustment allows a deadband of 0.5% to 100% of span to be set into the module. The deadband is symmetrical about the setpoint.

With the latching alarm option, the latching alarm has no deadband control. Once the limit has been reached the alarm latches and power to the module must be momentarily interrupted to reset the alarm.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. They also utilize a stable 1 V power supply to excite the potentiometer. Any value potentiometer from 100 ohms to 100 kilohms can be used.

TYPICAL APPLICATIONS

Tank level, valve or actuator control, monitoring or warning.

SPECIFICATIONS

INPUT POTENTIOMETER RESISTANCE
any value from 100 ohms to 100 kilohms

SPAN ADJUSTMENT
70% to 100% of pot rotation

OFFSET ADJUSTMENT
0 to 25% of pot rotation

INPUT IMPEDANCE
>10 megohms

SETPOINT
0 to 100% of span

DEADBAND
0.5% to 100% of span

RELAY CONTACTS (dpdt)
Resistive Load
5 A max, 150 W max,
220 VAC, 30 VDC max
Inductive Load
(Power Factor ³ 0.4)
2.5 A max, 75 W max,
220 VAC max, 30 VDC max

TRANSISTOR OUTPUT
(Option V)
relay driver
(12 V coil, ³ 220 ohms)
or open-collector
outputs sink 100 mA, 30 V
supply max

EXCITATION
1 V, 10 mA max load

RESPONSE TIME
20 ms typical

ACCURACY
±0.1% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C max

POWER
115 VAC ±10%, 50/60 Hz
(2.5 W max)
230 VAC ±10%, 50/60 Hz
(2.5 W max)
(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

* *Within specified range limits.*

ORDERING INFORMATION

POWER

☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power
☐ 24 VDC Power, Transformer Isolated
☐ 12 VDC Power, Transformer Isolated

ALARMS

Alarm Selection - Output

☐ Relay ☐ Transistor, O.C.

Alarm Type

☐ High ☐ Low

Alarm Logic

☐ Normal - De-energize on Alarm
☐ Reverse - Energize on Alarm

Enter Setpoint - Input Level

_____ Setpoint 1

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag Number is typed on product label at no charge.

Enter Tag Number(s)

_____

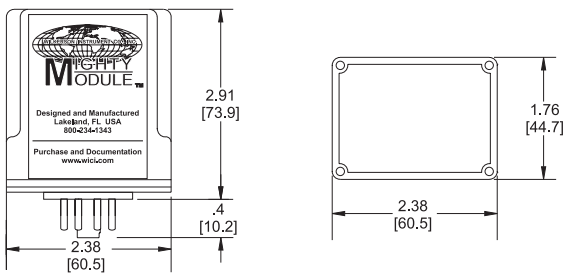
ACCESSORIES

MM1800

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP011	Plastic Socket, 11-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. for MP008, MP011 & DMP8500	QTY _____
DMP011	DIN-Rail Mounting Socket, 11-pin, 35 mm Symmetrical	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	Potentiometer Input FS
PIN 3	Power AC L2 or DC -
PIN 4	Potentiometer Input Zero
PIN 5	Potentiometer Input Wiper
PIN 6	Relay Set 1 NO
PIN 7	Relay Set 1 C
PIN 8	Relay Set 1 NC
PIN 9	Relay Set 2 NO
PIN 10	Relay Set 2 C
PIN 11	Relay Set 2 NC

MM1820

POTENTIOMETER POSITION INPUT DUAL ALARM

FEATURES

- **Provides Relay Contact Closures at a Present Potentiometer Position Input**
- **Potentiometer Values from 100 ohms to 100 kilohms**
- **Fail-Safe, Latching and Adjustable Deadband Available**
- **Red and Green LED Alarm Status Indicators**
- **Unlimited* Choice of Input Ranges**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM1820 monitors the slide position of a potentiometer and provides two sets of spdt, 5 A alarm relays with two independently adjustable setpoints. Each setpoint has a set of red/green LEDs to indicate alarm status. When the signal exceeds a particular setpoint, the relay becomes energized. To provide a "fail-safe" operation (loss of power resulting in alarm state), select Option R. The module can be supplied as a HI/HI, HI/LO, or LO/LO alarm (HI/LO supplied if not specified).

Standard deadband on both alarms is fixed at 0.5% of span. (Option A provides adjustable deadband of 0.5% to 100% of span.) Option D, latching alarms has no deadband control. Once the limit has been reached, the alarm latches and power to the module must be momentarily interrupted to reset the alarm.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. They also utilize a stable 1 V power supply to excite the potentiometer. Any value potentiometer from 100 ohms to 100 kilohms can be used.

TYPICAL APPLICATIONS

Tank level, valve or actuator position control, monitoring or warning.

SPECIFICATIONS

INPUT POTENTIOMETER RESISTANCE
any value from 100 ohms to 100 kilohms

SPAN ADJUSTMENT
70% to 100% of pot rotation

OFFSET ADJUSTMENT
0 to 25% of pot rotation

INPUT IMPEDANCE
>10 megohms

SETPOINT
each alarm 0 to 100% of span

DEADBAND
Standard
fixed 0.5% of span

(Option A)
0.5% to 100% of span

(Option D)
Latching. Interrupt power to reset.

RELAY CONTACTS (spdt)
Resistive Load
5 A max, 150 W max,
240 VAC, 30 VDC max

Inductive Load
1/8 HP max at
120/240 VAC

TRANSISTOR OUTPUT
(Option V)
open-collector, sink 100 mA,
30 V supply max

EXCITATION
1 V, 10 mA max load

RESPONSE TIME
20 ms typical

ACCURACY
±0.1% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F / -10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C max

POWER
115 VAC ±10%, 50/60 Hz
(2.5 W max)

230 VAC ±10%, 50/60 Hz
(2.5 W max)

(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

* *Within specified range limits.*

ORDERING INFORMATION

POWER

- ☐ 115 VAC, 50/60 Hz Power
- ☐ 230 VAC, 50/60 Hz Power
- ☐ 24 VDC Power, Transformer Isolated
- ☐ 12 VDC Power, Transformer Isolated

ALARMS

Alarm Selection - Output

☐ Relay ☐ Transistor, O.C.

Alarm Type

- ☐ High/Low
- ☐ High/High
- ☐ Low/Low

Alarm Logic

- ☐ Normal - Energize on Alarm
- ☐ Reverse - De-energize on Alarm

Enter Setpoint - Input Level

☐ Setpoint 1

☐ Setpoint 2

Adjustable Deadband (Option A)

☐ Yes ☐ No

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag Number is typed on product label at no charge.

Enter Tag Number(s)

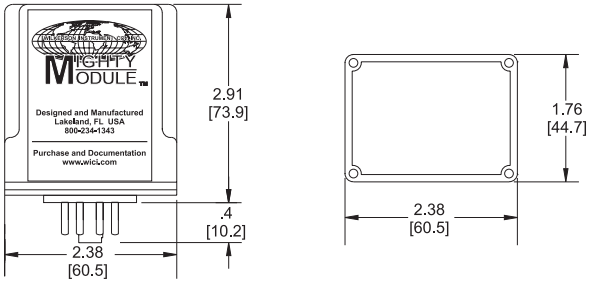
ACCESSORIES

MM1820

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP011	Plastic Socket, 11-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. for MP008, MP011 & DMP8500	QTY _____
DMP011	DIN-Rail Mounting Socket, 11-pin, 35 mm Symmetrical	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	Potentiometer Input FS
PIN 3	Power AC L2 or DC -
PIN 4	Potentiometer Input Zero
PIN 5	Potentiometer Input Wiper
PIN 6	Relay 1 NO
PIN 7	Relay 1 C
PIN 8	Relay 1 NC
PIN 9	Relay 2 NO
PIN 10	Relay 2 C
PIN 11	Relay 2 NC

MM4003

POTENTIOMETER POSITION INPUT TRANSMITTER

FEATURES

- **Provides DC Output Proportional to a Potentiometer Position Input**
- **Potentiometer Values from 100 ohms to 100 kilohms**
- **Unlimited* Choice of Input / Output Ranges**
- **Fully Isolated Output Available**
- **Choice of Power Options**
- **10 Year Warranty**

DESCRIPTION

The MM4003 provides an output voltage or current proportional to the slide position of a potentiometer. It is useful in monitoring valve or actuator position and for creating test signals.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning.

Any value potentiometer from 100 ohms to 100 kilohms can be used. The module utilizes a stable 1 V power supply to excite the potentiometer. As the potentiometer is rotated, the slide voltage is proportional to the wiper position.

TYPICAL APPLICATIONS

Tank level, valve or actuator position control, monitoring and data acquisition, creating test signals.

SPECIFICATIONS

INPUT POTENTIOMETER RESISTANCE
any value from 100 ohms to 100 kilohms

SPAN ADJUSTMENT
70% to 100% of pot rotation

OFFSET ADJUSTMENT
0 to 25% of pot rotation

INPUT IMPEDANCE
>10 megohms

EXCITATION
1 V, 10 mA max load

OUTPUT RANGE
Voltage
select any range from -10 V to +15 V,10 mA max load (min span 0.2 V)

Current
select any range from 0 to 50 mA max, >24 V compliance (1200 ohms max at 20 mA)

18 V compliance for ISO option if full-scale output >20 mA

RESPONSE TIME (Range Dependent)
£100 ms

ACCURACY
±0.1% of span

LINEARITY
±0.01% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

ISOLATION (Optional)
Output / Input
>500 megohms
Breakdown Voltage
>1000 VAC rms
Breakdown, Power / Circuitry
>1500 VAC rms

OUTPUT RIPPLE (Peak-to-Peak)
<0.1% of span

LINEARITY
±0.05% of span

OPERATING TEMPERATURE
14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C max

POWER
115 VAC ±10%, 50/60 Hz (2.5 W max)

230 VAC ±10%, 50/60 Hz (2.5 W max)

(DC Power Option)
24 VDC (limits 21-32 VDC)
12 VDC (limits 10-16 VDC)

Isolation, DC power supply to input common: 10 megohms

** Within specified range limits.*

ORDERING INFORMATION

POWER

☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power
☐ 24 VDC Power, Transformer Isolated
☐ 12 VDC Power, Transformer Isolated

INPUT

Specify Input

Potentiometer input products are calibrated assuming 0 to 100% rotation. Final calibration should be done using the actual system potentiometer.

