

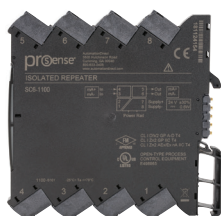
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pro^osense® SC6 Series Signal Conditioners

SC6 Series Signal Conditioner Selection Guide - Temperature Input Modules					
Part Number		SC6-5200	SC6-6200	SC6-7102	SC6-6102
Price					
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		X	X	X	—

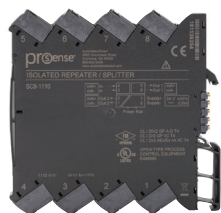
Unit Features

SC6-1100



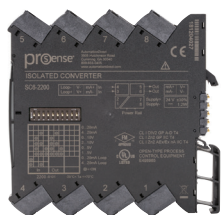
- 0-23 mA input
- 0-23 mA output (1:1 signal conversion)
- One channel
- Isolation
- 4-wire, 24 VDC externally powered (terminals or in-rail power bus)
- Fixed configuration - requires no setup
- LED indication

SC6-1110



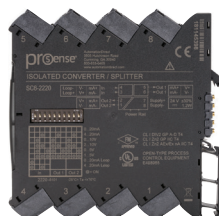
- 0-23 mA input
- 0-23 mA output (1:1 signal conversion)
- Signal splitter – one input to two outputs
- Isolation
- 4-wire, 24 VDC externally powered (terminals or in-rail power bus)
- Fixed configuration - requires no setup
- LED indication

SC6-2200



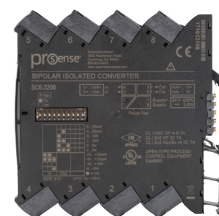
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V, 2-wire transmitter input
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V output
- One channel
- Isolation
- 4-wire, 24 VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

SC6-2220



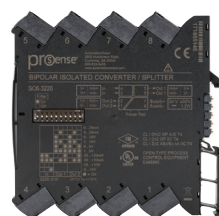
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V, 2-wire transmitter input
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V outputs
- Signal splitter – one input to two outputs
- Isolation
- 4-wire, 24 VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

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, 24 VDC 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, 24 VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

prosense® SC6 Series Signal Conditioners

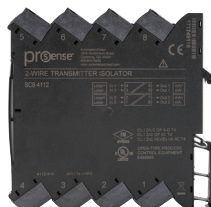
Unit Features Continued

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



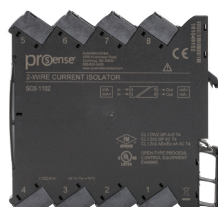
- 0-23 mA input
- 0-23 mA output (1:1 signal conversion)
- Two channels
- Isolation
- Powered by input current signal
- Fixed configuration - requires no setup

SC6-5200



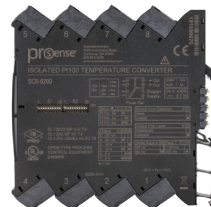
- Thermocouple Type J, Type K input
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V output
- One channel
- Isolation
- 4-wire, 24 VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

SC6-1102



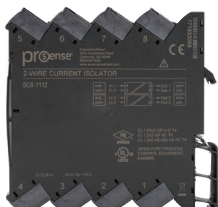
- 3.5 - 23 mA input
- 3.5 - 23 mA output (1:1 signal conversion)
- One channel
- Isolation
- 2-wire, 6-35 VDC loop powered output
- Fixed configuration - requires no setup

SC6-6200



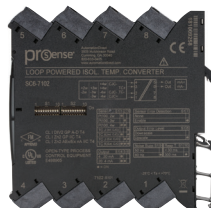
- RTD Pt100 input
- 0-20 mA, 4-20 mA, 0-5V, 1-5V, 0-10V, 2-10V output
- One channel
- Isolation
- 4-wire, 24 VDC externally powered (terminals or in-rail power bus)
- DIP switch configured
- LED indication

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



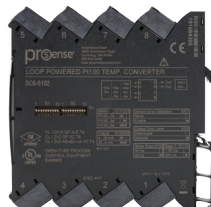
- Thermocouple Type J, Type K, RTD Pt100 input
- 4-20 mA, 20-4 mA output
- One channel
- Isolation
- 2-wire, 5.5-35 VDC loop powered output
- DIP switch configured

