

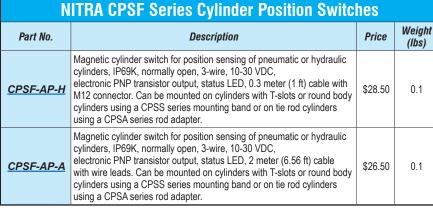
NITRA CPSF Series cylinder position switches are designed for food and beverage or washdown applications. The switches are designed to mount on cylinders with a 5mm square T-slot channel. Using CPSA adapters or CPSS all stainless steel mounting bands, they can be used with tie rod or round body style cylinders. 3-year warranty.

CPSF Series Cylinder Position Switches



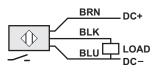


Wiring



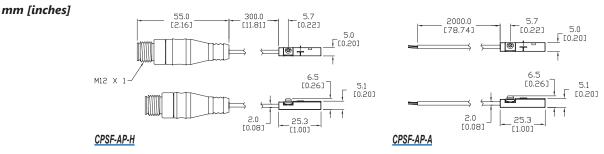
CPSF-AP-H

NITRA CPSF Cylinder Switch Specifications		
Operating Voltage	10-30 VDC	
Voltage Drop	< 2.5 V	
Current Rating	100 mA (built-in overload protection)	
Wire Size	26AWG (0.13mm ²)	
Short Circuit Protection	Yes	
Reverse Polarity Protection	Yes	
Overload Protection	Yes	
Leakage Current	none	
Sensing Technology	AMR	
Hysteresis	< 1 mm	
Function Display	Switching status yellow	
Switching Frequency	> 6,000 Hz for 3-wire	
Magnetic Sensitivity	2 millitesla (20 gauss)	
Housing Materials	polyamide and stainless steel	
Operating Temperature	-13°F to 185°F (-25°C to 85°C)	
Protection Rating	IP 69K	
Agency Approvals	CE, cULus (Class 2 source required), file E328811	



CPSF-AP-A

Dimensions



CPS Series Cylinder Position Switches NEUMATICS

The NITRA CPS Series of cylinder position switches offers a robust, yet cost-effective, interface between pneumatic or hydraulic actuators and electrical control systems. Using state-of-the-art magnetic sensing technology, these switches are designed for use with cylinders that have a magnet incorporated in the cylinder piston. They can be used to provide cylinder position indication, cycle count, or to confirm operation.

NITRA cylinder position switches are now available in nine styles with accessories to fit many different styles of cvlinders or

actuators. The switches are designed for general purpose applications on most popular cylinder brands with sensor grooves, on round body cylinders using CPSB Series mounting bands or on tie rod cylinders using CPSA Series adapters. Harsh duty applications can use the CPSF Series switches with CPSS stainless steel mounting bands if needed.

NITRA cylinder position switches are available in 3-wire DC, PNP normally open, PNP normally closed, and NPN normally open electronic solid state configurations. Switches include

integral cable with either an M8 or M12 wiring connector or wire leads. Integral





CPSA Adapter Assembly

LED indication provides switch status for speedy switch positioning and troubleshooting. Pre-tested for use with NITRA pneumatic cylinders, these switches are also suitable for use with other brands of cylinders with magnetic pistons. Features

- · Electronic switch output, PNP (normally open or normally closed) or NPN (normally open)
- · Solid state reliability, no moving parts for longer life
- · AMR sensing technology with small hysteresis for precise sensing
- GMR sensing technology for basic industrial applications
- · Compact and easy to mount on round body, tie rod, and extruded body cylinders
- · LED switch status indication
- Integral cable with M8 or M12 wiring connector or 2-meter wire leads
- Electronic switch performance at reed switch prices



E-series cylinder with switch

CPSB Band Assembly Technology Comparison

Reed	Reed Switch vs. AutomationDirect CPS Series Electronic Switch				
Mechanical Reed Sw		AutomationDirect CPS Series Electronic Switch	Details		
Durability	low (1-2 million cycles typical)	high (virtually unlimited number of cycles)	Reed switchs can stick, break, bounce and are prone to wear		
Repeatability	low	high	Mechanical wear of reed switches can lead to switch point drift		
Response time	low	high	Reed switches have a slower response time than electronic switches, resulting in lower switch accuracy		
Sensitivity to magnetic fields	low	high	Electronic sensors, more sensitive than reed switches, operate reliably even with weak magnetic fields		
Temperature stability	high	high	Both switch technologies are extremely stable over the entire temperature range		
Longevity	low	high	Electronic sensors are insensitive to long term effects of magnetic fields. Reed switches can become permanently magnetized over time.		
Response sensitivity	medium	high	Electronic sensors have small hysteresis and are exceptional for short stroke cylinders		
Price	low	low	Reed switches are usually much less expensive than electronic switches. The AutomationDirect CPS Series offers all the advantages of an electronic cylinder position switch at reed switch prices.		

