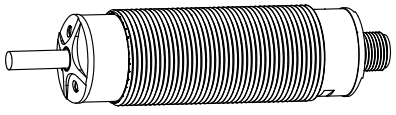
SPS30 Inline AC/DC Converter

Datasheet



- Converts universal 100 V AC to 240 V AC supply voltage to power various DC-powered devices such as sensors or indicators
- Converts the DC-powered device output to a Normally Open 4 Amp electro-mechanical relay output on the AC side
- The DC-powered device connection can be 4-pin M8 or 5-pin M12 quick disconnect on a 150 mm (6 in) cable, depending on the model number
- The AC connection is an integral ½-20 UNF 5-pin dual key quick disconnect
- An AC input line is available to remotely teach a sensor or activate an input on an actuator

WARNING:
- **Risk of electric shock**
- Failure to follow these instructions could result in serious injury or death.
- Disconnect or turn off power before installing, removing, or servicing the device.
- Install and connect the device in accordance with the National Electrical Code (NEC) and any applicable local code requirements and supply the device with an appropriate fuse box or circuit breaker (see *Specifications*).

WARNING:
- **Do not use this device for personnel protection**
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction can cause either an energized (on) or de-energized (off) output condition.

WARNING: Directly connecting the AC and DC sides together causes permanent damage to the device.

Important: A switch or 20 amp maximum circuit breaker must be used in the installation.

Model Number Selection Instructions

Select DC Device Output Type

Required: Match the DC Device Output type of the SPS30 converter to the output type of the DC powered device.

For example, if the DC device has a PNP output, then it must use an SPS30 with a **DC Device Output type** of PNP.

Select DC Device Remote Input Type and Pin Assignment When Using the Remote Input

The SPS30 includes an AC Remote Input which can be used to remote teach a sensor or activate a job indicator on an actuator, such as a touch button or other pick-to-light devices.

When the AC Remote Input is connected to AC neutral, the DC Device Remote Input is activated. The DC Device Remote Input can be either PNP type (pull high to +24 V DC), or NPN type (pull low to 0 V DC). The DC Device Remote Input can connect to either Pin 2 or Pin 5 of the DC-powered device.

Required: Select the appropriate SPS30 model configuration based on the DC-powered device input requirements.

Models

Family	DC Device Output Type	AC Output Configuration	AC Output Hardware	DC Device Remote Input Type and Pin Assignment	DC Device Connector Type
SPS30	P	A	R	2P	Q3
	P = PNP N = NPN	A = Normally Open	R = E/M Relay	2P = PNP on Pin 2 2N = NPN on Pin 2 5P = PNP on Pin 5 5N = NPN on Pin 5	Q3 = 150 mm (6 in.) PVC cable with an M8 quick disconnect Q5 = 150 mm (6 in.) PVC cable with an M12 quick disconnect

Original Document
224538 Rev. B

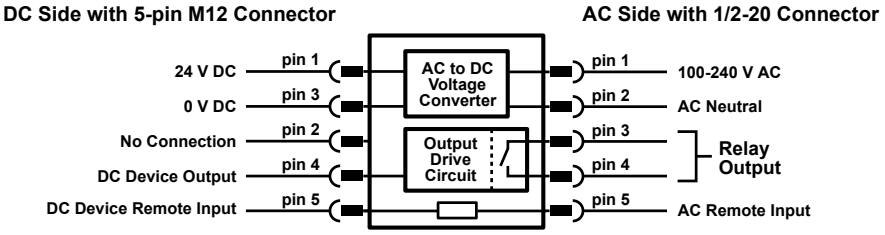
15 March 2022

224538

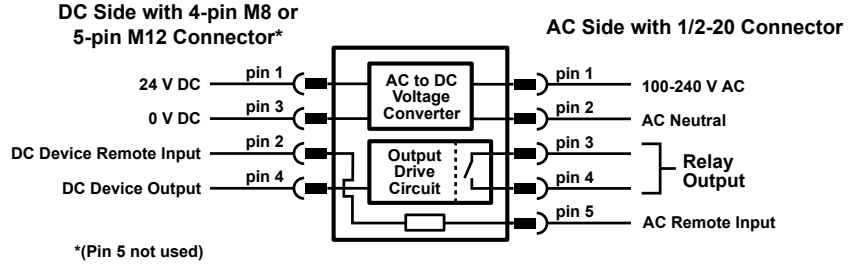
ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

Wiring

SPS30 with DC Input on DC Pin 5



SPS30 with DC Input on DC Pin 2



Specifications

AC Input Characteristics
Voltage: 100 V AC to 240 V AC

Max Current Draw (mA)			
100 V AC	**120 V AC**	**230 V AC**	**240 V AC**
115	95	65	60

Frequency Range: 47 Hz to 63 Hz
AC Remote Input: 5 mA max

DC Output Characteristics
Voltage: 24 V DC (±10%)
Current: 300 mA max between the powered device and DC Device Remote Input
Power: 7.2 W max
DC Device Remote Input: 100 mA max NPN or PNP output, depending on model
Limited energy power supply evaluated to IEC, UL, and CSA 61010-2-201 that can be used to power devices that require a Class 2 or SELV power supply

Supply Protection Circuitry
Protected against transient voltages

Relay Output Response Time
6 ms

Status Indicators
Power On: Green
Output On: Yellow

Construction
Housing and AC endcap: PBT
DC endcap: TPU
Nuts: Polycarbonate

AC Remote Input Leakage Current Immunity
500 µA
Application Note: The use of relay output PLC is recommended since there is no leakage current. Solid state output PLCs often have leakage current above 1 mA and, therefore, turn the DC Device Remote Input ON in the OFF state. To counteract the leakage current, a shunt resistor must be used. A resistor must be applied from the hot wire of the AC Remote Input of the device.

