

User's Manual
TR3-L4D01-24

TAKAYA

Manual No.TDR-MNL-L4D01-24-EN-100

Introduction

Thank you for purchasing a TR3-L4D01-24 RFID READER/WRITER.

Be sure to read this manual before using the product.

After reading it, store the manual in a convenient place for future reference.

Regulations and Standards

FCC

This product is conform to the FCC standards.

FCC Rules (Federal Communications Commission)

This product complies with Part 15 Subpart B and C of the FCC Rules.

FCC ID : MK4TR3-L4D01-24

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC WARNING

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment must be professionally installed to ensure compliance with Part 15.

Antennas not allowed are strictly prohibited for use with This equipment.

This equipment is to be professionally installed by professional service trained personnel only.

SMB sockets are provided in the equipment for connecting the external antenna.

The following sentence has to be displayed on the outside of the device in which the transmitter module is installed : "Contains FCC ID: MK4TR3-L4D01-24"

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must not be collocated or operating in conjunction with any other antenna or transmitter within a host device, except in accordance with FCC multi-transmitter product procedures.

The final system integrator must ensure there is no instruction provided in the user manual or customer documentation indicating how to install or remove the transmitter module except such device has implemented two-ways authentication between module and the host system.

FCC §15.27 b) - Special Accessories –

If a device requiring special accessories is installed by or under the supervision of the party marketing the device, it is the responsibility of that party to install the equipment using the special accessories. For equipment requiring professional installation, it is not necessary for the responsible party to market the special accessories with the equipment.



However, the need to use the special accessories must be detailed in the instruction manual, and it is the responsibility of the installer to provide and to install the required accessories.


| |
|---|
| Japan Radio Law |
| Equipment using high frequencies: Inductive Reading/Writing Communications Equipment Conforming standards: Inductive Reading/Writing Communications Equipment; Standard: ARIB STD-T82 |
| RoHS is support |
| Restriction of Hazardous Substances |
| Waste |
| Dispose of the Products as industrial waste. |

Safety Precautions

The following symbols are used in this manual to indicate precautions that must be observed to ensure safe use of this product. The precautions provided here contain important safety information. Be sure to observe these precautions.

The following signal words are used in this manual.


| | |
|--|--|
|  WARNING | Failure to comply with a WARNING may result in serious injury or death. |
|  CAUTION | Failure to comply with a CAUTION may result in injury to the operator, or damage to the items involved. |


 **WARNING**

Be sure to observe the following precautions to ensure safe use of the Products.

Decomposition of this product and cable, repair, remodeling, please strictly prohibited. There is the possibility of fire or electric shock injuries.

This product is using the RFID reader writer radio equipment. Therefore, depending on where the applications you use may affect medical equipment. To minimize the impact of medical equipment for use, please observe the following countermeasure. The Japan Automatic Identification Systems Association (JAISA) guidelines are as follows: RFID antennas from implanted cardiac pacemakers or other medical devices please 22cm apart. We recommend that you paste "RFID sticker" at equipment.


← RFID Sticker

 **CAUTION**

Be sure to observe the following precautions to ensure safe use of the Products.

Installation and storage environment

1. Do not use the Products in sunlight.
2. Do not use the Products in environment of spray of water, oil or chemicals.
3. Do not use the Products in environments with flammable, explosive, or corrosive gasses.
4. Do not use the Products in environment of hot humid.
5. Do not use the Products in environment of vibration or shock.
6. Do not use the Products in environment of condensation.
7. Do not use the Products in environment of around the metal is covered.
8. Do not use the Products in environment of high temperature.
9. Do not use the Products in environment that has a device that generates magnetic field and shock voltage.
10. Do not use the Products in unstable place.
11. If there is failure, discontinue use immediately, please contact us or the distributor.

Installation

1. Turn off the power before installation or removing.
2. The following effects may not work correctly.
 - Near 13.56MHz radio device
 - Near speakers , Inverter, motor and Plasma Display
3. The communication range may vary due to environment and conditions.

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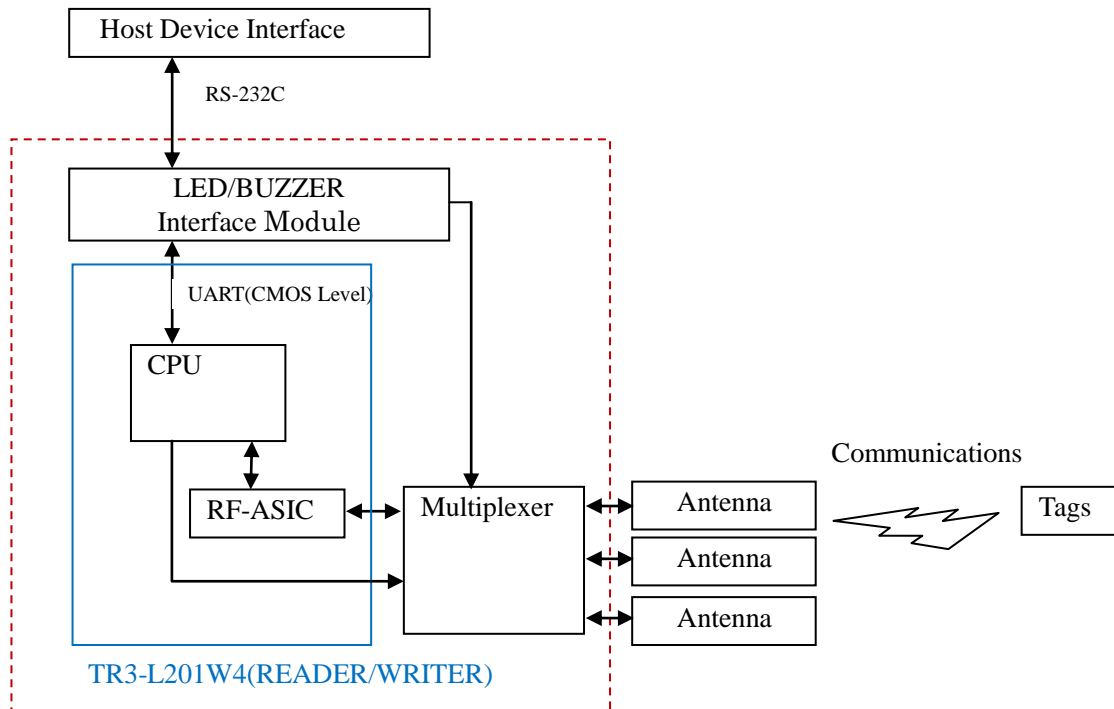
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1 Product Overview

1.1 Features

This product uses the 13.56MHz frequency. This product is the electromagnetic induction type non-contact IC can read and write RFID tag data.

This Product is designed to be embedded and integrated within OEM devices and finished products such as label printers, cashless payment terminals or any other device that can benefit from integrated RFID capabilities.



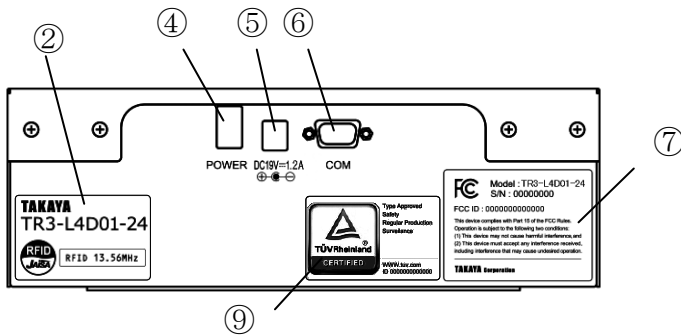
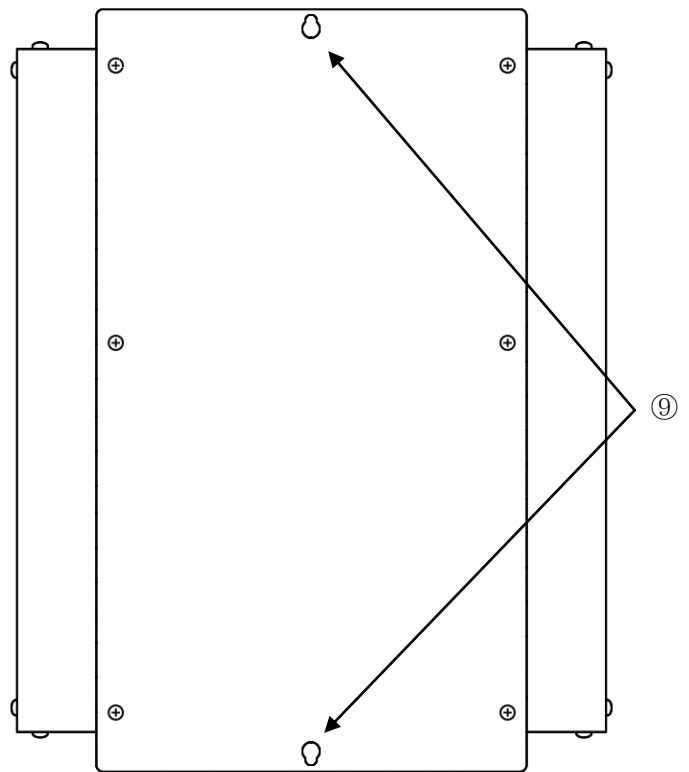
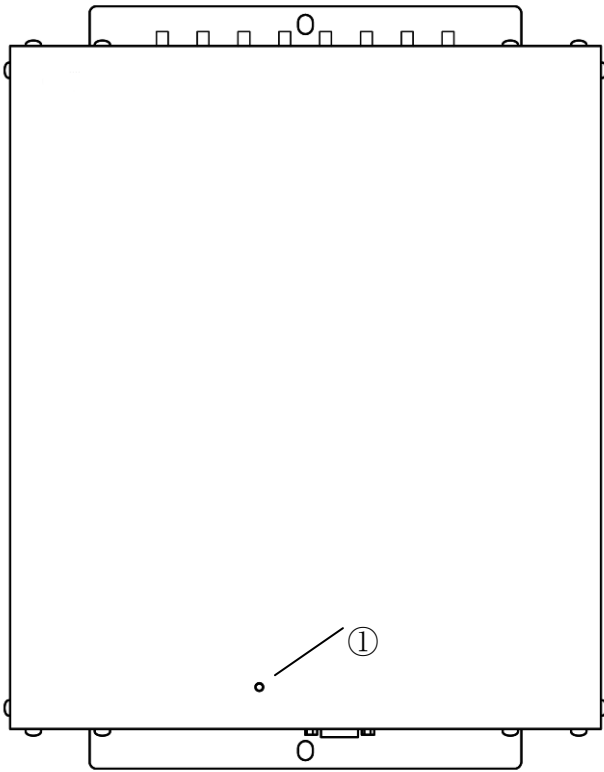
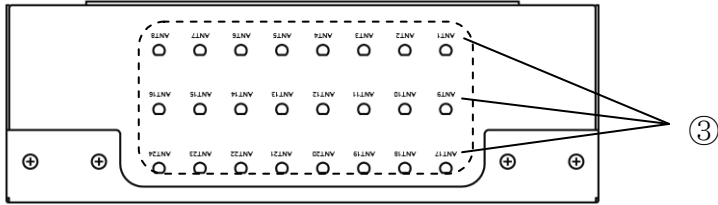
TR3-L4D01-24

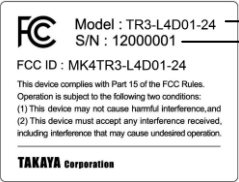
Block Diagram

- Conform to international standards
ISO/IEC15693 and ISO/IEC18000-3(Mode1) is supports.
- Software
 - TR3-series common communication protocol
 - Software Development Kit
- Multiplexer
Select the RF output.
- Useful
 - Continuous inventory mode
UID of the tag automatically sends Host Device.
 - RDLoop mode
UID or User Data of the tag automatically sends Host Device.
 For more information please refer to the TR3-PROTOCOL manual.
- Environmentally
EU RoHS(2002/95/EC) Support

