

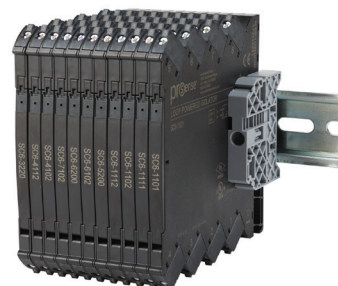
# prosense® SC6 Series Signal Conditioners

## SC6 Series Signal Conditioners

The ProSense SC6 Series of signal conditioners are housed in a narrow 6mm width package that allows for high density mounting on a 35mm DIN rail, saving panel space. Various models are available for conversion of standard DC voltage and current signals, bipolar signals, thermocouples and RTDs with isolation that eliminates ground loop problems. The SC6 Series includes single channel, two channel and signal splitter models. Depending on the SC6 Series model, power options include an in-rail power bus, loop powered output, as well as models that are powered directly from the input signal. Application specific models that have fixed configuration require no set up; DIP switch configured models provide flexibility to meet a variety of applications. All models are UL Listed as well as FM approved for use in Class 1 Division 2 hazardous locations.

## Features

- Conversion of standard DC voltage and current signals, bipolar signals, thermocouples and RTDs
- Single channel, two channel and signal splitter models
- Isolation eliminates ground loop problems
- Narrow 6mm width allows for high density mounting on a DIN rail saving panel space
- Various power options, including an in-rail power bus for certain models
- Fixed configuration or DIP switch selectable configuration for simple setup
- LED operation status on some models
- Excellent accuracy and fast response time
- Wide operating temperature range
- Suitable for high vibration environments
- UL Listed; FM approved for use in Class 1 Division 2 hazardous locations



| SC6 Series Signal Conditioner Selection Guide - Analog Signal Input Modules |                                                        |          |          |          |          |          |          |          |          |          |          |          |          |
|-----------------------------------------------------------------------------|--------------------------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Part Number                                                                 |                                                        | SC6-1100 | SC6-1110 | SC6-2200 | SC6-2220 | SC6-3200 | SC6-3220 | SC6-1101 | SC6-1111 | SC6-1102 | SC6-1112 | SC6-4102 | SC6-4112 |
| Price                                                                       |                                                        | \$177.00 | \$216.00 | \$199.00 | \$238.00 | \$200.00 | \$247.00 | \$126.00 | \$181.00 | \$147.00 | \$217.00 | \$148.00 | \$217.00 |
| Weight (lb)                                                                 |                                                        | 0.27     | 0.27     | 0.27     | 0.27     | 0.27     | 0.27     | 0.27     | 0.27     | 0.27     | 0.27     | 0.27     | 0.27     |
| Input                                                                       | Current Input                                          | X        | X        | X        | X        | X        | X        | X        | X        | X        | X        | -        | -        |
|                                                                             | Voltage Input                                          | -        | -        | X        | X        | X        | X        | -        | -        | -        | -        | -        | -        |
|                                                                             | 2-Wire Transmitter Input (Loop power provided)         | -        | -        | X        | X        | -        | -        | -        | -        | -        | -        | X        | X        |
|                                                                             | Bipolar Voltage/Current Input                          | -        | -        | -        | -        | X        | X        | -        | -        | -        | -        | -        | -        |
| Output                                                                      | Current Output                                         | X        | X        | X        | X        | X        | X        | X        | X        | X        | X        | X        | X        |
|                                                                             | Voltage Output                                         | -        | -        | X        | X        | X        | X        | -        | -        | -        | -        | -        | -        |
|                                                                             | Bipolar Current Output                                 | -        | -        | -        | -        | -        | X        | -        | -        | -        | -        | -        | -        |
| Power                                                                       | 2-wire, Loop Powered by Input Signal                   | -        | -        | -        | -        | -        | -        | X        | X        | -        | -        | -        | -        |
|                                                                             | 2-wire, Loop Powered (Output Side)                     | -        | -        | -        | -        | -        | -        | -        | -        | X        | X        | X        | X        |
|                                                                             | 4-wire, External Power (In-rail Power Bus or Terminal) | X        | X        | X        | X        | X        | X        | -        | -        | -        | -        | -        | -        |
| Application                                                                 | One Channel                                            | X        | -        | X        | -        | X        | -        | X        | -        | X        | -        | X        | -        |
|                                                                             | Two Channels                                           | -        | -        | -        | -        | -        | -        | -        | X        | -        | X        | -        | X        |
|                                                                             | One Input to Two Output Signal Splitter                | -        | X        | -        | X        | -        | X        | -        | -        | -        | -        | -        | -        |
| Isolation                                                                   | Input / Output/ Power Isolated                         | X        | X        | X        | X        | X        | X        | X        | X        | X        | X        | X        | X        |

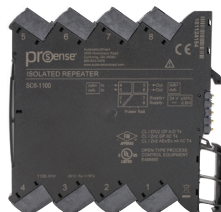
# proense® SC6 Series Signal Conditioners