OUTPUT

Select Units

☐ VDC ☐ mADC

Enter Output

☐ Zero Scale

☐ Full Scale

OPTIONAL

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag Number is typed on product label at no charge.

Enter Tag Number(s)

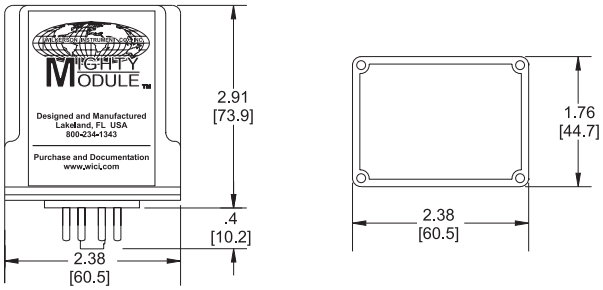
ACCESSORIES

MM4003

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
MP008	Plastic Socket, 8-pin Panel Mount or PVC Snap Track	QTY _____
TRK48	PVC Snap-Track, 4 ft. for MP008, MP011 & DMP8500	QTY _____
DMP008	DIN-Rail Mounting Socket, 8-pin, 35 mm Symmetrical	QTY _____
CLP1	Holddown Assembly for MP008 and MP011	QTY _____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
PIN 4	Input Zero
PIN 5	Input Wiper
PIN 6	Input FS
PIN 7	Output +
PIN 8	Output -

SR2800

POTENTIOMETER POSITION INPUT TWO-WIRE TRANSMITTER

FEATURES

- **Provides DC Output Proportional to a Potentiometer Position Input**
- **Potentiometer Values from 1 kilohm to 50 kilohms**
- **Reverse Polarity-Protected**
- **Test Points for Loop Current Monitoring without Breaking Loop Circuit**
- **50 mm Diameter Case - 33 mm Mounting Hole Spacing**
- **NEMA-4 Connection Head and Explosion-Proof Housing Available**
- **Low Cost**
- **5 Year Warranty**

DESCRIPTION

The SR2800 is a low-cost, reliable, potentiometer input two-wire transmitter for field or panel mounting in various industrial housings and enclosures. It provides a DC output current (4/20 mA) proportional to the wiper position of a potentiometer.

The module utilizes a stable 2.5 VDC power supply to excite the potentiometer. Any value potentiometer from 1 kilohm to 50 kilohms may be used. The output ZERO and SPAN controls are accessible through the top of the case. Terminations are made to screw terminal connections on the top of the case.

Test points located on the SR2800 front panel allow verification of loop current value, with a millimeter, without breaking the loop current.

TYPICAL APPLICATION

Remote tank level, valve or actuator position data acquisition.

SPECIFICATIONS

INPUT POTENTIOMETER RESISTANCE
any value from 1 kilohm to 50 kilohms

SPAN ADJUSTMENT
75% to 100% of pot rotation

OFFSET ADJUSTMENT
0 to 25% of pot rotation

INPUT IMPEDANCE
> 10 megohms

OUTPUT RANGE
4/20 mA
Current limited = 35 mA

MAX LOAD RESISTANCE
= [(V supply - 10)/ 20 mA] kilohms

RESPONSE TIME
Step Change
100 ms for 99% of final value

ACCURACY
±0.1% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
-13°F to 176°F/-25°C to 80°C

TEMPERATURE STABILITY
±0.015% of span per °C

POWER
10 to 36 VDC, polarity-protected

SUPPLY VOLTAGE EFFECT
0.02% of span max, 10 to 36 V

ORDERING INFORMATION

INPUT

Specify Input

Potentiometer input products are calibrated assuming 0 to 100% rotation. Final calibration should be done using the actual system potentiometer.

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag Number is typed on product label at no charge.

Enter Tag Number(s)

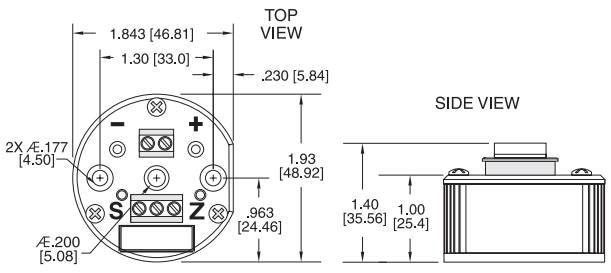
ACCESSORIES

SR2800

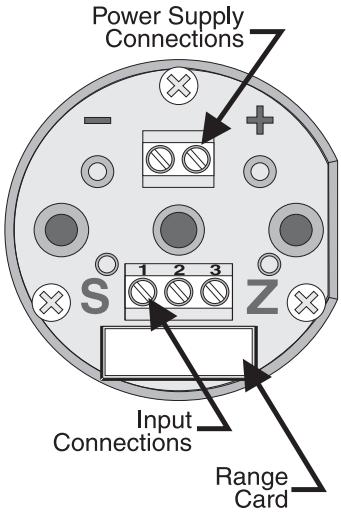
DMP2000	Mounting Plate, DIN-Rail (SR2000 & TW300)	QTY _____
TSH-A6L	NEMA-4 Aluminum Connection Head (SR2000 & TW300)	QTY _____
SR-CARD	Silver Series Transmitter Range Card (SR2000)	QTY _____
DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
XJAY	Explosion-Proof Housing for SR2000 and TW300 Series	QTY _____

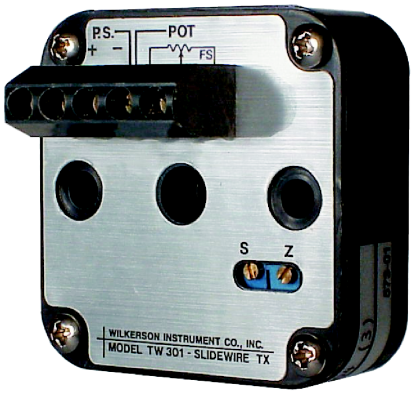
DIMENSIONS

Inches [mm]



CONNECTIONS





TW301

POTENTIOMETER POSITION INPUT TWO-WIRE TRANSMITTER

FEATURES

- **Provides DC Output Proportional to a Potentiometer Position Input**
- **Potentiometer values from 1 kilohm to 50 kilohms**
- **Low-Drift Chopper-Stabilized Input**
- **50 mm X 50 mm Case**
- **NEMA-4 Connection Head and Explosion-Proof Housing Available**
- **Low Cost for OEM Applications**
- **5 Year Warranty**

DESCRIPTION

The TW301 is a low cost, reliable, potentiometer input, 2-wire transmitter for field or panel mounting in various industrial housings and enclosures. It provides a DC output current proportional to the slide position of a potentiometer.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. Optional conformal coating of the electronic components makes the TW301 extremely reliable and resistant to the corrosion, moisture and fungus associated with many industrial environments.

The module utilizes a stable 1.2 V power supply to excite the potentiometer. Any value potentiometer from 1 kilohm to 50 kilohms can be used. The output ZERO and SPAN controls are accessible through the top of the case. Terminations are made to screw terminal connectors on the top of the case.

TYPICAL APPLICATIONS

Remote tank level, valve or actuator position data acquisition.

SPECIFICATIONS

INPUT POTENTIOMETER RESISTANCE
any value from 1 kilohm to 50 kilohms

SPAN ADJUSTMENT
50% to 100% of pot rotation

OFFSET ADJUSTMENT
0 to 50% of pot rotation

INPUT IMPEDANCE
>10 megohms

EXCITATION
1.2 V

OUTPUT RANGE
4/20 mA

MAX LOAD RESISTANCE
Rmax= [(Vsupply - 12V)/.020 mA] kilohms

RESPONSE TIME
100 ms typical

ACCURACY
±0.1% of span

LINEARITY
±0.05% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
-13°F to 176°F/-25°C to 80°C

TEMPERATURE STABILITY
±0.02% of span/°C max

POWER
12 to 48 VDC, polarity protected

SUPPLY VOLTAGE EFFECT
0.02% of span max, 12 to 48 VDC

ORDERING INFORMATION

INPUT

Specify Input

Potentiometer input products are calibrated assuming 0 to 100% rotation. Final calibration should be done using the actual system potentiometer.

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag Number is typed on product label at no charge.

Enter Tag Number(s)

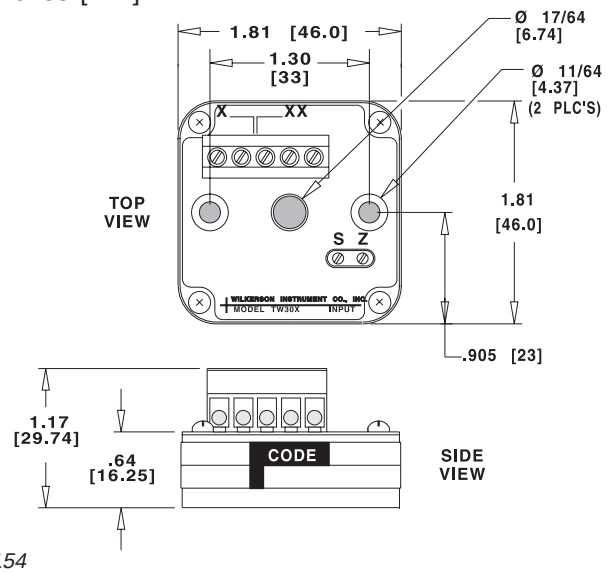
ACCESSORIES

TW301

DMP2000	Mounting Plate, DIN-Rail (SR2000 & TW300)	QTY _____
TSH-A6L	NEMA-4 Aluminum Connection Head (SR2000 & TW300)	QTY _____
DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	QTY _____
XJAY	Explosion-Proof Housing for SR2000 and TW300 Series	QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN P.S. +	Power Supply +
PIN P.S. -	Power Supply -
PIN Pot. FS	Potentiometer Excitation
PIN Pot. Wiper	Potentiometer Wiper
PIN Pot. Zero	Potentiometer Common

DM3801

DC INPUT PROPORTIONAL VALVE DRIVER PULSE WIDTH MODULATED OUTPUT

FEATURES

- **Choice of ±10 VDC or 4/20 mADC Inputs**
- **Provides a Bipolar Current Drive for a Current Controlled Valve**
- **User Write-On Label**
- **Unpluggable Terminal Blocks**
- **Standard DIN-Rail Mount with Easy Snap-On Snap-Off**
- **Connections Readily Accessible from the Front**
- **Permanent Warranty**

DESCRIPTION

The DM3801 valve driver provides a bipolar current drive to a current controlled valve.

