

SPECIFICATIONS

Inputs

- Voltage Input**
 Ranges: 100mV to 200VAC
 Impedance: >100KΩ
 Overvoltage: 300VAC
- Current Input**
 Ranges: 10mA to 100mAAC
 Impedance: 20Ω, typical
 Overcurrent: 200mAAC
 Overvoltage: 60V peak
 Frequency Range: 40 to 400Hz,
 factory calibrated at 60Hz
 Common Mode (Input to Ground):
 1800VDC, max.
 Zero and Span Range:
 Zero Turn-Up: 50% of full
 scale range
 Span Turn-Down: 50% of full
 scale range
- Output**
Voltage Output
 Output: 0-5V, 0-10V
 Source Impedance: <10Ω
 Drive: 10mA, max.
 (1KΩ, min. @ 10V)

Current Output

- Output: 0-1mA, 0-20mA,
 4-20mA
 Source Impedance: >100KΩ
 Compliance:
 0-1mA; 7.5V, max. (7.5KΩ, max.)
 0-20mA; 12V, max. (600Ω, max.)
 4-20mA; 12V, max. (600Ω, max.)

LED Indicator (green)

- 8Hz flash when input is 10%
 above full scale range (FSR)

Accuracy (Including Linearity, Hyster- esis)

- ±0.1% of span, typical
 ±0.5% of span, maximum

Stability

- ±0.025%/°C of selected input
 span, typical.

Response Time (10 to 90%)

- 250mSec., typical.

Common Mode Rejection

- DC to 60Hz: 120dB

Isolation

- 1800VDC between input, output
 and power.

EMC Compliance (CE Mark)

- Emissions: EN50081-1
 Immunity: EN50082-2
 Safety: EN50178

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

- Consumption: 1.5W typical,
 2.5W max.
 Range: 9 to 30VDC

Wire Terminations

- Screw terminals for 12-22 AWG

Agency Approvals

- CSA certified per standard C22.2,
 No. 0-M91 and 142-M1987 (File No.
 LR42272). UL recognized per stan-
 dard UL508 (File No. E99775). CE
 Compliance per EMC directive 89/
 336/EEC and Low Voltage 73/23/EE.

Mounting

- 32mm and 35mm DIN Rail

PIN CONNECTIONS

- 11 DC Power (+)
 12 DC Power (-)
 21 DC Power (+)
 22 DC Power (-)
 41 AC Signal Input (Hot)
 42 AC Signal Input (Neu)
 51 Output (+)
 52 Output (-)



DRG-SC-AC

AC Input, Field Configurable Isolator

Instruction Sheet M2389/0796

DESCRIPTION

The field configurable DRG-SC-AC is a DIN rail mount, AC input signal conditioner with 1800VDC isolation between input, output and power. The field configurable input and output offers flexible, wide ranging capability for scaling, converting or buffering AC inputs ranging from 5mA to 100mAAC or 50mV to 200VAC. The DC output of the DRG-SC-AC is proportional to the average of the of the fully-rectified AC input signal, and is calibrated for sine waves between 40-400Hz.

For current inputs above 100mAAC, it is recommended that an input shunt resistor be used and the DRG-SC-AC be configured for the proper input range. For example, a 5AAC current transformer output can use a 0.1Ω, 5W shunt resistor and set the input of the DRG-SC-AC for 0-500mVAC.

APPLICATION

The DRG-SC-AC is useful in applications requiring an isolated, conditioned DC output from an AC signal. Typical applications include energy management, load shedding, motor current/load monitoring, locked rotor detection, isolation and data acquisition. The output of the DRG-SC-AC can drive a digital meter for direct display or can interface with alarming or control devices including PLCs and computers.

DIAGNOSTIC LED

The DRG-SC-AC is equipped with a dual function LED signal monitor. The green, front mounted LED indicates both DC power and input signal status. Active DC power is indicated by an illuminated LED. If the input signal is more than 110% of the full-scale range, the LED will quickly flash at 8Hz. If this continues to occur, you may wish to change your full-scale input range setting.

CONFIGURATION

A major advantage of the DRG-SC-AC is its wide ranging capabilities and ease of configuration. The DRG-SC-AC has 15 input range switch settings.

Trim potentiometers allow 50% input zero and span adjustability within each of the 15 full-scale input ranges.

For example, the 200V switch setting in Table 1 configures the input for a 0 to 200VAC range. Since the span can be contracted by 50%, this enables an input span as narrow as 100VAC of the range. This span can be positioned anywhere within the 0-200VAC range with a zero offset as large as 50% of the full scale range (e.g. 100 to 200VAC range).