## SC6 Series Signal Conditioner Selection Guide - Temperature Input Modules

| Part Number |                                                        | SC6-5200 | SC6-6200 | SC6-7102 | SC6-6102 |
|-------------|--------------------------------------------------------|----------|----------|----------|----------|
| Price       |                                                        | \$181.00 | \$169.00 | \$159.00 | \$108.00 |
| Weight (lb) |                                                        | 0.27     | 0.27     | 0.27     | 0.27     |
| Input       | Type J/K Thermocouple Input                            | X        | –        | X        | –        |
|             | Pt100 RTD Input                                        | –        | X        | X        | X        |
| Output      | Current Output                                         | X        | X        | X        | X        |
|             | Voltage Output                                         | X        | X        | –        | –        |
| Power       | 2-wire, Loop Powered (Output Side)                     | –        | –        | X        | X        |
|             | 4-wire, External Power (In-Rail Power Bus or Terminal) | X        | X        | –        | –        |
| Application | One Channel                                            | X        | X        | X        | X        |
|             | Two Channels                                           | –        | –        | –        | –        |
|             | One Input to Two Output Signal Splitter                | –        | –        | –        | –        |
| Isolation   | Input / Output/ Power Isolated                         | X        | X        | X        | –        |

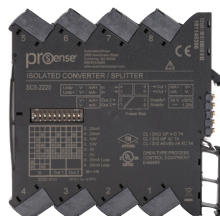
## Unit Features

### SC6-1100



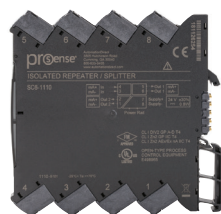
- 0-23 mA input
- 0-23 mA output (1:1 signal conversion)
- One channel
- Isolation
- 4-wire, 24VDC externally powered (terminals or in-rail power bus)
- Fixed configuration - requires no setup
- LED indication

### SC6-2220



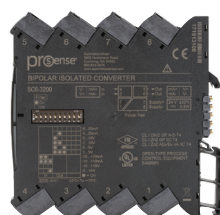
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V, 2-wire transmitter input
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V outputs
- Signal splitter – one input to two outputs
- Isolation
- 4-wire, 24VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

### SC6-1110



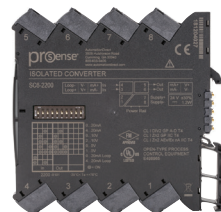
- 0-23 mA input
- 0-23 mA output (1:1 signal conversion)
- Signal splitter – one input to two outputs
- Isolation
- 4-wire, 24VDC externally powered (terminals or in-rail power bus)
- Fixed configuration - requires no setup
- LED indication

### SC6-3200



- Bipolar +/-10 mA, +/-20 mA, +/-5V, +/-10V inputs
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V output
- One channel
- Isolation
- 4-wire, 24VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

### SC6-2200



- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V, 2-wire transmitter input
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V output
- One channel
- Isolation
- 4-wire, 24VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

### SC6-3220



- Bipolar +/-10 mA, +/-20 mA, +/-5V, +/-10V inputs
- 0-20 mA, 4-20 mA, +/-10 mA, +/-20 mA, 0-5V, 1-5V, 0-10V, 2-10V outputs
- Signal splitter – one input to two outputs (or one bipolar output)
- Isolation
- 4-wire, 24VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

# proense® SC6 Series Signal Conditioners

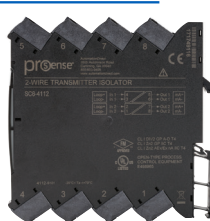
## Unit Features Continued

### SC6-1101



- 0-23 mA input
- 0-23 mA output (1:1 signal conversion)
- One channel
- Isolation
- Powered by input current signal
- Fixed configuration - requires no setup

### SC6-4112



- 2-wire transmitter (3.5 - 23 mA) input
- 3.5 - 23 mA outputs (1:1 signal conversion)
- Two channels
- Isolation
- 2-wire, 6-35 VDC loop powered output
- Fixed configuration - requires no setup

### SC6-1111



- 0-23 mA input
- 0-23 mA output (1:1 signal conversion)
- Two channels
- Isolation
- Powered by input current signal
- Fixed configuration - requires no setup

### SC6-5200



- Thermocouple Type J, Type K input
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V output
- One channel
- Isolation
- 4-wire, 24VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

### SC6-1102



- 3.5 - 23 mA input
- 3.5 - 23 mA output (1:1 signal conversion)
- One channel Isolation
- 2-wire, 6-35 VDC loop powered output
- Fixed configuration - requires no setup

### SC6-6200



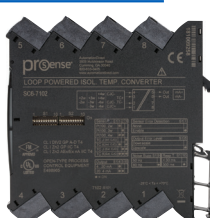
- RTD Pt100 input
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V output
- One channel
- Isolation
- 4-wire, 24VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

### SC6-1112



- 3.5 - 23 mA input
- 3.5 - 23 mA output (1:1 signal conversion)
- Two channels
- Isolation
- 2-wire, 6-35 VDC loop powered output
- Fixed configuration - requires no setup

### SC6-7102



- Thermocouple Type J, Type K, RTD Pt100 input
- 4-20 mA, 20-4 mA output
- One channel
- Isolation
- 2-wire, 5.5-35 VDC loop powered output
- DIP switch configured

### SC6-4102



- 2-wire transmitter (3.5 - 23 mA) input
- 3.5 - 23 mA output (1:1 signal conversion)
- One channel
- Isolation
- 2-wire, 6-35 VDC loop powered output
- Fixed configuration - requires no setup

### SC6-6102



- RTD Pt100 input
- 4-20 mA, 20-4 mA output
- One channel
- Non-isolated
- 2-wire, 3.3-35 VDC loop powered output
- DIP switch configured

