

# DC TO DC ISOLATED SIGNAL CONDITIONER FIELD RANGEABLE INPUTS AND OUTPUTS

**Input:** 0-10 mV to 0-130 Vdc,  $\pm 5$  Vdc,

$\pm 10$  Vdc, or 0-200  $\mu$ A to 0-50 mAdc

**Output:** 0-1V to 0-10 Vdc,  $\pm 5$ Vdc,  $\pm 10$  Vdc,

or 0-2 mA to 0-20 mAdc or 4-20 mA

## DMD4380 Series

- ✓ Standard DIN Rail Mounting
- ✓ Fast Setup—Over 100 I/O Ranges
- ✓ Removable Connectors
- ✓ Full 3-Way Isolation
- ✓ Output Test Button
- ✓ Built-In Loop Powers for Sink/Source and I/O
- ✓ 80 to 265 Vac or 9 to 30 Vdc Input Power Options

### Applications

- ✓ Amplify, Convert or Scale Process Signals
- ✓ Isolate Single Ended (Common Ground) PLC Inputs
- ✓ Interface Process Signals with Panel Meters, PLCs, Recorders, Data Acquisition, DCS and SCADA Systems

The DMD4380 accepts a dc voltage or current input and provides an optically isolated dc voltage or current output that is linear to the input. It provides filtering, amplifies, and converts the input signal to the selected dc voltage or current output that you select. The 3-way 1200V isolation eliminates ground loops, common mode voltages and greatly reduces noise pick-up. Standard features include a 15 Vdc loop power supply and a 20 Vdc loop supply for the output. The power supplies can also be wired to sink or source which allows



DMD4380, shown smaller than actual size with standard DIN rail (sold separately).

the DMD4380 to be used with any combination of powered or unpowered mA inputs and powered or unpowered mA outputs including passive mA devices. Features such as red and green LEDs that vary in intensity to show input and output activity and an output test button help make set-up and troubleshooting fast and easy.

### SPECIFICATIONS

**Input Ranges:** Field selectable ranges via switch settings

**Voltage:** 0-10 mVdc to 0-50 Vdc

**Bipolar Voltage:**  $\pm 50$  mVdc to  $\pm 10$  Vdc

**Current:** 0-200  $\mu$ Adc to 0-50 mAdc

**Input Impedance (Voltage):**

**Voltage:** 1 M $\Omega$  minimum

**Current:** 50  $\Omega$  typical

**Voltage Burden:** 1 Vdc at 20 mA

**Input Loop Power Supply:**

15 Vdc  $\pm 10\%$ , regulated, 25 mAdc; max ripple, less than 10 mV RMS may be selectively wired for sinking or sourcing



Detail of front panel.

**Output Ranges:**

**Switch Selectable, Field Rangeable Voltage (10 mA max):**

0-1 to 0-10 Vdc

**Bipolar Voltage (10 mA max):**

$\pm 5$  to  $\pm 10$  Vdc

**Current:** 0-2 mA to 0-25 mA

**Compliance, Drive @ 20 mA:** 20V, 1000  $\Omega$  drive

**Output Offset:**  $\pm 100\%$  of span in 15% increments

**Output Linearity:** Better than  $\pm 0.1\%$  of span

**Output Zero and Span:** Multi-turn potentiometers to compensate for load and lead variations,  $\pm 15\%$  of span adjustment range typical

**Output Loop Power Supply:** 20 Vdc nominal, regulated, 25 mA dc; max ripple, less than 10 mV RMS; may be selectively wired for sinking or sourcing

**Output Ripple:** <10 mV rms

**Function Test Button:** Sets output to test level when pressed; adjustable 0 to 100% of span via potentiometer. Factory default is approx. 50% of span