The unit uses a pulse-width modulated square wave output that switches at a high frequency. The duty cycle of the output wave changes to create an average DC current through the valve magnet winding.

The DM3801 valve driver is housed in an aluminum DIN rail mountable case with a stainless steel mounting plate and plastic front panel.

Connections are made via two 4-pin plug-in terminal blocks. These terminal blocks allow the product to be removed without disconnecting the wires.

TYPICAL APPLICATIONS

Hydraulic proportional valve driver.

SPECIFICATIONS

INPUT
4/20 mADC
(62 ohm internal shunt)
-10/10 VDC
(>500 Kilohms impedance)

SPAN ADJUSTMENT
±15% of span

ZERO ADJUSTMENT
±15% of span

OUTPUT
-35/35 mADC to -100/100 mADC

ACCURACY
±0.1% of span

INPUT TO OUTPUT LINEARITY
±0.02% of Span

STEP RESPONSE TIME
Inductive load dependant
<10 ms (typical)

OUTPUT RIPPLE (Peak-to-Peak)
0.1% of Span

COMMON MODE REJECTION
>100 dB, DC to 60 Hz

OPERATING TEMPERATURE
14 to 140 °F/-10 to 60 °C

TEMPERATURE STABILITY
±(0.02% of span) /°C

POWER
115 VAC ±10% 50/60 Hz
2.5W max
Optional
24 VDC (21 to 32 VDC)

ORDERING INFORMATION

POWER

☐ 115 VAC, 50/60 Hz Power

INPUT

☐ -10/10 VDC
☐ 4/20 mADC

OUTPUT

Select Units

☐ 35/60mADC
☐ 60/100 mADC

Enter Output

_____ Zero Scale

_____ Full Scale

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag Number is typed on product label at no charge.

Enter Tag Number(s)

_____

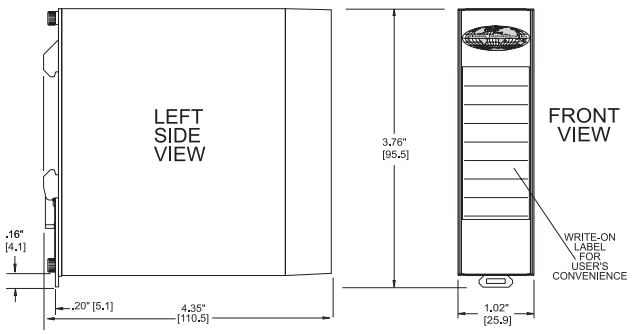
ACCESSORIES

DM3801

DR1 DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter) QTY _____

DIMENSIONS

Inches [mm]



CONNECTIONS

Input +	-10/+10 V +
Input -	-10/+10 V -
Input +	4/20 mA +
Input -	4/20 mA -
Output +	Output +
Output -	Output -
L1	Power AC L1
L2	Power AC L2

DR1920

Duplex Lift Station Back-Up Pump Controller

FEATURES

- **Runs one or two pumps for fixed time interval set by user**
- **Isolated digital input in addition to a NO or NC switch contact input**
- **10 Amp NO relay contact for each pump**
- **Open collector control output for each pump**
- **DIN Rail Case**
- **5 Year Warranty**
- **UL/cUL Recognized**

DESCRIPTION

The DR1920 Back-Up Pump Control is a compact DIN rail mounted unit used to monitor a backup level alarm in a tank or wet well and start up to two pumps when a high alarm switch closes. The unit is used as a backup to normal tank / well level controls and is wired to the High-High Alarm switch to prevent overflows in situations where the primary level control system fails.

When the level switch in the tank or well closes, the DR1920 closes a relay that starts Pump 1 and starts an internal Timer 1. When Timer 1 reaches its set time, and the level alarm switch is still closed, Pump 2 is started. Pump 1 and Pump 2 will run until the level alarm switch opens. When the level switch contact opens, Timer 2 is started and both pumps continue to run until Timer 2 reaches its set time.

If the alarm switch opens during the Timer 1 interval, Timer 2 is started when the switch opens. Pump 2 is not started and Pump 1 will run until Timer 2 reaches its set time.

The DR1920 also has provisions to alarm on a switch opening.

ALARM SWITCH MONITOR

The DR1920 monitors the open or closed status of a switch contact that is already wired into a control system. This switch may have any of several voltages that are used to control the pump system. In addition, if the primary control system fails, the normal voltages may not be present.

The DR1920 is wired across the alarm switch contacts and uses a unique circuit that measures the impedance present between the switch contacts. When the DR1920 senses a low impedance, it begins its control function, regardless of any absence or presence of voltage across the switch contacts. This feature allows the DR1920 to be wired in parallel across the switch contacts without regard to the existing control system, permitting simple installation in existing systems. For situations where the existing wiring prevents this circuit from being used, an isolated contact must be provided. A second input, which requires an isolated contact or open collector transistor is also provided.

A Reset input is provided to stop the pumps and reset the timers. It requires a contact closure or open collector transistor.

Since the Back Up Pump Control is used only when there is a problem with the primary control, the digital alarm inputs, as well as the reset inputs, are provided to allow the periodic exercising of the system to verify functionality.

SPECIFICATIONS

POWER
85/250 VAC ±10% 50/60 Hz, 2 VA

ALARM INPUTS
NO or NC switch contact
Isolated switch or Open collector transistor
Internal jumper to set “open” or “close” to alarm

PUMP CONTROL
Two NO 10A (Form A) relay contacts

OUTPUT
Closes for Pump 1 and Pump 2 run
Two optically isolated NPN transistor Sink or source - 30 mA

TIMERS
Timer 1 - Pump 2 delay
Adjustable 2 to 126 seconds (2.1 minutes) in 2 second increments
Timer 2 - Pump Run Time
Adjustable 5 to 1,275 seconds (21.25 minutes) in 5 second increments
Timers are set with binary coded DIP switches inside the enclosure

RESET INPUT
Stop pumps and reset timers
Requires contact closure or open collector transistor

INDICATORS
LED Indicators for -
Pump 1,
Green OFF, Red RUN
Pump 2
Green OFF, Red RUN

ENCLOSURE
DIN Rail Mount
3.9H X 4.48D X 0.87W
Plug-in screw terminals

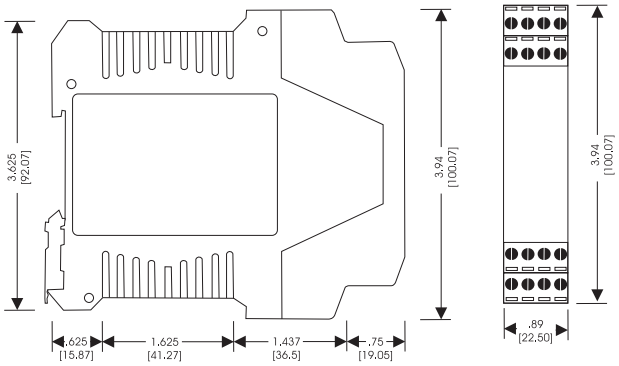
ORDERING INFORMATION

ACCESSORIES

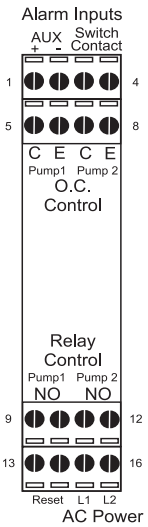
DR1 DIN-Rail, 35 mm Symmetrical, 39 inches (1meter) Qty ____

DIMENSIONS

Inches [mm]



CONNECTIONS



TERMINAL	CONNECTION
1	+ AUX Alarm Input - Isolated Input
2	- AUX Alarm Input - Isolated Input
3	Alarm Switch Contact Input
4	Alarm Switch Contact Input
5	Pump 1 O.C. Control - Collector
6	Pump 1 O.C. Control - Emitter
7	Pump 2 O.C. Control - Collector
8	Pump 2 O.C. Control - Emitter
9	Pump 1 Relay - SPST - Close on Alarm
10	Pump 1 Relay - SPST - Close on Alarm
11	Pump 2 Relay - SPST - Close on Alarm
12	Pump 2 Relay - SPST - Close on Alarm
13	Reset Input +
14	Reset Input -
15	AC Power - L1
16	AC Power - L2

DR6305

3Æ PHASE MONITOR

FEATURES

- **±0/20 mA Output**
- **Indicates Lost Phase**
- **Indicates Phase Reversal**
- **Jumper Selectable Input (300/600 VAC)**
- **3 way, 1500 VAC Isolation**
- **DIN Rail Case**
- **Low Power Requirement (10-30 VDC @ 1.5 watt)**
- **5 Year Warranty**
- **UL/cUL Recognized**

DESCRIPTION

The DR6305 Phase Monitor is a multifunctional measurement instrument that provides:

1. Measurement of the voltage of 2 phases of a 3 phase power line to determine if all phases are present. The instrument outputs 0/20 mA and 0/-20 mA representing voltage for phase A to B and C to B respectively. One output switches between the 2 currents every 5 seconds. Only one bipolar input on the PLC is required to read voltage levels.
2. An optically isolated transistor switch output if voltage drops below preset level.
3. An optically isolated transistor switch for the indication of proper phase rotation.
4. An LED display to indicate
   a. which current is being output
   b. phase loss
   c. phase reversal

The DR6305 monitors either 240 VAC or 480 VAC, 3 phase and provides DC output current proportional to the voltage of Phase A and Phase C referenced to Phase B. The DC output current alternates every 5 seconds between positive and negative to indicate A to B or C to B voltages respectively. This allows monitoring of 3 phase voltages with a single bipolar analog measuring device.

The voltage level is monitored and levels below a preset level are indicated by an optically isolated transistor switch output. An LED also indicates low voltage.

Phase angle is monitored and phase reversal is indicated by an optically isolated transistor switch output. An LED to indicate phase reversal is also provided.