# prosense® SC6 Series Signal Conditioners

## 4- Wire, External Powered Analog Signal Input Modules - Technical Specifications

| Part No.                                                                                      | <u>SC6-1100</u>                               | <u>SC6-2200</u>                      | <u>SC6-1110</u>  | <u>SC6-2220</u>                      | <u>SC6-3200</u>                        | <u>SC6-3220</u>        |
|-----------------------------------------------------------------------------------------------|-----------------------------------------------|--------------------------------------|------------------|--------------------------------------|----------------------------------------|------------------------|
| Application                                                                                   | One channel                                   | One channel                          | Signal splitter  | Signal splitter                      | One channel                            | Signal splitter        |
| DIP switch configurable                                                                       | No                                            | Yes                                  | No               | Yes                                  | Yes                                    | Yes                    |
| Supply voltage                                                                                | 16.8 - 31.2 VDC (terminals or bus rail)       |                                      |                  |                                      |                                        |                        |
| Max. required power*                                                                          | 0.80 W                                        | 1.20 W                               | 0.80 W           | 1.20 W                               | 0.80 W                                 | 1.20 W                 |
| Max. power dissipation**                                                                      | 0.60 W                                        | 0.55 W                               | 0.48 W           | 0.60 W                               | 0.43 W                                 | 0.43 W                 |
| Isolation voltage, test                                                                       | 2.5 kVAC                                      |                                      |                  |                                      |                                        |                        |
| Isolation voltage, working                                                                    | 300VAC (reinforced) / 250VAC (Zone 2, Div. 2) |                                      |                  |                                      |                                        |                        |
| Double isolation                                                                              | Input / Output 1 / Output 2 / Supply          |                                      |                  |                                      |                                        |                        |
| Signal dynamics, input / output                                                               | Analog signal chain                           |                                      |                  |                                      |                                        |                        |
| Signal / noise ratio                                                                          | > 60dB                                        |                                      |                  |                                      |                                        |                        |
| Cut-off frequency (3 dB)                                                                      | >100Hz                                        |                                      |                  |                                      | >100Hz or 10Hz (DIP switch selectable) |                        |
| Response time filter (0-90%, 100-10%)                                                         | <7ms                                          |                                      |                  |                                      | <7ms or <44ms (DIP switch selectable)  |                        |
| 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                               |                                      |                  |                                      |                                        |                        |
| Current input                                                                                 |                                               |                                      |                  |                                      |                                        |                        |
| Overall measurement range                                                                     | 0-23 mA                                       |                                      |                  |                                      | - 23mA to + 23mA                       |                        |
| Selectable measurement ranges                                                                 | 0-20 mA, 4-20 mA                              |                                      |                  |                                      | +/- 10mA, +/- 20mA                     |                        |
| Input voltage drop                                                                            | < 1.5 VDC                                     |                                      |                  |                                      | < 1VDC                                 |                        |
| Input resistance                                                                              | 190Ω nominal @ 4mA<br>70Ω nominal @ 20mA      |                                      |                  |                                      | 40Ω nominal                            |                        |
| Transmitter (Tx) auxiliary supply                                                             | None                                          | > 17VDC / 20mA                       | None             | > 17VDC / 20mA                       | None                                   |                        |
| Voltage input                                                                                 |                                               |                                      |                  |                                      |                                        |                        |
| Overall measurement range                                                                     | 0-10.25 VDC                                   |                                      |                  |                                      | - 11.5 VDC to + 11.5 VDC               |                        |
| Selectable measurement range                                                                  | 0-10 VDC, 2-10 VDC, 0-5 VDC, 1-5 VDC          |                                      |                  |                                      | +/-5 VDC, +/- 10 VDC                   |                        |
| Input resistance                                                                              | ≥ 500 kΩ                                      |                                      |                  |                                      | ≥ 1 MΩ                                 |                        |
| Current output                                                                                |                                               |                                      |                  |                                      |                                        |                        |
| Overall signal range (span)                                                                   | 0-23 mA                                       |                                      |                  |                                      |                                        |                        |
| Selectable signal ranges                                                                      | 0-20 mA, 4-20 mA                              |                                      |                  |                                      | 0-20 mA, 4-20 mA or +/-10 mA, +/-20 mA |                        |
| Load                                                                                          | ≤ 600Ω                                        |                                      | ≤ 300Ω / channel |                                      | ≤ 600Ω                                 | ≤ 300Ω / channel       |
| Load stability                                                                                | < 0.002% of span / 100Ω                       |                                      |                  |                                      |                                        | < 0.02% of span / 100Ω |
| Current limit                                                                                 | ≤ 28mA                                        |                                      |                  |                                      |                                        |                        |
| Voltage output                                                                                |                                               |                                      |                  |                                      |                                        |                        |
| Overall signal range (span)                                                                   | None                                          | 0-10 VDC                             | None             | 0-10 VDC                             |                                        |                        |
| Selectable signal ranges                                                                      | None                                          | 0-10 VDC, 2-10 VDC, 0-5 VDC, 1-5 VDC | None             | 0-10 VDC, 2-10 VDC, 0-5 VDC, 1-5 VDC |                                        |                        |
| Load (minimum)                                                                                | None                                          | > 10kΩ                               | None             | > 10kΩ                               |                                        |                        |
| *Max. required power is the maximum power needed at power supply terminals or rail connector. |                                               |                                      |                  |                                      |                                        |                        |
| **Max. power dissipation is the maximum power dissipated at nominal operating values.         |                                               |                                      |                  |                                      |                                        |                        |
| “of span” = of the selected range                                                             |                                               |                                      |                  |                                      |                                        |                        |

\*Max. required power is the maximum power needed at power supply terminals or rail connector.

\*\*Max. power dissipation is the maximum power dissipated at nominal operating values.

