Economical DIN Rail Signal Conditioners

CCT Series

1 YEAR WARRANTY

Shown larger than actual size.

- **Voltage, Current, Frequency, Resistance, Potentiometer, Thermocouple, RTD and Strain Gage Input Modules**
- **Integrator Modules Convert Voltage or Current to Frequency**
- **Loop Powered Galvanic Isolator Provides 2 kVeff Isolation Between Input and Output**
- **Compatible with Standard 35 mm DIN Rail**

The CCT series DIN rail signal conditioners are designed to accept a broad range of input signals, such as ac and dc voltage and current, frequency, temperature (thermocouple and RTD), and process transducers, and provide standard process outputs of either 0/4 to 20 mA, or 0 to 10 Vdc. The CCT series features a modern housing design, that is easily mounted on standard DIN rails. Connections are safely and securely made, with input and output connections on the opposite sides of the module.

Internal Design

The CCT series is designed using an internal plug-in three module system that provides flexibility in selecting and changing the power supply, input signal and output signal. Available power supplies include 110 Vac, 220 Vac, and 24 Vdc.

Isolation

The three internal modules in each signal conditioner (signal input, signal output and power supply) are isolated up to 2 kVeff.

Outputs

Each CCT series signal conditioner is available with current and voltage output (only one may be used at a time). Available output types include 4 to 20 mA or 0 to 20 mA (jumper-selectable) and 0 to 10 Vdc.

Standard outputs are linear and proportional to the signal input. Thermocouple input modules feature special circuitry to linearize the output to the actual temperature, and not to the non-linear signal produced by thermocouple sensors.

Integrators

The CCT integrator signal conditioners accept either voltage or current signals, and provide a frequency pulse output. This pulse output can be used as input signals for PLCs or other industrial controls.

Additional Features

Additional models in the CCT series include the FAR power supplies, that can be used with the CCT-80 strain gage transmitter, to provide wheatstone bridge excitation. The loop-powered galvanic isolator model CCT-100 can be used in any application where input to output isolation is required. The CCT-100 provides up to 2 kVeff isolation between the input and output terminals.

Specifications

Power: 110 Vac (standard); 220 Vac or 24 Vdc (optional) (±10% tolerance on all power supplies)
Output: 4 to 20 mA and 0 to 10 Vdc standard; 0 to 20 mA via jumper select
Accuracy: ≤0.2% or ≤0.3,%, depending on the model
Response Time: ≤250 ms
Isolation: 2 kVeff
Ripple: ≤0.5%
Bandpass: 1.5 Hz (-3 dB)
Operating Ambient: -10 to 60°C (14 to 140°F)
Storage Ambient: -30 to 80°C (-22 to 176°F)
Temperature Coefficient: ≤0.015%/°C
Power Consumption: 1.5 VA max
Enclosure: Polycarbonate, RAL 7032; UL 94 V-1, IP40 protection
Terminal Housing: Polycarbonate, UL 94-2, IP20 protection
Max Wire Size: 4 mm^2 (14 AWG)
Dimensions: 75 H x 45 W x 110 mm D (2.95" x 1.77" x 4.33")
Weight: 270 g (0.6 lb)
Mounting: DIN rail 46277 and EN 50022 (35 x 7.5 mm)

ac/dc Voltage and Current Input Models

1 YEAR WARRANTY

- **ac/dc Voltage Input Ranges from 100 mV to 650 V**
- **ac/dc Current Input Models with 0 to 50 mA or 0 to 5 A**
- **Overvoltage Protection for Voltage Inputs**
- **High Impedance Voltage Inputs**
- **Low Impedance Current Inputs**

The CCT series of ac and dc input signal conditioners accept analog signals and provide conditioned, isolated analog outputs of 0 to 10 V or 0/4 to 20 mA. The CCT-01 accepts dc voltages, the CCT-08 accepts ac voltages, while the CCT-04 and CCT-32 accept ac and dc current signals, respectively. The CCT-32 also provides 24 Vdc excitation for powering transmitters. All models are powered by 110 Vac (220 Vac or 24 Vdc powered models also available), are mountable on standard 35 mm DIN rail, and are isolated to 2 kVeff.

CCT-01 dc Voltage Input
CCT-08 ac Voltage Input

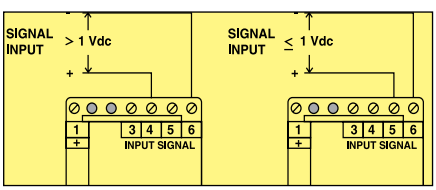
Range	0 to 100 mV	0 to 1 V	0 to 10 V	0 to 100 V	0 to 650 V
Impedance	100 kΩ	100 kΩ	1 MΩ		
Overvoltage	25 V	75 V	1000 Vdc/750 Vac		

To Order

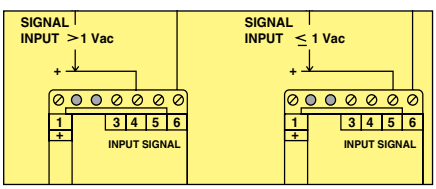
Model No.†	Input Range	Output
CCT-01-0/100MV	0 to 100 mV dc	0 to 10 V or 0/4 to 20 mA
CCT-01-0/1V	0 to 1 V dc	0 to 10 V or 0/4 to 20 mA
CCT-01-0/10V	0 to 10 V dc	0 to 10 V or 0/4 to 20 mA
CCT-01-0/100V	0 to 100 V dc	0 to 10 V or 0/4 to 20 mA
CCT-01-0/650V	0 to 650 V dc	0 to 10 V or 0/4 to 20 mA
CCT-08-0/100MV	0 to 100 mV ac	0 to 10 V or 0/4 to 20 mA
CCT-08-0/1V	0 to 1 V ac*	0 to 10 V or 0/4 to 20 mA
CCT-08-0/10V	0 to 10 V ac*	0 to 10 V or 0/4 to 20 mA
CCT-08-0/100V	0 to 100 V ac*	0 to 10 V or 0/4 to 20 mA
CCT-08-0/650V	0 to 650 V ac*	0 to 10 V or 0/4 to 20 mA

*† 110 Vac powered units supplied standard. To order 220 Vac or 24 Vdc powered models add "-220VAC" or "-24VDC" to the model number. No additional charge for 220 Vac, add additional cost for 24 Vdc. *The CCT-08 signal frequency range is 20 Hz to 6KHz.*

***Ordering Example:** CCT-01-0/100 mV dc input signal conditioner with 0 to 100 mVdc range.*



CCT-01 Input Connections



CCT-08 Input Connections

CCT-04 ac Current Input

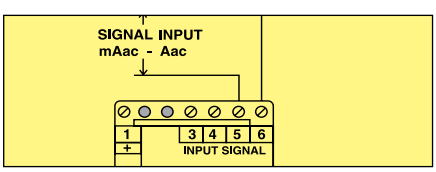
Range	0 to 50 mA ac	0 to 5 A ac
Impedance	20 Ω	0.02 Ω
Overload	100 mA ac	7.5 A ac

To Order

Model No.†	Input Range	Output
CCT-04-0/50MA	0 to 50 mA ac	0 to 10 V or 0/4 to 20 mA
CCT-04-0/5A	0 to 5 A ac	0 to 10 V or 0/4 to 20 mA

† 110 Vac powered units supplied standard. To order 220 Vac or 24 Vdc powered models add "-220VAC" or "-24VDC" to the model number. No charge for 220 Vac, add additional cost to price for 24 Vdc.

***Ordering Example:** CCT-04-0/5A ac current input signal conditioner with 0 to 5 A ac range.*



CCT-04 Input Connections

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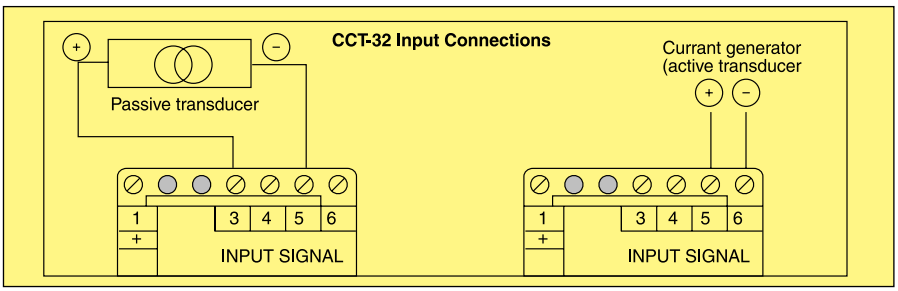
dc Current Input Models

A/IN A/OUT



To Order

Model No.†	Input Range	Output
CCT-32-0/50MA	0 to 50 mA dc	0 to 10 V or 0/4 to 20 mA
CCT-32-0/5MA	0 to 5 mA dc	0 to 10 V or 0/4 to 20 mA

† 110 Vac powered units supplied standard. To order 220 Vac or 24 Vdc powered models add "-220VAC" or "-24VDC" to the model number. No additional charge for 220 Vac, add additional cost to price for 24 Vdc.

Ordering Example: *CCT32-0/5MA dc current input signal conditioner with 0 to 5 mA range.*

Range	0 to 50 mA dc	0 to 5 A dc
Impedance	20 Ω	20 Ω
Overload	100 mA dc	100 mA dc

Voltage Excitation for Current Loop: 24 V dc @ 25 mA, supplied by converter

Thermocouple Input Models

- **Available with J, K, T, E, R and S Thermocouple Types**
- **Jumper-Selectable Up or Downscale Break Protection**
- **0.3% Accuracy**
- **Linearized**

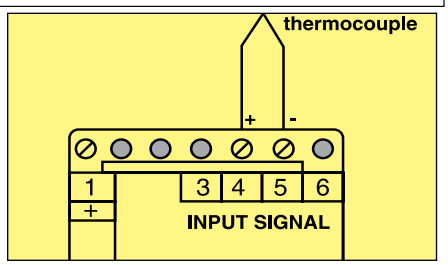
The CCT series of thermocouple input signal conditioners accept J, K, T, E, R or S type thermocouples, and provide conditioned, isolated analog outputs of 0 to 10 V or 0/4 to 20 mA. All models are powered by 110 Vac (220 Vac or 24 Vdc powered models also available), are mountable on standard 35 mm DIN rail, and are isolated to 2 kVeff.

Specifications

Cold Junction Compensation Error: 0.05°C/°C for J, K, T, E and R calibrations; 0.1°C/°C for type S; at 25°C ambient typical

Max Overvoltage: 75 Vdc

Break Protection: Jumper selectable, upscale (>20 mA) or downscale (<4 mA)



Input Connections

Range Table

Range Code	Range	J	K	T	E	S	R
0/200C	0 to 200°C			X			
0/300C	0 to 300°C		X	X			
0/400C	0 to 400°C	X	X	X			
0/500C	0 to 500°C	X	X				
0/600C	0 to 600°C	X	X				
0/700C	0 to 700°C	X	X				
0/800C	0 to 800°C		X		X		
0/900C	0 to 900°C		X				
0/1000C	0 to 1000°C		X				
0/1200C	0 to 1200°C		X				
600/1600C	600 to 1600°C					X	
850/1700C	850 to 1700°C						X

To Order

Input Model Number†	Type
CCT-22-(*)	J
CCT-23-(*)	K
CCT-24-(*)	T
CCT-25-0/800C	E
CCT-26-600/1600C	S
CCT-27-850/1700C	R

**Specify range code from range table. CCT-25 is only available with 0 to 800°C range, CCT-26 is only available with 600 to 1600°C range*

† 110 Vac powered units supplied standard. To order 220 Vac or 24 Vdc powered unit models add "-220VAC" or "-24VDC" to the model number. No additional charge for 220 Vac, add additional cost to price for 24 Vdc.

Ordering Example: *CCT-23-0/1200C, signal conditioner for type K thermocouple input, with 0 to 1200°C range.*

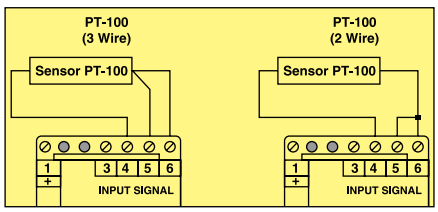
Shown smaller than actual size

CCT-20 RTD Input Models

A/IN A/OUT

- 100Ω Pt RTD Element, 0.00385 Curve
- 2 or 3 Wire Configuration
- 0.2% Accuracy
- Downscale Break Protection
- 1 mA Max Excitation Current

The CCT-20 signal conditioners accept 100Ω Pt RTD signals, and provide conditioned, isolated outputs of 0 to 10 V or 0/4 to 20 mA. Units are 110 Vac powered (220 Vac or 24 Vdc power also available). Modules are mountable on standard 35 mm DIN rail, and are isolated to 2 kVeff.



CCT-20 Input Connections

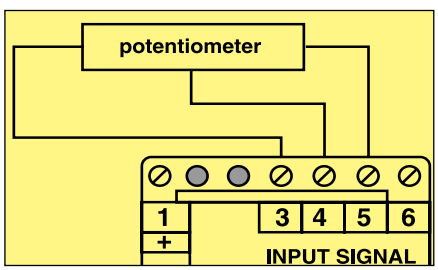
To Order

Model No.†	Input Range	Output
CCT-20-0/100C	0 to 100°C	0 to 10 V or 0/4 to 20 mA
CCT-20-0/200C	0 to 200°C	0 to 10 V or 0/4 to 20 mA
CCT-20-0/300C	0 to 300°C	0 to 10 V or 0/4 to 20 mA
CCT-20-0/400C	0 to 400°C	0 to 10 V or 0/4 to 20 mA
CCT-20-0/500C	0 to 500°C	0 to 10 V or 0/4 to 20 mA
CCT-20-0/600C	0 to 600°C	0 to 10 V or 0/4 to 20 mA

Ordering Example: *CCT-20-0/200C RTD input signal conditioner with 0 to 200°C range.*

CCT-90 Potentiometer Models

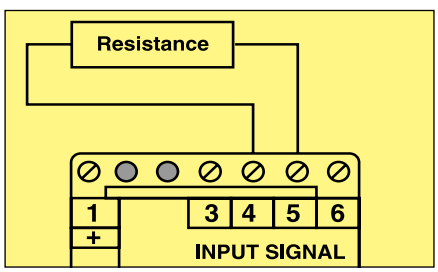
- 100 Ω Min/1 MΩ Max Input
- Excitation Reference Voltage Between 1 and 2 V



CCT-90 Input Connections

CCT-95 Resistance Input Models

- 0.2% Accuracy
- Upscale Break Protection (>20 mA)
- 10%FS Min Input Span



CCT-95 Input Connections

The CCT-90 potentiometer input modules accept 3-wire potentiometers (such as position sensors) and CCT-95 models accept resistance signals, providing isolated 0 to 10 V or 0/4 to 20 mA output. Each model is 110 Vac powered (220 Vac or 24 Vdc also available). Models are mountable on standard 35 mm DIN rail, and are isolated to 2 kVeff.

† 110 Vac powered units supplied standard. To order 220 Vac or 24 Vdc powered models add "-220VAC" or "-24VDC" to the model number. No additional charge for 220 Vac, add additional cost to price for 24 Vdc.

To Order

Model Number†	Input Range	Output
CCT-90	Potentiometer	0 to 10 V or 0/4 to 20 mA
CCT-95-0/200	0 to 200 Ω	0 to 10 V or 0/4 to 20 mA
CCT-95-0/2K	0 to 2K Ω	0 to 10 V or 0/4 to 20 mA
CCT-95-0/20K	0 to 20 kΩ	0 to 10 V or 0/4 to 20 mA
CCT-95-0/200K	0 to 200 kΩ	0 to 10 V or 0/4 to 20 mA

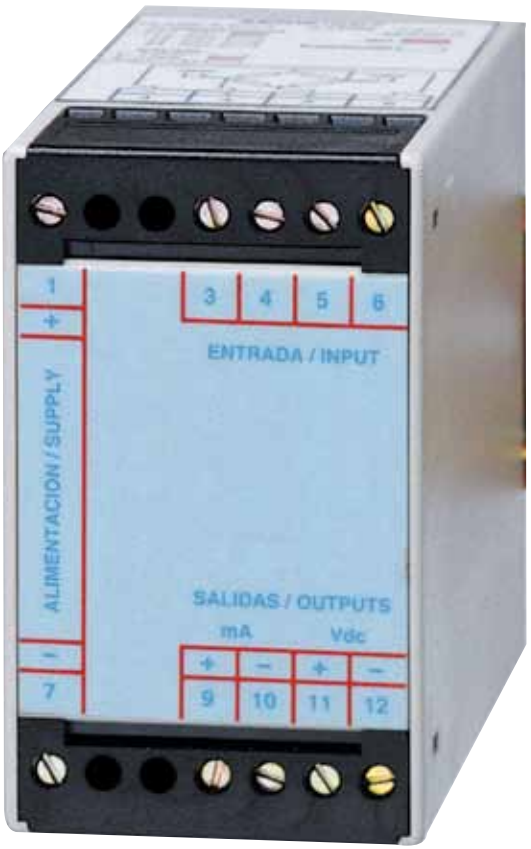
Ordering Example: *CCT-90 potentiometer input signal conditioner.*

See page H-35 for FAR series DIN Rail mount power supply modules.

CCT-05 Frequency Input Models

DI/O

A/OUT



- **NPN, PNP, NAMUR, Open Collector, Contact, or TTL Inputs or AC Voltage (100 mV to 400 Vac)**
- **Signal Input Range from 40 Hz to 40 kHz**
- **Excitation for NPN, PNP and NAMUR Inputs**

The CCT-05 signal conditioners accepts inputs from a variety of frequency transducers, including NPN, PNP, NAMUR, open collector, contact or TTL pulse or AC voltage (100 mV to 400 Vac). Modules are supplied scalable for a minimum and maximum frequency range. The actual range is set by the user via multiturn trimmers, a frequency generator is also required. All units are 110 Vac powered (220 Vac or 24 Vdc power also available), and may be mounted on standard 35 mm DIN rail.
Each unit is isolated to 2 kVeff.

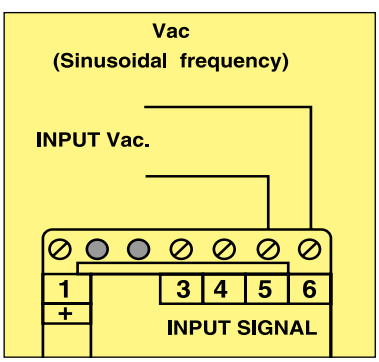
Shown smaller than actual size.

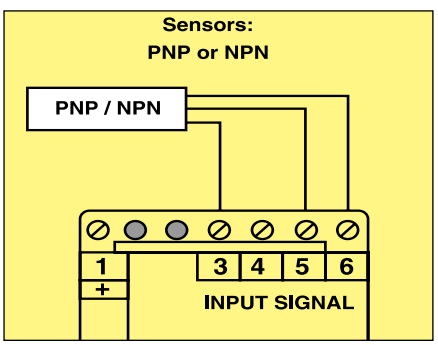
To Order

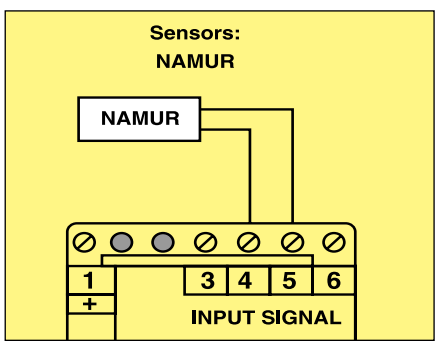
Model No.†	Min* Range	Max* Range	Output
CCT-05-40/70	0 to 40 Hz	0 to 70 Hz	0 to 10 V or 0/4 to 20 mA
CCT-05-70/125	0 to 70 Hz	0 to 125 Hz	0 to 10 V or 0/4 to 20 mA
CCT-05-125/225	0 to 125 Hz	0 to 225 Hz	0 to 10 V or 0/4 to 20 mA
CCT-05-225/400	0 to 225 Hz	0 to 400 Hz	0 to 10 V or 0/4 to 20 mA
CCT-05-400/700	0 to 400 Hz	0 to 700 Hz	0 to 10 V or 0/4 to 20 mA
CCT-05-700/1250	0 to 700 Hz	0 to 1250 Hz	0 to 10 V or 0/4 to 20 mA
CCT-05-1250/2250	0 to 1250 Hz	0 to 2250 Hz	0 to 10 V or 0/4 to 20 mA
CCT-05-2250/4K	0 to 2250 Hz	0 to 4 kHz	0 to 10 V or 0/4 to 20 mA
CCT-05-4K/7K	0 to 4 kHz	0 to 7 kHz	0 to 10 V or 0/4 to 20 mA
CCT-05-7K/12.5K	0 to 7 kHz	0 to 12.5 kHz	0 to 10 V or 0/4 to 20 mA
CCT-05-12.5K/22.5K	0 to 12.5 kHz	0 to 22.5 kHz	0 to 10 V or 0/4 to 20 mA
CCT-05-22.5K/40K	0 to 22.5 kHz	0 to 40 kHz	0 to 10 V or 0/4 to 20 mA

*† 110 Vac powered units supplied standard. To order 220 Vac or 24 Vdc powered models add "-220VAC" or "-24VDC" to the model number. No additional charge for 220 Vac, add additional cost to price for 24 Vdc. *The output signal is non-linear for input frequencies below 10 Hz.*

Ordering Example: *CCT-05-70/125 frequency input signal conditioner with 0 to 70 Hz minimum range and 0 to 125 Hz maximum range.*







CCT-80 Strain Gage/Load Cell Input Models

A/IN A/OUT

- For Strain Gage Sensors with 20 mV Output and 10 V Excitation
- 4 and 6-Wire Bridge Sensors
- 350 Ω Sensor Impedance
- Companion FAR-1 Power Supply Module Provides Stabilized 10 Vdc Excitation for 4 Modules
- FAR Series Power Supplies Provide Bridge Excitation

Shown smaller than actual size.

FAR-1 10 V, 250 mA power supply with excitation sense capability.

The CCT-80 strain gauge/load cell signal conditioners accept input from 350Ω bridge circuits and provide isolated 0 to 10 V or 0/4 to 20 mA output. The FAR series power supplies can be used to provide signal isolation for bridge circuits and other transducers. The FAR-1 is specifically designed for use with strain gage circuits. All units are 110 Vac powered (220 Vac power also available), and are mounted on standard 35 mm DIN rails.

Power Supply Specifications

Power: 110 Vac, 50-60 Hz

Output Adjust (FAR-1 only): ±5%, internal potentiometer

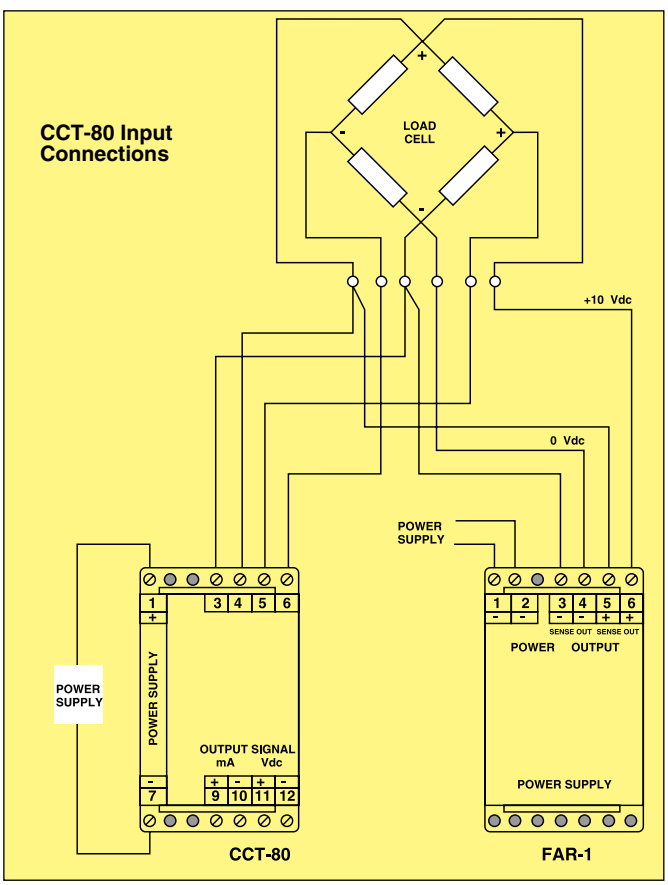
† 110 Vac powered units supplied standard. To order 220 Vac or 24 Vdc powered models add "-220VAC" or "-24VDC" to the model number. No additional charge for 220 Vac, add additional cost to price for 24 Vdc.

To Order

Model No.†	Description
CCT-80	Strain gage signal conditioner with 0-10 V or 0/4 to 20 mA output
FAR-1	10 V, 250 mA power supply with excitation sense capability, 110 Vac power*
FAR-2-5	5 V, 225 mA power supply
FAR-2-9	9 V, 225 mA power supply
FAR-2-12	12 V, 200 mA power supply
FAR-2-15	15 V, 100 mA power supply
FAR-2-18	18 V, 100 mA power supply
FAR-2-24	24 V, 150 mA power supply

** To order FAR-1 with 230 Vac power, add suffix "-230" to model number at no additional charge.*

***Ordering Example:** CCT-80 strain gage signal conditioner with FAR-1 10ÁV, 250ÁmA power supply.*



CCT-55 Signal Integrators

- **Convert Analog Voltage/Current to Frequency Output**
- **Source or Sink Output**
- **Output Ranges From 1 pulse/hour to 10,000 pulses/sec Full Scale**

The CCT-55 signal integrators provide conditioned, isolated frequency outputs proportional to the analog input signal. The CCT-55-V accepts voltages from 0-100 mV to 0 to 650 V, while the CCT-55-I accepts from 0 to 5 mA to 0 to 50 mA input. Output ranges are field setable through jumper selection and multiturn trimmers. A calibrator and frequency meter is required for adjustment.

Specifications

dc Voltage Input Ranges: 0 to 0.1 Vdc, 0 to 1 Vdc, 0 to 10 Vdc, 0 to 100 Vdc, 0 to 650 Vdc; jumper select

Current Input Ranges: 0 to 5 mA, 0 to 50 mA; jumper select

Output: 15 Vdc @ 5 mA source or 100 mA sink with 24 Vdc external supply

Output Ranges: 1 pulse/hr to 10,000 pulses/sec full scale; jumper select and poteniometer adjustment

Pulse Ratio: 50% or fixed 100 ms

Shown smaller than actual size.

CCT100 Galvanic Isolator

Model CCT-100 Galvanic Isolator

- **Provides 2 kV Input to Output Isolation**
- **0 to 50 mA Input and Output Ranges**
- **Loop Powered**

Specifications

INPUT

Input/Output Ratio: 1:1; signal output = signal input

Input Current: 0 to 50 mA dc

Input Voltage: 18 Vdc max

Voltage Drop: 3 Vdc max

Max Load: 50 mA dc

OUTPUT

Output Current: 0 t 50 mA dc

Ripple: 0.5% @ 3 kHz

Load: 0 to 750 Ω

Response Time: 50 ms

Accuracy: 0.1% at 25°C

Temperature Coefficient: 0.01% each 10°C from 10 to 60°C

Dimensions: 75 x 22.5 x 98.5 mm (2.95 x 0.89 x 3.88")

Weight: 100 g (0.2 lb)

To Order

Model No.†	Description
CCT-55-V	Voltage Input
CCT-55-I	Current Input

† 110 Vac powered units supplied standard. To order 220AVac or 24 Vdc powered models add "-220VAC" or "-24VDC" to the model number. No additional charge for 220 Vac, add additional cost to price for 24 Vdc.

Ordering Example: *CCT-55-V voltage input.*

To Order

Model No.	Description
CCT-100	Loop powered galvanic isolation module

Ordering Example: *CCT-100 galvanic isolator.*

DC TO DC ISOLATED SIGNAL CONDITIONER

FIELD RANGEABLE INPUTS AND OUTPUTS

Input: 0-10 mV to 0-130 Vdc, ±5 Vdc, ±10 Vdc, or 0-200 uA to 0-50 mAdc
Output: 0-1V to 0-10 Vdc, ±5Vdc, ±10 Vdc, or 0-2 mA to 0-20 mAdc or 4-20 mA

DMD4380 Series

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

- **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 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.

Detail of front panel.

SPECIFICATIONS

Input Ranges: Field selectable ranges via switch settings
Voltage: 0-10 mVdc to 0-50 Vdc
Bipolar Voltage: ±50 mVdc to ±10 Vdc
Current: 0-200 uAdc to 0-50 mAdc
Input Impedance (Voltage):
Voltage: 1 MΩ minimum
Current: 50 Ω typical
Voltage Burden: 1 Vdc at 20 mA
Input Loop Power Supply: 15 Vdc ±10%, regulated, 25 mAdc; max ripple, less than 10 mV RMS may be selectively wired for sinking or sourcing

Output Ranges:
Switch Selectable, Field Rangeable Voltage (10 mA max): 0-1 to 0-10 Vdc
Bipolar Voltage (10 mA max): ±5 to ±10 Vdc
Current: 0-2 mA to 0-25 mA
Compliance, Drive @ 20 mA: 20V, 1000 Ω drive
Output Offset: ±100% of span in 15% increments
Output Linearity: Better than ±0.1% of span

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

Output Loop Power Supply: 20 Vdc nominal, regulated, 25 mAdc; 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 ±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 is provides power to the loop power.	2(-)	3(+) switch E set to "I"

SETUP INPUT AND OUTPUT (See manual for full selection)

Input → / Output	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	± 10V	0 to 25V
Rotary Switches	ABCDE	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
±5V	4B04V	5594V	0B04V	0104V	0004V	1494V	2004V	2404V	1C34V	2804V
0 to 10V	4B03V	5593V	0B03V	0103V	0003V	1493V	2003V	2403V	1C33V	2803V
±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
DMD4380	Standard voltage isolated DC to DC signal conditioner
DMD4380-DC	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.*

Solid State Mini Rail Mount Input and Output Modules

DR-IO

- **High Density DIN Rail Mount Design**
- **4000V Isolation**
- **Logic Levels Switch High Level AC and DC Circuits**
- **High Level AC and DC Signals Switch Logic Circuits**
- **Positive and Negative Logic Input Modules**
- **Fused Output (Output Modules)**
- **LED Logic Indicator**
- **Wide Logic Voltage Range**
- **Color-Coded**
- **TTL Compatible**

DR-IO Series DIN rail mount input/output modules are ideal for connecting real world discrete signals to a computer interface and other electronic equipment. Most computer interfaces can only sense or generate low level TTL (0/5Vdc) signals. The DR-IO-OAC and DR-IO-ODC output modules can be used to sense high level ac and dc signals.

The compact design of the DR-IO modules permit high density mounting on a standard DIN rail.

The input modules are available with negative and positive logic versions. Negative logic modules produce a high logic signal when the input signal from the field goes low and a low logic signal when the field input goes high. With the positive logic modules, the logic signal follows the field signal; that is, the logic signal is high when the field signal is high and low when the field signal is low.

Specifications

Operating Ambient: -30 to 70°C (-22 to 158°F)
Storage Temperature: -40 to 100°C (-40 to 212°F)
Isolation: 4000 Vrms
Mounting: standard “C” or as Top Hat 35 mm DIN rails

Jumper Strips for Quick Connections

DR-IO-JUMPER, 10-position jumper strips are used to interconnect the positive and/or negative logic terminals, eliminating the need to use small jumper wires. The strips are copper plated and insulated, and can be cut to length as desired for an additional cost. Shown smaller than actual size.

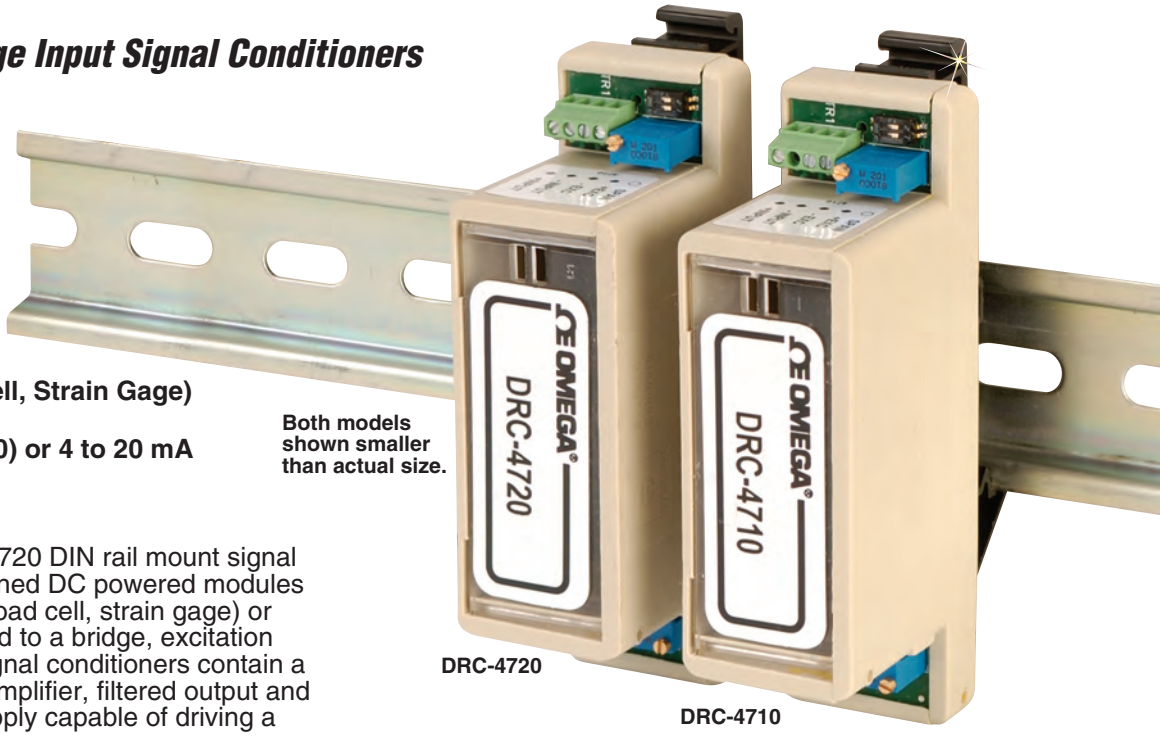
To Order

Model No.	Module Type	Field Input	Field Output	Logic
DR-IO-OAC-R0-280	Output	—	12-280 Vac	4-28 Vdc
DR-IO-OAC-RA-280	Output	—	12-280 Vac	90-280 Vac
DR-IO-ODC-R0-060	Output	—	5-60 Vdc	4-28 Vdc
DR-IO-ODC-RL-060	Output	—	5-60 Vdc	4-28 Vdc
DR-IO-IAC-R0-280N	Input	90-280 Vac	—	Negative
DR-IO-IAC-R0-280P	Input	90-280 Vac	—	Positive

Ordering Example: DR-IO-OAC-R0-280, *mini rail mount output module.*

DIN Rail Mount Bridge Input Signal Conditioners

DRC-4710/4720



Both models shown smaller than actual size.

DRC-4720

DRC-4710

- **DIN Rail Mount**
- **Bridge Input (Load Cell, Strain Gage) or Voltage Input**
- **0 to 10 Vdc (DRC-4710) or 4 to 20 mA (DRC-4720) Output**
- **Economical**

The DRC-4710 and DRC-4720 DIN rail mount signal conditioners are self-contained DC powered modules designed for bridge input (load cell, strain gage) or voltage input (not connected to a bridge, excitation supply not used). These signal conditioners contain a precision instrumentation amplifier, filtered output and a built-in 10V excitation supply capable of driving a 350 Ω bridge. The 0 to 30 mV input range makes the DRC-4710 and DRC-4720 compatible with most strain gage based load cell or pressure transducer outputs. Two models are available, one with 0 to 10 Vdc output (DRC-4710), and the other with 4 to 20 mA output (DRC-4720). Connections are made via easily accessible screw terminal blocks. Zero and Span adjustment potentiometers are located externally as well for easy access.

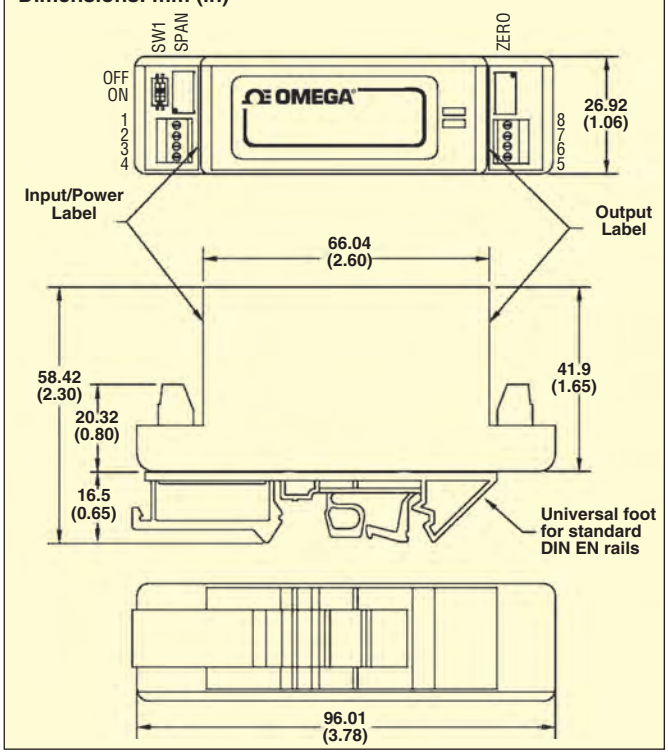
Specifications

INPUT
Input Range: 0 to 10 mV, 0 to 20 mV, 0 to 30 mV (dip switch selectable)
Power: 18 to 26 Vdc (350 Ω Bridge)
Linearity: ±0.01%
Zero Adjust: 20% max output
Temperature Coefficient: 0.05%/°C
Input Offset Voltage: ±70 µV
Input Offset Voltage Temperature Coefficient: 0.7 µV/°C
Common Mode Voltage: 0 to 5V
Common Mode Rejection (DC): 100 dB
Input Noise: 0.3 µV pp typ (0.1 to 10 Hz)

OUTPUT
Output Range:
DRC-4710: 0 to 10 Vdc
DRC-4720: 4 to 20 mA
Load Current (DRC-4710): 5 mA max
Compliance Voltage (DRC-4720): 5.5V max
Loop Resistance (DRC-4720): 250 Ω max **Frequency Response (2-Pole Filter):** DC to 10 Hz **Total RMS Gain Temperature Coefficient:** 0.007%/°C

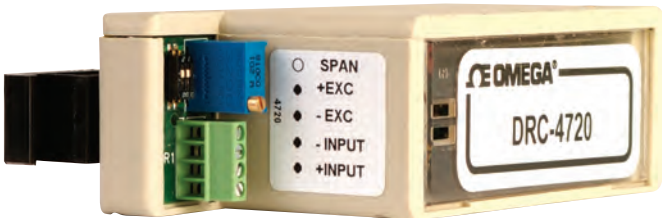
BRIDGE EXCITATION SUPPLY
Fixed Output: 10V ±1.0%
Temperature Coefficient: 0.05%/°C
Load Current: 30 mA max

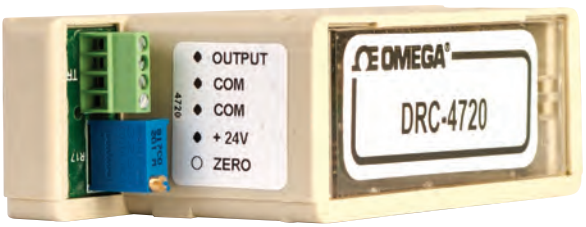
Dimensions: mm (in)

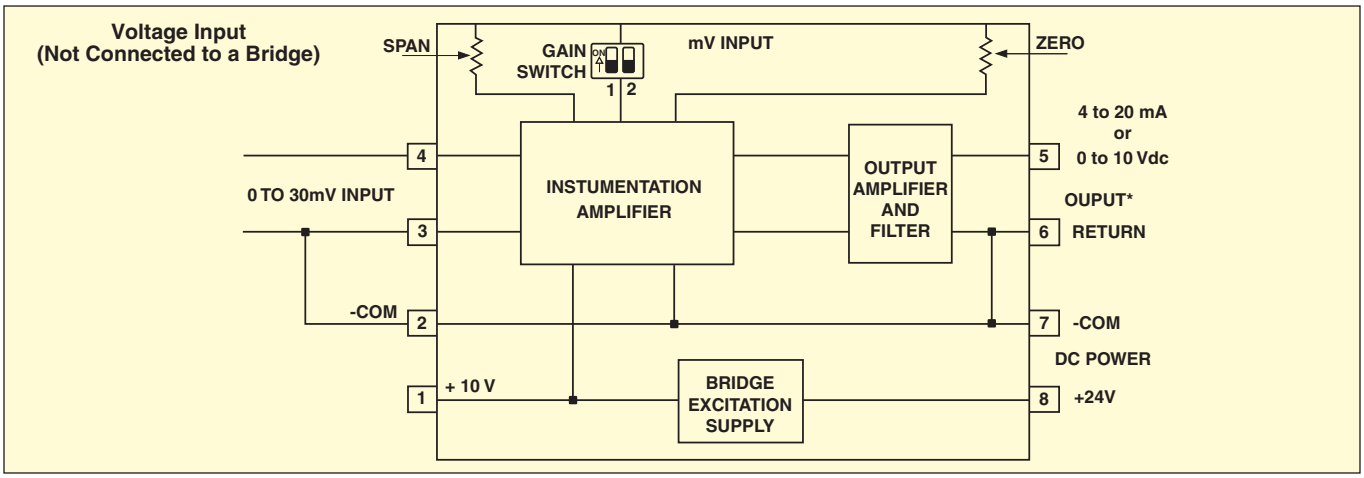


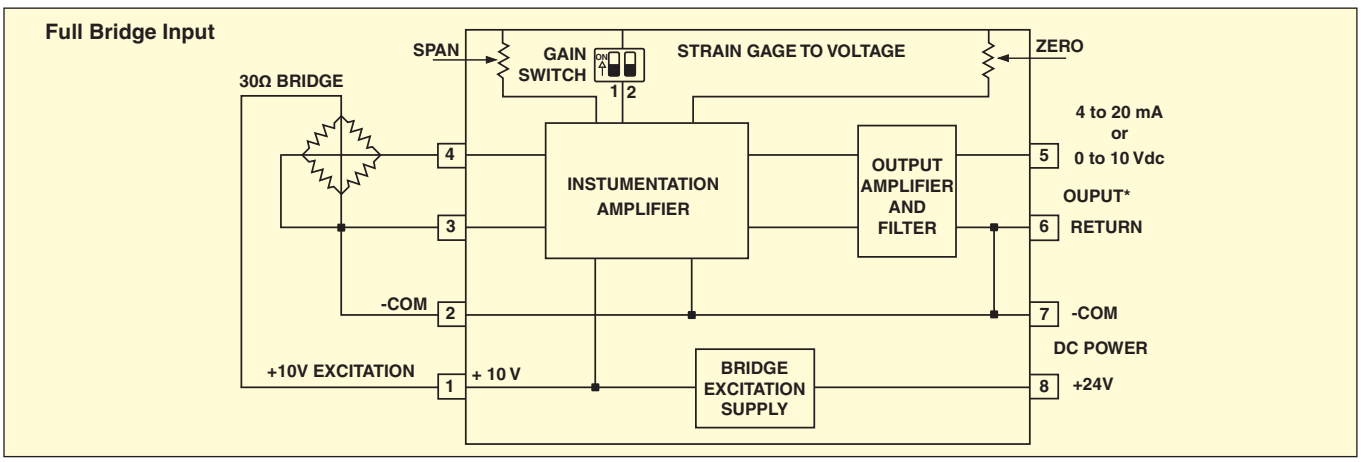
GENERAL
Power: 18 to 26 Vdc
Input Current (One 350 Ω Bridge):
DRC-4710: 40 mA
DRC-4720: 55 mA
Operating Ambient: 0 to 55°C (32 to 131°F)
Storage Temperature: -40 to 80°C (-40 to 176°F)
Dimensions: 96 H x 27 W x 42 mm D (3.78 x 1.06 x 1.65")
Weight: 85 g (3 oz)

Detail of input/output connections for DRC-4720 shown actual size.









