ProSense® SC6 Series Frequency Converter and Pulse Isolator Signal Conditioners

Quick Start Guide

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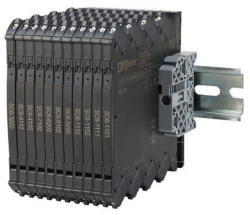
Description:

This Quick Start Guide provides basic information for configuring the ProSense SC6 series frequency converter and pulse isolator signal conditioners. For more specific information and additional instructions please visit www.AutomationDirect.com and download the free instructions manuals for the SC6 series.



⚠ WARNING ⚠

To avoid the risk of electric shock and fire, the safety instructions of this guide must be observed and the guidelines followed. The specifications must not be exceeded, and the device must only be applied as described in the following. Prior to the commissioning of the device, this installation guide must be examined carefully. Only qualified personnel (technicians) should install this device. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. Until the device is installed, do not connect hazardous voltages to the device.

In applications where hazardous voltage is connected to in/outputs of the device, sufficient spacing or isolation from wires, terminals and enclosure to surroundings (incl. neighboring devices), must be ensured to maintain protection against electric shock.

Potential electrostatic charging hazard. To avoid the risk of explosion due to electrostatic charging of the enclosure, do not handle the units unless the area is known to be safe, or appropriate safety measures are taken to avoid electrostatic discharge.

SAFETY INSTRUCTIONS

Receipt and unpacking
Unpack the device without damaging it. The packing should always follow the device until it has been permanently mounted. Check at the receipt of the device whether the type corresponds to the one ordered.

Environment
Avoid direct sunlight, dust, high temperatures, mechanical vibrations and shock, as well as rain and heavy moisture. If necessary, heating in excess of the stated limits for ambient temperatures should be avoided by way of ventilation. All devices can be used for Measurement / Overvoltage Category II and Pollution Degree 2. The module is designed to operate safely at an altitude of 2000m or less.

Mounting
Mounting and connection of the device should comply with national legislation for mounting of electric materials, i.e. wire cross section, protective fuse, and location. Descriptions of input / output and supply connections are shown in this installation guide and on the side label. The device is provided with field wiring terminals and shall be supplied from a power supply having double or reinforced insulation. A power switch should be easily accessible and close to the device. The power switch shall be marked as the disconnecting unit for the device.

The **SC6 Series** must be mounted on a DIN rail that complies with EN 60715.

UL Installation
Use 60/75°C copper conductors only.
Wire size ..... AWG 26-12
UL file number..... E498965
The device is an Open Type Listed Process Control Equipment. To prevent injury resulting from accessability to live parts the equipment must be installed in an enclosure.

The SC6 Series Isolators and Converters must be connected to limited output NEC Class 2 circuits, as outlined in the National Electrical Code® (ANSI / NFPA 70), only. If the devices are connected to a redundant power supply (two separate power supplies), both must meet this requirement. Where installed in outdoor or potentially wet locations the enclosure shall at a minimum meet the requirements of IP54.

Cleaning
When disconnected, the device may be cleaned with a cloth moistened with distilled water.

Technical Specifications

Operating temperature ..... -25°C to +70°C (-13°F to 158°F)
Storage temperature ..... -40°C to +85°C (-40°F to 185°F)
Supply voltage..... 16.8...31.2 VDC
Max required power..... ≤ 1.2W
Max. power dissipation:
SC6-2001, 2501, 2502..... 0.65W
SC6-2002 ..... 0.95W
Isolation voltage, test ..... 2.5 kVAC
Isolation voltage, working ..... 300VAC (reinforced)
Double isolation..... Input/output 1/output 2/supply
Relative humidity..... < 95% RH (non-cond.)
Dimensions (HxWxD) ..... 113 x 6.1 x 115 mm
Protection degree IP20

