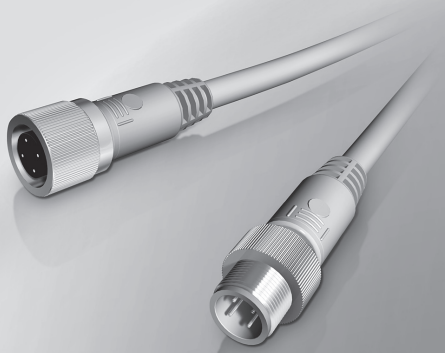


Connector with cable

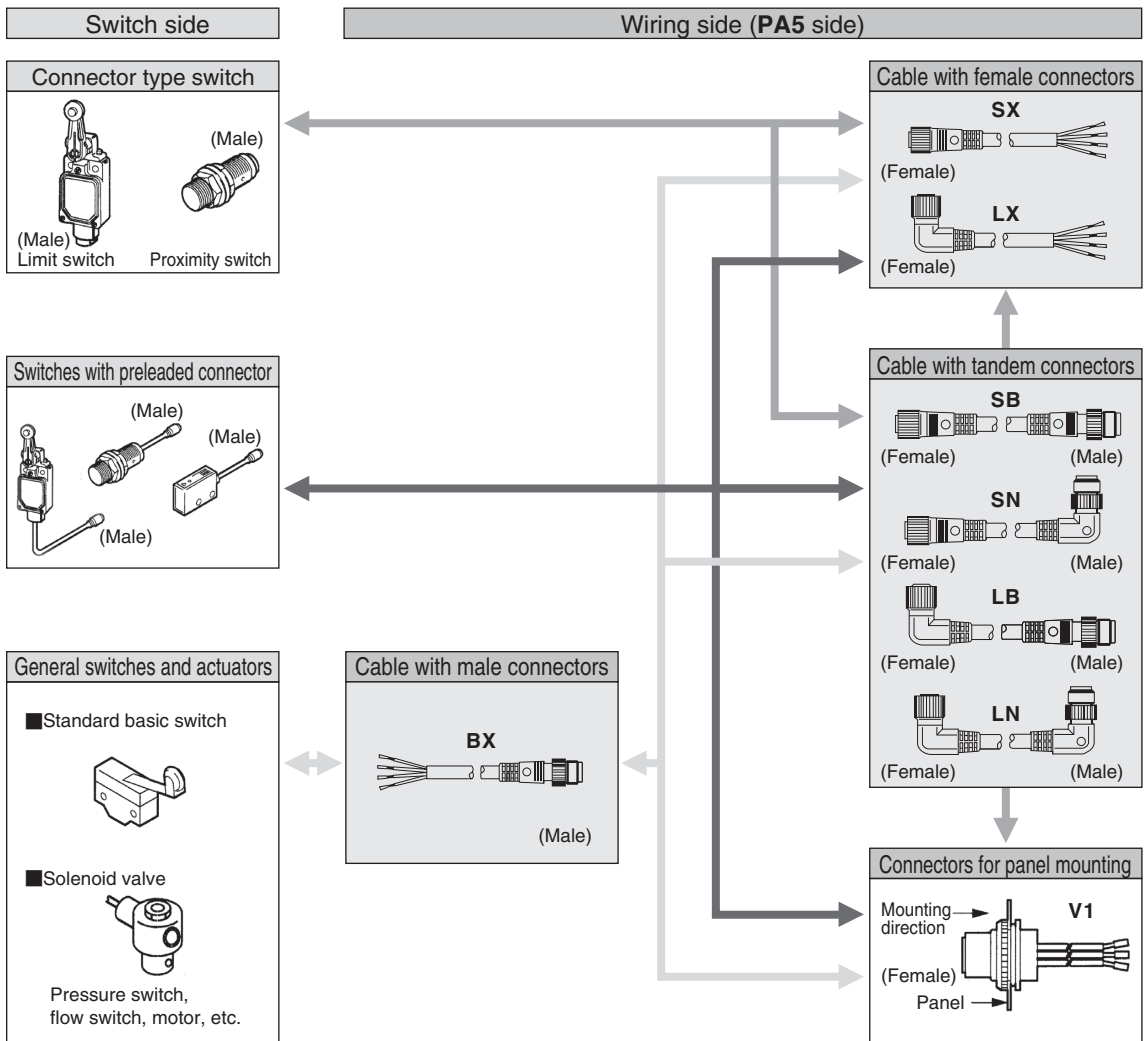
PA5 Series

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 |
| | | | Straight | | | | 0.5 | PA5-4IBX05HK-E |
| | | Female | Straight | | | | 2 | PA5-4ISX2HK-E |
| | | | Straight | | | | 3 | PA5-4ISX3HK-E |
| | | | Straight | | | | 5 | PA5-4ISX5HK-E |
| | | | Straight | | | | 10 | PA5-4ISX10HK-E |
| | | Angle | 2 | | | | PA5-4ILX2HK-E | |
| | | Angle | 5 | | | | PA5-4ILX5HK-E | |
| | | Male/ Female | Straight/ Straight | | | | 2 | PA5-4ISB2HK-E |
| | | | Straight/ Straight | | | | 5 | PA5-4ISB5HK-E |
| | | Male/ Female | Angle/ Angle | | | | 10 | PA5-4ISB10HK-E |
| | | | | | | | 2 | PA5-4ILN2HK-E |
| | | 2 | PA5-4ILN5HK-E | | | | | |
| | | Male/ Female | Straight/ Angle | | | | 5 | PA5-4ISN2HK-E |
| | | | | | | | 5 | PA5-4ISN5HK-E |
| | | Male/ Female | Angle/ Straight | | | | 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

