

# BRIDGE/STRAIN GAGE SIGNAL CONDITIONER



## FIELD RANGEABLE ISOLATED VOLTAGE OR CURRENT OUTPUTS

**Input: 100 to 10,000  $\Omega$  Bridges**

**0.5 to 40 mV/V**

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

**or 0-1 to 4-20 mA**

**(Sink or Source)**

### DMD4059 Series

- ✓ Standard DIN Rail Mounting
- ✓ Drives up to Four 350  $\Omega$  Bridges
- ✓ Non-Interactive Zero and Span
- ✓ Fast Setup—Over 100 I/O Ranges
- ✓ Removable Connectors
- ✓ Full 3-Way Isolation
- ✓ Output Test Button
- ✓ Adjustable Excitation, 1 to 10 Vdc
- ✓ Zero Offset

#### Applications

- ✓ Load Cell Weighing and Scales
- ✓ Strain Gage Pressure Transducers
- ✓ Tanks, Melt Pressure, Level, Flow



DMD4059, shown smaller than actual size with standard DIN rail (sold separately).



The DMD4059 accepts an input from 1 to 4 full Wheatstone strain bridge sensors, pressure transducers or load cells. It provides filtering, amplifies, and converts the millivolt input signal into the selected dc voltage or current output that is linear to the input. The 3-way 1200V isolation eliminates ground loops, common mode voltages and greatly reduces noise pick-up. Sense wire connections are available to give maximum accuracy.

Input, output, excitation and zero offset are field configurable via external rotary and slide switches. Offsets of up to  $\pm 100\%$  of span can be used to cancel sensor offsets or tare fixed loads. Features such as red and green LEDs vary in intensity to show input and output activity and an output test button helps with set-up and troubleshooting.

#### SPECIFICATIONS

**Input Range:** 100 to 10,000  $\Omega$  bridges @ 10 Vdc, drives up to four 350  $\Omega$  bridges @ 10 Vdc

**Minimum:** 0 to 5 mV range, 0.5 mV/V sensitivity

**Maximum:** 0 to 400 mV range, 40 mV/V sensitivity

**Input Impedance:** 200 k $\Omega$  typical

**Excitation Voltage:** Switch selectable 0 to 10 Vdc in 1V increments

**Maximum Output:** 10 Vdc @ 120 mA

**Drive Capability:** Up to four 350  $\Omega$  bridges @ 10 Vdc

**Fine Adjustment:**  $\pm 5\%$  via multi-turn potentiometer

**Stability:**  $\pm 0.01\%$  per  $^{\circ}C$

**Sense Lead Compensation:** Better than  $\pm 0.01\%$  per 1  $\Omega$  change in leadwire resistance

**Maximum Lead Wire Resistance:** 10  $\Omega$  with 350  $\Omega$  @ 10 Vdc

**Zero Offset (Tare):**  $\pm 100\%$  of span in 15% increments

**Output Ranges:**

**Voltage (10 mA max):** 0-1 to 0-10 Vdc

**Bipolar Voltage (10 mA max):** ±5 or ±10 Vdc

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

**Compliance, Drive @ 20 mA:** 20V, 1000 Ω drive; current output can be selectively wired for sink or source

**Output Linearity, Ripple and Noise:** Better than ±0.1% of span, <10 mV rms ripple and noise

**Output Zero and Span (Fine Adjustment):** Multi-turn potentiometers to compensate for load and lead variations, ±15% of span adjustment range typical

**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:** 100 db min

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

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

**Thermal Stability:** Better than ±0.02% of span per °C

**Standard Power:** 80 to 265 Vac, 50/60 Hz or 85 to 300 Vdc

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

**Power Consumption:** 2 to 5 W depending upon number of load cells

**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:** 159 g (5.6 oz)

EXCITATION SWITCH	
VOLTAGE	POSITION
10	A
9	9
8	8
7	7
6	6
5	5
4	4
3	3
2	2
1	1
0	0

CONNECTIONS	
TERMINAL NO.	SIGNAL
3	Sig. Out -
4	Sig. Out +
6	Sense Lead
9	Sig. Input +
10	Exc. -
11	Sig. Input -
12	Exc. +
13	Power +
16	Power -

**SETUP INPUT AND OUTPUT**

Input →	Output										
	0 to 5 mV	0 to 10 mV	0 to 20 mV	0 to 25 mV	0 to 30 mV	0 to 40 mV	0 to 50 mV	0 to 100 mV	0 to 200 mV	0 to 250 mV	
<b>Rotary Switches</b>	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD	BCD
0 to 1V	200	A00	300	600	E00	B00	000	800	100	400	
0 to 5V	209	A09	309	609	E09	B09	009	809	109	409	
1 to 5V	206	A06	306	606	E06	B06	006	806	106	4066	
±5V	204	A04	304	604	E04	B04	004	804	104	404	
0 to 10V	203	A03	303	603	E03	B03	003	803	103	403	
±10V	205	A05	305	605	E05	B05	005	805	105	405	
4 to 20 mA	207	A07	307	607	E07	B07	007	807	107	407	

**Example:** 0 to 30 mV input, 4 to 20 mA output: Code **E07**. Set switch "B" to E, switch "C" to 0 and switch "D" to 7.

To Order	
MODEL NO.	DESCRIPTION
<b>DMD4059</b>	Standard voltage isolated strain gage signal conditioner (AC/DC powered)
<b>DMD4059-DC</b>	Low voltage isolated strain gage signal conditioner (AC/DC powered)

Comes complete with operator's manual.

**Ordering Example:** DMD4059, standard power, isolated strain gage signal conditioner.