

# Limit Switch Connectors

## Connectors (SC Series)

Cable and flexible tubes with various diameters are used to connect machine tools and controllers with Limit Switches. To ensure the watertightness of the edges of the conduits, use an SC Connector that is suitable for the external diameter of cable and model of Limit Switch.

## Ordering Information

### Connector for Cable

Conduit	Applicable cable	Inner diameter (D) of seal rubber	External diameter of cable		Model	Applicable model
			Min.	Max.		
JIS B 0202 G½	Cable (general-purpose)	7 mm	5.5 mm	7.5 mm	SC-1M	WL, D4A-□N, D4B-□N, ZE, ZV, ZV2, XE, XV, XV2
		9 mm	7.5 mm	9.5 mm	SC-2M	
		12.5 mm	11 mm	13 mm	SC-3M	
		14 mm	12 mm	14 mm	SC-4M	
		11 mm	9 mm	11 mm	SC-5M	
	Cable (anti-corrosive)	7 mm	5.5 mm	7.5 mm	SC-21	
		9 mm	7.5 mm	9.5 mm	SC-22	
		12.5 mm	11 mm	13 mm	SC-23	
		14 mm	12 mm	14 mm	SC-24	
		11 mm	9 mm	11 mm	SC-25	
½-14NPT	Cable	7 mm	5.5 mm	7.5 mm	SC-1PT	D4A-□N
		9 mm	7.5 mm	9.5 mm	SC-2PT	
		12.5 mm	11 mm	13 mm	SC-3PT	
		14 mm	12 mm	14 mm	SC-4PT	
		11 mm	9 mm	11 mm	SC-5PT	

Note: 1. Use SC-21 to SC-25 together with the rubber ring and conduit washer for the SC-P2.

2. It is necessary to use sealing tape with SC Connectors. SC-1M to SC-5M, however, are provided with an O-ring (NBR) and therefore sealing tape is not necessary to ensure a proper seal.

## Simple Connector

Conduit	Applicable cable	Inner diameter (D) of seal rubber	External diameter of cable		Model	Applicable model
			Min.	Max.		
JIS B 0202 G½	Cable	10.6 mm	8.5 mm	10.5 mm	SC-P2	WL, D4A-□N, D4B-□N, ZE, ZV, ZV2, XE, XV, XV2
Pg13.5		9.6 mm	7.5 mm	9.5 mm	SC-P3	WL□-G, D4B-□N
JIS B 0202 G½		9 mm	7.5 mm	9 mm	SC-6	WL, D4A-□N, D4N*, D4N-□R*, D4B-□N, ZE, ZV, ZV2, XE, XV, XV2

Note: The casings for SC-P2, -P3 and -6 are made of resin. If more sealing capability is required, use one of SC-1M to SC-5M, which have metal casings. Models marked with an asterisk (\*) however, can only be used with resin connectors.

(Unit: mm)

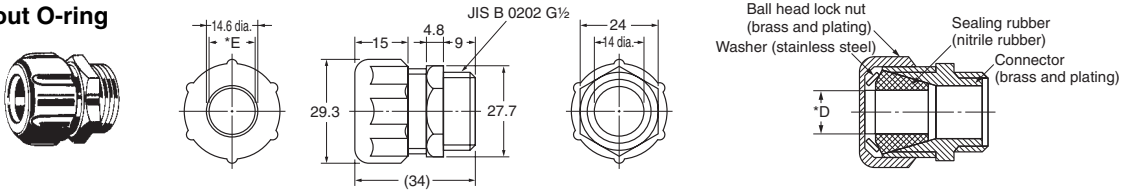
**Dimensions and Structure**

**Connectors for Cabtire Cable**

SC-P2 accessories and sealing tape must be used together with models without an O-ring in order to prevent ingress of oil or water. Follow the instructions given under Conduits on page 4.

