

# DC Input Field Configurable Limit Alarms



SMLA Series



- ✓ SMLA-1 (Single Trip, DPDT, 5A) SMLA-2 (Single/Dual Trip, 2 SPDT, 5A)
- ✓ Field Configurable Input Ranges for DC Voltage and Current
- ✓ Exclusive “Dynamic Deadband” Prevents False Trips
- ✓ Provides Relay Contact Closures at a Preset DC Input Level
- ✓ Programmable HI or LO Setpoints
- ✓ Failsafe/Latching Operation
- ✓ Selectable 120/240 Vac Input Power

SMLA-1 single setpoint and SMLA-2 dual setpoint limit alarms offer flexible, wide-ranging DC input capability. Voltage spans from 10 mV to 200V and current spans from 1 mA to 100 mA can be field configured. Bipolar inputs are also accepted. Both models offer configurable latching, failsafe and HI/LO operation. The SMLA-1 and SMLA-2 also include 0.25% to 50% adjustable deadbands and selectable 120/240 Vac input power.

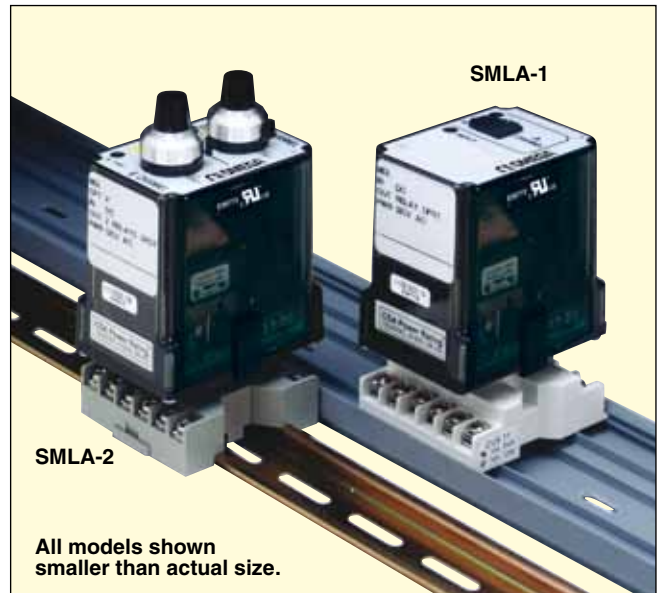
Models SMLA-1 and SMLA-2 are equipped with a dual function diagnostic LED. The green center LED indicates line power and input signal status. Active line power is indicated by an illuminated LED. If the center LED is off, check line power and the wiring connection. If the input signal is above 100% full scale, the LED will flash at approximately 8 Hz. Below 0%, the flash rate is approximately 4 Hz.

The single setpoint SMLA-1 and the dual setpoint SMLA-2 provide the following relay outputs: SMLA-1 Single Trip (DPDT, 5A); SMLA-2 Single/Dual Trip (2 SPDT, 5A). Setpoints are top accessed multi-turn potentiometers.

The field configurable SMLA-1 and SMLA-2 limit alarm setpoints can be configured for HI, LO, latching or failsafe trip operation. Non-latching HI and LO setpoints have respective HI and LO deadbands. 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 LO deadband. To reset a latched setpoint the signal must be in the safe region and the line power turned off for at least 5 seconds. For proper deadband operation, a HI setpoint must always be set above a LO setpoint.

In failsafe operation, the relay is energized when the process is below the HI setpoint or above the LO setpoint (opposite for nonfailsafe). In the failsafe mode, the relays go to the tripped condition when the power fails.

The input must remain beyond the setpoint for 100 milliseconds, uninterrupted, 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” - based on time - in addition to the normal deadband.



The factory default configuration for models SMLA-1 and SMLA-2 is as follows:

	SMLA-1	SMLA-2
<b>Input</b>	0 to 20 mA	0 to 20 mA
<b>Output</b>	Single, DPDT	Dual, SPDT
<b>Trip</b>	HI	A: HI, B: LO
<b>Latching</b>	No	No
<b>Failsafe</b>	Yes	No
<b>Deadband</b>	0.25%	A/B: 0.25%
<b>Power</b>	120 Vac	120 Vac