Internal jumpers allow the product to be used to monitor 240 V or 480 V power systems.

SPECIFICATIONS

POWER

10 to 30 VDC, 1.5 watt

INPUT

300VAC or 600VAC Full Scale, Jumper Selectable

OUTPUT

Analog

Current

Proportional Output - 0/20 mADC at 300/600VAC input between Phase A and Phase B 0/-20 mADC at 300/600VAC input between Phase C and Phase B (Switches between positive and negative every 5 seconds)

Digital

Low Phase Voltage

Optically isolated NP transistor, normally closed, turns off on low phase voltage (<190 VAC or <380 VAC depending on input selection).
Transistor is saturated switch, 50mA maximum current, 30 VDC maximum voltage.

Phase Reversal

Optically isolated NPN transistor, normally closed, turns off on phase reversal.
Transistor is saturated switch, 50mA maximum current, 30 VDC maximum voltage.

INDICATORS (LED)

Channel being output (AB or CB)

Phase Loss or Low Voltage <190 V (or 380 V)

Phase Reversal

CONTROLS

Zero and Span adjustments for each channel

Switch to lock channel in AB or CB during calibration

All controls available on front panel

ISOLATION

Three way transformer isolation, between the 3 Phase AC input voltage, output signal, and the DC power supply voltage, of at least 1500 VAC sine wave.

ORDERING INFORMATION

INPUT

Select Full Scale Input

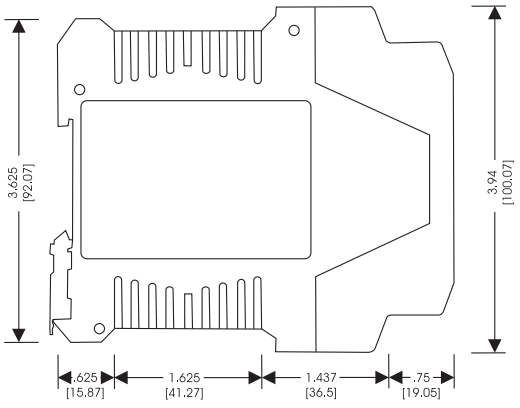
☐ 300 VAC ☐ 600 VAC

ACCESSORIES

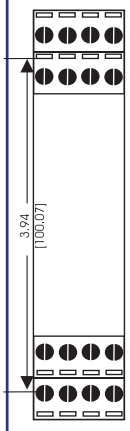
DR1 DIN-Rail, 35 mm Symmetrical, 39 inches (1meter) Qty ____

DIMENSIONS

Inches [mm]



CONNECTIONS



TERMINAL	CONNECTION
1	A Input
4	C Input
8	B Input
9	Æ Loss Alarm - Collector
10	Æ Loss Alarm - Emitter
11	Æ Rev. Alarm - Collector
12	Æ Rev. Alarm - Emitter
13	Analog Output +
14	Analog Output -
15	Power +
16	Power -

LM1000

LEVEL MONITOR AND CONTROL

FEATURES

- Available in panel mount and NEMA 4X enclosed versions.
- Bright 4 digit LED Display indicates level in feet to two decimal places
- Built in level sensor calibrator
- Relay output that can be used for alarm or control output.
- Setpoint adjustable over entire 4-20 mA span
- Dead band adjustable 1% to 90%
- Built in 24 VDC 2 wire sensor transmitter power supply
- UL /cUL Recognized

DESCRIPTION

The LM1000 is designed to monitor the level of liquids using a pressure sensor as the source of level data. A four digit LED display indicates level in feet to two decimal places (XX.XX). The LM1000 provides 24 VDC regulated power for a two wire transmitter.

An Alarm circuit with a SPDT relay output can be set as a high or low alarm. It can be configured as a Normal or Reverse Acting (fail safe) alarm. The Setpoint control is adjustable over the entire 4-20 mA input range and a Deadband control allows the Hysteresis to be set from less than 1% to 90% of the span.

Using the Alarm circuit, the LM1000 can also be used as a level control by setting the Alarm to trip at a high level to start the pump and setting the Deadband to stop the pump when the level falls to the desired lower limit.

The LED display can be switched to indicate level or to accurately indicate the loop 4-20 mA current. A built in calibrator allows the loop current to be adjusted over the 4-20 mA range with a ten turn potentiometer. The calibrator function is chosen with a spring loaded switch that returns the LM1000 to the Level indication mode when released. This spring loaded switch insures the unit is not inadvertently left in the Calibration mode. The unique positioning of the switch in relationship to the adjustment potentiometer allows single handed simultaneous operation of both the switch and the potentiometer.

The calibration function can be used to calibrate the LED display in Level. It can also be used to calibrate the alarm Setpoint and Deadband. An LED indicator behind the display lens indicates when the alarm is energized.

SPECIFICATIONS

INPUT

2 wire transmitter
output proportional to level
(LM1000 provides 24 VDC power to transmitter)

DISPLAY

4 Digit .56” LED

DISPLAY RESOLUTION

2 decimal places to 99.99
Ft. or loop current in mADC

OUTPUT

4/20 mADC
proportional to Level

ALARM / CONTROL OUTPUT

SPDT Relay
rated 5 Amps, 240 VAC

DEADBAND

Adjustable 1% to 90% of scale

CONTROL TYPE

On - Off
Reverse (pump out)
or Direct (pump in)

POWER

120 VAC ±10%,
50/60 Hz
3.5 VA maximum

ACCURACY

0.05% of Span ± 1 digit

OPERATING TEMPERATURE

-13°F to 176°F
(-25°C to 80°C)

ENCLOSURES

Panel Mount (PM)-
Anodized aluminum front panel
Dimensions:
6.13” x 7.75” x 1.88”

NEMA 4X (N4) -
Fiberglass reinforced polyester NEMA 4X enclosure, hinged door with viewing window, SS latch with padlock hasp.
Dimensions:
9.59”H x 7.71”W x 4.03”D

ORDERING INFORMATION

MODEL

☐ N4 = NEMA 4 Enclosure
☐ PM = Panel Mount

INPUT RANGE

☐ 0/5 PSI = 0/11.54 Ft. WC
☐ 0/10 PSI = 0/23.07 Ft. WC
☐ 0/15 PSI = 0/34.60 Ft. WC

Alarm Logic

☐ Normal - De-Energize On Alarm
☐ Reverse - Energize On Alarm

Enter Setpoint Input Level

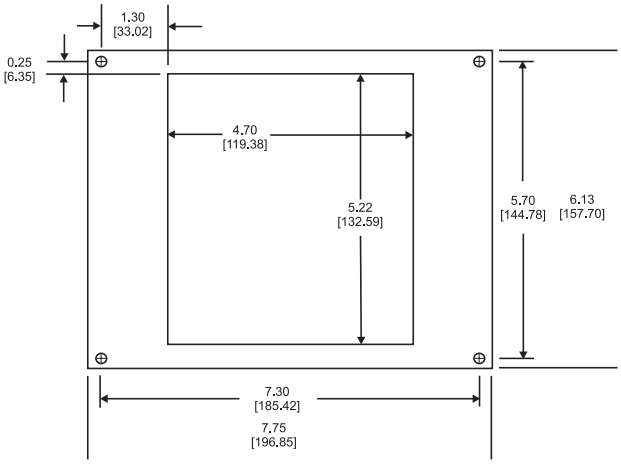
☐ Setpoint

ACCESSORIES

DIMENSIONS

Inches [mm]

LM1000-PM



CONNECTIONS

Terminal Marking	Description
Output +	4-20 mA + Output
Output -	4-20 mA - Output
Sensor +	Two Wire Transmitter +
Sensor -	Two Wire transmitter -
Shld	Shield
N/C	No Connection
N/C	No Connection
Alarm Relay NC	Normally Closed Contact
Alarm Relay NO	Normally Open Contact
Alarm Relay COM	Relay Common
N/C	No Connection
Power Gnd	Connection to LM1000 Metal Chassis
Power L1	AC Power Line 1
Power L2	AC Power Line 2

LS1000

SUBMERSIBLE LEVEL SENSOR
PRESSURE TRANSDUCER / TRANSMITTER

FEATURES

- All Welded, Stainless Steel Construction
- Rugged, All Encapsulated Electronics
- Anti-Clog, Stand-Off
- 2.5 Inch Diaphragm
- Leakproof
- Intrinsically Safe
- FM Approved

DESCRIPTION

The LS1000 Level Sensor is a pressure transducer based level sensor designed for the rugged application of monitoring liquid level in areas where sludge and solids often clog conventional sensors. The Stainless Steel Stand-Off provides protection from solids while providing accurate measurement using a three inch diaphragm. An optional top mounting flange is available to add weight. The flange also provides a means of attaching lift cables.

An optional Cable Lift Attachment Flange facilitates lift cable attachment while adding ballast weight to the LS1000.

SPECIFICATIONS

OUTPUT
4/20 mADC

EXCITATION
9/36 VDC

ACCURACY
0.5% FS

WETTED MATERIALS:
Type 316 Stainless Steel

TEMPERATURE LIMITS
-40/+150° F

LOAD IMPEDANCE
750 Ohms Maximum at 24 VDC

ZERO BALANCE
4.0 mADC ±1% at 70° F

INSULATION RESISTANCE
Greater Than 10 Megohms
at 50 VDC at 70° F

PROOF PRESSURE
2 Times Full Scale

BURST PRESSURE
5 Times Full Scale

PRESSURE CONNECTION
Oil Filled Diaphragm

CABLE
Molded Polyurethane Jacket
with Breather Tube
and Permanent Desiccant Filter
(40 ft. Cable Supplied as Standard)

SURGE PROTECTION
Internal

ORDERING INFORMATION

INPUT RANGE

- ☐ 0/5 PSI = 0/11.54 Ft. WC
- ☐ 0/10 PSI = 0/23.07 Ft. WC
- ☐ 0/15 PSI = 0/34.60 Ft. WC
- ☐ 0/20 PSI = 0/46.15 Ft. WC
- ☐ 0/25 PSI = 0/57.68 Ft. WC
- ☐ 0/30 PSI = 0/69.21 Ft. WC

CABLE LENGTH

- ☐ 40 Ft. (Standard Length)
- ☐ Other (500 Ft. Maximum)

☐ Ft.