2 Names of Parts and Functions

2.1 TR3-L4D01-24

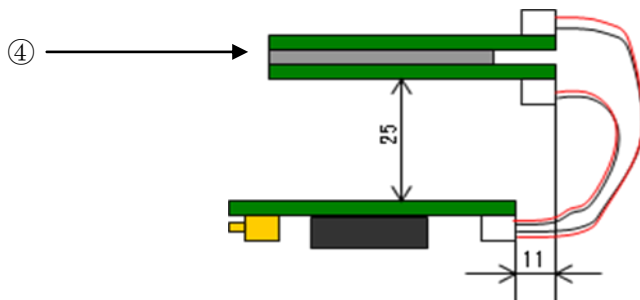


| No | Name | Description |
|----|---------------------------|---|
| ① | LED | Displays the status of this product. |
| ② | Nameplate RFID sticker | Production numbers. Specify that the RFID radio waves are radiated. |
| ③ | ANT1 to ANT24 | Connect the Antenna cable. Please connect from ANT1. |
| ④ | Power Button | Power ON/OFF. |
| ⑤ | DC Jack | DC +19V input. |
| ⑥ | Connector | Connect the RS-232C cable. |
| ⑦ | FCC ID sticker | Production numbers, will be 8-digit serial number.  <p>Model : TR3-L4D01-24 Model Name S/N : 12000001 Serial number : * * * * * * * *</p> <p>FCC ID : MK4TR3-L4D01-24</p> <p>This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.</p> <p>TAKAYA Corporation</p> |
| ⑧ | TÜV mark | TÜV certification mark |
| ⑨ | Screw holes | 6.5mm × 13mm mounting holes. |

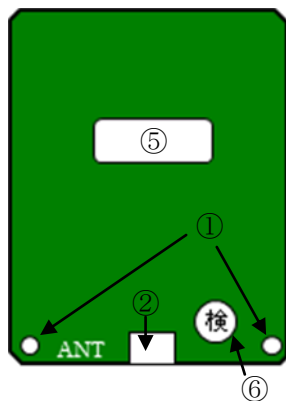
2.2 Antenna

2.2.1 TR3-CA033

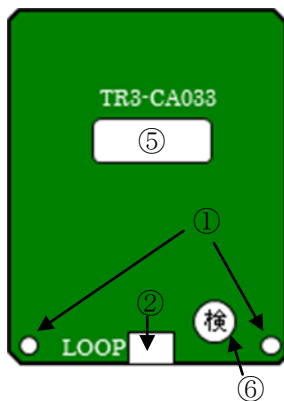
CA033 is combined by 2 loop sub antennas and a coupler board.



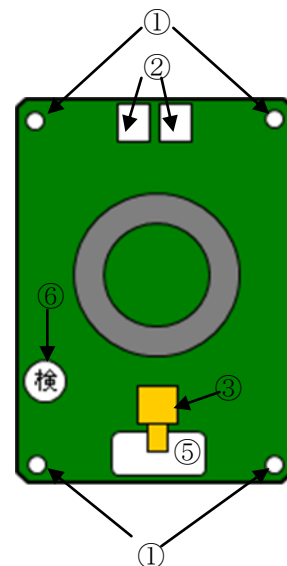
Sub Antenna 1
TR3-CA033-1



Sub Antenna 2
TR3-CA033-2



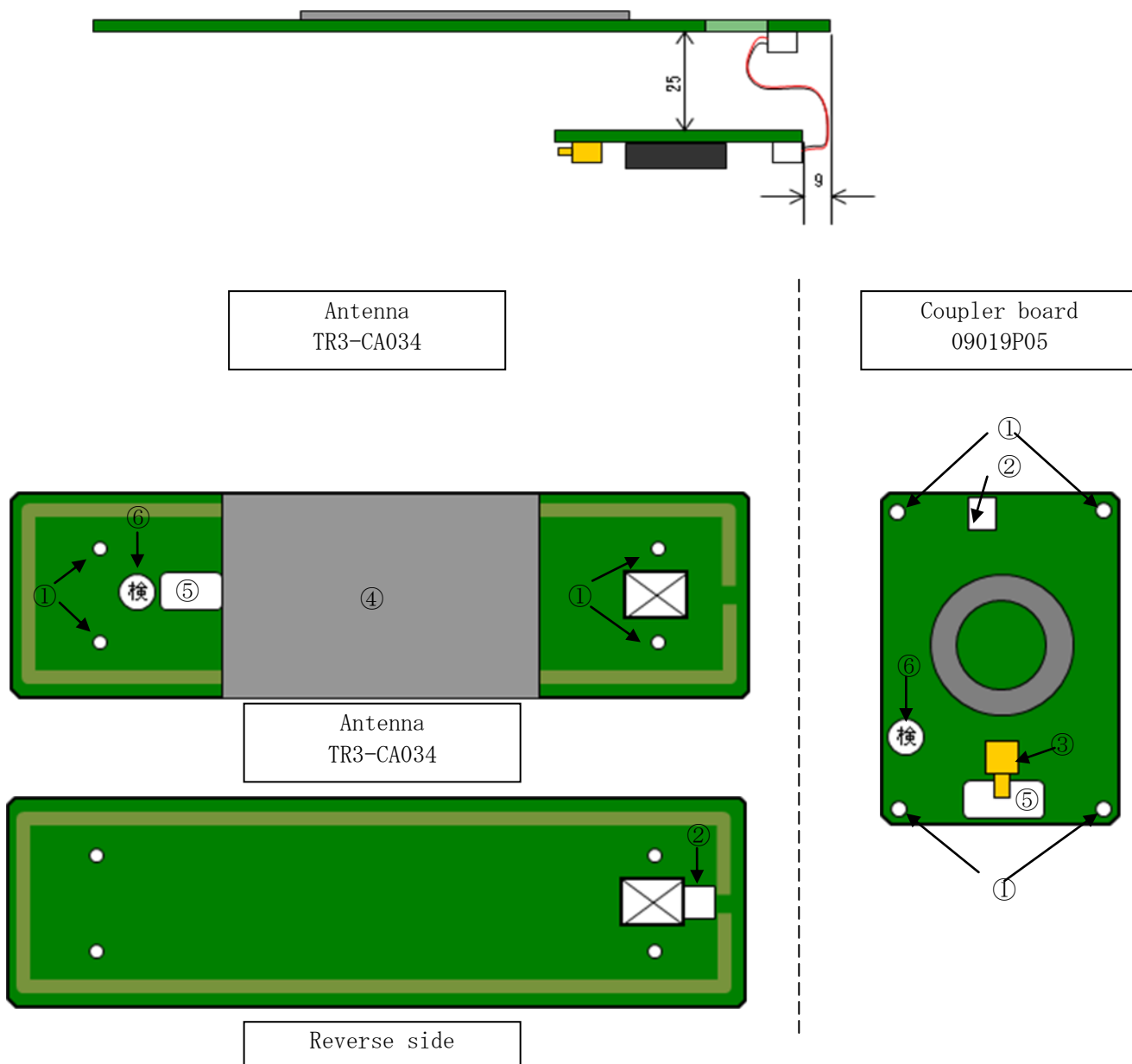
Coupler Board
09019P04



| No | Name | Description | | | | | | |
|-----------------|---------------------------------|--|-----------------|------------|-----------------|---------------------------------|---------------|--|
| ① | Screw holes | M3 holes. | | | | | | |
| ② | CN (PH) | Connect the coupler board. | | | | | | |
| ③ | CN (SMA) | Connect the antenna cable. | | | | | | |
| ④ | ferrite sheet | Paste on TR3-CA033-1 reverse side. | | | | | | |
| ⑤ | Nameplate | Production numbers, will be 8-digit serial number. <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">型 式 : TR3-XXXXX</td> <td style="width: 50%;">Model Name</td> </tr> <tr> <td>製造番号 : XXXXXXXX</td> <td>Serial number : * * * * * * * *</td> </tr> <tr> <td>製造者 : タカヤ株式会社</td> <td></td> </tr> </table> </div> | 型 式 : TR3-XXXXX | Model Name | 製造番号 : XXXXXXXX | Serial number : * * * * * * * * | 製造者 : タカヤ株式会社 | |
| 型 式 : TR3-XXXXX | Model Name | | | | | | | |
| 製造番号 : XXXXXXXX | Serial number : * * * * * * * * | | | | | | | |
| 製造者 : タカヤ株式会社 | | | | | | | | |
| ⑥ | Inspection mark | | | | | | | |

2.2.2 TR3-CA034

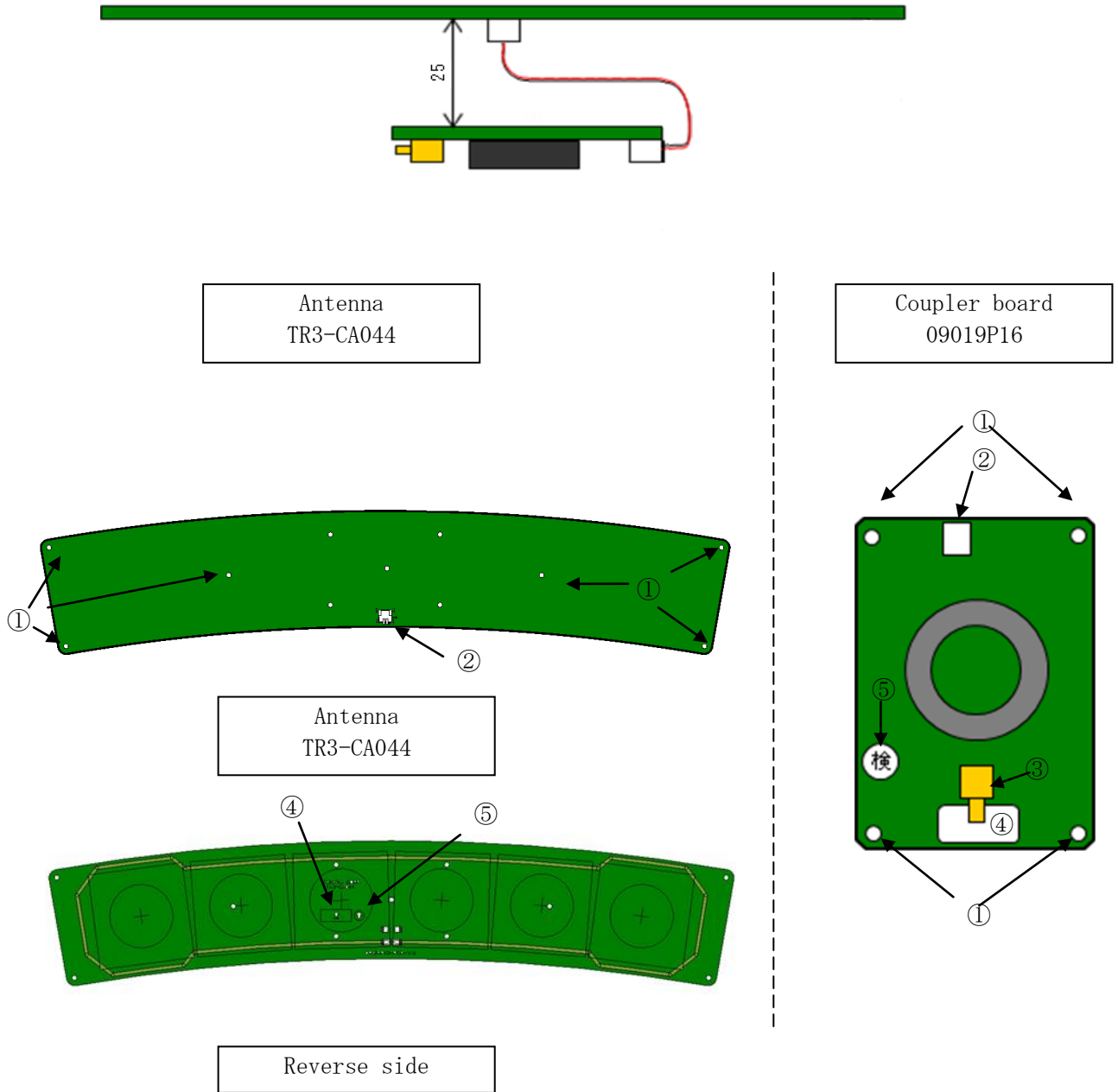
TR3-CA034 is combined by loop antenna and a coupler board.



