

DUAL CHANNEL PROCESS CONDITIONER/ISOLATOR/SPLITTER

SEM1750

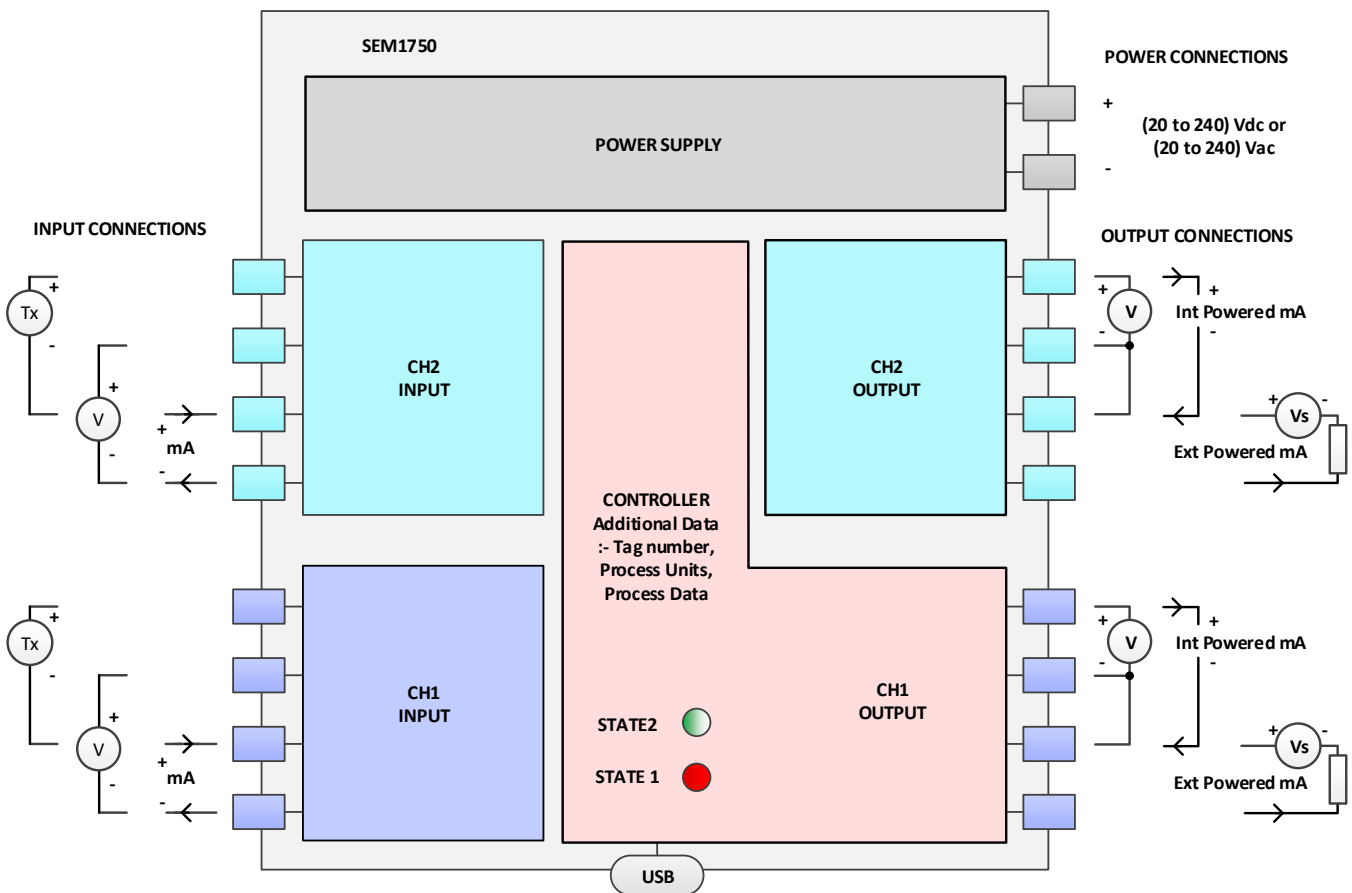
- ±50 Vdc or ±50 mA FULL RANGE INPUTS WITH TRANSMITTER SUPPLY
- VOLTAGE OR CURRENT ACTIVE / PASSIVE OUTPUTS
- DIRECT USB CONFIGURATION OFFERS SYSTEM DIAGNOSTIC TOOLS
- DUAL CHANNEL WITH 5 PORT ISOLATION (3.75 KV)
- WIDE RANGING AC/DC POWER SUPPLY
- USER SELECTABLE MATHS FUNCTIONS ON EACH OUTPUT CHANNEL
- USER LINEARISATION (PROFILE) FUNCTION
- CONFIGURABLE AS AN ACTIVE SIGNAL SPLITTER



