

Connector with cable

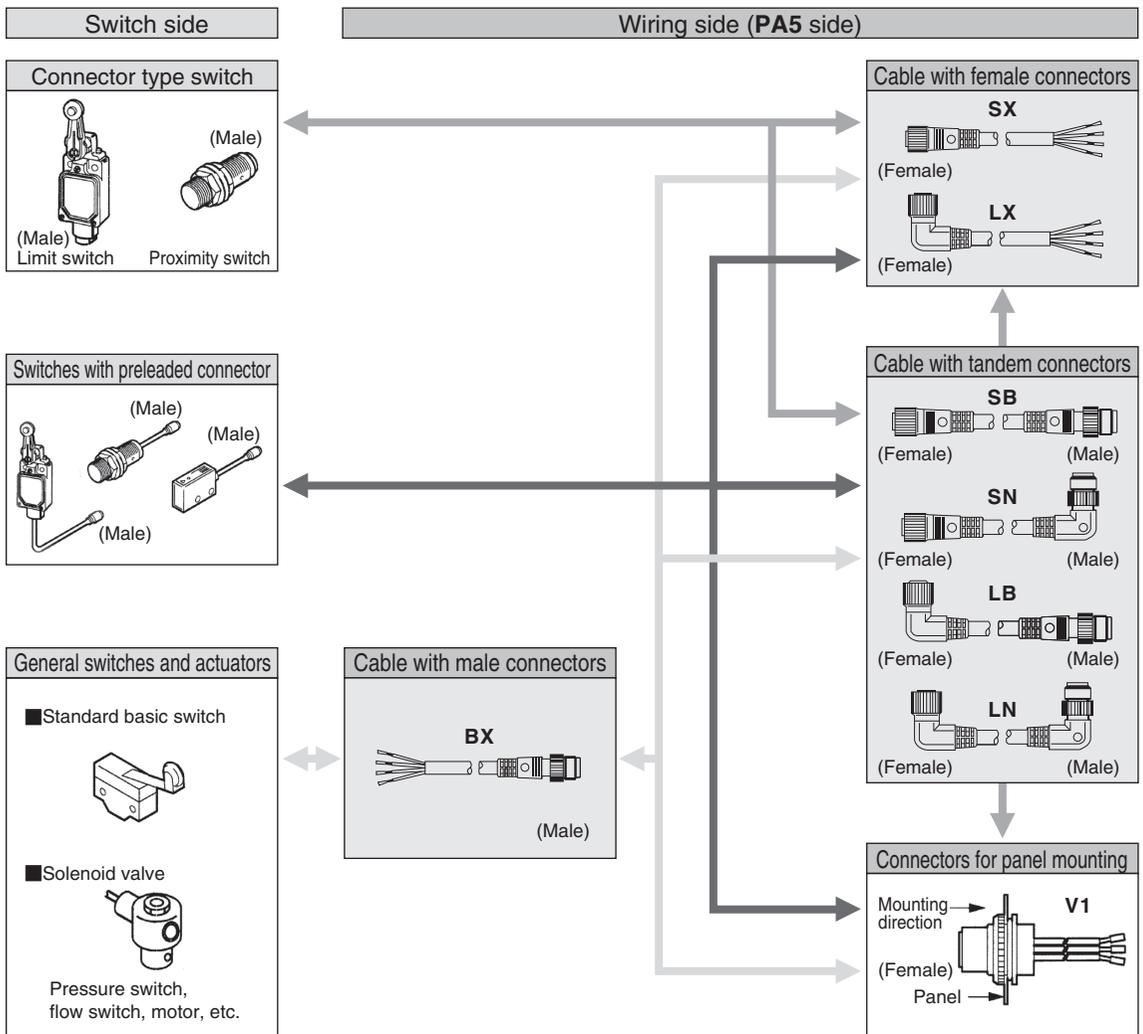
PA5 Series

Simplifies switch wiring. Wide variety of connectors attached to cables.