*DRC-4710 (0 to 10 Vdc output)
DRC-4720 (4 to 20 mA output)*

IN STOCK FOR FAST DELIVERY!

To Order *Visit omega.com/drc4710_4720 for Pricing and Details*

Model No.	Description
DRC-4710	Bridge input signal conditioner with 0 to 10 Vdc output
DRC-4720	Bridge input signal conditioner with 4 to 20 mA

OMEGACARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order.

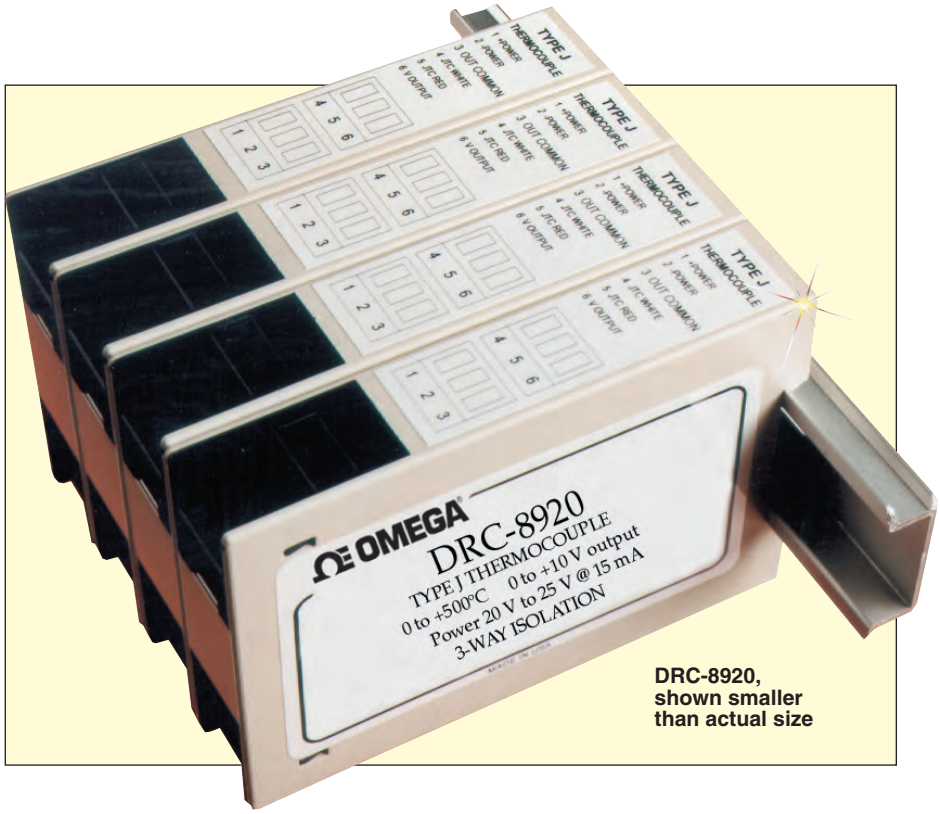
Accessories

Model No.	Description
iDRN-PS-1000	Power supply (switching), 95 to 240 Vac Input, 24 Vdc output @ 850 mA
RAIL-35-2	35 mm (1.4") DIN rail, 2 m (6.6') length
RAIL-35-1	35 mm (1.4") DIN rail, 1 m (3.3') length

Comes complete with operator's manual.
Ordering Example: DRC-4710,** bridge input signal conditioner with 0 to 10 Vdc output, **iDRN-PS-1000** power supply, **RAIL-35-2** mounting rail, and **OMEGACARE** 1-year extended warranty for **DRC-4710.

DRC-8900 Series
DIN Rail Mount Signal Conditioners

- **Models Available for Thermocouples, RTD's, DC Voltage and Current Inputs**
- **Isolated and Linearized**
- **24 Vdc Power**
- **0 to 10 V or 4 to 20 mA Outputs**
- **Slim Housing Mounts on DIN Rail**



DRC-8920, shown smaller than actual size

The DRC-8900 Series DIN rail mount signal conditioners are ideal for a wide range of process monitoring applications. Models are available for a many different input types including thermocouples, RTDs, and process voltage or current. All models isolate and linearize. The thermocouple input models also have cold junction compensation. These signal conditioners have three way isolation—input to output, input to power and output to power. All models are powered by 24 Vdc and are housed in a plastic case with a built-in DIN rail mounting foot. Connections are made to easily accessible screw terminals.

Specifications

COMMON SPECIFICATIONS

Power: 22 to 26 Vdc (unregulated); 15 mA (models DRC-8920/21/40/41/42), 20 mA (models DRC-8901 through DRC-8908), 40 mA (models DRC-8911 through DRC-8918)

Isolation: 700 Vdc (3-way; input to output, input to power, output to power)

Operating Ambient: 0 to 55°C (32 to 131°F)

Storage Temperature: -40 to 80°C (-40 to 176°F)

Dimensions: 110 H x 22.5 W x 75 mm D (4.33 x 0.895 x 2.95")

Weight: 142 g (5 oz)

THERMOCOUPLE INPUT MODELS

Temperature Range:
DRC-8920 (Type J): 0 to 500°C (32 to 932°F)
DRC-8921 (Type K): 0 to 1250°C (32 to 2282°F)

Output: 0 to 10 V into 5 KΩ minimum resistive load

Linearization: ± 2°C (does not include thermocouple error)

Cold Junction Compensation: ±1.5°C at 25°C ambient, ±0.05°C/°C from 2 to 55 °C ambient

Temperature Coefficient: zero, 0.02°C/°C; reading, 0.015°C/°C

Response Time: 1.5 sec

VOLTAGE/CURRENT INPUT MODELS

INPUT

Input Resistance:
Voltage input: 1 MΩ
Current input: 50 Ω

Linearity: ±0.02% of fs

Accuracy: ±0.1% of fs

Maximum Input: Voltage input models, 130 VRMS; current input models, 65 mA (3.25 volts across 50 Ω input resistance)

OUTPUT

Response Time: 10 ms (10 to 90%)

Ripple and Noise: 0.05% of fs

DRC-8920, shown smaller than actual size

MADE IN USA · 1 YEAR WARRANTY · OMEGACARE Extended Warranty Program

A/IN A/IN

Load: 0 to 500 Ω
Open Circuit Voltage: 13 V
Temperature Coefficient: zero, ±0.5 mV/°C (0 to 10 V output models), ±0.5 microamp/°C (4 to 20 mA output models); full scale, ±100 ppm/°C typical
ISOLATION
Isolation: 700 Vdc (3-way)
Power to Input or Output: 15 pF
Input to Output: 750 pF
60 Hz CMRR: 85 db

RTD INPUT MODELS
INPUT
Input Type: Pt RTD, alpha = 0.00385, 2 or 3 wire; DRC-8940, 100Ω; DRC-8941, 500Ω; DRC-8942, 1000Ω
Temperature Range: -50 to 450°C (-58 to 842°F)

OUTPUT
Output: 0 to 10 V into 5 KΩ minimum resistive load
Temperature Coefficient: Zero, 0.02°C/°C typical; reading. 0.015 °C/°C typical
Linearization: ± 0.7°C maximum (does not include RTD error)
3-Wire Compensation: 0.01°C/Ω – 3 wires equal R, up to 10 Ω, typical
Response Time: 1.5 sec

MOST POPULAR MODELS HIGHLIGHTED

To Order *Visit omega.com/drc-8900 for Pricing and Details*

Model No.	Input Range	Output Range
Voltage/Current Input Models		
DRC-8901	0 to 50 mV	0 to 10 V
DRC-8902	0 to 100 mV	0 to 10 V
DRC-8903	0 to 5 V	0 to 10 V
DRC-8904	0 to 10 V	0 to 10 V
DRC-8905	0 to 100 V	0 to 10 V
DRC-8906	4 to 20 mA	0 to 10 V
DRC-8907	0 to 20 mA	0 to 10 V
DRC-8908	0 to 50 mA	0 to 10 V
DRC-8911	0 to 50 mV	4 to 20 mA
DRC-8912	0 to 100 mV	4 to 20 mA
DRC-8913	0 to 5 V	4 to 20 mA
DRC-8914	0 to 10 V	4 to 20 mA
DRC-8915	0 to 100 V	4 to 20 mA
DRC-8916	4 to 20 mA	4 to 20 mA
DRC-8917	0 to 20 mA	4 to 20 mA
DRC-8918	0 to 50 mA	4 to 20 mA
Thermocouple Input Models		
DRC-8920	Type J	0 to 10 V
DRC-8921	Type K	0 to 10 V
RTD Input Models		
DRC-8940	100 Ohm	0 to 10 V
DRC-8941	500 Ohm	0 to 10 V
DRC-8942	1000 Ohm	0 to 10 V

Accessories

Model No.	Description
iDRN-PS-1000	DIN rail mount power supply, 95 to 240 Vac input, 24 Vdc output @ 1A
RAIL-35-1	35 mm (1.4") DIN rail, 1 m (3.3') length
RAIL-35-2	35 mm (1.4") DIN rail, 2 m (6.6') length

All models are supplied with complete operator's manual.

***Ordering Example: DRC-8906 DIN** rail mount signal conditioner, 4 to 20 mA input, 0 to 10 V output, **iDRN-PS-1000** power supply, **RAIL-35-2** mounting rail, and **OMEGACARE**℠ 1-year extended warranty for **DRC-8906** (adds 1 year to standard 1-year warranty)*

H

DIN Rail Mount Configurable Signal Conditioners

DRF Series

1 YEAR WARRANTY

- **Voltage, Current, Frequency, Resistance, Potentiometer, Thermocouple, RTD and Load Cell Input Modules**
- **Field Configurable Signal Ranges**
- **Provides up to 3500 Veff Isolation Between Input and Output and Power (Isolation is Model Specific)**
- **Compatible with Standard 35 mm DIN Rail**

The DRF series DIN rail signal conditioners are designed to accept a broad range of input signals, such as ac and dc voltage and current, frequency, temperature (thermocouple and RTD), and process transducers, and provide standard process outputs of either 4 to 20 mA, or 0 to 10 Vdc. The DRF series feature a modern housing design, that is easily mounted on standard 35 mm DIN rails. Connections are safely and securely made through pluggable screw terminal connectors, with input and output connections on the opposite sides of the module.

Functionality

The DRF series are designed to maximize functionality. The front door of the housing provides easy access to span and offset potentiometers which may be used to field adjust the input and output signal range.

Isolation

The input, output and power circuits are isolated by 3500 volts of galvanic isolation. The isolation protects against potentially damaging voltages from passing through the signal conditioners into connected systems. The isolation also provides improved measurement accuracy by minimizing the effects of ground loops and electrical noise.

Outputs

Each DRF series signal conditioner is available with current and voltage output (only one may be used at a time). Available output types include 4 to 20 mA or 0 to 10 Vdc. Although pre-configured before shipping from the factory, the output may be changed through an internal jumper change.

Standard outputs are linear and proportional to the signal input. Thermocouple input modules feature special circuitry to linearize the output to the actual temperature rather than the non-linear signal produced by thermocouple sensors.

SPECIFICATIONS
(Common to all Models)

Power: 24 Vdc ±10%, 230 Vac ±10% 50/60 Hz, 115 Vac ±10% 50/60 Hz
Power Consumption: <3.8 VA
Output: 4 to 20 mA and 0 to 10 Vdc
Maximum Voltage Output: 11 Vdc approx.
Minimum Voltage Output: -1 Vdc approx.
Minimum Load Resistance (Voltage): ≥1 KΩ
Maximum Current Output: 22 mA approx.
Maximum Current Output: -1.5 mA approx.
Maximum Load Resistance (current): ≤400Ω
Accuracy: <0.2% or <0.3% depending on model
Linearity: <0.1% or <0.2% depending on model
Thermal Drift: <150 ppm/°C or 250 ppm/°C typical depending on model
Response Time: 70 mS (Process and DC input models); 250 mS (Temperature and AC input models)

Isolation*:
Input to Output: 3500 Veff
Power to Input: 3500 Veff
Power to Output: 3500 Veff (for AC powered models), 1K Veff (for dc powered models)
Electrical Connections: Plug-in screw terminals
Protection: IP-30

MECHANICAL DIMENSIONS
Weight:
(DC Powered): 120 g (4.2 oz)
(AC Powered): 200 g (7 oz)
Dimensions:
(DC Powered Models): 110 H x 22.5 W x 93 mm D (4.3 x 0.9 x 3.7")
(AC Powered Models):
110 H x 37 W x 93 mm D (4.3 x 1.46 x 3.7")
Operating Temperature: 0 to 60°C (32 to 140°F)
Storage Temperature: -20 to 70°C (-4 to 158°F)

**Tested True RMS, 60 sec. leak <1 mA*

Load Cell Input Signal Conditioner

DRF-LC

1 YEAR WARRANTY CE

- **For Load Cells with 1 mV/V, 2 mV/V and 3 mV/V Output**
- **Full Scale at 10 mV, 20 mV and 30 mV**
- **Pre-tare Jumpers at 50%, 25% and 0%**
- **Accuracy 0.2%**
- **Response Time < 75 ms**
- **Galvanic Isolation between Input, Output and Power**

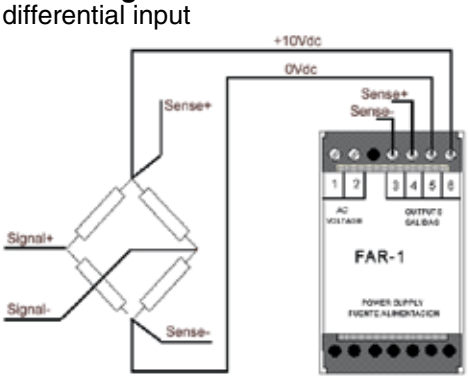
The DRF-LC signal conditioner accepts a load cell input and provides an isolated 0 to 10 Vdc or 4 to 20 mA output. Models are available with three different power options, 24 Vdc, 120 Vac and 240 Vac.

The DRF-LC are ideally suited for industrial applications. All models mount on a standard 35 mm DIN rail and provide galvanic isolation between input, output and power up to 3500 Veff (model specific). Module response time is 75 ms or less.

DRF-LC-230VAC-30MV-0/10, shown larger than actual size.

Specifications

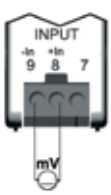
Accuracy: <0.2% full scale
Linearity: <0.1% full scale
Thermal Drift: 250 ppm/°C typical (max <200ppm/°C)
Response Time: <75 mS (90% of signal)
Bandwith: 20 Hz (-3dB)
Pretare: 50%, 25% and 0% by jumpers
Impedance: 5 MΩ
Over Range Protection: 15V max differential input



FAR-1 Power Supply with Load Cell

FAR-1, 10 Vdc power supply, shown smaller than actual size

The FAR-1 is a 10 Vdc power supply for load cells. It can power for up to 4 standard load cells. It accepts 4 wire load cells and 6 wire load cells. It may be mounted on a standard DIN rail.



Load Cell Input

Input Range Table

Range Code	Range
10MV	0 to 10 mV
20MV	0 to 20 mV
30MV	0 to 30 mV

To Order *Visit omega.com/drf_series for Pricing and Details*

Model No.	Description
DRF-LC-(*)-(**)-(***)	Signal conditioner for load cell input
FAR-1	10 Vdc power supply

** Specify power, **"24Vdc"** for 24 Vdc power, **"115Vac"** for 115 Vac power or **"230Vac"** for 230 Vac power*

*** Specify range code from the Input Range Table*

**** Specify output, **"4/20"** for 4 to 20 mA output or **"0/10"** for 0 to 10 Vdc output*

***Ordering Example: DRF-LC-230VAC-30MV-0/10**, signal conditioner for load cell input with a 0 to 30 mV input range, 0 to 10 Vdc output and 230 Vac power.*

Field Configurable Limit Alarm Modules

A/IN A/OUT DI/O

- **Models Available for Thermocouples, RTDs, DC and AC Voltage and Current**
- **Easy Field Configurable Ranges**
- **Adjustable Setpoints Programmable HI or LO and Failsafe or Non-Failsafe**

The DRG-AR Series modules are a family of DIN rail mount limit alarms with dual setpoints and two contact closure outputs. The field configurable input and alarm functions offer flexible setpoint capability. Modules are available for a variety of input types including thermocouples, RTDs, DC and AC current and voltages.

Each module can be set to a number of input ranges via an input selector switch. The alarm points and dead band are adjusted by potentiometers.

Diagnostic LEDs

All modules are equipped with 3 front panel LEDs. The first is a dual function LED labeled input. This green LED indicates line power and input signal status. Two red LEDs indicate the relay state for each setpoint. An illuminated red LED indicates the tripped condition.

Output

The DRG-AR Series modules are equipped with two SPDT relays, rated at 120 Vac or 28 Vdc at 5 amperes. Each of these relays is independently controlled by the field configurable setpoint and deadband.

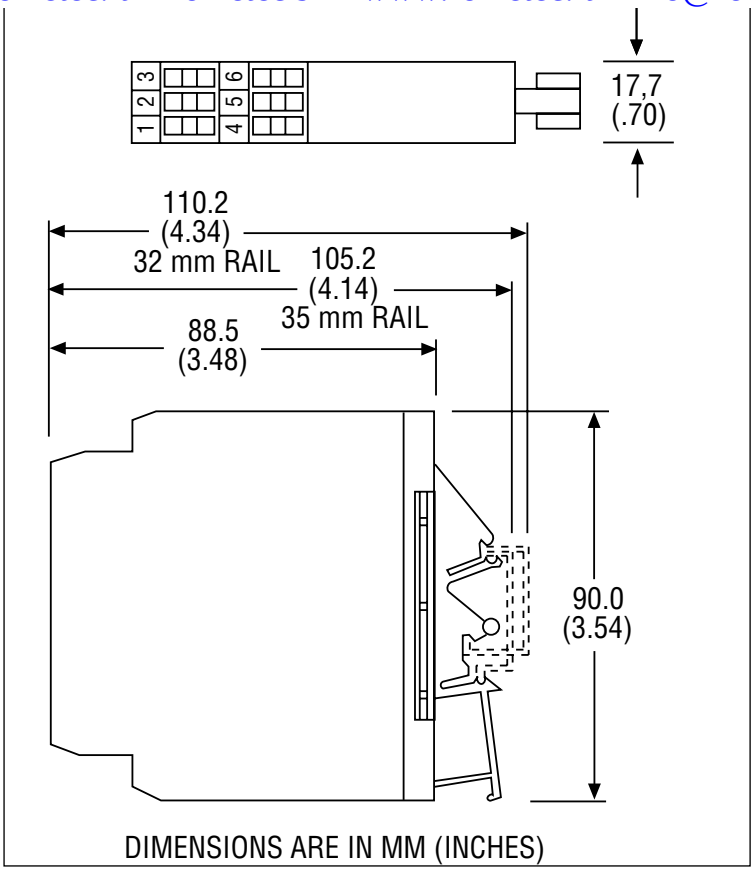
Operation

The field configurable limit alarm setpoints can be configured for HI or LO, failsafe or non-failsafe operation. Each of the setpoints has a respective HI or LO deadband. In a tripped condition, the setpoint is exceeded and the appropriate red LED will illuminate. The trip will reset only when the process falls below the HI deadband or rises above the low deadband. In failsafe operation, the relay is energized when the process is below the HI setpoint or above the LO setpoint (opposite for non-fail-safe). In the fail-safe mode, a power failure results in an alarm state output.

Model	Input Type
DRG-AR-AC	AC Voltage and Current
DRG-AR-DC	DC Voltage and Current
DRG-AR-RTD	RTD
DRG-AR-TC	Thermocouple

Dynamic DeadBand

LSI circuitry in the DRG-AR Series prevents false trips by repeatedly sampling the input. The input must remain beyond the setpoint for 100 milliseconds to qualify as a valid trip condition. Likewise, the input must fall outside the deadband and remain there for 100 milliseconds to return the alarm to an untripped condition. This, effectively, results in a dynamic deadband.



DIMENSIONS ARE IN MM (INCHES)

Specifications

DRG-AR-AC

Range (Voltage Mode): 100 mV to 200 Vac

Impedance (Voltage Mode): >100KΩ

Overload (Voltage Mode): 300 Vac, max.

Range (Current Mode): 10 mA to 100 mAAC

Impedance (Current Mode): 20Ω, typical

Overcurrent (Current Mode): 200 mAAC

Overvoltage (Current Mode): 60V peak

Frequency Range: 40 to 400 Hz

Limit Differentials (Deadbands): >50 mV/5 mA: 0.25% to 5% of span <50 mV/5 mA: 1% to 5% of span

Setpoint Repeatability (Constant Temperature): 0.2% of full scale

DRG-AR-DC

Range (Voltage Mode): 10 mV to ±200 V

Impedance (Voltage Mode): >100KΩ

Overload (Voltage Mode): 200 VRMS, max.

Range (Current Mode): 1 mA to ±100 mA

Impedance (Current Mode): 20Ω, typical

Overcurrent (Current Mode): 170 mA RMS max.

Overvoltage (Current Mode): 60 Vdc

Limit Differentials (Deadbands): >50 mV/5 mA: 0.25% to 5% of span <50 mV/5 mA: 1% to 5% of span

Setpoint Repeatability (constantÁtemp): >50 mV/5 mA: 0.1% of full scale <50 mV/5 mA: 0.2% of full scale

Excitation: 24 Vdc, 20 mA maximum

DRG-SC-RTD:

Sensor Types: RTD, Pt100, Pt500, Pt1000 (α = 0.00385); Cu10, Cu100, Ni 120, Ni Fe 604

Sensor Connection: 3 wire

Range: See Range Table

Excitation Current: <2 mA for Pt100, Pt500, Pt1000; <5mA for Cu100, Ni 120 or Ni Fe 604

Lead Wire Resistance: 40% of base sensor resistance or 100Ω (whichever is less), max. per lead

Lead Wire Effect: Less than 1% of the maximum input temperature span

Limit Differentials (Deadbands): 1.0 to 5% of span

Setpoint Repeatability (Constant Temperature): ±0.2% of full scale

DRG-SC-TC

Ranges: See Range Table

Bias Current (Burnout Detection): <1.5 microamp

Impedance: >1MΩ

Overvoltage: ±10 V differential

Limit Differentials (Deadbands): 0.25 to 5% of span

Setpoint Repeatability (Constant Temperature): 0.2% for temp > 0°C. 0.3% for temp < 0°C

SPECIFICATIONS COMMON TO ALL MODULES

Relay Contacts

2 SPDT (2 form C) Relays
1 Relay per setpoint
Current Rating: 120 Vac: 5A, 240 Vac: 2A, 28 Vdc: 5A
Material: Silver-Cadium Oxide
Electrical Life: 10^5 operations

Isolation: 1800 Vdc between input, contacts and power

RESPONSE TIME

Dynamic Deadband: Relay status will change when proper setpoint condition exists for 100 msec

Normal Mode (Analog Filtering): <250 msec, (10-90%)

Mounting: Standard 32mm or 35mm DIN rail

Wire Termination: Screw: Termination for 12-22 AWG

ESD Susceptibility: Meets IEC 801-2, Level 2 (4 KV)

Humidity (Non-Condensing): Operating: 15 to 95% (@45°C), Soak: 90% for 24 hours (@65°C)

Temperature Range: Operating: 0 to 55°C (32 to 131°F), Storage: -25 to 70°C (-13 to 158°F)

Power: 9-30 Vdc, 1.5 W typical, 2.5 W max

AC Voltage or Current Input Limit Alarm

DRG-AR-AC

The DRG-AR-AC is a DIN rail mount, AC voltage or AC current input limit alarm with dual setpoints and two contact closure outputs. Input voltage spans from 100 mVac to 200 Vac and input current spans from 10 mAAC to 100 mAAC can be field configured. For current spans of 1 to 5 Amps a 0.1Ω (5 W) shunt resistor (Model# DRG-C006) is available.

Specifications

INPUT RANGES

Voltage: 100 mVAC, 200 mVac, 500 mVac, 1 Vac, 2 Vac, 5 Vac, 10 Vac, 20 Vac, 50 Vac, 100 Vac, 200 Vac

Current: 10 mAAC, 20 mAAC, 50 mAAC, 100 mAAC

To Order	
Model No.	**Description**
DRG-AR-AC	AC volt/current limit alarm

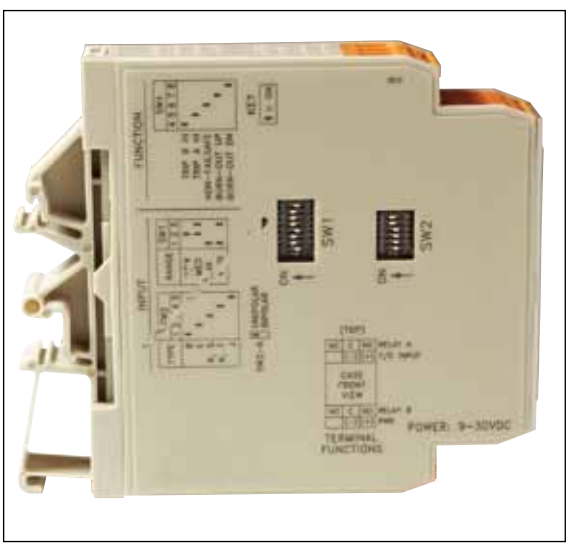
Each DRG-AR-DC is supplied with a complete user's manual.
***Ordering Example: DRG-AR-AC** with one **DRN-PS-1000** power supply and **RAIL-35-2** DIN rail.*

Accessories

Model No.	Description
RAIL-35-1	35 mm (1.4") DIN rail, 1 m (3.3') length
RAIL-35-2	35 mm (1.4") DIN rail, 2 m (6.6') length
DRG-C006	0.1Ω, 5 W shunt resistor
DRN-PS-1000	DIN rail mount power supply, 95 to 240 Vac input, 24 Vdc @ 1 A output

Input Limit Alarm

DRG-AR-RTD



The DRG-AR-RTD is a DIN rail mount, RTD input imit alarm with dual setpoints and two contact closure outputs. The module features up to 8 temperature ranges for each RTD type.

To Order	
Model No.	**Description**
DRG-AR-RTD	RTD input limit alarm

Each DRG-AR-RTD is supplied with a complete user's manual.
***Ordering Example: DRG-AR-RTD** with one **DRN-PS-1000** power supply and **RAIL-35-2** DIN rail.*

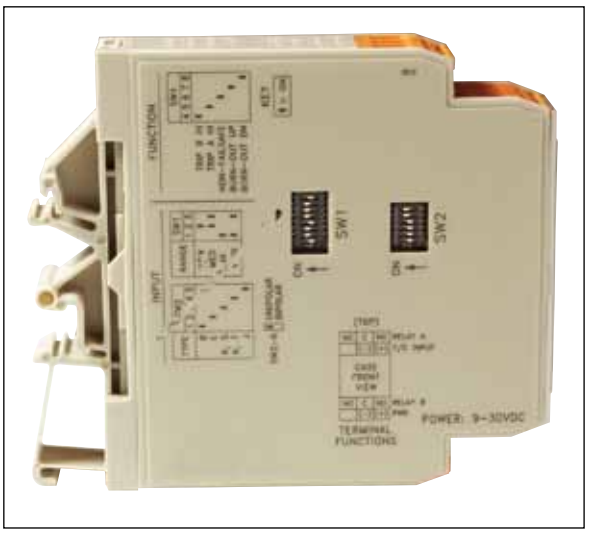
Input Ranges

RTD Type	Temperature Ranges (°C)
Pt100, 500, 1000	0 to 50, -50 to 50, 0 to 100, -100 to 100, (a = 0.00385), 0 to 250, -200 to 250, 0 to 550, 0 to 850
Cu10	25 to 70, -30 to 70, 25 to 120, -70 to 120, 25 to 260, -200 to 260
Cu100	25 to 75, -25 to 75, 25 to 150, -100 to 150, 25 to 260, -200 to 260
Ni120	-30 to 30, -80 to 30, -30 to 100, -30 to 200, -30 to 320
NiFe604	-40 to 0, -40 to 50, -200 to 50, -200 to 100, -200 to 240

Thermocouple Input Limit Alarm

DRG-AR-TC

The DRG-AR-TC is a DIN rail mount, thermocouple input limit alarm with dual setpoints and two contact closure outputs. The module features up to six temperature ranges for each thermocouple type to ensure accuracy and maximize setpoint resolution. A bipolar switch is provided for temperature ranges below 0°C. The DRG-AR-TC is configurable as a single or dual setpoint alarm, with HI or LO trips, upscale or downscale burnout detection and failsafe or non-failsafe operation.



To Order

Model No.	Description
DRG-AR-TC	Thermocouple input limit alarm

Each DRG-AR-TC is supplied with a complete user's manual.
***Ordering Example: DRG-AR-TC** with one **DRN-PS-1000** power supply and **RAIL-35-2** DIN rail.*

Accessories

Model No.	Description
DRN-PS-1000	DIN rail mount power supply, 95 to 240 Vac input, 24 Vdc @ 1A output
RAIL-35-1	35 mm (1.4") DIN rail, 2 m (3.3') length
RAIL-35-2	35 mm (1.4") DIN rail, 2 m (6.6') length

Input Ranges

T/C	Temperature Ranges (°C)
B	0 to1490, 0 to 1820
E	0 to 150, 0 to 290, 0 to 660, 0 to 1000, -270 to 150, -270 to 290
J	0 to 190, 0 to 350, 0 to 760, -210 to 190, -210 to 350
K	0 to 250, 0 to 480, 0 to 1280, 0 to 1372, -270 to 250, -270 to 480
R	0 to 970, 0 to 1690, 0 to 1760
S	0 to 1050, 0 to 1750
T	0 to 210, 0 to 390, -270 to 210, -270 to 390

DC Voltage and Current Input Limit Alarm

The DRG-AR-DC is a DIN rail mount, DC voltage and DC current input limit alarm with dual setpoints and two contact closure outputs. Input voltage spans from 10 mV to 200 V and input current spans from 1 mA to 100 mA can be field configured. Bipolar inputs are also accepted. The module also features 24 Vdc voltage source (isolated from line power) for transducer excitation.

DRG-AR-DC

Specifications

INPUT RANGES (UNIPOLAR & BIPOLAR)

Voltage: 10 mV, 20 mV, 50 mV, 100 mV, 200 mV, 500 mV, 1 V,2 V, 5 V, 10 V, 20 V, 50 V, 100 V, 200 V

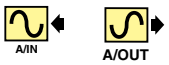
Current: 1 mA, 2 mA, 5 mA, 10 mA, 20 mA, 50 mA, 100 mA

To Order

Model No.	Description
DRG-AR-DC	RTD input limit alarm

Each DRG-AR-DC is supplied with a complete user's manual.
***Ordering Example: DRG-AR-DC** with one **DRN-PS-1000** power supply and **RAIL-35-2** DIN rail.*

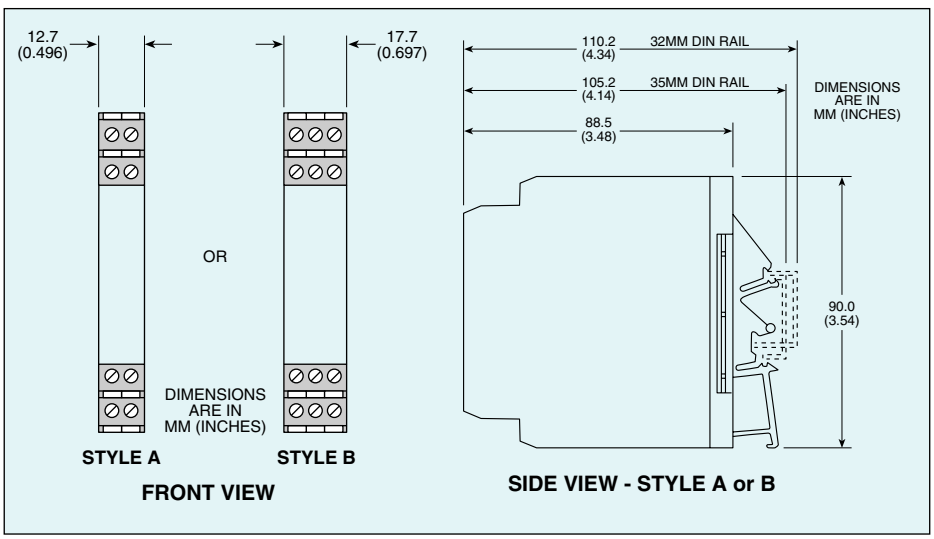
DIN Rail Mount Signal Conditioners



DRG-SC Series

5 YEAR WARRANTY CE

- **Models Available for Thermocouples, RTDs, DC Voltage and Current, Frequency, Strain Gage Bridge, AC Voltage and Current**
- **Field Configurable Input and Output Ranges**
- **Five Field Configurable Output Ranges: 0 to 5 V, 0 to 10 V, 0 to 1 mA, 0 to 20 mA and 4 to 20 mA**
- **Slim Housing Mounts on DIN Rail for High Density Installations**
- **1800 Volts Isolation Between Input, Output and Power Supply**



The DRG Series signal conditioner modules accept a wide variety of input signals such as thermocouples, RTDs, strain gages, DC voltages/currents, AC voltages/currents, frequency and potentiometers and produce a proportional conditioned process output. The inputs and outputs are both field configurable and offer flexible wide ranging capability. The slim housing mounts on a DIN rail and is ideal for high density installation. All modules provide 1800 Vdc isolation between the input, output and power supply.

Field Configurable

One advantage of the DRG series is the field configurable input and output ranges. Each module can be set to a number of ranges by dip switch selection. Wide ranging precision zero and span potentiometers provide even further adjustment. The signal conditioners may be set for an almost limitless number of ranges. Range adjustment requires the use of a calibrator or reference source.

To Order *Visit omega.com/drg-sc for Pricing and Details*

Model No.	Description	Case Style
DRG-SC-AC	AC Voltage and Current	A
DRG-SC-BG	Strain Gage Bridge	B
DRG-SC-DC-B	DC Voltage and Current (bipolar)	A
DRG-SC-DC-U	DC Voltage and Current (unipolar)	A
DRG-SC-FR	Frequency	A
DRG-SC-PT	Potentiometer	A
DRG-SC-RTD	RTD	B
DRG-SC-TC	Thermocouple	B

Specifications

DRG-SC-AC

Range (voltage mode): 100 mV to 200 Vac

Impedance (voltage mode): >100 KΩ

Overload (voltage mode): 300 Vac, max.

Range (current mode): 10 mA to 100 mAAC

Impedance (current mode): 20 Ω, typical

Overcurrent (current mode): 200 mAAC

Overvoltage (current mode): 60V rms

Frequency Range: 40 to 400 Hz, factory calibrated at 60 Hz

Accuracy (including linearity, hysteresis): ±0.1% of span, typical; ±0.5% of span, maximum.

Response Time: (10-90%) 250 mS., typical

Power: 9-30 Vdc, 1.5 W typical, 2.5 W max.

DRG-SC-BG

Range: 10 mV to ±200 mV

Impedance: >1 MΩ

Overvoltage: 400 VRMS max. (intermittent); 264 VRMS, max. (continuous)

Accuracy (including linearity, hysteresis): ±0.1% typical, ±0.2% max. of range @25°C

Bridge Excitation: 1 to 10 Vdc, 120 mA max.

Response Time: (10-90%) <200 mS., typical

Power: 18-30 Vdc, 1.5 W typical, 2.5W max.(one 350Ω bridge), 4 W max.(four 350Ω bridges)

DRG-SC-DC

Range (voltage mode): 10 mV to 100 V

Impedance (voltage mode): > 100 KΩ

Overload (voltage mode): 400 VRMS, max.

Range (current mode): 1 mA to 100 mA

Impedance (current mode): 20 Ω, typical

Overcurrent (current mode): 170 mA RMS max.

Overvoltage (current mode): 60 Vdc

Accuracy (including linearity, hysteresis): <2 mA/20 mV: ±0.35% fs, typical; 0.5% max.; >2 mA/20 mV:±0.1% fs typical, 0.2% max.

Response Time: (10-90%) 200 mS., typical

Power: 9-30 Vdc, 1.5 W typical, 2.5 W max

DRG-SC-FR

Frequency Range: 2Hz to 10,000 Hz

Amplitude Range: 50 mV to 150 VRMS

Accuracy (including linearity, hysteresis): ±0.1% of selected range

Impedance: >10 KΩ

Over-Voltage: 180 V rms, max.

Over-Range: 20 Khz, max.

Response Time: (10-90%): 500 mSec., or 100 times the period of the full scale frequency.

Power: 9-30 Vdc, 1.5 W typical, 2.5 W max

DRG-SC-PT

Resistance (End to End): 100 Ω up to 100 KΩ

Accuracy (including linearity, hysteresis): ±0.1% maximum @25°C

Input Impedance: >1 MΩ

Input Excitation: 500 mV, 5 mA maximum drive

Response Time: (10-90%) <200 mS., typical

DRG-SC-RTD:

Sensor Types: RTD, Pt100, Pt500, Pt1000 (a = 0.00385 or 0.00392); Cu10, Cu25, Cu100

Sensor Connection: 3 wire

Range: See Range Table

Accuracy (including linearity, hysteresis): ±0.1% typical, ±0.2% max. the maximum input temperature range @ 25°C, 0 Ω lead resistance.

Excitation Current: <2 mA for Pt100, Pt500, Pt1000; <5 mA for Cu100; <10 mA for Cu10, Cu25

Leadwire Resistance: 40% of base sensor resistance or 100 Ω (whichever is less), max. per lead.

Leadwire Effect: Less than 1% of the maximum input temperature span.

Response Time: (10-90%) 200 mS., typical

Power: 9-30 Vdc (DRG-SC-BG: 18-30 Vdc), 1.5 W typical, 2.5 W max

DRG-SC-TC

Sensor Types: J, K, T, R, S, E, B

Ranges: See Range Table

Accuracy:

J	±2°C (-200 to 750°C)
K	±5°C (-200 to -140°C) ±2°C (-140 to 1250°C) ±4°C (1250 to 1370°C)
E	±2.5°C (-150 to 1000°C)
T	±3°C (-150 to 400°C)
R & S	±6°C (50 to 1760°C)
B	±5°C (500 to 1820°C)

Bias Current (burnout detection): <1.5 microamp

Impedance: >1 MΩ

Overvoltage: ±10 V differential

Response Time (10 to 90%): 500 mSec. Typical.

Power: 9-30 Vdc, 1.5 W typical, 2.5 W max

SPECIFICATIONS COMMON TO ALL MODULES

Output*

Voltage Output:

Output: 0-5 V, 0-10 V

Impedance: <10 Ω

Drive: 10 mA max.

Current Output

Output: 0-1 mA, 0-20 mA, 4-20 mA

Compliance:

0-1 mA; 7.5 V, max.(7.5 KΩ)

0-20 mA: 12 V, max.(600 Ω)

4-20 mA: 12 V, max.(600 Ω)

Isolation: 1800 Vdc between input output and power.