AMR vs. GMR Technology

Two solid state magnetic sensing technologies used for pneumatic cylinder position are GMR (Giant Magnetoresistive) and AMR (Anisotropic Magnetoresistive). Both sensing technologies consist of layers of ferromagnetic material that change in electrical resistance when exposed to an external magnetic field. AMR based switches have a higher sensitivity and narrower sensing field compared to less expensive GMR based switches. AMR switches are a better choice for cylinders with short strokes.

1-800-633-0405



CPS Series Cylinder Position Switches

Position Switch Cross Reference Chart			
NITRA Switch Type	Cylinder Brand (may fit some of these cylinders)	Photo Example	Groove Illustration
CPS CPSF	NITRA A-Series NITRA D-Series NITRA F-Series		Round Cylinder Adapter & Band (CPSD or CPSS Series)
CPS9C	DE-STA-CO Robohand SMC Compact Air Bimba Fabco		2.53 Min. +/- 0.1 + R2.13 +/- 0.05
CPS9D	NITRA L-Series Fabco Numatics Rotomation		
CPS9E	NITRA L-Series Fabco Numatics Rotomation		
CPS9F	NITRA G-Series Fabco Festo Numatics Rotomation		
СРЅ9Н	NITRA E-Series NITRA H-Series		
СРЅ9М	Norgren		5.1 +/-0.1 5.1 +/-0.1 R 3.25
CPS9Q	NITRA L-Series NITRA G-Series Parker Fabco Festo Numatics Rotomation		



CPSA Series Cylinder Position Switches – Mounting Adapter

NITRA CPSA Series mounting adapters are made of extruded aluminum. They are used to mount CPS or CPSF series T-slot switches to tie rod style cylinders. They come in five sizes to fit tie rods from 1/8 inch [3mm] to 3/4 inch [20mm] diameter.

	NITRA Cylinder Switch Mounting Adapters			
Part No.	Description	Price	Weight (lbs)	
<u>CPSA-03</u>	Adapter bracket to secure a T-slot cylinder position switch to a 1/8 to 3/16 inch (3 to 5 mm) diameter tie rod	\$6.75	0.1	
<u>CPSA-04</u>	Adapter bracket to secure a T-slot cylinder position switch to a 3/16 to 1/4 inch (5 to 7mm) diameter tie rod	\$7.50	0.1	
<u>CPSA-07</u>	Adapter bracket to secure a T-slot cylinder position switch to a 3/16 to 7/16 inch (5 to 11 mm) diameter tie rod	\$6.75	0.1	
<u>CPSA-09</u>	Adapter bracket to secure a T-slot cylinder position switch to a 3/8 to 9/16 inch (9 to 15 mm) diameter tie rod	\$6.75	0.1	
<u>CPSA-12</u>	Adapter bracket to secure a T-slot cylinder position switch to a 9/16 to 3/4 inch (14 to 20 mm) diameter tie rod	\$8.75	0.1	

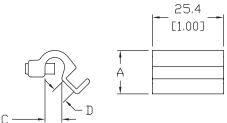


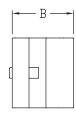


with T-slot cylinder position switch.

Dimensions

mm [inches]





	[1.00]	
∱ A		
ł		

Cylinder S	witch Moun	ting Adapte	r Selector*
Nitra Cylinder Bore Size	<u>CPSA-04</u>	<u>CPSA-07</u>	<u>CPSA-09</u>
1-1/2"	\checkmark	√	
2"		√	
2-1/2"		√	
3-1/4"		\checkmark	\checkmark
4"		\checkmark	√

* CPSA-03 and CPSA-12 mounting adapters are for cylinder sizes that are not currently available.

