Specifications

Input:
- Voltage Input (field configurable)
  - Full Scale Range:
    - 10mV to 100V
  - Impedance: >100K Ohms
    - Overvoltage:
    - Intermittent, 400Vrms
    - Continous, 264 Vrms
  - Current Input (field configurable)
    - Full Scale Range: 1mA to 100mA
    - Impedance: 20 Ohms, typical
    - Overcurrent: 170mA RMS, max
    - Overvoltage: 60VDC
  - Common Mode (Input toGround): 1500VDC, max
  - Zero Turn-Up:
    - 50% of full scale range
  - Span Turn-Down:
    - 50% of full scale range

Output:
- Voltage Output
  - Output: 0-5V, 0-10V
  - Drive: 10mA, max (1K Ohms min. @ 10V)
- Current Output
  - Output: 0-1mA, 4-20mA
  - Compliance:
    - 0-1mA: 10V, max. (10K Ohms, max)
    - 4-20mA: 20V, max. (1K Ohms, max)

LED Indication (green):
- Input Range
  - >110% input: 8Hz flash
  - <0% input: 4Hz flash

Accuracy (Including Linearity Hysteresis):
<20mV/2mA: ±0.35% of full scale, typical, 0.5%, max
>20mV/2mA: ±0.1% of full scale, typical, 0.2%, max

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

Stability (Temp):
±0.025% of full scale/°C, typical, ±0.05%/°C, max.

Common Mode Rejection:
DC to 60Hz: 120dB

Isolation:
1500 VDC between input, output & power

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

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

Temperature Range:
Operating: -15 to 60°C (5 to 140°F)
Storage: -25 to 70°C (-13 to 158°F)

Power:
Consumption: 3W typical, 5W max
Standard: selectable 120/240VAC, ±10%, 50-60Hz
Optional: 9 to 30VDC, inverter isolated

Weight:
0.60lbs

Agency Approvals:
UL recognized per standard UL508.

Pin Connections

1 Power (Hot)
2 Not Internally Connected
3 Power (Neu)
4 Spare Termination
5 Input (+)
6 Input (-)
7 Output (+)
8 Output (-)

DC Power: PIN 1 = (+); PIN 3 = (-)

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If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.
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The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY RETURNS**, please have the following information available BEFORE contacting OMEGA.
1. Purchase order number 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 RETURNS**, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA.
1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product and
3. Repair instructions and/or specific problems relative to the product.

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SMSC-1

DC Input, Field Configurable Signal Conditioner

INSTRUCTION SHEET

M5481/0715

Shop online at omega.com℠ e-mail: info@omega.com
For latest product manuals: www.omegamanual.info

Provides Isolated DC Output in Proportion to a DC Input

- Eliminates Ground Loops
- 50% Adjustable Field Configurable Input Ranges: 10mV to 100V (200V on -2001), 1mA to 100mA
- Four Field Configurable Output Ranges: 0-5V, 0-10V, 0-1mA, 4-20mA
- Plug-in Installation
- Selectable 120/240VAC Power (9 to 30VDC Available)
- ASIC Technology for Enhanced Reliability

Description

The field configurable SMSC-1 isolator offers wide ranging input and output capability for scaling and transmitting analog DC signals. The SMSC-1 will accept input voltage spans from 10mV up to 100 volts, as well as input current spans from 1mA to 100mA. The input zero and span potentiometers enable 50% input zero and span adjustability. For example, the 0-10V input range can be elevated to 5-10V, compressed to 0-5V or set to 2.5 - 7.5V. The AP4380 offers four (4) popular output ranges: 0-5V, 0-10V, 0-1mA and 4-20mA. The 4-20mA compliance is a powerful 20VDC. Model SMSC-1 can be configured to accept bipolar input ranges and offers selectable normal or reverse acting operation.

The SMSC-1 is a 3-port industrial isolator -- the output is optically isolated from its input up to 1500 VDC. The ASIC*-based I/O channel is independently transformer isolated from the selectable 120/240VAC power supply.

Application

The SMSC-1 field configurable isolator is useful in eliminating ground loops, converting signal levels and providing signal drive and redundancy. The wide ranging capability of the SMSC-1 provides quick universal spare part coverage.

Diagnostic LED

The SMSC-1 is equipped with a dual function LED signal monitor. The green, top-mounted LED indicates line power and input signal status. Active line power is indicated by an illuminated LED. If the input signal is 10% more than full scale range, the LED will flash at 8Hz. Below 0%, the flash rate is 4Hz.

Options

U Urethane coating of internal circuitry for protection from corrosive atmospheres.

Configuration

The factory presets theSMSC-1 input and output to 4-20mA, as shown in Figure 1. The supply power is configured for 120 VAC operation. For other I/O ranges, remove the four base screws and case to access the I/O card.

Refer to Figure 1 for configuration and program the I/O channel as desired. Replace the cover before applying power.

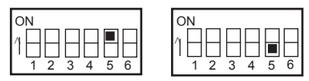
Warning: Do not attempt to change any switch settings with power applied. Severe damage will result!

Input

1. Position input jumper "W1" for Current (I) or Voltage (V) input.

Current Voltage

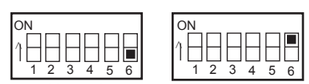
2. Set position 5 of the Input Range Selector for Unipolar (e.g. 0 to 5V) or Bipolar (e.g. -5 to 5V) operation.