| No | Name | Description |
|----|-----------------|---|
| ① | Screw holes | M3 holes. |
| ② | CN (PH) | Connect the coupler board. |
| ③ | CN (SMA) | Connect the antenna cable. |
| ④ | ferrite sheet | Paste on TR3-CA034 surface side. |
| ⑤ | Nameplate | Production numbers, will be 8-digit serial number. <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> 型 式 : TR3-XXXXX Model Name 製造番号 : XXXXXXXX Serial number : * * * * * 製造者 : タカヤ株式会社 </div> |
| ⑥ | Inspection mark | |

2.2.3 TR3-CA044

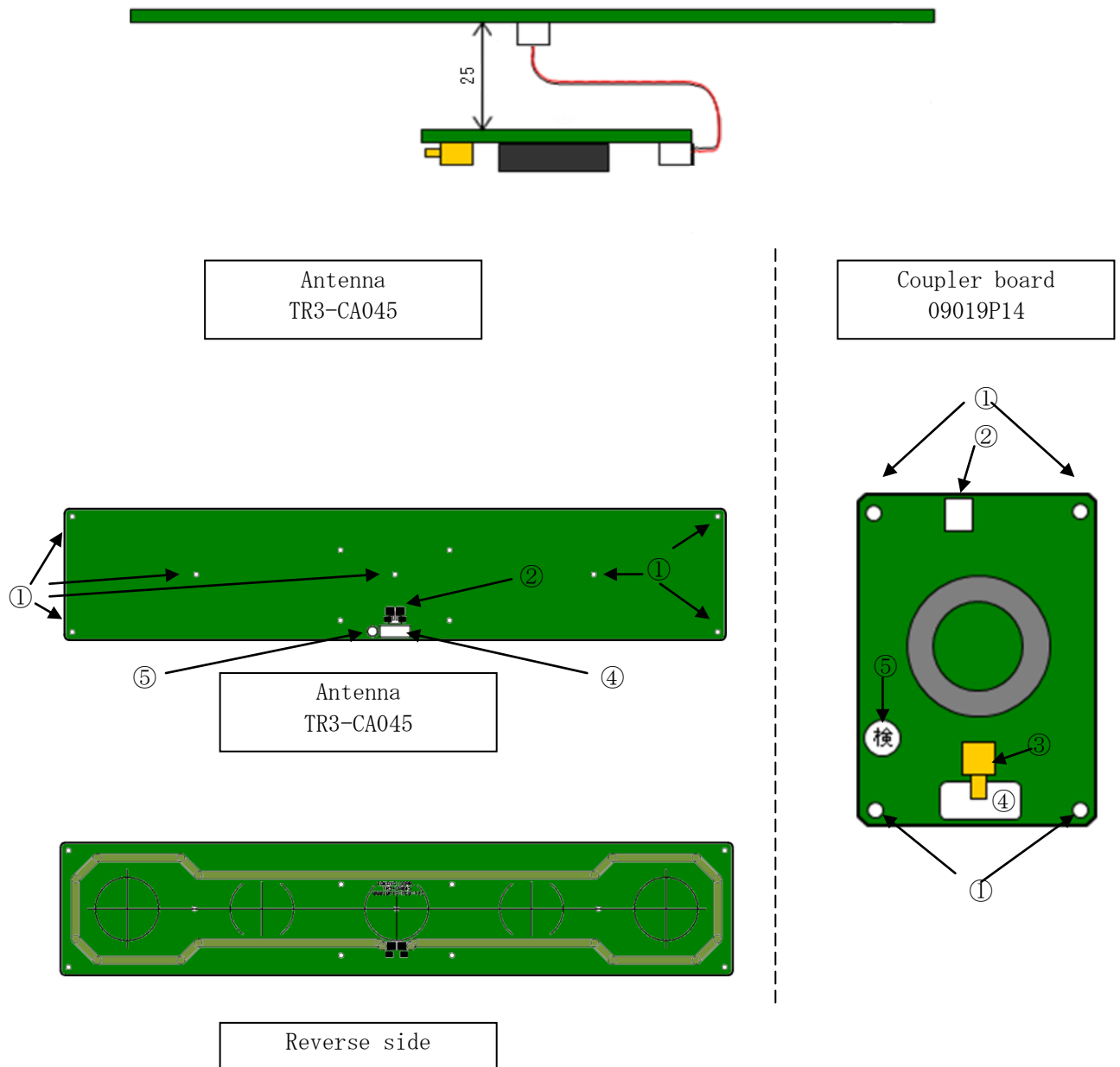
TR3-CA044 is combined by loop antenna and a coupler board.



| No | Name | Description |
|----|-----------------|---|
| ① | Screw holes | M3 holes. |
| ② | CN (PH) | Connect the coupler board. |
| ③ | CN (SMA) | Connect the antenna cable. |
| ④ | Nameplate | Production numbers, will be 8-digit serial number. <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> 型 式 : TR3-XXXXX Model Name 製造番号 : XXXXXXXX Serial number : * * * * * 製造者 : タカヤ株式会社 </div> |
| ⑤ | Inspection mark | |

2.2.4 TR3-CA045

TR3-CA045 is combined by loop antenna and a coupler board.



| No | Name | Description | | | | | | |
|-----------------|---------------------------------|--|-----------------|------------|-----------------|---------------------------------|---------------|--|
| ① | Screw holes | M3 holes. | | | | | | |
| ② | CN (PH) | Connect the coupler board. | | | | | | |
| ③ | CN (SMA) | Connect the antenna cable. | | | | | | |
| ④ | Nameplate | Production numbers, will be 8-digit serial number. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">型 式 : TR3-XXXXX</td> <td>Model Name</td> </tr> <tr> <td>製造番号 : XXXXXXXX</td> <td>Serial number : * * * * * * * *</td> </tr> <tr> <td>製造者 : タカヤ株式会社</td> <td></td> </tr> </table> </div> | 型 式 : TR3-XXXXX | Model Name | 製造番号 : XXXXXXXX | Serial number : * * * * * * * * | 製造者 : タカヤ株式会社 | |
| 型 式 : TR3-XXXXX | Model Name | | | | | | | |
| 製造番号 : XXXXXXXX | Serial number : * * * * * * * * | | | | | | | |
| 製造者 : タカヤ株式会社 | | | | | | | | |
| ⑤ | Inspection mark | | | | | | | |

3 Setting and connection

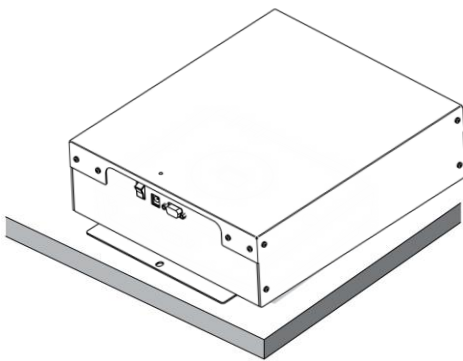
This RFID Reader/Writer product is to be professionally installed by authorized, qualified and service-trained installation personnel only.

3.1 Setting

3.1.1 DeskTop



Don't drop the product. . Injury may result if the product falls or is dropped.

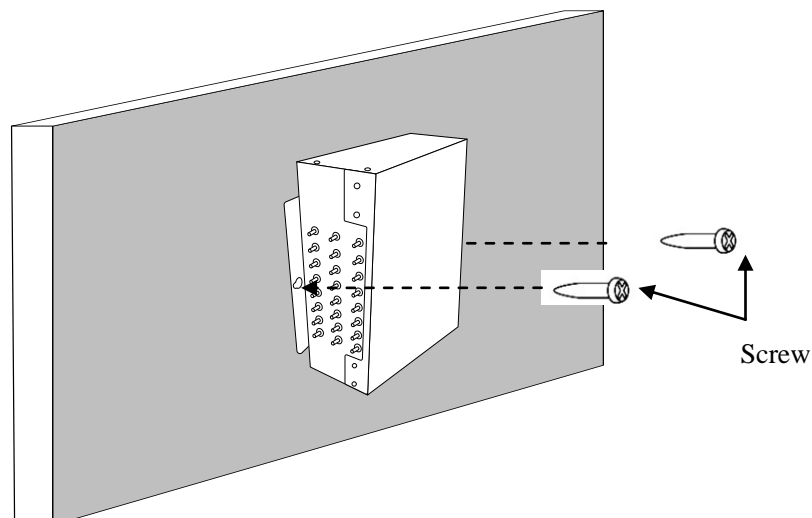


3.1.2 Wall Mounting



Must be fastened securely the product with the screws.

Don't install to the high place. Injury may result if the product falls or is dropped.



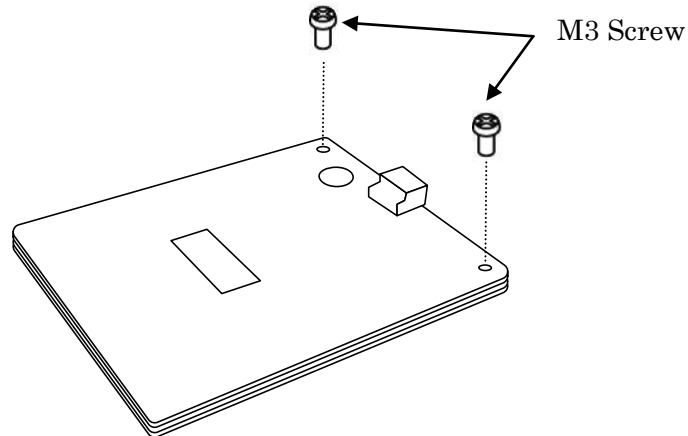
3.2 Antenna installation into a host device

**WARNING**

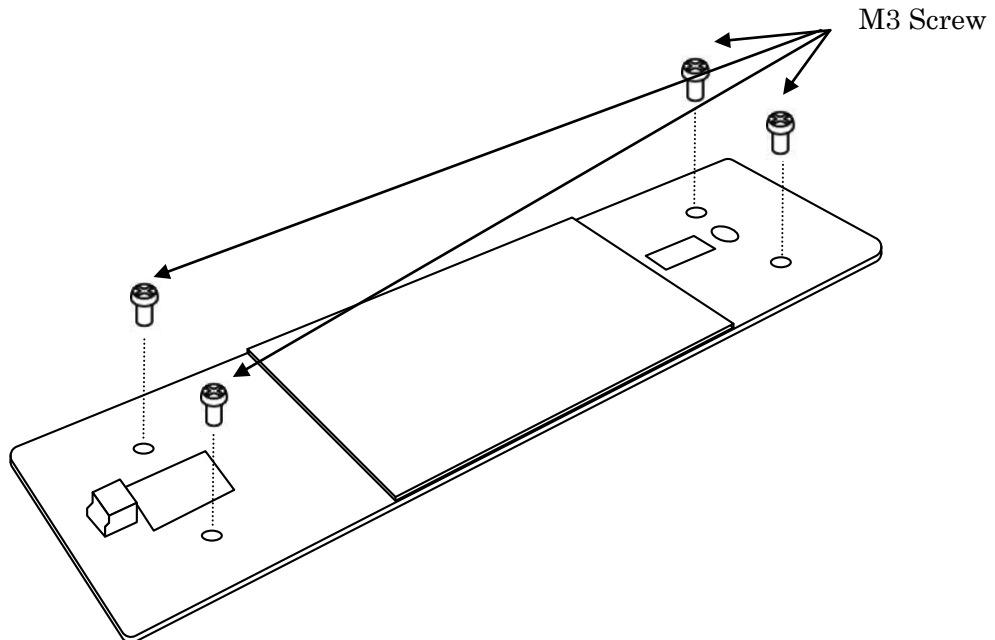
Incorporate the antenna in enclosure by all means.