(CYLINDER POSITION SWITCHES			
	DIM A DIM B DIM C DIM D			DIM D
CPSA-03	15.5 [0.61]	22.0 [.086]	6.0 [0.24]	5.4 [0.21]
CPSA-04	18.5 [0.73]	24.5 [0.96]	7.5 [0.30]	5.5 [0.22]
CPSA-07	22.8 [0.90]	30.2 [1.19]	11.3 [0.44]	6.6 [0.26]
CPSA-09	25.9 [1.02]	34.2 [1.35]	15.3 [0.60]	6.6 [0.26]
CPSA-12	31.1 [1.22]	39.6 [1.56]	20.3 [0.80]	6.6 [0.26]

CPSA-XX

RA PNEUMATICS CPSB and CPSS Series Cylinder Position Switches - Mounting Bands

NITRA Cylinder Switch SS Mounting Bands with Plastic

1-800-633-0405

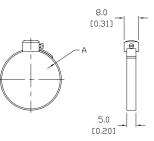
	Caps		
Part No.	Description	Price	Weight (lbs)
<u>CPSB-07</u>	Mounting band to secure a T-slot cylinder position switch to a 5/16 to 1/2 inch (8, 10, 12 mm) bore round body cylinder.	\$3.00	0.1
<u>CPSB-14</u>	Mounting band to secure a T-slot cylinder position switch to a 9/16 to 7/8 inch (16 & 20 mm) bore round body cylinder.	\$3.00	0.1
<u>CPSB-20</u>	Mounting band to secure a T-slot cylinder position switch to a 1-1/16 to 1-1/4 inch (25 & 32 mm) bore round body cylinder.	\$3.50	0.1
<u>CPSB-24</u>	Mounting band to secure a T-slot cylinder position switch to a 1-1/2 inch (40 mm) bore round body cylinder.	\$3.75	0.1
<u>CPSB-32</u>	Mounting band to secure a T-slot cylinder position switch to a 1-3/4 to 2 inch (50 mm) bore round body cylinder.	\$4.25	0.1
<u>CPSB-40</u>	Mounting band to secure a T-slot cylinder position switch to a 2-1/2 inch (63 mm) bore round body cylinder	\$4.50	0.1
<u>CPSB-52</u>	Mounting band to secure a T-slot cylinder position switch to a 3 inch (80 mm) bore round body cylinder	\$5.25	0.1
<u>CPSB-64</u>	Mounting band to secure a T-slot cylinder position switch to a 4 inch (100 mm) bore round body cylinder	\$5.25	0.1



<u>CPSB-20</u>



NITRA	Cylinder Switch All Stainless Steel	Mounti	ng Bands
Part No.	Description	Price	Weight (lbs)
<u>CPSS-07</u>	Stainless steel mounting band to secure a T-slot cylinder position switch to a 7/16 to 9/16 inch (10 to 16 mm) bore round body cylinder	\$6.25	0.1
<u>CPSS-14</u>	Stainless steel mounting band to secure a T-slot cylinder position switch to a 7/8 to 1-1/16 inch (20 to 25 mm) bore round body cylinder	\$6.50	0.1
<u>CPSS-20</u>	Stainless steel mounting band to secure a T-slot cylinder position switch to a 1-1/4 inch (32 mm) bore round body cylinder	\$6.75	0.1
<u>CPSS-24</u>	Stainless steel mounting band to secure a T-slot cylinder position switch to a 1-1/2 inch (40 mm) bore round body cylinder	\$7.00	0.1
<u>CPSS-32</u>	Stainless steel mounting band to secure a T-slot cylinder position switch to a 1-3/4 to 2 inch (50 mm) bore round body cylinder	\$7.50	0.1
<u>CPSS-40</u>	Stainless steel mounting band to secure a T-slot cylinder position switch to a 2-1/2 inch (63 mm) bore round body cylinder	\$7.75	0.1
<u>CPSS-52</u>	Stainless steel mounting band to secure a T-slot cylinder position switch to a 3 inch (80 mm) bore round body cylinder	\$8.00	0.1
<u>CPSS-64</u>	Stainless steel mounting band to secure a T-slot cylinder position switch to a 4 inch (100 mm) bore round body cylinder	\$8.25	0.1



Dimensions

mm [inches]

	CYLINDER POSITION SWITCHES				
PART #	DIM A	PART #	DIM A		
CPSX-07	ø11.0-ø19.0 [ø0.43-ø0.75]	CPSX-32	Ø48.0-Ø59.0 [Ø1.89-Ø2.32]		
CPSX-14	ø18.0-ø29.0 [ø0.71-ø1.14]	CPSX-40	Ø58.0-Ø69.0 [Ø2.28-Ø2.72]		
CPSX-20	¢28.0-¢39.0 [¢1.10-¢1.54]	CPSX-52	Ø78.0-Ø89.0 [Ø3.07-Ø3.50]		
CPSX-24	ø38.0-ø49.0 [ø1.50-ø1.93]	CPSX-64	Ø98.0-Ø109.0 [Ø3.86-Ø4.29]		
CPSX-XX					

www.automationdirect.com