Unipolar Bipolar

Note: A bipolar range selection will double any input range from Table 1 (e.g, 10V span becomes a -10 to 10V bipolar span)

3. Set position 6 of the Input Range Selector for Normal or Reverse operation. Reverse acting produces a decreasing output with an increasing input.



Normal Reverse

4. Using Table 1, configure positions 1 through 4 of the Input Range Selector for the desired maximum input. Round the desired maximum input value to the next highest range (e.g., 0-70V = 100V range).

Output

Warning: Do not configure the output ranges with the power on. Damage to unit may result.

1. Using Table 2, configure Output Selector for one of the four (4) standard outputs.

Power

1. Configure the AC jumpers for either 120 or 240 VAC operation. See Figure 2.

Calibration

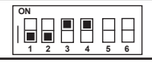
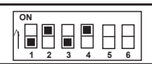
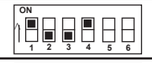
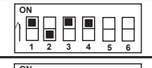
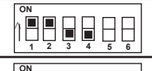
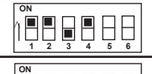
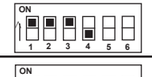
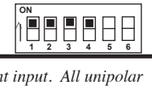
1. Connect the input to a calibrated DC voltage or current source and apply power. Wait 1 hour for thermal stability before monitoring the voltage/current output. Refer to PIN CONNECTIONS.

2. Set the calibrator to the desired minimum input and adjust the Zero, 20-turn, potentiometer for desired minimum output.

3. Set the calibrator to the desired maximum input and adjust the Span, 20-turn, potentiometer for desired maximum output.

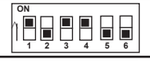
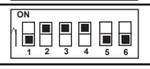
4. Repeat steps 2 and 3 for best accuracy.

Table 1: SMSC-1 Input Ranges

Voltage*	Current*	Input Range Selector (SW1)
20mV	2mA	
50mV	5mA	
100mV	10mA	
200mV	20mA	
500mV	50mA	
1V	100mA	
2V		
5V		
10V		
25V		
50V		
100V		

** Use jumper (W1) to configure voltage or current input. All unipolar ranges are zero based.*

Table 2: SMSC-1 Output Ranges

Range*	Output Range Selector (SW2)
0 to 10V	
0 to 5V	
0 to 1mA	
4 to 20mA	

I/O Card Configuration

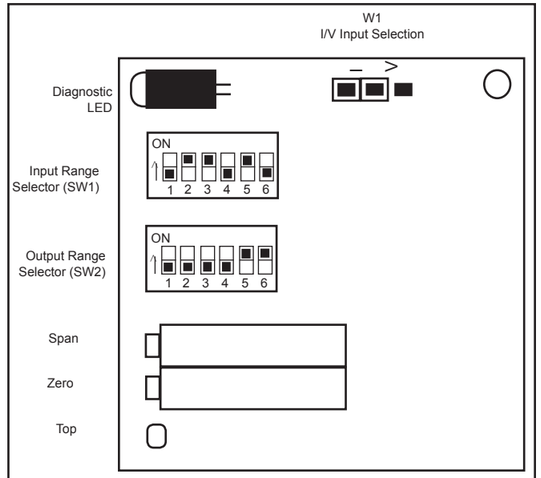
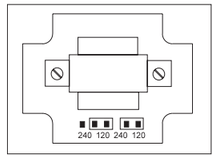


Figure 1: SMSC-1 I/O card factory calibration:
4-20mA input and output(shown sideways to view switches)

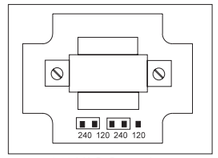
Warning: Do not configure I/O switch ranges with power on. Damage will result!

Warning: Applying voltage to the input with W1 in current (I) position will result in damage to the unit.

Top View Diagram



120 VAC Operation



240 VAC Operation

Warning: Do not change with power connected!

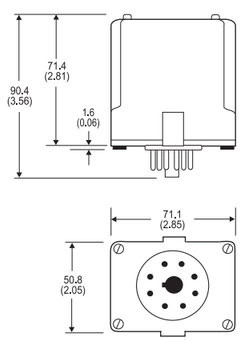
Figure 2: 120/240 VAC Selection

Mounting

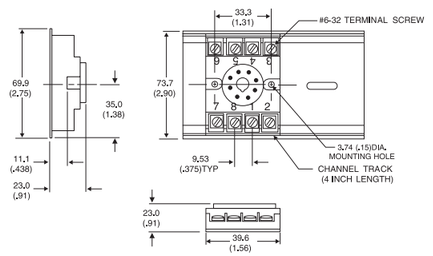
All modules feature plug-in installation. Model SMSC-1 uses an 8-pin base, either molded socket SKT-SM-8P or DIN socket SKT-DR-8P.

Dimensions

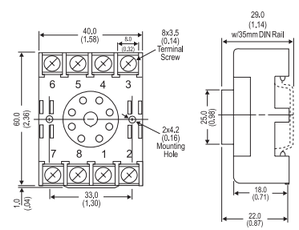
Dimensions are in millimeters (inches)



Mark II



SKT-SM-8P (Track/Surface)



SKT-DR-8P (DIN Rail)