"of span" = of the selected range

# prosense® SC6 Series Signal Conditioners

## 2-Wire, Loop Powered Analog Signal Input Modules - Technical Specifications

| Part No.                          | SC6-1101                                                                                                                        | SC6-1111    | SC6-4102                                                                                                                                                                      | SC6-4112    | SC6-1102                                                                                                                                                                    | SC6-1112    |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| Application                       | One channel                                                                                                                     | Two channel | One channel                                                                                                                                                                   | Two channel | One channel                                                                                                                                                                 | Two channel |
| DIP switch configurable           | No                                                                                                                              | No          | No                                                                                                                                                                            | No          | No                                                                                                                                                                          | No          |
| Loop supply voltage               | None (powered by input signal)                                                                                                  |             | 6-35 VDC                                                                                                                                                                      |             |                                                                                                                                                                             |             |
| Power dissipation                 | 30mW / channel                                                                                                                  |             | 50mW / channel                                                                                                                                                                |             | V terminal x I / channel                                                                                                                                                    |             |
| Isolation voltage, test           | 2.5 kVAC                                                                                                                        |             |                                                                                                                                                                               |             |                                                                                                                                                                             |             |
| Isolation voltage, working        | 300VAC (reinforced) / 250VAC (Zone 2, Div. 2)                                                                                   |             |                                                                                                                                                                               |             |                                                                                                                                                                             |             |
| Double isolation                  | Input 1 / Input 2 / Output 1 / Output 2                                                                                         |             |                                                                                                                                                                               |             |                                                                                                                                                                             |             |
| Signal dynamics, input / output   | Analog signal chain                                                                                                             |             |                                                                                                                                                                               |             |                                                                                                                                                                             |             |
| Signal / noise ratio              | > 60dB                                                                                                                          |             |                                                                                                                                                                               |             |                                                                                                                                                                             |             |
| Cut-off frequency (3 dB)          | 100Hz                                                                                                                           |             |                                                                                                                                                                               |             |                                                                                                                                                                             |             |
| Response time (0-90%, 100-10%)    | < 5ms                                                                                                                           |             |                                                                                                                                                                               |             |                                                                                                                                                                             |             |
| Accuracy                          | ≤ +/-10uA + 0.05% of max. value of span                                                                                         |             | ≤ ± 8uA                                                                                                                                                                       |             |                                                                                                                                                                             |             |
| Temperature coefficient           | ≤ ± 2uA / °C                                                                                                                    |             | Vloop supply ≤ 24V: ± 0.48 uA/°C (>25°C);<br>± 1.68 uA/°C (< 25°C)<br>Vloop supply > 24V: ± 0.02 uA/°C x Vloop supply<br>(> 25°C); +/-0.047 uA/degC x Vloop supply<br>(<25°C) |             | Vloop supply ≤ 24V: ± 0.48 uA/°C (> 25°C);<br>± 1.12 uA/°C (< 25°C)<br>Vloop supply >24V: ± 0.02 uA/°C x Vloop supply<br>(> 25°C); ± 0.047 uA/°C x Vloop supply<br>(< 25°C) |             |
| EMC immunity influence            | < ± 0.5% of span                                                                                                                |             |                                                                                                                                                                               |             |                                                                                                                                                                             |             |
| Extended EMC immunity:            |                                                                                                                                 |             |                                                                                                                                                                               |             |                                                                                                                                                                             |             |
| NAMUR NE 21, A criterion, burst   | < ± 1% of span                                                                                                                  |             |                                                                                                                                                                               |             |                                                                                                                                                                             |             |
| Current input                     |                                                                                                                                 |             |                                                                                                                                                                               |             |                                                                                                                                                                             |             |
| Overall measurement range         | 0-23 mA                                                                                                                         |             | 3.5-23 mA                                                                                                                                                                     |             |                                                                                                                                                                             |             |
| Nominal measurement range         | 0-20.5 mA<br>10uA start up current, typical                                                                                     |             | 3.8-20.5 mA                                                                                                                                                                   |             |                                                                                                                                                                             |             |
| Signal conversion                 | 1:1                                                                                                                             |             |                                                                                                                                                                               |             |                                                                                                                                                                             |             |
| Input voltage drop                | 1.35 + (0.02335*R <sub>out</sub> load) @ 23mA max.<br>R <sub>out</sub> load 600Ω: 15.36 V<br>R <sub>out</sub> load 250Ω: 7.19 V |             | 2.5 VDC input to output                                                                                                                                                       |             | ≤ 3VDC                                                                                                                                                                      |             |
| Input resistance                  | R <sub>out</sub> load @ 600Ω: 668Ω*<br>R <sub>out</sub> load @250Ω: 313Ω*                                                       |             | Not applicable                                                                                                                                                                |             | 130Ω nominal                                                                                                                                                                |             |
| Transmitter (Tx) auxiliary supply | None                                                                                                                            |             | 3.5-32.5 VDC<br>(Loop supply voltage - Input voltage drop)                                                                                                                    |             | None                                                                                                                                                                        |             |
| Current output                    |                                                                                                                                 |             |                                                                                                                                                                               |             |                                                                                                                                                                             |             |
| Overall signal range (span)       | 0-23 mA                                                                                                                         |             | 3.5-23 mA                                                                                                                                                                     |             |                                                                                                                                                                             |             |
| Nominal signal range              | 0-20.5 mA                                                                                                                       |             | 3.8-20.5 mA                                                                                                                                                                   |             |                                                                                                                                                                             |             |
| Load                              | ≤ 600Ω                                                                                                                          |             | 900Ω max at 24 Vloop supply<br>1450Ω max at 35 Vloop supply<br>See derating chart above 60°C ambient                                                                          |             | 900Ω max at 24 Vloop supply<br>1450Ω max at 35 Vloop supply<br>See derating charts above 50°C ambient                                                                       |             |
| Load stability                    | <0.01% of span / 100Ω                                                                                                           |             | N/A                                                                                                                                                                           |             |                                                                                                                                                                             |             |

\*of span" = 0-20 mA

\* Because the input signal drives both the SC6 unit and the output signal loop, the input resistance changes with the output load. Calculate the input voltage drop using the formula shown and divide by the maximum current signal of 23mA to determine the Input resistance.

