Terminal Box for Remote Sensor

**RPK-A098-03**

User’s guide

Read this guide before installation and operation. Handle the Terminal Box properly.

### Attention for Safety

[Planning the system]
The Terminal Box for the Remote Sensor is an enclosure which connects the Detectors with the Transmitter of the Remote Sensor and transmits the detected signals. The Terminal Box should only be used for this purpose. Plan the system to work safely if the Terminal Box should be damaged.

[Handling the Terminal Box]
Make the correct wiring and connect as referred to the wiring diagram of this manual. Wiring errors may cause system failure. Make sure that the power is turned off, when start the installation process. Never take the device apart or modify. Dispose of the device as an industrial waste.

### Specification

- **Protection Class**: IP67
- **Material**
  - Housing: Aluminum sand mold casting
  - Lid: Aluminum cutting
  - O-ring: Viton
- **Terminal block**
  - Transmitter: Terminal Block with 12 poles / Length of stripping cores: 10mm
  - Detector: Terminal Block with 12 poles x 2 / Length of stripping cores: 11mm
- **Changeover switch**
  - Slide switch: Changing for NPN / PNP
  - Dip switch: OFF (DC3W) / ON (DC2W)
- **Procedure for Mounting**
  - Attaching by two M5 screws
- **Cable Gland**
  - Suitable cable outer diameter: \( \phi 3...5 \) mm (Mounted on the Terminal Box)
  - Transmitter: 150P8 (O-ring attached): 1pc.
  - Detector: 208210DP (O-ring attached): 8pcs.
  - Accessories: Blank Plug BP0525: 8pcs. (Supplied together with the Terminal Box)

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2013.08.07 No. T303B02Fe
Transmitter of DC 3-Wire at use.

Detector of NPN
Transmitter: RPTA-8010-PU
RGPT-3005-V1215-PU
RGPT-4008-V1220A-B-PU
RGPT-9012-V2430-PU
Detector: DC 3-Wire Detector switch (NPN)
DC 2-Wire Detector switch
RFD series
Mechanical switch

Setting DIP switch

<table>
<thead>
<tr>
<th>Detector switch</th>
<th>NPN/PNP Selector</th>
<th>DC 2-Wire/3-Wire Selector</th>
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<tr>
<td>DC 3-Wire SW</td>
<td>NPN</td>
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</tr>
<tr>
<td>DC 2-Wire SW</td>
<td>PNP</td>
<td>ON</td>
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Detector of PNP
Transmitter: RPTA-8010-PU
RGPT-3005-V1215-PU
RGPT-4008-V1220A-B-PU
RGPT-9012-V2430-PU
Detector: DC 3-Wire Detector switch (PNP)
DC 2-Wire Detector switch
RFD series
Mechanical switch

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4 signals transmission type
Transmitter: RPTA-1803-PU
RPTA-3005-PU
Detector: DC 3-Wire Detector switch (NPN)
DC 2-Wire Detector switch
RFD series
Mechanical switch

Setting DIP switch

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Transmitter of DC 2-Wire at use.

**RPT8-1803D-PU, RS08TA-018D-PU**

Detector: DC 2-Wire Detector switch  
RFD series  
Mechanical switch

### Setting DIP switch

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**RPT8-3007D-PU**

Detector: DC 2-Wire Detector switch  
RFD series  
Mechanical switch

### Setting DIP switch

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<td>DC 2-Wire SW</td>
<td>NPN</td>
<td>OFF</td>
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**RPT8-3007D-TYT19**

Detector: DC 2-Wire Detector switch  
RFD series  
Mechanical switch

### Setting DIP switch

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[ Installation for Terminal Box ]
① Attach the Terminal Box fasten with 2 Allen screws.
  Size : M5 Length : longer than 20mm
② It is recommended to apply adhesive for tightening screws to avoid
  loosening of screws.

[ Connection of the Transmitter and the Detector ]
● Measure of Stripping Insulations / Fastening Position of Cable <Fig. 1-a / 1-b>
 ① Strip outer sheathes of cables and insulations of cores.
 ② Make sure that outer sheath of cable is positioned inside of the Terminal
  Box properly in tightening cable.
● Mounting of Cable <fig. 2>
  Put a cap and sealing ring on cable, then insert the cable to the body.
● Tightening of the Cable Gland <fig. 3,4>
  Put a cap on the Cable Gland and tighten it with a spanner.
  Spanner caliper
  Transmitter : 17mm  <Fig. 3>
  Detectors : 11mm  <Fig. 4>
  *Caution*  When the cable clamp is not fit into slot on the Cable Gland,
  or tightening of the Cable Gland is done improperly, it may have
  influence on its water tight quality.
● Measure of unused Cable Gland <Fig. 5>
  Insert the blank plugs (φ 5mm) supplied with the Terminal Box into any
  unused cable entrances of the Cable Gland and stop it.
  ① Insert the blank plug.
  ② Tighten the Cable Gland.
  (Refer to Tightening of the Cable Gland for Detectors . Fig. 4)
● Connecting to terminal block
  In accordance with the wiring diagram on page 4 , connect cores to each
  appropriate terminal.
  *Caution*  Insert the cores to reach the terminals sufficiently.
  In the case of a core was inserted insufficiently, the following
  problems are may caused ;
  [A core is not reach to a terminal] The core come out or cause
  short circuit with adjoining cables.
  [A core is inserted exceedingly] The core cannot be connected
  sufficiently because of terminal catching insulations.
  Coolant or cutting chips should not be splashed on inside of the
  Terminal Box in wiring operation.

[ Tightening of the lid on the Terminal Box ] <Fig. 6>
① Make sure that the O-ring is equipped with the lid properly.
  ( Check the O-ring whether it has any flaw )
② Check the wiring condition to avoid the lid catching of the lead wire, and clean
  the Terminal Box with air blow and dry it with heat gun in tightening of the lid.
③ Fit the lid on the Terminal Box to wrench close the lid smoothly or not to
  damaged thread of the lid, and insert it properly.
④ Tighten the lid reach the Terminal Box with your hand, then insert appropriate
  tools into holes ( φ 5.2) on the side of the lid and fasten it tightly.
  (turn the lid 40...50° )

[ Bending cables ] <Fig. 7>
Using sensors with its cable bending, bend cables at a point that apart
more than 10mm from the cable entries of the Cable Glands.
Refer to specification of each sensors regarding bending radius for cables.

[ Attention for watertight quality ]
The value that indicated in this guide is the recommended value to fulfill
the protection class IP 67.
Protection with a cover is required if the Terminal Box will be exposed to
coolant since elasticity of cables vary with the material.

[ Replacement of Cable Glands ]
Replace the sealing rings of Cable Glands when you change sensors in
maintenance to avoid decline of its watertight quality.

<table>
<thead>
<tr>
<th>Sealing ring</th>
<th>Code</th>
<th>Type code</th>
</tr>
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<tbody>
<tr>
<td>for Transmitter</td>
<td>9919995008</td>
<td>KBC-F2/E150P8</td>
</tr>
<tr>
<td>for Detectors</td>
<td>9919995006</td>
<td>KBC-F2/EK210P4.5</td>
</tr>
</tbody>
</table>

<Fig. 1>

<Fig. 2>

<Fig. 3>

<Fig. 4>

<Fig. 5>

<Fig. 6>

<Fig. 7>

B & PLUS K.K.  (Former NICHON BALLUFF co., Ltd)
URL http://www.b-plus-kk.jp
Specifications are subject to change without notice.