- No wiring or staking work needed
- Shorter replacement time in unlikely event of switch malfunction
- Simultaneous mechanical assembly and electrical wiring
- Perfect for flexible production lines
- Usable even in harsh environments exposed to cutting oil (IP67)

PA5 COMBINATIONS



SELECTION GUIDE

Example: **PA5-4JSX2HK-E**

I	II	III	IV	V	VI
⋮	⋮	⋮	⋮	⋮	⋮
PA5-	4	J	SX	2	HK-E

Catalog listing			Description
I	Basic model number	PA5-	PA5 Series cable with connector
II	Number of wires	4	4 cores
III	Type	J	AC (wire colors: brown, white, blue, black)
		I	DC (wire colors: brown, white, blue, black)
IV	Connector shape	SX	Straight (female)
		LX	Angle (female)
		BX	Straight (male)
		SB	Straight (female)- straight (male)
		SN	Straight (female) - angle (male)
		LB	Angle (female) - straight (male)
		LN	Angle (female) - angle (male)
		V1	Panel mounting
V	Cable length	03	0.3 m
		05	0.5 m
		2	2 m
		3	3 m
		5	5 m
		10	10 m
VI	Cable type	HK-E	Dia. 6.0 oil-resistant vinyl insulated cable
		SK	Vinyl insulated cable, high oil & vibration resistance, UL/NFPA79CM, CL3
		CK	Cable with polyurethane resin insulation, high oil & vibration resistance

*1. For lengths not listed, two cores, or cable for AC use, contact a branch or sales office.

*2. The 0.3-m cable length can only be used with connector shape BX.

ORDER GUIDE

● PA5-***HK-E Series

Power supply	Cable type	Connector type	Cable exit direction	External diameter (mm)	Number of cores	Conductors (mm ²)	Cable length (m)	Catalog listing
DC	Oil-resistant vinyl cabtyre cable	Male	Straight	6.0 dia.	4	0.5 (20/0.08)	0.3	PA5-4IBX03HK-E
							0.5	PA5-4IBX05HK-E
		Female	Straight				2	PA5-4ISX2HK-E
							3	PA5-4ISX3HK-E
							5	PA5-4ISX5HK-E
							10	PA5-4ISX10HK-E
		Female	Angle				2	PA5-4ILX2HK-E
							5	PA5-4ILX5HK-E
		Male/ Female	Straight/ Straight				2	PA5-4ISB2HK-E
							5	PA5-4ISB5HK-E
		Male/ Female	Angle/ Angle				10	PA5-4ISB10HK-E
							2	PA5-4ILN2HK-E
		Male/ Female	Straight/ Angle				5	PA5-4ILN5HK-E
							2	PA5-4ISN2HK-E
		Male/ Female	Angle/ Straight				5	PA5-4ISN5HK-E
							2	PA5-4ILB2HK-E
			5	PA5-4ILB5HK-E				

●PA5-***SK Series

Power supply	Cable type	Connector type	Cable exit direction	External diameter (mm)	Number of cores	Conductors (mm ²)	Cable length (m)	Catalog listing
DC	Vinyl-insulated cord with high resistance to oil and vibration (UL/NFPA79 CM, CL3)	Male	Straight	6.1 dia.	4	0.5 (108/0.08)	0.3	PA5-4IBX03SK
			0.5				PA5-4IBX05SK	
		Female	Straight				2	PA5-4ISX2SK
							3	PA5-4ISX3SK
			5				PA5-4ISX5SK	
		Female	Angle				2	PA5-4ILX2SK
			5				PA5-4ILX5SK	
		Male/ Female	Straight/ Straight				2	PA5-4ISB2SK
							3	PA5-4ISB3SK
		Male/ Female	Angle/ Angle				5	PA5-4ISB5SK
							10	PA5-4ISB10SK
		Male/ Female	Straight/ Angle				2	PA5-4ILN2SK
							5	PA5-4ILN5SK
		Male/ Female	Angle/ Straight				2	PA5-4ISN2SK
							5	PA5-4ISN5SK
		Male/ Female	Angle/ Straight				2	PA5-4ILB2SK
5	PA5-4ILB5SK							

●PA5-***CK Series

Power supply	Cable type	Connector type	Cable exit direction	External diameter (mm)	Number of cores	Conductors (mm ²)	Cable length (m)	Catalog listing
DC	Cable with polyurethane resin insulation, high oil & vibration resistance	Female	Straight	6.0 dia.	4	0.5 (110/0.08)	1	PA5-4ISX1CK
							2	PA5-4ISX2CK
							3	PA5-4ISX3CK
							5	PA5-4ISX5CK
							10	PA5-4ISX10CK
		Male/ Female	Straight/ Straight				1	PA5-4ISB1CK
							2	PA5-4ISB2CK
							3	PA5-4ISB3CK
							5	PA5-4ISB5CK
							10	PA5-4ISB10CK