# prosense® SC6 Series Signal Conditioners

| Temperature Input Modules - Technical Specifications |                                                            |                                              |                                                                       |                                             |
|------------------------------------------------------|------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------|
| Part No.                                             | SC6-5200                                                   | SC6-6200                                     | SC6-7102                                                              | SC6-6102                                    |
| Application                                          | One channel                                                | One channel                                  | One channel                                                           | One channel                                 |
| DIP switch configurable                              | Yes                                                        | Yes                                          | Yes                                                                   | Yes                                         |
| Supply voltage                                       | 16.8 - 31.2 VDC (terminals or bus rail)                    |                                              | 5.5 - 35 VDC                                                          | 3.3 - 35 VDC                                |
| Max. power dissipation                               | 0.7 W                                                      | 0.7 W                                        | 0.8 W                                                                 | 0.8 W                                       |
| Isolation voltage, test                              | 2.5 kVAC                                                   |                                              |                                                                       | None                                        |
| Isolation voltage, working                           | 300VAC (reinforced) / 250VAC (Zone 2, Div. 2)              |                                              |                                                                       | None                                        |
| Double isolation                                     | Input / Output 1 / Supply                                  |                                              |                                                                       | None                                        |
| Signal dynamics, input / output                      | 23bit / 18bit                                              |                                              |                                                                       |                                             |
| Signal / noise ratio                                 | > 60dB                                                     |                                              |                                                                       |                                             |
| Response time (0-90%, 100-10%)                       | < 30ms or < 300ms, DIP switch selectable                   |                                              |                                                                       |                                             |
| Accuracy                                             | Basic: ≤ 0.5°C;<br>General: ≤ ±0.05% of span               | Basic: ≤ 0.1°C;<br>General: ≤ ±0.05% of span | Basic: ≤ 0.1°C (Pt100),<br>≤ 0.5°C (TC);<br>General: ≤ ±0.05% of span | Basic: ≤ 0.2°C;<br>General: ≤ ±0.1% of span |
| Temperature coefficient                              | 0.1°C/°C (basic) or<br>≤ ±0.01% of span/°C                 | 0.02°C/°C (basic) or<br>≤ ±0.01% of span/°C  | 0.1°C/°C (basic) or<br>≤ ±0.01% of span/°C                            | 0.02°C/°C (basic) or<br>≤ ±0.01% of span/°C |
| EMC immunity influence                               | < ±0.5% of span                                            |                                              |                                                                       |                                             |
| Extended EMC immunity:                               |                                                            |                                              |                                                                       |                                             |
| NAMUR NE 21, A criterion, burst                      | < ±1% of span                                              |                                              |                                                                       |                                             |
| RTD (Pt100) input                                    |                                                            |                                              |                                                                       |                                             |
| Overall measurement range                            | N/A                                                        | -200 to 850°C (IEC 60751)                    |                                                                       |                                             |
| Min. measurement span                                | N/A                                                        | 10°C                                         |                                                                       |                                             |
| Sensor current                                       | N/A                                                        | < 150uA                                      |                                                                       |                                             |
| Sensor cable resistance                              | N/A                                                        | < 50Ω per wire                               |                                                                       |                                             |
| Effect of sensor cable resistance 3/4-wire           | N/A                                                        | < 0.002 Ω/Ω                                  |                                                                       |                                             |
| Sensor error detection                               | N/A                                                        | Yes, DIP switch selectable                   |                                                                       |                                             |
| Broken sensor                                        | N/A                                                        | > 800Ω                                       |                                                                       |                                             |
| Shorted sensor                                       | N/A                                                        | < 18Ω                                        |                                                                       |                                             |
| Thermocouple (TC) input                              |                                                            |                                              |                                                                       |                                             |
| Overall mesasurement range, Type J                   | -100 to 1200°C (IEC60584-1)                                | N/A                                          | -100 to 1200°C (IEC60584-1)                                           | N/A                                         |
| Overall mesasurement range, Type K                   | -180 to 1372°C (IEC60584-1)                                | N/A                                          | -180 to 1372°C (IEC60584-1)                                           | N/A                                         |
| Selectable measurement range                         | See temperature range programming table                    |                                              |                                                                       |                                             |
| Min. measurement span                                | 50°C                                                       | N/A                                          | 50°C                                                                  | N/A                                         |
| Sensor cable resistance                              | < 5kΩ per wire                                             | N/A                                          | < 5kΩ per wire                                                        | N/A                                         |
| External Pt100 CJC sensor accuracy                   | < ±0.15°C                                                  | N/A                                          | < ±0.15°C                                                             | N/A                                         |
| Internal CJC sensor accuracy                         | < ±2.5°C                                                   | N/A                                          | < ±2.5°C                                                              | N/A                                         |
| Open thermocouple detection                          | Yes, DIP switch selectable                                 | N/A                                          | Yes, DIP switch selectable                                            | N/A                                         |
| External CJC error detection                         | Yes, DIP switch selectable                                 | N/A                                          | Yes, DIP switch selectable                                            | N/A                                         |
| Internal CJC error detection                         | Yes                                                        | N/A                                          | Yes                                                                   | N/A                                         |
| Current output                                       |                                                            |                                              |                                                                       |                                             |
| Overall signal range (span)                          | 0 / 3.8-20.5 mA                                            |                                              | 3.8-20.5 mA                                                           |                                             |
| Nominal signal range                                 | 0 / 4-20 mA DIP switch selectable                          |                                              | 4-20 mA or 20-4 mA, DIP switch selectable                             |                                             |
| Load                                                 | ≤ 600Ω                                                     |                                              | Rload=(Vsupply-5.5) / 0.023 Ω                                         | Rload=(Vsupply-3.3) / 0.023 Ω               |
| Sensor error output                                  | Downscale: 0 / 3.5 mA, Upscale: 23mA DIP switch selectable |                                              | Downscale: 3.5 mA, Upscale: 23mA DIP switch selectable                |                                             |
| Voltage output                                       |                                                            |                                              |                                                                       |                                             |
| Overall signal range (span)                          | 0 / 0.875-5.125 V, 0 / 1.75-10.25 V                        |                                              | N/A                                                                   |                                             |
| Nominal signal range                                 | 0 / 1-5 V, 0 / 2-10 V DIP switch selectable                |                                              | N/A                                                                   |                                             |
| Load                                                 | ≥ 10kΩ                                                     |                                              | N/A                                                                   |                                             |
| Sensor error output                                  | Downscale: 0V, Upscale: 5.5 / 11V DIP switch selectable    |                                              | N/A                                                                   |                                             |
| Load stability                                       | ≤ 0.01% of span / 100ohms                                  |                                              |                                                                       |                                             |
| Updating time                                        | 10ms                                                       |                                              |                                                                       |                                             |