Mounting: Standard 32 mm or 35 mm DIN rail

ESD Susceptibility: Meets IEC 801-2, level 2 (4 KV)

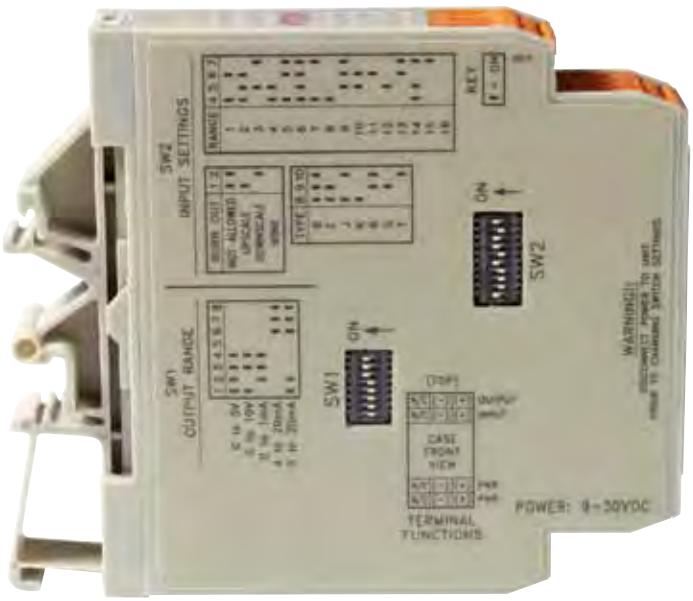
Humidity (Non-Condensing):
Operating: 15 to 95% (@45°C),
Soak: 90% for 24 hours (@65°C)

Temperature Range:
Operating: 0 to 55°C (32 to 131°F),
Storage: -25 to 70°C (-13 to 158°F)

**DRG-SC-DC-B has a ±5 V and ±10 V output only*

Thermocouple Input Signal Conditioner

DRG-SC-TC



DRG-SC-TC, side view.

DRG-SC-TC, front view.

The DRG-SC-TC is a DIN rail mount thermocouple input signal conditioner. It can be field configured for over 60 different thermocouple temperature ranges. The output is linear to temperature and can be set for either 0-5 V, 0-10 V, 0-1 mA, 0-20 mA or 4-20 mA. Zero and span pots allow 50% adjustability of offset and span turn down within each of the ranges. For example the 500-1000°C range could be offset and turned down to provide a 4-20 mA signal representing 750-1000°C.

Input Ranges °C	B	E	J	K	R/S	T
-200 to 0			✓	✓		
-200 to 250			✓	✓		
-200 to 750			✓	✓		
-150 to 0		✓				✓
-150 to -18						
-150 to 250		✓			✓	
-150 to 400						✓
-150 to 750		✓				
-18 to 125		✓	✓	✓		✓
-18 to 250		✓	✓	✓		✓
-18 to 400						✓
-18 to 500		✓	✓	✓		
-18 to 750			✓			
-18 to 1000		✓		✓		
-18 to 1370				✓		
50 to 250					✓	
50 to 500					✓	
50 to 1000					✓	
50 to 1760					✓	
125 to 250		✓	✓	✓	✓	✓
250 to 400						✓
250 to 500		✓	✓	✓	✓	
375 to 400						✓
375 to 500		✓	✓	✓	✓	
500 to 750			✓			
500 to 1000	✓	✓		✓	✓	
500 to 1820	✓					
750 to 1000	✓	✓		✓	✓	
1000 to 1370				✓		
1000 to 1760					✓	
1000 to 1820	✓					
1500 to 1760					✓	
1500 to 1820	✓					

To Order *Visit omega.com/drg-sc for Pricing and Details*

Model No.	Description
DRG-SC-TC	Thermocouple Input Signal Conditioner
DRN-PS-1000	Power supply, 95-240 Vac input, 24 Vdc output @ 1A
RAIL-35-1	35 mm (1.4") DIN rail, 1 m (3.3') length
RAIL-35-2	35 mm (1.4") DIN rail, 2 m (6.6') length

Comes complete with operator's manual.

***Ordering Example: DRG-SC-TC** Thermocouple input signal conditioner*

DC Input Signal Conditioner

DRG-SC-DC

The DRG-SC-DC is a DIN rail mount DC voltage and current input signal conditioning module. The input can be field configured for any one 12 voltage ranges from 10 mV to 100 V or 6 current ranges from 1 mA to 100 mA. The output is linear to the input and can be set to either 0-5 V, 0-10 V, 0-1 mA, 0-20 mA or 4-20 mA for the DRG-SC-DC-U (unipolar outputs) and -5 V to +5 V or -10 V to +10 V for the DRG-SC-DC-B (bipolar outputs). Zero and span pots allow 50% adjustability of offset and span turn down within each of the ranges. For example the 0-2 mA input range could be turned down to 0-1 mA and provide a full scale output signal (e.g. 4-20 mA).

INPUT RANGES (UNIPOLAR AND BIPOLAR)
Voltages: 20 mV, 50 mV, 100 mV, 200 mV 500 mV, 1 V, 2 V, 5 V, 10 V, 25 V, 50 V, 100 V
Current: 2 mA, 5 mA, 10 mA, 20 mA, 50 mA, 100 mA

To Order *Visit omega.com/drg-sc for Pricing and Details*	
Model No.	**Description**
DRG-SC-DC-B	DC voltage/current input signal conditioner with bipolar output ranges
DRG-SC-DC-U	DC voltage/current input signal conditioner with unipolar output ranges
RAIL-35-1	35 mm (1.4") DIN rail, 1 m (3.3') length
RAIL-35-2	35 mm (1.4") DIN rail, 2 m (6.6') length

Comes complete with operator's manual.
***Ordering Example: DRG-SC-DC-U** DC voltage/current input signal conditioner.*

Bridge/Strain Gage Input Signal Conditioner

DRG-SC-BG

The DRG-SC-BG is a DIN rail mount bridge or strain gage input signal conditioning module. The field configurable input and output offers flexible, wide ranging capability for bridge or strain gage applications from 0.5 mV/V to over 50 mv/V. Wide ranging, precision zero and span pots allow 50% adjustability of offset and gain within each of the 11 switch selectable input ranges. The output can be set for either 0-5 V, 0-10 V, 0-1 mA, 0-20 mA or 4-20 mA. This flexibility, combined with an adjustable (1 to 10 Vdc) bridge excitation source, provides the user a reliable, accurate instrument to isolate and condition virtually any bridge or strain gage input.

INPUT RANGES:
0-10 mV, 0-20 mV, 0-50 mV, 0-100 mV, 0-200 mV, ±5 mV, ±10 mV, ±20 mV, ±50 mV, ±100 mV, ±200 mV

To Order *Visit omega.com/drg-sc for Pricing and Details*	
Model No.	**Description**
DRG-SC-BG	Bridge input signal conditioner

Comes complete with operator's manual.
***Ordering Example: DRG-SC-BG** bridge input signal conditioner.*

RTD Input Signal Conditioner

DRG-SC-RTD

The DRG-SC-RTD is a DIN rail mount RTD input signal conditioning module. It accepts a wide variety of RTDs including 100, 500 and 1000 Ohm Platinum RTDs as well as 10, 25 and 100 Ohm copper. It works with RTDs with α = 0.00385Ω/Ω/°C or 0.00392.Ω/Ω/°C

The input can be field configured for any one of up to sixteen temperature ranges. The output is linear to temperature and can be set for either 0-5 V, 0-10 V, 0-1 mA, 0-20 mA or 4-20 mA.

Input Ranges (°C):
PT100, PT500 and PT1000: -200 to 600, -200 to 400, -100 to 400, -200 to 260, -200 to 0, -200 to -100, -100 to 260, -100 to 100, -50 to 50, -18 to 50, -18 to 100, -18 to 260, -18 to 300, -18 to 400, -18 to 500, -18 to 600
Cu10, Cu25 and Cu100: -200 to 260,-200 to 0, -200 to -100, -100 to 260, -100 to 100, -50 to 50, -18 to 50, -18 to 100, -18 to 260

To Order *Visit omega.com/drg-sc for Pricing and Details*

Model No.	Description
DRG-SC-RTD	RTD Input Signal Conditioner
RAIL-35-1	35 mm (1.4") DIN rail, 1 m (3.3') length
RAIL-35-2	35 mm (1.4") DIN rail, 2 m (6.6') length

Comes complete with operator's manual.
***Ordering Example: DRG-SC-RTD** RTD input signal conditioner.*

Frequency Input Signal Conditioner

DRG-SC-FR

The DRG-SC-FR is a DIN rail mount frequency input signal conditioning module. The field configurable input and output offers flexible, wide ranging capability for a variable frequency drives, magnetic pickups, turbine meters and other pulse or frequency output transducers. The output can be set for either 0 to 5 V, 0 to 10 V, 0 to 1 mA, 0 to 20 mA or 4 to 20 mA. The DRG-SC-FR can be configured for virtually any frequency input to DC signal output within the ranges specified. Calibration utilizes technology where the user simply applies minimum and maximum input frequencies, touching a recessed button to configure the minimum and maximum output range.

INPUT RANGE: 2 Hz to 10,000 Hz, 50 mVp to 150 Vrms

To Order *Visit omega.com/drg-sc for Pricing and Details*

Model No.	Description
DRG-SC-FR	Frequency Input Signal Conditioner

Comes complete with operator's manual.
***Ordering Example: DRG-SC-FR** frequency input signal conditioner.*

Potentiometer Input Signal Conditioner

DRG-SC-PT

The DRG-SC-PT is a DIN rail mount potentiometer input signal conditioning module.

The input provides a constant voltage and is designed to accept any three-wire potentiometer from 100 Ω to 100 KΩ. The field configurable output can be set for either 0-5 V, 0-10 V, 0-1 mA, 0-20 mA or 4-20 mA.

Wide ranging, precision zero and span pots, used in conjunction with DIP switches, allow 80% adjustability of offset and gain to transmit a full scale output from any 20% portion of the potentiometer input.

INPUT RANGE:
100 Ω to 100 KΩ

To Order *Visit omega.com/drg-sc for Pricing and Details*	
Model No.	**Description**
DRG-SC-PT	Potentiometer Input Signal Conditioner
RAIL-35-1	35 mm (1.4") DIN rail, 1 m (3.3') length
RAIL-35-2	35 mm (1.4") DIN rail, 2 m (6.6') length

Comes complete with operator's manual.
***Ordering Example: DRG-SC-PT** Potentiometer input signal conditioner.*

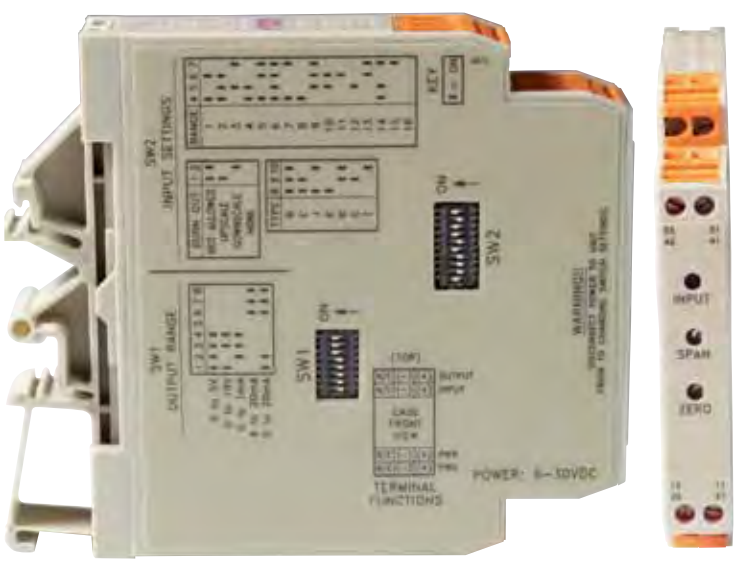
AC Input Signal Conditioner

DRG-SC-AC

The DRG-SC-AC is a DIN rail mount AC input signal conditioning module.

The field configurable input and output offers flexible wide ranging capability for scaling, converting or buffering AC inputs ranging from 5 mA to 100 mAAC (for a greater input range, use optional current shunt, DRG-C006) or 50 mV to 200 Vac. The DC output of the DRG-SC-AC is proportional to the average of the fully rectified AC input signal, and is calibrated for sine waves between 40-400 Hz. The field configurable output can be set for either 0-5 V, 0-10 V, 0-1 mA, 0-20 mA or 4-20 mA

The DRG-SC-AC has 15 input range switch settings. Trim potentiometers allow 50% input and span adjustability within each of the 15 full-scale input ranges.



INPUT RANGES (INPUT SIGNAL FREQUENCY: 40 TO 400 HZ)
AC Voltage: 100 mV, 200 mV, 500 mV, 1 V, 2 V, 5 V,10 V, 20 V, 50 V, 100 V, 200 V
AC Current: 10 mA, 20 mA, 50 mA, 100 mA

To Order *Visit omega.com/drg-sc for Pricing and Details*	
Model No.	**Description**
DRG-SC-AC	AC Input Signal Conditioner
DRG-C006	0.1Ω, 5W Shunt Resistor

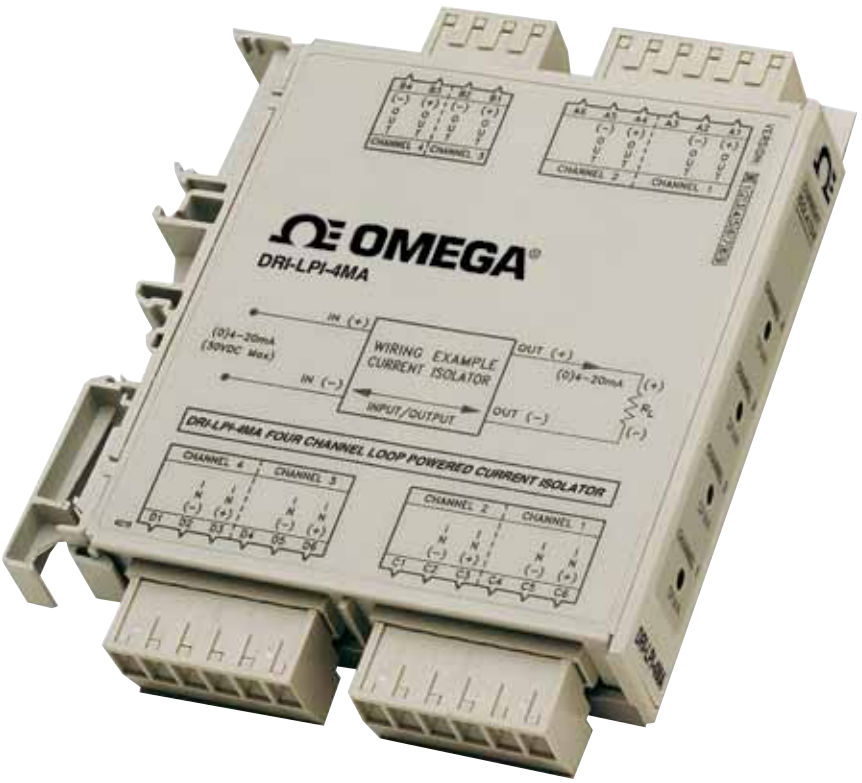
Comes complete with operator's manual.
***Ordering Example: DRG-SC-AC** Potentiometer input signal conditioner.*

Input Loop Powered DIN Rail Multi-Channel Isolators

NEW

DRI-LPI Series

1 YEAR WARRANTY



DPI-LPI-4MA shown smaller than actual size.

- **Up to 4 Loop Isolators in a Single Package**
- **Prevents Ground Loops**
- **High Density DIN Rail Mounting**
- **Provides up to 4 Isolated DC Current Outputs in Proportion to the Input Currents**
- **ASIC Technology**

The DRI-LPI Series are DIN rail mount, loop-powered isolators with single (DRI-LPI-MA), dual (DRI-LPI-2MA) or quad (4) channel (DRI-LPI-4MA) capability. Each channel accepts a 0 to 20 mA or 4 to 20 mA input and outputs a proportional 0 to 20 mA or 4 to 20 mA signal. The DRI LPI Series provides 1800 Vdc signal isolation from input to output and channel to channel.

All DRI-LPI Series modules feature plug-in screw terminals for easy installation and low Mean-Time-To-Repair (MTTR). Two or more modules can slide together and interlock for solid, high density mounting. This is accomplished by removing either the foot or the adjacent unit's faceplate (for right-hand side or left-hand side mounting, respectively). The module to be attached will easily slide on to the side of the mounted unit.

Loop-powered isolators are used to isolate process signals transmitted between field instrumentation, programmable logic controllers (PLC), distributed control systems (DCS) and data acquisition systems (DAS). Outputs from these systems can also drive one or more isolator channels of the DRI-LPI Series. Field devices such as flow, level or temperature transmitters can also drive a DRI-LPI Series isolator channel. The 1800 Vdc isolation capability prevents ground loops from causing errors in 4 to 20 mA current signals and can reduce susceptibility to radio frequency interference (RFI). Isolation also provides protection from high voltages and current spikes which can damage expensive supervisory control and data acquisition (SCADA) equipment, such as a PLC or DCS.

The DRI-LPI Series operates as a loop-powered isolator, with each channel deriving its power from the input loop current, 0 to 20 mA or 4 to 20 mA. The effective load of a DRI-LPI Series isolator channel on a loop is 300 Ω plus the output load resistance. For example, if the load on an output of the DRI-LPI Series is 500 Ω, then the current loop connected to the input would need to drive 300 Ω plus 500 Ω (i.e. 800 Ω) at a maximum current of 20 mA, or 800 Ω x 20 mA which equals 16.0V.

The DRI-LPI Series is protected from reverse input polarity and output short circuit. A span pot is provided for each channel in order to calibrate the output to the load.

Specifications

Number of Channels:

DRI-LPI-MA: 1 channel

DRI-LPI-2MA: 2 channel

DRI-LPI-4MA: 4 channel

INPUT

Range: 0 to 20 mA, 4 to 20 mA; 30 Vdc max each channel

Voltage Drop: 6V (300 Ω), plus output load

OUTPUT

Range: 0 to 20 mA, 4 to 20 mA

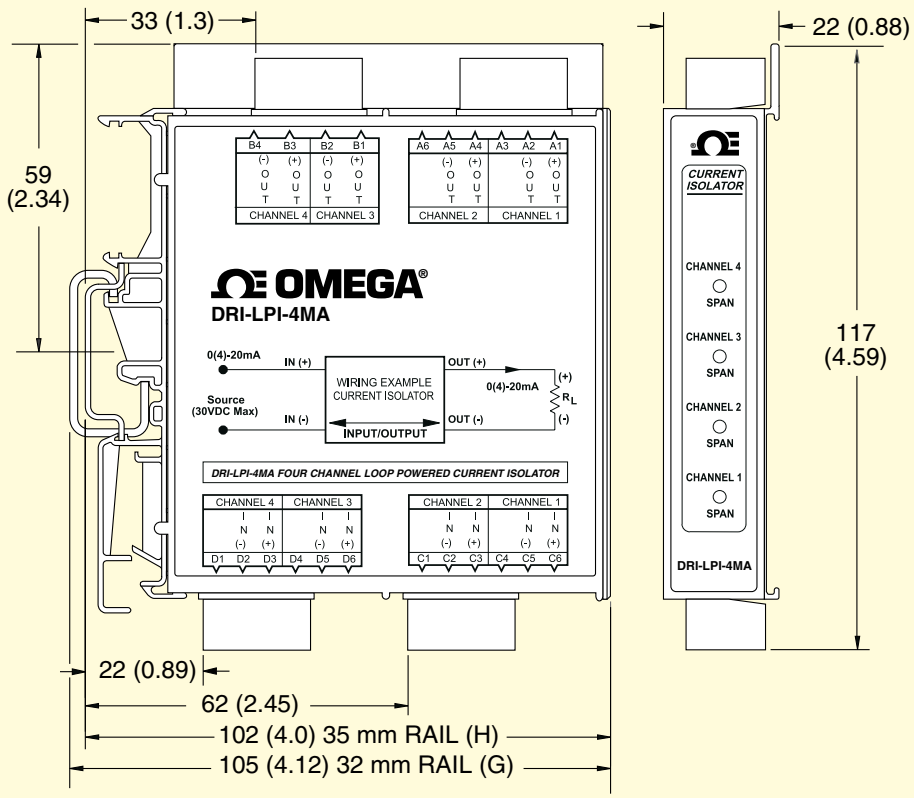
Drive: 10V or 500 Ω max @ 20 mA, 100 Ω minimum

Output Accuracy: Better than ±0.2% of full-scale, including linearity, hysteresis and repeatability, maximum

Linearity: 0.1% of span typical, from 4 to 20 mA at 250 Ω load
Stability: ±0.02%/°C of span max for full-scale and zero
Load Regulation: ±0.1% of span, typical per 10 Ω change
Common Mode Rejection Ratio: > 100 dB (DC to 60 Hz)
Isolation: 1800 Vdc, input-to-output and channel-to-channel
ESD Susceptibility: Capable of meeting IEC 801-2 level 3 (8 kV)
Response Time: 50 msec typical, 100 msec max (10 to 90%, each channel)

Temperature:
Operating: -40 to 80°C (-40 to 176°F)
Storage: -40 to 80°C (-40 to 176°F)
Humidity (Non-Condensing): 25 to 95% RH @ 40°C (104°F)
Wire Terminals: Socketed screw terminals for 12 to 22 AWG
Weight: 154 g (0.34 lb)

Dimensions: mm (inches)



OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
DRI-LPI-MA	Single channel input loop powered DIN rail isolator
DRI-LPI-2MA	2 channel input loop powered DIN rail Isolator
DRI-LPI-4MA	4 channel input loop powered DIN rail isolator
RAIL-35-1	35 mm DIN rail, 1 m (3.3') length
RAIL-35-2	35 mm DIN rail, 2 m (6.6') length

Ordering Example: DRI-LPI-4MA *4 channel DIN rail isolator,* ***RAIL-35-1*** *35 mm DIN rail, 1 m (3.3') length and* ***OCW-1*** *OMEGACARE extends standard 1-year warranty to a total of 2 years.*

Output Loop Powered DIN Rail Multi-Channel Isolators

NEW

DRI-LPO Series

1 YEAR WARRANTY

DRI-LPO-2MA shown smaller than actual size.

- **Provides One or Two Isolated 4 to 20 mA Output Current Loops in Proportion to One or Two DC Inputs**
- **High Density DIN Rail Mounting**
- **Prevents Ground Loops**
- **Plug-in Terminals**
- **Standard Input Ranges**
- **Output Loop Powered from 12 to 35 Vdc**

The DRI-LPO Series are DIN rail mount, DC input, single or dual channel, isolating two-wire transmitters. Each channel accepts a DC voltage or current input and provides an isolated 4 to 20 mA output. Each channel is fully isolated (1800 Vdc) from input-to-output and channel-to-channel.

All DRI-LPO Series modules feature plug-in screw terminals for easy installation and low Mean-Time-To-Repair (MTTR). Two or more modules can slide together and interlock for solid, high density mounting. This is accomplished by removing either the foot, or the adjacent unit's faceplate (for right-hand side or left-hand side mounting, respectively). The module to be attached will easily slide on to the side of the mounted unit.

DC input, two-wire transmitters are used to isolate and convert a DC voltage or current into a proportional 4 to 20 mA signal. Two-wire transmitters are primarily used in remote locations near the sensor since they reduce the probability of signal errors and save wiring costs by utilizing the two power wires to send the 4 to 20 mA signal. The current signal is usually monitored by a control system or displayed for an operator.

Typically, DC voltages or currents from various field instruments (e.g. level, flow, pressure and position sensors) are used to monitor and control a manufacturing process. Voltage signals can only run a short distance to a panel without errors caused by noise or lead resistance in the wires. These sensor (voltage) signal wires are usually terminated at the two-wire transmitter and converted into a 4 to 20 mA signal which is highly immune to noise and not affected by lead resistance, both of which can cause significant errors in voltage signals transmitted over long distances. The 1800 Vdc isolation capability of the DRI-LPO Series prevents ground loops from causing errors in DC voltage or current signals and can reduce susceptibility to radio frequency interference (RFI). Isolation also provides protection from high voltages and current spikes which can damage expensive supervisory control and data acquisition (SCADA) equipment, such as a PLC or DCS.

The DRI-LPO Series operates as a two-wire transmitter; each channel derives its power from a 12 to 35 Vdc source connected in series with the 4 to 20 mA output loop. Typically a 24 Vdc source is used for power, allowing 12 Vdc (600 Ω @ 20 mA) for other devices connected in series in the current loop. The outputs of the DRI-LPO Series are isolated from the inputs and protected from reverse polarity. Zero and span pots are provided for each channel to calibrate the output to the input source (±5%). Standard input ranges are calibrated to rated accuracy. One range per module; one or two channels per module.

Specifications

INPUT

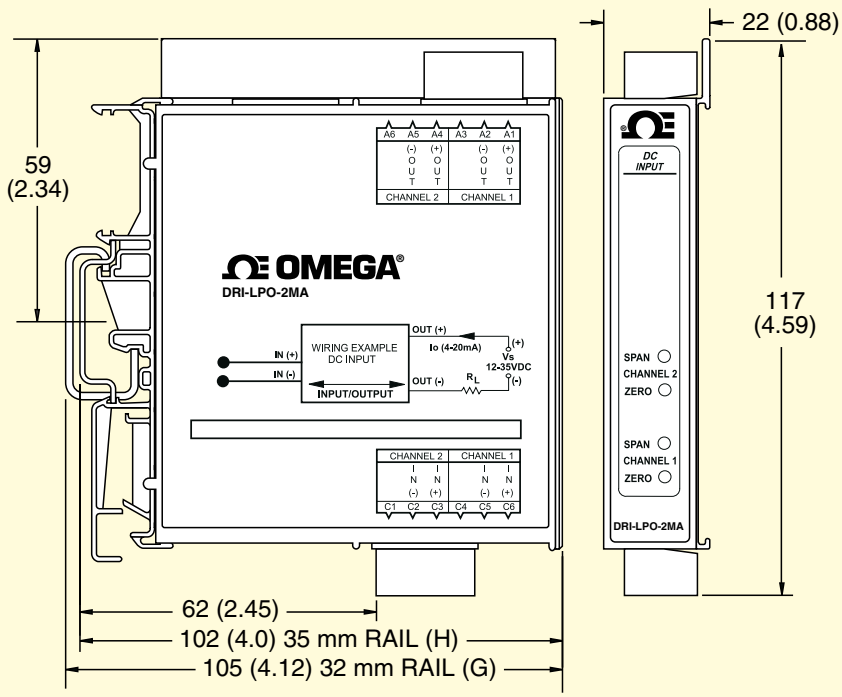
DRI-LPO-MA: 1 channel, 4 to 20 mA input
DRI-LPO-2MA: 2 channels, 4 to 20 mA input
DRI-LPO-V: 1 channel, 0 to 10V input

OUTPUT

DRI-LPO-MA, DRI-LPO-V: 1 channel, 4 to 20 mA output
DRI-LPO-2MA: 2 channels, 4 to 20 mA output

Impedance: ≥100 kΩ (voltage input); ≤20 Ω (4 to 20 mA input)
Protection: Withstands up to 24 Vdc (current input), 120 Vac (voltage input) without damage
Supply Voltage Range: 12 to 35 Vdc, each channel
Output Accuracy: ≤0.1% of full-scale input typical, ≤0.2% max @ 23°C including linearity, repeatability and hysteresis
Adjustability: Front accessed 10 turn pot, ±5% of span for zero and span, typical
Stability: ≤0.025%/°C of full-scale maximum
ESD Susceptibility: Meets IEC 801-2 level 2 (4kV)
Isolation: 1800 Vdc or peak AC between input and output and channel-to-channel
Response Time: 100 msec typical (10 to 90%)
Temperature:
Operating: -40 to 80°C (-40 to 176°F)
Storage: -40 to 80°C (-40 to 176°F)
Humidity (Non-Condensing): 15 to 90% RH @ 45°C (113°F)
Wire Terminals: Socketed screw terminals for 12 to 22 AWG
Weight: 154 g (0.34 lb)

Dimensions: mm (inches)



OMEGACARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

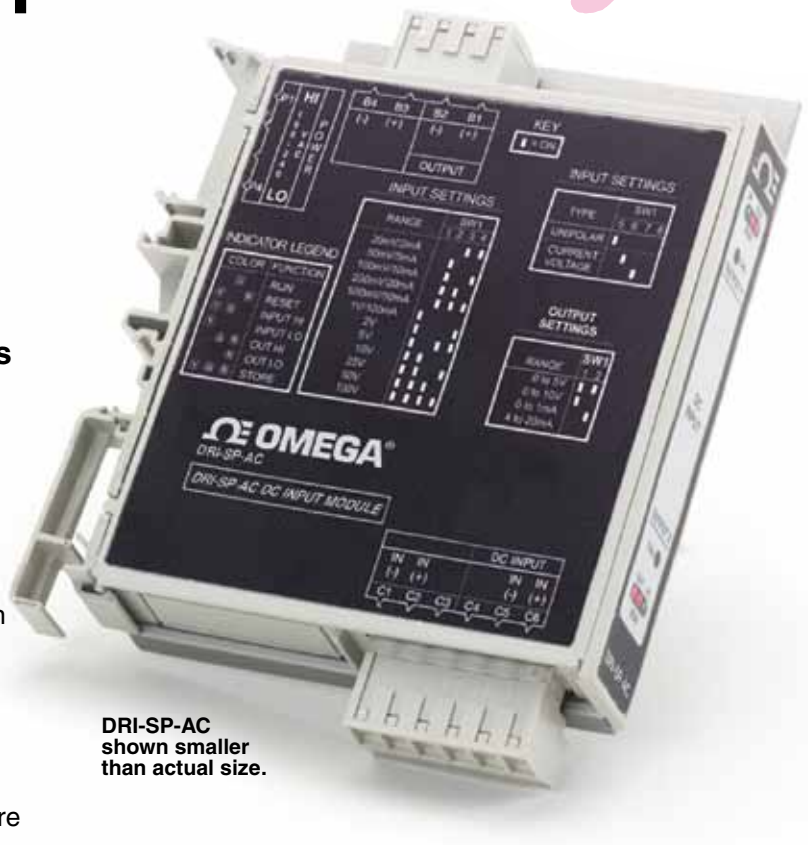
Model No.	Description
DRI-LPO-MA	Single channel output loop powered DIN rail isolator, 4 to 20 mA input, 4 to 20 mA output
DRI-LPO-2MA	2 channel output loop powered DIN rail isolator 4 to 20 mA inputs, 4 to 20 mA outputs
DRI-LPO-V	Single channel output loop powered DIN rail isolator 0 to 10V input, 4 to 20 mA output
RAIL-35-1	35 mm DIN rail, 1 m (3.3') length
RAIL-35-2	35 mm DIN rail, 2 m (6.6') length

Ordering Example: DRI-LPO-2MA *2 channel output loop powered DIN rail isolator,* ***RAIL-35-1*** *35 mm DIN rail, 1 m (3.3') length and* ***OCW-1*** *OMEGACARE extends standard 1-year warranty to a total of 2 years.*

AC Powered DC Input DIN Rail Signal Splitter

DRI-SP-AC

- **Provides 2 Fully Isolated DC Output Signals in Proportion to 1 DC Input (Signal Splitter)**
- **Field Configurable Input/Output Ranges**
- **1800 Vdc Isolation**
- **Touch Calibration Technology**
- **High Density DIN Rail Mounting**
- **Universal AC Power 85 to 265 Vac**



DRI-SP-AC shown smaller than actual size.

The model DRI-SP-AC is an AC powered, DIN rail mount, DC input signal splitter, with 1800 Vdc isolation between input, output and power. It provides two fully isolated DC output signals in proportion to one DC input. The field configurable input and output feature offers flexible, wide ranging capability for DC current and voltage signals.

Using a pushbutton instead of potentiometers, improvements in calibration resolution and reliability are realized due to the elimination of the potentiometers' mechanical variability. The thermal drift and mechanical variability of the potentiometers has been removed and replaced with a digitally stable circuit. Additionally, the inherent zero and span interactivity of analog amplifier circuitry is removed, providing 100% non-interactive adjustment.

The DRI-SP-AC can be field configured for virtually any DC input to DC output within the limits specified. Calibration utilizes touch calibration technology where the user simply configures the input for the current or voltage range via switches, then follows the calibration procedure. The output is set by adjusting the input until the desired output is present and then pressing the CAL button to store the output level.

The DRI-SP-AC has three diagnostic LEDs. The green (RUN) LED is used for diagnostics to indicate that power is on. It will flash quickly if the input signal is above the calibrated range or slowly if the input signal is below range. It is on continuously when the unit is functioning within the calibrated range.

The DRI-SP-AC can be configured for input ranges from 10 mV to 100V or 1 mA to 100 mA, with >90% input offset or will adjust down to <10% of full scale input span (except on 20 mV/2 mA range where maximum offset or gain adjustment is 50%).

The factory default configuration for the DRI-SP-AC is:
Input Range: 20 mA (current on)
Input Configuration: Unipolar
Calibrated Input: 4 to 20 mA
Operation: Direct (reverse off)
Calibrated Output: 4 to 20 mA

Specifications

INPUT

Voltage Input:
Range: 20 mV, 50 mV, 100 mV, 200 mV, 500 mV, 1V, 2V, 5V, 10V, 25V, 50V, 100V (dip-switch selectable)
Impedance: ≥100 kΩ
Overvoltage: 200V continuous

Current Input:
Range: 2 mA, 5 mA, 10 mA, 20 mA, 50 mA, 100 mA (dip-switch selectable)
Impedance: 20 Ω typical
Overcurrent: 170 mA, protected by self resetting fuse
Overvoltage: 60V

Pushbutton Adjustment (Inputs >10 mV):
Effective Zero Offset: ≥90%
Effective Span Turn Down: ≥90% except 20 mV/2 mA range in which 50% is max zero offset and span turndown

OUTPUTS (2 CHANNELS)

Voltage Output:
Range: 0 to 5V, 0 to 10V (dip-switch selectable)
Source Impedance: <10 Ω
Drive: 10 mA max

Current Output:
Range: 4 to 20 mA, 0 to 1 mA (dip-switch selectable)
Source Impedance: >100 kΩ
Compliance:
0 to 1 mA: 7.5V max (7.5 kΩ)
4 to 20 mA: 10V max (500 Ω)

Output Ripple:
25 mV RMS, whichever is greater

>50% Offset or Span Adjust: <0.2% of full scale span or 50 mV RMS, whichever is greater

Output Accuracy:

>2 mA/>20 mV Input Spans: ±0.1% of full-scale input typical, ±0.2% maximum

<2 mA/<20 mV Input Spans: ±0.35% of full scale input typical, ± 0.5% maximum including linearity, repeatability and hysteresis @ 23°C

Response Time: 200 msec, typical

Stability: ±0.025% of full scale/°C, maximum for full scale and zero

Common Mode Rejection: 120 dB at DC, >90 dB at 60 Hz

channel-to-channel

ESD Susceptibility: Capable of meeting IEC 801-2 level 3(8 kV)

Humidity (Non-Condensing):

Operating: 15 to 95 %RH @ 45°C (113°F)

Soak: 90% RH for 24 hours @ 60°C (140°F)

Temperature:

Operating: 0 to 55°C (32 to 131°F)

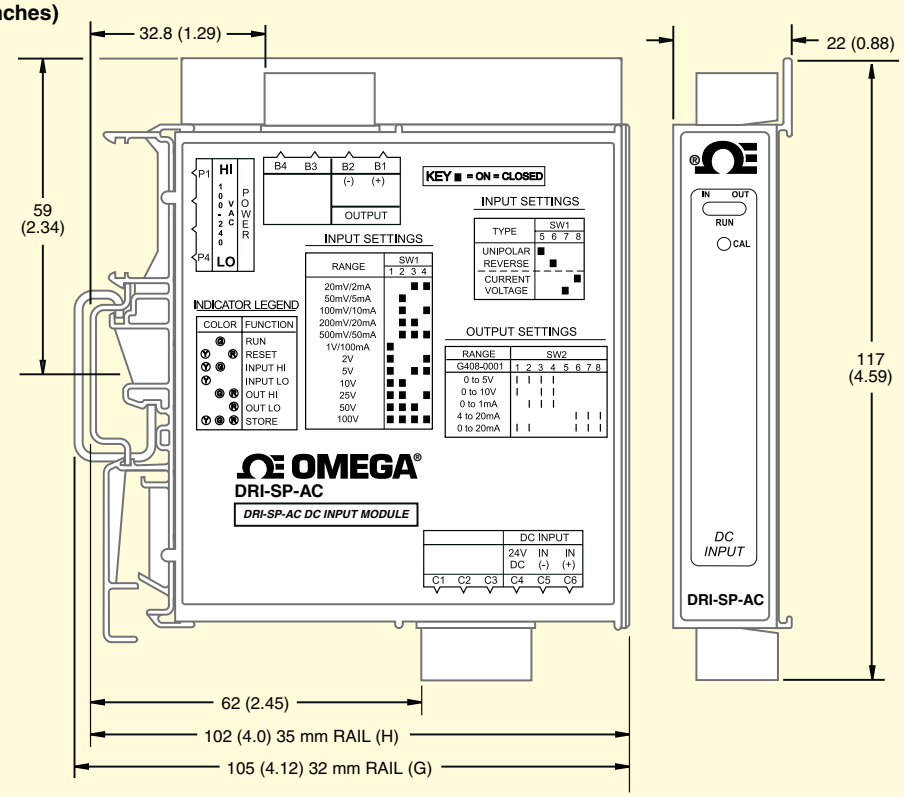
Storage: -25 to 70°C (-13 to 158°F)

Power: 100 to 240 Vac, ±10%, 50 to 400 Hz; 2.5 W max

Wire Terminals: Socketed screw terminals for 12 to 22 AWG

Weight: 227 g (0.5 lb)

Dimensions: mm (inches)



OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
DRI-SP-AC	AC powered DC input DIN rail signal splitter
ACPB-2	AC power distribution bus for 2 modules
ACPB-4	AC power distribution bus for 4 modules
ACPB-8	AC power distribution bus for 8 modules

Note: *An ACPB power rail is required to power the modules and is ordered separately.*

Ordering Example: DRI-SP-AC, *AC powered DC input DIN rail signal splitter,* ***ACPB-2,*** *AC power distribution bus for 2 signal conditioner modules and* ***OCW-1*** *OMEGACARE extends standard 1-year warranty to a total of 2 years.*

Analog & Digital Output Signal Conditioners/Transmitters

iDRN/iDRX Series

5 YEAR WARRANTY

- **Analog or Digital Output**
- **Models Available for: Thermocouple, RTD, Process Voltage & Current, Strain, Frequency/Pulse, AC Voltage and Current**
- **Up to 1800 Vdc Isolation**
- **iDRN Series Provide 0 to 10 Vdc, 4 to 20 mA or 0 to 20 mA Output**
- **iDRX Series Provide RS-485 Output (ASCII Serial Protocol and MODBUS Serial Protocol)**
- **Free Setup and Configuration Software**
- **Factory Setup and Configuration Available at No Charge (for iDRN Analog Output Models)**
- **RoHS 2 Compliant**

The iD Series signal conditioners combine the accuracy of laboratory instrumentation with the performance required by demanding industrial applications. The iD Series signal conditioners are ideal for those applications in Data Acquisition, Test & Measurement, Process Control, and Industrial Automation where accuracy, performance, and reliability are critically important.

The iD Series signal conditioners mount on a 35mm DIN rail, and operate on any voltage between 10 to 32 DC power. (A matching 24 Vdc 850 mA switching power supply is also available.) The devices feature three-way isolation of up to 1800 Vdc between the signal inputs, outputs, and power supply.

The iD series feature seven (7) models designed for each of the most widely measured signal inputs: Process (DC) Voltage and Current; Strain Gage; Thermocouples; RTD's; AC Voltage; AC Current; Frequency/Pulse.

The iD series devices are designed to work directly with a variety of sensors and transducers; no other components are necessary. For sensors such as RTD's, strain gages, and some process transducers, precise stable excitation is provided directly from the iD module.

The iD series are available with two different types of signal outputs: Analog or Digital. The iDRN series provides a totally scalable analog output in DC voltage or current. The iDRX series provide a digital RS-485 output. Both iD Series signal conditioners are intelligent microprocessor based instruments that can be scaled and programmed by computer via serial communications, or over an Ethernet network.

iDRN Series Analog Output

The iDRN series feature a 0 to 10 Vdc, or 0 to 20 mA (including 4 to 20 mA) analog output signal that is typically scaled to be directly proportional to the input signal. It is an ideal component in a system with PLC's or PC's with analog data acquisition boards.

The iDRN series are an excellent choice for applications that demand an extra measure of accuracy and performance that is not possible with conventional "analog" signal conditioners or transmitters. Unlike conventional analog devices that are scaled by adjusting zero and span "pots", the programmable, micro-processor based iDRN instruments are scaled precisely on a PC with free and simple Windows software. The iDRN modules connect directly to a PC's RS232 Serial Communications port for programming and scaling.

Once the module is configured, the parameters are saved in non-volatile memory. The device can be disconnected from the PC, or the RS232 output from the module can be used for continuous data acquisition in addition to the analog output.

Alternatively, the iDRN signal conditioner can be connected to a PC's Ethernet port or an Ethernet network using the EIT module as a Serial/Ethernet bridge.

Free Setup and Configuration

If an iDRN signal conditioner is not going to be connected to a computer, it can be ordered preconfigured by the factory at no extra charge. The user can select the input types, ranges and output scale, and OMEGA will program the instruments to those specific requirements in our calibration lab prior to shipment. For custom factory setup and scaling of the iDRN model, please specify the "-FS" option.

iDRX Series Digital Output

The iDRX Series Signal Conditioners provide highly accurate digital outputs. Each module provides an RS-485 Serial output that can be transmitted directly to computers and other devices with serial communications capability, or converted to Ethernet.