➤ INTRODUCTION

The SEM1750 is a cost effective dual channel signal conditioner that accepts a bipolar voltage or current signal and isolates to provide ranged industrial process output signals such as (0 to 20) mA, (4 to 20) mA, (0 to 10) V, (1 to 5) VDC.

The SEM1750 is configured using our easy to use configuration software USB Speed Link. USB speed link offers the user two levels of configuration: a basic current/voltage signal converter where the device can be set as dual channel or signal splitter, or for more advanced applications, a configuration menu offering a wide range of user set functions, including process scaling and profiling, maths functions, signal damping, sensor linearization and signal preset for diagnostics purposes.



DUAL CHANNEL PROCESS CONDITIONER/ISOLATOR/SPLITTER

➤ PC CONFIGURATION

EQUIPMENT

| | |
|-----------|---|
| COMPUTER | Running Windows XP or later with USB port |
| USB CABLE | A to Mini B |

METHOD

Load PC with USB_SpeedLink software. Then install drivers. Connect SEM1750 USB port to PC USB port using cable. Run software, set configuration required and save to device.

➤ SPECIFICATIONS @ 20 °C

INPUTS (Channels 1 & 2)

SAMPLE RATE

| | |
|----------|--|
| User Set | 420 mS (18 Bits full range) 140 mS (16 Bits full range) 70 mS (14 Bits full range) |
|----------|--|

CURRENT

| | |
|--------------------|---|
| Full Range | ± 50 mA |
| User Range | any range within full range |
| Impedance | 10 Ω |
| Accuracy | Range (-22 to 22) mA ±5 µA Range (-50 to 50) mA ±10 µA |
| Stability | 0.02 % (Full Scale) / °C |
| Transmitter supply | 22 V dc @ 25 mA |

VOLTAGE

| | |
|------------|---|
| Range | ± 50 V dc |
| User Range | any range within full range |
| Impedance | 1 MΩ |
| Accuracy | Range (-22 to 22) V ±5 mV Range (-50 to 50) V ±10 mV |
| Stability | 0.02 % (Full Scale) / °C |

DAMPING

| | |
|------|---|
| Type | Independent rise and fall delays (0 to 3600) seconds per 1 V or 1 mA output change. |
|------|---|

PRESET

| | |
|------|----------------------|
| Type | User software preset |
|------|----------------------|

PROFILE (USER LINEARISATION)

User Linearisation 22 segment
Input to process variable (PV).

OUTPUT (Channels 1 & 2)

Output channels can be independently set to monitor one of the following (Ch1 & Ch2) input Functions.

| | |
|--------------|---|
| Output Types | Ch1 Ch2 (Ch1 + Ch2) (Ch1 - Ch2) Absolute (Ch1 - Ch2) Highest Channel (CH1 or CH2) Lowest Channel (CH1 or CH2) (CH1 * CH2) (CH1 / CH2) (CH1 ^ 2) (CH2 ^ 2) Average (CH1 CH2) Fixed signal (For Diagnostics) Current (sink, source), Voltage |
|--------------|---|

OUTPUT (Channels 1 & 2) (Continued)

Current Range

| | |
|---------------------|--|
| Working Range | (0 to 20) mA |
| User Range | any range within full range |
| Max Range | 23.1 mA (typical) |
| Loop Voltage effect | 0.2 µA / V (Sink Mode) |
| Thermal drift | 1 µA / °C |
| Current sink | Supply voltage (10 to 28) V dc |
| Current source | Max Load 700 Ω |
| Accuracy | (mA Out / 2000) or ± 5 µA whichever is the greater |

Voltage Ranges

| | |
|-------------------|----------------------------------|
| Working Range | (0 to 10) V |
| User Range | any range within full range |
| Max Range | 10.1 V (typical) |
| Voltage Load | Min 1 KΩ (compensation provided) |
| Output Connection | Screw Terminal |
| Accuracy | ± 5 mV |
| Thermal Drift | ± 1 mV / °C |

