

Super-mini Signal Conditioners *Mini-M Series*

DELAY BUFFER

MODEL **M2CDS**

MODEL & SUFFIX CODE SELECTION

M2CDS-□□□□

MODEL _____
INPUT _____

Current	Voltage
A : 4 – 20mA DC	1 : 0 – 10mV DC
A1: 4 – 20mA DC *1	15: 0 – 50mV DC
B : 2 – 10mA DC	16: 0 – 60mV DC
C : 1 – 5mA DC	2 : 0 – 100mV DC
D : 0 – 20mA DC	3 : 0 – 1V DC
E : 0 – 16mA DC	4 : 0 – 10V DC
F : 0 – 10mA DC	5 : 0 – 5V DC
G : 0 – 1mA DC	6 : 1 – 5V DC
H : 10 – 50mA DC	4W: -10 – +10V DC
J : 0 – 10µA DC	5W: -5 – +5V DC
K : 0 – 100µA DC	0 : Specify voltage
GW: -1 – +1mA DC	
FW: -10 – +10mA DC	
Z : Specify current	

*1 : 50Ω input resistance for Code A1

OUTPUT

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

POWER INPUT

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

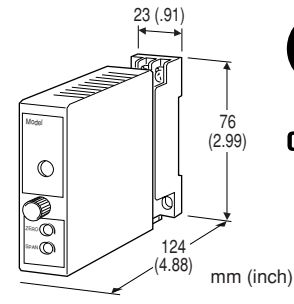
*2 : Select 'N' for 'Standards & Approvals' code.

STANDARDS & APPROVALS

- /N : Without CE or UL
- /CE: CE marking
- /UL: UL approval (CE marking)

ORDERING INFORMATION

Specify code number and variables.
 • **Code number** (e.g. M2CDS-6A-M2/CE)
 • **Special input and output ranges** (For codes Z & 0)



Functions & Features

- Generating a first order lag output in accordance with the preset time constant
- Time constant adjustable up to 20 seconds
- Universal power input
- CE marking
- UL approval

Typical Applications

- Smoothing pulsating signals
- Stabilizing indicator value of dust chambers

GENERAL SPECIFICATIONS

- Construction:** plug-in
- Connection:** M3 screw terminals (torque 0.8 N·m)
- Housing material:** flame-resistant resin (black)
- Isolation:** input to output to power
- Overrange output:** approx. -10 – +120% at 1 – 5V
- Zero/span adjustments:** ±5% (front)
- Time constant adjustment:** 270°-turn screwdriver adjustment (front); approx. 0.5 – 20 sec. (factory set to MIN.)

INPUT & OUTPUT

- INPUT**
- **DC Current:** shunt resistor attached to input terminals (0.5W)
 - Input resistance:** For resistance values other than listed below, specify when ordering.
- | | |
|-------------|-------------------|
| 4 – 20mA | : 250 (Ω) |
| | (50Ω 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 – 10µA | : 1000 |
| 0 – 100µA | : 1000 |
| -1 – +1mA | : 1000 |
| -10 – +10mA | : 100 |

•DC Voltage: -300 – +300V DC

Minimum span: 3mV

Zero suppression/elevation: max. 1.5 times span

Input resistance

(Span) 3 – 10mV	: 10k (Ω minimum)
10 – 100mV	: 10k
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

4 – 20mA	: 750 (Ω maximum)
2 – 10mA	: 1500
1 – 5mA	: 3000
0 – 20mA	: 750
0 – 16mA	: 900
0 – 10mA	: 1500
0 – 1mA	: 15k

•DC Voltage: -10 – +12V DC

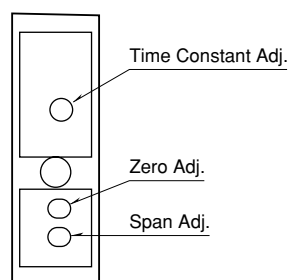
Minimum span: 5mV

Zero suppression/elevation: max. 1.5 times span

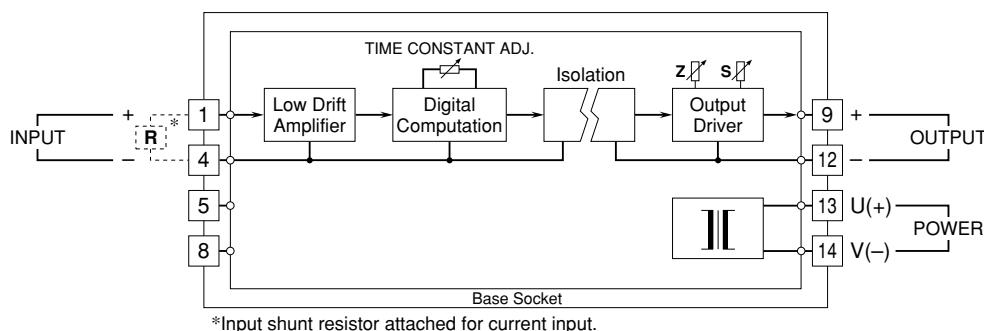
Load resistance: output drive 1mA maximum at $\geq 0.5V$

0 – 10mV	: 10k (Ω minimum)
0 – 100mV	: 100k
0 – 1V	: 1000
0 – 10V	: 10k
0 – 5V	: 5000
1 – 5V	: 5000
-10 – +10V	: 10k
-5 – +5V	: 5000

FRONT PANEL CONFIGURATION



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



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-2.

PERFORMANCE in percentage of span

Accuracy: $\pm 0.2\%$

Temp. coefficient: $\pm 0.015\%/^{\circ}C$ ($\pm 0.008\%/^{\circ}F$)

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

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

Dielectric strength: 2000V AC @1 minute

(input 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 or output to power – Reinforced insulation

Input 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)