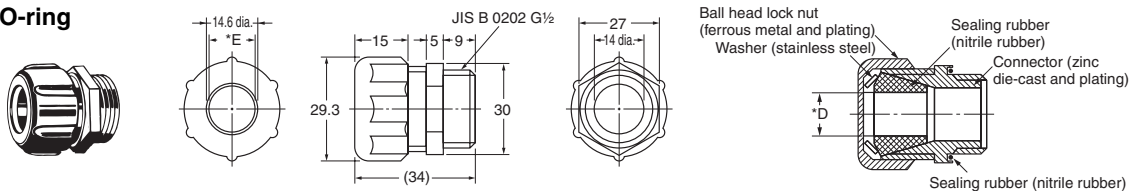
**Metal Models without O-ring**

**G $\frac{1}{2}$**   
**SC-21 to 25**



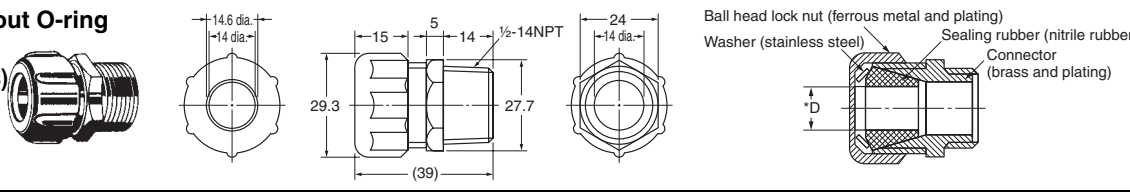
**Metal Models with O-ring**

**G $\frac{1}{2}$**   
**SC-1M to 5M**



**Metal Models without O-ring**

**$\frac{1}{2}$ -14NPT**  
**(U.S.-standard screws)**  
**SC-1PT to 5PT**

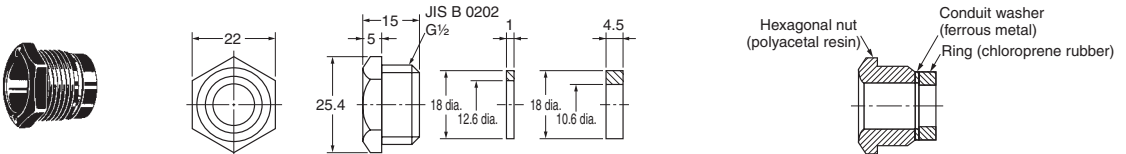


Note: Dimensions not shown in the above diagrams have a variation of  $\pm 0.4$  mm.

**Simple Connectors (Not Suitable for Locations Subject to Oil or Water)**

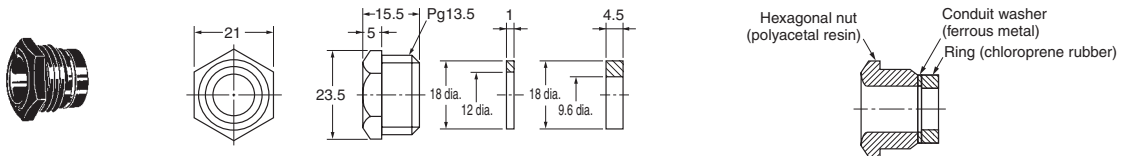
**Resin Models**

**G $\frac{1}{2}$**   
**SC-P2**



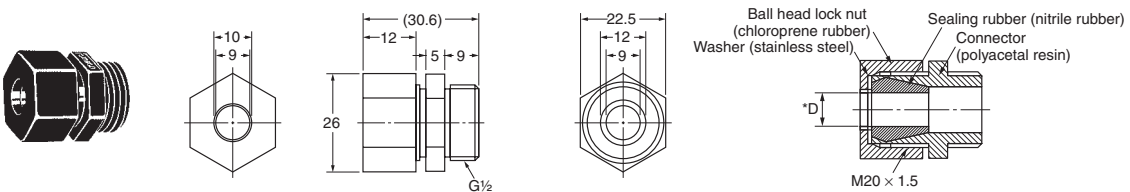
**Resin Models**

**Pg13.5**  
**SC-P3**



**Resin Models**

**G $\frac{1}{2}$**   
**SC-6**



Note: Dimensions not shown in the above diagrams have a variation of  $\pm 0.4$  mm.

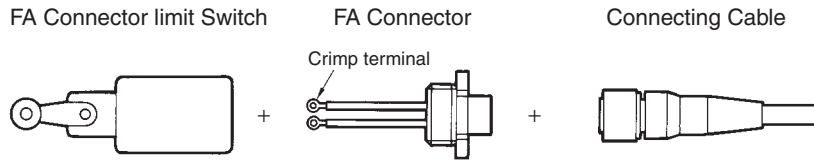
\* Diameter of Part Marked with Asterisk

Model	Inner diameter (D) of sealed rubber	Internal diameter (E) of washer	Applicable cable
SC-21, -1M, -1PT	7 mm	10.4 mm	5.5 to 7.5-mm dia.
SC-22, -2M, -2PT	9 mm	13.2 mm	7.5 to 9.5-mm dia.
SC-23, -3M, -3PT	12.5 mm	14.6 mm	11 to 13-mm dia.
SC-24, -4M, 4PT	14 mm	14.6 mm	12 to 14-mm dia.
SC-25, -5M, -5PT	11 mm	13.2 mm	9 to 11-mm dia.
SC-6	9 mm	10 mm	7.5 to 9-mm dia.

**SC-□F□ FA Connectors**

The SC-□F□ is a snap-on connecting model that greatly reduces the time-consuming effort for wiring the Limit Switch. The SC-□F□ is easily and quickly connected or disconnected and its degree of protection is IP67.