On an RS-485 bus, up to 32 modules can be connected over a distance of 1200 m (4000') on a single pair of wires. With optional RS-485 repeaters, up to 254 modules may be connected to a single RS-485 port. The iDRX Series digital conditioners may be connected to an RS-485 bus using either screw terminator or RJ-12 connector.

ASCII and MODBUS

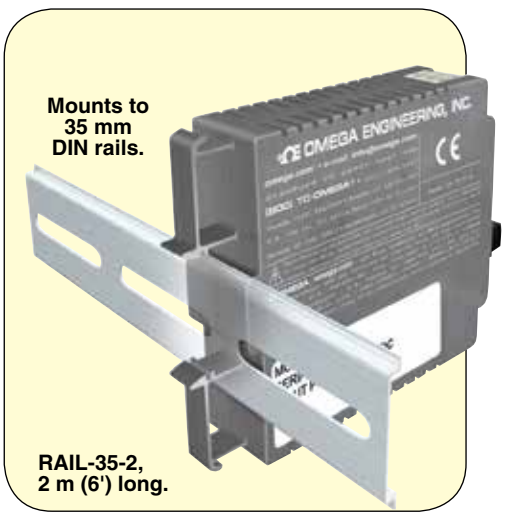
The user can select between an easy-to-use, straightforward ASCII protocol, or the popular MODBUS protocol found in many existing industrial installations. With the simple ASCII commands, writing programs using the iDRX does not require special drivers or libraries. In addition, many off-the-shelf software packages can be used with the iDRX devices without any programming. OMEGA also provides a number of useful programs and demos for the iDRX at no charge.

OPC Server And Active X Controls

OMEGA offers an optional OPC Server (OLE for Process Control) and ActiveX Controls for the iDRX Series. These programs make it easy to integrate the iDRX devices with information systems using "ActiveX Containers" such as Microsoft Visual Basic and Microsoft Excel as well as with popular OLE and OPC compliant data acquisition, process control, and industrial automation software from OMEGA, Iconics, Wonderware, Intellution, Rockwell Automation, and GE Fanuc Cimplicity among others.

iDRX and iDRN Series Common Specifications

Input Power Supply: 10 to 32 Vdc
iDRX Output: 2-wire (half duplex) RS-485 (OMEGA Serial Protocol and Modbus Serial Protocol)
iDRN Output: 0 to 10V @ 10 mA max; 0 to 20 mA or 4 to 20 mA, 10V compliance
Isolation: 1800 Vdc peak
Typical Step Response to 99%: 1 second
Operating Ambient: -5 to 55°C (23 to 131°F)
Storage Temperature Range: -40 to 85°C (-40 to 185°F)
Mounting: 35 mm DIN rail
Dimensions: 90 H x 25 W x 107 mm D (3.54 x 0.99 x 4.21")

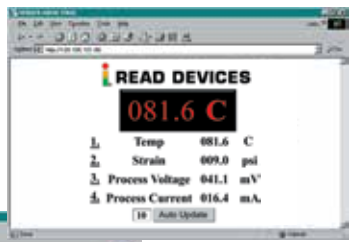


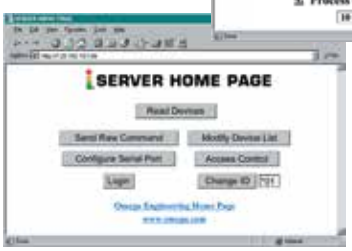
Input	Thermocouple	RTD	ac Voltage	ac Current	Process	Strain/Bridge	Frequency Pulse
Model No.	**iDRN/iDRX-TC**	**iDRN/iDRX-RTD**	**iDRN/iDRX-ACV**	**iDRN/iDRX-ACC**	**iDRN/iDRX-PR**	**iDRN/iDRX-ST**	**iDRN/iDRX-FP**
Input Type	Thermocouple temperature sensor	RTD Temperature sensor Pt100, 500, 1000Ω	ac Voltage	ac Current	dc Millivolt, Volt and Current	Millivolt	NAMUR Contact closure low level open collector
Input Range	J, K, T, E, R, S, B, N, J DIN thermocouple full range	α = 385, 392 Full range of RTD 2, 3 or 4-wire	Full Scale Range: 400 mV to 400V	Full Scale Range: 10 mA to 5 A	Full Scale Range: ±400 mV to ±10V 0 to 20 mA	0 to 30 mV 0 to 100 mV ±100 mV	Full Scale Range 20k to 200 M pulses 0 to 50 kHz
Accuracy	±1°C	±0.5°C	0.2%	0.2%	0.1% FS	0.2% FS	0.1% FS
Resolution	0.1°C	0.1°C	10 to 14 Bit	10 to 14 Bit	12 to 15 Bit	13 to 15 Bit	15 to 19 Bit
Output	iDRX Series: 2-wire (half duplex) RS-485/iDRN Series: 0 to 10V @ 10 mA max; 0 to 20 mA or 4 to 20 mA						
Excitation	N/A	N/A	N/A	N/A	14 Vdc @ 25 mA	10V @ 30 mA	5, 8.2 and 12.5 Vdc @ 25 mA

Ethernet and Internet

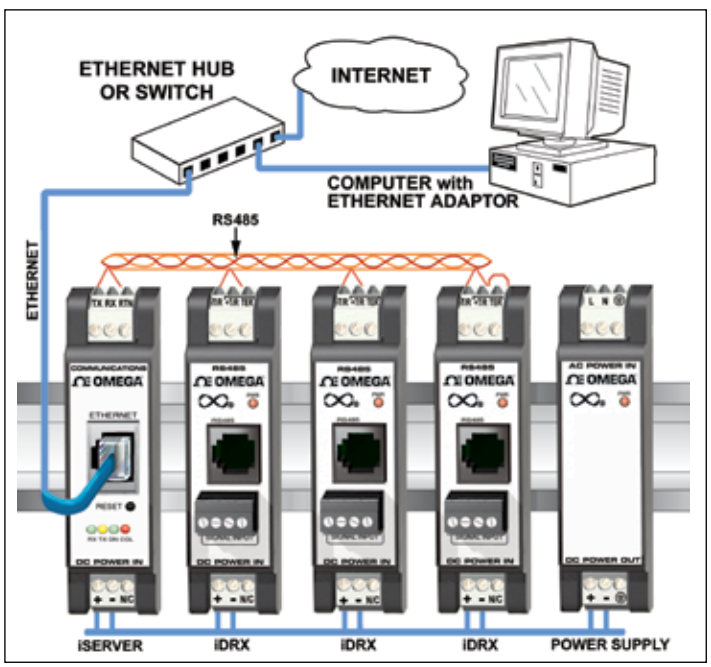
The iDRX signal conditioner can also be connected to an Ethernet network using the EIT module as a Serial/Ethernet bridge. One EIT module can be a hub for up to 32 iDRX modules. The EIT module packages the ASCII serial communications in standard TCP/IP Protocol for transmission over standard Ethernet networks and the Internet. Unlike some manufacturer's products this system uses totally open, non-proprietary standards and protocols for Ethernet and Internet. The user can integrate these devices with any commercial or industrial grade networking components that also comply with the popular international standards.

Access Vital information Anytime, Anywhere, on the World Wide Web.

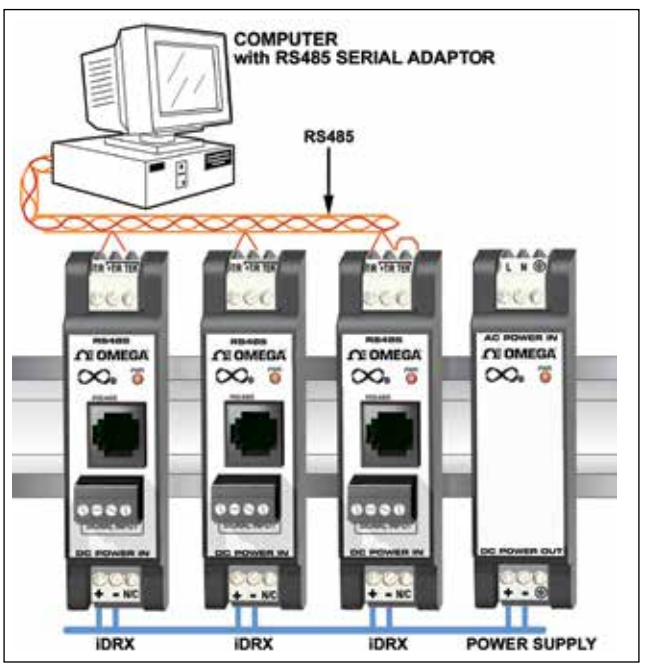




Get Internet E-mail Notification of Alarm Status on your web enabled smartphone or blackberry.



Digital Output iDRX modules connected to Ethernet



iDRX modules on RS485 Serial Bus

- **Web Server and an Ethernet/ Serial Bridge**
- **Serves up to 32 devices**

iServer EIT

The OMEGA™ EIT "iServer" is a DIN rail device which can connect up to 32 iDRX RS-485 instruments to an Ethernet network and the Internet using standard TCP/IP protocol. It can also be used as a simple Serial to Ethernet "bridge" or converter to connect a single iDRN RS-232 device to an Ethernet network and the Internet. (RS-232 Serial Communications are limited to a single connection between two devices, such as one computer and one signal conditioner. RS-485 is limited to 32 devices on a communications bus per hub or repeater).

The "iServer" is a Web Server as well as an Ethernet-Serial bridge and Hub for up to 32 RS-485 devices. The OMEGA™ iServer is also compatible with the OMEGA™ iSeries Controller and Meters, the DP41 family of ultra high performance digital panel meters, and the MICROMEGA™ series of Temperature and Process controllers.

Each "iServer" is assigned an IP address on the Ethernet network and can also be assigned an easily remembered name. In fact, the device could be assigned an authorized Internet IP address from an Internet Service Provider and function as a World Wide Web Server delivering whatever specific information is called for.

iDRN-PS-1000

Switching Power Supply

- **24 Vdc Supply for iDRN/iDRX Modules**
- **iDRN-PS-1000 Switching Supply Powers up to 7 Units**

To Order	
Model No.	**Description**
EIT-D	Internet Server RS-232 serial interface without I/Os, serves one iDRN unit
EIT-D-485	Serial to Ethernet iServer Industrial MicroServer™with screw terminal serial port, serves 32 iDRX devices
iDRN-PS-1000	Power supply (switching), 95 to 240 Vac input, 24 Vdc output @ 850 mA (power 7 units)
Software	
OMEGA-ENTERPRISE-GATEWAY	Logging/Alarming/Monitoring with Integration Capabilities
Accessories	
CAT-285	Bi-directional RS232-R3485 converter for iDRX series
DB9-RJ12	DB9 to RJ12 connector adaptor, includes 2 m (7') RJ12 cord
DB25-RJ12	DB25 to RJ12 connector adaptor, includes 2 m (7') RJ12 cord
RJ12T	RJ12 "T" split connector for RS-485 instruments, includes 2 m (7') RJ12 cord
RAIL-35-1	35 mm (1.4") DIN rail, 1 m (3.3') length
RAIL-35-2	35 mm (1.4") DIN rail, 2 m (6.6') length

Ordering Example: EIT-D-485, *serial to Ethernet industrial Microserver™,* ***iDRN-PS-1000,*** *power supply,* ***iDRX-TC,*** *thermocouple conditioner,* ***iDRX-RTD,*** *RTD conditioner,* ***RAIL-35-2,*** *DIN rail,* ***DB9-RJ12,*** *connector adaptor.*

Thermocouple Signal Conditioners

iDRX-TC

5 YEAR WARRANTY

- T/C Types J, K, T, E, R, S, B, N, J DIN
- 0.1°C Resolution
- ±1°C Accuracy
- 1800 Vdc Isolation
- 250 V/1 Min. Input Overvoltage Protection
- Free Setup and Configuration Software
- Factory Setup and Configuration Available at No Charge (for iDRN Analog Output Models)
- RoHS 2 Compliant

The iDRN-TC and iDRX-TC signal conditioners provide highly accurate, stable, isolated measurement of thermocouple sensors. Thermocouple types are selected and the outputs are scaled with the free configuration software, or can be done at the factory for no additional charge. The T/C Signal Conditioners can accept 9 different thermocouple types: J, K, T, E, R, S, B, N, and J DIN.

2 Models (Analog or Digital Outputs)

iDRN-TC provides an analog output that is proportional to the input signal. The iDRX-TC uses a digital RS-485 communication link.

Analog Output Model

The output of iDRN-TC can be user set for 0 to 10V, 4 to 20 mA or 0 to 20 mA. Input scaling and configuration of other operating parameters is accomplished by connecting to a standard RS-232 port of a personal computer and using the free Windows-based setup software. Once configured the settings may be stored in non-volatile memory and the unit disconnected from the PC.

Factory Setup and Configuration at No Extra Charge (iDRN Analog Output Model)

Please Specify:

Thermocouple Type
Temperature High & Low
Output Value High & Low
Example: Type J, 0°C = 4 mA, 100°C = 20 mA

Digital Output Model

The iDRX-TC is a digital signal conditioner which communicates over an RS-485 communication link using either a simple, straightforward ASCII® Serial Protocol or MODBUS Serial Protocol. Up to 32 modules may be connected to a single RS-485 port stretching up to 1200 m (4000') without repeaters.

Ethernet Connection

The Optional EIT iServer module can connect up to thirty-two (32) iDRX RS-485 Signal Conditioners to an Ethernet network and the Internet using standard TCP/IP protocol. The iServer can also be used as a simple Serial to Ethernet "bridge" or converter to connect a single iDRN RS-232 device to an Ethernet network and the Internet.

Specifications

Accuracy at 25°C: ±1°C
Resolution: 0.1°C
Power Consumption: 2 W (84 mA @ 24 Vdc)
Input Types: J, K, T, E, R, S, B, N, J DIN
Input Ranges: See range chart
iDRX Output: 2-wire (half duplex) RS-485 (OMEGA serial protocol and MODBUS serial protocol)
iDRN Output: 0 to 10V @ 10 mA max; 0 to 20 mA or 4 to 20 mA, 10V compliance
Thermocouple Default settings iDRN: Input Type K, Range 0 to 1000°F; Output 4 to 20 mA (custom settings available at no charge)

Input Type	Range, °C	Range, °F
J	-210 to 760	-346 to 1400
K	-270 to 1372	-454 to 2500
T	-270 to 400	-454 to 752
E	-270 to 1000	-454 to 1832
R/S	-50 to 1768	-58 to 3214
B	100 to 1820	212 to 3300
N	-270 to 1300	-454 to 2372
J DIN	-200 to 900	-328 to 1652

To Order

Model No.	Description
iDRX-TC	Digital signal conditioner with RS-485 output for Thermocouple sensors
iDRN-TC	Signal conditioner with analog output for thermocouple sensors
-FS	Factory setup and scaling

Comes with complete operator's manual.

***Ordering Example: iDRN-TC,** signal conditioner, and **DB9-RJ12,** connector adaptor.*

*For iDRN/iDRX accessories and power supplies, please visit **OMEGA.***

RTD Signal Conditioners

iDRX-RTD

5 YEAR WARRANTY

- **100Ω Pt, 500Ω Pt, 1000Ω Pt**
- **0.1°C Resolution**
- **±0.5°C Accuracy**
- **1800 Vdc Isolation**
- **Free Setup and Configuration Software**
- **Factory Setup and Configuration Available at No Charge (for iDRN Analog Output Models)**
- **RoHS 2 Compliant**

The iDRN-RTD and iDRX-RTD signal conditioners provide highly accurate, stable, isolated measurement of RTD temperature sensors. Both models can accept 2, 3, or 4 wire 100Ω PT, 500Ω PT and 1000Ω PT RTDs.

2 Models (Analog or Digital Outputs)

The iDRN-RTD provides a fully scalable analog output that is proportional to the input signal. The iDRX-RTD uses digital RS-485 communications.

Analog Digital Output

The output of the iDRN-RTD can be user set for 0 to10V, 4 to 20 mA or 0 to 20 mA. Input scaling and configuration of other operating parameters is accomplished by connecting to a standard RS-232 port of a personal computer and using the Windows-based setup software. Once configured the settings may be stored in non-volatile memory and the unit disconnected from the PC.

Factory Setup and Configuration at No Extra Charge (iDRN Analog Output Model) Please Specify:

Type and resistance
Temperature high and low
Output Value high and low
Example: Type Pt100; 0.00385; 4-wire; 0°C = 4 mA, 100°C = 20 mA

Digital Output Model

The iDRX-RTD is a digital signal conditioner which communicates over an RS-485 communication link using either a simple, straightforward ASCII Serial Protocol or MODBUS Serial Protocol. Up to 32 modules may be connected to a single RS-485 port stretching up to 1200 m (4000') without repeaters.

Ethernet Connection

The Optional EIT iServer module can connect up to thirty-two (32) iDRX RS-485 Signal Conditioners to an Ethernet network and the Internet using standard TCP/IP protocol. The iServer can also be used as a simple Serial to Ethernet "bridge" or converter to connect a single iDRN RS-232 device to an Ethernet network and the Internet.

Specifications

Accuracy at 25°C: ±0.5°C
Input Types: Platinum RTD, 100Ω, 500Ω or 1000Ω element (2, 3 or 4 wire, 385 or 392 curve)
Resolution: 0.1°C
Power Consumption: 2.4 W (100 mA @ 24Vdc)
Input Range: -200 to 850°C (-328 to 1562°F)
iDRX Output: 2-wire (half duplex) RS-485 (OMEGA Serial Protocol and MODBUS Serial Protocol)
iDRN Output: 0 to 10V @ 10 mA max; 0 to 20 mA or 4 to 20 mA, 10V compliance
RTD Default settings iDRN: Input PT100, 0.00385, 3-wire, range 0 to 1000°F; Output 4 to 20 mA (custom settings available at no charge)

To Order

Model No.	Description
iDRX-RTD	Digital signal conditioner with RS-485 output for RTD temperature sensors
iDRN-RTD	Signal conditioner with analog output for RTD temperature sensors
-FS	Factory setup and scaling

Comes with complete operator's manual.
***Ordering Example: iDRN-RTD,** digital signal conditioner, and **DB9-RJ12,** connector adaptor.*
*For iDRN/iDRX accessories and power supplies, please visit **OMEGA**.*

Strain Gage/Bridge Transducer-Signal Conditioners

iDRX-ST

5 YEAR WARRANTY

- **Unipolar/Bipolar 30 mV to 100 mV**
- **13-Bit Resolution**
- **10 Vdc Excitation**
- **0.2% FS Accuracy**
- **1800 Vdc Isolation**
- **250 Vac/1 Min Input Overvoltage Protection**
- **Free Setup and Configuration Software**
- **Factory Setup and Configuration Available at No Charge (for iDRN Analog Output Models)**
- **RoHS 2 Compliant**

The iDRN-ST and iDRX-ST signal conditioners provide highly accurate, stable, isolated measurement for strain gage transducers such as load cells, torque transducers, non-amplified pressure transducers, and other bridge based transducers. Both models can accept signals from 30 to 100 mV full scale and provide 10 Vdc reference voltage which may be used for transducer excitation.

2 Models (Analog or Digital Outputs)

The iDRN-ST provides an analog output that is proportional to the input signal and the iDRX-ST uses RS-485 Serial Communications.

Analog Output Model

The output of iDRN-ST can be user set for 0 to10V, 4 to 20 mA or 0 to 20 mA. Input scaling and configuration of other operating parameters is accomplished by connecting to a standard RS-232 port of a personal computer and using the free Windows-based setup software. Once configured the settings may be stored in non-volatile memory and the unit disconnected from the PC.

Factory Setup and Configuration at No Extra Charge (iDRN Analog Output and RS-232 signal conditioners)

Please Specify:
Input value high and low
Output value high and low
Excitation: 10 or 14 Vdc
Ratiometric or non-ratiometric
Example: 0V = 4 mA, 100 mV = 20 mA,excitation 10V, ratiometric

Digital Output Model

The iDRX-ST is a digital signal conditioner which communicates over RS-485 communication link using either a simple ASCII Protocol or MODBUS Protocol. Up to 32 modules may be connected to a single RS-485 port stretching up to 1200 m (4000') without repeaters.

Ethernet Connection

The Optional EIT iServer module can connect up to 32 iDRX RS-485 Signal Conditioners to an Ethernet network and the Internet using standard TCP/IP protocol. The iServer can also be used as a simple Serial to Ethernet "bridge" or converter to connect a single iDRN RS-232 device to an Ethernet network and the Internet.

Specifications

Accuracy at 25°C: ±0.2% FS

Resolution: 13 to 15 bit

Excitation: 10V @ 30 mA

Power Consumption: 2 W without excitation (84 mA @ 24 Vdc), 3 W with excitation (125 mA @ 24 Vdc)

Input Ranges: 0 to 30 to 0 to 100 mV full scale

iDRX Output: 2-wire (half duplex) RS-485 (OMEGA serial protocol and MODBUS Serial Protocol)

iDRN Output: 0 to 10V @ 10 mA max; 0 to 20 mA or 4 to 20 mA, 10V compliance

Strain Default Settings iDRN: Input range 0 to 30 mV; output 4 to 20 mA excitation 10V ratiometric (custom settings available at no charge)

OMEGA manufactures many types of Load Cells. Visit OMEGA for details.

To Order

Model No.	Description
iDRX-ST	Digital signal conditioner for strain gages and bridge transducers with RS-485 output
iDRN-ST	Signal conditioner for strain gages and bridge transducers with analog output
-FS	Factory setup and scaling

Comes with complete operator's manual.

***Ordering Example: iDRX-ST,** digital signal conditioner for strain gages and bridge transducers with RS-485 output, **CAT-285,** bi-directional RS-232-RS-485 converter for iDRX series.*

*For iDRN/iDRX accessories and power supplies, please visit **OMEGA.***

Process Inputs Signal Conditioners

iDRX-PR

5 YEAR WARRANTY

- Unipolar/Bipolar 400 mV to 10 Vdc, 0 to 20 mA dc
- 11 to 14-Bit Resolution
- ±0.1% FS Accuracy
- 14 Vdc Excitation
- 1800 Vdc Isolation
- 250 Vac/1 Min Input Overvoltage Protection (Voltage Input Only)
- Free Setup and Configuration Software
- Factory Setup and Configuration Available at No Charge (for iDRN Analog Output Models)
- RoHS 2 Compliant

PX41 Series shown. OMEGA manufactures many types of pressure transducers. Visit OMEGA for details.

The iDRN-PR and iDRX-PR signal conditioners provide highly accurate, stable, isolated measurement of process signals. Both models can accept unipolar and bipolar signals from 400 mV to 10 Vdc full scale, as well as 0 to 20 mA current range. The Signal Conditioners also provide a 10 Vdc or 14 Vdc reference voltage which can be used for transducer excitation.

2 Models (Analog or Digital Outputs)

The iDRN-PR provides a programmable analog output that is proportional to the input signal. The iDRX-PR uses a digital RS-485 Serial Communications.

Analog Output Model

The output of iDRN-PR can be user set for 0 to 10V, 4 to 20 mA, or 0 to 20 mA. Scaling and configuration is done with the free software on a PC using either the standard RS-232 port, or an Ethernet connection with the optional EIT module. Once configured the settings are stored in non-volatile memory and the unit disconnected from the PC.

Factory Setup and Configuration at No Extra Charge (iDRN Analog Output model)

Please Specify:
Input value high and low
Output value high and low
Excitation: 10 or 14 Vdc
Ratiometric or non-ratiometric
Example: 0V = 4 mA, 10V = 20 mA, Excitation 10V, non-ratiometric

Digital Output Model

The iDRX-PR is a digital signal conditioner which communicates over an RS-485 communication link using either a simple straightforward ASCII Serial Protocol or MODBUS Serial Protocol. Up to 32 modules may be connected to a single RS-485 port stretching up to 1200 m (4000') without repeaters.

Ethernet Connection

The optional EIT iServer module can connect up to 32 iDRX RS-485 Signal Conditioners to an Ethernet network and the Internet using standard TCP/IP protocol. The iServer can also be used as a simple Serial to Ethernet "bridge" or converter to connect a single iDRN RS-232 device to an Ethernet network and the Internet.

Specifications

Accuracy at 25°C: ±0.1% FS

Excitation: 14 Vdc @ 25 mA

Resolution: 11 to 14-bit

Power Consumption: 2 W (84 mA @ 24 Vdc) without excitation, 3 W (125 mA @ 24 Vdc) with excitation

Input Ranges: Uni/bipolar, 400 mV to 10 Vdc; 0 to 20 mA

iDRX Output: 2-wire (half duplex) RS-485 (OMEGA Serial Protocol and MODBUS Serial Protocol)

iDRN Output: 0 to 10V @ 10 mA max; 0 to 20 mA or 4 to 20 mA, 10V compliance

Process Default settings DRN: Input Range 0 to 20 mA; Output 4 to 20 mA. Excitation 14V (custom settings available at no charge)

To Order

Model No.	Description
iDRX-PR	Digital signal conditioner with RS-485 output for process signals
iDRN-PR	Signal conditioner with analog output for process signals
-FS	Factory setup and scaling

Comes with complete operator's manual.

***Ordering Example: iDRX-PR,** digital signal conditioner with RS-485 output for process signals, **iDRN-PS-1000,** power supply, 95 to 240 Vac input, 24 Vdc output @ 850 mA.*

*For iDRN/iDRX accessories and power supplies, please visit **OMEGA.***

Frequency/Pulse Digital Signal Conditioners

iDRX-FP

5 YEAR WARRANTY

- **Software Selectable Input Type**
- **0 to 50 KHz Frequency Input 2 Million Pulse Capacity**
- **Proximity, Switch, Magnetic, Pickup, NAMUR, Contact Closure and Open Collector Input Types**
- **RS-485 Output**
- **1800 Vdc Isolation**
- **Free Setup and Configuration Software**
- **Factory Setup and Configuration Available at No Charge (for iDRN Analog Output Models)**
- **RoHS 2 Compliant**

The iDRN-FP and iDRX-FP signal conditioners provide accurate, stable, isolated measurement of frequency and pulse signals. Both models measure frequency signals up to 50 KHz and can count up to two million pulses. The iDRX-FP and iDRN-FP are compatible with a wide variety of transducers including proximity, switch, magnetic pickup, NAMUR, contact closure and open collector transducers.

2 Models (Analog or Digital Outputs)

The iDRN-FP provides an analog output that is proportional to the input signal. The iDRX-FP uses digital RS-485 Serial Communication.

OMEGA manufactures many types of Flow Transducers. Visit OMEGA for details.

Analog Output Model

The output of iDRN-PR can be user set for 0 to 10V, 4 to 20 mA or 0 to 20 mA. Scaling and configuration is done with the free software on a PC using either the standard RS-232 port, or an Ethernet connection with the optional EIT module. Once configured the settings are stored in non-volatile memory and the unit disconnected from the PC.

Factory Setup and Configuration at No Extra Charge (iDRN Analog Output signal conditioners)

Please Specify:

Input signal or sensor type
Input frequency high and low
Output value high and low
Excitation: 10 or 14 Vdc
Magnetic pickup (2-wire)
Example: 0 Hz = 4 mA, 1000 Hz = 20 mA, excitation N/A

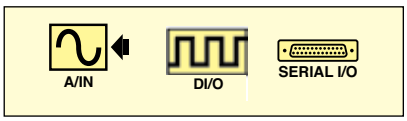
Digital Output Model

The iDRX-FP is a digital signal conditioner which communicates over an RS-485 communication link using either a simple straightforward ASCII Serial Protocol or MODBUS Serial Protocol. Up to 32 modules may be connected to a single RS-485 port stretching up to 1200 m (4000') without repeaters.

Ethernet Connection

The Optional EIT iServer module can connect up to 32 iDRX RS-485 Signal Conditioners to an Ethernet network and the Internet using standard TCP/IP protocol. The iServer can also be used as a simple Serial to Ethernet "bridge" or converter to connect a single iDRN RS-232 device to an Ethernet network and the Internet.

Compatible with the flow sensor shown. Please visit OMEGA.



Specifications

Accuracy at 25°C: ±0.01% FS

Resolution: 15 to 19-bit

Power Consumption: 2.4 W (100 mA @ 24 Vdc) without excitation, 3 W (125 mA @ 24 Vdc) with excitation

Input Ranges: Frequency from 200 Hz to 50 KHz pulse from 20,000 to 200,000,000 pulses full scale

iDRX Output: 2-wire (half duplex) RS-485 (OMEGA Serial Protocol and MODBUS Serial Protocol)

iDRN Output: 0 to 10V @ 10 mA max; 0 to 20 mA or 4 to 20 mA

FP Default Settings iDRN: Input 0 to 20 KHz; Output 4 to 20 mA (custom settings available at no charge)

To Order

Model No.	Description
iDRX-FP	Digital signal conditioner with RS-485 output for Frequency/Pulse inputs
iDRN-FP	Signal conditioner with analog output for Frequency/Pulse inputs
-FS	Factory setup and scaling

Comes with complete operator's manual.
***Ordering Example: iDRN-FP,** signal conditioner, and **DB9-RJ12,** connector adaptor.*
*For iDRN/iDRX accessories and power supplies, please visit **OMEGA**.*

AC Voltage/Current Signal Conditioners

iDRX-ACV

5 YEAR WARRANTY

- **Software Selectable Input Ranges iDRX-ACV: 0 to 400 mV to 0 to 400 Vac iDRX-ACC: 0 to 10 mA to 0 to 5 A ac**
- **14-Bit Resolution (Max)**
- **0.2% FS Accuracy**
- **1800 Vdc Isolation**
- **Free Setup and Configuration Software**
- **Factory Setup and Configuration Available at No Charge (for iDRN Analog Output Models)**
- **RoHS 2 Compliant**

The iDRN and iDRX Series signal conditioners provide highly accurate, stable and isolated measurement of AC voltage and current signals across extremely wide ranges: AC Current ranges from 0 to 10 mA through 0 to 5 A ac; AC Voltage ranges from 0 to 400 mV to 0 to 400 Vac.

Analog or Digital Outputs

The iDRN-ACV and iDRN-ACC accept ac voltage and ac current respectively and provide an analog output which is proportional to the input. The iDRX-ACV and iDRX-ACC accept ac voltage and ac current respectively and transmit via RS-485 Serial Communications.

Analog Output Model

The Analog Output models can be configured for outputs of 0 to 10 Vdc, 4 to 20 mA or 0 to 20 mA with the free configuration software. The modules connect to a PC with RS-232 Serial Communications, or by Ethernet with the optional EIT module. Once configured the settings are stored in non-volatile memory and the unit can be disconnected from the PC.

Factory Setup and Configuration at No Extra Charge (iDRN Analog Output Modules)

Please Specify:

iDRN-ACV: Input value high and low; output value high and low

Example: 0 volts = 4 mA, 400Vac = 20 mA

iDRN-ACC: Input value high and low; output value high and low

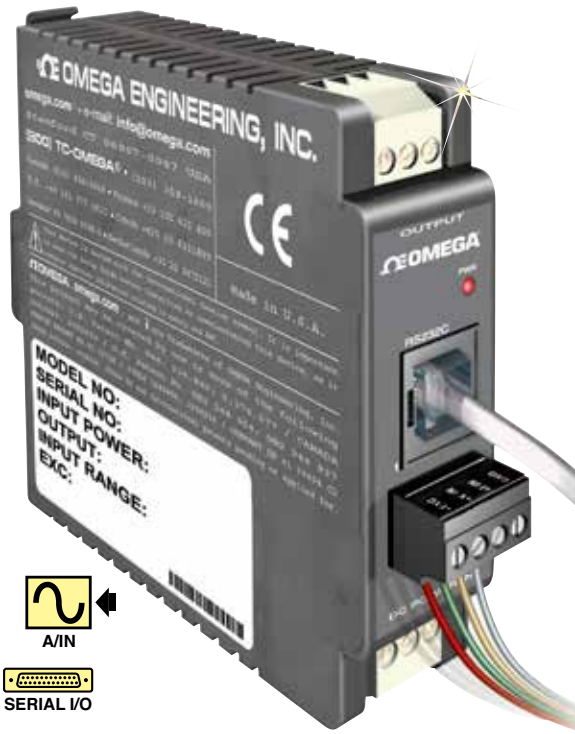
Example: 0 A = 4 mA, 5 A = 20 mA

Digital Output Model

The iDRX-ACC (Current) and iDRX-ACV (Voltage) communicate via RS-485 Serial Communications using either simple ASCII Commands or the popular MODBUS Protocol. Up to 32 modules may be connected to a single RS-485 port stretching up to 1200 m (4000'), more with RS-485 repeaters.

Ethernet Connection

The optional EIT iServer module can connect up to 32 iDRX RS-485 Signal Conditioners to an Ethernet network and the Internet using standard TCP/IP protocol. The iServer can also be used as a simple Serial to Ethernet "bridge" or converter to connect a single iDRN RS-232 device to an Ethernet network and the Internet.



Specifications

Accuracy at 25°C: ±0.2% FS
Resolution: 10 to 14-bit
Power Consumption: 2.4 W; (100 mA @ 24 Vdc)
MODEL iDRX-ACV/iDRN-ACV
Input Ranges: 0 to 400 mV to 0 to 400 Vac full scale
Interface:RS-485; RJ-12 or screw terminal connector
MODEL iDRX-ACC/ACC
Input Ranges: 0 to 10 mA to 0 to 5 A ac full scale
i**DRX Output:** 2-wire (half duplex) RS-485 (OMEGA Serial Protocol and MODBUS Serial Protocol)
i**DRN Output:** 0 to 10V@10 mA max; 0 to 20 mA or 4 to 20 mA
ACC Default Settings iDRN: Input 0 to 5 Amp; Output 4 to 20 mA (custom settings available at no charge)

OMEGA offers many types of Current Transformers. Please visit OMEGA.

To Order

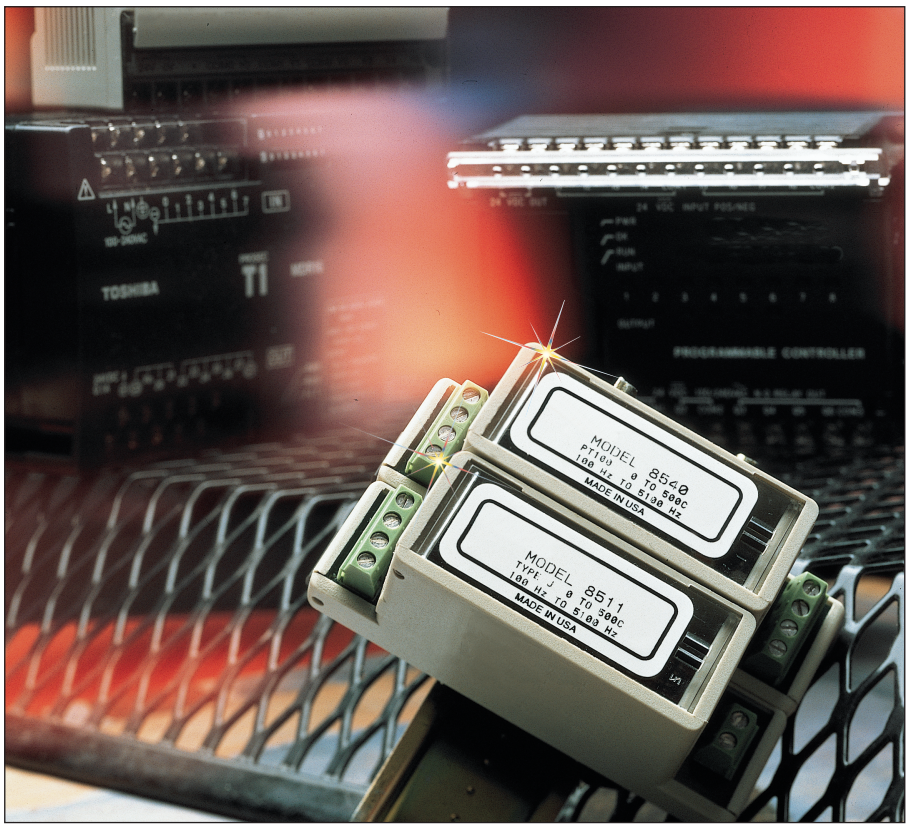
Model No.	Description
iDRX-ACC	Digital signal conditioner with RS-485 output for ac current input
iDRX-ACV	Digital signal conditioner with RS-485 output for ac voltage input
iDRN-ACC	Signal conditioner with analog output for ac current inputs
iDRN-ACV	Signal conditioner with analog output for ac voltage inputs
-FS	Factory setup and scaling

Comes with complete operator's manual.
***Ordering Example: iDRN-ACV,** signal conditioner, and **DB9-RJ12,** connector adaptor.*

DRP-8500 Series Low Cost Analog to Frequency Modules for Micro PLC Digital Inputs

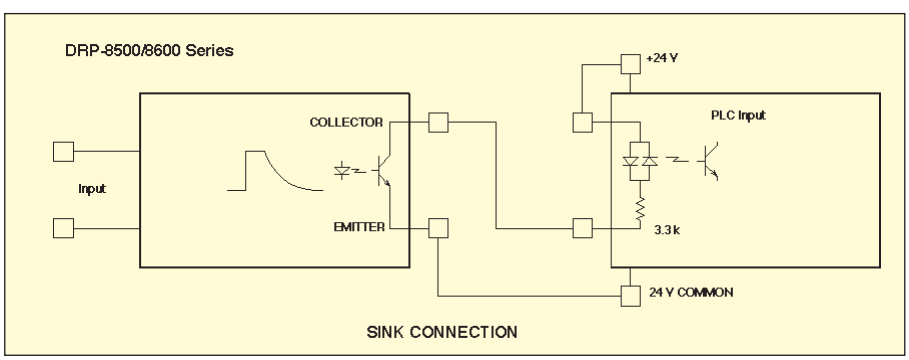
MADE IN USA 1 YEAR WARRANTY

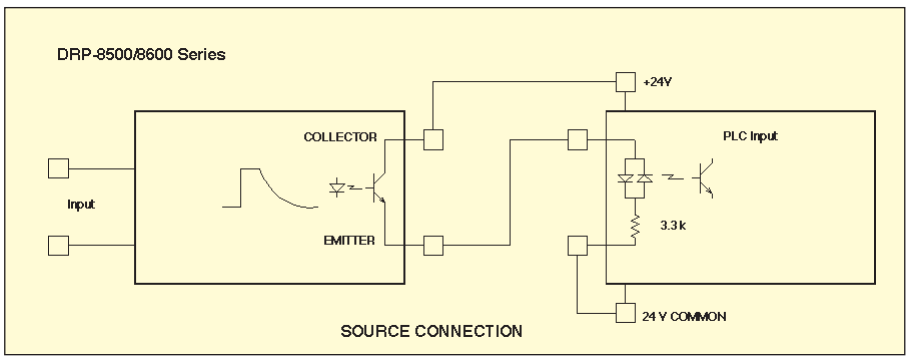
- DRP-8500 Series Connect to Micro PLCs High Speed Counter Inputs
- DRP-8600 Series Connect to Micro PLCs 24 VDC Logic Inputs
- Voltage, Current, RTD, Thermocouple and Strain Gage Inputs
- DIN Rail Mountable



The DRP-8500 Series modules offer a low cost analog I/O solution for micro PLCs. The series is ideal for discrete automation applications requiring one or two analog I/O channels. All models in the series interface with the PLC high speed counter inputs or pulse outputs. Digital signal pulse-width is fixed at 50 µsec. They will accept a variety of analog inputs, such as thermocouple, RTD, strain gage, voltage, and current. Some DRP-8500 models can be connected to pulse outputs from a PLC, and will then provide an analog output. The DRP-8500 series modules have an isolated floating optocoupler transistor which provides DC isolation from the input, output and DC power. The output transistor is fully floating allowing either source or sink connection to the PLC. The DRP-8500 resolution is 12 bits.

The DRP-8600 Series modules are designed to interface with the low-speed 24 Vdc logic inputs of a PLC for applications requiring additional analog inputs. The DRP-8600 modules output a square wave up to 500 Hz with a 50-50 duty cycle, allowing the PLC to count the frequency producing better than 8-bit resolution, 1 part in 500. The DRP-8600 module has an isolated floating optocoupler transistor which provides DC isolation from the input, output and DC power. The output transistor is fully floating allowing either source or sink connection to





DRP-8500 Series shown smaller than actual size

MADE IN USA 1 YEAR WARRANTY

All modules are housed in a plastic case with a built-in U-foot for mounting on standard DIN rails. Connections are made to screw clamp terminals that accept wire sizes 22 AWG to 16 AWG.