Technical Specifications Continued

Weight: SC6-2001, 2501, 2502 ..... 70g
SC6-2002..... 80g

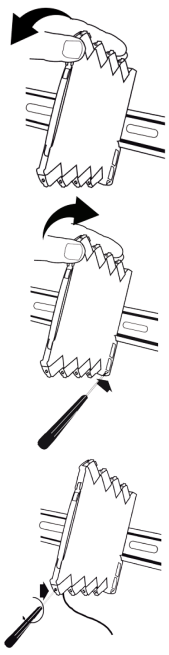
Approvals
UL, Standard for Safety ..... UL 61010-1
Safe isolation ..... EN 61140

Observed authority requirements:
EMC 2014/30/EU
LVD 2014/35/EU
RoHS 2..... 2011/65/EU

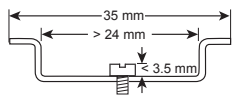
Installation:

This installation guide for technical personnel covers the following products:

SC6-2001	SC6-2502
SC6-2002	SC6-PCU1
SC6-2501	



Installation on DIN rail:
To avoid short circuit between the power rail connectors on the SC6 Series devices and the screws holding the 7.5 mm DIN rail, the head of the screws shall be no more than 3.5 mm high. SC6 Series units must be supported by module stops (ADC Series KN-EB7).



Demounting from DIN rail:
First, remember to demount the connectors with hazardous voltages. Detach the device from the DIN rail by lifting the bottom lock.

Wire size AWG 26 - 12 / 0.13 - 2.5 mm² stranded wire.
Screw terminal torque 0.5 Nm.

Supply of the Power rail:
The power rail can be powered via the SC6-PCU1 Power Connector unit or alternatively a SC6 series unit with power rail connector power terminals. Max. current values are to be observed:

SC6 Series unit with power rail connector .....0.4 A (protective fuse 0.4 A)

SC6-PCU1 unit.....2.5 A (protective fuse 2.5 A)

Required external fuse:

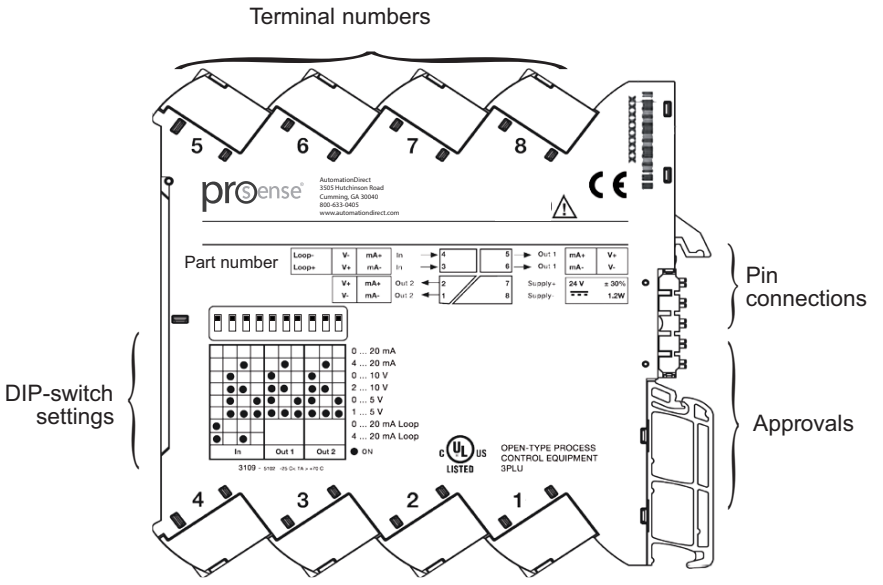
Supply directly on device.....2.5 A

Supply of power rail using a standard device.....0.4 A

SC6-PCU1 Power connect unit.....2.5 A

Fuse Characteristics:
The 2.5 A fuse must break after not more than 120 seconds at 6.4 A.

