

**Super-mini Signal Conditioners *Mini-M Series***

**DIVIDER**

**MODEL M2DIS**

**MODEL & SUFFIX CODE SELECTION**

MODEL \_\_\_\_\_  
 INPUT 1 \_\_\_\_\_  
 INPUT 2 \_\_\_\_\_  
 OUTPUT \_\_\_\_\_

<b>Current</b>	<b>Voltage</b>
<b>A</b> : 4 – 20mA DC	<b>1</b> : 0 – 10mV DC
<b>A1</b> : 4 – 20mA DC *1	<b>2</b> : 0 – 100mV DC
<b>B</b> : 2 – 10mA DC	<b>3</b> : 0 – 1V DC
<b>C</b> : 1 – 5mA DC	<b>4</b> : 0 – 10V DC
<b>D</b> : 0 – 20mA DC	<b>5</b> : 0 – 5V DC
<b>E</b> : 0 – 16mA DC	<b>6</b> : 1 – 5V DC
<b>F</b> : 0 – 10mA DC	<b>4W</b> : -10 – +10V DC
<b>G</b> : 0 – 1mA DC	<b>5W</b> : -5 – +5V DC
<b>H</b> : 10 – 50mA DC	<b>0</b> : Specify voltage
<b>J</b> : 0 – 10µA DC	
<b>K</b> : 0 – 100µA DC	
<b>GW</b> : -1 – +1mA DC	
<b>FW</b> : -10 – +10mA DC	
<b>Z</b> : Specify current	

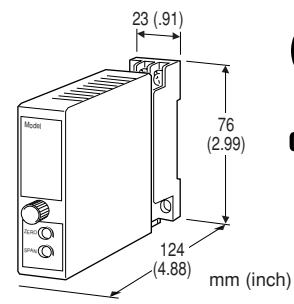
\*1 : 50Ω input resistance for Code A1  
 Same range availability as Input 1

<b>Current</b>	<b>Voltage</b>
<b>A</b> : 4 – 20mA DC	<b>1</b> : 0 – 10mV DC
<b>B</b> : 2 – 10mA DC	<b>2</b> : 0 – 100mV DC
<b>C</b> : 1 – 5mA DC	<b>3</b> : 0 – 1V DC
<b>D</b> : 0 – 20mA DC	<b>4</b> : 0 – 10V DC
<b>E</b> : 0 – 16mA DC	<b>5</b> : 0 – 5V DC
<b>F</b> : 0 – 10mA DC	<b>6</b> : 1 – 5V DC
<b>G</b> : 0 – 1mA DC	<b>4W</b> : -10 – +10V DC
<b>Z</b> : Specify current	<b>5W</b> : -5 – +5V DC
	<b>0</b> : Specify voltage

<b>AC Power</b>	<b>DC Power</b>
<b>M2</b> : 100 – 240V AC	<b>R</b> : 24V DC
	<b>R2</b> : 11 – 27V DC *2
	<b>P</b> : 110V DC

\*2 : Select 'N' for 'Standards & Approvals' code.

**STANDARDS & APPROVALS**  
 /N : Without CE or UL  
 /CE : CE marking  
 /UL : UL approval (CE marking)



**Functions & Features**

- Receives two DC inputs and provides an output proportional to the division of the inputs
- Universal power input
- High-density mounting
- CE marking & UL approval

**Typical Applications**

- Air-fuel ratio control
- Ratio control in mixing two kinds of liquid

**ORDERING INFORMATION**

Specify code number and variables.  
 • **Code number** (e.g. M2DIS-6AA-M2/CE)  
 • **Ratios** (e.g. K<sub>1</sub> = 0.80, K<sub>2</sub> = 2.00)  
 • **Special input and output ranges** (For codes Z & 0)

**GENERAL SPECIFICATIONS**

**Construction:** Plug-in  
**Connection:** M3 screw terminals (torque 0.8 N·m)  
**Housing material:** Flame-resistant resin (black)  
**Isolation:** Input 1 or input 2 to output to power (Negative sides of the input 1 and 2 must be of the same potential.)  
**Overrange output:** 0 – approx. 120% at 1 – 5V  
**Front adjustments:** Zero and span; ±5%  
**Equation:** Output = (K<sub>1</sub> × Input 1) ÷ (K<sub>2</sub> × Input 2)  
 K<sub>1</sub>, K<sub>2</sub>: 0.10 – 2.00 specified when ordering (0.40 ≤ K<sub>1</sub> ÷ K<sub>2</sub> ≤ 2.00)  
 Input 1, Input 2: 0 – 120%  
 Forcibly limited to 0% and 120% respectively when the signal is out of range.