Common Specifications

(contact engineering for detailed specifications)

Connections:
Screw terminals, 22 to 16 AWG
Power:
24 volts nominal
Size:
42 H x 27 W x 96 mmL (1.65 x 1.06 x 3.78")
Weight:
85 g (3 oz)

☐ ***MOST POPULAR MODELS HIGHLIGHTED!***

To Order ***Visit omega.com/drp-8500 for Pricing and Details***

Model Number	Input	Output
Analog to Frequency (High Speed Counter Input)		
DRP-8505	4 mA to 20 mA	1,000 to 5,000 Hz from floating optocoupler
DRP-8506	0 to 5Vdc	0 to 5,000 Hz from floating optocoupler
DRP-8507	0 to 10Vdc	0 to 5,000 Hz from floating optocoupler
Frequency to Analog (High Speed Counter Input)		
DRP-8508	1000 to 5000 Hz optocoupler diode (7 mA into 3.3 KΩ, 20µS pulse width min)	4 to 20 mA
DRP-8509	0 to 5000 Hz optocoupler diode (7 mA into 3.3 KΩ, 20µS pulse width min)	0.1 to 5 Vdc
DRP-8510	0 to 2000 Hz optocoupler diode (7 mA into 3.3 KΩ, 20µS pulse width min)	0.05 to 5 Vdc
DRP-8513	400 to 2000 Hz optocoupler diode (7 mA into 3.3 KΩ, 20µS pulse width min)	20 mA
DRP-8514	0 to 2000 Hz optocoupler diode (7 mA into 3.3 KΩ, 20µS pulse width min)	10 Vdc
Thermocouple to Frequency (High Speed Counter Input)		
DRP-8511	Type J T/C 0 to 500°C	100 to 5100 Hz from floating optocoupler
DRP-8512	Type K T/C 0 to 500°C	100 to 5100 Hz from floating optocoupler
RTD to Frequency (High Speed Counter Input)		
DRP-8540	Platinum RTD -100 to +400°C 100 ohm α= 0.00385 2 or 3 Wire Connection	100 to 5100 Hz from floating optocoupler
Strain Gage to Frequency (High Speed Counter Input)		
DRP-8555	0 to 50 mV Differential Signal from full bridge Strain Gage, 10 V excitation provided	0 to 5 KHz from floating optocoupler
Analog to Frequency (Low Speed Pulse Input)		
DRP-8605	4-20 mA	100-500 Hz from floating optocoupler
DRP-8606	0-5 Vdc	
DRP-8607	0-10 Vdc	0-500 Hz from floating optocoupler
Type J T/C to Frequency Converters(Low Speed Pulse Input)		
DRP-8611	Type J T/C 0 to 1000°C	10-1100 Hz from floating optocoupler
DRP-8612	Type K T/C 0 to 1250°C	5 Hz to 630 Hz from floating optocoupler

Isolated DIN Rail Signal Conditioner

DRSL-DC2

DRSL-DC2 DIN rail signal conditioner and DRSL-PWR-RAIL, power rail (sold separately). Shown smaller than actual size.

- **Isolation and Conversion of Process Voltage or Current Signals**
- **Power Supply and Signal Isolator for 2-Wire Transmitter**
- **Slimline Housing— Only 6 mm (0.24") Wide**
- **Multiple Signal Ranges (DIP-Switch Selectable)**
- **High Accuracy, <0.05% of Span**
- **Fast Response Time <7 ms**

The DRSL-DC2 isolated DIN rail signal conditioner provides a competitive choice in terms of both price and technology for galvanic isolation of process voltage or current signals to SCADA systems or PLC equipment. The DRSL-DC2 can be used for signal conversion of standard process voltage or current signals. The unit offers isolation between input, output and supply, provides surge suppression and protects control systems from transients and noise.

The DRSL-DC2 also eliminates ground loops and can be used for measuring floating signals. Low power consumption facilitates DIN rail mounting without the need for any air gap. Factory calibrated measurement ranges are easily configured via DIP switches. When the input is configured for 2-wire transmitter mode, the DRSL-DC2 provides the current loop supply voltage. The unit operates over a wide temperature range from -25 to 70°C (-13 to 158°F).

SPECIFICATIONS

INPUT

Current Input

Measurement Range: 0 to 20.5 mA

Functional Range: 0 to 23 mA

Programmable Measurement Ranges: 0 to 20 mA and 4 to 20 mA

Input Voltage Drop: <1.5V

2-Wire Transmitter Supply: >17V/20 mA

Voltage Input

Measurement Range: 0 to 10.25V

Functional Range: 0 to 11.5V/ 0 to 5.75V

Programmable Measurement Ranges: 0 to 5V, 1 to 5V, 0 to 10V, 2 to 10V

Input Resistance: ≥500 kΩ

OUTPUT

Current Output

Signal Range: 0 to 20.5 mA (span)

Programmable Signal Ranges: 0 to 20 mA and 4 to 20 mA

Load: 23 mA/600 Ω max

Load Stability: ≤0.01% of span/100 Ω

Current Limit: ≤28 mA

Voltage Output

Signal Range: 0 to 10V

Programmable Signal Ranges: 0 to 10, 2 to 10, 0 to 5 and 1 to 5V

Load: >10 kΩ min

GENERAL

Supply Voltage (via Power Rail or Connectors): 16.8 to 31.2 Vdc

Power Consumption: 1.2 W max

Internal Consumption: 0.4 W typical/0.65 W max

Isolation: Input/output/supply

Isolation Voltage (Test): 2.5 kVac

Isolation Voltage (Working): 300 Vac

MTBF: >231 years, according to IEC 61709 (SN29500)

Signal/Noise Ratio: >60 dB

Response Time (0 to 90%, 100 to 10%): <7 ms

Span: Corresponds to the presently selected DIP switch output range

Accuracy: <±0.05% of span

Temperature Coefficient: <±0.01% of span/°C

EMC Immunity Influence: <±0.5% of span

Extended EMC Immunity

NAMUR NE 21, A Criterion, Burst: <±1% of span

ENVIRONMENTAL

Operating Temperature: -25 to 70°C (-13 to 158°F)

Storage Temperature: -40 to 85°C (-40 to 185°F)

Calibration Temperature: 20 to 28°C (68 to 82°F)

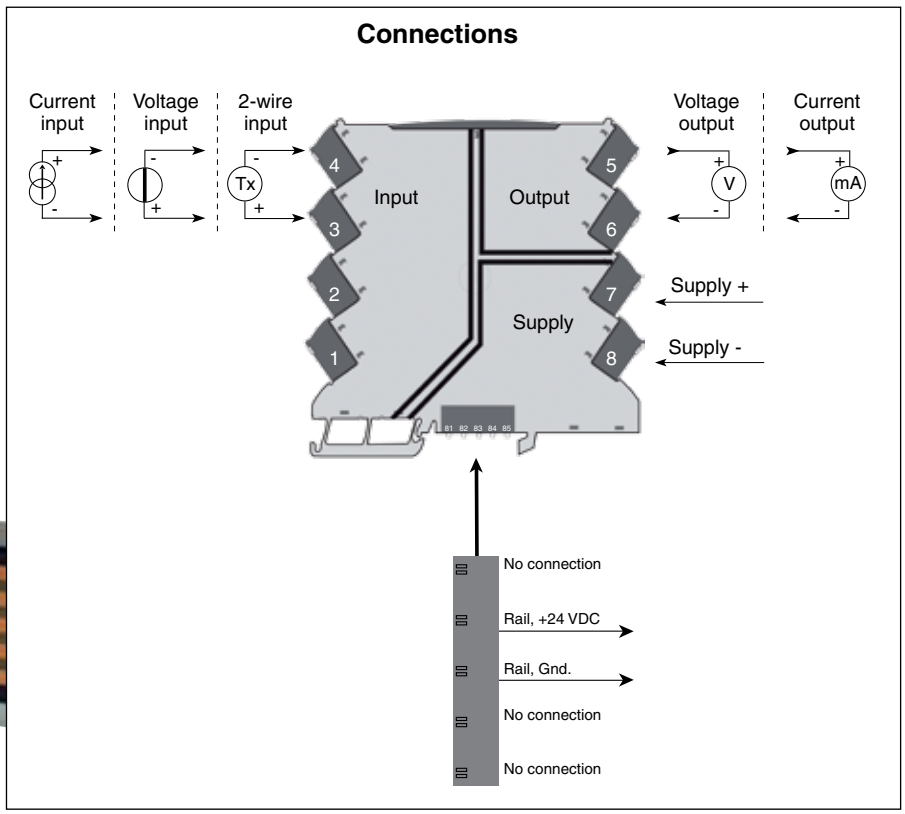
Relative Humidity: 0 to 95% RH non-condensing

Protection Degree: IP20

Installation Area: Pollution degree 2 and measurement/overvoltage category II

MECHANICAL
Dimensions: 113 H x 6.1 W x 115 mm D (4.4 x 0.24 x 4.5")
Weight: 70 g (0.15 lb) approx
DIN Rail Type: DIN EN 60715 - 35 mm
Wire Size: 0.13 x 2.5 mm²/AWG 26 to 12 stranded wire
Screw Terminal Torque: 0.5 Nm

DRSL-DC2 and DRSL-PWR-RAIL shown smaller than actual size.



OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
DRSL-DC2	Isolated DIN rail signal conditioner

Accessories

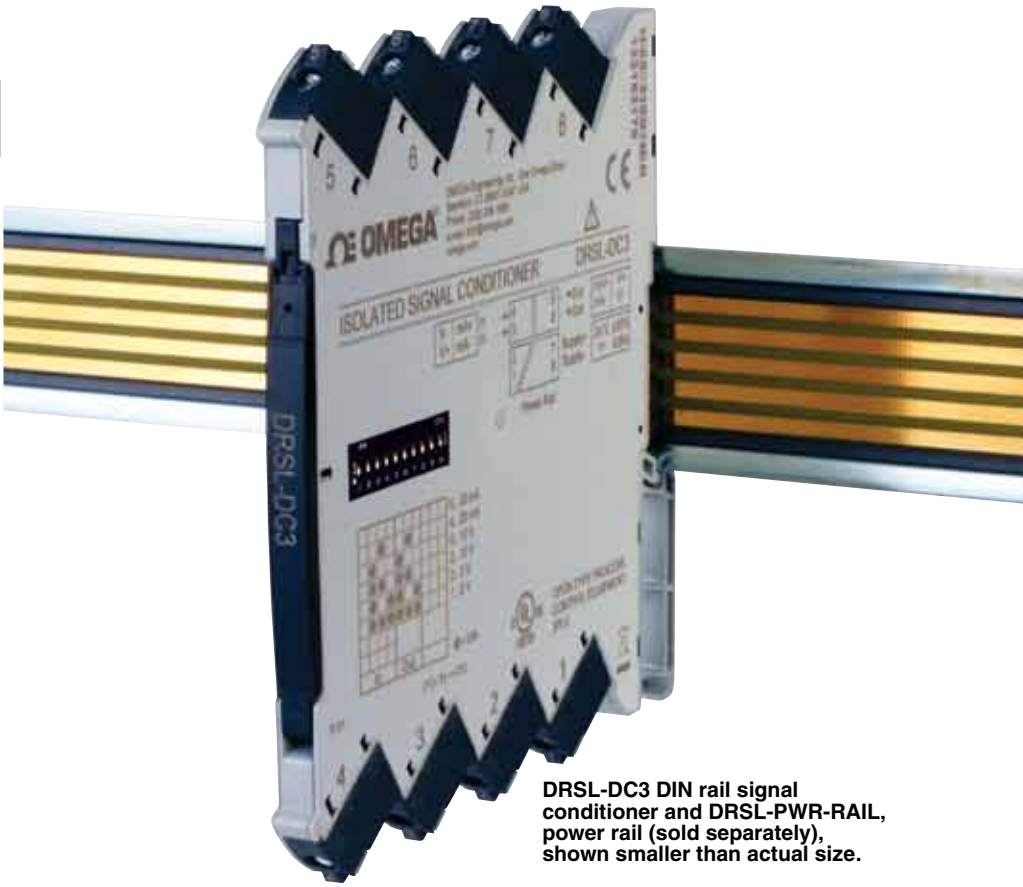
Model No.	Description
DRSL-PWR-RAIL	Power rail (with cover and two end covers, one right hand and one left hand), 1 m (3.3') length
DRSL-PCU	Power connector unit, 24 Vdc/2.5 A output to power rail
DRSL-MOD-STOP	Module stop (screwed onto power rail to support and hold mounted devices)

Ordering Example: DRSL-DC2 *isolated DIN rail signal conditioner,* ***DRSL-PWR-RAIL*** *power rail,* ***DRSL-PCU*** *power connector unit,* ***DRSL-MOD-STOP*** *module stop and* ***OCW-1.*** *OMEGACARE℠ extends standard 1-year warranty to a total of 2 years.*

Isolated DIN Rail Signal Conditioner

DRSL-DC3

- **Isolation and Conversion of Process Voltage or Current Signals**
- **Slimline Housing— Only 6 mm (0.24") Wide**
- **Multiple Signal Ranges (DIP-Switch Selectable)**
- **High Accuracy, <0.2% of Span**
- **Fast Response Time <7 ms**



DRSL-DC3 DIN rail signal conditioner and DRSL-PWR-RAIL, power rail (sold separately), shown smaller than actual size.

The DRSL-DC3 isolated DIN rail signal conditioner provides a competitive choice in terms of both price and technology for galvanic isolation of process voltage or current signals to SCADA systems or PLC equipment. The DRSL-DC3 can be used for signal conversion of standard process voltage or current signals. The unit offers isolation between input, output and supply, provides surge suppression and protects control systems from transients and noise.

The DRSL-DC3 also eliminates ground loops and can be used for measuring floating signals. Low power consumption facilitates DIN rail mounting without the need for any air gap. Factory calibrated measurement ranges are easily configured via DIP switches. The unit operates over a wide temperature range from -25 to 70°C (-13 to 158°F).

SPECIFICATIONS

INPUT

Current Input

Measurement Range: 0 to 20.5 mA
Functional Range: 0 to 23 mA
Programmable Measurement Ranges: 0 to 20 mA and 4 to 20 mA
Input Voltage Drop: < 1.5V

Voltage Input

Measurement Range: 0 to 10.25V
Functional Range: 0 to 11.5V/ 0 to 5.75V
Programmable Measurement Ranges: 0 to 5V, 1 to 5V, 0 to 10V, 2 to 10V
Input Resistance: ≥500 kΩ

OUTPUT

Current Output

Signal Range: 0 to 20.5 mA (span)
Programmable Signal Ranges: 0 to 20 mA and 4 to 20 mA
Load: 23 mA/600 Ω max
Load Stability: ≤0.01% of span/ 100 Ω
Current Limit: ≤28 mA

Voltage Output

Signal Range: 0 to 10V
Programmable Signal Ranges: 0 to 10, 2 to 10, 0 to 5 and 1 to 5V
Load: >10 kΩ min

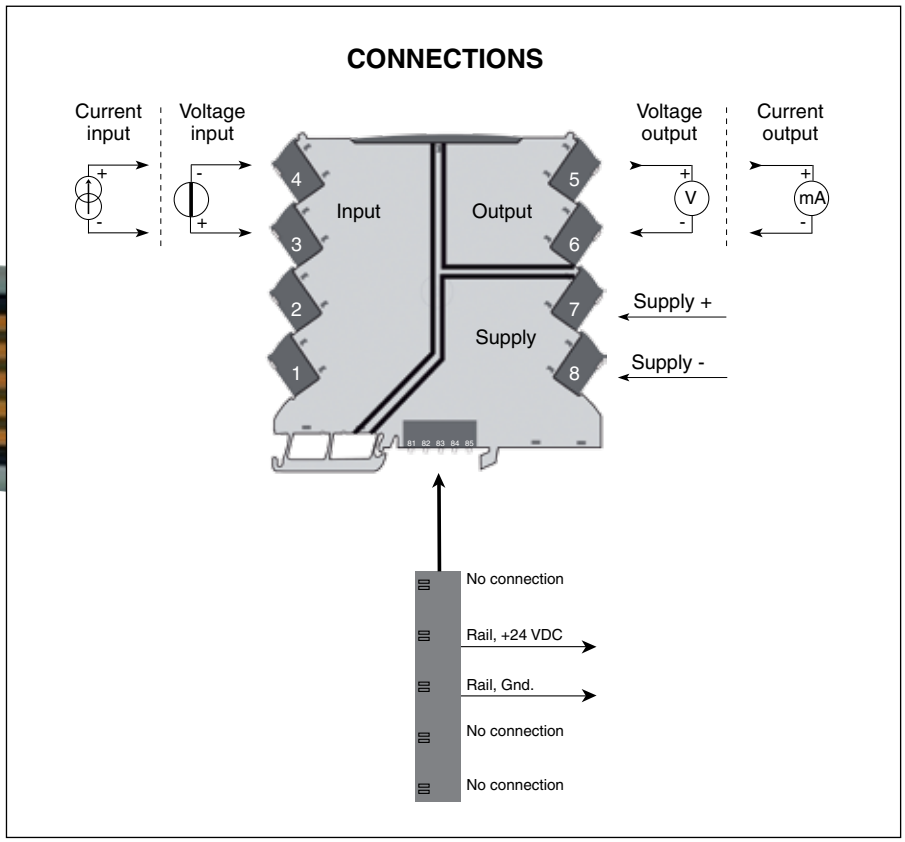
GENERAL

Supply Voltage (via Power Rail or Connectors): 16.8 to 31.2 Vdc
Power Consumption: 0.8 W max
Internal Consumption: 0.4 W typical/ 0.65 W max
Isolation: Input/Output/Supply
Isolation Voltage (Test): 2.5 kVac
Isolation Voltage (Working): 300 Vac
MTBF: >249 years, according to IEC 61709 (SN29500)
Signal/Noise Ratio: >60 dB
Response Time (0 to 90%, 100 to 10%): <7 ms
Span: Corresponds to the presently selected DIP switch output range
Accuracy: <±0.2% of span
Temperature Coefficient: <±0.015% of span/°C
EMC Immunity Influence: <±0.5% of span

Extended EMC Immunity

NAMUR NE 21, A Criterion, Burst: <±1% of span

DRSL-DC3 and DRSL-PWR-RAIL shown smaller than actual size.



ENVIRONMENTAL
Operating Temperature: -25 to 70°C (-13 to 158°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Calibration Temperature: 20 to 28°C (68 to 82°F)
Relative Humidity: 0 to 95% RH non-condensing
Protection Degree: IP20
Installation Area: Pollution degree 2 and measurement/overvoltage category II

MECHANICAL
Dimensions: 113 H x 6.1 W x 115 mm D (4.4 x 0.24 x 4.5")
Weight: 70 g (0.15 lb) approx
DIN Rail Type: DIN EN 60715 - 35 mm
Wire Size: 0.13 x 2.5 mm²/AWG 26 to 12 stranded wire
Screw Terminal Torque: 0.5 Nm

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
DRSL-DC3	Isolated DIN rail signal conditioner

Accessories

Model No.	Description
DRSL-PWR-RAIL	Power rail (with cover and two end covers, one right hand and one left hand), 1 m (3.3') length
DRSL-PCU	Power connector unit, 24 Vdc/2.5 A output to power rail
DRSL-MOD-STOP	Module stop (screwed onto power rail to support and hold mounted devices)

***Ordering Example: DRSL-DC3** isolated DIN rail signal conditioner, **DRSL-PWR-RAIL** power rail, **DRSL-PCU** power connector unit, **DRSL-MOD-STOP** module stop and **OCW-1,** OMEGACARE℠ extends standard 1-year warranty to a total of 2 years.*

Bipolar Isolated DIN Rail Signal Conditioner for Process Signals

DRSL-DC4

- **Isolation and Conversion of Bipolar Process Voltage and Current Signals to Unipolar Signals**
- **Slimline Housing—Only 6 mm (0.24") Wide**
- **Multiple Signal Ranges (DIP-Switch Selectable)**
- **High Accuracy, <0.05% of Selected Range**
- **Fast Response Time <7 ms**
- **Excellent Output Load Stability**

DRSL-DC4 DIN rail signal conditioner and DRSL-PWR-RAIL power rail (sold separately), shown smaller than actual size.

The DRSL-DC4 bipolar isolated DIN rail signal conditioner provides a competitive choice in terms of both price and technology for galvanic isolation of process voltage or current signals to SCADA systems or PLC equipment. The DRSL-DC4 can be used for signal conversion of standard bipolar analog process signals into unipolar analog signals. The unit offers isolation between input, output and supply, provides surge suppression and protects control systems from transients and noise. The DRSL-DC4 also eliminates ground loops and can be used for measuring floating signals. Low power consumption facilitates DIN rail mounting without the need for any air gap. Factory calibrated measurement ranges are easily configured via DIP switches. The unit operates over a wide temperature range from -25 to 70°C (-13 to 158°F).

SPECIFICATIONS

INPUT

Current Input

Programmable Measurement Ranges: ±10 mA, ±20 mA

Functional Range, Current Input: -23 to 23 mA

Input Voltage Drop: <1V @ 23 mA

Voltage Input

Programmable Ranges: ±5V, ±10V

Functional Range: -11.5 to 11.5V

Input Resistance: ≥1 MΩ

OUTPUT

Current Output

Programmable Signal Ranges: 0 to 20 mA, 4 to 20 mA

Functional Range: 0 to 23 mA

Load: 23 mA/600 Ω max (per channel)

Load Stability: ≤0.002% of span/100 Ω

Current Limit: ≤28 mA

Voltage Output

Programmable Signal Ranges: 0 to 10V, 2 to 10V, 0 to 5V, 1 to 5V

Functional Range: 0 to 11.5V

Load: >10 kΩ min

GENERAL

Supply Voltage (via Power Rail or Connectors): 16.8 to 31.2 Vdc

Power Consumption: 0.8 W max

Internal Consumption: 0.4 W typical/0.65 W max

Isolation: Input/output/supply

Isolation Voltage (Test): 2.5 kVac

Isolation Voltage (Working): 300 Vac

MTBF: >241 years, according to IEC 61709 (SN29500)

Signal/Noise Ratio: >60 dB

Cut-Off Frequency (3 dB): >100 Hz or 10 Hz (selectable via DIP-switch)

Response Time (0 to 90%, 100 to 10%): <7 ms or <44 ms

Span: Corresponds to presently selected DIP switch output range

Accuracy: <±0.05% of span

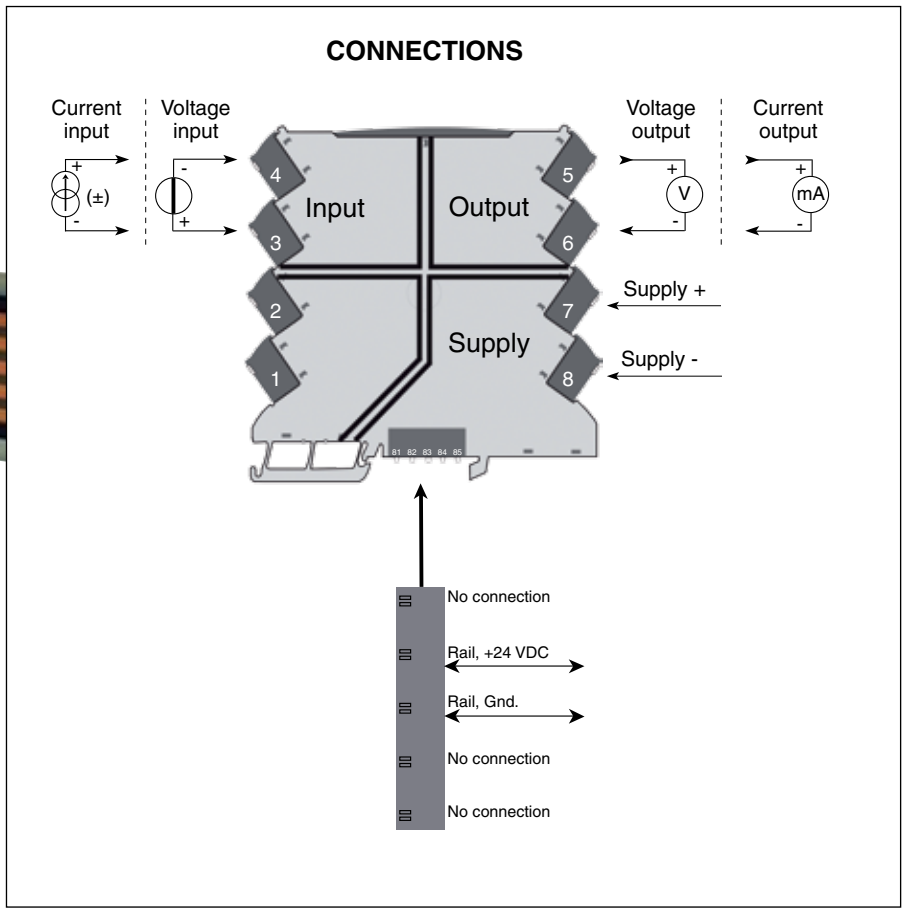
Temperature Coefficient: <±0.01% of span/°C

EMC Immunity Influence: <±0.5% of span

Extended EMC Immunity

NAMUR NE 21, A Criterion, Burst: <±1% of span

DRSL-DC4 and DRSL-PWR-RAIL shown smaller than actual size.



ENVIRONMENTAL
Operating Temperature: -25 to 70°C (-13 to 158°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Calibration Temperature: 20 to 28°C (68 to 82°F)
Relative Humidity: 0 to 95% RH non-condensing
Protection Degree: IP20
Installation Area: Pollution degree 2 and measurement/overvoltage category II

MECHANICAL
Dimensions: 113 H x 6.1 W x 115 mm D (4.4 x 0.24 x 4.5")
Weight: 70 g (0.15 lb) approx
DIN Rail Type: DIN EN 60715 - 35 mm
Wire Size: 0.13 x 2.5 mm²/AWG 26 to 12 stranded wire
Screw Terminal Torque: 0.5 Nm

OMEGACARE Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
DRSL-DC4	Bipolar isolated DIN rail signal conditioner for process signals

Accessories

Model No.	Description
DRSL-PWR-RAIL	Power rail (with cover and two end covers, one right hand and one left hand), 1 m (3.3') length
DRSL-PCU	Power connector unit, 24 Vdc/2.5 A output to power rail
DRSL-MOD-STOP	Module stop (screwed onto power rail to support and hold mounted devices)

Ordering Example: DRSL-DC4 *bipolar isolated DIN rail signal conditioner for process signals,* ***DRSL-PWR-RAIL*** *power rail,* ***DRSL-PCU*** *power connector unit,* ***DRSL-MOD-STOP*** *module stop and* ***OCW-1,*** *OMEGACARE℠ extends standard 1-year warranty to a total of 2 years.*

DIN Rail Input Loop-Powered Isolators

DRSL-LPI Series

- **1 Channel (DRSL-LPI-1) or 2 Channel (DRSL-LPI-2) Input Loop Powered Isolators**
- **Powered by the Analog Input Current Signal Loop**
- **1:1 Signal Ratio**
- **Low Input Voltage Drop**
- **Fast Response Time <5 ms**
- **High Conversion Accuracy, <0.1% of Span (0 to 20.5 mA)**
- **Slimline 6 mm (0.24") Housing**

DRSL-LPI-1 and RAIL-35-1 (sold separately) shown actual size.

The DRSL-LPI Series DIN rail input loop powered isolators provide a competitive choice in terms of both price and technology for galvanic isolation of current signals to SCADA systems or PLC equipment. These units provide isolation and 1:1 conversion of standard current signals and are powered by the analog input current signal loop.

The DRSL-LPI series offers isolation between input and output, provides surge suppression and protects control systems from transients and noise. These units also eliminate ground loops and can be used for measuring floating signals. Low power consumption facilitates DIN rail mounting without the need for any air gap. Measurement ranges are factory calibrated. These isolators operates over a wide temperature range from -25 to 70°C (-13 to 158°F).

SPECIFICATIONS

NUMBER OF CHANNELS
DRSL-LPI-1: 1
DRSL-LPI-2: 2

CURRENT INPUT
Signal Range (Input to Output): 0 to 20.5 mA
Signal Conversion: 1 to 1
Functional Range: 0 to 23 mA (NAMUR NE43 compliant)
Start up Current: 10 µA typical
Input Overload: 50 mA max
Input to Output Voltage Drop: 1.25V + (0.015 x V_{out}) where $V_{out} = I_{out} \times R_{output}$, typical
Input Voltage Drop: (Unit voltage drop) + V_{out}

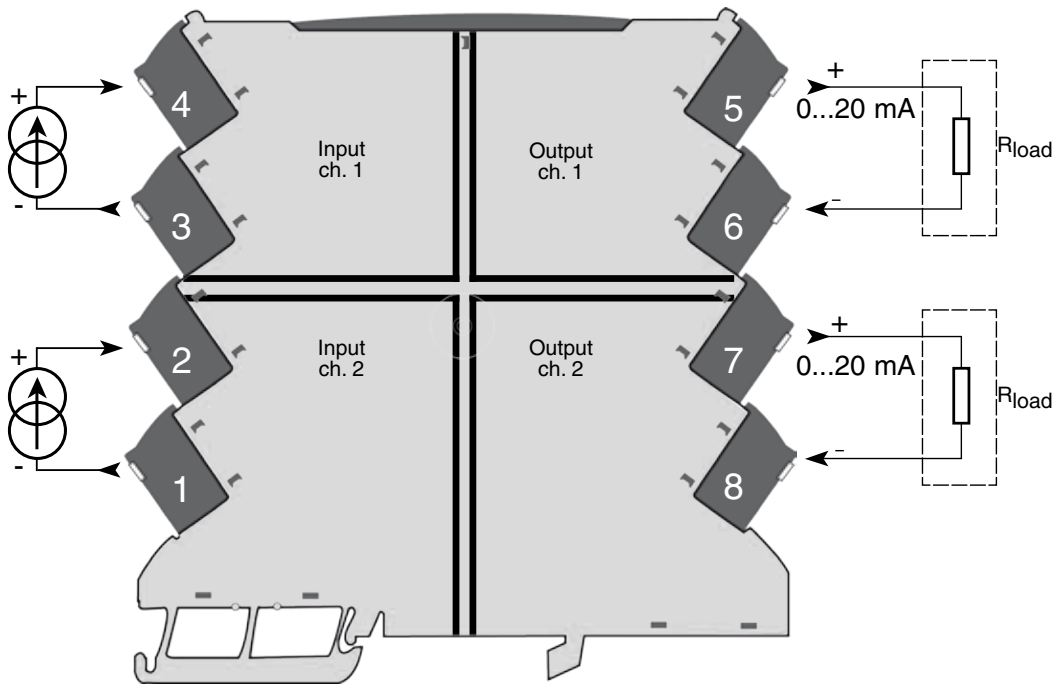
CURRENT OUTPUT
Output Load: 600Ω max
Output Load Stability: <0.01% of span/100 Ω (span = 0 to 20 mA)
Voltage Limit: 17.5V

GENERAL
Internal Consumption: 30 mW per channel
Isolation Voltage (Test): 2.5 kVac
Isolation Voltage (Working): 300 Vac
Signal/Noise Ratio: >60 dB
Cut-Off Frequency (3 dB): 100 Hz
Response Time (0 to 90%, 100 to 10%): <5 ms
Absolute Accuracy (at 25°C): ≤±10 µA + 0.05% of max value of selected span
Temperature Coefficient: ≤±2 µA/°C
EMC Immunity Influence: <±0.5% of span
Extended EMC Immunity NAMUR NE 21, A Criterion, Burst: <±1% of span

ENVIRONMENTAL
Operating Temperature: -25 to 70°C (-13 to 158°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Calibration Temperature: 20 to 28°C (68 to 82°F)
Relative Humidity: 0 to 95% RH non-condensing
Protection Degree: IP20
Installation Area: Pollution degree 2 and measurement/overvoltage category II

MECHANICAL
Dimensions: 113 H x 6.1 W x 115 mm D (4.4 x 0.24 x 4.5")
Weight: 70 g (0.15 lb) approx
DIN Rail Type: DIN EN 60715 - 35 mm
Wire Size: 0.13 x 2.5 mm²/AWG 26 to 12 stranded wire
Screw Terminal Torque: 0.5 Nm

CONNECTIONS



OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
DRSL-LPI-1	DIN rail input loop-powered isolator, 1 channel
DRSL-LPI-2	DIN rail input loop-powered isolator, 2 channel
RAIL-35-1	35 mm (1.4") DIN rail, 1 m (3.3') length
DRSL-MOD-STOP	Module stop (screwed onto DIN rail to support and hold mounted devices)

Ordering Example: DRSL-LPI-2 *DIN rail input loop-powered isolator, 2 channel,* ***RAIL-35-1*** *DIN rail, and* ***OCW-1,*** *OMEGACARE℠ extends standard 1-year warranty to a total of 2 years.*

DIN Rail 2-Wire Transmitter Isolators

DRSL-LPO Series

- 1 Channel (DRSL-LPO-1) or 2 Channel (DRSL-LPO-2) 2-Wire Transmitter Isolators
- Powered By the Host (Output) Current Signal Loop
- 1:1 Signal Ratio
- Low Channel Voltage Drop
- Available Input Transmitter (Tx) Supply
- Fast Response Time <5 ms
- High Conversion Accuracy, <0.05% of Span (3.8 to 20.5 mA)
- Slimline 6 mm (0.24") Housing

DRSL-LPO-1 and RAIL-35-1 (sold separately) shown smaller than actual size.

The DRSL-LPO Series DIN rail 2-wire transmitter isolators provide a competitive choice in terms of both price and technology for galvanic isolation of current signals to SCADA systems or PLC equipment. These units provide isolation and 1:1 conversion of standard current signals and are powered by the host (output) current signal loop. Input transmitter (Tx) power supply of 3.5 to 32.5V is provided.

The DRSL-LPO series offers isolation between input and output, provides surge suppression and protects control systems from transients and noise. These units also eliminate ground loops and can be used for measuring floating signals. Low power consumption facilitates DIN rail mounting without the need for any air gap. Measurement ranges are factory calibrated. These isolators operates over a wide temperature range from -25 to 70°C (-13 to 158°F).

SPECIFICATIONS

NUMBER OF CHANNELS
DRSL-LPO-1: 1
DRSL-LPO-2: 2

CURRENT INPUT
Signal Range (Input to Output): 3.8 to 20.5 mA
Signal Conversion: 1:1
Functional Range: 3.5 to 23 mA (NAMUR NE43 compliant)
Available 2-Wire Transmitter (Tx) Supply: 3.5 to 32.5V

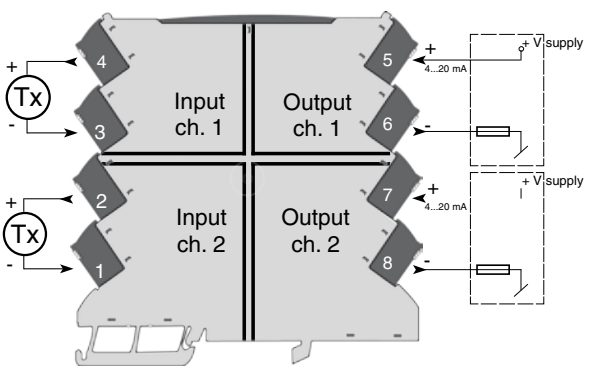
CURRENT OUTPUT
Output Loop Current Limitation: 24 mA typical
Output Overload: 50 mA max

GENERAL
Supply Voltage: 6 to 35 Vdc
Internal Consumption: 50 mW per channel
Voltage Drop (Input to Output): 2.5V typical
Isolation Voltage (Test): 2.5 kVac
Isolation Voltage (Working): 300 Vac
Signal/Noise Ratio: >60 dB
Cut-Off Frequency (3 dB): 100 Hz
Response Time (0 to 90%, 100 to 10%): <5 ms
Absolute Accuracy (at 25°C): ≤±8 µA
Temperature Coefficient (>25°C): ≤±0.02 µA [(T-25°C) x V_{supply}]
Temperature Coefficient (<25°C): ≤±0.07 µA [(T-25°C) x V_{supply}]
EMC Immunity Influence: <±0.5% of span (4 to 20 mA)
Extended EMC Immunity
NAMUR NE 21, A Criterion, Burst: <±1% of span

ENVIRONMENTAL
Operating Temperature: -25 to 70°C (-13 to 158°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Calibration Temperature: 20 to 28°C (68 to 82°F)
Relative Humidity: 0 to 95% RH non-condensing
Protection Degree: IP20
Installation Area: Pollution degree 2 and measurement/overvoltage category II

MECHANICAL
Dimensions: 113 H x 6.1 W x 115 mm D (4.4 x 0.24 x 4.5")
Weight: 70 g (0.15 lb) approx
DIN Rail Type: DIN EN 60715 - 35 mm
Wire Size: 0.13 x 2.5 mm^2/ AWG 26 to 12 stranded wire
Screw Terminal Torque: 0.5 Nm

CONNECTIONS



To Order

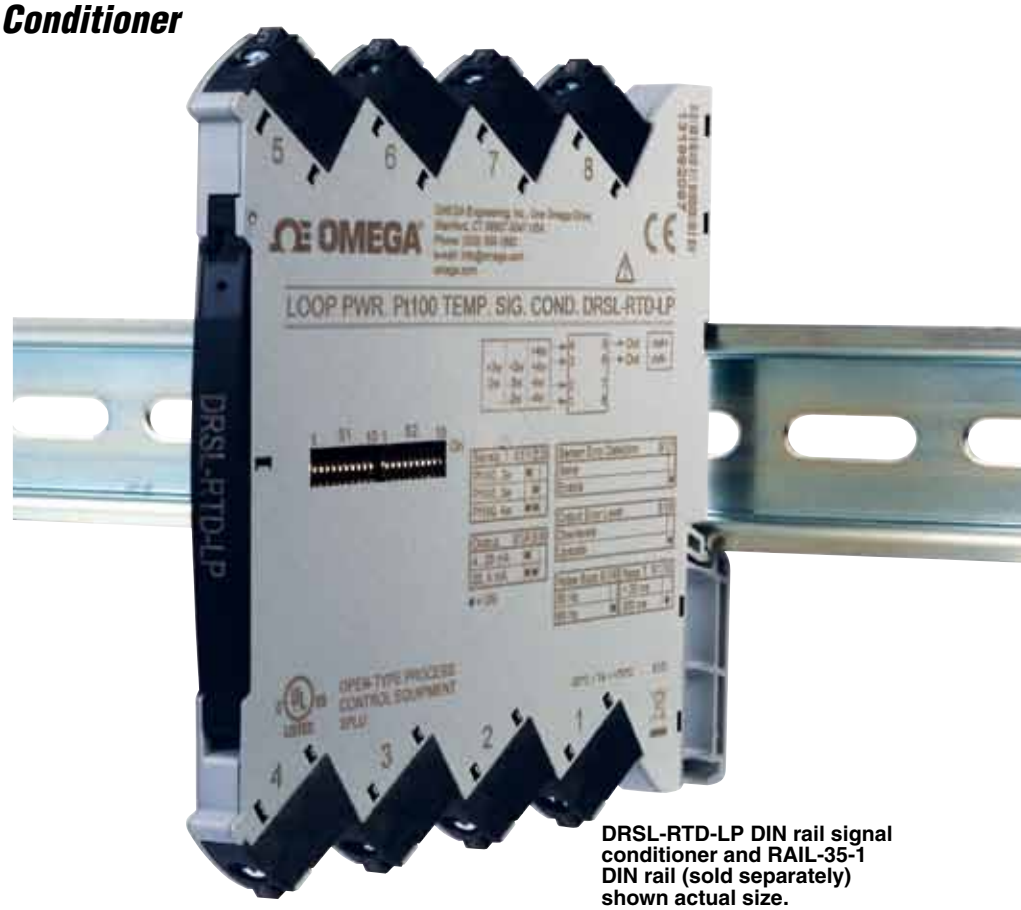
Model No.	Description
DRSL-LPO-1	DIN rail 2-wire transmitter isolator, 1 channel
DRSL-LPO-2	DIN rail 2-wire transmitter isolator, 2 channel
RAIL-35-1	35 mm (1.4") DIN rail, 1 m (3.3') length
DRSL-MOD-STOP	Module stop (screwed onto DIN rail to support and hold mounted devices)

Ordering Example: DRSL-LPO-1 *DIN rail 2-wire transmitter isolator, 1 channel,* ***RAIL-35-1*** *DIN rail and* ***OCW-1,*** *OMEGACARE℠ extends standard 1-year warranty to a total of 2 years.*

RTD Input Non-Isolated DIN Rail Loop-Powered Signal Conditioner

DRSL-RTD-LP

- 2, 3 or 4-Wire Pt100 RTD Input
- Powered By the Host (Output) Current Signal Loop
- High Accuracy Better Than 0.2°C or 0.1% of Selected Range
- Slimline 6 mm (0.24") Housing
- Excellent EMC Performance and 50/60 Hz Noise Suppression
- Fast Response Time < 30 ms/300 ms (Selectable)
- Pre-Calibrated Temperature Ranges Selectable via DIP-Switches



DRSL-RTD-LP DIN rail signal conditioner and RAIL-35-1 DIN rail (sold separately) shown actual size.

The DRSL-RTD-LP RTD input non-isolated DIN rail loop-powered signal conditioner measures a standard 2-, 3- or 4-wire Pt100 temperature sensor and provides a passive analog current output signal. The DRSL-RTD-LP provides a competitive choice in terms of both price and technology for interfacing RTD signals to SCADA systems or PLC equipment. This unit is powered by the host (output) current signal loop. Low power consumption facilitates DIN rail mounting without the need for any air gap. Easy configuration of more than 1000 factory calibrated measurement ranges is done via DIP-switches. The unit operates over a wide temperature range from -25 to 70°C (-13 to 158°F).

SPECIFICATIONS

INPUT

Input Type: 2, 3, or 4-wire Pt100 RTD

Temperature Range: -200 to 850°C (-328 to 1562°F)

Sensor Current, RTD: <150 µA

Sensor Cable Specifications: 50Ω per wire or 50 nF

Effect of Sensor Cable Resistance (3 or 4-Wire RTD): <0.002Ω/Ω

Broken Sensor Detection: >800Ω

Shorted Sensor Detection: <18Ω

OUTPUT

Current Output

Programmable Signal Ranges: 0 to 20 mA and 4 to 20 mA

Range Limits (NAMUR NE43 Out of Range): Below 3.8 mA or above 20.5 mA

Sensor Error Detection (Dip Switch Selectable for Enable or None): Below 3.5 mA or above 23 mA

Incorrect DIP-Switch Setting Identification: Below 3.5 mA or above 23 mA

Output Error Level: DIP switch selectable for upscale or downscale

Load Resistance (Ω): ≤(V_{supply} -3.3)/ 0.023

Load Stability: ≤0.01% of span/100Ω

GENERAL

Supply Voltage: 3.3 to 35 Vdc

Voltage Drop: 3.3 Vdc

Power Consumption: 1 W max

Internal Consumption: 0.65 W max

Signal/Noise Ratio: >60 dB

Response Time (0 to 90%, 100 to 10%): <30 ms/300 ms (selectable, provides either fast response or signal dampening as needed).