3.2.1 Installation example by Screw holes

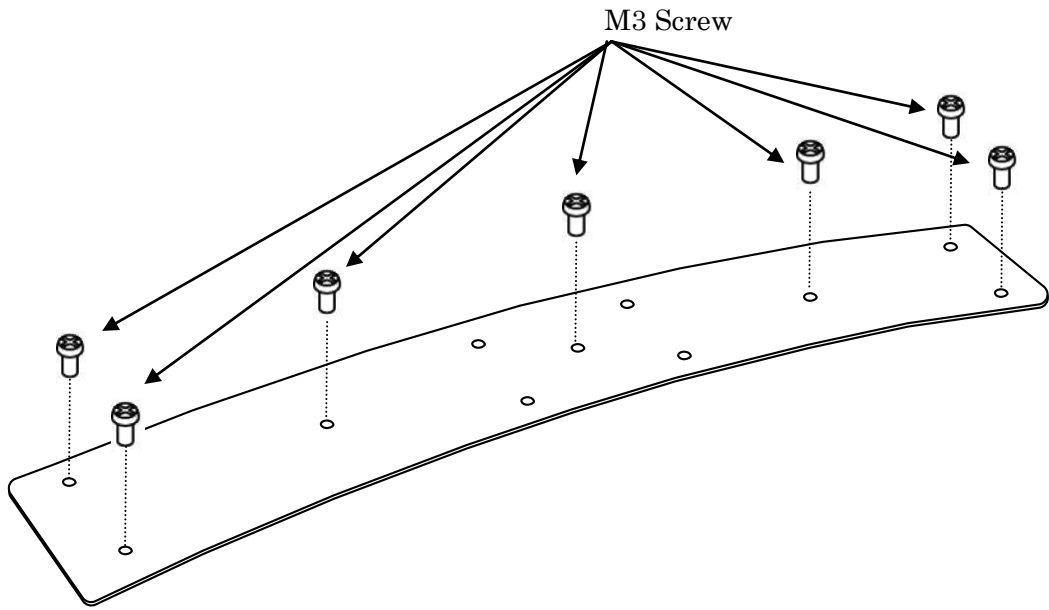
- TR3-CA033



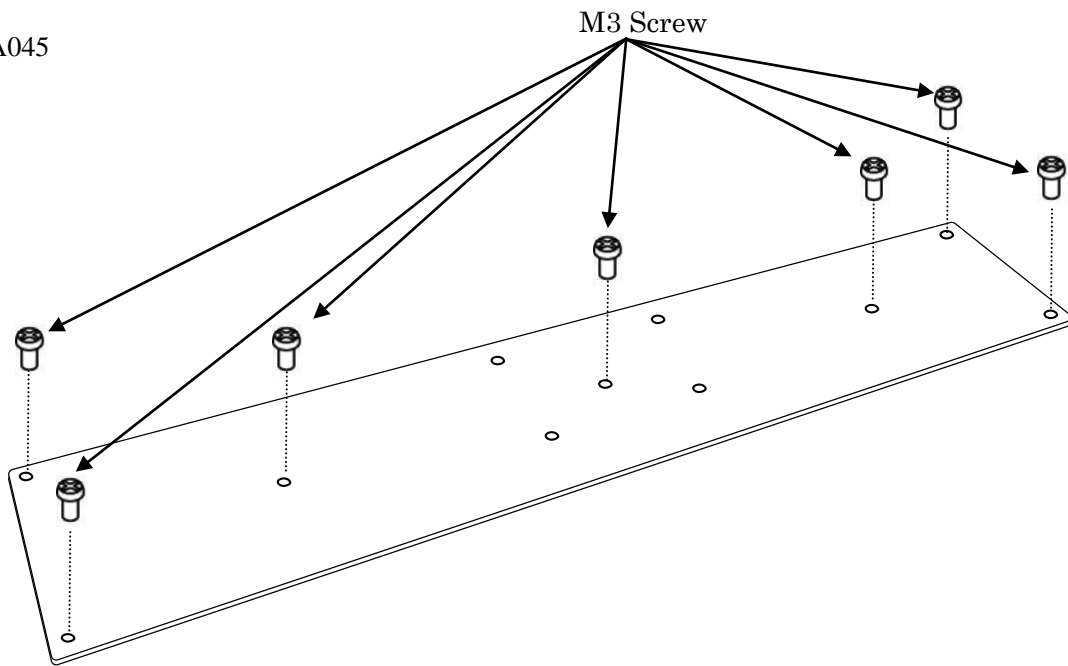
- TR3-CA034



• TR3-CA044



• TR3-CA045



3.3 Connection

This product will connect with the antenna and antenna cables.
This product connects with Host Device with the cable.

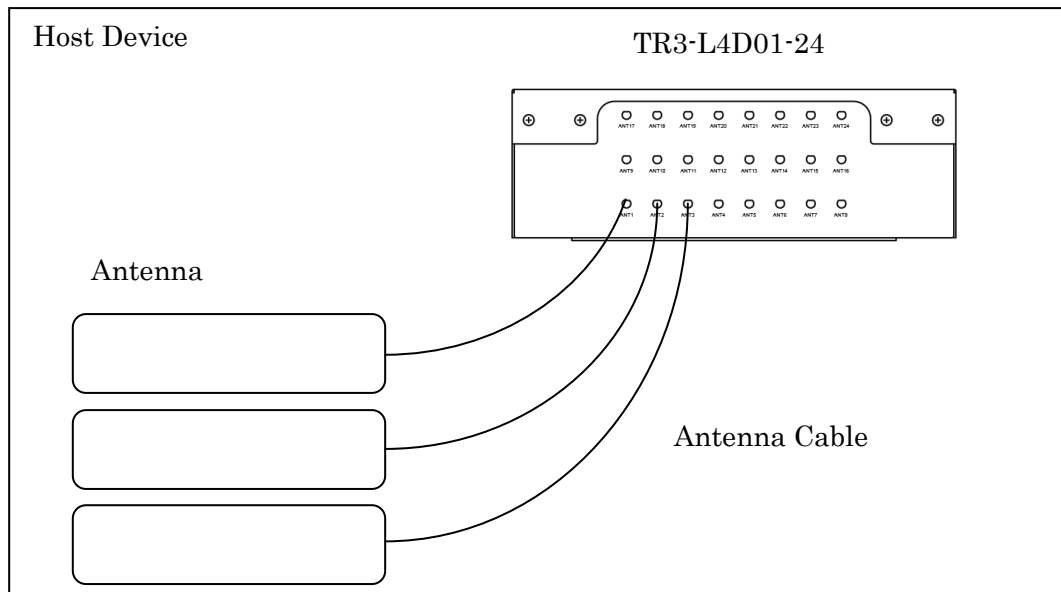
Type of ferrite core and number of turns are specified by compliance for FCC.

When providing this product, ferrite cores are already installed in cables.

Don't change the type of ferrite core and number of turns of the cables (Power supply cable, RS-232C cable, Antenna cables).

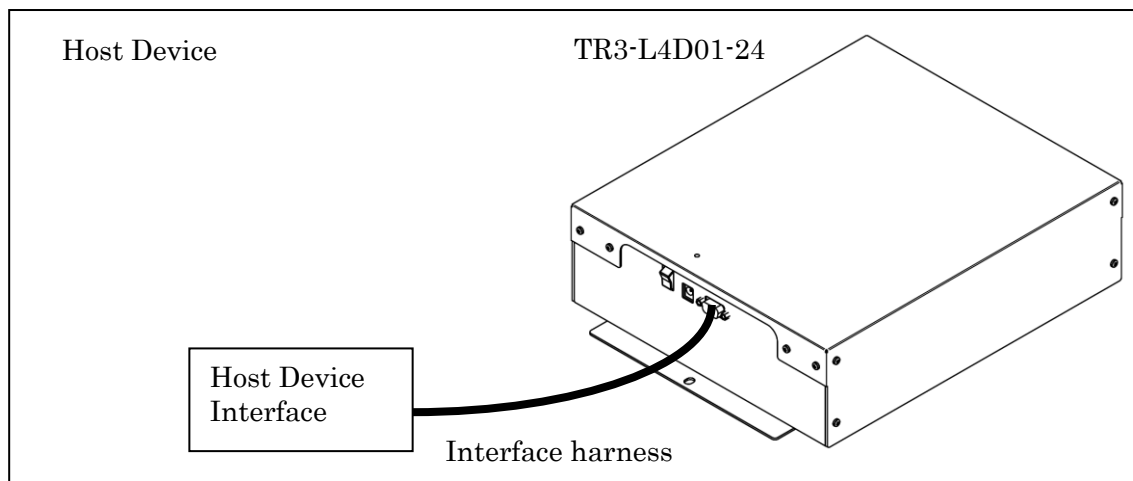
Don't connect the combination of other than indicated in the table below.

3.3.1 Attaching the Cable and Antenna



| Antenna | Antenna Cable | |
|-----------|---------------------------|---|
| TR3-CA033 | WIR42696 and ferrite core | 09019M16 (Ferrite core around the wire.) |
| TR3-CA034 | WIR42696 and ferrite core | 09019M16 (Ferrite core around the wire.) |
| TR3-CA044 | WIR42763 and ferrite core | 09019M16 (Ferrite core around the wire.) |
| TR3-CA045 | WIR42763 and ferrite core | 09019M16 (Ferrite core around the wire.) |

3.3.2 Direct connection to the Host Device Interface.



4 Specifications

4.1 TR3-L4D01-24

| Specifications | Item | Parameter | | | | | | | | | | | |
|----------------------|---|---|-----------|-------------|-----------|-------------|-----|-----------|-------|----------|-------------|-----------|--|
| Applicable Standards | Japan Radio Law | ARIB STD-T82 | | | | | | | | | | | |
| | FCC | FCC Part 15 Subpart B,C FCC ID : MK4TR3-L4D01-24 | | | | | | | | | | | |
| | RoHS | EU RoHS(2002/95/EC) Supports | | | | | | | | | | | |
| | Safety standard | EN60950-1 (TÜV) | | | | | | | | | | | |
| Radio Frequency | Carrier frequency | 13.56MHz \pm 50ppm(Ta=25°C) or less | | | | | | | | | | | |
| | Transmit power or power range | 4W \pm 10%(Ta=25°C, VCC=19V) | | | | | | | | | | | |
| | Standards | ISO/IEC 15693、ISO/IEC18000-3(Mode1) | | | | | | | | | | | |
| | Tags | Tag-it HF-I, my-d, I•CODE SLI | | | | | | | | | | | |
| | Data rate | <ul style="list-style-type: none"> ISO/IEC 15693,ISO/IEC18000-3(Mode1) <table border="1"> <thead> <tr> <th></th> <th>Speed</th> <th>Data rate</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Product⇒Tag</td> <td>1/4</td> <td>26.48kbps</td> </tr> <tr> <td>1/256</td> <td>1.65kbps</td> </tr> <tr> <td>Tag⇒Product</td> <td colspan="2">26.69kbps</td> </tr> </tbody> </table> | | Speed | Data rate | Product⇒Tag | 1/4 | 26.48kbps | 1/256 | 1.65kbps | Tag⇒Product | 26.69kbps | |
| | | Speed | Data rate | | | | | | | | | | |
| Product⇒Tag | 1/4 | 26.48kbps | | | | | | | | | | | |
| | 1/256 | 1.65kbps | | | | | | | | | | | |
| Tag⇒Product | 26.69kbps | | | | | | | | | | | | |
| Modulation | <ul style="list-style-type: none"> ISO/IEC 15693,ISO/IEC18000-3(Mode1) <table border="1"> <thead> <tr> <th></th> <th>Parameter</th> </tr> </thead> <tbody> <tr> <td>Product⇒Tag</td> <td>ASK 10%</td> </tr> <tr> <td>Tag⇒Product</td> <td>FSK</td> </tr> </tbody> </table> | | Parameter | Product⇒Tag | ASK 10% | Tag⇒Product | FSK | | | | | | |
| | Parameter | | | | | | | | | | | | |
| Product⇒Tag | ASK 10% | | | | | | | | | | | | |
| Tag⇒Product | FSK | | | | | | | | | | | | |

※1 : Tag-it HF-I is a registered trademark of Texas Instruments Incorporated.

my-d is a registered trademark of Infineon Technologies AG.