## Specifications

### INPUT

#### Voltage Input (Unipolar or Bipolar):

**Range:** 10 mV, 20 mV, 50 mV, 100 mV, 200 mV, 500 mV, 1V, 2V, 5V, 10V, 20V, 50V, 100V, 200V (dip-switch selectable)

**Impedance:** >100 kΩ

**Overvoltage:** 400V max

#### Current Input (Unipolar or Bipolar):

**Range:** 1 mA, 2 mA, 5 mA, 10 mA, 20 mA, 50 mA, 100 mA (dip-switch selectable)

**Impedance:** 20 Ω typical

**Overcurrent:** 200 mA max

**Overvoltage:** 60 Vdc

#### Common Mode (Input to Ground): 1000 Vdc max

#### LED Indications:

##### Input Range (Green):

>100% Input: 8 Hz flash

<0% Input: 4 Hz flash

##### Setpoint (Red):

Tripped: Solid red

Safe: Off



**Limit Differential (Deadband):**

- >50 mV/5 mA: 0.25% to 50% of span
- <50 mV/5 mA: 1% to 50% of span

**Response Time:**

**Dynamic Deadband:** Relay status will change when proper setpoint/process condition exists uninterrupted for 100 msec

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

**Setpoint:**

**Effectivity:** Setpoints are adjustable over 100% of the selected input span

**Repeatability (Constant Temp):**

- >50 mV/5 mA: 0.1% of full scale
- <50 mV/5 mA: 0.2% of full scale

**Stability:**

**Line Voltage:** ±0.01%/ % max

**Temperature:** ±0.05% of full scale/°C max

**Common Mode Rejection:** DC to 60 Hz: 120 dB

**Isolation:** 1000 Vdc between contacts, input and power

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

**Humidity:**

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

**Soak:** 90 %RH for 24 hours @ 65°C (149°F)

**Temperature Range:**

**Operating:** 0 to 60°C (32 to 140°F)

**Storage:** -15 to 70°C (5 to 158°F)

**Power:** 120/240 Vac ± 10%, 50 to 60 Hz selectable, 2 W typical, 5 W max

**Relay Contacts:**

**SMLA-1:** DPDT (2 Form C)

**SMLA-2:** 1 SPDT (1 Form C) per setpoint

**Current Rating (Resistive):** 120 Vac: 5A; 240 Vac: 2A; 28 Vdc: 5A (external relay contact protection is required for use with inductive loads)

**Material:** Silver-Cadmium Oxide

**Electrical Life:** 10<sup>5</sup> operations at rated load

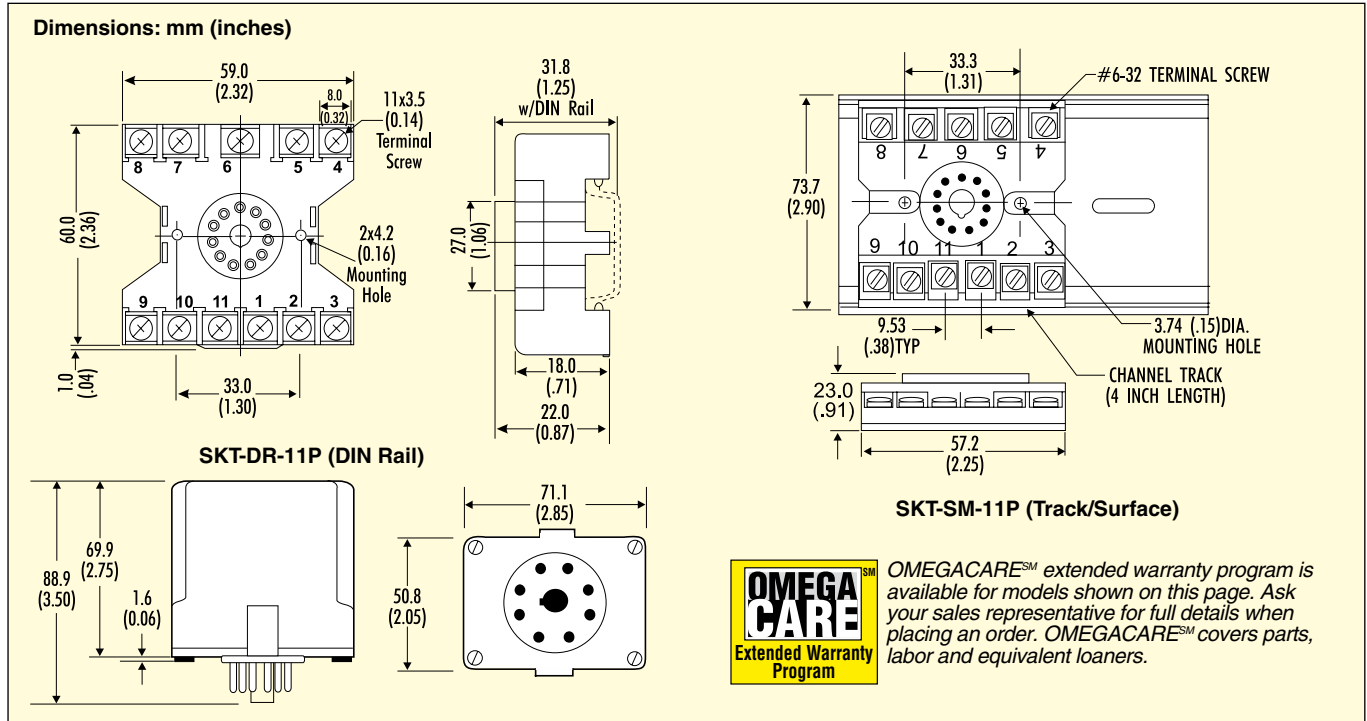
**Mechanical Life:** 10<sup>7</sup> operations

**Latch Reset Time:** 5 seconds

**Weight:**

**SMLA-1:** 209 g (0.46 lb)

**SMLA-2:** 282 g (0.62 lb)



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

To Order	
Model No.	Description
SMLA-1	Single setpoint DC input field configurable limit alarm
SMLA-2	Dual setpoint DC input field configurable limit alarm
SKT-DR-11P	11-pin socket, DIN rail mount
SKT-SM-11P	11-pin socket, surface mount
SM-RAIL-2	35 mm DIN rail, 2 m (6.6') length
SMRS	Retaining spring (secures limit alarm module into DIN rail or surface mount socket)

Comes complete with operator's manual.

**Ordering Example:** SMLA-1 single setpoint DC input field configurable limit alarm, SKT-SM-11P 11-pin socket, surface mount and OCW-1 OMEGACARE extends standard 1 year warranty to a total of 2 years.