

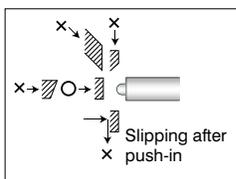
# METROL Precision Limit Switches

## Low Contact Force Limit Switches: CSFN / CS / CSJ

### Features

- 0.1N and 0.5N contact force
- 5 micron (µm) and 10 micron (µm) repeat accuracy
- Stainless steel housing
- Metal bearing
- Straight-touch and straight needle touch available

#### Low Contact Force Straight Touch

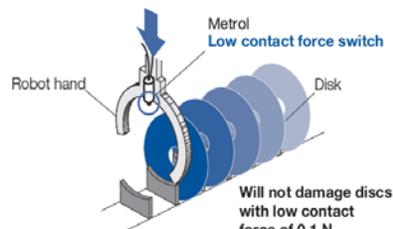


O indicates correct target approach and orientation.

X indicates approach and orientation that should be avoided.

#### CSFN105A-H6X must be mounted downward

Detects presence of HDD discs



### Low Contact Force Limit Switches Selection Chart

Part Number	Price	Drawing Link	Actuator/ Head Type*	Barrel Type	Barrel Diameter/Thread*	Stroke	Switching Output	Contact Force	Connection Type
<b>Low Contact Force, Metal Bearing, Downward Mounting Only</b>									
<a href="#"><b>CSFN105A-H6X</b></a>	\$45hy:	<a href="#">PDF</a>	Ø 2mm plunger [0.079 in] SR 1.5 mm [0.059 in]	Threaded	M10x0.5	2mm [0.079in]	NPN, N.O.	0.1N	3m [9.8 ft] cable
<b>Low Contact Force, Straight Touch, Metal Bearing</b>									
<a href="#"><b>CS067A-LG</b></a>	\$45hx:	<a href="#">PDF</a>	Ø 2mm plunger [0.079 in] SR 1.5 mm [0.059 in]	Threaded	M6x0.75	2.8mm [0.110in]	(1) N.O.	0.5N	3m [9.8 ft] cable
<b>Low Contact Force, Straight Touch, Needle Contact</b>									
<a href="#"><b>CSJ055A-CG</b></a>	\$45ht:	<a href="#">PDF</a>	needle plunger Ø 1.5mm flat [0.059 in]	Threaded	M5x0.5	2.8mm [0.110in]	(1) N.O.	0.5N	3m [9.8 ft] cable

Ø = diameter, SR = surface radius

\* Must be mounted in a downward direction



[\*\*CSFN105A-H6X\*\*](#)



[\*\*CS067A-LG\*\*](#)



[\*\*CSJ055A-CG\*\*](#)



# Precision Limit Switches

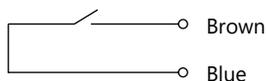
Low Contact Force Limit Switches Specifications			
Series	CSFN Metal Bearing	CS Custom Metal Bearing	CSJ Custom Needle Contact
<b>Environmental</b>			
Degree of Protection	IP40		IP65
Temperature Range	Operating: 0 to 60°C [32 to 140°F] (Ice-free)		Operating: 0 to 80°C [32 to 176°F] (Ice-free)
<b>Mechanical Ratings</b>			
Enclosure Material	Stainless Steel (mounting nuts are Ni-plated brass)		
Pretravel	0.4 mm [0.016 in]	0.3 mm [0.012 in]	
Torque (for nuts on threaded barrels, set screws on smooth barrels)	4 N•m [2.95 lb•ft]	2 N•m [1.48 lb•ft]	N/A
Vibration	10–55Hz total amplitude 1.5 for X, Y, Z each direction		
Shock	300 m/s <sup>2</sup> for X, Y, Z each direction		
Repeat Accuracy	0.01 mm (10 micron [μm]) *	0.005 mm (5 micron [μm]) *	
Recommended Minimum Operating Speed	50mm (1.96in)/minute		
<b>Electrical Ratings</b>			
Contact Life	10 million operations		
Contact Voltage	12–24VDC	5–24VDC	
Steady Current Rating	10mA or less		
Max In-rush Current Rating	10mA (limit current to protect LED indicator)		
Connection Type	Cable: 3m PVC (polyvinyl chloride) oil resistant Ø4/3 cores, 30AWG Tensile strength 30N, minimum bending R7	Cable: 3m PVC (polyvinyl chloride) oil resistant Ø2.8/2 cores, 26AWG Tensile strength 30N minimum bending R7	
Indicating	-L: LED indicator (mounted in cable 120mm from the switch)		

\* At operating speed 50-200 mm/minute. Operating speed slower than 10 mm (0.393 in)/min is not recommended.

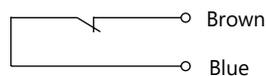
## Circuit Diagrams

### Without LED

Normally open (N.O.)

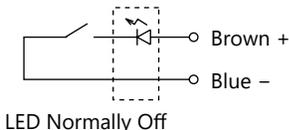


Normally closed (N.C.)

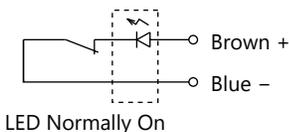


### With LED

Normally open (N.O.)



Normally closed (N.C.)



### CSFN105A-H6X

Normally open (N.O.)  
(NPN Open Collector)