**Response Time:** 70 ms typical

**Common Mode Rejection:** 120 db minimum

**Isolation:** 1200 Vrms minimum, 3-way isolation, power to input, power to output and input to output

**Operating Temperature Range:** -10 to 60°C (14 to 140°F)

**Thermal Stability:** Better than  $\pm 0.02\%$  of span per °C

**Std. Power:** 80 to 265 Vac, 50/60 Hz or 85 to 300 Vdc, 2 W maximum

**Low Voltage Option:** 9 to 30 Vdc or 10 to 32 Vac

**Mounting:** Mounts to standard 35 mm DIN rail

**Environmental Protection:** IP40

**Connections:** Four 4-terminal removable connectors 14 AWG max wire size

**Dimensions:** 22.5 W x 117 H x 122 mm D (0.89 x 4.62 x 4.81") height includes connectors

**Weight:** 150 g (5.3 oz)

## ELECTRICAL CONNECTIONS

| TYPE OF INPUT DEVICE                                                                                                               | - TERMINAL | + TERMINAL                  |
|------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------------------|
| Sensor of transmitter with a voltage output.                                                                                       | 9(-)       | 11(+)                       |
| Transmitter with a mA (Current) output that provides power to the current loop. Typically a 3- or 4-wire device.                   | 9(-)       | 11(+)                       |
| Transmitter with a mA (Current) output that is unpowered. Typically a 2-wire device. The DMD module provides the power.            | 11(-)      | 10(+15V)                    |
| TYPE OF OUTPUT DEVICE                                                                                                              |            |                             |
| Measuring/recording device accepts a voltage input.                                                                                | 3(-)       | 4(+) switch E set to "V"    |
| Measuring/recording device accepts a mA (current) input and the input is unpowered or passive. APD module provides the loop power. | 3(-)       | 4(+20V) switch E set to "I" |
| Measuring/recording device accepts a mA (current) input and the input provides power to the loop power.                            | 2(-)       | 3(+) switch E set to "I"    |

## SETUP INPUT AND OUTPUT (See manual for full selection)

| Input      | 0 to 1 mA       | 4 to 20 mA | 0 to 50 mV | 0 to 100 mV | 0 to 500 mV | 1 to 5V | 0 to 5V | 0 to 10V | $\pm 10V$ | 0 to 25V |
|------------|-----------------|------------|------------|-------------|-------------|---------|---------|----------|-----------|----------|
| Output     | Rotary Switches | ABCDE      | ABCDE      | ABCDE       | ABCDE       | ABCDE   | ABCDE   | ABCDE    | ABCDE     | ABCDE    |
| 0 to 1V    | 4B00V           | 5590V      | 0B00V      | 0100V       | 0000V       | 1490V   | 2000V   | 2400V    | 1C30V     | 2800V    |
| 0 to 5V    | 4B09V           | 5599V      | 0B09V      | 0109V       | 0009V       | 1499V   | 2009V   | 2409V    | 1C39V     | 2809V    |
| 1 to 5V    | 4B06V           | 5596V      | 0B06V      | 0106V       | 0006V       | 1496V   | 2006V   | 2406V    | 1C36V     | 2806V    |
| $\pm 5V$   | 4B04V           | 5594V      | 0B04V      | 0104V       | 0004V       | 1494V   | 2004V   | 2404V    | 1C34V     | 2804V    |
| 0 to 10V   | 4B03V           | 5593V      | 0B03V      | 0103V       | 0003V       | 1493V   | 2003V   | 2403V    | 1C33V     | 2803V    |
| $\pm 10V$  | 4B05V           | 5595V      | 0B005V     | 0105V       | 0005V       | 1495V   | 2005V   | 2405V    | 1C35V     | 2805V    |
| 4 to 20 mA | 4B07I           | 5597I      | 0B007I     | 0107I       | 0007I       | 1497I   | 2007I   | 2407I    | 1C37I     | 2807I    |

**Example:** 1 to 5V input, 4 to 20 mA output: **Code 1497I**. Set switch "A" to 1, "B" to 4, switch "C" to 9, switch "D" to 7 and switch "E" to I.

| CONNECTIONS  |              |
|--------------|--------------|
| TERMINAL NO. | SIGNAL       |
| 3            | Sig. Out -   |
| 4            | Sig. Out +   |
| 9            | Sig. Input - |
| 10           | Loop Exc.    |
| 11           | Sig. Input + |
| 13           | Power +      |
| 16           | Power -      |

## To Order

| MODEL NO.         | DESCRIPTION                                           |
|-------------------|-------------------------------------------------------|
| <b>DMD4380</b>    | Standard voltage isolated DC to DC signal conditioner |
| <b>DMD4380-DC</b> | Low voltage isolated DC to DC signal conditioner      |

*Comes complete with operator's manual.*

**Ordering Example:** DMD4380, standard power, DC to DC isolated signal conditioner.