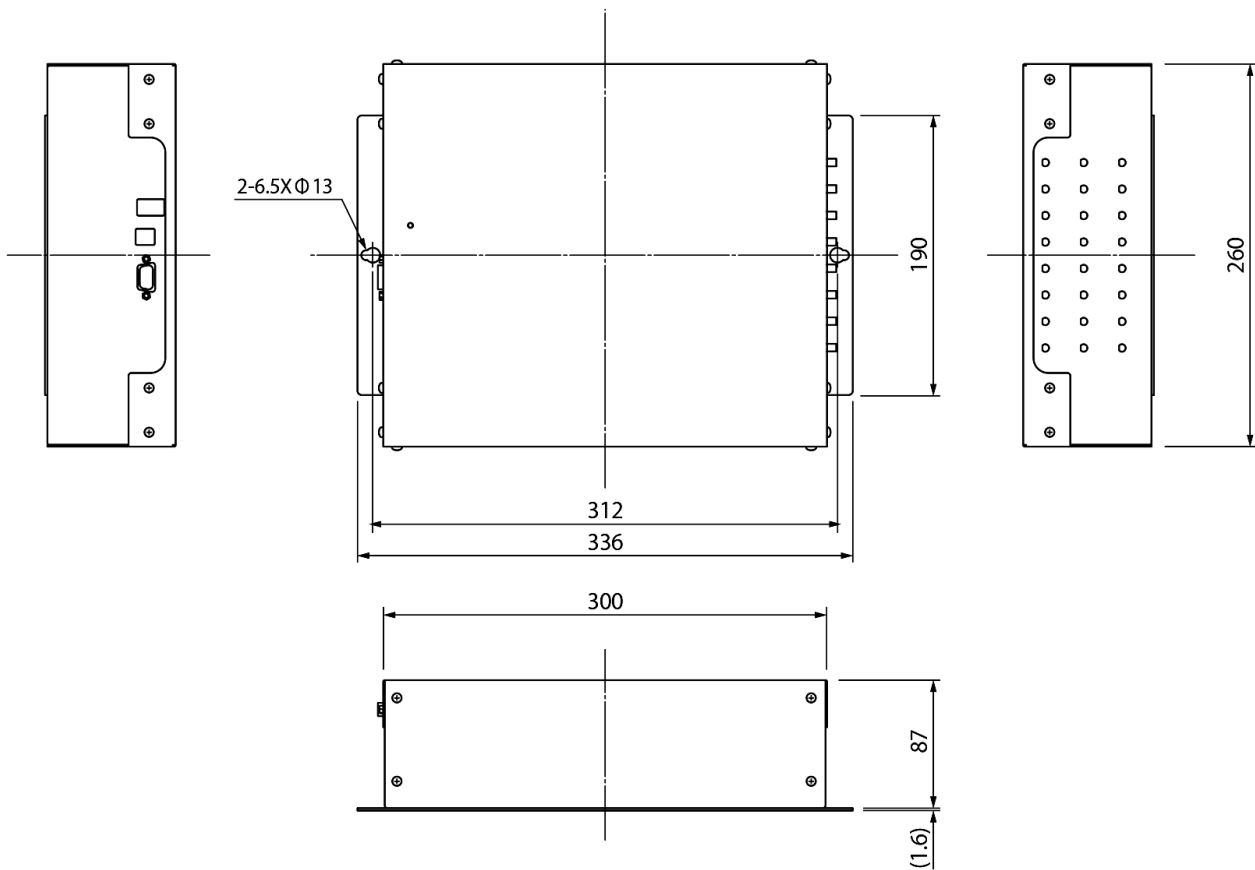
I•CODE SLI is a registered trademark of NXP Semiconductors.

| Specifications | Item | Parameter | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-------------------------------------|---|-----------|----------------|---|-------------------------------------|-----------|---------------|--------------------|------|----------------------|---|--------------|-------------------------|---|----|---------------|---|-----|-----|---|----|---------------|---|----|---------------|---|----|---------------|---|----|---------------|
| | Anti-collision | <table border="1"> <thead> <tr> <th>Standards</th> <th>Anti-collision</th> </tr> </thead> <tbody> <tr> <td>ISO/IEC 15693 ISO/ISC 18000-3 (Mode1)</td> <td>YES</td> </tr> </tbody> </table> | Standards | Anti-collision | ISO/IEC 15693 ISO/ISC 18000-3 (Mode1) | YES | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Standards | Anti-collision | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ISO/IEC 15693 ISO/ISC 18000-3 (Mode1) | YES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Host Interface | RS-232C | <table border="1"> <thead> <tr> <th>Item</th> <th>Parameter</th> </tr> </thead> <tbody> <tr> <td>Speed</td> <td>9600bps 19200bps 38400bps(※2)</td> </tr> <tr> <td>Data bits</td> <td>8</td> </tr> <tr> <td>Parity</td> <td>None</td> </tr> <tr> <td>Stop bit</td> <td>1</td> </tr> <tr> <td>Flow control</td> <td>None</td> </tr> </tbody> </table> | Item | Parameter | Speed | 9600bps 19200bps 38400bps(※2) | Data bits | 8 | Parity | None | Stop bit | 1 | Flow control | None | | | | | | | | | | | | | | | | | | |
| Item | Parameter | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Speed | 9600bps 19200bps 38400bps(※2) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Data bits | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Parity | None | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stop bit | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Flow control | None | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Control | LED | 1 LED (green) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | BUZZER | 1 BUZZER | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Antenna Connector | Connector SMB(J)×24 <table border="1"> <thead> <tr> <th></th> <th>Symbol</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Center Contact</td> <td>RF</td> <td>RF output</td> </tr> <tr> <td>Shell</td> <td>GND</td> <td>GND</td> </tr> </tbody> </table> | | Symbol | Function | Center Contact | RF | RF output | Shell | GND | GND | | | | | | | | | | | | | | | | | | | | | |
| | Symbol | Function | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Center Contact | RF | RF output | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shell | GND | GND | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector | RS-232C | Connector D-SUB 9Pin Pin assignment <table border="1"> <thead> <tr> <th>Pin No.</th> <th>Symbol</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>NC</td> <td>Not Connected</td> </tr> <tr> <td>2</td> <td>Rx</td> <td>Received data signal</td> </tr> <tr> <td>3</td> <td>Tx</td> <td>Transmitted data signal</td> </tr> <tr> <td>4</td> <td>NC</td> <td>Not Connected</td> </tr> <tr> <td>5</td> <td>GND</td> <td>GND</td> </tr> <tr> <td>6</td> <td>NC</td> <td>Not Connected</td> </tr> <tr> <td>7</td> <td>NC</td> <td>Not Connected</td> </tr> <tr> <td>8</td> <td>NC</td> <td>Not Connected</td> </tr> <tr> <td>9</td> <td>NC</td> <td>Not Connected</td> </tr> </tbody> </table> | Pin No. | Symbol | Function | 1 | NC | Not Connected | 2 | Rx | Received data signal | 3 | Tx | Transmitted data signal | 4 | NC | Not Connected | 5 | GND | GND | 6 | NC | Not Connected | 7 | NC | Not Connected | 8 | NC | Not Connected | 9 | NC | Not Connected |
| | Pin No. | Symbol | Function | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | NC | Not Connected | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Rx | Received data signal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Tx | Transmitted data signal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | NC | Not Connected | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | GND | GND | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | NC | Not Connected | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | NC | Not Connected | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | NC | Not Connected | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | NC | Not Connected | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | DC JACK | Connector 9.5×external diameter ϕ 5.5 internal diameter ϕ 2.1 Pin assignment <table border="1"> <thead> <tr> <th></th> <th>Symbol</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Center electrode</td> <td>GND</td> <td>GND</td> </tr> <tr> <td>External electrode</td> <td>VCC</td> <td>Power Input</td> </tr> </tbody> </table> | | Symbol | Function | Center electrode | GND | GND | External electrode | VCC | Power Input | | | | | | | | | | | | | | | | | | | | | |
| | Symbol | Function | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Center electrode | GND | GND | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| External electrode | VCC | Power Input | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

※2 : initialization

| Specifications | Item | Parameter |
|--------------------|-----------------------------|--|
| Mechanical data | Dimensions (W x D x H) | 260 x 336 x 88.6mm (Protrusions except) |
| | Weight | approx. 4.5kg |
| Electrical data | Power | Supply Voltage : DC+19V±10% Current consumption : approx. 1.2mA Carrier off : approx. 520mA Consumption : max 24W |
| Ambient Conditions | Temperature Operating range | 0 to 40 degree |
| | Humidity Operating range | 30 to 80%RH |
| | Temperature Storage range | 0 to 55 degree |
| | Humidity Storage range | 30 to 80%RH |
| Accessories | AC Adaptor | TR3-PWR-19V-2 |
| | RS232C Cross-cable | CB-232C-3 |

■ Dimensions



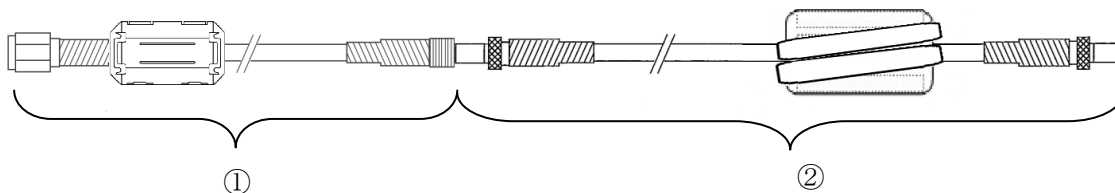
Unit : mm
Tolerance : ±1.0mm
() is Recommended Dimension

4.2 Antenna

4.2.1 TR3-CA033

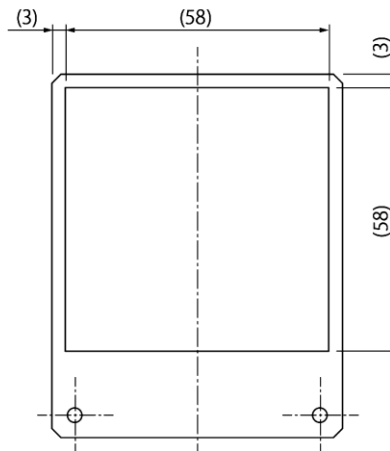
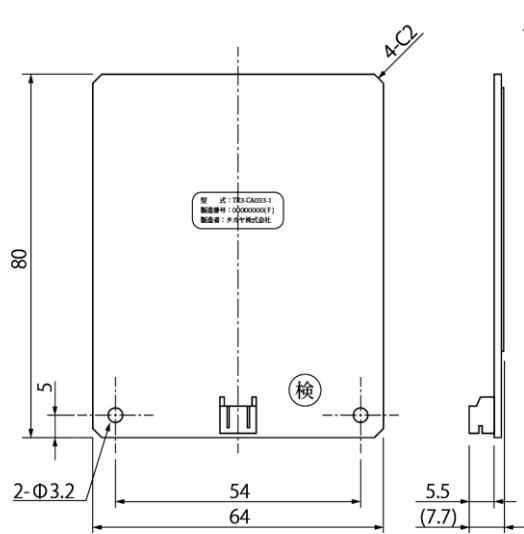
■ Specifications