# prosense® SC6 Series Signal Conditioners

## Temperature Range Programming Table (for models [SC6-5200](#), [SC6-6200](#), [SC6-6102](#), [SC6-7102](#))

| Temperature Range Programming                            |                                    |   |   |   |               |   |   |   |   |   |    |               |   |                           |   |   |   |    |                 |   |   |   |   |   |    |  |  |
|----------------------------------------------------------|------------------------------------|---|---|---|---------------|---|---|---|---|---|----|---------------|---|---------------------------|---|---|---|----|-----------------|---|---|---|---|---|----|--|--|
| DIP S2      • = ON                                       |                                    |   |   |   |               |   |   |   |   |   |    |               |   | Temperature Range °C (°F) |   |   |   |    |                 |   |   |   |   |   |    |  |  |
| Start Temp.                                              | 1                                  | 2 | 3 | 4 | End Temp.     | 5 | 6 | 7 | 8 | 9 | 10 | End Temp.     | 5 | 6                         | 7 | 8 | 9 | 10 | End Temp.       | 5 | 6 | 7 | 8 | 9 | 10 |  |  |
| -200°C (-328°F)                                          |                                    |   |   |   | 0°C (32°F)    |   |   |   |   |   |    | 105°C (221°F) |   | •                         |   | • |   | •  | 375°C (707°F)   | • |   | • |   | • |    |  |  |
| -180°C (-292°F)                                          |                                    |   |   | • | 5°C (41°F)    |   |   |   |   |   | •  | 110°C (230°F) |   | •                         |   | • | • |    | 400°C (752°F)   | • |   | • |   | • |    |  |  |
| -150°C (-238°F)                                          |                                    |   | • |   | 10°C (50°F)   |   |   |   |   | • |    | 115°C (239°F) |   | •                         |   | • | • | •  | 450°C (842°F)   | • |   | • | • |   |    |  |  |
| -100°C (-148°F)                                          |                                    |   | • | • | 15°C (59°F)   |   |   |   |   | • | •  | 120°C (248°F) |   | •                         | • |   |   |    | 500°C (932°F)   | • |   | • | • | • |    |  |  |
| -50°C (-58°F)                                            |                                    | • |   |   | 20°C (68°F)   |   |   |   | • |   |    | 125°C (257°F) |   | •                         | • |   | • |    | 550°C (1022°F)  | • |   | • | • | • |    |  |  |
| -25°C (-13°F)                                            |                                    | • |   | • | 25°C (77°F)   |   |   |   | • |   | •  | 130°C (266°F) |   | •                         | • |   | • |    | 600°C (1112°F)  | • |   | • | • | • | •  |  |  |
| -10°C (14°F)                                             |                                    | • | • |   | 30°C (86°F)   |   |   |   | • | • |    | 135°C (275°F) |   | •                         | • |   | • | •  | 650°C (1202°F)  | • | • |   |   |   |    |  |  |
| -5°C (23°F)                                              |                                    | • | • | • | 35°C (95°F)   |   |   |   | • | • | •  | 140°C (284°F) |   | •                         | • | • |   |    | 700°C (1292°F)  | • | • |   |   |   | •  |  |  |
| 0°C (32°F)                                               | •                                  |   |   |   | 40°C (104°F)  |   |   |   | • |   |    | 145°C (293°F) |   | •                         | • | • | • |    | 750°C (1382°F)  | • | • |   |   | • |    |  |  |
| 5°C (41°F)                                               | •                                  |   |   | • | 45°C (113°F)  |   |   |   | • |   | •  | 150°C (302°F) |   | •                         | • | • | • |    | 800°C (1472°F)  | • | • |   |   | • | •  |  |  |
| 10°C (50°F)                                              | •                                  |   | • |   | 50°C (122°F)  |   |   |   | • | • |    | 160°C (320°F) |   | •                         | • | • | • | •  | 850°C (1562°F)  | • | • |   | • |   |    |  |  |
| 20°C (68°F)                                              | •                                  |   | • | • | 55°C (131°F)  |   |   |   | • | • | •  | 170°C (338°F) | • |                           |   |   |   |    | 900°C (1652°F)  | • | • |   | • | • | •  |  |  |
| 25°C (77°F)                                              | •                                  | • |   |   | 60°C (140°F)  |   |   |   | • | • |    | 180°C (356°F) | • |                           |   |   | • |    | 950°C (1742°F)  | • | • |   | • | • |    |  |  |
| 50°C (122°F)                                             | •                                  | • |   | • | 65°C (149°F)  |   |   |   | • | • | •  | 190°C (374°F) | • |                           |   |   | • |    | 1000°C (1832°F) | • | • |   | • | • | •  |  |  |
| 100°C (212°F)                                            | •                                  | • | • |   | 70°C (158°F)  |   |   |   | • | • | •  | 200°C (392°F) | • |                           |   |   | • | •  | 1050°C (1922°F) | • | • | • |   |   |    |  |  |
| 200°C (392°F)                                            | •                                  | • | • | • | 75°C (167°F)  |   |   |   | • | • | •  | 225°C (437°F) | • |                           |   | • |   |    | 1100°C (2012°F) | • | • | • |   |   | •  |  |  |
|                                                          |                                    |   |   |   | 80°C (176°F)  |   | • |   |   |   |    | 250°C (482°F) | • |                           |   | • | • |    | 1150°C (2102°F) | • | • | • |   | • |    |  |  |
| Sens.Type                                                | Temp. Range                        |   |   |   | 85°C (185°F)  |   | • |   |   | • |    | 275°C (527°F) | • |                           |   | • | • |    | 1200°C (2192°F) | • | • | • |   | • | •  |  |  |
| Pt100                                                    | -200°C (-328°F) to 850°C (1562°F)  |   |   |   | 90°C (194°F)  |   | • |   |   | • |    | 300°C (572°F) | • |                           |   | • | • | •  | 1250°C (2282°F) | • | • | • | • |   |    |  |  |
| TC J                                                     | -100°C (-148°F) to 1200°C (2192°F) |   |   |   | 95°C (203°F)  |   | • |   |   | • | •  | 325°C (617°F) | • |                           | • |   |   |    | 1300°C (2372°F) | • | • | • | • | • |    |  |  |
| TC K                                                     | -180°C (-292°F) to 1372°C (2502°F) |   |   |   | 100°C (212°F) |   | • |   | • |   |    | 350°C (662°F) | • |                           | • |   |   | •  | 1350°C (2462°F) | • | • | • | • | • |    |  |  |
|                                                          |                                    |   |   |   |               |   |   |   |   |   |    |               |   |                           |   |   |   |    | 1372°C (2502°F) | • | • | • | • | • | •  |  |  |
| Note: °F values are calculated equivalents for °C values |                                    |   |   |   |               |   |   |   |   |   |    |               |   |                           |   |   |   |    |                 |   |   |   |   |   |    |  |  |