Accuracy: Better than 0.2°C or ±0.1% of selected range

Temperature Coefficient: ≤±0.02°C/°C

EMC Immunity Influence: <±0.5% of span

Extended EMC Immunity

NAMUR NE 21, A Criterion, Burst: <±1% of span (span = selected input range)

ENVIRONMENTAL

Operating Temperature: -25 to 70°C (-13 to 158°F)

Storage Temperature: -40 to 85°C (-40 to 185°F)

Calibration Temperature: 20 to 28°C (68 to 82°F)

Relative Humidity: 0 to 95% RH non-condensing

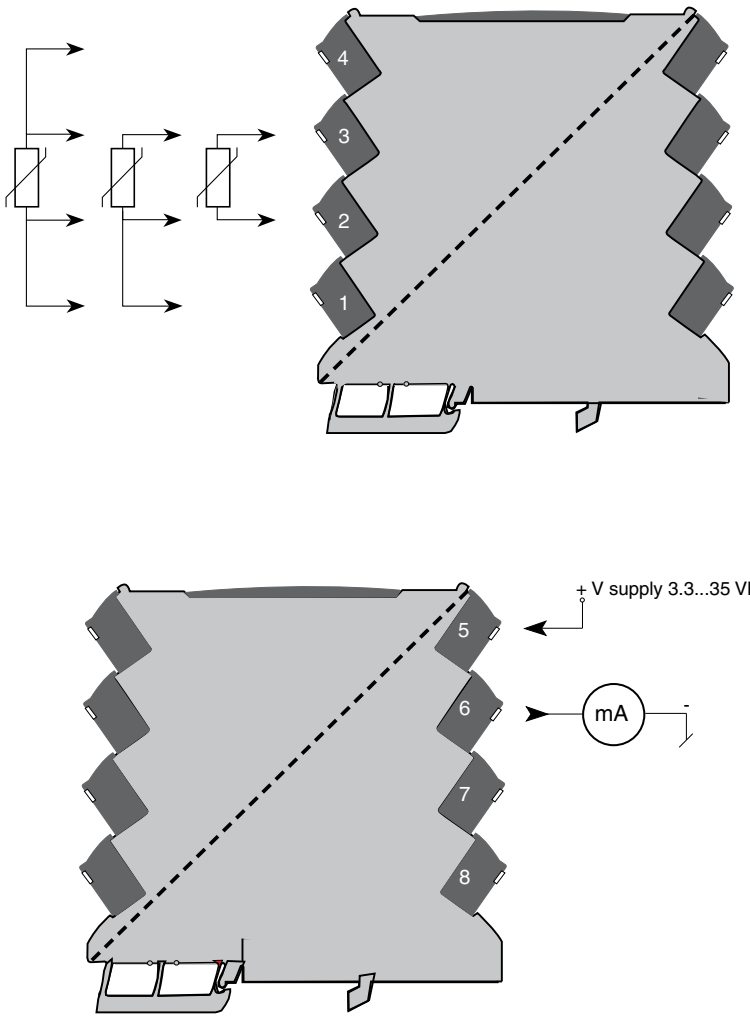
Protection Degree: IP20

Installation Area: Pollution degree 2 and measurement/overvoltage category II

MECHANICAL
Dimensions: 113 H x 6.1 W x 115 mm D (4.4 x 0.24 x 4.5")
Weight: 70 g (0.15 lb) approx
DIN Rail Type: DIN EN 60715 - 35 mm
Wire Size: 0.13 x 2.5 mm²/AWG 26 to 12 stranded wire
Screw Terminal Torque: 0.5 Nm

DRSL-RTD-LP and RAIL-35-1 shown smaller than actual size.

CONNECTIONS



To Order

Model No.	Description
DRSL-RTD-LP	RTD input non-isolated DIN rail loop-powered signal conditioner

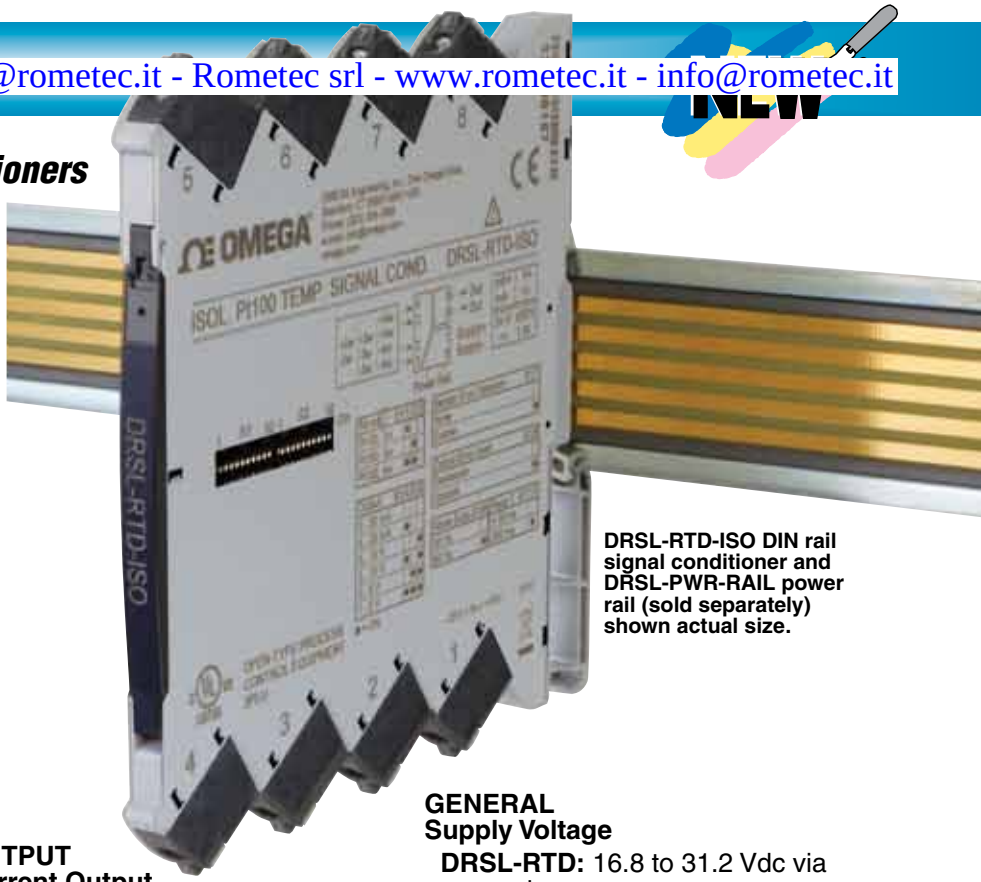
Accessories

Model No.	Description
RAIL-35-1	35 mm (1.4") DIN rail, 1 m (3.3') length
DRSL-MOD-STOP	Module stop (screwed onto DIN rail to support and hold mounted devices)

Ordering Example: DRSL-RTD-LP, *RTD input non-isolated DIN rail loop-powered signal conditioner,* ***RAIL-35-1*** *DIN rail and* ***DRSL-MOD-STOP*** *module stop.*

RTD Input DIN Rail Signal Conditioners

DRSL-RTD



DRSL-RTD-ISO DIN rail signal conditioner and DRSL-PWR-RAIL power rail (sold separately) shown actual size.

- **DRSL-RTD Non-Isolated and DRSL-RTD-ISO Isolated Models**
- **2, 3 or 4-Wire Pt100 RTD Input**
- **Pre-Calibrated Temperature Ranges Selectable via Dip-Switches**
- **Slimline Housing— Only 6 mm (0.24") Wide**
- **High Accuracy**
- **Fast Response Time <30 ms/300 ms (Selectable)**
- **Excellent EMC Performance and 50/60 Hz Noise Suppression**

The DRSL-RTD Series RTD input DIN rail signal conditioners provide a competitive choice in terms of both price and technology for interfacing RTD inputs to SCADA systems or PLC equipment. The DRSL-RTD and DRSL-RTD-ISO can be used for signal conversion of 2, 3 or 4-wire Pt100 RTD inputs into unipolar analog signals. The DRSL-RTD-ISO isolated model offers 3-way isolation between input, output and supply and provides surge suppression and protects control systems from transients and noise. Low power consumption facilitates DIN rail mounting without the need for any air gap. Easy configuration of more than 1000 factory calibrated measurement ranges is done via DIP-switches. The unit operates over a wide temperature range from -25 to 70°C (-13 to 158°F).

SPECIFICATIONS

INPUT

Input Type: 2, 3, or 4-wire Pt100 RTD

Temperature Range: -200 to 850°C (-328 to 1562°F)

Sensor Current, RTD: <150 µA

Sensor Cable Specifications: 50 Ω per wire or 50 nF

Effect of Sensor Cable Resistance (3 or 4-wire RTD): <0.002 Ω/Ω

Broken Sensor Detection: >800 Ω

Shorted Sensor Detection: <18 Ω

OUTPUT

Current Output

Programmable Signal Ranges: 0 to 20 mA and 4 to 20 mA

Range Limits (NAMUR NE43 Out of Range): Below 3.8 mA or above 20.5 mA for 4 to 20 mA output; 0 mA or above 20.5 mA for 0 to 20 mA output

Sensor Error Detection (Dip Switch Selectable for Enable or None): Below 3.5 mA or above 23 mA for 4 to 20 mA output; 0 mA or above 23 mA for 0 to 20 mA output

Incorrect DIP-Switch Setting Identification: Below 3.5 mA or above 23 mA for 4 to 20 mA output; 0 mA or above 23 mA for 0 to 20 mA output

Output Error Level: DIP switch selectable for upscale or downscale

Load: 21 mA/600Ω /12.6V max

Load Stability: ≤0.01% of span/100Ω

Voltage Output

Programmable Signal Ranges: 0 to 10 V, 2 to 10 V, 0 to 5 V and 1 to 5 V

Range Limits (Out of Range): Range ±2.5%

Sensor Error Detection (Dip Switch Selectable for Enable or None): 0V or selected range + 10%

Incorrect DIP-Switch Setting Identification: 0V

Output Error Level: DIP switch selectable for upscale or downscale

Load: >10 kΩ min

GENERAL

Supply Voltage

DRSL-RTD: 16.8 to 31.2 Vdc via connectors

DRSL-RTD-ISO: 16.8 to 31.2 Vdc via power rail or connectors

Power Consumption: 0.7 W max

Internal Consumption: 0.65 W max

Isolation (DRSL-RTD-ISO Only): Input/output/supply

Isolation Voltage, Test (DRSL-RTD-ISO Only): 2.5 kVac (reinforced)

Isolation Voltage, Working (DRSL-RTD-ISO Only): 300 Vac

Status LED: Green LED indicates operational status of the unit and input sensor

Normal Operation: Flashes for 15 ms at 13 Hz rate

Sensor Error: Flashes for 15 ms at 1 Hz rate

Incorrect DIP Switch Setting: flashes for 500 ms at 1 Hz rate

Hardware Failure: LED off

Signal/Noise Ratio: >60 dB

Response Time (0 to 90%, 100 to 10%): <30 ms/300 ms (selectable, provides either fast response or signal dampening as needed)

Accuracy

DRSL-RTD: Better than 0.2°C or ±0.1% of selected input range

DRSL-RTD-ISO: Better than 0.1°C or ±0.05% of selected input range

Temperature Coefficient: ≤±0.02°C/°C

EMC Immunity Influence: <±0.5% of span

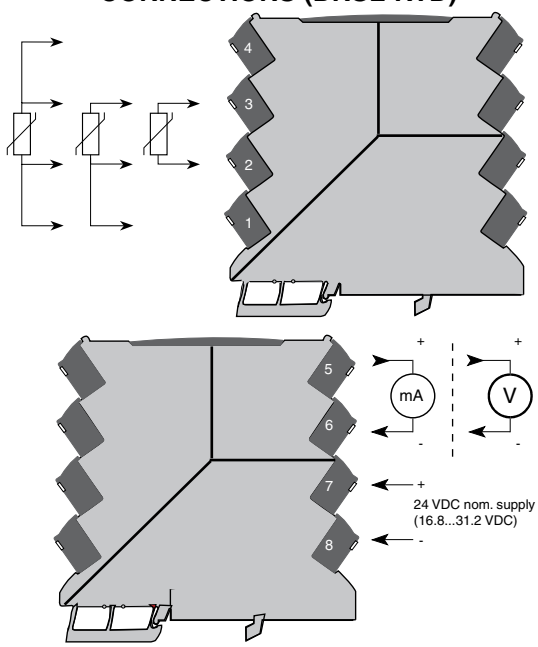
Extended EMC Immunity
NAMUR NE 21, A Criterion, Burst: <±1% of span (span = selected input range)

ENVIRONMENTAL
Operating Temperature: -25 to 70°C (-13 to 158°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Calibration Temperature: 20 to 28°C (68 to 82°F)
Relative Humidity: 0 to 95% RH non-condensing
Protection Degree: IP20
Installation Area: Pollution degree 2 and measurement/overvoltage category II

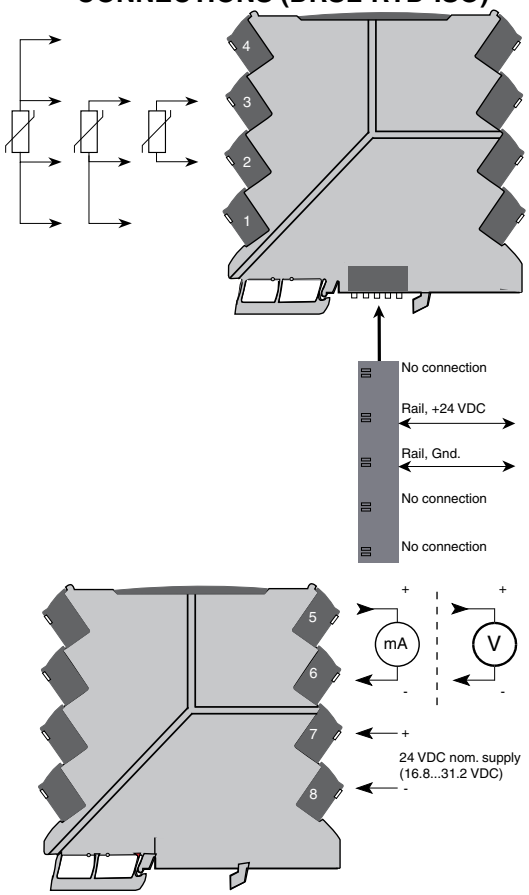
MECHANICAL
Dimensions: 113 H x 6.1 W x 115 mm D (4.4 x 0.24 x 4.5")
Weight: 70 g (0.15 lb) approx

DIN Rail Type: DIN EN 60715 - 35 mm
Wire Size: 0.13 x 2.5 mm²/ AWG 26 to 12 stranded wire
Screw Terminal Torque: 0.5 Nm

CONNECTIONS (DRSL-RTD)



CONNECTIONS (DRSL-RTD-ISO)



OMEGACARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
DRSL-RTD	Non-isolated RTD input DIN rail signal conditioner
DRSL-RTD-ISO	Isolated RTD input DIN rail signal conditioner

Accessories

Model No.	Description
DRSL-PWR-RAIL	Power rail (with cover and two end covers, one right hand and one left hand), 1 m (3.3') length for use with DRSL-RTD-ISO only
DRSL-PCU	Power connector unit, 24 Vdc/2.5 A output to power rail for use with DRSL-RTD-ISO only
DRSL-MOD-STOP	Module stop (screwed onto power rail to support and hold mounted devices)

Ordering Example: DRSL-RTD-ISO *isolated RTD input DIN rail signal conditioner,* ***DRSL-PWR-RAIL*** *power rail,* ***DRSL-PCU*** *power connector unit,* ***DRSL-MOD-STOP*** *module stop and* ***OCW-1,*** *OMEGACARE℠ extends standard 1-year warranty to a total of 2 years.*

Isolated DIN Rail Repeater/Splitter for Current Signals

DRSL-SP1

- **Isolation and Conversion of Current Signals**
- **Splitter Function: 1 Current Input—2 Current Outputs**
- **Slimline Housing—Only 6 mm (0.24") Wide**
- **Fast Response Time <7 ms**
- **High Accuracy, <0.05% of Span**
- **Easy-to-Use—No Setup Needed**

DRSL-SP1 and DRSL-PWR-RAIL (sold separately) shown actual size.

The DRSL-SP1 isolated repeater/splitter provides a competitive choice in terms of both price and technology for galvanic isolation of current signals to SCADA systems or PLC equipment. Two current outputs are provided which mirror the single current input.

The DRSL-SP1 can be used for signal conversion of a standard process current signal into two individual analog signals. The unit offers 4-port isolation, provides surge suppression and protects control systems from transients and noise. The DRSL-SP1 also eliminates ground loops and can be used for measuring floating signals. Low power consumption facilitates DIN rail mounting without the need for any air gap. Measurement ranges are factory calibrated. The unit operates over a wide temperature range from -25 to 70°C (-13 to 158°F).

SPECIFICATIONS

CURRENT INPUT

Measurement Range: 0 to 20.5 mA
Functional Range: 0 to 23 mA
Input Voltage Drop: <1.5 Vdc

CURRENT OUTPUT

Number of Outputs: 2
Signal Range: 0 to 20.5 mA (span)
Load: 23 mA/300 Ω maximum
Load Stability: ≤0.01% of span/100 Ω (span = 0 to 20 mA)
Current Limit: ≤28 mA

GENERAL

Supply Voltage (via Power Rail or Connectors): 16.8 to 31.2 Vdc
Power Consumption: 0.8 W max
Internal Consumption: 0.4 W typical/0.65 W max
Isolation: Input/output 1/ output 2/supply
Isolation Voltage (Test): 2.5 kVac
Isolation Voltage (Working): 300 Vac
Signal/Noise Ratio: > 60 dB
Response Time (0 to 90%, 100 to 10%): <7 ms
Accuracy: <±0.05% of span
Temperature Coefficient: <±0.01% of span/°C
EMC Immunity Influence: <±0.5% of span
Extended EMC Immunity
NAMUR NE 21, A Criterion, Burst: <±1% of span

ENVIRONMENTAL

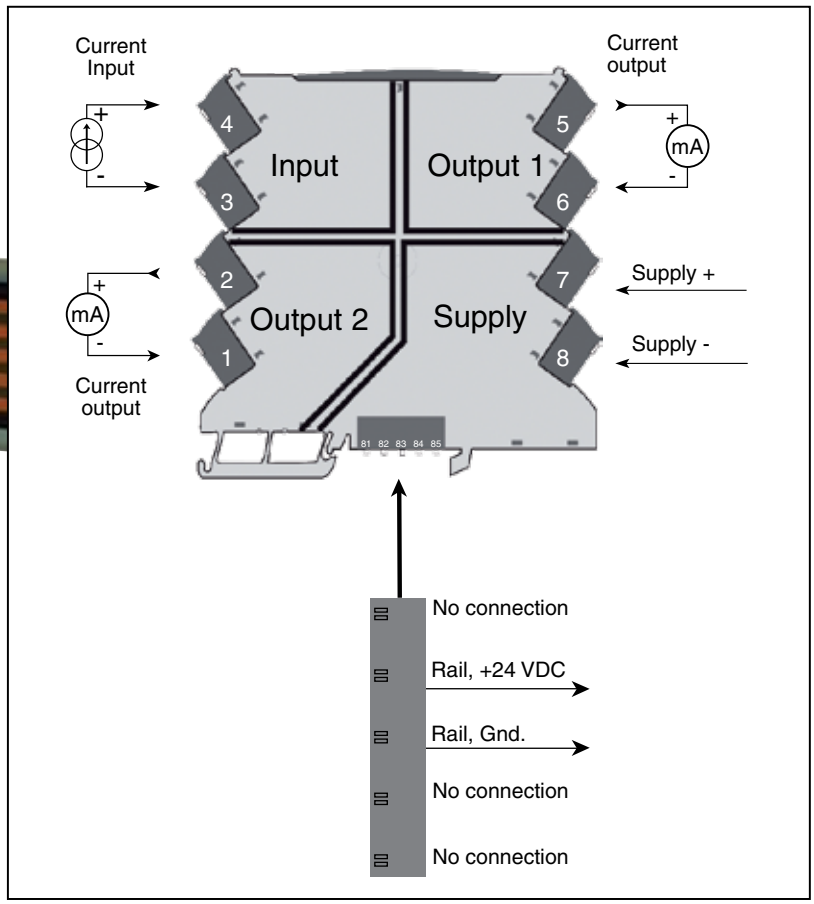
Operating Temperature: -25 to 70°C (-13 to 158°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Calibration Temperature: 20 to 28°C (68 to 82°F)
Relative Humidity: 0 to 95% RH non-condensing
Protection Degree: IP20
Installation Area: Pollution degree 2 and measurement/overvoltage category II

MECHANICAL

Dimensions: 113 H x 6.1 W x 115 mm D (4.4 x 0.24 x 4.5")
Weight: 70 g (0.15 lb) approx
DIN Rail Type: DIN EN 60715 - 35 mm
Wire Size: 0.13 x 2.5 mm²/AWG 26 to 12 stranded wire
Screw Terminal Torque: 0.5 Nm

DRSL-SP1 and DRSL-PWR-RAIL (sold separately) shown smaller than actual size.

CONNECTIONS



OMEGACARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
DRSL-SP1	Isolated repeater/splitter for current signals

Model. No.	Description
DRSL-PWR-RAIL	Power rail (with cover and two end covers, one right hand and one left hand), 1 m (3.3') length
DRSL-PCU	Power connector unit, 24 Vdc/2.5 A output to power rail
DRSL-MOD-STOP	Module stop (screwed onto power rail to support and hold mounted devices)

Ordering Example: DRSL-SP1 *isolated repeater/splitter for current signals,* ***DRSL-PWR-RAIL*** *power rail,* ***DRSL-PCU*** *power connector unit,* ***DRSL-MOD-STOP*** *module stop and* ***OCW-1,*** *OMEGACARE℠ extends standard 1-year warranty to a total of 2 years.*

Isolated DIN Rail Signal Conditioner/Splitter for Process Signals

DRSL-SP2

1 YEAR WARRANTY

DRSL-SP2 and DRSL-PWR-RAIL (sold separately) shown actual size.

- **Isolation and Conversion of Process Voltage or Current Signals**
- **Splitter Function: 1 Process Input–2 Process Outputs**
- **Power Supply and Signal Isolator for 2-Wire Transmitter**
- **Slimline Housing–Only 6 mm (0.24") Wide**
- **Multiple Signal Ranges (DIP-Switch Selectable)**
- **High Accuracy, <0.05% of Span**
- **Fast Response Time <7 ms**

The DRSL-SP2 isolated signal conditioner/splitter provides a competitive choice in terms of both price and technology for galvanic isolation of process voltage or current signals to SCADA systems or PLC equipment. Two process outputs are provided which mirror the single process input.

The DRSL-SP2 can be used for signal conversion of standard process voltage or current signals into two individual analog signals. The unit offers 4-port isolation, provides surge suppression and protects control systems from transients and noise. The DRSL-SP2 also eliminates ground loops and can be used for measuring floating signals. Low power consumption facilitates DIN rail mounting without the need for any air gap. Factory calibrated measurement ranges are easily configured via DIP switches. When the input is configured for 2-wire transmitter mode, the DRSL-SP2 provides the current loop supply voltage. The unit operates over a wide temperature range from -25 to 70°C (-13 to 158°F).

SPECIFICATIONS

INPUT

Current Input

Measurement Range: 0 to 20.5 mA

Functional Range: 0 to 23 mA

Programmable Measurement Ranges: 0 to 20 mA and 4 to 20 mA

Input Voltage Drop: <1.5V

2-Wire Transmitter Supply: >17V/20 mA

Voltage Input

Measurement Range: 0 to 10.25V

Functional Range: 0 to 11.5V/ 0 to 5.75V

Programmable Measurement Ranges: 0 to 5V, 1 to 5V, 0 to 10V, 2 to 10V

Input Resistance: ≥500 kΩ

OUTPUT

No. of Outputs: 2

Current Output

Signal Range: 0 to 20.5 mA (span)

Programmable Signal Ranges: 0 to 20 mA and 4 to 20 mA

Load: 23 mA/300 Ω max

Load Stability: ≤0.01% of span/100 Ω

Current Limit: ≤28 mA

Voltage Output

Signal Range: 0 to 10V

Programmable Signal Ranges: 0 to 10, 2 to 10, 0 to 5 and 1 to 5V

Load: >10 kΩ min

GENERAL

Supply Voltage (via Power Rail or Connectors): 16.8 to 31.2 Vdc

Power Consumption: 1.2 W max

Internal Consumption: 0.4 W typical/0.65 W max

Isolation: Input/output 1/output 2/ supply

Isolation Voltage (Test): 2.5 kVac

Isolation Voltage (Working): 300 Vac

Signal/Noise Ratio: >60 dB

Response Time (0 to 90%, 100 to 10%): <7 ms

Span: Corresponds to the presently selected DIP switch output range

Accuracy: <±0.05 % of span

Temperature Coefficient: <±0.01% of span/°C

EMC Immunity Influence: <±0.5% of span

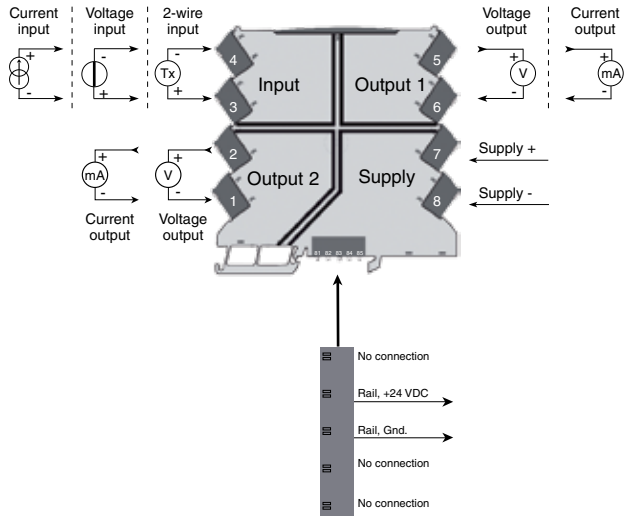
Extended EMC Immunity

NAMUR NE 21, A Criterion, Burst: <±1% of span

ENVIRONMENTAL
Operating Temperature: -25 to 70°C (-13 to 158°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Calibration Temperature: 20 to 28°C (68 to 82°F)
Relative Humidity: 0 to 95% RH non-condensing
Protection Degree: IP20
Installation Area: Pollution degree 2 and measurement/overvoltage category II

MECHANICAL
Dimensions: 113 H x 6.1 W x 115 mm D (4.4 x 0.24 x 4.5")
Weight: 70 g (0.15 lb) approx
DIN Rail Type: DIN EN 60715 - 35 mm
Wire Size: 0.13 x 2.5 mm²/AWG 26 to 12 stranded wire
Screw Terminal Torque: 0.5 Nm

CONNECTIONS



DRSL-SP2 and DRSL-PWR-RAIL (sold separately) shown smaller than actual size.

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
DRSL-SP2	Isolated signal conditioner/splitter for process signals

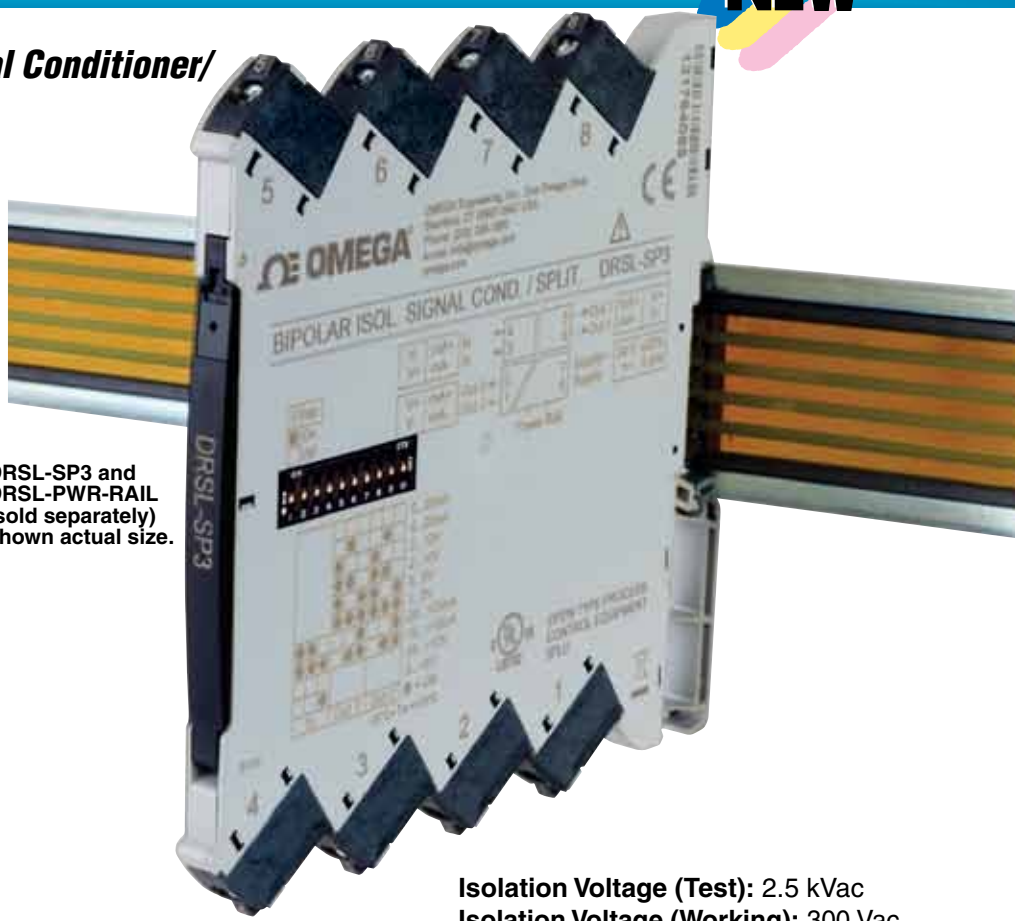
Model. No.	Description
DRSL-PWR-RAIL	Power rail (with cover and two end covers, one right hand and one left hand), 1 m (3.3') length
DRSL-PCU	Power connector unit, 24 Vdc/2.5 A output to power rail
DRSL-MOD-STOP	Module stop (screwed onto power rail to support and hold mounted devices)

Ordering Example: DRSL-SP2 *isolated signal conditioner/splitter for process signals,* ***DRSL-PWR-RAIL*** *power rail,* ***DRSL-PCU*** *power connector unit,* ***DRSL-MOD-STOP*** *module stop and* ***OCW-1,*** *OMEGACARE℠ extends standard 1-year warranty to a total of 2 years.*

Bipolar Isolated DIN Rail Signal Conditioner/ Splitter for Process Signals

DRSL-SP3

- **Isolation and Conversion of Bipolar Process Voltage and Current Signals to Unipolar/ Bipolar Signals**
- **Splitter Function: 1 Process Input, 2 Process Outputs**
- **Slimline Housing— Only 6 mm (0.24") Wide**
- **Multiple Signal Ranges (DIP-Switch Selectable)**
- **High Accuracy, <0.05% of Selected Range**
- **Fast Response Time <7 ms**
- **Excellent Output Load Stability**



DRSL-SP3 and DRSL-PWR-RAIL (sold separately) shown actual size.

The DRSL-SP3 bipolar isolated signal conditioner/splitter provides a competitive choice in terms of both price and technology for galvanic isolation of process voltage or current signals to SCADA systems or PLC equipment. Two process outputs are provided which mirror the single process input.

The DRSL-SP3 can be used for signal conversion of standard bipolar analog process signals into two individual unipolar or bipolar analog signals. The unit offers 4-port isolation, provides surge suppression and protects control systems from transients and noise. The DRSL-SP3 also eliminates ground loops and can be used for measuring floating signals. Low power consumption facilitates DIN rail mounting without the need for any air gap. Factory calibrated measurement ranges are easily configured via DIP switches. The unit operates over a wide temperature range from -25 to 70°C (-13 to 158°F).

SPECIFICATIONS

INPUT

Current Input

Programmable Measurement Ranges: ±10 mA, ±20 mA

Functional Range, Current Input: -23 to 23 mA

Input Voltage Drop: <1V @ 23 mA

Voltage Input

Programmable Ranges: ±5V, ±10V

Functional Range: -11.5 to 11.5V

Input Resistance: ≥1 MΩ

OUTPUT

No. of Outputs: 2

Current Output

Programmable Signal Ranges: 0 to 20 mA, 4 to 20 mA, ±10 mA, ±20 mA

Functional Range: 0 to 23 mA

Load: 23 mA/300 Ω max (per channel)

Load Stability: ≤0.002% of span (presently selected range)/100 Ω

Current Limit: ≤28 mA

Voltage Output

Programmable Signal Ranges: 0 to 10V, 2 to 10V, 0 to 5V, 1 to 5V

Functional Range: 0 to 11.5V

Load: >10 kΩ min

GENERAL

Supply Voltage (via Power Rail or Connectors): 16.8 to 31.2 Vdc

Power Consumption: 0.8 W max

Internal Consumption: 0.4 W typical/0.65 W max

Isolation: Input/output 1/ output 2/supply

Isolation Voltage (Test): 2.5 kVac

Isolation Voltage (Working): 300 Vac

MTBF: >187 years, according to IEC 61709 (SN29500)

Signal/Noise Ratio: >60 dB

Cut-Off Frequency (3 dB): >100 Hz or 10 Hz (selectable via DIP-switch)

Response Time (0 to 90%, 100 to 10%): <7 ms or <44 ms

Span: Corresponds to the presently selected DIP switch output range

Accuracy: <±0.05% of span

Temperature Coefficient: <±0.01% of span/°C

EMC Immunity Influence: <±0.5% of span

Extended EMC Immunity NAMUR NE 21, A Criterion, Burst: <±1% of span

ENVIRONMENTAL

Operating Temperature: -25 to 70°C (-13 to 158°F)

Storage Temperature: -40 to 85°C (-40 to 185°F)

Calibration Temperature: 20 to 28°C (68 to 82°F)

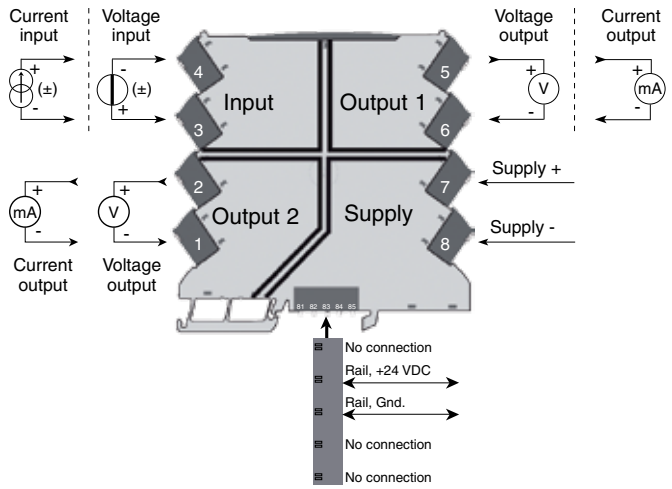
Relative Humidity: 0 to 95% RH non-condensing

Protection Degree: IP20

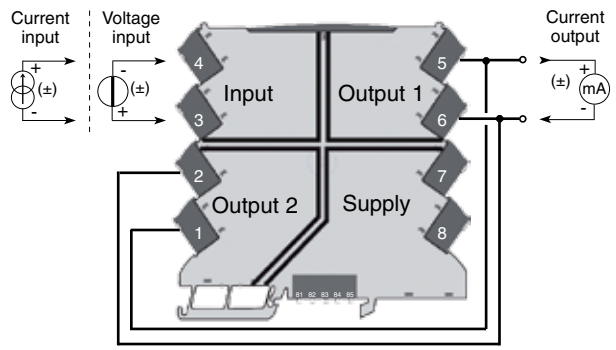
Installation Area: Pollution degree 2 and measurement/overvoltage category II

MECHANICAL
Dimensions: 113 H x 6.1 W x 115 mm D (4.4 x 0.24 x 4.5")
Weight: 70 g (0.15 lb) approx
DIN Rail Type: DIN EN 60715 - 35 mm
Wire Size: 0.13 x 2.5 mm²/ AWG 26 to 12 stranded wire
Screw Terminal Torque: 0.5 Nm

CONNECTIONS



Bipolar Input to bipolar output wiring set-up:



DRSL-SP3 and DRSL-PWR-RAIL (sold separately) shown smaller than actual size.

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
DRSL-SP3	Bipolar isolated signal conditioner/splitter for process signals

Accessories

Model No.	Description
DRSL-PWR-RAIL	Power rail (with cover and two end covers, one right hand and one left hand), 1 m (3.3') length
DRSL-PCU	Power connector unit, 24 Vdc/2.5 A output to power rail
DRSL-MOD-STOP	Module stop (screwed onto power rail to support and hold mounted devices)

***Ordering Example: DRSL-SP3** bipolar isolated signal conditioner/splitter for process signals, **DRSL-PWR-RAIL** power rail, **DRSL-PCU** power connector unit, **DRSL-MOD-STOP** module stop and **OCW-1,** OMEGACARE℠ extends standard 1-year warranty to a total of 2 years.*

Thermocouple Input DIN Rail Signal Conditioners

DRSL-TC Series

1 YEAR WARRANTY

- **DRSL-TC Non-Isolated and DRSL-TC-ISO Isolated Models**
- **Accepts Type J and Type K Thermocouples**
- **Pre-Calibrated Temperature Ranges Selectable via Dip-Switches**
- **Slimline Housing— Only 6 mm (0.24") Wide**
- **High Accuracy**
- **Fast Response Time <30 ms/300 ms (Selectable)**
- **Excellent EMC Performance and 50/60 Hz Noise Suppression**

DRSL-TC-ISO and DRSL-PWR-RAIL (sold separately) shown actual size.

The DRSL-TC Series thermocouple input DIN rail signal conditioners provide a competitive choice in terms of both price and technology for interfacing thermocouple inputs to SCADA systems or PLC equipment.

The DRSL-TC and DRSL-TC-ISO can be used for signal conversion of standard Type J or K thermocouple inputs into unipolar analog signals.

The DRSL-TC-ISO isolated model offers 3-way isolation between input, output and supply and provides surge suppression and protects control systems from transients and noise. Low power consumption facilitates DIN rail mounting without the need for any air gap. Easy configuration of more than 1000 factory calibrated measurement ranges is done via DIP-switches. The unit operates over a wide temperature range from -25 to 70°C (-13 to 158°F).