| Specifications | Item | Parameter | | | | | | | |
|----------------------|-----------------------------|---|--|--------|----------|----------------|----|----------|-------|
| Applicable Standards | RoHS | EU RoHS(2002/95/EC) Support | | | | | | | |
| Antenna | Resonant frequency | 13.56MHz(Ta=25°C) | | | | | | | |
| | Antenna Type | LOOP ANTENNA | | | | | | | |
| Connector | CN1 | Connector : SMA(J) | | | | | | | |
| | | Pin assignment <table border="1" data-bbox="687 629 1406 734"> <thead> <tr> <th></th> <th>Symbol</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Center Contact</td> <td>RF</td> <td>RF input</td> </tr> <tr> <td>Shell</td> <td>GND</td> <td>GND</td> </tr> </tbody> </table> | | Symbol | Function | Center Contact | RF | RF input | Shell |
| | Symbol | Function | | | | | | | |
| Center Contact | RF | RF input | | | | | | | |
| Shell | GND | GND | | | | | | | |
| Mechanical data | Dimensions (W x D x H) | TR3-CA033-1 : 64 (W)×80(D)×7.7(H)mm TR3-CA033-2 : 64 (W)×80(D)×7.1(H)mm 09019P04 : 55 (W)×80(D)×15.6(H)mm | | | | | | | |
| | Weight | TR3-CA033-1 : 25g TR3-CA033-2 : 17g 09019P04 : 47g | | | | | | | |
| Ambient Conditions | Temperature Operating range | 0 to 40 degree | | | | | | | |
| | Humidity Operating range | 30 to 80%RH | | | | | | | |
| | Temperature Storage range | 0 to 55 degree | | | | | | | |
| | Humidity Storage range | 30 to 80%RH | | | | | | | |
| Other | Accessories | Two Twisted pare cables Model Name : TR3-AC-1A-120 ①1.5D-2V SMA(P)-SMB(J) + Ferrite core Model Name : WIR42696 + ZCAT13250530A(1 turn) ②1.5D-2V SMB(P)-SMB(P) + Ferrite core Model Name : 09019M16 (E04SR0200935A (3 turn)) | | | | | | | |



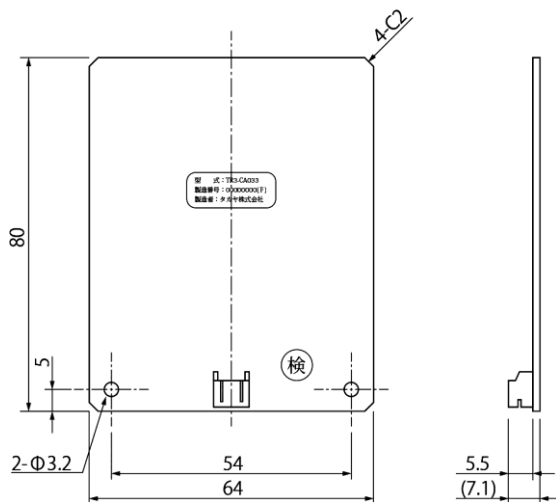
■ Dimensions

○TR3-CA033-1



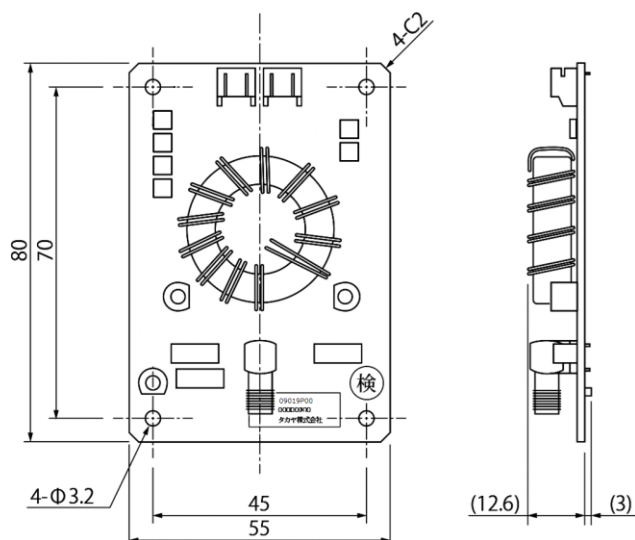
Unit : mm
Tolerance : ±1mm
Substrate thickness : 1.6mm

○TR3-CA033-2



Unit : mm
Tolerance : ±1mm
Substrate thickness : 1.6mm

○09019P04

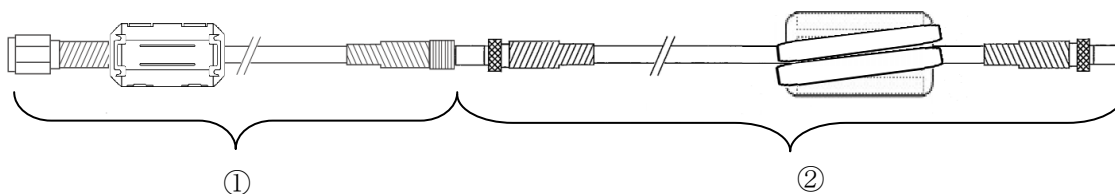


Unit : mm
Tolerance : ±1mm
Substrate thickness : 1.6mm

4.2.2 TR3-CA034

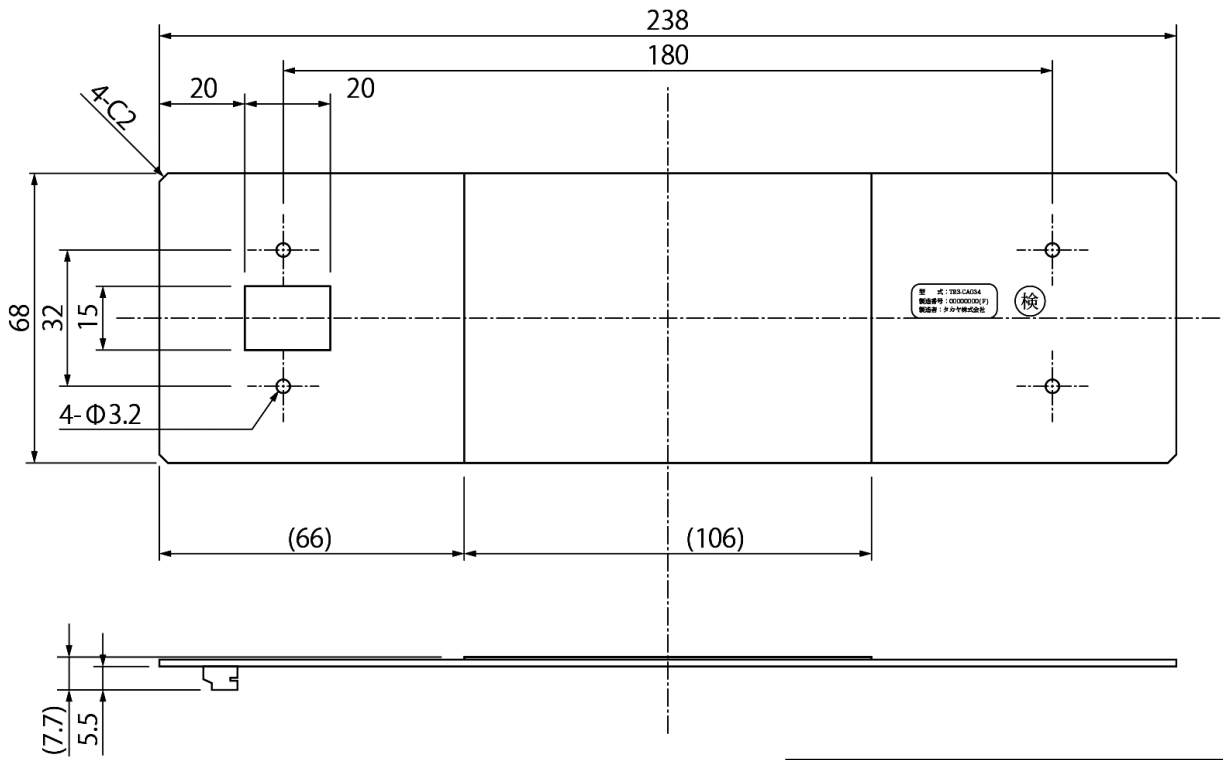
■ Specifications

| Specifications | Item | Parameter | | | | | | | |
|----------------------|-----------------------------|---|--|--------|----------|----------------|----|----------|-------|
| Applicable Standards | RoHS | EU RoHS(2002/95/EC) Support | | | | | | | |
| Antenna | Resonant frequency | 13.56MHz(Ta=25°C) | | | | | | | |
| | Antenna Type | LOOP ANTENNA | | | | | | | |
| Connector | CN1 | Connector : SMA(J) | | | | | | | |
| | | Pin assignment <table border="1" data-bbox="687 544 1406 651"> <thead> <tr> <th></th> <th>Symbol</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Center Contact</td> <td>RF</td> <td>RF input</td> </tr> <tr> <td>Shell</td> <td>GND</td> <td>GND</td> </tr> </tbody> </table> | | Symbol | Function | Center Contact | RF | RF input | Shell |
| | Symbol | Function | | | | | | | |
| Center Contact | RF | RF input | | | | | | | |
| Shell | GND | GND | | | | | | | |
| Mechanical data | Dimensions (W x D x H) | TR3-CA034 : 238 (W)×68(D)×7.7(H)mm 09019P05 : 55 (W)×80(D)×15.6(H)mm | | | | | | | |
| | Weight | TR3-CA034 : 65g 09019P05 : 47g | | | | | | | |
| Ambient Conditions | Temperature Operating range | 0 to 40 degree | | | | | | | |
| | Humidity Operating range | 30 to 80%RH | | | | | | | |
| | Temperature Storage range | 0 to 55 degree | | | | | | | |
| | Humidity Storage range | 30 to 80%RH | | | | | | | |
| Other | Accessories | Two Twisted pare cables Model Name : TR3-AC-1A-120 ①1.5D-2V SMA(P)-SMB(J) + Ferrite core Model Name : WIR42696 + ZCAT13250530A(1 turn) ②1.5D-2V SMB(P)-SMB(P) + Ferrite core Model Name : 09019M16 (E04SR0200935A (3 turn)) | | | | | | | |