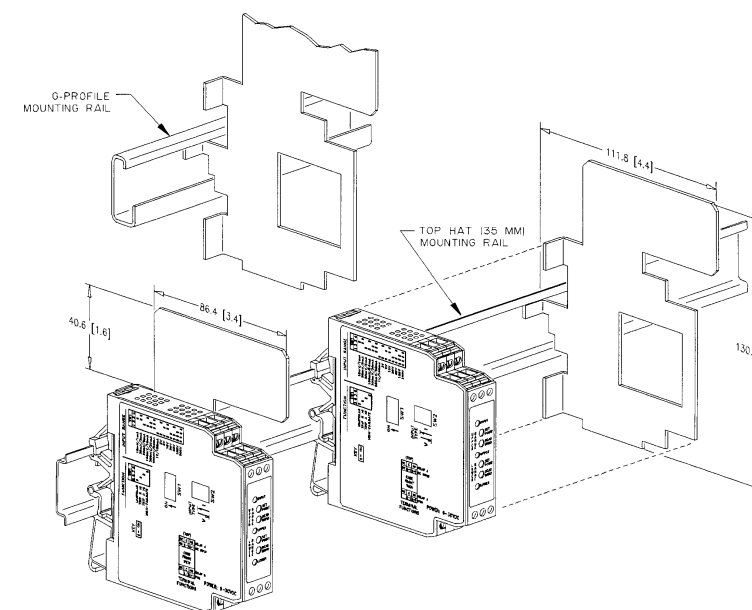
Unless otherwise specified, the factory presets the Model DRG-SC-AC as follows:

Input Range: 0-500mVAC
 Output: 4-20mA

WARNING: Do not attempt to change any switch settings with power applied. Severe damage will result!

The DC power input accepts any DC source between 9 and 30V, typically a 12V or 24VDC source is used

Refer to Tables 1 through 3 for the proper switch settings. With power disconnected, use the switches on SW1 to select the input type (voltage or current), on SW2 to select the HI or LO input ranges, and on SW4 to select the desired input range. Using the switches on SW3, select the desired type of output.



Note1: All DRG-Series modules are designed and tested to operate in ambient temperatures from 0 to 55°C, when mounted on a horizontal DIN rail. When five or more modules are mounted on a vertical rail, circulating air or model DRG-HS01 Heat Sink is recommended.



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- FOR WARRANTY RETURNS, please have the following information available BEFORE contacting OMEGA:
1. P. O. number under which the product was PURCHASED,
 2. Model and serial number of the product under warranty, and
 3. Repair instructions and/or specific problems relative to the product

- FOR NON-WARRANTY REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:
1. P. O. number to cover the COST of the repair,
 2. Model and serial number of product, and
 3. Repair instructions and/or specific problems relative to the product.

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CALIBRATION

1. After configuring the DIP switches, connect the input to a calibrated AC source. Connect the output of the actual device load (or a load approximately equivalent to the actual device load value) and apply power. Refer to the Terminal Wiring Diagram. (Figure 3)

NOTE: to maximize thermal stability, final calibration should be performed in the operating installation, allowing approximately 1 to 2 hours for warm up and thermal equilibrium of the system.

2. Set the calibrator to the desired minimum and adjust the zero potentiometer for the desired minimum output.

3. Set the calibrator to the desired maximum and adjust the span potentiometer for the desired maximum output.

4. Repeat steps 2 and 3, if necessary for best accuracy.

Figure 1: DRG-SC-AC Input Range Selector-Switch Settings

Voltage	Current	SW1							
		1	2	3	4	5	6	7	8
100mV	10mA				■				■
200mV	20mA				■		■		■
500mV	50mA			■	■		■	■	■
1V	100mA			■	■		■	■	■
2V				■	■		■	■	■
5V				■	■		■	■	■
10V				■	■		■	■	■
20V				■	■		■	■	■
50V				■	■		■	■	■
100V				■	■		■	■	■
200V				■	■		■	■	■
250V				■	■		■	■	■

Figure 2: DRG-SC-AC Output Range Selector-Switch Settings

RANGE	SW2							
	1	2	3	4	5	6	7	8
0 to +5V	■	■	■	■				
0 to +10V	■		■	■				
0 to 1mA		■	■	■				
4 to 20mA						■	■	■
0 to 20mA	■	■				■	■	■