Note: °F values are calculated equivalents for °C values

| SC6 Series Common Technical Specifications                                         |                                                        |                          |
|------------------------------------------------------------------------------------|--------------------------------------------------------|--------------------------|
| Environmental Conditions                                                           |                                                        |                          |
| Operating Temperature                                                              | -25°C to +70°C (-13°F to +158°F)                       |                          |
| Storage Temperature                                                                | -40°C to +85°C (-40°F to +185°F)                       |                          |
| Calibration Temperature                                                            | +20°C to +28°C (+68 to +82.4°F)                        |                          |
| Relative Humidity                                                                  | < 95% RH (non-cond.)                                   |                          |
| Protection Degree                                                                  | IP20*                                                  |                          |
| Mechanical Specifications                                                          |                                                        |                          |
| Dimensions (HxWxD)                                                                 | 113 x 6.1 x 115 mm                                     |                          |
| Weight Approx.                                                                     | 70g                                                    |                          |
| DIN Rail Type                                                                      | DIN EN 60715 - 35mm                                    |                          |
| Wire Size                                                                          | 0.13 - 2.5 mm <sup>2</sup> / AWG 26 - 12 stranded wire |                          |
| Screw Terminal Torque                                                              | 0.5 N·m                                                |                          |
| Vibration                                                                          | 2 to 25 Hz                                             | ± 1.6 mm                 |
|                                                                                    | 25 to 100 Hz                                           | ± 4g                     |
| Observed Authority Requirements                                                    | EMC                                                    | 2014/30/EU               |
|                                                                                    | LVD                                                    | 2014/35/EU               |
|                                                                                    | RoHS 2                                                 | 2011/65/EU               |
| Approvals                                                                          | cULus, Standard for Safety                             | UL 61010-1, File E498965 |
|                                                                                    | cFMus                                                  | FM18US0045X, FM18CA0023X |
|                                                                                    | Safe Isolation                                         | EN 61140                 |
| * Installation in pollution degree 2 & overvoltage category II, No corrosive gases |                                                        |                          |

# prosense® SC6 Series Signal Conditioners

## ProSense Power Connector Unit

The SC6-PCU1 power connector unit allows easy connection of a 24 VDC / 2.5 A source to the in-rail-bus to provide power to multiple SC6 signal conditioners mounted on the rail.