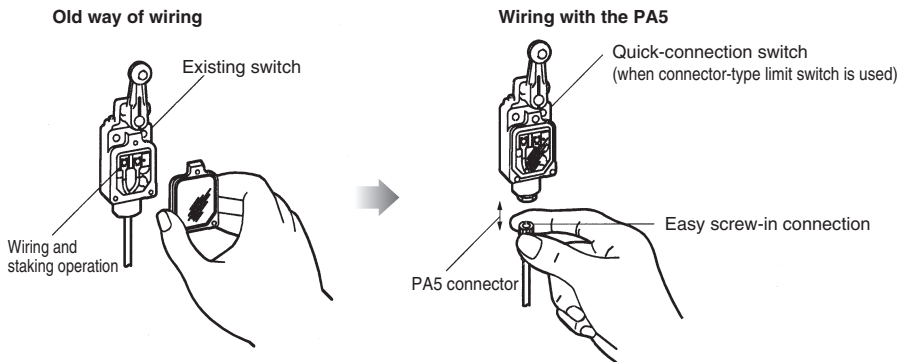
| Power supply | Cable type | Connector type | Cable exit direction | External diameter (mm) | Number of cores | Conductors (mm ²) | Cable length (m) | Catalog listing | Terminal |
|--------------|---|----------------|----------------------|------------------------|-----------------|-------------------------------|------------------|-----------------|--------------------------|
| 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.

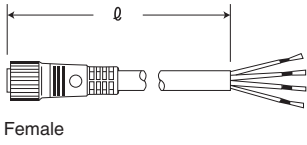
*2. The recommended tightening torque is 0.4 to 0.6 N·m. If fastened poorly, the IP67 protection may be lost, or the connector may come loose.

CABLE SPECIFICATIONS

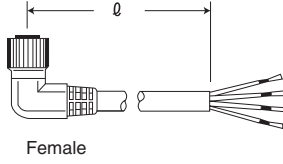
| Item | Catalog listing | PA5-4J PA5-4I □□□HK | PA5-4J PA5-4I □□□SK | PA5-4I □□□CK |
|-------------------|-----------------|-------------------------------------|--|--|
| External diameter | | 6.0 mm | 6.1 mm | 6.0 mm |
| Type of cable | | Oil-resistant vinyl insulated cable | Vinyl-insulated cord with 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

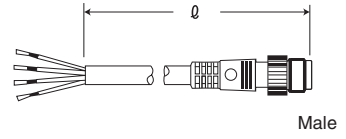
SX



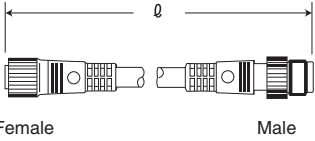
LX



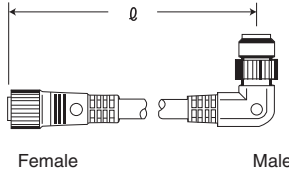
BX



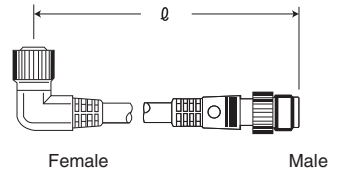
SB



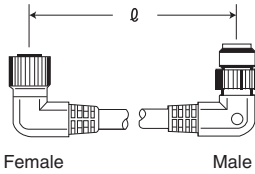
SN



LB



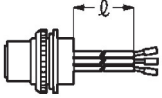
LN



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

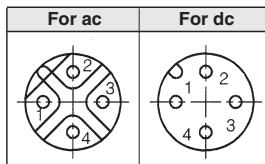
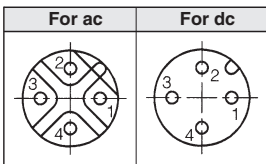
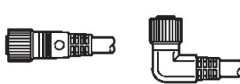
| Connector shape | Appearance | Power supply | Cable length (L) | Catalog listing |
|-----------------|--|--------------|------------------|-----------------|
| V1 | Female  | AC | 0.5 m | PA5-4JV1K |
| | | DC | | PA5-4IV1K |