Figure 3: DRG-SC-AC Input Jumper Settings

TYPE	SW1	
	9	10
CURRENT	■	
VOLTAGE	■	

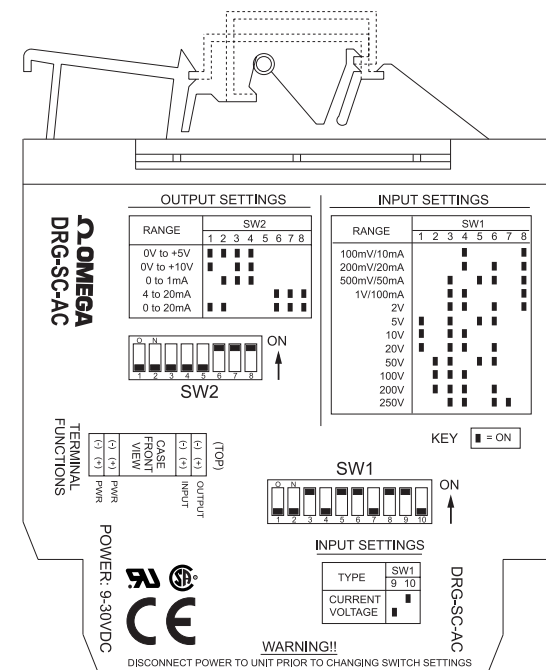


Figure 1: DRG-SC-AC Factory Calibration: 0-500mVAC, 4-20mA

Warning: Do not attempt to change any switch settings with power applied. Severe damage may occur!

TYPICAL APPLICATION

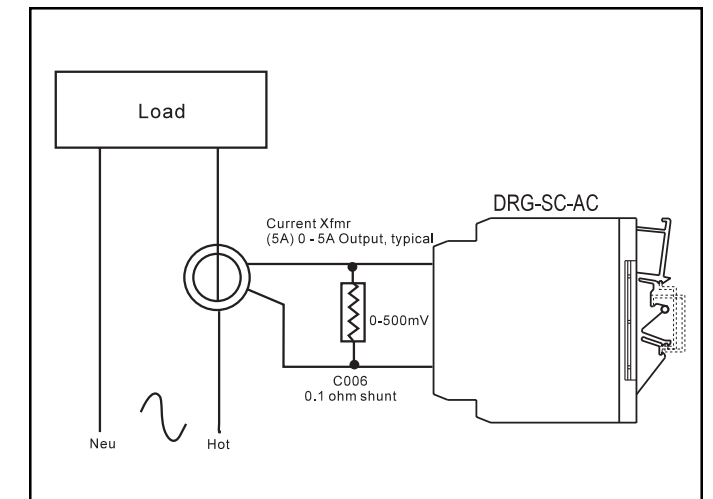


Figure 2: Load monitoring using a current transformer and the DRG-SC-AC

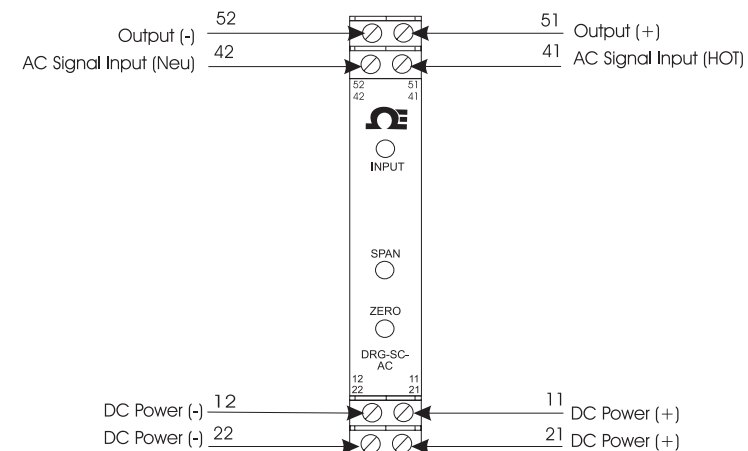


Figure 3: Wiring Diagram for DRG-SC-AC

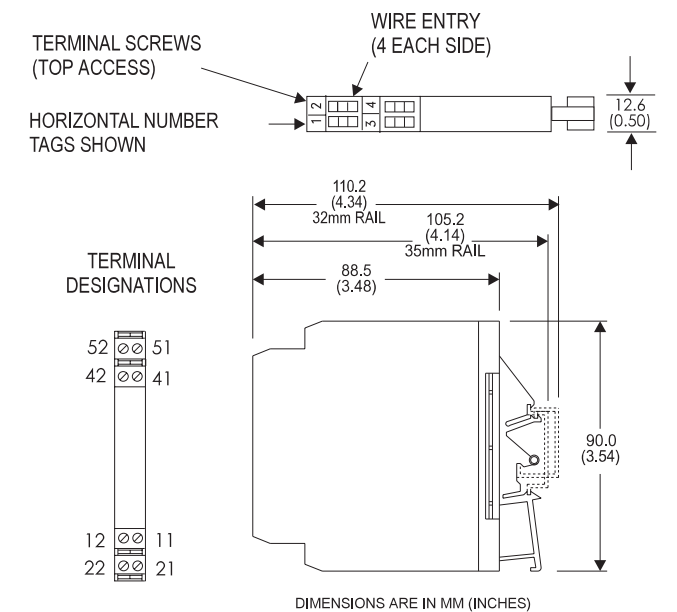


Figure 5: Mechanical Dimensions for DRG-SC-AC