●Cables with male connectors

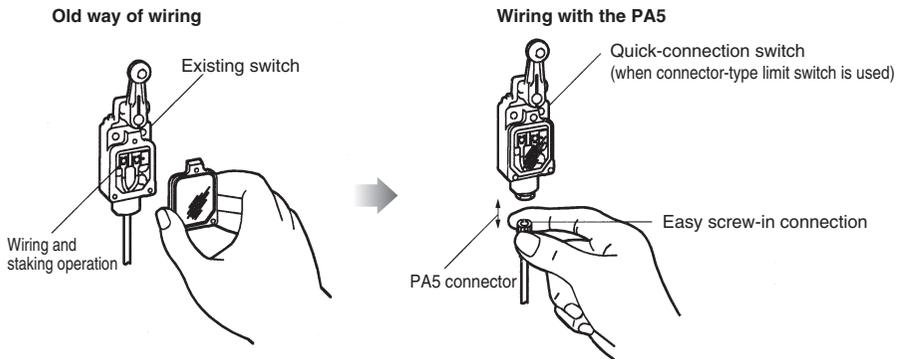
Power supply	Cable type	Connector type	Cable exit direction	External diameter (mm)	Number of cores	Conductors (mm ²)	Cable length (m)	Catalog listing	Terminal
DC	Oil-resistant vinyl cabtyre cable	Male	Straight	6.0 dia.	4	0.5 (20/0.08)	0.3	PA5-4IBX03HK4	For M4 (4 dia. terminal)
	0.3						PA5-4IBX03SK4		
	Cable with polyurethane resin insulation, high oil & vibration resistance					0.5 (110/0.08)	0.3	PA5-4IBX03CK4	

●Panel-mounted connector

Power supply	Cable type	Connector type	Cable exit direction	External diameter (mm)	Number of cores	Conductors (mm ²)	Cable length (m)	Catalog listing
AC	-	Female	Straight	-	4	AWG20 (0.5 mm ²)	0.5	PA5-4JV1K
DC								PA5-4IV1K

■ APPLICATION EXAMPLES

●Lower maintenance costs due to faster replacement of switches



CONNECTOR SPECIFICATIONS*1

Item	Specifications
Operating voltage and current	AC type: 5 Vac 5 mA min., 250 Vac 3A DC type: 5 Vdc 5 mA min., 125 Vdc 3A max.
Insulation resistance	100 MΩ min. (by 500 Vdc megger)
Dielectric strength	1,500 Vdc for 1 minute (across contacts, and between contacts and connector housing)
Initial contact resistance	40 mΩ max. (excluding cable conductor-intrinsic resistance; at 3A with male-female contact combination)
Mating/unmating force	0.4 to 4.0 N (per contact)
Mating cycles	50 times
Connector nut torque	0.8 N·m min.*2
Cable pullout strength	100 N min.
Vibration resistance	10 to 55 Hz, 1.5 mm peak-to-peak amplitude, 2 hrs each in X, Y, and Z directions
Shock resistance	300 m/s ² , 3 times each in X, Y and Z directions
Protective structure	IP67 (IP65 for panel-mounted type)
Operating temperature	-10 to +70°C
Operating humidity	95% RH max.
Material	Contacts: gold-plated brass Contact holder: glass-lined polyester resin Housing: polyester elastomer (panel-mounted type: aluminum) Lock ring: Orange brass (for AC), Ni-plated brass (for DC) Coupling: Orange brass (for AC), Ni-plated brass (for DC) O-ring: NBR

*1. Specifications assume Azbil male/female connectors.

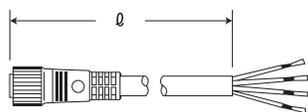
*2. The recommended tightening torque is 0.4 to 0.6 N·m. If fastened poorly, the IP67 protection may be lost, or the connector may come loose.

CABLE SPECIFICATIONS

Item	Catalog listing	PA5-4J PA5-4I □□□HK	PA5-4J PA5-4I □□□SK	PA5-4I □□□CK
External diameter		6.0 mm	6.1 mm	6.0 mm
Type of cable		Oil-resistant vinyl insulated cable	Vinyl-insulated cord with high resistance to oil and vibration (UL/NFPA79 CM, CL3)	Flexible oil-resistant and flame-resistant fluorine rubber cable
Conductors		0.5 mm ² (20/0.18)	0.5 mm ² (108/0.08)	0.5 mm ² (110/0.08)
Number of cores		4	4	4
Sheath color		Gray	Gray	Black