**INPUT & OUTPUT****■INPUTS (two)**

•**DC Current:** Input resistor incorporated

**Input resistance:** For resistance values other than listed below, specify when ordering.  
(Resistance  $\leq 0.25W \div [Current]^2$ )

Input	Input Resistance
4 – 20mA	: 250 ( $\Omega$ ) (50 $\Omega$ for Code A1)
2 – 10mA	: 500
1 – 5mA	: 1000
0 – 20mA	: 50
0 – 16mA	: 62.5
0 – 10mA	: 100
0 – 1mA	: 1000
10 – 50mA	: 100
0 – 10 $\mu$ A	: 1000
0 – 100 $\mu$ A	: 1000
-1 – +1mA	: 1000
-10 – +10mA	: 100

•**DC Voltage:** -300 – +300V DC

**Minimum span:** 10mV

**Zero suppression/elevation:** max. 1.5 times span

**Input resistance**

Input Span	Input Resistance
10 – 100mV	: 10k ( $\Omega$ minimum)
0.1 – 1V	: 100k
$\geq 1V$	: 1M

**■OUTPUT**

•**DC Current:** 0 – 20mA DC

**Minimum span:** 1mA

**Zero suppression/elevation:** max. 1.5 times span

**Load resistance:** output drive 15V maximum

Output	Load Resistance
4 – 20mA	: 750 ( $\Omega$ maximum)
2 – 10mA	: 1500
1 – 5mA	: 3000
0 – 20mA	: 750
0 – 16mA	: 900
0 – 10mA	: 1500
0 – 1mA	: 15k

•**DC Voltage:** -10 – +12V DC

**Minimum span:** 5mV

**Zero suppression/elevation:** max. 1.5 times span

**Load resistance:** output drive 1mA maximum; at  $\geq 0.5V$

Output	Load Resistance
0 – 10mV	: 10k ( $\Omega$ minimum)
0 – 100mV	: 100k
0 – 1V	: 1000
0 – 10V	: 10k
0 – 5V	: 5000
1 – 5V	: 5000
-10 – +10V	: 10k
-5 – +5V	: 5000

**INSTALLATION****Power input**

**AC:** Operational voltage range 85 – 264V  
(90 – 264V for UL);  
47 – 66 Hz; approx. 3VA at 100V  
approx. 4VA at 200V  
approx. 5VA at 264V

**DC:** Operational voltage range for R: 24V  $\pm 10\%$   
or P: 85 – 150V (110V  $\pm 10\%$  for UL);  
ripple 10% p-p max.; approx. 3W

**Operating temperature:** -5 to +55°C (23 to 131°F)

**Operating humidity:** 30 to 90% RH (non-condensing)

**Mounting:** Surface or DIN rail

**Dimensions:** W23×H76×D124 mm (0.91"×2.99"×4.88")  
See General Spec. Sheet Figure A-1.

**Weight:** 150 g (0.33 lbs)

**Terminal assignment:** See General Spec. Sheet Figure B-1.

**PERFORMANCE in percentage of span**

**Accuracy:**  $\pm 1.0\%$  at  $[K_1 \div K_2 \leq 1]$   
 $\pm 2.0\%$  at  $[K_1 \div K_2 > 1]$   
at Input 2  $\geq 20\%$

**Temp. coefficient:**  $\pm 0.02\%/^{\circ}C$  ( $\pm 0.01\%/^{\circ}F$ ) at Input 2  $\geq 20\%$

**Response time:**  $\leq 0.5$  seconds (0 – 90%)

**Line voltage effect:**  $\pm 0.1\%$  over voltage range

**Insulation resistance:**  $\geq 100M\Omega$  with 500V DC

**Dielectric strength:** 2000V AC @1 minute (input 1 or input 2 to output to power to ground)

**STANDARDS & APPROVALS**

**CE conformity:** EMC Directive (89/336/EEC)

EMI EN61000-6-4

EMS EN61000-6-2

Low Voltage Directive (73/23/EEC)

EN61010-1

Installation category II

Pollution degree 2

Max. operating voltage 300V

Input 1 or input 2 or output to power  
– Reinforced insulation

Input 1 or input 2 to output – Basic insulation

**Approval:** UL/C-UL nonincendive

Class I, Division 2, Groups A, B, C, and D  
(UL 1604, CAN/CSA-C22.2 No.213)

UL/C-UL general safety requirements

(UL 3111-1, CAN/CSA-C22.2 No.1010-1)

# SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