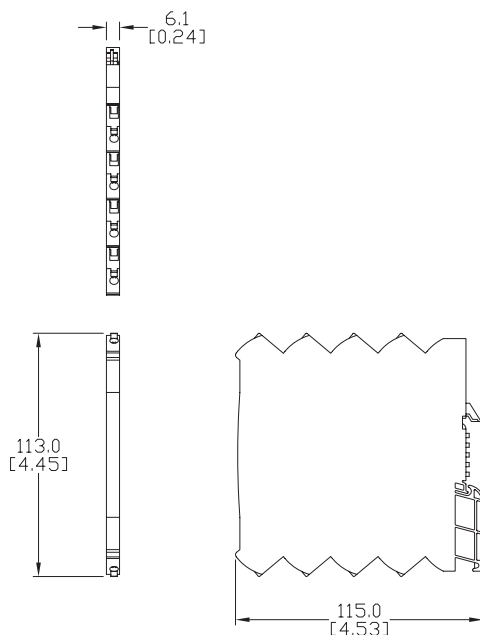


| Part No.        | Description                                                                  | Weight (lb) | Price    |
|-----------------|------------------------------------------------------------------------------|-------------|----------|
| <b>SC6-PCU1</b> | ProSense power connection unit, for use with SC6 series signal conditioners. | 0.19        | \$100.00 |

| Power Connection Module - Technical Specifications |                 |
|----------------------------------------------------|-----------------|
| Part No.                                           | <b>SC6-PCU1</b> |
| Supply voltage                                     | 16.8-31.2 VDC   |
| Internal power dissipation                         | 0.25 W max.     |
| Required external fuse                             | 2.5 A           |

## Dimensions

mm [inches]



See our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete Engineering drawings.

# prosense® SC6 Series Signal Conditioners Accessories

## In-Rail-Bus

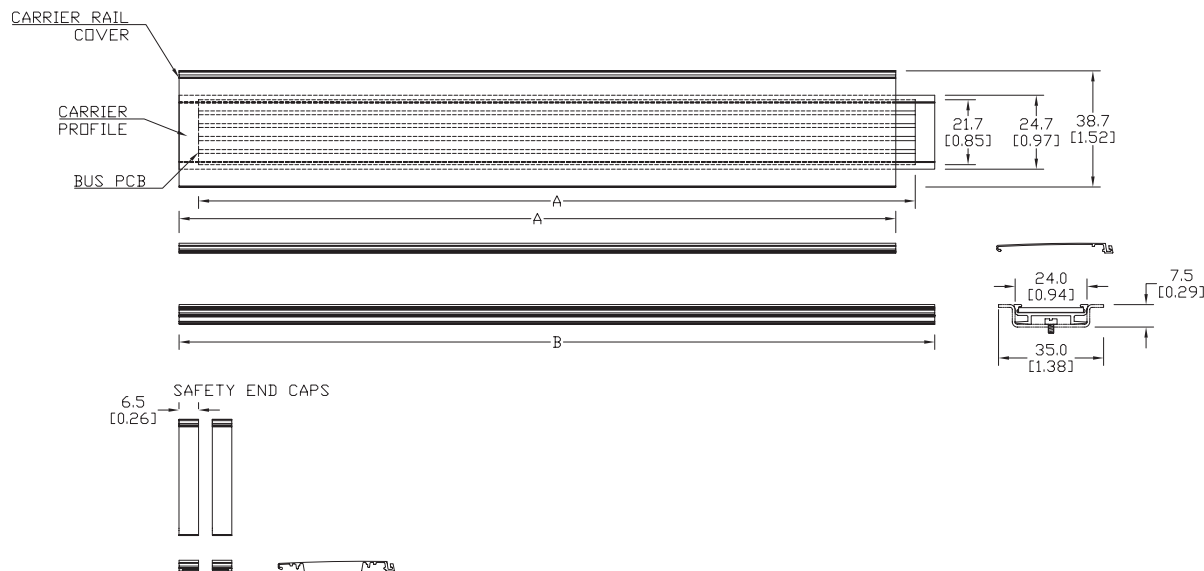


| Part No.       | Description                                                                                          | "A"   | "B"   | Weight (lb) | Price   |
|----------------|------------------------------------------------------------------------------------------------------|-------|-------|-------------|---------|
| <b>0068060</b> | In-rail-bus, 250mm length. For use with SC6 series signal conditioners and DN-R35S1 series DIN rail. | 239mm | 252mm | 0.2         | \$43.50 |
| <b>0068062</b> | In-rail-bus, 750mm length. For use with SC6 series signal conditioners and DN-R35S1 series DIN rail. | 739mm | 752mm | 0.5         | \$81.00 |

Note: Order DIN rail and signal conditioners separately

| Part No.                 | In-Rail-Bus-Set / 250mm<br><b>0068060</b> | In-Rail-Bus-Set / 750mm<br><b>0068062</b> | Materials                    |
|--------------------------|-------------------------------------------|-------------------------------------------|------------------------------|
| <b>Each Set Includes</b> | BUS-PCB 250mm                             | BUS-PCB 750mm                             | Polyamide with copper traces |
|                          | Carrier profile 250mm                     | Carrier profile 750mm                     |                              |
|                          | Carrier rail cover 250mm                  | Carrier rail cover 750mm                  | Polyamide                    |
|                          | Safety cap right                          | Safety cap right                          | Polycarbonate                |
|                          | Safety cap left                           | Safety cap left                           | Polycarbonate                |

## Dimensions mm [inches]



See our website [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete Engineering drawings.