SPECIFICATIONS

INPUT

Type: J or K thermocouple

Temperature Range

Type J: -100 to 1200°C (-148 to 2192°F)

Type K: -180 to 1372°C (-292 to 2501°F)

Sensor and Cable Specifications: 5 kΩ per wire

Cold Junction Compensation (CJC): Internal or external (selectable)

CJC Accuracy via External CJC (Pt100 RTD Sensor): Better than ±0.15°C (DRSL-TC-ISO only)

CJC via Internally Mounted Sensor: Better than ±2.5°C

Open Thermocouple Detection: Yes (DIP switch selectable upscale or downscale)

OUTPUT

Current Output

Programmable Signal Ranges: 0 to 20 and 4 to 20 mA

Range Limits (NAMUR NE43 Out of Range): Below 3.8 mA or above 20.5 mA for 4 to 20 mA output; 0 mA or above 20.5 mA for 0 to 20 mA output

Sensor Error Detection (Dip Switch Selectable for Enable or None): Below 3.5 mA or above 23 mA for 4 to 20 mA output; 0 mA or above 23 mA for 0 to 20 mA output

Incorrect DIP-Switch Setting Identification: 0 mA

Output Error Level: DIP switch selectable for upscale or downscale

Load: 21 mA/600 Ω /12.6V max

Load Stability: ≤0.01% of span/100 Ω

Voltage Output

Programmable Signal Ranges: 0 to 10V, 2 to 10V, 0 to 5V and 1 to 5V

Range Limits (Out of Range): Range ±2.5%

Incorrect DIP Switch Setting Identification: 0V

Load: >10 kΩ min

GENERAL

Supply Voltage:

DRSL-TC: 16.8 to 31.2 Vdc via connectors

DRSL-TC-ISO: 16.8 to 31.2 Vdc via power rail or connectors

Power Consumption: 0.7 W max

Internal Consumption: 0.65 W max

Isolation (DRSL-TC-ISO Only): Input/output/supply

Isolation Voltage, Test (DRSL-TC-ISO Only): 2.5 kVac (reinforced)

Isolation Voltage, Working (DRSL-TC-ISO Only): 300 Vac

Status LED: Green LED indicates operational status of the unit and input sensor

Normal Operation: Flashes for 15 ms at 13 Hz rate

Sensor Error: Flashes for 15 ms at 1 Hz rate

Incorrect DIP Switch Setting: Flashes for 500 ms at 1 Hz rate

Hardware Failure: LED off

Signal/Noise Ratio: >60 dB

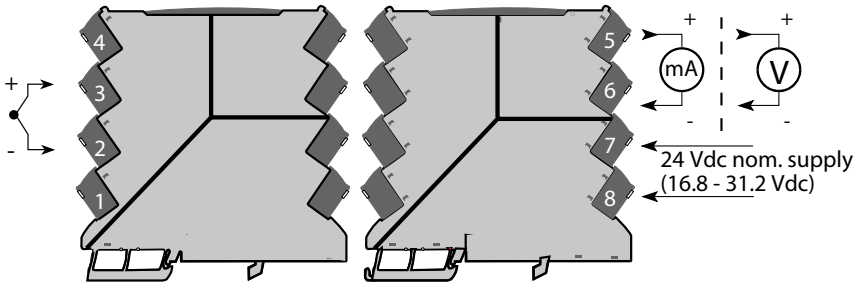
Response Time (0 to 90%, 100 to 10%): <30 ms/300 ms (selectable, provides either fast response or signal dampening as needed)

Accuracy:
DRSL-TC: Better than 1.0°C or ±0.1% of selected input range
DRSL-TC-ISO: Better than 0.5°C or ±0.05% of selected input range
Temperature Coefficient: ≤±0.1°C/°C or ≤±0.01%/°C
EMC Immunity Influence: <±0.5% of span
Extended EMC Immunity NAMUR NE 21, A Criterion, Burst: <±1% of span (span = selected input range)

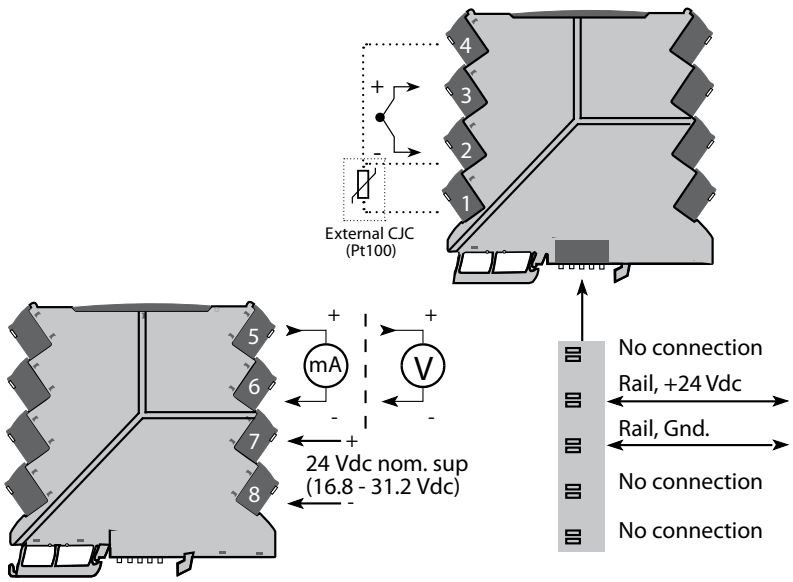
ENVIRONMENTAL
Operating Temperature: -25 to 70°C (-13 to 158°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Calibration Temperature: 20 to 28°C (68 to 82°F)
Relative Humidity: 0 to 95% RH non-condensing
Protection Degree: IP20
Installation Area: Pollution degree 2 and measurement/overvoltage category II

MECHANICAL
Dimensions: 113 H x 6.1 W x 115 mm D (4.4 x 0.24 x 4.5")
Weight: 70 g (0.15 lb) approx
DIN Rail Type: DIN EN 60715 - 35 mm
Wire Size: 0.13 x 2.5 mm²/ AWG 26 to 12 stranded wire
Screw Terminal Torque: 0.5 Nm

Connections (DRSL-TC)



Connections (DRSL-TC-ISO)



OMEGACARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
DRSL-TC	Non-isolated thermocouple input DIN rail signal conditioner
DRSL-TC-ISO	Isolated thermocouple input DIN rail signal conditioner

Accessories

Model No.	Description
DRSL-PWR-RAIL	Power rail (with cover and two end covers, one right hand and one left hand), 1 m (3.3') length for use with DRSL-TC-ISO only
DRSL-PCU	Power connector unit, 24 Vdc/2.5 A output to power rail for use with DRSL-TC-ISO only
DRSL-MOD-STOP	Module stop (screwed onto power rail to support and hold mounted devices)

***Ordering Example: DRSL-TC-ISO** isolated thermocouple input DIN rail signal conditioner, **DRSL-PWR-RAIL** power rail, **DRSL-PCU** power connector unit, **DRSL-MOD-STOP** module stop and **OCW-1,** OMEGACARE℠ extends standard 1-year warranty to a total of 2 years.*

Isolated DIN Rail Loop-Powered Temperature Signal Conditioner

DRSL-TEMP

- **Type J or K Thermocouple or 2, 3 or 4-Wire Pt100 RTD Input**
- **Powered By the Host (Output) Current Signal Loop**
- **Slimline 6 mm (0.24") Housing**
- **High Accuracy**
- **Excellent EMC Performance and 50/60 Hz Noise Suppression**
- **Fast Response Time <30 ms/300 ms (Selectable)**
- **Pre-Calibrated Temperature Ranges Selectable via DIP-Switches**

DRSL-TEMP and RAIL-35-1 (sold separately) shown actual size.

The DRSL-TEMP isolated DIN rail loop-powered temperature signal conditioner measures a standard type J or K thermocouple or a 2-, 3- or 4-wire Pt100 RTD temperature sensor and provides a passive analog current output signal. The DRSL-TEMP offers 2-way isolation between input and output, provides surge suppression and protects control systems from transients and noise. The DRSL-TEMP provides a competitive choice in terms of both price and technology for interfacing thermocouple or RTD signals to SCADA systems or PLC equipment. This unit is powered by the host (output) current signal loop. Low power consumption facilitates DIN rail mounting without the need for any air gap. Easy configuration of more than 1000 factory calibrated measurement ranges is done via DIP-switches. The unit operates over a wide temperature range from -25 to 70°C (-13 to 158°F).

SPECIFICATIONS

INPUT

THERMOCOUPLE INPUT

Type: J or K thermocouple

Temperature Range (DIP Swich Selectable)

Type J: -100 to 1200°C (-148 to 2192°F)

Type K: -180 to 1372°C (-292 to 2501°F)

Sensor and Cable Specifications: 5 kΩ per wire

Cold Junction Compensation (CJC): Internal or external (selectable)

CJC Accuracy via External CJC (Pt100 RTD Sensor): Better than ±0.15°C

CJC via Internally Mounted Sensor: Better than ±2.5°C

Open Thermocouple Detection: Yes (DIP switch selectable upscale or downscale)

Pt100 RTD INPUT

Type: 2, 3, or 4-wire Pt100 RTD

Temperature Range (DIP Switch Selectable): -200 to 850°C (-328 to 1562°F)

Sensor Current, RTD: <150 µA

Sensor Cable Specifications: 50 Ω per wire

Effect of Sensor Cable Resistance (3 or 4-Wire RTD): <0.002 Ω/Ω

Broken Sensor Detection: >800 Ω

Shorted Sensor Detection: <18 Ω

OUTPUT

Current Output

Programmable Signal Ranges: 0 to 20 mA and 4 to 20 mA

Range Limits (NAMUR NE43 Out of Range): Below 3.8 mA or above 20.5 mA

Sensor Error Detection (Dip Switch Selectable for Enable or None): Below 3.5 mA or above 23 mA

Incorrect DIP-Switch Setting Identification: Below 3.5 mA

Output Error Level: DIP switch selectable for upscale or downscale

Load Resistance (Ω): $\leq(V_{supply} - 5.5)/0.023$

Load Stability: ≤0.01% of span/100 Ω

GENERAL

Supply Voltage: 5.5 to 35 Vdc

Voltage Drop: 5.5 Vdc

Isolation: Input/output

Isolation Voltage (Test): 2.5 kVac (reinforced)

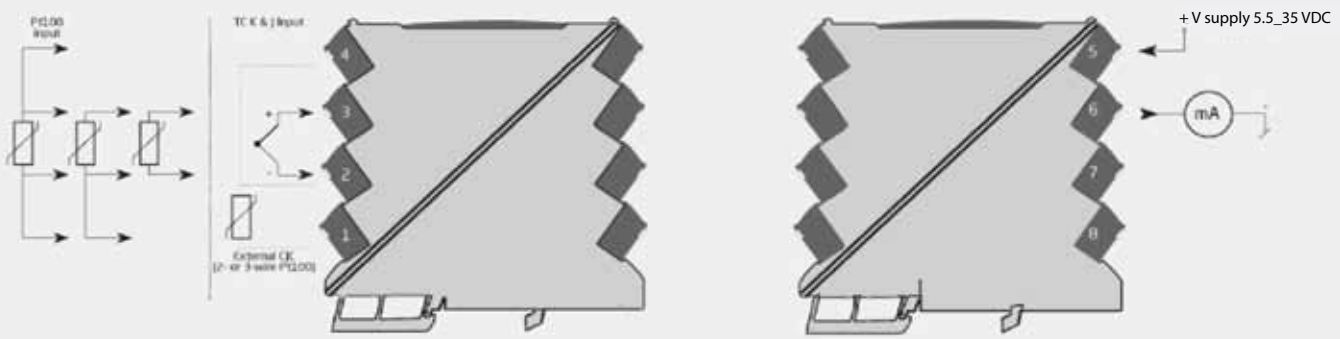
Isolation Voltage (Working): 300 Vac
Signal/Noise Ratio: >60 dB
Response Time (0 to 90%, 100 to 10%): <30 ms/300 ms (selectable, provides either fast response or signal dampening as needed)
Accuracy
Thermocouple Input: Better than 0.5°C or ±0.05% of span (selected input range)
RTD Input: Better than 0.1°C or ±0.05% of span (selected input range)
Temperature Coefficient
Thermocouple Input: ≤±0.1°C/°C or ≤±0.01%/°C
RTD Input: ≤±0.02 °C/°C
EMC Immunity Influence: <±0.5% of span

Extended EMC Immunity
NAMUR NE 21, A Criterion, Burst: <±1% of span (span = selected input range)

ENVIRONMENTAL
Operating Temperature: -25 to 70°C (-13 to 158°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Calibration Temperature: 20 to 28°C (68 to 82°F)
Relative Humidity: 0 to 95% RH non-condensing
Protection Degree: IP20
Installation Area: Pollution degree 2 and measurement/overvoltage category II

MECHANICAL
Dimensions:
113 H x 6.1 W x 115 mm D (4.4 x 0.24 x 4.5")
Weight: 70 g (0.15 lb) approx
DIN Rail Type: DIN EN 60715 - 35 mm
Wire Size: 0.13 x 2.5mm²/AWG 26 to 12 stranded wire
Screw Terminal Torque: 0.5 Nm

Connections



OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
DRSL-TEMP	Isolated DIN rail loop-powered temperature signal conditioner

Accessories

Model No.	Description
RAIL-35-1	35 mm (1.4") DIN rail, 1 m (3.3') length
DRSL-MOD-STOP	Module stop (screwed onto DIN rail to support and hold mounted devices)

Ordering Example DRSL-TEMP *isolated DIN rail loop-powered temperature signal conditioner,* ***RAIL-35-1*** *DIN rail,* ***DRSL-MOD-STOP*** *module stop and* ***OCW-1,*** *OMEGACARE ℠ extends standard 1-year warranty to a total of 2 years.*

Isolated Universal Input DIN Rail Signal Conditioner

DRSL-U

1 YEAR WARRANTY

Listed

- **Universal Input–Accepts Thermocouple, RTD, Linear Resistance, Potentiometer, Voltage or Current Input**
- **Easily Configured Using DRSL-DISPLAY Programming Interface**
- **Slimline Housing– Only 6 mm (0.24") Wide**
- **High Accuracy**
- **Fast Response Time**
- **Excellent EMC Performance and 50/60 Hz Noise Suppression**

DRSL-U and DRSL-PWR-RAIL shown actual size.

When the input is configured for 2-wire transmitter mode, the DRSL-U provides the current loop supply voltage. The unit operates over a wide temperature range from -25 to 70°C (-13 to 158°F).

The DRSL-U isolated universal input DIN rail signal conditioner provides a competitive choice in terms of both price and technology for galvanic isolation of process signals to SCADA systems or PLC equipment. The DRSL-U accepts thermocouple, RTD, linear resistance, potentiometer, voltage or current input and converts these signals to linear voltage or current output. The unit offers isolation between input, output and supply, provides surge suppression and protects control systems from transients and noise. The DRSL-U also eliminates ground loops and can be used for measuring floating signals. Low power consumption facilitates DIN rail mounting without the need for any air gap. The DRSL-U is easily configured by using the DRSL-DISPLAY programming interface in conjunction with the DRSL-ADAPTOR configuration adaptor. The DRSL-DISPLAY has a 4 line LCD display with scrolling help text in 7 languages (English, French, German, Italian, Spanish, Danish and Swedish) which guides the user through all the configuration steps. The DRSL-U is designed with electronic hardware switches, consequently it is not necessary to open the device to set any internal DIP-switches.

SPECIFICATIONS

INPUT

RTD Input

Input Type: Pt10, Pt20, Pt50, Pt100, Pt200, Pt250, Pt300, Pt400, Pt500, Pt1000, Ni50, Ni100, Ni120, Ni1000, linear resistance, potentiometer

Cable Resistance Per Wire: 50 Ω max

Sensor Current: 0.2 mA nominal

Effect of Sensor Cable Resistance (3-Wire/4-Wire RTD): <0.002 Ω / Ω

Sensor Error Detection: Yes

Short Circuit Detection: <15 Ω

RTD Input Types and Ranges

Type	Range	
Pt100	-200 to 850°C	-328 to 1562°F
Ni100	-60 to 250°C	-76 to 482°F

Linear Resistance Input Range: 0 to 10,000 Ω

Potentiometer Input Range: 10 to 100 kΩ

Thermocouple Input

Input Types: J, K, T, E, R, S, B, N, L, U, W3, W5, LR

Cold Junction Compensation (CJC) Via Internally Mounted Sensor: ±(2.0°C + 0.4°C * Δt) (Δt = internal temperature-ambient temperature)

Sensor Error Detection: Yes

Sensor Error Current: 2 µA nominal (when detecting)

Thermocouple Input Types and Ranges

Type	Range	
J	-100 to 1200°C	-148 to 2192°F
K	-180 to 1372°C	-292 to 2502°F
T	-200 to 400°C	-328 to 752°F
E	-100 to 1000°C	-148 to 1832°F
R	-50 to 1760°C	-58 to 3200°F
S	-50 to 1760°C	-58 to 3200°F
B	0 to 1820°C	32 to 3308°F
N	-180 to 1300°C	-292 to 2372°F
L	-200 to 900°C	-328 to 1652°F
U	-200 to 600°C	-328 to 1112°F
W3	0 to 2300°C	32 to 4172 °F
W5	0 to 2300°C	32 to 4172°F
LR	-200 to 800°C	-328 to 1472°F

Current Input

Measurement Range: 0 to 20 mA

Programmable Measurement Ranges: 0 to 20 mA and 4 to 20 mA

Input Resistance: 20 Ω + PTC 50 Ω nominal

2-Wire Transmitter Supply: >15 V/20 mA

Voltage Input
Measurement Range: 0 to 12V
Programmable Measurement Ranges: 0 to 1V, 0.2 to 1V, 0 to 5V, 1 to 5V, 0 to 10V, 2 to 10V
Input Resistance: 10 MΩ nominal

Basic Accuracy Values

Input Type	Accuracy	Temperature Coefficient
mA	≤±16 µA	≤±1.6 µA/°C
0 to 1V, 0.2 to 1V	≤±0.8 mV	≤±0.08 mV/°C
0 to 5V, 1 to 5V, 0 to 10V, 2 to 10V	≤±8 mV	≤±0.8 mV/°C
Pt100, Pt200, Pt1000	≤±0.2°C	≤±0.02°C/°C
Pt500, Ni100, Ni120, Ni1000	≤±0.3°C	≤±0.03°C/°C
Pt50, Pt400, Ni50	≤±0.4°C	≤±0.04°C/°C
Pt250, Pt300	≤±0.6°C	≤±0.06°C/°C
Pt20	≤±0.8°C	≤±0.08°C/°C
Pt10	≤±1.4°C	≤±0.14°C/°C
Thermocouple Types E, J, K, L, N, T, U	≤±1.0°C	≤±0.1°C/°C
Thermocouple Types R, S, W3, W5, LR	≤±2.0°C	≤±0.2°C/°C
Thermocouple Type B, 160 to 400°C	≤±4.5°C	≤±0.45°C/°C
Thermocouple Type B, 400 to 1820°C	≤±2.0°C	≤±0.2°C/°C

OUTPUT
Current Output
Signal Range: 0 to 20 mA (span)
Programmable Signal Ranges: 0 to 20 mA, 4 to 20 mA, 20 to 0 mA and 20 to 4 mA
Load: 20 mA/600 Ω/15 Vdc max
Load Stability: ≤0.01% of span/100 Ω (span=currently selected measurement range)
Range Limits (NAMUR NE43 Out of Range): Below 3.8 mA or above 20.5 mA for 4 to 20 mA output; 0 mA or above 20.5 mA for 0 to 20 mA output
Sensor Error Detection: Below 3.5 mA or above 23 mA for 4 to 20 mA output; 0 mA or above 23 mA for 0 to 20 mA output
Current Limit: ≤28 mA

Voltage Output
Signal Range: 0 to10 Vdc
Programmable Signal Ranges: 0 to 1V, 0.2 to 1V, 0 to 5V, 1 to 5V, 0 to 10V, 2 to 10V, 1 to 0.2V, 1 to 0V, 5 to 1V, 5 to 0V, 10 to 2V and 10 to 0V
Load (Min): >10 kΩ

GENERAL
Supply Voltage: 16.8 to 31.2 Vdc via power rail or connectors
Power Consumption: 1.2 W max
Internal Consumption: 0.4 W typical, 0.65 W max
Isolation: Input/output/power
Isolation Voltage (Test): 2.5 kVac
Isolation Voltage (Working): 300 Vac
Status LED: Green LED indicates operational status of the unit and input sensor
- **Normal Operation:** Flashes for 15 ms at 13 Hz rate
- **Sensor Error:** Flashes for 15 ms at 1 Hz rate
- **Hardware Failure:** LED off

Signal/Noise Ratio: >60 dB
Response Time (0 to 90%, 100 to 10%) for Temperature Input: ≤1 s
Response Time (0 to 90%, 100 to 10%) for mA/V input: ≤400 ms

Accuracy: Absolute accuracy or accuracy from table above (whichever is greater)
Absolute Accuracy:
- **All Input Types:** ≤±0.1% of span (selected input range)

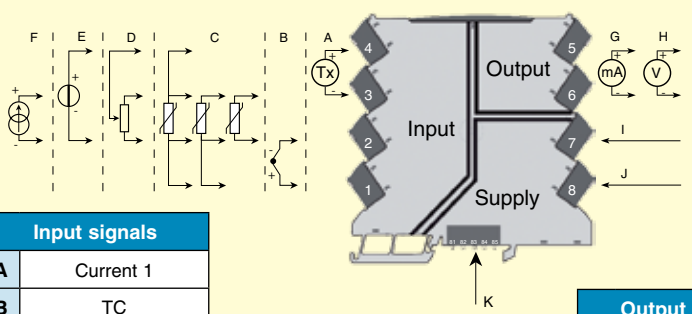
Temperature Coefficient:
- **All Input Types:** ≤± 0.01% of span/°C

EMC Immunity Influence: <±0.5% of span
Extended EMC Immunity NAMUR NE 21, A Criterion, Burst: <±1% of span (span = selected input range)

ENVIRONMENTAL
Operating Temperature: -25 to 70°C (-13 to 158°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Calibration Temperature: 20 to 28°C (68 to 82°F)
Relative Humidity: 0 to 95% RH non-condensing
Protection Degree: IP20
Installation Area: Pollution degree 2 and measurement/overvoltage category II

MECHANICAL
Dimensions: 113 H x 6.1 W x 115 mm D (4.4 x 0.24 x 4.5")
Weight: 70 g (0.15 lb) approx
DIN Rail Type: DIN EN 60715 - 35 mm
Wire Size: 0.13 x 2.5 mm²/AWG 26 to 12 stranded wire
Screw Terminal Torque: 0.5 Nm

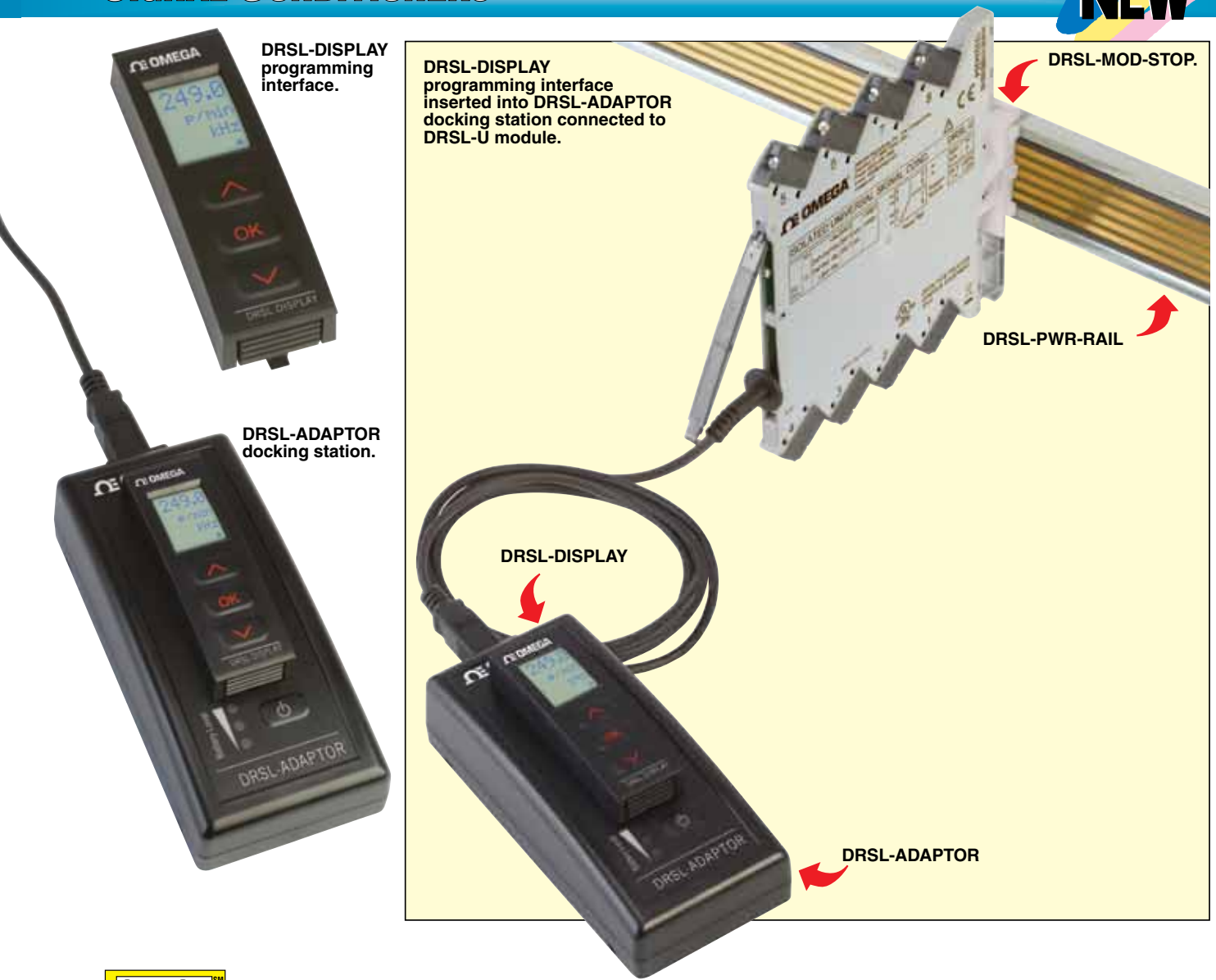
CONNECTIONS



Input signals	
A	Current 1
B	TC
C	RTD
D	Potentiometer
E	Voltage
F	Current 2

Supply	
I	Supply +
J	Supply -
K	Power rail connections

Output signals	
G	Current
H	Voltage



OMEGACARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

To Order

Model No.	Description
DRSL-U	Isolated universal input signal conditioner
DRSL-DISPLAY	Display/programming front communication interface for DRSL-U (plugs into DRSL-ADAPTOR)
DRSL-ADAPTOR	Configuration adaptor/docking station for use with DRSL-DISPLAY programming interface

Ordering Example: DRSL-U *isolated universal input DIN rail signal conditioner,* ***DRSL-DISPLAY*** *display/front communication interface,* ***DRSL-ADAPTOR*** *configuration adaptor/docking station,* ***DRSL-PWR-RAIL*** *power rail,* ***DRSL-PCU*** *power connector unit,* ***DRSL-MOD-STOP*** *module stop and* ***OCW-1,*** *OMEGACARE ℠ extends standard 1-year warranty to a total of 2 years.*

Accessories

Model. No.	Description
DRSL-PWR-RAIL	Power rail (with cover and two end covers, one right hand and one left hand), 1 m (3.3') length
DRSL-PCU	Power connector unit, 24 Vdc/2.5 A output to power rail
DRSL-MOD-STOP	Module stop (screwed onto power rail to support and hold mounted devices)

DC Current Signal Splitters

DRSP-I Series

MADE IN USA — 5 YEAR WARRANTY

- One 4 to 20 mA Input to Two 4 to 20 mA Outputs with Full Isolation
- Zero and Span Adjustments for Each Output
- Full 1200 V Input/Output/ Power Isolation
- Input/Output Loop Status LEDs
- Output Test Button for Each Channel
- Built-In Loop Power Supplies for Sink/Source I/O
- Split, Convert, Boost, and Rescale Process Signals
- Split Process Signals for Control and Validation
- Interface a Process Signal with Multiple Panel Meters, PLCs, Recorders, Data Acquisition, DCS, and SCADA Systems

DRSP-I shown larger than actual size.

The DRSP-I Series DC current signal splitters accept one 4 to 20 mA current input and provide two optically isolated 4 to 20 mA current outputs that are linearly related to the 4 to 20 mA current input. This provides an economical solution when one signal must be sent to two different devices.

Typical applications include isolation, output splitting, output device separation and redundancy (i.e. to prevent failure of the entire loop if one device fails), or a combination of these.

The input signal is filtered, amplified, split, and then passed through an opto-coupler to the output stages. Full 4-way isolation (input, output 1, output 2, power) make this module useful for ground loop elimination, common mode signal rejection,and noise pickup reduction.

I/O Sink/Source Versatility

Standard on the DRSP-I are a 15 Vdc loop excitation supply for the input channel and 20 Vdc loop excitation supplies for each output channel. These power supplies can be selectively wired for sinking or sourcing allowing use with any combination of powered or unpowered milliamp I/O devices.

Loop Status LEDs

Exclusive features include three loop status LEDs (green for input, red for each output) that vary in intensity with changes in the process input and output signals.

These provide a quick visual picture of your process loop at all times and can greatly aid in saving time during initial startup and troubleshooting.

Output Test

Another exclusive feature includes output test buttons for each channel to provide a fixed output (independent of the input) when held depressed. A test button is provided for each output channel. The output test greatly aids in saving time during initial startup and/or troubleshooting.

The test output level for each channel is potentiometer adjustable from 0 to 100% of the output span. Terminals are provided to operate the test functions remotely for each channel. This also allows use as a remote manual override to provide a temporary fixed output if desired.

Specifications

INPUT

Input Range: 4 to 20 mA

Input Impedance: 50 Ω typical

Input Loop Power Supply: 15 Vdc ±10%, regulated, 25 mA; May be selectively wired for sinking or sourcing mA input

Loop Status LEDs: Variable brightness LEDs indicate I/O loop level and status; One for input, one for each output

OUTPUT

Output Range: (Output 1 and Output 2): 4 to 20 mA; 20V compliance, 1000 Ω at 20 mA

Output Linearity: Better than ±0.1% of span

Output Zero and Span: Multi-turn zero and span potentiometers for each output channel to compensate for load and lead variations; ±15% of span adjustment range typical

Output Loop Power Supplies: One for each output channel; 20 Vdc nominal, regulated, 25 mA may be selectively wired for sinking or sourcing mA output

Output Ripple and Noise: Less than 10 mVRMS

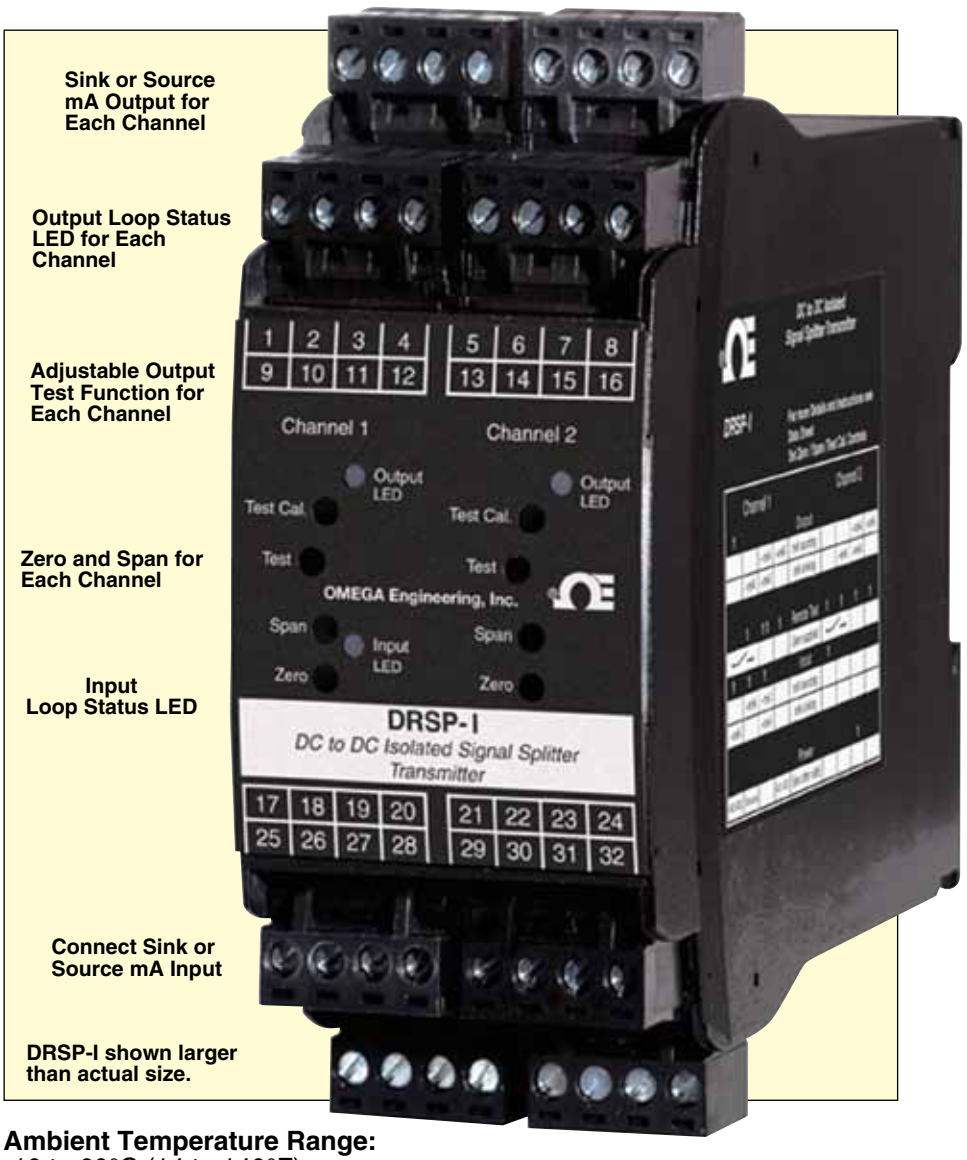
Output Functional Test: Front buttons set each output to test level when pressed; Each test level potentiometer adjustable 0 to 100% of span

GENERAL

Response Time: 70 milliseconds typical

Common Mode Rejection: 120 dB minimum

Isolation (Full 4-Way Isolation): input 1, output 1, output 2, power; 1200 VRMS minimum



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

Stability: Better than ±0.04% of span per °C

Power:

DRSP-I: 60 to 265 Vac, 50/60 Hz or 85 to 300 Vdc, 6 W maximum

DRSP-I-DC: 9 to 30 Vdc or 10 to 32 Vac 50/60 Hz, 6 W maximum

Housing: IP40, mounts to standard 35 mm (1.37") DIN rail

Connectors: Eight 4-terminal removable connectors; 14 AWG maximum wire size

Dimensions: 45 W x 117 H x 122 mm D (1.78 x 4.62 x 4.81"); height includes connectors

To Order *Visit omega.com/drsp-i for Pricing and Details*

Model No.	Description
DRSP-I	DC current signal splitter, 60 to 265 Vac, 50/60 Hz or 85 to 300 Vdc power
DRSP-I-DC	DC current signal splitter, 9 to 30 Vdc or 10 to 32 Vac, 50/60 Hz power
RAIL-35-1	35 mm DIN rail, 1 m (3.3') length
RAIL-35-2	35 mm DIN rail, 2 m (6.6') length
iDRN-PS-1000	Power supply (switching), 95 to 240 Vac input, 24 Vdc output at 850 mA

Comes complete with operator's manual.

***Ordering Example: DRSP-I** DC current signal splitter, 60 to 265 Vac, 50/60 Hz or 85 to 300 Vdc power*

Compact, Low Cost, Modular Signal Conditioners

OM5 Series

MADE IN USA · 1 YEAR WARRANTY · CE · UL

Shown with 16-channel backplane (sold separately).

- **Rugged, Compact Economical Signal Conditioning**
- **Modular Design for Mix and Match Capability**
- **Analog Input Modules for Direct Interface to Sensors and Analog Voltage and Current**
- **Convenient Connection to User Equipment**

The OM5 Series modular signal conditioners provide a low cost, high performance method of inter-connecting real-world analog signals with data acquisition, monitoring or control systems.

They are designed to interface directly to analog inputs such as thermocouples, RTDs, strain gages and voltage or process current signals. Individual OM5 modules convert these inputs to standardized analog outputs compatible with high-level analog I/O systems. An output module converts a high-level analog output to a process current signal.

The OM5 is designed to provide easy and convenient solutions to signal conditioning problems of both designers and end users in measurement and control applications.

Typical uses include mini- and microcomputer-based measurement systems, standard data acquisition systems, recorders, and dedicated control systems.

The OM5 is ideally suited to applications where monitoring and control of temperature, pressure, flow and other analog signals is required.

Isolated Voltage Input Models

Designed for either low-level millivolt or high level voltage inputs, these modules can accept from ±10 mV to ±10V full scale input, with either a 0 to 5V or ±5V output. Standard modules have a 4 Hz bandwidth, while for interfacing to dynamic signals, the OM5-WV and OM5-WMV modules feature a 10 kHz bandwidth.

Current Input Models

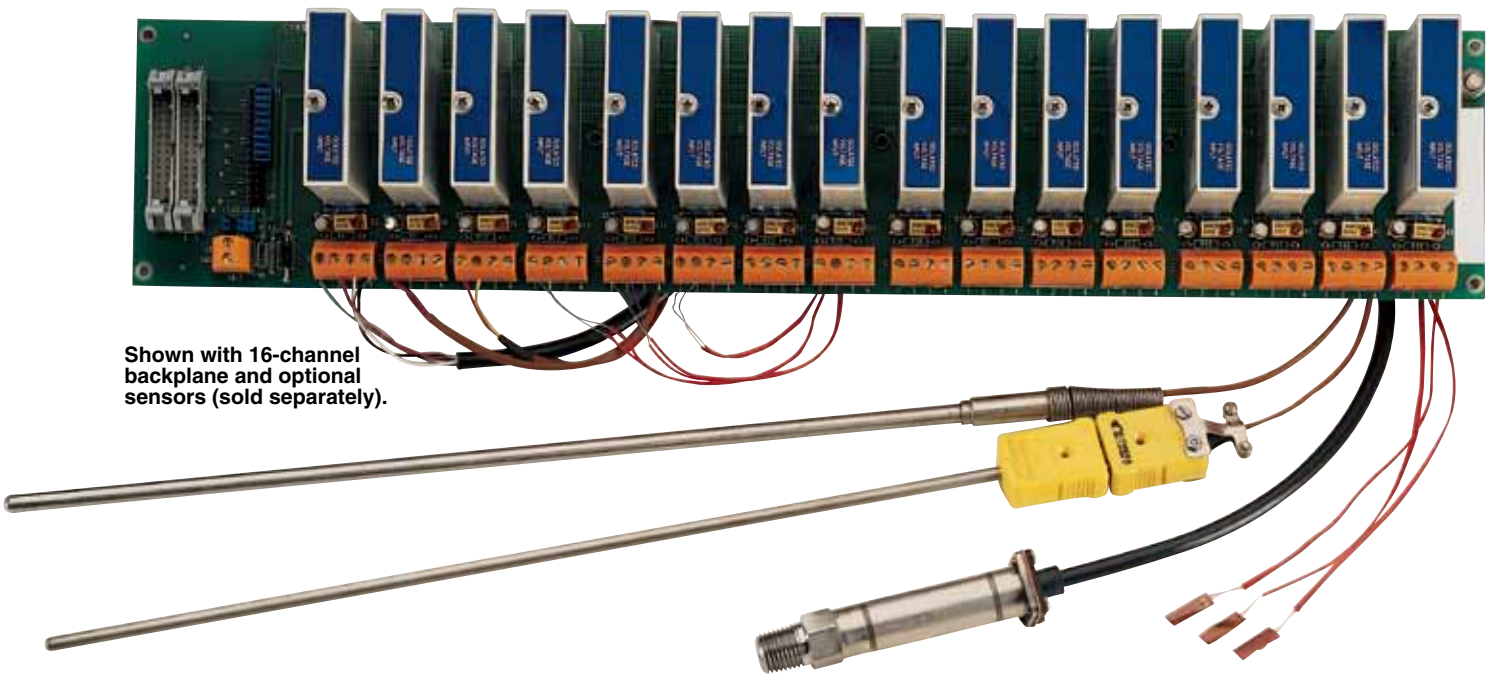
These modules accept process current signals. A sensing resistor of 20 Ω is used to convert the signal current to a voltage. The resistor is installed as a separate assembly, to facilitate replacement in the event of inadvertent connection of the power line.

Thermocouple Input Models

The isolated thermocouple models incorporate cold junction compensation circuitry which provides 0.5°C accuracy. Open sensor detection is standard.

RTD Input Models

The OM5-IP, OM5-IC and OM5-IN are designed for 100Ω PT, 10Ω Cu and 120Ω Ni RTDs respectively. The modules have 3 wire compensation and may be used with 2- or 3-wire RTDs. The OM5-IP4 features 4-wire compensation for 100Ω PT RTDs.



Shown with 16-channel backplane and optional sensors (sold separately).

Strain Gage Input Models

Designed for 300 to 10 KΩ full or half strain gage bridge for dynamic signals. Bandwidth is 10 kHz. Integral 10V excitation is also provided.

Output Models

Isolated modules that accept process voltage inputs from the system connector and provide an isolated process current signal as output.

Potentiometer Input Models

For use with 3-wire potentiometers and 2-wire slidewire with up to 10 KΩ resistance. The input signal is filtered, isolated and amplified to a high level analog output voltage.

Excitation is provided by two matched current sources which cancels lead resistance effects in 3-wire potentiometers. The excitation current is small (less than 1.0 mA) to minimize self-heating error.

Displacement Transducer Input Modules

The displacement transducer input modules can interface to DC displacement transducers and other devices which require a precision excitation voltage. The transducer excitation is provided from the module by a stable isolated 10V source.

Two-Wire Transmitter Interface Modules

The OM5-TX are ideal for connecting to 2-wire loop power transmitters. The modules accept 4 to 20 mA process current input and provide an isolated output voltage. The module features an isolated 20 Vdc regulated power supply to provide power to the transmitter. A precision 20 Ω current conversion resistor is supplied with each module.

SYSTEM CONFIGURATION

The OM5 system is fully modular, for maximum user flexibility. When designing a system, in addition to selecting input and output modules, both a backplane and power supply are required.

The OM5-BP-16 is a 16-position plane with pinouts on system connector that are compatible with the OM3 system; this allows an OM5 to interface to plug-in cards for IBM PCs. Also available for single channel applications is the OM5-BP-SKT single channel backplane.

Two power supplies are available for OM5 systems. The OMX-955 has 1A capacity, and can be used with up to 16 input modules. For systems with larger requirements, the OMX-976 has 3A capacity, and can drive a full complement of 16 output modules.

The OMX-1315 cable mates directly to the OM5-BP-16, and may be connected to the OMX-1324 adaptor. The OMX-1324 provides screw terminations for the high level voltage output from the system connector.