Mounting
M30 × 1.5 threaded base, maximum torque 4.5 N·m (40 in·lbf)
Supplied with two 30 mm mounting nuts

Connections
AC: Integral 5-pin 1/2 in. 20UNF male quick-disconnect connector
DC: 150 mm (6 in) PVC cable with a 5-pin M12 male quick disconnect, or 150 mm (6 in) PVC cable with a 4-pin M8 male quick-disconnect connector, depending on model

Note: Do not spray cable with high-pressure sprayer, or cable damage will result.

Environmental Rating
IP65, IP67, IP69K per DIN 40050-9

Operating Temperature
Max current of 2 A through relay: –20 °C to +50 °C (–4 °F to +122 °F)
Max current of 4 A through relay: –20 °C to +45 °C (–4 °F to +113 °F)

Storage Temperature
–40 °C to +70 °C (–40 °F to +158 °F)

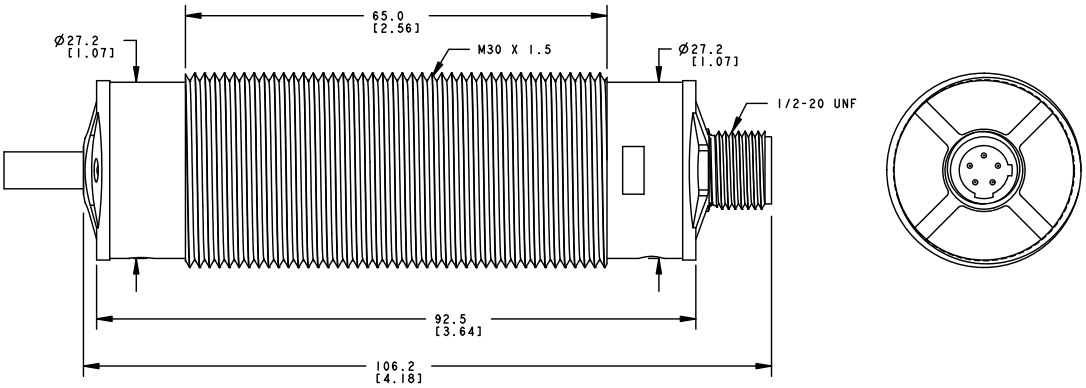
Vibration and Mechanical Shock
Vibration: 10 Hz to 55 Hz, 1.0 mm peak-to-peak amplitude per IEC 60068-2-6
Shock: 15G 11 ms duration, half sine wave per IEC 60068-2-27

Relay Output
SPST (1 Form A) relay:
250 V AC, 4A
Minimum Mechanical Life: 100,000 operations

Certifications

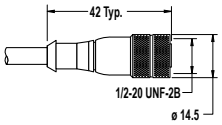
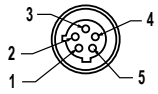
Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise.

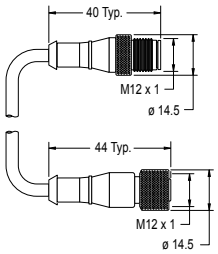
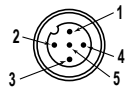
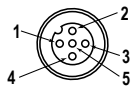


Accessories

Cordsets

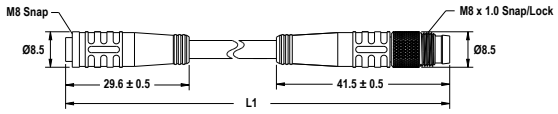
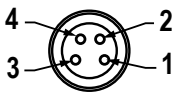
5-Pin 1/2-in Dual Key Cordsets—Single Ended				
Model	**Length**	**Style**	**Dimensions**	**Pinout**
MQAC2-506	2 m (6.56 ft)	Straight		
MQAC2-515	5 m (16.4 ft)			
MQAC2-530	9.14 m (30 ft)			

1 = Brown
2 = Blue
3 = White
4 = Black
5 = Gray

5-Pin Threaded M12 Cordsets—Double Ended					
Model	**Length**	**Style**	**Dimensions**	**Pinout (Male)**	**Pinout (Female)**
MQDEC-501SS	0.31 m (1.02 ft)	Male Straight/ Female Straight			
MQDEC-503SS	0.91 m (2.99 ft)				
MQDEC-506SS	1.83 m (6 ft)				
MQDEC-512SS	3.66 m (12 ft)				
MQDEC-515SS	5 m (16.4 ft)				
MQDEC-530SS	9 m (29.5 ft)				
MQDEC-550SS	15 m (49.2 ft)				