Side Label



Programming
(DIP Switch Settings)

SC6-2001, 2002

S1	1	2	3	4
LFD enabled	●			
Out2 = Alarm indication		●		
Out1 inverted			●	
Out2 inverted				●

●= ON

SC6-2501

Input types	Sensor supply	S1 1	2	3
NAMUR without sensor error det.	8.3 V			●
NAMUR with sensor error det.	8.3V		●	
NPN	17V		●	●
PNP	17V	●		
Tacho	17V	●		●
TTL	5V	●	●	
S0	17V	●	●	●

Output types	S1 4	5	6
0...20mA			
4...20mA			●
0...1V		●	
0.2...1V		●	●
0...10V	●		
2...10V	●		●
0...5V	●	●	●
1...5V	●	●	●

Frequency input max. (f high)										
f1 [Hz]	S2 1	2	3	4	5	6	7	f2 [x factpr] S2	8	9	10
1	●							0.001			
2		●						0.01			●
4			●					0.1		●	
8				●				1		●	●
16					●			10	●		
32						●		100	●		●
64							●	1,000	●	●	
								10,000	●	●	●

Input filter	S1 7
On	●
Off	

Output error level	S1 8
Downscale	
Upscale	●

Low cut off	S1 9
On	●
Off	

●= ON f1=S2.1+S2.2+S2.3+S2.4+S2.5+S2.6+S2.7
f high = f1xf2

Note: S1-10 must be set to off.

SC6-2502

Input types	Sensor supply	S1 1	2	3
NAMUR without sensor error det.	8.3 V			●
NAMUR with sensor error det.*	8.3V		●	
NPN	17V		●	●
PNP	17V	●		
Tacho	17V	●		●
TTL	5V	●	●	
S0	17V	●	●	●

* : Action on error is “OPEN”

Relay setpoint (f setpoint)										
f1 [Hz]	S2 1	2	3	4	5	6	7	f2 [x factor] S2	8	9	10
1	●							0.001			
2		●						0.01			●
4			●					0.1		●	
8				●				1		●	●
16					●			10	●		
32						●		100	●		●
64							●	1,000	●	●	
								10,000	●	●	●

Relay contact	S1 4
N.O.	
N.C.	●

Activation direction	S1 5
Increasing	
Decreasing	●

Hysteresis	S1 6	7
1%		
5%		●
10%	●	
25%	●	●

Power on delay	S1 8
2 sec.	
120 sec.	●

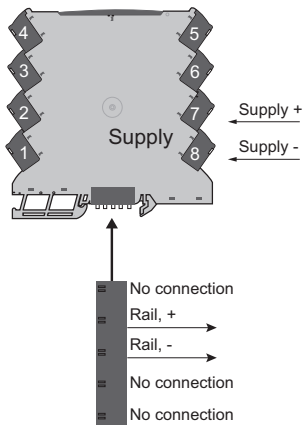
Relay activation delay	S1 9
0 sec.	
10 sec.	●

●= ON f1=S2.1+S2.2+S2.3+S2.4+S2.5+S2.6+S2.7
f high = f1xf2

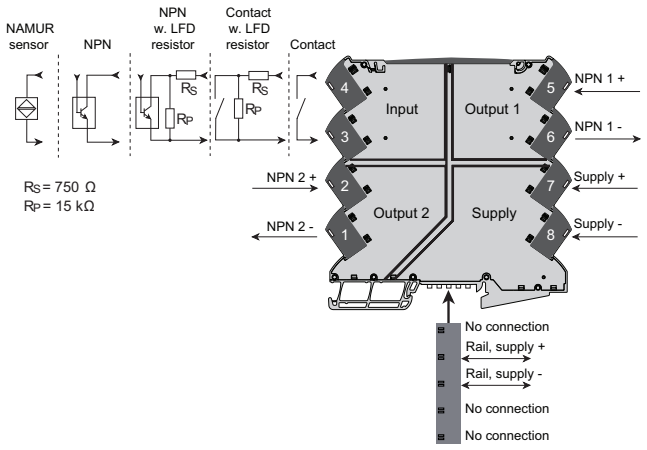
Note: S1-10 must be set to off.