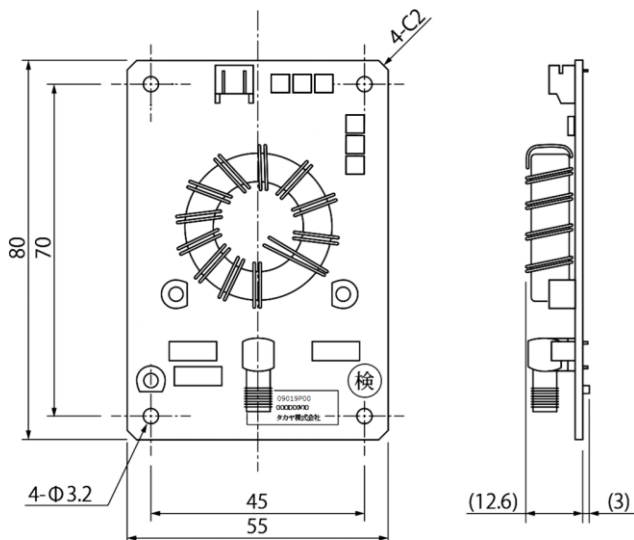
■ Dimensions

○TR3-CA034



Unit : mm
 Tolerance : ±1mm
 Substrate thickness : 1.6mm

○09019P05

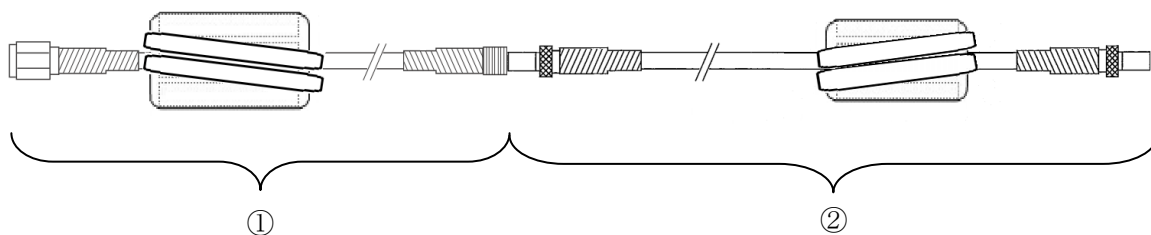


Unit : mm
 Tolerance : ±1mm
 Substrate thickness : 1.6mm

4.2.3 TR3-CA044

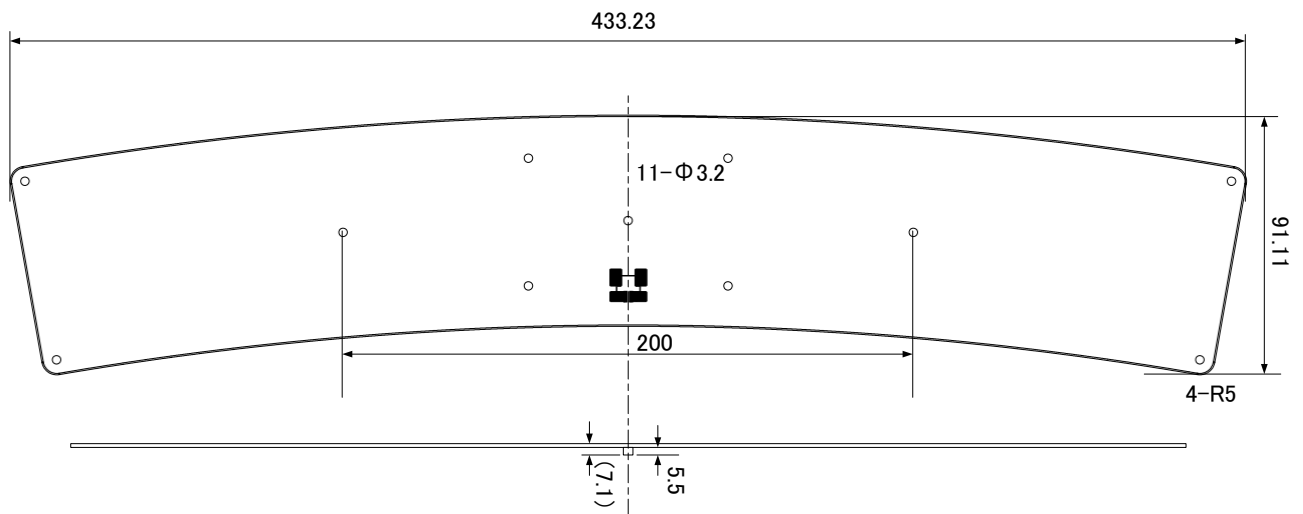
■ Specifications

| Specifications | Item | Parameter | | | | | | | |
|----------------------|-----------------------------|---|--|--------|----------|----------------|----|----------|-------|
| Applicable Standards | RoHS | EU RoHS(2002/95/EC) Support | | | | | | | |
| Antenna | Resonant frequency | 13.56MHz(Ta=25°C) | | | | | | | |
| | Antenna Type | LOOP ANTENNA | | | | | | | |
| Connector | CN1 | Connector : SMA(J) | | | | | | | |
| | | Pin assignment <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>Symbol</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Center Contact</td> <td>RF</td> <td>RF input</td> </tr> <tr> <td>Shell</td> <td>GND</td> <td>GND</td> </tr> </tbody> </table> | | Symbol | Function | Center Contact | RF | RF input | Shell |
| | Symbol | Function | | | | | | | |
| Center Contact | RF | RF input | | | | | | | |
| Shell | GND | GND | | | | | | | |
| Mechanical data | Dimensions (W x D x H) | TR3-CA044 : 433.2 (W)×91.1(D)×7.1(H)mm 09019P16 : 55 (W)×80(D)×15.6(H)mm | | | | | | | |
| | Weight | TR3-CA044 : 96g 09019P16 : 47g | | | | | | | |
| Ambient Conditions | Temperature Operating range | 0 to 40 degree | | | | | | | |
| | Humidity Operating range | 30 to 80%RH | | | | | | | |
| | Temperature Storage range | 0 to 55 degree | | | | | | | |
| | Humidity Storage range | 30 to 80%RH | | | | | | | |
| Other | Accessories | Twisted pare cables Model Name : TR3-AC-1A-090 ①1.5D-2V SMA(P)-SMB(J) + Ferrite core Model Name : WIR42763 + E04SR241336A(3 turn) ②1.5D-2V SMB(P)-SMB(P) + Ferrite core Model Name : 09019M16 (E04SR0200935A (3 turn)) | | | | | | | |



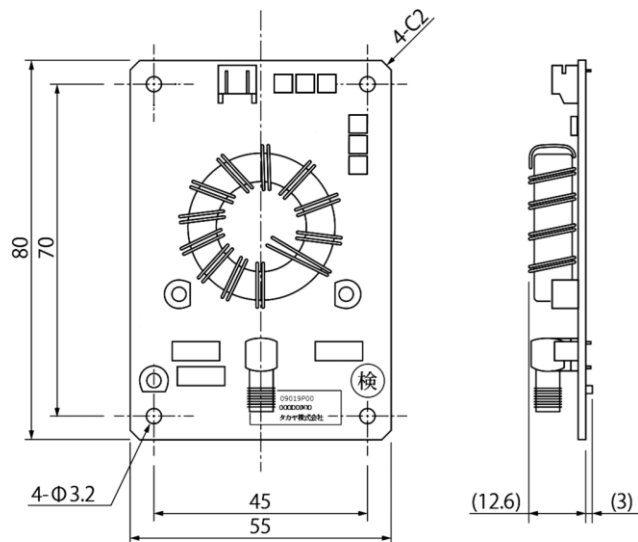
■ Dimensions

○TR3-CA044



Unit : mm
Tolerance : ±1mm
Substrate thickness : 1.6mm

○09019P16

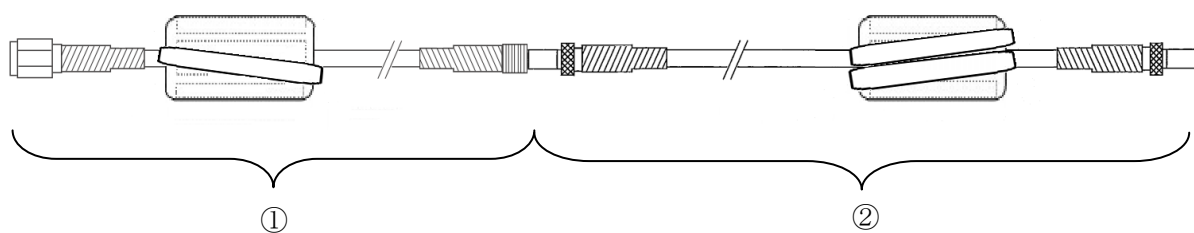


Unit : mm
Tolerance : ±1mm
Substrate thickness : 1.6mm

4.2.4 TR3-CA045

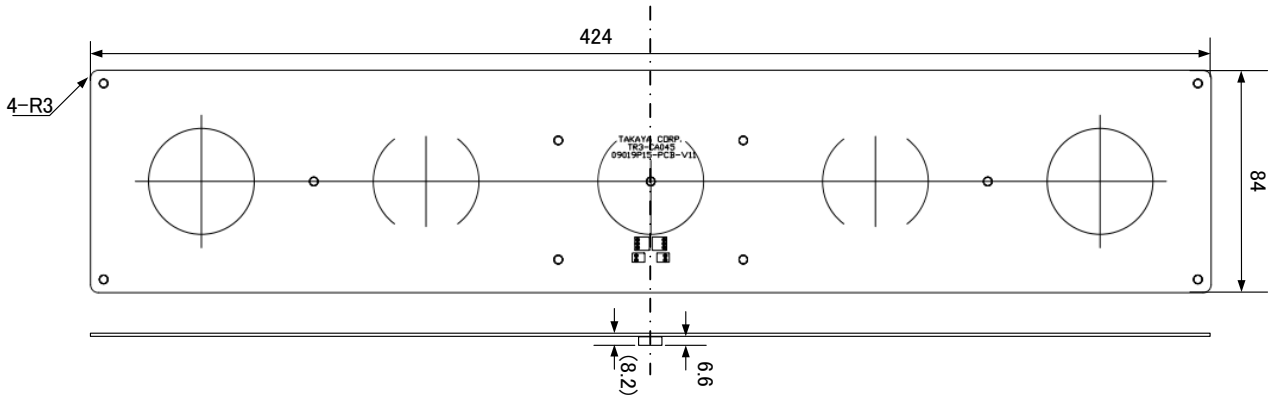
■ Specifications

| Specifications | Item | Parameter | | | | | | | |
|----------------------|-----------------------------|---|--|--------|----------|----------------|----|----------|-------|
| Applicable Standards | RoHS | EU RoHS(2002/95/EC) Support | | | | | | | |
| Antenna | Resonant frequency | 13.56MHz(Ta=25°C) | | | | | | | |
| | Antenna Type | LOOP ANTENNA | | | | | | | |
| Connector | CN1 | Connector : SMA(J) | | | | | | | |
| | | Pin assignment <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>Symbol</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Center Contact</td> <td>RF</td> <td>RF input</td> </tr> <tr> <td>Shell</td> <td>GND</td> <td>GND</td> </tr> </tbody> </table> | | Symbol | Function | Center Contact | RF | RF input | Shell |
| | Symbol | Function | | | | | | | |
| Center Contact | RF | RF input | | | | | | | |
| Shell | GND | GND | | | | | | | |
| Mechanical data | Dimensions (W x D x H) | TR3-CA045 : 424 (W)×84(D)×8.2(H)mm 09019P14 : 55 (W)×80(D)×15.6(H)mm | | | | | | | |
| | Weight | TR3-CA045 : 108g 09019P14 : 47g | | | | | | | |
| Ambient Conditions | Temperature Operating range | 0 to 40 degree | | | | | | | |
| | Humidity Operating range | 30 to 80%RH | | | | | | | |
| | Temperature Storage range | 0 to 55 degree | | | | | | | |
| | Humidity Storage range | 30 to 80%RH | | | | | | | |
| Other | Accessories | Twisted pare cables Model Name : TR3-AC-1A-090 ①1.5D-2V SMA(P)-SMB(J) + Ferrite core Model Name : WIR42763 + E04SR200935A(2 turn) ②1.5D-2V SMB(P)-SMB(P) + Ferrite core Model Name : 09019M16 (E04SR0200935A (3 turn)) | | | | | | | |



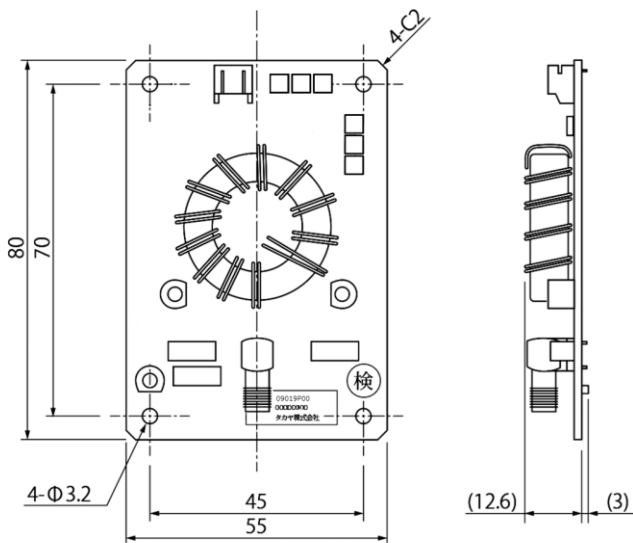
■ Dimensions

○TR3-CA045



Unit : mm
Tolerance : ±1mm
Substrate thickness : 1.6mm

○09019P14



Unit : mm
Tolerance : ±1mm
Substrate thickness : 1.6 mm

4.3 Coupler Cable

Coupler Cable (between Antenna to coupler board)