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.	SC6-1100	SC6-2200	SC6-1110	SC6-2220	SC6-3200	SC6-3220
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 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 kohms				≥ 1 Mohms	
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	≤ 600 ohms		≤ 300 ohms / channel		≤ 600 ohms	≤ 300 ohms / channel
Load stability	< 0.002% of span / 100 ohms					< 0.02% of span / 100 ohms
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	> 10 kohms	None	> 10 kohms		

*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	300 VAC (reinforced) / 250 VAC (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); ± 1.68 uA/°C (< 25°C) Vloop supply > 24V: ± 0.02 uA/°C x Vloop supply (> 25°C); +/-0.047 uA/degC x Vloop supply (<25°C)		Vloop supply ≤ 24V: ± 0.48 uA/°C (> 25°C); ± 1.12 uA/°C (< 25°C) Vloop supply >24V: ± 0.02 uA/°C x Vloop supply (> 25°C); ± 0.047 uA/°C x Vloop supply (< 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 10uA start up current, typical		3.8-20.5 mA			
Signal conversion	1:1					
Input voltage drop	1.35 + (0.02335*R _{out} load) @ 23mA max. R _{out} load 600Ω: 15.36 V R _{out} load 250Ω: 7.19 V		2.5 VDC input to output		≤ 3VDC	
Input resistance	R _{out} load @ 600Ω: 668Ω* R _{out} load @250Ω: 313Ω*		Not applicable		130Ω nominal	
Transmitter (Tx) auxiliary supply	None		3.5-32.5 VDC (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	≤ 600 ohms		900 ohms max at 24 Vloop supply 1450 ohms max at 35 Vloop supply See derating chart above 60°C ambient		900 ohms max at 24 Vloop supply 1450 ohms max at 35 Vloop supply See derating charts above 50°C ambient	
Load stability	<0.01% of span / 100 ohms		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; General: ≤ ±0.05% of span	Basic: ≤ 0.1°C; General: ≤ ±0.05% of span	Basic: ≤ 0.1°C (Pt100), ≤ 0.5°C (TC); General: ≤ ±0.05% of span	Basic: ≤ 0.2°C; General: ≤ ±0.1% of span
Temperature coefficient	0.1°C/°C (basic) or ≤ ±0.01% of span/°C	0.02°C/°C (basic) or ≤ ±0.01% of span/°C	0.1°C/°C (basic) or ≤ ±0.01% of span/°C	0.02°C/°C (basic) or ≤ ±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	< 50 ohms per wire		
Effect of sensor cable resistance 3/4-wire	N/A	< 0.002 ohm/ohm		
Sensor error detection	N/A	Yes, DIP switch selectable		
Broken sensor	N/A	> 800 ohms		
Shorted sensor	N/A	< 18 ohms		
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	< 5 kohm per wire	N/A	< 5 kohm 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	≤ 600 ohms		Rload=(Vsupply-5.5) / 0.023 ohms	Rload=(Vsupply-3.3) / 0.023 ohms
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	≥ 10 kohms		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.	70 g	
DIN Rail Type	DIN EN 60715 - 35 mm	
Wire Size	0.13 - 2.5 mm ² / 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.

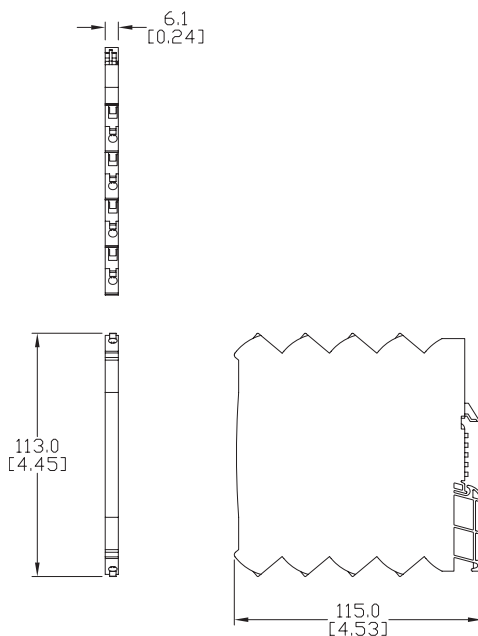


Part No.	Description	Weight (lb)	Price
SC6-PCU1	ProSense power connection unit, for use with SC6 series signal conditioners.	0.19	\$64.00

Power Connection Module - Technical Specifications	
Part No.	SC6-PCU1
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 for complete Engineering drawings.