Wiring Diagrams

SC6-PCU1

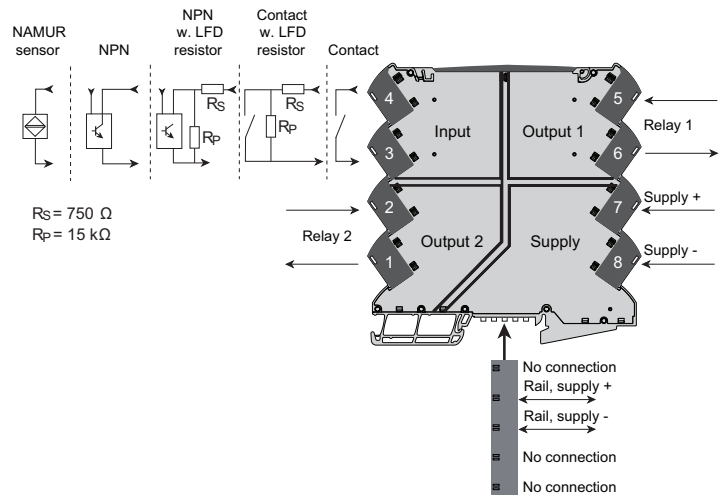


SC6-2001

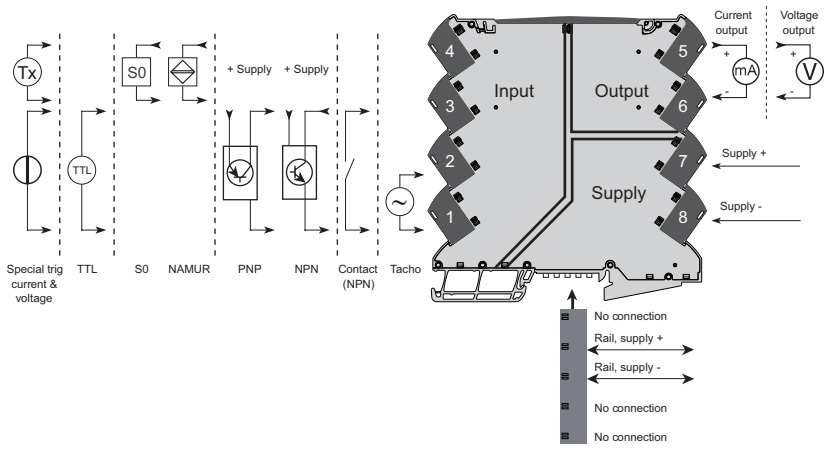


Wiring Diagrams Cont.

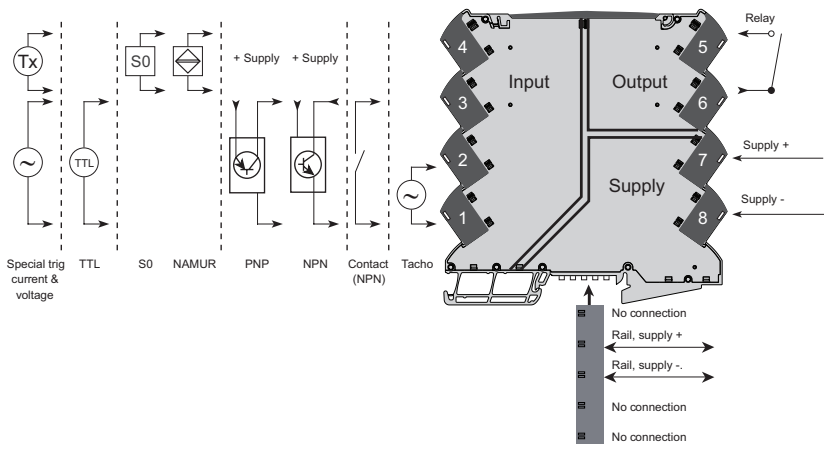
SC6-2002



SC6-2501



SC6-2502



Additional Help and Support

- For additional technical support and questions, call our Technical Support team @ 1-800-633-0405 or 770-844-4200
- For additional product information, please download the complete product manual which can be found at: www.AutomationDirect.com