OPTIONS

- ☐ Cable Lift Attachment Flange

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

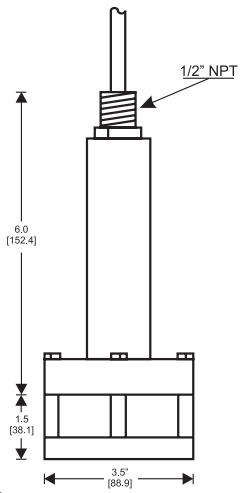
☐

ACCESSORIES

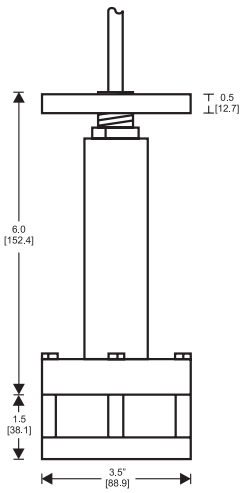
DIMENSIONS

Inches [mm]

LS1000



LS1000 with Flange



CONNECTIONS

WIRE	CONNECTION
Red	+Excitation / Signal
Black	- Excitation / Signal

MM3200

VALVE OR ACTUATOR CONTROLLER ADJUSTABLE DEADBAND POTENTIOMETER FEEDBACK

FEATURES

- **Provides Relay Contact Closures Comparing a DC Input to a Potentiometer Position Input**
- **Relay Safety Interlock**
- **Potentiometer Values from 120 ohms to 100 kilohms**
- **Adjustable Deadband (Differential)**
- **Unlimited* Choice of Input Ranges**
- **10 Year Warranty**

DESCRIPTION

The MM3200 controller compares a DC input signal to a DC signal from the slide position of a potentiometer in a valve or linear actuator. The module has two spst relays to provide bi-directional *(open-close)* ON/OFF switches. When the input signals are unequal, the MM3200 provides a contact closure to turn on a motor which drives the valve open or closed. When the signals become equal, the contact opens and the motor stops. The deadband control adjusts the sensitivity of the module and determines the amount of error required before the relay closes. Adjustment of 0.25% to 50% of span is available.

Two relays are used for the open and close switches. Each relay has dpdt contacts. One set is used for motor control. The other set is used to control the supply voltage to the other relay coil. This relay safety interlock feature makes it impossible to have both relays closed *(both motors on)* at the same time.

The module can also be used with a manual potentiometer and the contact closures to drive a process until the DC input signal matches the potentiometer setting.

All Wilkerson products are designed with RFI filters and lightning protection to reduce susceptibility to electrical noise and damage by lightning. It utilizes a stable -1.23 V power supply to excite the potentiometer.

TYPICAL APPLICATIONS

Valve or actuator position control, pH acid/base pump control, etc.

SPECIFICATIONS

INPUT RANGE
Voltage
select any range from
0 to 1 VDC to
0 to 10 VDC max

Current
4/20 mA (others available)

INPUT IMPEDANCE
Voltage
100 kilohms

Current
62 ohms

POTENTIOMETER FEEDBACK
70% or greater rotation
required to match
full scale input

POTENTIOMETER RESISTANCE
select any value from
120 ohms to 100 kilohms

DEADBAND
0.25% to 50% of span

EXCITATION
-1.23 V, 10 mA max load

RELAY CONTACT
(2 each spst)
Resistive Load
5 A max, 150 W max,
220 VAC max,30 VDC max

Inductive Load
(Power factor ³0.4)
2.5 A max, 75 W max,
220 VAC max, 30 VDC max

RESPONSE TIME
120 ms typical

ACCURACY
±0.1% of span

COMMON MODE REJECTION
120 dB, DC to 60 Hz

OPERATING TEMPERATURE
14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY
±0.02% of span/°C max

POWER
115 VAC ±10%, 50 or 60 Hz
(2.5 W max)

230 VAC ±10%, 50 or 60 Hz
(2.5 W max)

* *Within specified range limits.*

ORDERING INFORMATION

POWER

☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power

INPUT

Select Units

☐ VDC ☐ mADC

Enter Input

[ ] Zero Scale

[ ] Full Scale

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag number is typed on product label at no charge.

Enter Tag Number(s)

[ ]

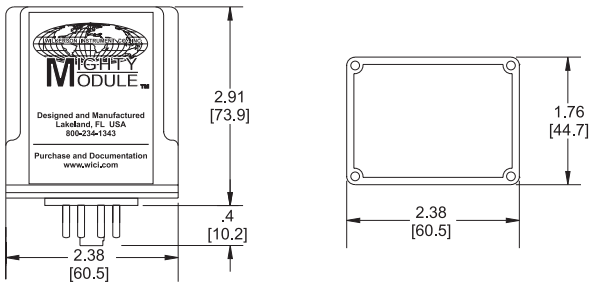
ACCESSORIES

MM3200

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	Qty____
MP011	Plastic Socket, 11-pin, Panel Mount or PVC Snap Track	Qty____
TRK48	PVC Snap-Track, 4 ft, for MP008, MP011, & DMP8500	Qty____
DMP011	DIN-Rail Mounting Socket, 11-pin, 35 mm Symmetrical Rail	Qty____
CLP1	Holddown Assembly for MP008 and MP011	Qty____
HKB-HK2D-11	Explosion-Proof Housing with MP011 Installed	Qty____

DIMENSIONS

Inches [mm]



CONNECTIONS

PIN 1	Power AC L1 or DC +
PIN 2	No Connection
PIN 3	Power AC L2 or DC -
PIN 4	Control Input +
PIN 5	Control Input -
PIN 6	Feedback (Pot) Common
PIN 7	Feedback (Pot) Wiper
PIN 8	Feedback (Pot) Excitation
PIN 9	Relay Common
PIN 10	Close Relay NO
PIN 11	Open Relay NO

MM9046-XX

REGULATED DC POWER SUPPLY

FEATURES

- **Provides a Regulated DC Voltage Output**
- **Short Circuit Protected**
- **±15% Adjustable Output**
- **10 Year Warranty**

DESCRIPTION

The MM9046-XX Power Supply is a well regulated supply designed to power two-wire transmitters, digital panel meters, strain gauges, and other devices requiring regulated DC power. Ten modules are available.

TYPICAL APPLICATIONS

Power for two-wire transmitters, strain gauges, etc.

SPECIFICATIONS

INPUT

Voltage

115 VAC ±10%, 50 or 60 Hz
230 VAC ±10%, 50 or 60 Hz
Available

OUTPUT RANGE

5 V - 36 VDC
(See list in Ordering Information)

NOISE & RIPPLE

0.003% of output

REGULATION

Line

0.04%/V

Load

(0-100%)
0.05%

OPERATING TEMPERATURE

14°F to 140°F/-10°C to 60°C

TEMPERATURE STABILITY

±0.02% of span / °C max

ORDERING INFORMATION

POWER

☐ 115 VAC, 50/60 Hz Power
☐ 230 VAC, 50/60 Hz Power

OUTPUT

☐ 36 V 40 mA
☐ 32 V 40 mA
☐ 28 V 60 mA
☐ 24 V 60 mA
☐ 18 V 65 mA
☐ 15 V 65 mA
☐ 12 V 85 mA
☐ 9 V 120 mA
☐ 6 V 120 mA
☐ 5 V 200 mA

OPTIONS

☐ Conformal Coating

TAGS

Specify Tag Numbers

Tag Number is typed on product label at no charge.

Enter Tag Number(s)

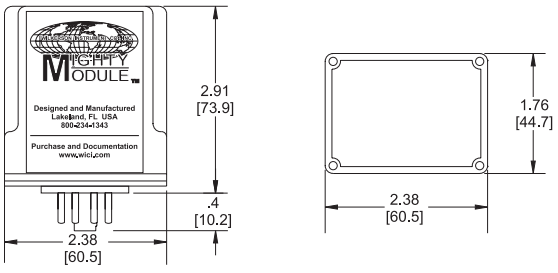
ACCESSORIES

MM9046

DR1	DIN-Rail, 35 mm Symmetrical, 39 inches (1 meter)	Qty____
MP008	Plastic Socket, 8-pin, for Flat Surface or PVC Track	Qty____
TRK48	PVC Snap-Track, 4 ft, for MP008, MP011, & DMP8500	Qty____
DMP008	DIN-Rail Mounting Socket, 8-pin, 35 mm Symmetrical Rail	Qty____
CLP1	Holddown Assembly for MP008 and MP011	Qty____
HKB-HK2D-8	Explosion-Proof Housing with MP008 Installed	Qty____

DIMENSIONS

Inches [mm]

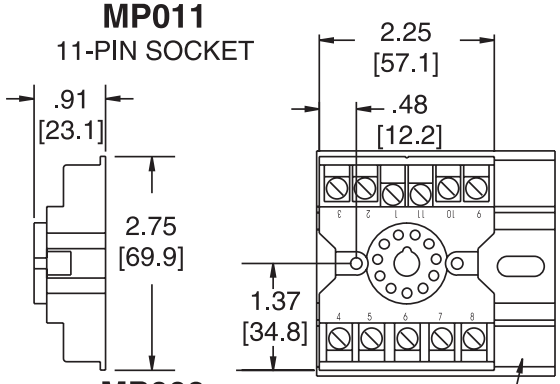


CONNECTIONS

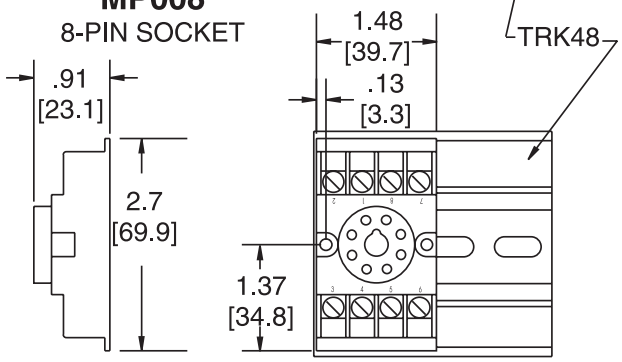
PIN 1	Power AC L1
PIN 3	Power AC L2
PIN 7	Output +
PIN 8	Output -