TR3-AC-1A-***

Enter the cable length

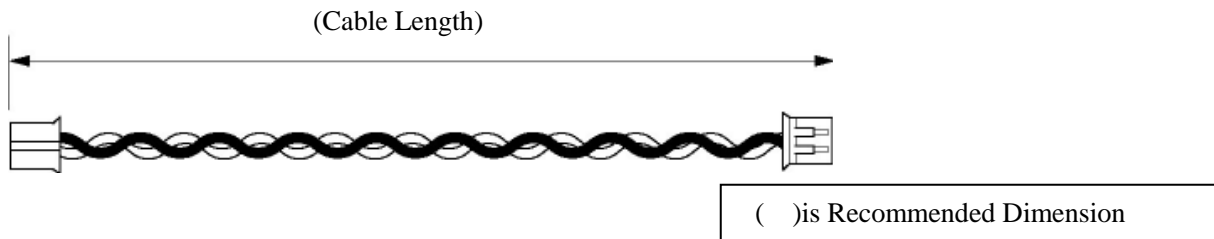
90mm : 090

120mm : 120

■ Specifications

| item | Parameter |
|------------|---|
| RoHS | EU RoHS(2002/95/EC) Support |
| Linetype | AWG26 |
| Connector | PH-PH |
| Cable loss | 90mm : approx. 0.061dB 120mm : approx. 0.081dB |

■ Dimensions



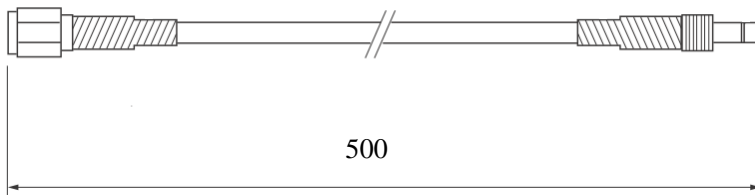
4.4 Antenna Cable

4.4.1 WIR42696

■ Specifications

| item | Parameter |
|------------|-----------------------------|
| RoHS | EU RoHS(2002/95/EC) Support |
| Linetype | Coaxial cable 1.5D-2V |
| Connector | SMA(P)-SMB(J) |
| Cable loss | approx. 0.043dB |

■ Dimensions



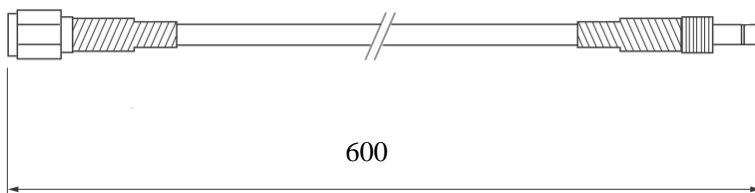
Unit : mm

4.4.2 WIR42763

■ Specifications

| Item | Parameter |
|------------|-----------------------------|
| RoHS | EU RoHS(2002/95/EC) Support |
| Linetype | Coaxial cable 1.5D-2V |
| Connector | SMA(P)-SMB(J) |
| Cable loss | approx. 0.051dB |

■ Dimensions



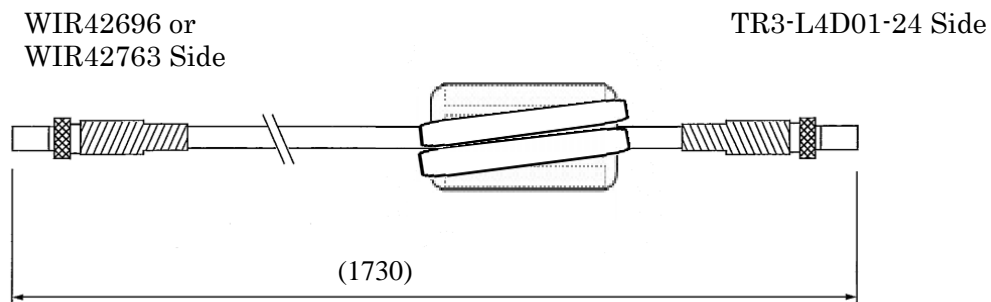
Unit : mm

4.4.3 09019M16

■ Specifications

| Item | Parameter |
|--------------|-----------------------------|
| RoHS | EU RoHS(2002/95/EC) Support |
| Linetype | Coaxial cable 1.5D-2V |
| Connector | SMB(P)-SMB(P) |
| Cable loss | approx. 0.16dB |
| Ferrite core | E04SR0200935A(3 turn) |

■ Dimensions



Unit : mm
() is Recommended Dimension

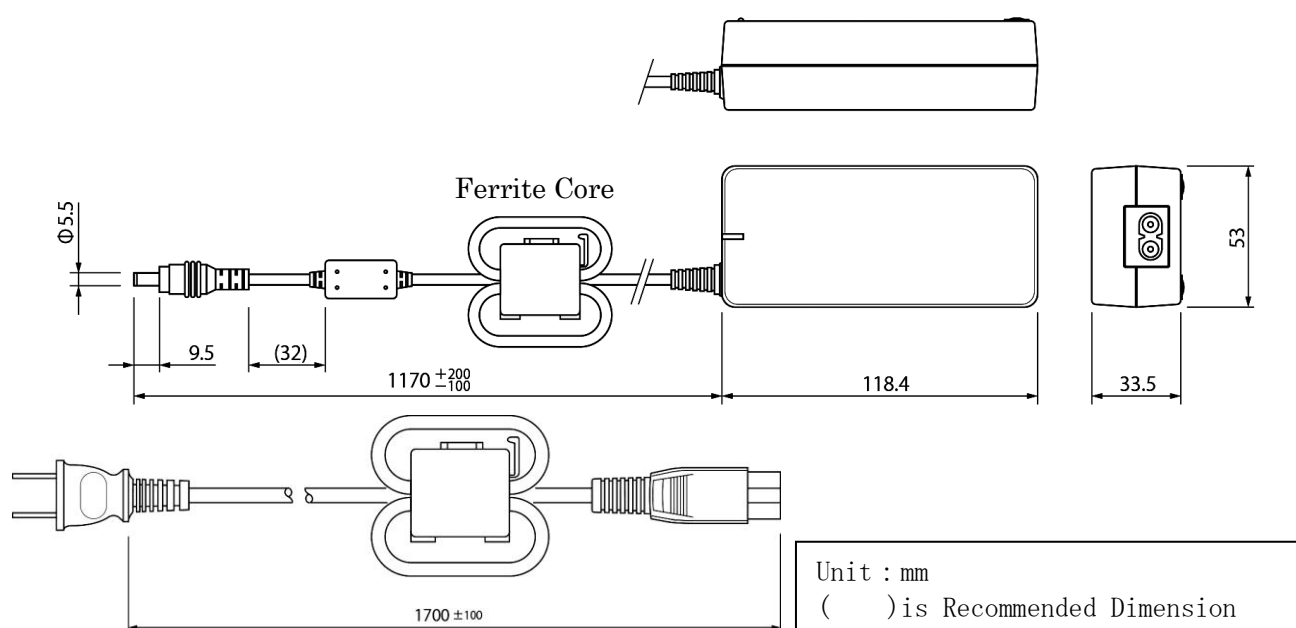
5 Accessories

5.1 AC Adapter (TR3-PWR-19V-2)

■ Specifications

| Specifications | Item | Parameter |
|----------------------|-----------------------------|--|
| Applicable Standards | EMI | FCC class B, CISPR 22 class B |
| | COMPLY SAFETY STANDARDS | UL60950, IEC60950, CSA22.2 No.60950, LPS:Limited Power Source, PSE |
| | RoHS | EU RoHS(2002/95/EC) Support |
| AC INPUT | VOLTAGE | AC100V to AC240V |
| | FREQUENCY | 50 to 60Hz |
| DC OUTPUT | DC OUTPUT VOLTAGE RANGE | DC19.0V±5% |
| | LOAD CURRENT | 3.15A |
| | OUTPUT | CENTER MINUS |
| | PLUG TYPE | 9.5×external diameterφ5.5 internal diameterφ2.1 |
| Mechanical data | Wight | approx. 500g |
| | Dimensions | 53(W) x 118.4(D) x 33.5(H)mm (Cords are not included) |
| | Cable length | DC Plug side:approx. 1170mm AC Plug side:approx. 1700mm |
| Ambient Conditions | Temperature Operating range | 0 to 40 degree |
| | Humidity Operating range | 10 to 85%RH |
| | Temperature Storage range | -25 to 60 degree |
| | Humidity Storage range | 10 to 95%RH |
| Ferrite core | | MSFC 13K(4 turn) 2pcs |

■ Dimension



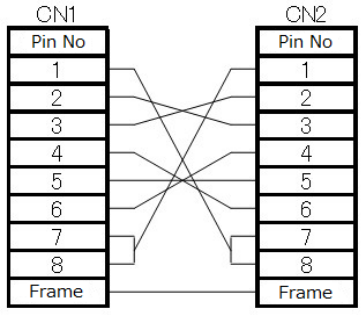
5.2 RS232C Cross-cable(CB-232C-3)

Type of ferrite core and number of turns are specified by compliance for FCC.

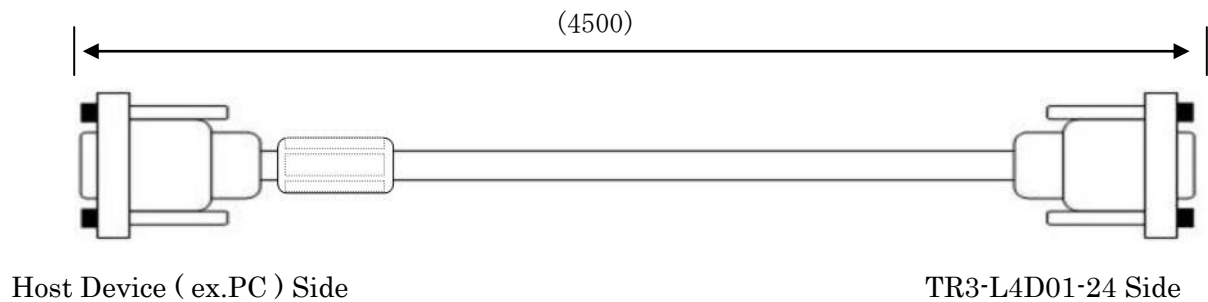
Don't change and remove the ferrite core.

Don't uses except the bundled RS232C Cross-cable.

■ Specifications

| Specifications | Parameter |
|----------------|---|
| RoHS | EU RoHS(2002/95/EC) Support |
| Connector | D-sub 9Pin |
| screw | Inch screw |
| Cable length | approx. 4.5m |
| Ferrite core | ZCAT17300730A(1 turn) |
| Connection | Cross-cable  |

■ Dimension



Unit : mm

() is Recommended Dimension

6 Maintenance

This product is mainly used in electronic components and semiconductors. Therefore, the long-term stable operation, the environment and conditions are expected to defect, as shown below.

- Device degradation due to overvoltage and overcurrent.
- Device degradation due to high temperature and long-term stress.
- Poor contact of the connector and cause deterioration of insulation by moisture or dust.
- Connector corrosion by corrosive gases.

In order to use this product at its best, please conduct routine or periodic inspections.

| Item | | Maintenance | Criteria |
|--------------------|---------------------|-------------------------------|---------------------------|
| Ambient conditions | Temperature | Temperature Operating range | 0 to 40 degree |
| | Humidity | Humidity Operating range | 30 to 80%RH |
| | Enclosure rating | Check the dusty | None |
| | Corrosive | Check the corrosion | None |
| Power | Input | Check the voltage | Input Voltage : DC19V±10% |
| | Voltage fluctuation | Check the Voltage fluctuation | |
| Attachment | Product | Check the Screw | Checking and verifying |
| | | Check the Connector | |
| | Cable | Check the Cable break | None |
| Performance | | Check the Performance | Work |

Revision History

| Revision code | Date | Revised contents |
|---------------|------------|---------------------|
| 1.00 | 2015/05/08 | Original production |
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