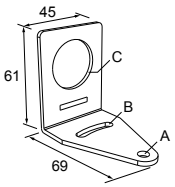
1 = Brown
2 = White
3 = Blue

4 = Black
5 = Gray

4-Pin Threaded M8 Cordsets—Double Ended				
Model	**Length**	**Style**	**Dimensions**	**Pinout**
PSG4M-1-PKG4	1.03 m (3.38 ft)	Male Straight/ Female Straight		Female  Male  1 = Brown 2 = White 3 = Blue 4 = Black

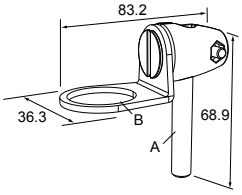
Brackets

SMB30A
- Right-angle bracket with curved slot for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor
- 12-ga. stainless steel



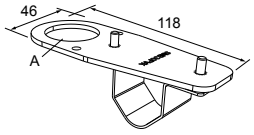
Hole center spacing: A to B=40
Hole size: A=ø 6.3, B= 27.1 x 6.3, C=ø 30.5

SMB30FA
- Swivel bracket with tilt and pan movement for precise adjustment
- Mounting hole for 30 mm sensor
- 12-ga. 304 stainless steel
- Easy sensor mounting to extrude rail T-slot
- Metric and inch size bolt available



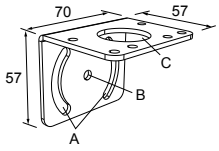
Bolt thread: SMB30FA, A= 3/8 - 16 x 2 in; SMB30FAM10, A= M10 - 1.5 x 50
Hole size: B= ø 30.1

SMB30FVK
- V-clamp, flat bracket and fasteners for mounting to pipe or extensions
- Clamp accommodates 28 mm dia. tubing or 1 in. square extrusions
- 30 mm hole for mounting sensors



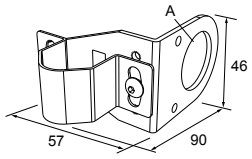
Hole size: A= ø 31

SMB30MM
- 12-ga. stainless steel bracket with curved mounting slots for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor



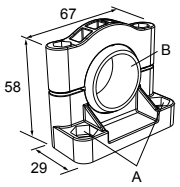
Hole center spacing: A = 51, A to B = 25.4
Hole size: A = 42.6 x 7, B = ø 6.4, C = ø 30.1

SMB30RAVK
- V-clamp, right-angle bracket and fasteners for mounting sensors to pipe or extrusion
- Clamp accommodates 28 mm dia. tubing or 1 in. square extrusions
- 30 mm hole for mounting sensors



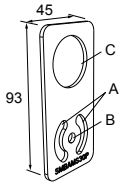
Hole size: A = ø 30.5

SMB30SC
- Swivel bracket with 30 mm mounting hole for sensor
- Black reinforced thermoplastic polyester
- Stainless steel mounting and swivel locking hardware included



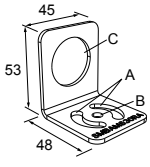
Hole center spacing: A=ø 50.8
Hole size: A=ø 7.0, B=ø 30.0

SMBAMS30P
- Flat SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-ga. 300 series stainless steel



Hole center spacing: A=26.0, A to B=13.0
Hole size: A=26.8 x 7.0, B=ø 6.5, C=ø 31.0

SMBAMS30RA
- Right-angle SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-ga. (2.6 mm) cold-rolled steel



Hole center spacing: A=26.0, A to B=13.0
Hole size: A=26.8 x 7.0, B=ø 6.5, C=ø 31.0

Banner Engineering Corp. Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

THIS LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED (INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), AND WHETHER ARISING UNDER COURSE OF PERFORMANCE, COURSE OF DEALING OR TRADE USAGE.

This Warranty is exclusive and limited to repair or, at the discretion of Banner Engineering Corp., replacement. **IN NO EVENT SHALL BANNER ENGINEERING CORP. BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR ANY EXTRA COSTS, EXPENSES, LOSSES, LOSS OF PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM ANY PRODUCT DEFECT OR FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER ARISING IN CONTRACT OR WARRANTY, STATUTE, TORT, STRICT LIABILITY, NEGLIGENCE, OR OTHERWISE.**

Banner Engineering Corp. reserves the right to change, modify or improve the design of the product without assuming any obligations or liabilities relating to any product previously manufactured by Banner Engineering Corp. Any misuse, abuse, or improper application or installation of this product or use of the product for personal protection applications when the product is identified as not intended for such purposes will void the product warranty. Any modifications to this product without prior express approval by Banner Engineering Corp will void the product warranties. All specifications published in this document are subject to change; Banner reserves the right to modify product specifications or update documentation at any time. Specifications and product information in English supersede that which is provided in any other language. For the most recent version of any documentation, refer to: www.bannerengineering.com.

For patent information, see www.bannerengineering.com/patents.

FCC Part 15

This device complies with Part 15 of the FCC Rules. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

Industry Canada

This device complies with CAN ICES-3 (A)/NMB-3(A). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme à la norme NMB-3(A). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

© Banner Engineering Corp. All rights reserved