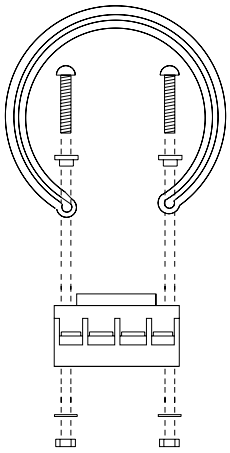
ACCESSORIES

MP011
11-PIN SOCKET



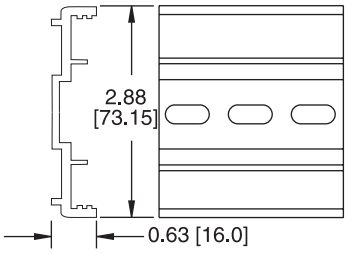
MP008
8-PIN SOCKET



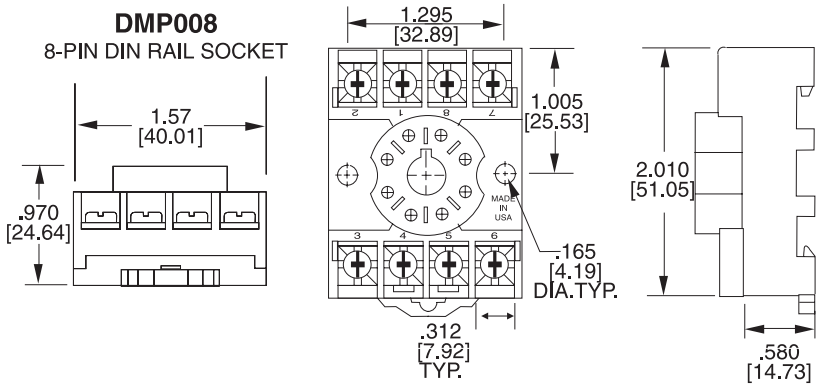


CLP1
HOLDDOWN ASSEMBLY

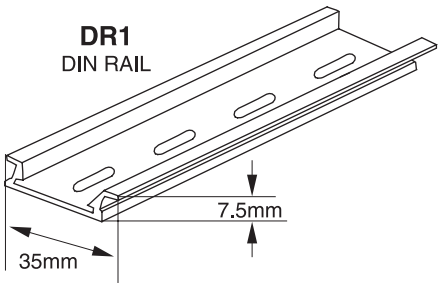
TRK48
PVC SNAP-TRACK



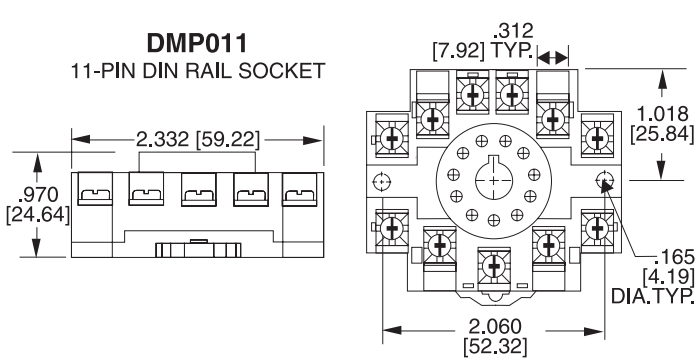
DMP008
8-PIN DIN RAIL SOCKET



DR1
DIN RAIL

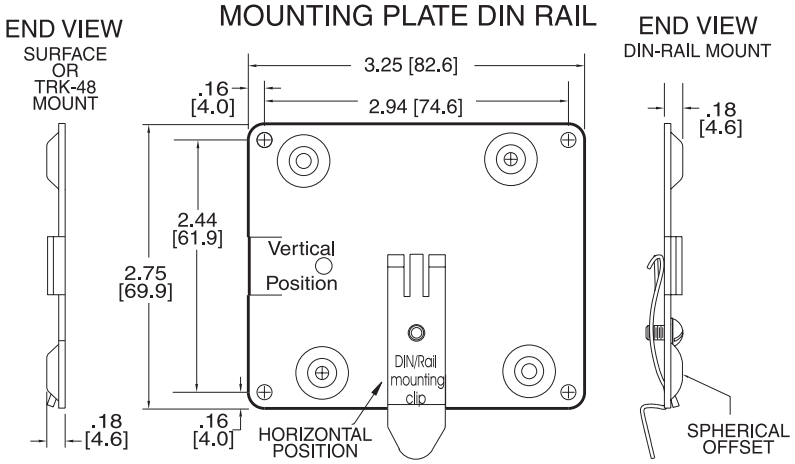


DMP011
11-PIN DIN RAIL SOCKET

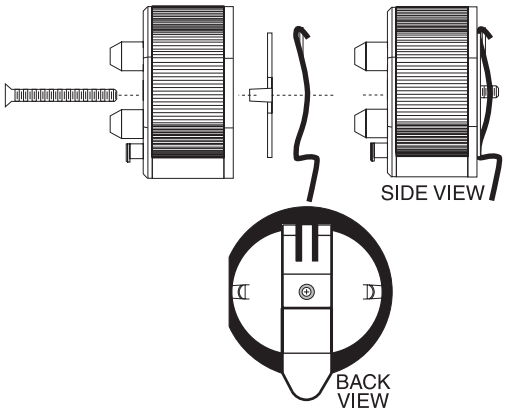


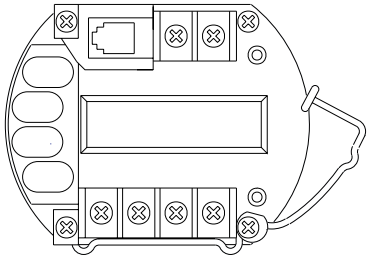
ACCESSORIES

DMP8500
MOUNTING PLATE DIN RAIL

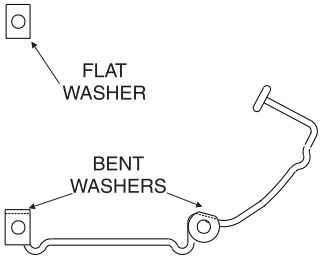


DMP2000
MOUNTING PLATE DIN RAIL
(shown with transmitter)

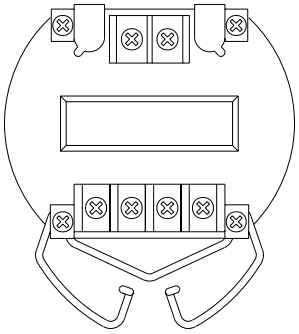




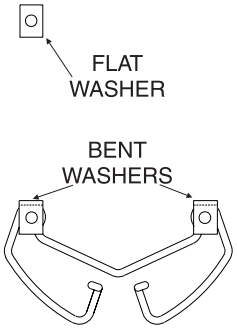
CLP5000
MOUNTING CLIP
INSTALLED



CLP5000
MOUNTING CLIP



CLP8500
MOUNTING CLIP
INSTALLED



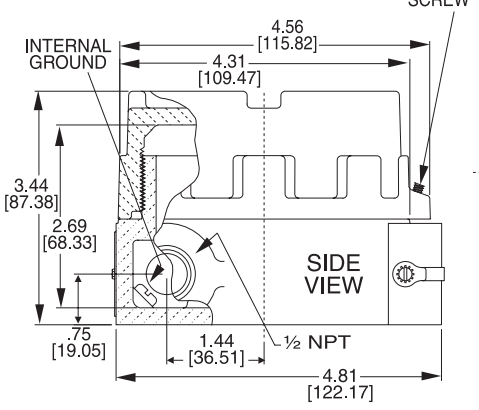
CLP8500
MOUNTING CLIP

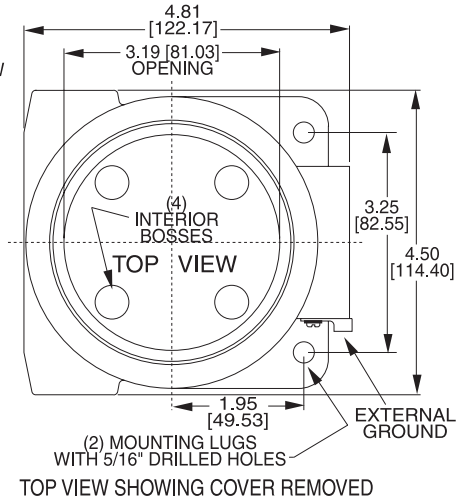
EXPLOSION-PROOF HOUSINGS

LISTINGS/APPROVALS (ADALET XIH SERIES)
CSA certified and FM approved for the following locations:
- Class I, Groups B, C, and D
- Class II, Groups E, F, and G
- NEMA 4 and 7

STANDARD MATERIALS:
BOX AND COVERS
Copper-free aluminum
O-RING SEALING GASKET
Buna-N-rubber.
GLASS LENS (OPTIONAL)
3/8" thick tempered glass (9.5mm)