● Contact arrangement and lead colors for male/female connectors

Male side



Female side

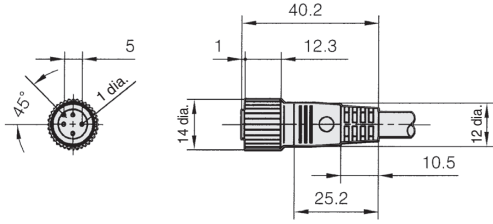


| Contact No. | 1 | 2 | 3 | 4 |
|-------------|-------|-------|------|-------|
| Lead colors | Brown | White | Blue | Black |

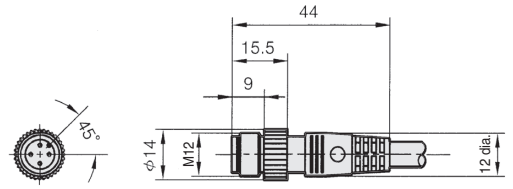
EXTERNAL DIMENSIONS OF CONNECTORS (DC cables are shown)

(unit: mm)

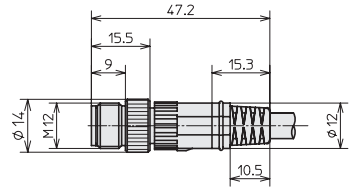
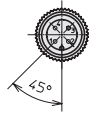
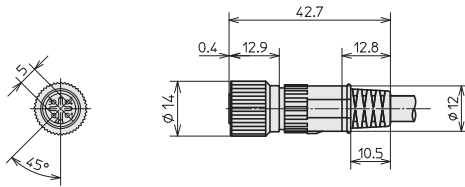
Straight (female)
Cord type: H.S



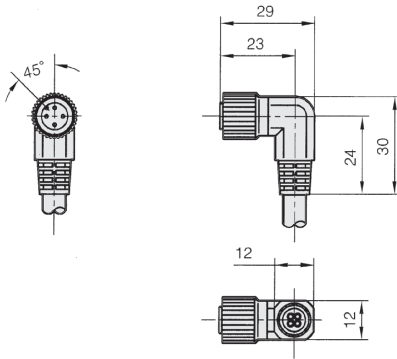
Straight (male)



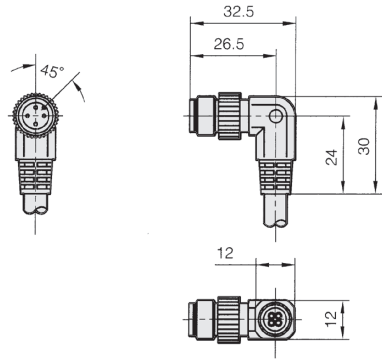
Cord type: C



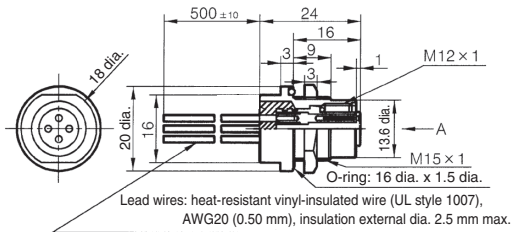
Angle (female)



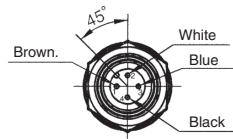
Angle (male)



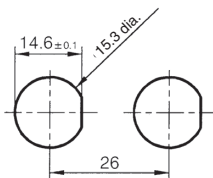
Panel-mounted connector, catalog listing **PA5-4□V1K**



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)

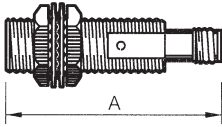
The dimensions below apply when the connector is attached. Add space for insertion/disconnection (approx. 15 mm) during actual fitting.

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

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

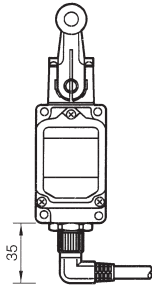
● Connector-type proximity switch with angle-type PA5

Connection to connector-type proximity switch (FL7M)



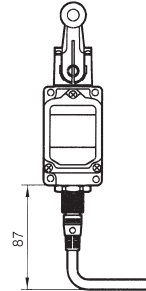
● Connector-type limit switch

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.

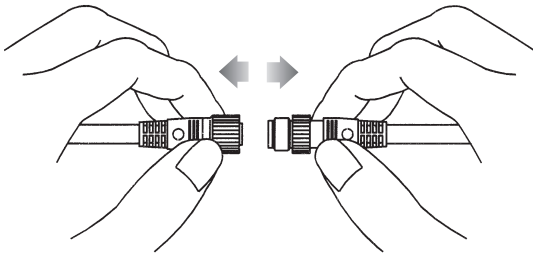
PRECAUTIONS FOR USE

● 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.

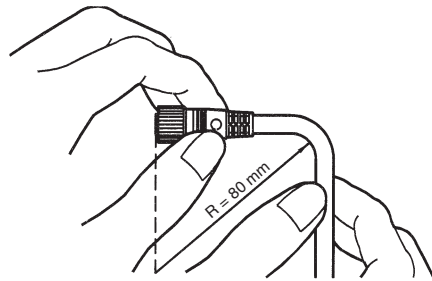


● Inserting and removing connectors

- 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.