GALVANIC ISOLATION

| | |
|--|---------------|
| Supply to Input / Output | BS EN 61010-1 |
| Working Voltage | 253 V ac |
| Isolation test Voltage | 4000 V ac |
| Input output ports | |
| Max Voltage (fault) | 250 V ac |
| Isolation test voltage | 3750 V dc |
| (Note USB terminals and CH1 output share the same Ground) | |

GENERAL SPECIFICATION

| | |
|---------------|-----------------|
| Update time | 420, 140, 70 mS |
| Start up time | 4 seconds |

SUPPLY

| | |
|------------|---|
| Range | (20 to 240) V dc (20 to 240) V ac (50 to 60) Hz Power 3 W @ full output current |
| Protection | Internal fuse (0.5 A) Over Voltage protection. (@250 V) |

CONFIGURATION

The following applies to both channels independently.

Input Signal

| | |
|--------------------|---|
| Scan Type | 420, 140, 70 mS |
| Type | ±50 mA or ±50 V |
| Preset | Isolates input signal and allows user to enter input signal value. |
| Damping | Independent rise/fall delays for Each channel. |
| User Linearisation | Segment (3 to 22) Floating point numbers. Input range to process range. |

Process Signal

Process Units (4 characters)

Tag Number

20 characters

Output Signal Source

Selects output channel source

Process out signal

| | |
|------------------|---|
| Process Out Low | Any point within indicated process range. |
| Process Out High | Any point within indicated process range. |

Output Signal

| | |
|-----------------|-----------------------------|
| Type | (0 to 20) mA, (0 to 10) V |
| Low Signal Out | Any point within type range |
| High Signal Out | Any point within type range |

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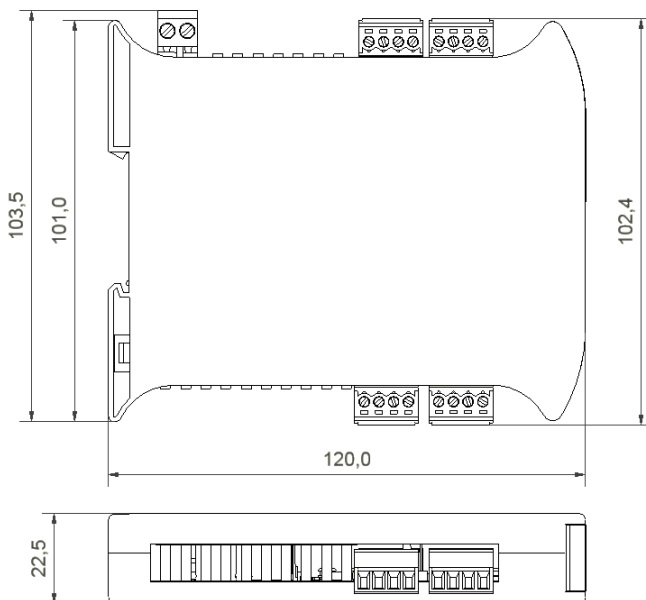
➤ ENVIRONMENT

Environmental

Ambient operating range (-30 to +70) °C
Ambient storage temperature (-40 to +85) °C
Ambient humidity range (10 to 90) % RH non condensing
Warm-up time 1 minute to full accuracy

➤ MECHANICAL

All dimensions in mm



SYSTEM DIAGNOSTIC TOOLS

1. With USB_Speed_Link the SEM1750 allows the user to select any part of the output range as a fixed output for system fault finding.
2. The SEM1750 can be "told" by the software its input value, causing it to respond accordingly. This allows the user to confirm the output response for any given input value.
3. By setting a user profile with damping delay and switching the input condition from high to low the output signal can be made to follow a pre-defined, timed, response profile allowing the diagnostics of any downstream equipment (refer to application notes).
4. The free configuration software is capable of displaying the electrical input signal, the converted process signal and output value for each channel.
5. The free configuration software is capable of recording timed stamped input and output values from the SEM1750 to file on a PC. The file can be used to create graphs and reports showing how a system has behaved over time.

ORDER CODE: SEM1750

ACCESSORIES:
USB LEAD A/M TO MINI B/M 48-200-0001-01

USB speed link software is a free download available at www.statinst.com. The software runs without the device connected, allowing the user to familiarise themselves with the configuration menus and product capability prior to purchase.