XIHFC2L, XIHFGCX2L





TOP VIEW SHOWING COVER REMOVED

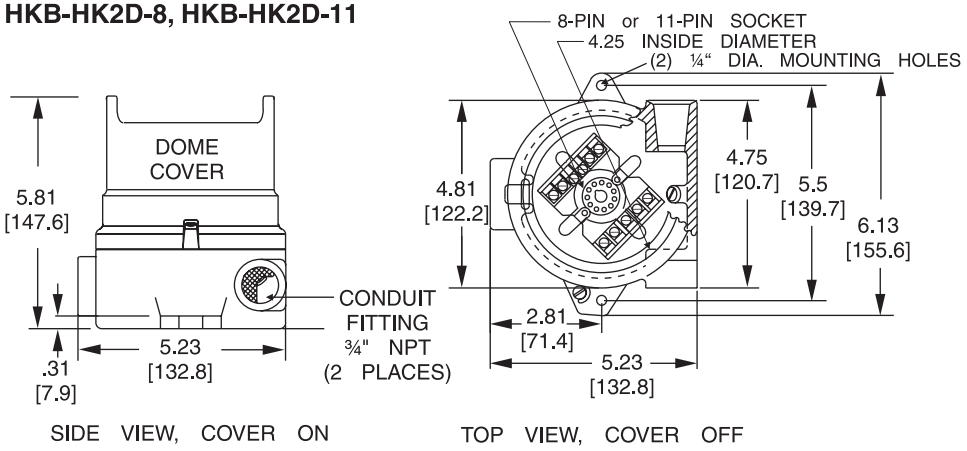
ACCESSORIES

HKB-HK2D-8, HKB-HK2D-11

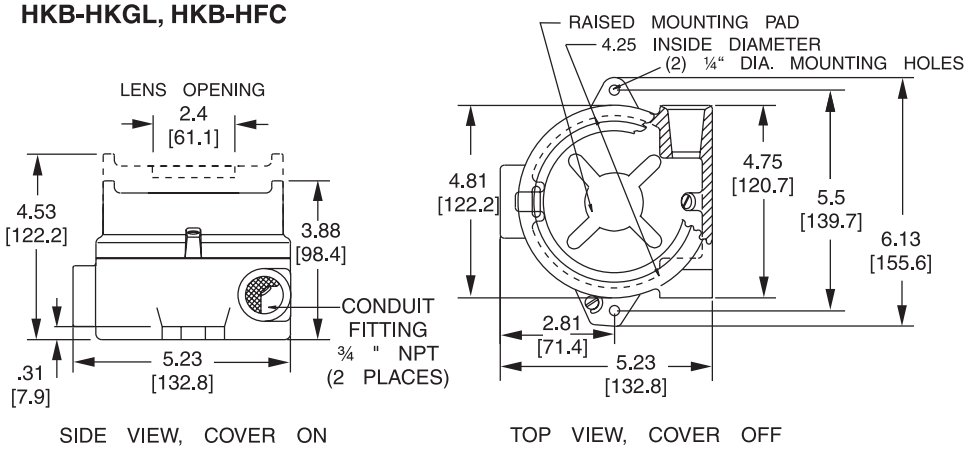
EXPLOSION-PROOF HOUSINGS LISTINGS\APPROVALS (KILLARK HK SERIES)
FM certified and CSA approved for the following locations:
Class I, Divisions 1 and 2
Groups B, C, and D
Class II, Divisions 1 and 2
Groups E, F, and G
Class III, NEMA 3,4,7, and 9

INTERNATIONAL APPROVALS
- Designed to meet flameproof requirements as defined by CENELEC (EURONORM 50018)
- BASEFA approval in process

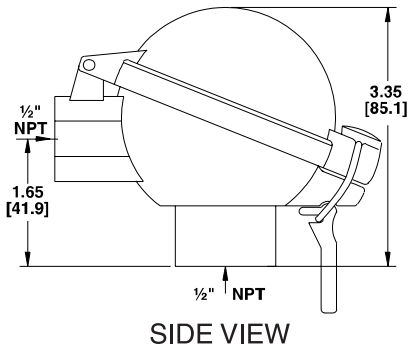
STANDARD MATERIALS:
BOX AND COVERS
Copper-free aluminum (less than 0.4% copper content). Finish of silver paint.
O-RING SEALING GASKET
Neoprene rubber
GLASS LENS AVAILABLE
3/8" thick tempered glass (9.5 mm)



HKB-HKGL, HKB-HFC



TSH-A6L

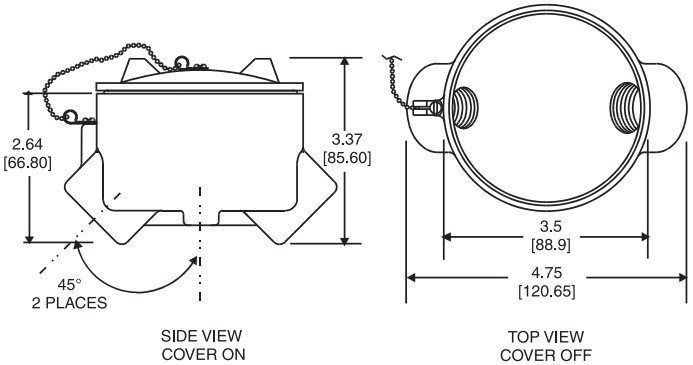


CONNECTION HEAD
- Hinged top, clamp closure
- NEMA-4
- Aluminum material
- ½ inch NPT process threading x ½ inch NPT conduit threading

EXPLOSION-PROOF HOUSING COMPLIANCES:
NEC Class I, Group C and D
Class II, Groups E, F, and G
Class III, UL Standard 866
NEMA 7 and NEMA 9
O-Ring for NEMA-4 watertight

½" NPT entrance for probe unit and one ¾" NPT conduit entrance with conduit stop. The body has an exterior pad ⅝" wide across the back between the conduit hubs. An optional cover retaining chain is available.

XJAY



ARTICLE WRITTEN BY JOE WILKERSON PRESIDENT OF WILKERSON INSTRUMENT CO., INC.
PREVIOUSLY PUBLISHED IN EUROPEAN PROCESS ENGINEER MAGAZINE AND IN-TECH MAGAZINE

Wiring For Trouble Free Signal Conditioning

Signal conditioning equipment for process signals has kept pace with modern technology, but many users never realize the full potential of the equipment because of poor installation and wiring practices. Such practices can degrade equipment performance from a small percentage of error to the point where the equipment is unusable.

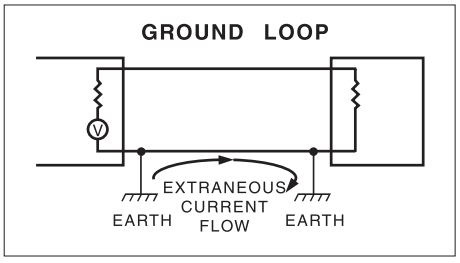
The most common complaints heard by this company are invariably associated with wiring problems. The most common problem encountered is an installation where **all** wiring is pulled in a common conduit or cable trough. A relay coil being switched or a relay contact switching an inductive load can easily generate a transient in excess of 1000 volts. This transient can easily couple into a signal conditioner and cause severe measurement problems.

Many products have input signal levels as low as 5 millivolts full scale and an output of 10 volts. With a gain of 2000, it is easy to understand the necessity of using good installation and wiring practices.

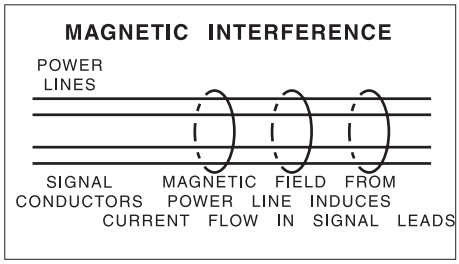
Accurate signal measurement and conditioning is vital if one is to maintain quality in their process control. Understanding the correct way to install and wire this important equipment is the proper responsibility of anyone who specifies control panels, wiring installations, or who manages factory personnel who install such equipment.

DEFINITIONS OF SOME COMMON PROBLEMS

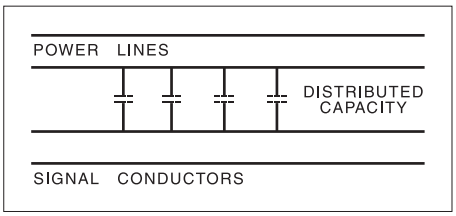
Ground Loop - A ground loop exists whenever an extraneous current flows in a conductor carrying the desired signal. If the extraneous current is related to the power mains, it generally manifests itself as "noise". If the extraneous current is DC, it can create an offset that can be difficult to recognize. The measured signal becomes the sum of the signal and ground loop current.



Magnetic Coupling - AC currents can be induced into the conductors carrying the desired signal. The AC can be power mains, magnetic transients from switching inductive loads, or magnetic fields from coils, transformers, or motors.



Capacitive Coupling - AC voltages can be capacitively coupled to the signal carrying conductors. This is accomplished by locating the signal leads near an AC voltage source such as power mains, SCR drive inputs or outputs, or any other source of AC potential.



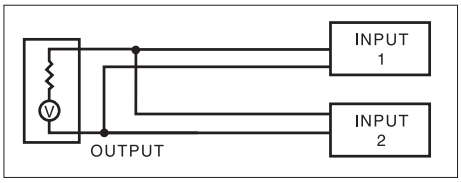
Radio Interference - Radiation from radio transmitters can create measurement problems by having some portion of the signal conditioning circuit rectify the radio energy and adding the resultant DC to the process signal. The radio energy source can be a portable two-way radio or a fixed installation radio or television transmitter. The interference can be momentary with portable radio equipment or a permanent offset with fixed installations. AM radio transmitters can often modulate the process signal with the voice or music modulation on the radio carrier.

Lightning - Lightning interference is sporadic and the primary concern is for survival of the equipment. Central Florida in the United States has the most frequent and intense lightning storms in the country. It is nicknamed the "lightning belt". Survival is the desire in this environment.

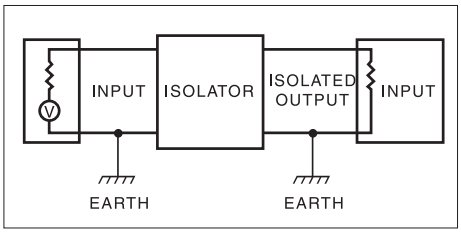
INSTALLATION CONSIDERATIONS

The location of signal conditioning equipment is important for the prevention of the common problems defined above. Avoid mounting equipment next to high voltage sources such as breakers, fuse blocks, or terminal strips. Also avoid magnetic field sources such as large transformers, motor control relays, or motors. Wiring paths should also be considered when mounting equipment. Insure paths exist to route signal wires without having to run them in proximity to noise sources.

Ground Loop Avoidance - Avoiding a ground loop is simple. Never let an extraneous current flow in the signal leads. If a device must drive two or more loads with a voltage signal, use individual leads from the output to the input of each driven device.

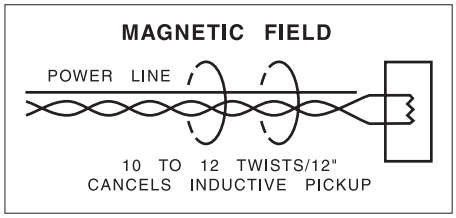


When the driven device and the driver must both connect to earth ground, use an isolator to break the ground path for extraneous currents.



Magnetic Coupling Avoidance

Every effort should be made to keep signal leads away from AC magnetic field sources such as motors, transformers, or large relays. If it is necessary to route signal wiring near these devices, use a twisted pair of conductors for each signal. A pair of conductors with ten to twelve twists per foot offers an effective method of reducing magnetic pickup.