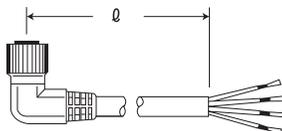
CONNECTOR SHAPES

SX



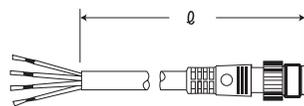
Female

LX



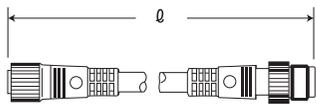
Female

BX



Male

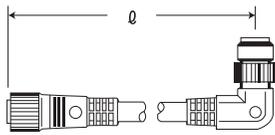
SB



Female

Male

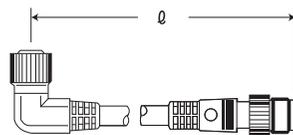
SN



Female

Male

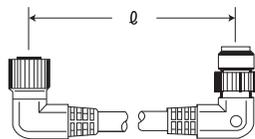
LB



Female

Male

LN



Female

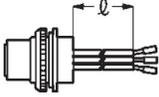
Male

Panel-mounted connector

Power supply: AC, (J type), DC (I type)

Lead colors: brown, white, blue, black

Catalog listing PA5-4 □ V1 K
 Gold-plated contacts
 Panel-mounted connector
 J: AC
 I: DC

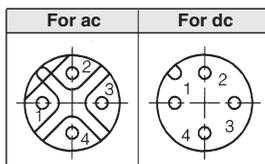
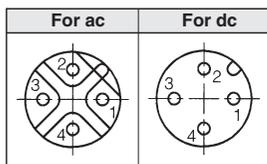
Connector shape	Appearance	Power supply	Cable length (L)	Catalog listing
V1	Female 	AC	0.5 m	PA5-4JV1K
		DC		PA5-4IV1K

● Contact arrangement and lead colors for male/female connectors

Male side



Female side

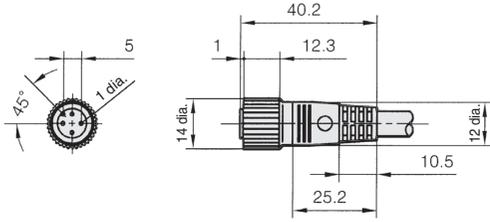


Contact No.	1	2	3	4
Lead colors	Brown	White	Blue	Black

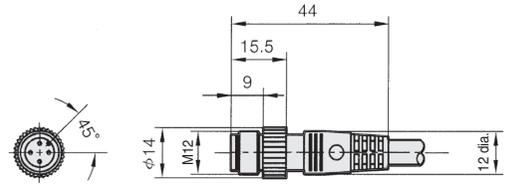
EXTERNAL DIMENSIONS OF CONNECTORS (DC cables are shown)

(unit: mm)

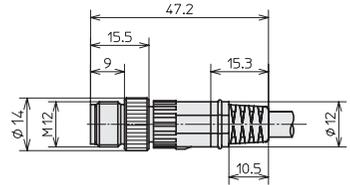
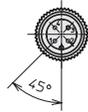
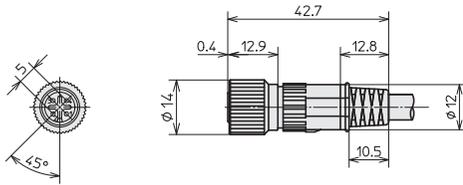
Straight (female)
Cord type: H.S



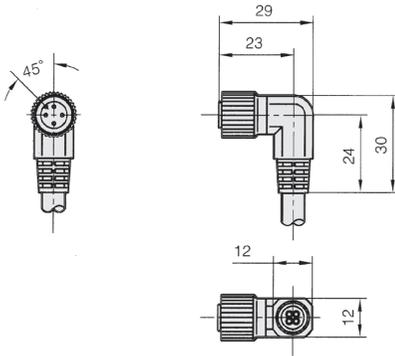
Straight (male)



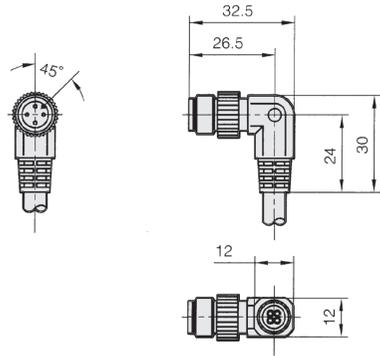
Cord type: C



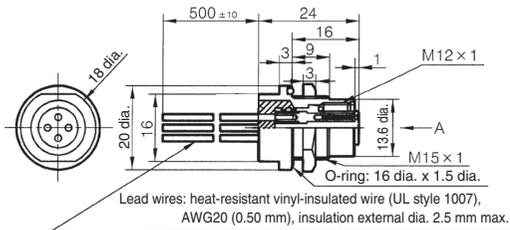
Angle (female)