**Ordering Information**



**FA Connectors**

Model	Number of conductors	Voltage specification	Size of conduit	Size of crimp terminal	Applicable model
SC-2F	2	125 VDC	JIS B 0202 G½	M4	WL
SC-2FAD	2	250 VAC			
SC-4F4D	4	125 VDC			
SC-4F4AD	4	250 VAC			

**Connecting Cables**



Voltage specification	Number of conductors	Cable length	Model
AC	2	2 m	XS2F-A421-DB0-A
		5 m	XS2F-A421-GB0-A
	4	2 m	XS2F-A421-D90-A
		5 m	XS2F-A421-G90-A
DC	2	2 m	XS2F-D421-DD0
		5 m	XS2F-D421-GD0
	4	2 m	XS2F-D421-D80-A
		5 m	XS2F-D421-G80-A

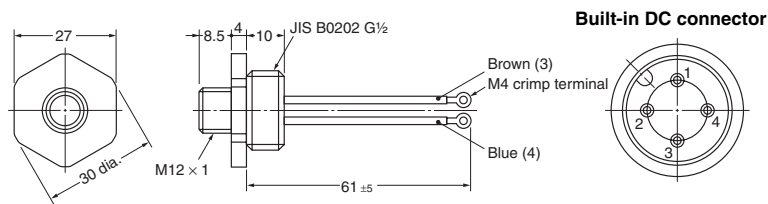
**Connections to Sensor I/O Connectors**

Voltage specification	Number of conductors	FA Connector	Sensor I/O Connector	Connection
AC	2	SC-2FAD	XS2F-A421-□B0-A ↑ D: 2-m cord G: 5-m cord	
	4	SC-4F4AD	XS2F-A421-□90-A ↑ D: 2-m cord G: 5-m cord	
DC	2	SC-2F	XS2F-D421-□D0 ↑ D: 2-m cord G: 5-m cord	
	4	SC-4F4D	XS2F-D421-□80-A ↑ D: 2-m cord G: 5-m cord	

Dimensions

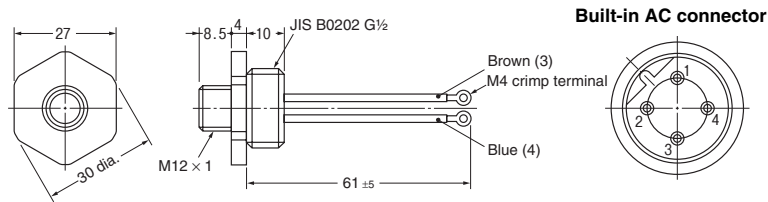
(Unit: mm)

SC-2F



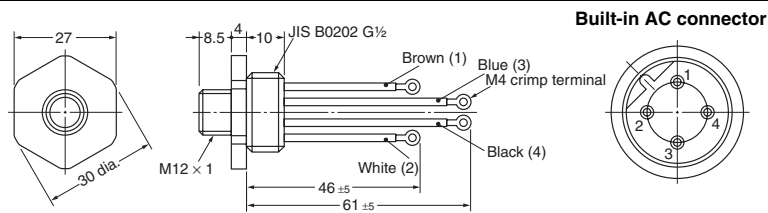
Built-in DC connector

SC-2FAD



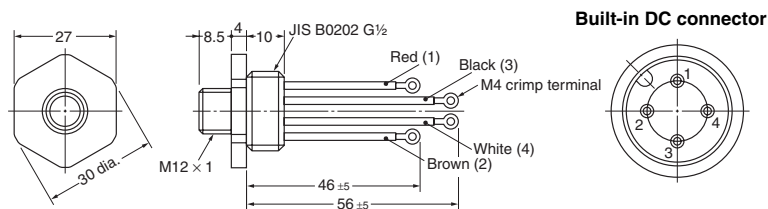
Built-in AC connector

SC-4F4AD



Built-in AC connector

SC-4F4D



Built-in DC connector

Note: 1. Each dimension has a tolerance of  $\pm 0.4$  mm unless otherwise specified.  
 2. Figures in parentheses are connector pin numbers.

Safety Precautions

Precautions for Correct Use

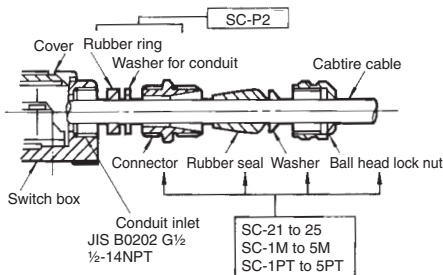
Conduits

Connector for Cabtire Cable/Flexible Tube

G $\frac{1}{2}$ ,  $\frac{1}{2}$ -14NPT

To connect a Limit Switch with a connector, insert a rubber ring first and then a washer into the conduit inlet of the switch body, put a rubber seal, washer, and nut in this order onto the tapered part of the connector and tighten the nut securely. Then tighten the conduit inlet with the connector to maintain high sealing capability. Apply sealing tape to the edge of the connector on the conduit inlet side to increase sealing capability.

The SC-1M to SC-5M are provided with an O-ring, and so the rubber ring, conduit washer, and sealing tape are not required.



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