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SC6 Series Signal Conditioners
Accessories

In-Rail-Bus

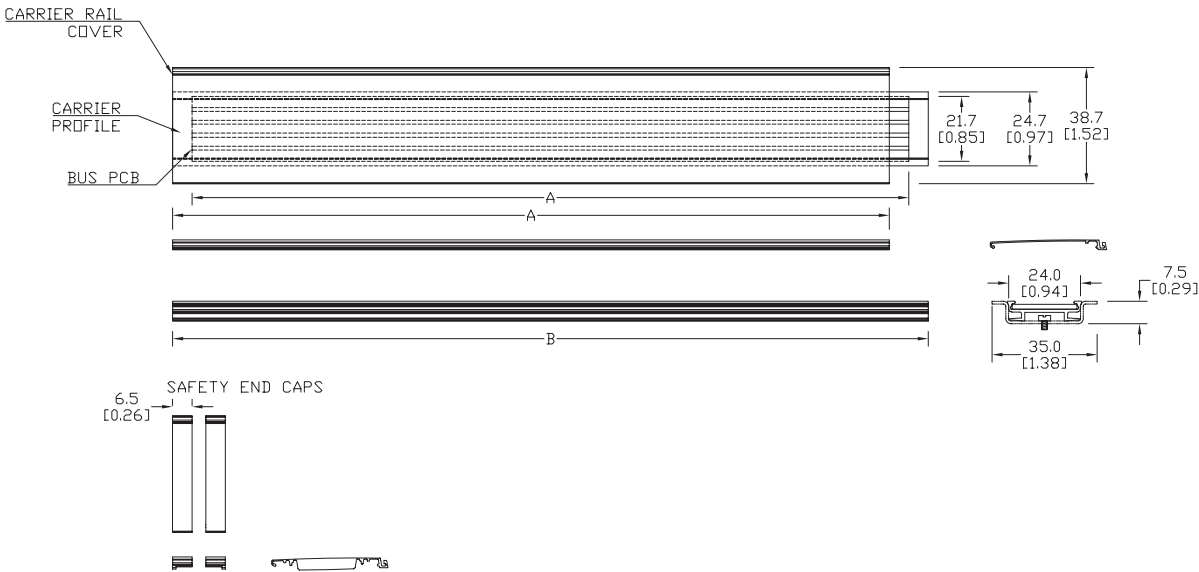


Part No.	Description	"A"	"B"	Weight (lb)	Price
0068060	In-rail-bus, 250mm length. For use with SC6 series signal conditioners and DN-R35S1 series DIN rail.	239mm	252mm	0.2	\$26.00
0068061	In-rail-bus, 500mm length. For use with SC6 series signal conditioners and DN-R35S1 series DIN rail.	489mm	502mm	0.3	\$45.00
0068062	In-rail-bus, 750mm length. For use with SC6 series signal conditioners and DN-R35S1 series DIN rail.	739mm	752mm	0.5	\$69.00

Note: Order DIN rail and signal conditioners separately

Part No.	In-Rail-Bus-Set / 250mm 0068060	In-Rail-Bus-Set / 500mm 0068061	In-Rail-Bus-Set / 750mm 0068062	Materials
Each Set Includes	BUS-PCB 250mm	BUS-PCB 500mm	BUS-PCB 750mm	Polyamide with copper traces
	Carrier profile 250mm	Carrier profile 500mm	Carrier profile 750mm	
	Carrier rail cover 250mm	Carrier rail cover 500mm	Carrier rail cover 750mm	Polyamide
	Safety cap right	Safety cap right	Safety cap right	Polycarbonate
	Safety cap left	Safety cap left	Safety cap left	Polycarbonate

Dimensions mm [inches]



See our website www.AutomationDirect.com for complete Engineering drawings.