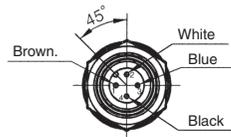
Angle (male)



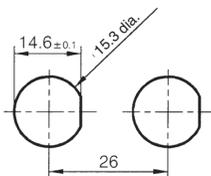
Panel-mounted connector, catalog listing **PA5-4□V1K**



A:DC type



Panel cutout dimensions



Panel thickness : 1 to 5 mm
Recommended mounting centers: 26 mm (suitable for socket wrench)

DIMENSIONS WHEN CONNECTED TO CONNECTOR-TYPE SWITCH

(unit: mm)

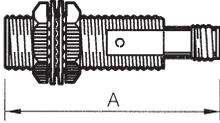
The dimensions below apply when the connector is attached. Add space for insertion/disconnection (approx. 15 mm) during actual fitting.

For attachment to an angle PA5, calculate the total length as follows:

$$\text{Total length (mm)} = A + 20 \text{ mm}$$

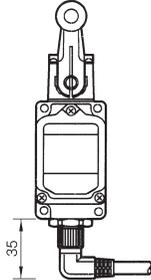
● Connector-type proximity switch with angle-type PA5

Connection to connector-type proximity switch (FL7M)



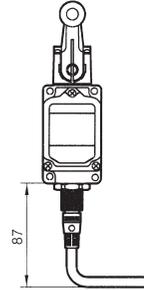
● Connector-type limit switch

Connection to angle-type PA5



● Connector-type limit switch

with straight PA5



Note: When a connector-type switch and angle-type PA5 are connected, the direction in which the PA5 cable exits may differ. Pay attention to this direction.

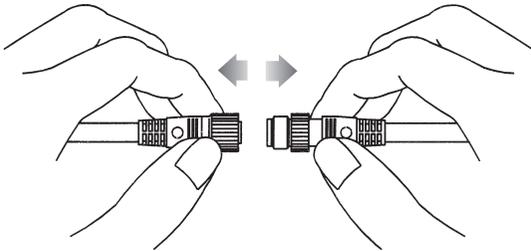
PRECAUTIONS FOR USE

● Tightening the connector nut/lock ring

- Take special care if the mating part is made of resin, since the threads can easily be damaged when the connector is first tightened. When assembling the connector, align the center of the cores, push in as far as possible, and tighten.
- Tighten firmly by hand. The recommended tightening torque is 0.4 to 0.6 N·m. The use of a tightening tool may damage the connector.
- When securing the lock ring of a PA5-4□V1K, close firmly (0.4 to 0.6 N·m) by hand, or using the dedicated tool.
- If the connector is not tightened firmly, IP67 protection may be lost, or the connector may come loose.

● Inserting and removing connectors

- Before inserting or removing connectors, be sure to turn the power OFF.
- When removing connectors, do not pull by the cable. Hold the connector by its body when removing.

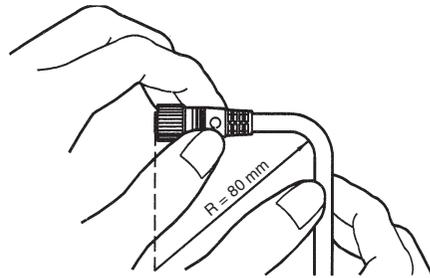


● Inserting and removing connectors

- The direction of the angle plug is restricted by the groove in the opposing plug. When using LX, NX, SX, LB, or LN series connectors, check the position of the groove in the opposing plug.

● Cautions when bending cables

- The minimum bend radius of the cable is 80 mm. Make allowance for bends in the cable.



● Protective structure

- IP67 does not imply complete waterproofing. Do not use where constantly exposed to water.
- Avoid use where external force (or weight) is applied continuously on the connecting section of the connector.
- The body is molded resin. Do not step on the body or place heavy objects on it.

● Cautions during replacement

- When removing connectors to replace the switch or cable, thoroughly wipe the connector and surrounding area to remove any water. After removing the connector, prevent it from being immersed in chemicals or powder, or being dropped. If the connector is accidentally immersed in liquid, allow it to dry completely before connecting again. If the connector is dropped in powder, completely wipe off any powder before connecting again. Failure to observe the above may result in short circuits or poor connections.