How to Order

To Assemble a Complete OM5 System, Order:

1. Desired input and output modules
2. Backplane
3. Power Supply: calculate system power requirements
4. Voltage I/O cables and connectors
5. Rack or Surface Mount Kit

Specifications

Input Ranges: See ordering tables
Common Mode Voltage, Input to Output: 1500 Vrms maximum
Non-Linearity: 0.02% span
Bandwidth:
OM5-II, OM5-IMV, OM5-ITC, OM5-IV, OM5-IP/IC/IN, OM5-LTC, OM5-PT: 4 Hz
OM5-WBS, OM5-WMV, OM5-WV: 10 KHz
OM5-TX: 100 Hz
OM5-DT: 1 KHz
OM5-IVI: 400 Hz
OMF-FR: See ordering table
Input (Field) Protection: 240 Vrms maximum
Output Range: See ordering table
Output Resistance (Input Modules): 50Ω
Output Current limit (Input Modules): ±14 mA maximum
Operating Temperature Range: -40 to 85°C (-40 to 185°F)
Module Dimensions: 58 x 57 x 15 mm (2.28 x 2.26 x 0.60")

Accuracy

Model No.	Description	Accuracy
OM5-DT	Displacement Input	±0.1% span ±10µV RTI[1]
OM5-II	Current Input	±0.05% span +0.05%(/-I_z[2])
OM5-IFI	Frequency Input	±0.05% span
OM5-IP/IC	RTD Input	See ordering table
OM5-ITC	Non-linearized Thermocouple	±0.05% span ±10µV RTI[1]
OM5-IVI	Current Output	±0.05% span
OM5-LTC	Linearized Thermocouple	See ordering table
OM5-PT	Potentiometer Input	±0.08% span
OM5-TX	Transmitter Input	±0.05% span ±4µV RTI[1]
OM5-WBS	Strain Input	±0.08% span ±10µV RTI[1]
OM5-WMV OM5-IMV	Millivolt Input	±0.05% span ±10µV RTI[1] ±0.05% (V_z[3])
OM5-WV OM5-IV	Voltage Input	±0.05% span ±0.2mV RTI[1] ±0.05% (V_z[3])

(1) RTI = Reference to input
(2) I_z is the current input that results in 0V output
(3) V_z is the voltage input that results in 0V output

Module Power Requirements

Module	Current	Module	Current
OM5-IMV	30 mA	**OM5-WBS**	200 mA
OM5-IV	30 mA	**OM5-IVI**	170 mA
OM5-II	30 mA	**OM5-WMV**	30 mA
OM5-IP	30 mA	**OM5-WV**	30 mA
OM5-ITC	30 mA	**OM5-LTC**	30 mA

DC Displacement Transducer Input, Isolated, ±5 Vdc Output, 10 Vdc Excitation

To Order *Visit omega.com/om5 for Pricing and Details*

Model No.	Input Range
OM5-DT-1-C	±1 Vdc
OM5-DT-2-C	±2 Vdc
OM5-DT-3-C	±3 Vdc
OM5-DT-4-C	±4 Vdc
OM5-DT-5-C	±5 Vdc
OM5-DT-6-C	±6 Vdc
OM5-DT-7-C	±7 Vdc
OM5-DT-8-C	±8 Vdc
OM5-DT-9-C	±9 Vdc
OM5-DT-10-C	±10 Vdc

Thermocouple Input Linearized, Isolated, Output Range 0 to 5V

Model No.	Input Range	Thermocouple Type	Accuracy
OM5-LTC-J1-C	0 to 760°C	J	±0.61°C
OM5-LTC-J2-C	100 to 300°C	J	±0.32°C
OM5-LTC-J3-C	0 to 500°C	J	±0.36°C
OM5-LTC-K1-C	0 to 1000°C	K	±0.80°C
OM5-LTC-K2-C	0 to 500°C	K	±0.38°C
OM5-LTC-T1-C	-100 to 400°C	T	±0.80°C
OM5-LTC-T2-C	0 to 200°C	T	±0.25°C
OM5-LTC-E-C	0 to 1000°C	E	±1.0°C
OM5-LTC-R-C	500 to 1750°C	R	±1.3°C
OM5-LTC-S-C	500 to 1750°C	S	±1.3°C
OM5-LTC-B-C	500 to 1800°C	B	±2.0°C

**Does not include CJC accuracy.*

Thermocouple Input Non-Linearized, Isolated, Output Range 0 to 5V

Model No.	Input Range	Thermocouple Type
OM5-ITC-J-C	-100 to 760°C	J
OM5-ITC-K-C	-100 to 1350°C	K
OM5-ITC-T-C	-100 to 400°C	T
OM5-ITC-E-C	0 to 900°C	E
OM5-ITC-R-C	0 to 1750°C	R
OM5-ITC-S-C	0 to 1750°C	S
OM5-ITC-B-C	0 to 1800°C	B
OM5-ITC-C1-C	350 to 1300°C	C
OM5-ITC-N1-C	-100 to 1300°C	N

RTD Input, Isolated, Output Range 0 to 5V

To Order *Visit omega.com/om5 for Pricing and Details*

Model No.	Input Range	Description	Accuracy
OM5-IP-N100-C	-100 to 100°C	Pt100Ω RTD, 2 or 3 wire, α = 0.00385	±0.46°C
OM5-IP-100-C	0 to 100°C	Pt100Ω RTD, 2 or 3 wire, α = 0.00385	±0.36°C
OM5-IP-200-C	0 to 200°C	Pt100Ω RTD, 2 or 3 wire, α = 0.00385	±0.46°C
OM5-IP-600-C	0 to 600°C	Pt100Ω RTD, 2 or 3 wire, α = 0.00385	±0.88°C
OM5-IC-120-01-C	0 to 120°C	Copper, 10Ω, 0°C, 2 or 3 wire	±0.24°C
OM5-IC-120-02-C	0 to 120°C	Copper 10Ω, 25°C, 2 or 3 wire	±0.24°C
OM5-IN-300-C	0 to 300°C	Nickel 120Ω, 2 or 3 wire	±0.40°C
OM5-IP4-N100-C	-100 to 100°C	Pt100Ω RTD, 4 wire, α = 0.00385	±0.46°C
OM5-IP4-100-C	0 to 100°C	Pt100Ω RTD, 4 wire, α = 0.00385	±0.36°C
OM5-IP4-200-C	0 to 200°C	Pt100Ω RTD, 4 wire, α = 0.00385	±0.46°C
OM5-IP4-600-C	0 to 600°C	Pt100Ω RTD, 4 wire, α = 0.00385	±0.88°C

Contact Engineering for custom configurations.

2-Wire Transmitter Interface Modules, Isolated 20 Vdc Loop Power

Model No.	Input Range	Output
OM5-TC-1-C	4 to 20 mA	1 to 5 Vdc
OM5-TC-2-C	4 to 20 mA	2 to 10 Vdc

Potentiometer Input, Isolated, 0 to 5 Vdc Output

Model No.	Input Range
OM5-PT-100-C	100 Ω
OM5-PT-1000-C	500 Ω
OM5-PT-1K-C	1K Ω
OM5-PT-10K-C	10K Ω

Strain Gage Input, Isolated, ±5 Vdc Output

Model No.	Input Range	Description
OM5-WBS-1-C	±30 mV @ 10V Exc.	Full bridge 300-10 kΩ, 10 kHz bandwidth
OM5-WBS-2-C	±20 mV @ 10 V Exc.	Full bridge 300-10 kΩ, 10 kHz bandwidth
OM5-WBS3-C	±30 mV @ 10 V Exc.	Half bridge 300-10 kΩ, 10 kHz bandwidth

Voltage Input, Isolated

Model No.	Input Range	Output Range
OM5-IV-1A-C	±1 V	±5 Vdc
OM5-IV-5A-C	±5 V	±5 Vdc
OM5-IV-10A-C	±10 V	±5 Vdc
OM5-IV-1B-C	±1 V	0-5 Vdc
OM5-IV-5B-C	±5 V	0-5 Vdc
OM5-IV-10B-C	±10 V	0-5 Vdc
OM5-IV-20A-C	±20 Vdc	±5 V
OM5-IV-40A-C	±40 Vdc	±5 V
OM5-IV-20B-C	±20 Vdc	0 to 5 V
OM5-IV-40B-C	±40 Vdc	0 to 5 V

Frequency Input, Isolated, 0 to 5 Vdc Output

Model No.	Input Range	Response Time
OM5-IFI-500-C	0 to 500 Hz	300 mS
OM5-IFI-1K-C	0 to 1 KHz	300 mS
OM5-IFI-3K-C	0 to 3 KHz	170 mS
OM5-IFI-5K-C	0 to 5 KHz	90 mS
OM5-IFI-10K-C	0 to 10 KHz	90 mS
OM5-IFI-25K-C	0 to 25 KHz	20 mS
OM5-IFI-50K-C	0 to 50 KHz	20 mS
OM5-IFI-100K-C	0 to 100 KHz	20 mS

Millivolt Input, Isolated

Model No.	Input Range	Output Range
OM5-IMV-10A-C	±10 mV	±5 Vdc
OM5-IMV-50A-C	±50 mV	±5 Vdc
OM5-IMV-100A-C	±100 mV	±5 Vdc
OM5-IMV-10B-C	±10 mV	0 to 5 Vdc
OM5-IMV-50B-C	±50 mV	0 to 5 Vdc
OM5-IMV-100B-C	±100 mV	0 to 5 Vdc

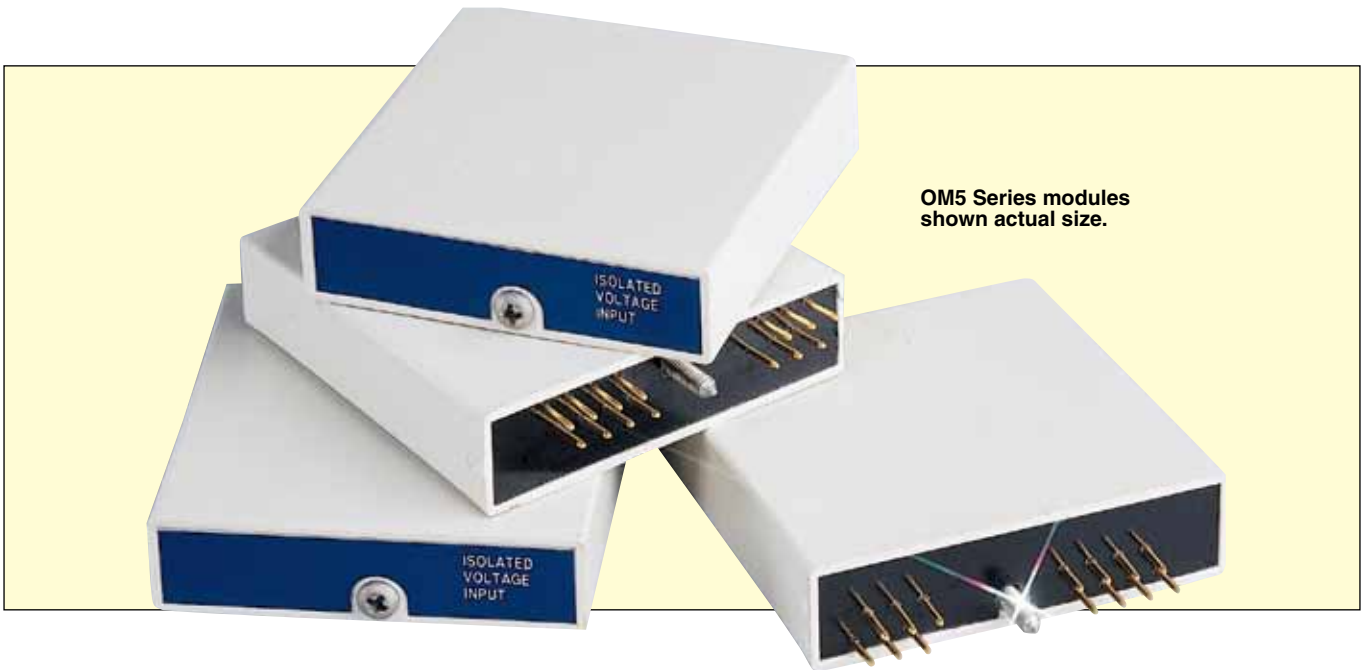
Wideband Millivolt Input, Isolated, 10 kHz Bandwidth

Model No.	Input Range	Output Range
OM5-WMV-10A-C	±10 mV	±5 Vdc
OM5-WMV-50A-C	±50 mV	±5 Vdc
OM5-WMV-100A-C	±100 mV	±5 Vdc
OM5-WMV-10B-C	±10 mV	0 to 5 Vdc
OM5-WMV-50B-C	±50 mV	0 to 5 Vdc
OM5-WMV-100B-C	±100 mV	0 to 5 Vdc

Current Input, Isolated

Model No.	Input Range	Output Range
OM5-II-4/20-C	4 to 20 mA	0 to 5 Vdc
OM5-II-0/20-C	0 to 20 mA	0 to 5 Vdc

Contact Engineering for custom configurations.



OM5 Series modules shown actual size.

Wideband Voltage Input, Isolated, 10 kHz Bandwidth

To Order *Visit omega.com/om5 for Pricing and Details*

Model No.	Input Range	Output Range
OM5-WV-1A-C	±1 V	±5 Vdc
OM5-WV-5A-C	±5 V	±5 Vdc
OM5-WV-10A-C	±10 V	±5 Vdc
OM5-WV-1B-C	±1 V	0 to 5 Vdc
OM5-WV-5B-C	±5 V	0 to 5 Vdc
OM5-WV-10B-C	±10 V	0 to 5 Vdc
OM5-WV-20A-C	±20 Vdc	±5 Vdc
OM5-WV-40A-C	±40 Vdc	±5 Vdc
OM5-WV-20B-C	±20 Vdc	0 to 5 Vdc
OM5-WV-40B-C	±40 Vdc	0 to 5 Vdc

Current Output, Isolated

Model No.	Input Range	Output Range
OM5-IVI-B0-C	0 to 5 Vdc	0 to 20 mA
OM5-IVI-A0-C	±5 Vdc	0 to 20 mA
OM5-IVI-B4-C	0 to 5 Vdc	4 to 20 mA
OM5-IVI-A4-C	±5 Vdc	4 to 20 mA

Ordering Examples: ***OM5-BP-16-C*** *16-channel backplane, four* ***OM5-LTC-J1*** *linearized T/C modules, four* ***OM5-IV-1A-C*** *voltage modules, four* ***OM5-IP-N100-C*** *RTD modules, four* ***OM5-WBS-1-C*** *strain gage modules,* ***OM5-PRT-003*** *power supply, and OCW-1 OMEGACARE extends standard 1-year warranty to a total of 2-years.*

OMEGACARE℠ Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.

Accessories

Model No.	Description
OMX-1344-C	10 Jumpers (spare), for use with any OM5 module
OMX-1361-C	Cold junction sensor for OM5 T/C modules
OMX-1362-C	Replacement current sense 20Ω resistor for current input modules
OM7-IF	Universal terminal board, requires OM5-CA-04-01 cable
OMX-1363-C	19" rack mount adapter
OM5-BP-16-C	16-Channel OM5 backplane
OM5-BP-2-C	2-Channel OM5 backplane
OM5-BP-SKT-C	1-Channel OM5 backplane
OM5-BP-16-MUX-C	16-Channel multiplexed backplane
OM5-CA-04-01	1 m 26-pin cable with two connectors to connect OM5-BP-16-C to OM7-IF
OM5-PRT-003	3A, 5 Vdc, 120 Vac power supply
PSS-5B	1A, 5 Vdc, 120 Vac power supply

Modular Signal Conditioning System Accepts a Wide Range of Inputs

OM7 Series

Shown with optional KMTSS-125G-6 thermocouple sold separately.

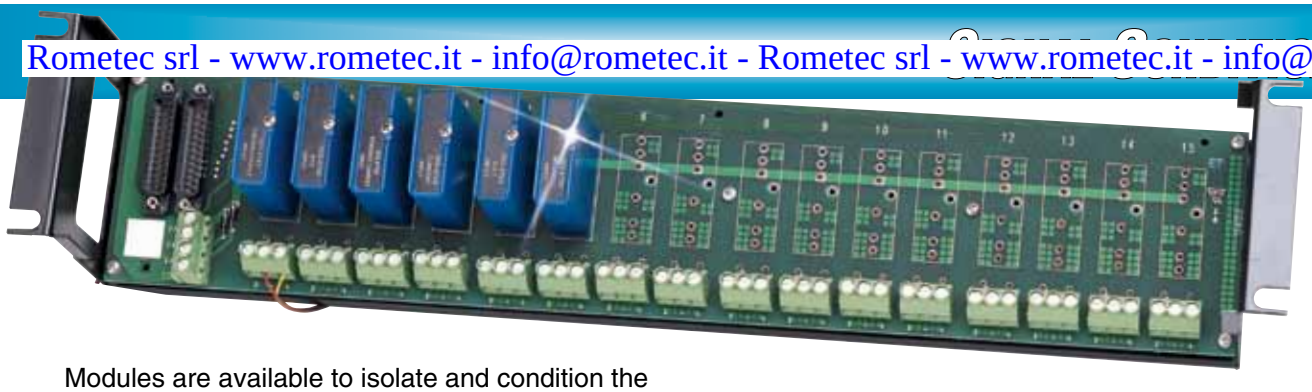
- **Isolated Signal Conditioners for a Wide Range of Process Control Signals: Thermocouples, RTDs, mA, mV, V**
- **Process Current (4 to 20 and 0 to 20 mA) Output Module**
- **Powered mA Input Module Includes Isolated 24 Vdc Power for a Remote Transmitter**
- **Bipolar Voltage Input and Output Modules**
- **Operates From a Single 24 Vdc Power Supply**
- **Provides 1 to 5 V, 0 to 10 V, and ±10 V Output Options**
- **±0.1% Maximum Accuracy, Factory Calibrated**
- **1500 V rms of CMV Isolation and 120 V rms Field Wiring Protection**
- **Compact, 54 x 42 x 14 mm (2.1 x 1.7 x 0.6") Plastic Housing**

The OM7 Series modular isolation-based, single-channel plug-in signal conditioning system accepts inputs from a wide range of process control transducers and signals while providing high-level output voltages. Featuring a maximum nonlinearity of 0.02% and factory calibrated to guarantee maximum accuracy of ±0.1%, the OM7 Series offers superior performance at a lower cost than multipurpose signal conditioners. The modules provide 1500 V rms isolation and 120 V rms of field wiring input protection. The power supplies necessary to drive each individual module's input circuitry are internally isolated, enabling the OM7 modules to offer true channel-to-channel isolation of the input signals. The modules are rated for a nominal power supply input of 24 Vdc and, for maximum flexibility, will accept supply voltages in the 14 Vdc to 35 Vdc range.

All modules are packaged in a compact 54 x 42 x 14 mm (2.1 x 1.7 x 0.6 in) durable plastic case that readily accommodates high channel density applications. Each module may be operated in high humidity (noncondensing) environments and is rated over the extended -40 to 85°C industrial temperature range. All modules feature a simple pinout that allows them to be mixed and matched within a single backplane design. Furthermore, modules are easily serviced since they can be removed and inserted into the backplane with power applied.

OMEGACARE Extended Warranty Program

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE℠ covers parts, labor and equivalent loaners.



Modules are available to isolate and condition the following input signals and transducers: voltage, process current, RTD, 2-wire transmitter, and thermocouples. The 2-wire transmitter interface module (OM7-35) accepts a 4-20 mA process input and provides an isolated 24 Vdc supply to power the current loop. In this way, a loop-powered transmitter can be directly connected to the OM7-35 without requiring a separate power supply. All of the isolated input modules, with the exception of the OM7-21, provide a high-level output voltage that is factory configured for either the 1-5 V or 0-10 V range. The OM7-21 is a unity gain, isolated input module with an input/output range of ±10 V.

Modules are also available that provide isolated output signals for process current and bipolar voltage. The OM7-39 process current module converts either a 1-5 V signal to a 4-20 mA output or a 0-10 V input to a 0-20 mA output. The input/output ranges of the OM7-39 are factory configured. The OM7-22 is a unity gain module that provides an isolated ±10 V output signal.

A full line of backplanes and rack-mount hardware complete the OM7 Series signal conditioning system. Each backplane contains screw terminals for field wiring connections and a miniature cold junction compensation (CJC) thermistor that is installed under the terminal blocks of each channel. Due to the pinout of the OM7 Series modules, the CJC thermistor affects only the thermocouple modules. This flexibility permits any module type to be used in any channel on the backplane.

ISOLATED VOLTAGE AND CURRENT INPUT

The OM7 Series feature five isolated voltage/current input modules capable of addressing a wide variety of input voltage ranges and signal dynamics. The OM7-21 is a bipolar unit module featuring a full-scale range of ±10 V. The OM7-30 and OM7-31 accept dc input voltages and provide either a factory configured 1-5 V or 0-10 V output signal. The OM7-32 accepts a 4-20 mA process current input signal and provides an output voltage signal in the 1-5 V range. The OM7-33 isolates a 1-5 V input signal and provides a buffered 1-5 V output signal. The OM7-32 and OM7-33 can also be factory configured to provide a 0-10 V output signal with a 0-20 mA or 0-5 V input, respectively. Both the OM7-32 and OM7-33 have bandwidths of 100 Hz. The OM7-30 and OM7-31 are limited to 3 Hz bandwidth.

ISOLATED THERMOCOUPLE INPUT

The OM7-37 and OM7-47 modules accept inputs from types J, K, T, E, R, S, and B thermocouples and provide a 1-5 V or 0-10 V output signal. The OM7-47 also accepts inputs from type N thermocouples. Both the OM7-37 and OM7-47 have a nominal 3 dB bandwidth of 3 Hz, and they provide for upscale open input detection within 10 sec.

In addition to the signal conditioning capabilities of the OM7-37, the OM7-47 includes an internallinearization circuit that compensates for the inherent nonlinearities of the thermocouple. With this linearizer, the OM7-47 is able to provide an output voltage that is linear with respect to the actual temperatures being measured by the thermocouple.

The thermocouple input modules accomplish CJC by means of an external thermistor mounted under the field wiring screw terminal blocks of the backplane.

ISOLATED LINEARIZED RTD INPUT

The OM7-34 module accepts inputs from 100Ω platinum and 120Ω nickel RTDs and produce an output voltage signal that is proportional with temperature measured by the RTD. The OM7-34 modules are available in a factory-configured 1-5 V or 0-10 V output range. Three-wire lead resistance compensation is provided and 2- or 3-wire RTDs may be used. The OM7-34 RTD input module has a nominal 3 dB bandwidth of 3 Hz and upscale open RTD detection with 10 sec.

ISOLATED 2-WIRE TRANSMITTER INTERFACE

The OM7-35 input module accepts a 4-20 mA process current input, provides a standard 1-5 V output signal, and features an isolated loop power supply for driving the current transmitter. The module has a nominal 3 dB bandwidth of 100 Hz and offers downscale open input detection within 2 sec.

The isolated transmitter loop power supply of the OM7-35 is unregulated and will provide a voltage that is proportional to the voltage used to power the OM7-35 module. The voltage provided by the OM7-35 is between 13 V and 34 V for loop current between 4 mA and 20 mA and supply voltages between 20.4 and 26.4 V. (For nominal +24 V supply, the OM7-35 will supply approximately +24 V to the loop.)

ISOLATED CURRENT OUTPUT

The OM7-39 isolated output module accepts either a factory-configured 1-5 V or 0-10V input signal and provides an isolated 4-20 mA or 0-20 mA output current signal. The module can drive a wide range of resistive loads, depending upon +Vs, the supply voltage. At a nominal +Vs of +24 V, the OM7-39 will drive up to 850Ω.

ISOLATED BIPOLAR VOLTAGE OUTPUT

The OM7-22 is a unity-gain module with an input/output range of ±10 V. The OM7-22 has an input range of ±10 V and provides an isolated bipolar ±10 V output signal to the field. The OM7-22 features 1500 V rms of CMV isolation, 100 dB minimum of common mode rejection, and a 400 Hz bandwidth.

Specifications

Common Input Module Specifications
Common Mode Voltage: 1500 V rms continuous
Input Protection: 120 V rms continuous
Output Protection: Short to ground
Output Resistance: <1 Ω

Common to All Modules
Operating Range: -40 to 85°C (-40 to 185°F)
Storage Range: -40 to 85°C (-40 to 185°F)
Humidity (24 hr): 90% non-condensing
Weight: 60 g (0.2 oz)

Input Module Specifications (typical @23°C and + 24 Vdc)

Model	OM7-21	OM7-30	OM7-31	OM7-32	OM7-33	OM7-34	OM7-35	OM7-37	OM7-47
Input Type	±10 V	±1 mV to ±1V	±1 V to ±10 V	4-20 mA 0-20 mA	1-5 V 0-5 V	RTD	4-20 mA	T/C*	T/C*
Output Range (into 2 kΩ minimum load)	±10 V	1-5 or 0-10 V	1-5 or 0-10 V	1-5 or 0-10 V	1-5 or 0-10 V	1-5 or 0-10 V	1-5 or 2-10 V	1-5 or 0-10 V	1-5 or 0-10 V
Accuracy	±0.1% span maximum	±0.1% span maximum	±0.1% span maximum	±0.1% span maximum	±0.1% span maximum	See table	±0.1% span maximum	±0.1% span maximum	See table
Nonlinearity	±0.02% span maximum	±0.02% span maximum	±0.02% span maximum	±0.02% span maximum	±0.02% span maximum	See table	±0.02% span maximum	0.02% span maximum	N/A
Input Resistance	2 MΩ	10 MΩ	100 kΩ	200 Ω	2 MΩ	N/A	N/A	10 MΩ	10 MΩ
Input Bias Current	3 nA	1 nA	0.2 nA	N/A	0.1 nA	N/A	N/A	25 nA	25 nA
Nominal 3 db Bandwidth	300 Hz	3 Hz	3 Hz	100 Hz	100 Hz	3 Hz	100 Hz	3 Hz	3 Hz
Response Time, 0-90%	1 msec	150 msec	150 msec	10 msec	10 msec	250 msec	5 msec	150 msec	150 msec
CJC Accuracy, Ambient Temp. 5 to 45°C	NA	NA	NA	NA	NA	NA	NA	±1.0°C maximum	±1.0°C maximum
Supply Voltage	19-29 Vdc	14-35 Vdc	14-35 Vdc	14-35 Vdc	14-35 Vdc	14-35 Vdc	18-35 Vdc	14-35 Vdc	14-35 Vdc
Supply Current	35 mA	25 mA	25 mA	20 mA	20 mA	25 mA	60 mA	25 mA	25 mA

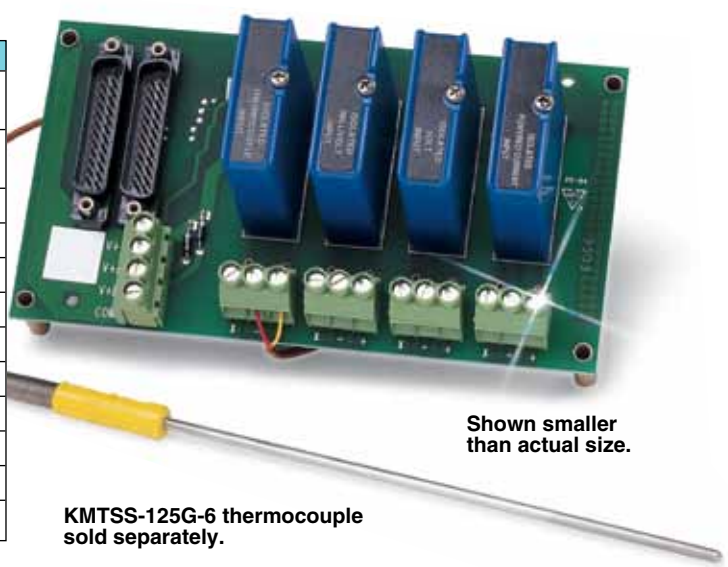
** T/C is thermocouple*

Output Module Specifications

Model	OM7-22	OM7-39
Output Range	±10 V	0-20 mA 4-20 mA
Input Range	±10 V	0-10 V 1-5 V
Accuracy	±0.1% Span	±0.1% Span
Nonlinearity	±0.02% Span	±0.02% Span
Output Offset	±0.001% Span/C	±0.0035% Span/C
Maximum Output	±14 Vdc	30 Ma
Load Resistance*	5 KΩm minimum	0-850Ω
Nominal 3 db Bandwidth	400 Hz	100 Hz
Response Time, 0-90%	1 ms	3 ms
Common Mode Voltage	1500 V rms	1500 V rms
Supply Voltage	19-29 Vdc	14-35 Vdc
Supply Current	20 mA maximum	60 mA maximum

**Load resistance of OM7-39 dependent on power supply*

OM7 modules shown mounted on OM7-BP-4-C 4-channel backplane.



Shown smaller than actual size.

KMTSS-125G-6 thermocouple sold separately.

OM7-BP-8-C shown with OM7 modules.
KMTSS-125G-6 thermocouple sold separately.

OM7-47 Linearized Thermocouple Input Module (@ +23°C ±5°C and V_s = +24Vdc)

Model	Input Range	Accuracy[1,2] (typical)	Accuracy[1] (max)
OM7-47-J-01-1-C	0 to +760°C	0.15% span	0.38% span
OM7-47-J-01-2-C	0 to +760°C	0.13% span	0.32% span
OM7-47-J-02-1-C	-100 to +300°C	0.16% span	0.35% span
OM7-47-J-02-2-C	-100 to +300°C	0.14% span	0.30% span
OM7-47-K-03-1-C	0 to +1300°C	0.15% span	0.35% span
OM7-47-K-03-2-C	0 to +1300°C	0.15% span	0.32% span
OM7-47-K-04-1-C	0 to +600°C	0.09% span	0.20% span
OM7-47-K-04-2-C	0 to +600°C	0.08% span	0.18% span
OM7-47-T-05-1-C	0 to +400°C	0.24% span	0.50% span
OM7-47-T-05-2-C	0 to +400°C	0.19% span	0.38% span
OM7-47-T-06-1-C	-100 to +200°C	0.29% span	0.57% span
OM7-47-T-06-2-C	-100 to +200°C	0.25% span	0.47% span
OM7-47-E-07-1-C	0 to +900°C	0.18% span	0.41% span
OM7-47-E-07-2-C	0 to +900°C	0.15% span	0.34% span
OM7-47-R-08-1-C	+500 to +1750°C	0.15% span	0.36% span
OM7-47-R-08-2-C	+500 to +1750˚C	0.13% span	0.30% span
OM7-47-S-09-1-C	+700 to +1750˚C	0.13% span	0.31% span
OM7-47-S-09-2-C	+700 to +1750˚C	0.11% span	0.25% span
OM7-47-B-10-1-C	+800 to +1800˚C	0.19% span	0.41% span
OM7-47-B-10-2-C	+800 to +1800˚C	0.17% span	0.35% span
OM7-47-N-11-1-C	+200 to +1300˚C	0.14% span	0.31% span
OM7-47-N-11-2-C	+200 to +1300˚C	0.09% span	0.27% span

1) The CJC sensor accuracy should be added to the module accuracy listed in this table in order to compute the overall measurement accuracy.

2) Accuracy includes the effects of repeatability, hysteresis, and conformity.

OM7-34 Linearized RTD Input Module

(@ +23°C ±5°C and V_s = +24Vdc)

Model	Input Range	Accuracy	Nonlinearity
OM7-34-01-X-C	-100 to +100°C	±0.15%	±0.05%
OM7-34-02-X-C	0 to +100°C	±0.2%	±0.05%
OM7-34-03-X-C	0 to +200°C	±0.15%	±0.05%
OM7-34-04-X-C	0 to +600°C	±0.1%	±0.05%
OM7-34-N-01-X-C	0 to +300°C	±0.3%	±0.012%
OM7-34-N-02-X-C	0 to +200°C	±0.3%	±0.14%

NOTES:
The X in the OM7-34 model number designations in the above table is used to identify the output voltage range option. If X=1, then the OM7-34 is factory configured for a 1-5 V output; and if X=2, then the OM7-34 is factory configured for a 0-10 V output. The Standard Range OM7-34s (i.e., OM7-34-01, OM7-34-02, OM7-34-03, OM7-34-04) are configured for a Platinum RTD with the DIN standard alpha of 0.00385.
The OM7-34-N Series is configured for Nickel RTDs.

Backplane Specifications

	OM7-BP-1-C (DIN-C)	OM7-BP-2-C (DIN-C)	OM7-BP-4-C (DIN-C)	OM7-BP-8-C (DIN-C)	OM7-BP-16-C (DIN-C)
Channels	**1**	**2**	**4**	**8**	**16**
Size	4.25 x 1.37"	4.25 x 1.37"	3.47 x 6.3"	3.47 x 10"	3.47 x 17.4"

Connectors: *Three screw terminals are provided for field connection to sensors/signals. 25-pin D-type male connector provided for interface to user's system.*

Millivolt Input - Unipolar

Model No.	Input Range	Output Range
OM7-30-01-1-C	0-10 mV	1-5 V
OM7-30-01-2-C	0-10 mV	0-10 V
OM7-30-02-1-C	0-100 mV	1-5 V
OM7-30-02-2-C	0-100 mV	0-10 V

Millivolt Input - Bipolar

Model No.	Input Range	Output Range
OM7-30-06-1-C	±10 mV	1-5 V
OM7-30-06-2-C	±10 mV	0-10 V
OM7-30-07-1-C	±100 mV	1-5 V
OM7-30-07-2-C	±100 mV	0-10 V

Voltage Input - Unipolar

Model No.	Input Range	Output Range
OM7-30-03-1-C	0-1 V	1- 5 V
OM7-30-03-2-C	0-1 V	0-10 V
OM7-31-04-1-C	0-5 V	1-5 V
OM7-31-04-2-C	0-5 V	0-l0 V
OM7-30-05-1-C	1-5 V	1-5 V
OM7-30-05-2-C	1-5 V	0-10 V
OM7-31-01-1-C	0-10 V	1-5 V
OM7-31-01-2-C	0-10 V	0-10 V

Voltage Input - Bipolar

Model No.	Input Range	Output Range
OM7-30-08-1-C	±1 V	1-5 V
OM7-30-08-2-C	±1 V	0-10 V
OM7-31-02-1-C	±5 V	1-5 V
OM7-31-02-2-C	±5 V	0-10 V
OM7-31-03-1-C	±10 V	1-5 V
OM7-31-03-2-C	±10 V	0-10 V
OM7-21-C	±10 V	±10 V

Process Voltage Inputs

Model No.	Input Range	Output Range
OM7-33-01-1-C	1-5 V	1-5 V
OM7-33-01-2-C	1-5 V	0-10V
OM7-33-02-1-C	0-5 V	1-5 V
OM7-33-02-2-C	0-5 V	0-10 V

Process Current Inputs

Model No.	Input Range	Output Range
OM7-32-01-1-C	4-20 mA	1-5 V
OM7-32-01-2-C	4-20 mA	0-10 V
OM7-32-02-1-C	0-20 mA	1-5V
OM7-32-02-2-C	0-20 mA	0-10V

Linearized Thermocouple

Model No.	Input PriceRange	Output Range	Thermocouple Type
OM7-47-J-01-1-C	0 to +760°C	1-5 V	J
OM7-47-J-01-2-C	0 to +760°C	0-10 V	J
OM7-47-J-02-1-C	-100 to +300°C	1-5 V	J
OM7-47-J-02-2-C	-100 to +300°C	0-10 V	J
OM7-47-K-03-1-C	0 to +1300°C	1-5 V	K
OM7-47-K-03-2-C	0 to +1300°C	0-10 V	K
OM7-47-K-04-1-C	0 to +600°C	1-5 V	K
OM7-47-K-04-2-C	0 to +600°C	0-10 V	K
OM7-47-T-05-1-C	0 to +400°C	1-5 V	T
OM7-47-T-05-2-C	0 to +400°C	0-10 V	T
OM7-47-T-06-1-C	-100 to +200°C	1-5 V	T
OM7-47-T-06-2-C	-100 to +200°C	0-10 V	T
OM7-47-E-07-1-C	0 to +900°C	1-5 V	E
OM7-47-E-07-2-C	0 to +900°C	0-10 V	E
OM7-47-R-08-1-C	+500 to +1750°C	1-5 V	R
OM7-47-R-08-2-C	+500 to +1750°C	0-10 V	R
OM7-47-S-09-1-C	+700 to +1750°C	1-5 V	S
OM7-47-S-09-2-C	+700 to +1750°C	0-10 V	S
OM7-47-B-10-1-C	+800 to +1800°C	1-5 V	B
OM7-47-B-10-2-C	+800 to +1800°C	0-10 V	B
OM7-47-N-11-1-C	+200 to +1300°C	1-5 V	N
OM7-47-N-11-2-C	+200 to +1300°C	0-10 V	N

RTD Inputs (Linearized 100Ω Pt 2-Wire or 3-Wire, Alpha = 0.00385)

Model No.	Input Range	Output Range
OM7-34-01-1-C	-100 to 100°C	1-5 V
OM7-34-01-2-C	-100 to 100°C	0-10 V
OM7-34-02-1-C	0 to 100°C	1-5 V
OM7-34-02-2-C	0 to 100°C	0-10 V
OM7-34-03 -1-C	0 to 200°C	1-5 V
OM7-34-03-2-C	0 to 200°C	0- 10 V
OM7-34-04-1-C	0 to 600°C	1-5 V
OM7-34-04-2-C	0 to 600°C	0-10 V
OM7-34-05-1-C	-50 to 350°C	1-5 V
OM7-34-05-2-C	-50 to 350°C	0-10 V

RTD Inputs (Linearized 120 Ω Ni 2-Wire or 3-Wire)

Model No.	Input Range	Output Range
OM7-34-N-01-1-C	0 to +300°C	1-5 V
OM7-34-N-01-2-C	0 to +300°C	0-10 V
OM7-34-N-02-1-C	0 to +200°C	1-5 V
OM7-34-N-02-2-C	0 to +200°C	0-10 V

Non-Linearized Thermocouple

Model No.	Input Range	Output Range	Thermocouple Type
OM7-37-J-01- 1-C	-100 to 760°C	1-5 V	J
OM7-37-J-01-2-C	-100 to 760°C	0-10 V	J
OM7-37-J-10-1-C	0 to 200°C	1-5 V	J
OM7-37-J-10-2-C	0 to 200°C	0-10 V	J
OM7-37-J-11-1-C	0 to 400°C	1- 5 V	J
OM7-37-J-11-2-C	0 to 400°C	0-10 V	J
OM7-37-J-12-1-C	0 to 600°C	1-5 V	J
OM7-37-J-12-2-C	0 to 600°C	0-10 V	J
OM7-37-J- 13-1-C	300 to 600°C	1-5 V	J
OM7-37-J-13-2-C	300 to 600°C	0-10 V	J
OM7-37-K-02-1-C	-100 to 1350°C	1-5 V	K
OM7-37-K-02-2-C	-100 to 1350°C	0-10 V	K
OM7-37-K-20-1-C	0 to +300°C	1-5 V	K
OM7-37-K-20-2-C	0 to +300°C	0-10 V	K
OM7-37-K-21-1-C	0 to +600°C	1-5 V	K
OM7-37-K-21-2-C	0 to +600°C	0-10 V	K
OM7-37-K-22-1-C	0 to +1200°C	1-5 V	K
OM7-37-K-22-2-C	0 to +1200°C	0-10 V	K
OM7-37-K-23-1-C	600 to 1200°C	1-5 V	K
OM7-37-K-23-2-C	600 to 1200°C	0-10 V	K
OM7-37-T-03-1-C	-100 to 400°C	1-5 V	T
OM7-37-T-03-2-C	-100 to 400°C	0-10 V	T
OM7-37-E-04-1-C	0 to 900°C	1- 5 V	E
OM7-37-E-04-2-C	0 to 900°C	0-10 V	E
OM7-37-R-05-1-C	0 to 1750°C	1-5 V	R
OM7-37-R-05-2-C	0 to 1750°C	0-10 V	R
OM7-37-S-06-1-C	0 to 1750°C	1-5 V	S
OM7-37-S-06-2-C	0 to 1750°C	0-10 V	S
OM7-37-B-07-1-C	0 to 1800°C	1-5 V	B
OM7-37-B-07-2-C	0 to 1800°C	0-10 V	B

Accessories

Model No.	Description
U24Y175	Power supply 105 to 125/210 to 250 Vac input, 24 Vdc @ 175 mA output
OM7-PROTO	OM7 Breadboard kit
OM7-BP-EV	1-Channel evaluation
OM7-IF	Universal interface board
OM7-RK002	19" rack for mounting backplane
OM7-RI	250 Ω current conversion resistor
OM7-DIN-SF	DIN Base element with snap foot
OM7-DIN-WSF	DIN Side element without snap foot
OM7-DIN-SE	DIN Side elements
OM7-DIN-CP	DIN Connector pins

2-Wire Transmitter Inputs with Loop Power (with Sense Resistor)

Model No.	Input Range	Output Range
OM7-35-01-1-C	4-20 mA	1 -5 V
OM7-35-01-2-C	4-20 mA	2-10 V

Output Modules

Model No.	Input Range	Output Range
OM7-22-C	±10 V	±10 V
OM7-39-01-C	1-5 V	4-20 mA
OM7-39-02-C	0-10 V	0-20 mA

Backplanes

Model No.	Description
OM7-BP-1-C	1-Channel backplane
OM7-BP-1-DIN-C	1-Channel backplane DIN Rail
OM7-BP-2-C	2-Channel backplane
OM7-BP-2-DIN-C	2-Channel backplane DIN Rail
OM7-BP-4-C	4-Channel backplane
OM7-BP-4-DIN-C	4-Channel backplane DIN rail
OM7-BP-8-C	8-Channel backplane
OM7-BP-8-DIN-C	8-Channel backplane DIN rail
OM7-BP-16-C	16-Channel backplane
OM7-BP-16-DIN-C	16-Channel backplane DIN rail
RAIL-35-2	35 mm DIN rail, 2 m length

Cables

Model No.	Description
OM7-CA-01	6" cable (25-pin, D-type connector to 26-pin maleheader connector) converts OM7 backplane connector to an OM5 backplane connector pin out
OM7-CA-02	3' cable (25 pin, D-type connector on both ends)

System Example

Qty	Model No.
4	OM7-37-K-02-1-C non-linearized Type K thermocouple inputs
4	OM7-34-02-2-C linearized 100 Ω RTD inputs
1	OM7-BP-8-C 8-channel backplane
1	OM7-CA-02 3' cable
1	OM7-RK002 19" rack mount kit for backplane
2	U24Y175 power supply