A major source of magnetic interference is created by running untwisted signal leads parallel to and in proximity to conductors carrying AC currents.

Twisting the signal leads and the power leads are an effective way to reduce this form of magnetic interference.

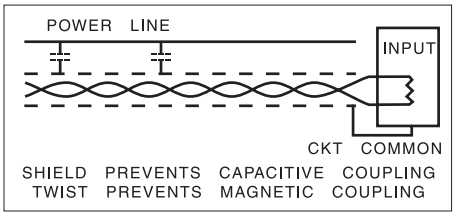
Mounting signal conditioning equipment in powerful magnetic fields can create interference inside the circuit boards and internally in the integrated circuits used in the equipment. The most reasonable and effective cure for this condition is to move the equipment away from the magnetic field.

Capacity Coupling Avoidance

AC potentials near signal carrying conductors can capacitively couple the AC to the signal conductors. The higher the frequency of the AC source the more extreme the potential interference problem. Common sources of interference are SCR drives, relay coil circuits, welders, and fluorescent lamp conductors.

If the interference can not be avoided by equipment location and wire paths, shielded wire should be used between products.

Twisted shielded wire is the best choice because the twist provides magnetic interference protection and the shield prevents capacitive coupled interference.



The shield should be connected to the circuit common of the driven device. It should never be connected to both devices. Current could flow in the shield and magnetically couple to the signal leads. If the signal conditioner is mounted near a high potential source, capacitively coupled interference can occur by direct coupling to components inside the product. Metal housed products can be effective in preventing direct coupling, but the preferred practice is to locate the equipment in a better environment.

Radio Interference

Well designed products will include internal filters to desensitize the product to radio frequency signals. There is no cure for direct radiation pickup by components in the product except extensive shielding. Metal housings with RFI gaskets can be used to shield the product. If the RFI source is powerful enough, individual RFI filters may be required on each conductor entering the metal housing.

Lightning

Lightning is basically radio interference except when a direct hit occurs on a power line or signal cable. Standard RFI shielding techniques work on radiation from lightning - to a point. The energy levels associated with lightning radiation can induce currents in conductors that will destroy products. Good lightning protection requires the following techniques as a minimum:

1. Mount all equipment in a metal housing.
2. All signal leads should have a gas discharge transient protector to circuit common.
3. Circuit common should have a gas discharge transient protector to a good earth connection (very short heavy lead).
4. Power connections should have a transient protector from each line to earth.
5. Use twisted shielded pair for all signal leads.
6. Run all wire underground where feasible - otherwise use metal conduit which is well grounded.

Fundamental Requirements

1. **Never** run signal leads in the same conduit or bundle that carries power mains, relay coil drive, relay contact leads, or other high level voltages or currents.
2. **Never** connect the shield of a shielded wire to anything other than the circuit common of the input of the product being driven by a signal.

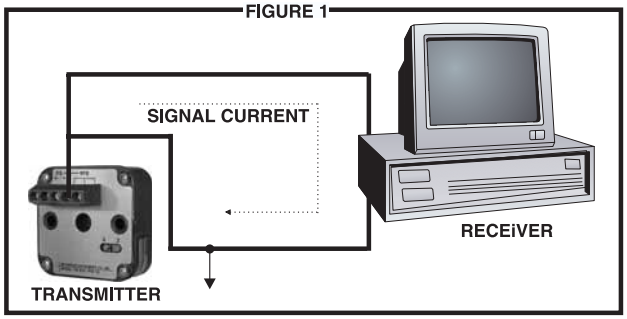
Article written by Larry Perkins of Wilkerson Instrument Co., Inc.

A Ground Loop Primer

One of the most frustrating problems of the measurement and control industry is that of the ground loop. Its effects can appear and disappear with no apparent reason and can range from mere annoyance to down right destructive. It seems that ground loops carry some mystical connotation to the point that our industry has made it a "catch all" culprit for anything that cannot be explained.

While ground loops can be complex problems and may not always be predictable they can be understood and dealt with if we have a little insight into just what they are and how they can affect a transmitted signal. Let us first refer to Figure 1. This Figure depicts what we might consider to be a typical measurement loop. It has a transmitter sending a signal to a receiver, some finite distance away, over a pair of wires. One side of the signal current has become grounded via internal circuitry and ultimately is tied to earth ground usually via the instrument case.

FIGURE 1



As depicted in Figure 1, this measurement loop would probably work fine and not have any influence from ground loop currents. However, reality sets in and we have to abide by plant safety procedures, the National Electric Code, etc. Safety procedures almost always will mandate that each piece of equipment be grounded to earth at its respective installed location. This is where the trouble starts. Once we ground two pieces of equipment at two different locations we have set the stage for ground loop problems. If we could take a volt meter (Figure 2) with very long leads and measure the voltage between the ground points of the transmitter and the receiver we would measure some voltage. It may measure in millivolts or it could be many volts. Either way, if there is a potential difference, then current will flow between these two points. Since the earth presents itself as a resistor between these two ground points the amount of current that flows between the points will be directly proportional to the voltage difference and inversely proportional to the resistance. For those who are fans of Ohms Law you will recognize this equated as I=E/R. I being the ground current; E being the voltage between the ground points; and R being the resistance of the earth between the two ground points.

FIGURE 2

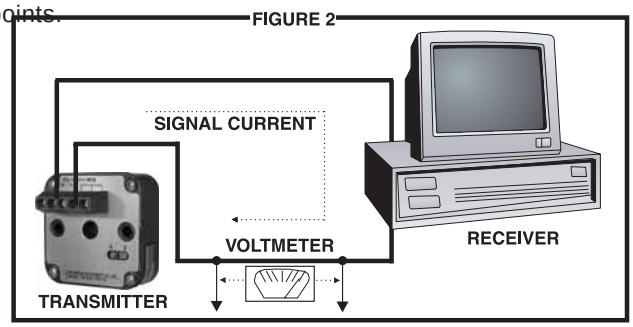
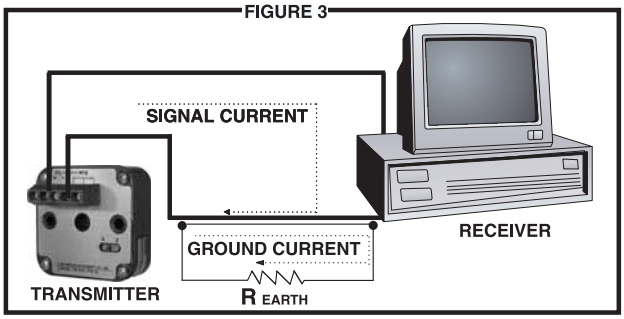


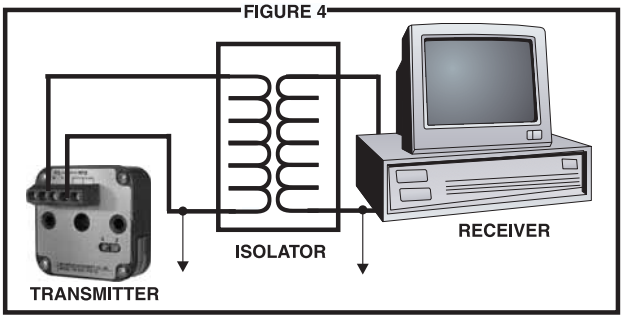
Figure 3 shows that we now have two currents that can flow through the wiring between the transmitter and receiver. If it all stopped here we could just calibrate the measurement loop to nullify the effects of the ground current and go on about our business. Many times this is exactly what happens. A technician calibrates the loop and comes back a few days later to find that his calibration is no longer accurate. What has happened? It could be a lot of things. Maybe it rained and the resistance of the earth changed. Suffice it to say there are many phenomenon, either natural or man-made, that can change the resistance or the voltage between the two ground points thus effecting the calibration of the loop.

FIGURE 3



It is apparent that we are "fighting a losing battle" thinking we can anticipate the interactive affect of ground loop currents on our measurement loop. What can we do to get around this problem? The answer is to provide DC isolation between each component in our loop. (Figure 4)

FIGURE 4



DC isolation can be accomplished either in the transmitter, the receiver, or with a third component as shown in Figure 4. Figure 4 shows DC isolation being accomplished by using a transformer. An isolator module, of course, is much more than just a transformer, but it is the transformer component in a signal isolator that, in fact, provides the isolation since DC cannot pass through a transformer. Now that we have inserted this "transformer" into the circuit, the ground loop between the transmitter and the receiver no longer exists, thus eliminating its effects on the signal current.

The Wilkerson product line provides several options for implementing DC isolation depending on how the isolator is powered. There are three basic ways of powering an isolator. These are listed below with the respective modules:

1. **Input Powered or Loop Powered**
   DM4391-1 DM4391-2
2. **Output Powered or Two Wire**
   TW81X1
3. **External Powered**
   MM4300 Series MM4380A
   DM4300 Series DM4380A

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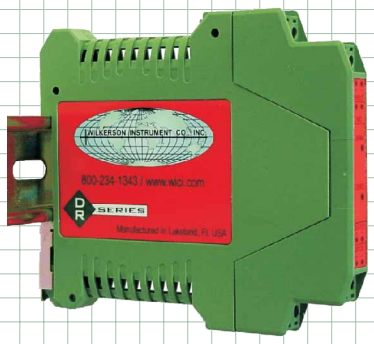
DC ISOLATORS

PROVIDES GALVANICALLY ISOLATED OUTPUT PROPORTIONAL TO DC INPUT

MIGHTY MODULE

MM4380A	Field Rangeable Input and Output
MM4300	Factory Ranged Input and Output
MM4300A	Four Models, Combinations of 4/20 mA and 0/10 V Input and Output

UL/cUL Recognized (Some Models)



DR SERIES

DR4380A	Field Rangeable Input and Output
DR4300	Factory Ranged Input and Output
DR4302	4/20 mA Input, Dual 4/20 mA Outputs

UL/cUL Recognized

DIN MOD™

DM4380A	Field Rangeable Input and Output
DM4300A	Four Models, Combinations of 4/20 mA and 0/10 V Input and Output
DM4391	Loop Powered Isolator, 4/20 mA In and Out

UL/cUL Recognized

Silver Series™

SR2101	Isolated 2 Wire Transmitter, Factory Ranged

Vers. 4-0108

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