

INSTRUCTION MANUAL

MRS-J11A
MRS junction kit

Thank you for purchasing KYOWA's product MRS-J11A (MRS junction kit).
Read this manual carefully in order to make full use of the high performance capabilities of the product.
Do not use the product in methods other than described in this Manual.

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The contents of the manual are subjected to change without prior notice.
We assume no responsibility whatever for any damage resulting from the use of this product.

STANDARD ACCESSORIES

The following accessories are packed with the MRS-J11A.
When unpacking, check the contents to ensure that all accessories are enclosed.

Cable Tie	10
M2x5(truss screw)	2
*TY-5232M(Thomas&Betts made)	

SAFETY PRECAUTIONS (Do not forget to read the safety precautions prior to use.)

The MRS-J11A is designed to be used according to "SPECIFICATIONS". Do not use the product in an environment exceeding the specifications. Or, it may cause troubles.

PRIOR TO USE

For safe use of the product, do not forget to read the "SAFETY PRECAUTIONS" prior to use.
KYOWA assumes no liability for any damage resulting from the user's failure to comply with the safety precautions.

SAFETY SYMBOLS

For safety operation of the product, the following symbol marks are used in the manual.

	WARNING	Improper operation of the system may result in death or severe injury of the operator.
	CAUTION	Improper operation of the system may result in injury of the operator and physical damage of the system.

WARNING

- Warning
Be sure to observe the safety precautions described in the MRS-J11A Instruction Manual and the MRS-101A-S/SE/V READ IN THE BEGINNING.
- Power supply
To prevent fire hazards, before turning on the product, make sure the power supply voltage specified for the product matches the local line voltage.
- Avoid using in environment with inflammable gas, etc.
To prevent the risk of fire hazard or explosion, do not use the product in environment with inflammable gas, vapor, or dust.
- If any trouble occurs
To prevent a fire hazards, if smoke is emerging from the product, immediately disconnect the power source to terminate the system operation.
- Connecting and disconnecting transmitter
Before connecting/disconnecting transmitter, turn off the power to the instrument and connected devices. If not, it may cause an electric shock, performance degradation, or malfunctions.
- Connecting and disconnecting cables
Before connecting/disconnecting cables, turn off the power to the instrument and connected devices. If not, it may cause an electric shock, performance degradation, or malfunctions.
- To avoid secondary system damage from product failure, always follow a maintenance plan with separate technical measures.
- Never use the product in medical facilities.
Doing so may interfere with medical devices, posing a life-threatening risk.
- Never use the product at airports or in aircrafts.
Doing so may cause airport equipment to malfunction, posing a life-threatening risk.
- Do not use the product where use of wireless devices, such as mobile phones, is prohibited.
- Handling of Batteries
 - If use primary batteries, do not recharge the primary batteries.
 - If use secondary batteries, charge the battery with the charger specified for the battery to be used.
 - Connect positive (+) and negative (-) terminals of the batteries correctly. If not, it may cause Liquid leakage, fever, ignite or explosion.
 - Do not heat the batteries or throw the batteries into fire. If not, it may cause Liquid leakage, fever, ignite or explosion.
 - Do not short-circuit positive (+) and negative (-) terminals of the batteries. If not, it may cause fever or ignite due to a rush current.
 - Using the batteries at temperatures outside of the manufacturer's specified range, may lower the performance and/or the life and cause liquid leakage, fever, or explosion.
- Binding cable tie
 - Use the cable ties attached as standard accessories "TY-5232M (made by Thomas&Betts)". If not, it may cause damage to the battery holder and/or the battery may fly off.
 - Be sure to use two cable ties for binding. If not, it may cause damage to the battery holder and/or the battery may fly off.
 - Use cable ties that are not deteriorated and/or damaged. If not, it may cause damage to the battery holder and/or the battery may fly off.
 - When binding cable ties, confirm that there is no looseness and/or no gaps in the ties. If not, it may cause damage to the battery holder and/or the battery may fly off.
 - Using the batteries at temperatures outside of the manufacturer's specified range, may lower the performance and/or the life and cause liquid leakage, fever, or explosion.

WARNING

- Installation
 - If installing the product, place it on a flat surface. If not, it may cause damage to the product.
 - In an environment where vibration, shock, and/or centrifugal acceleration is to occur, confirm that the screws are no looseness and/or that the cable ties are no looseness and/or gaps before installation or testing. If not, it may cause damage to the battery holder and/or the battery may fly off.
 - When installing this product on a rotating body, install a safety cover to secure safety from flying debris.

CAUTION

- Caution
Be sure to observe the safety precautions described in the MRS-J11A Instruction Manual and the MRS-101A-S/SE/V READ IN THE BEGINNING.
- Use the product in a temperature range of the specified range.
Using the product at temperatures outside of the specified range, may lower product performance or result in malfunctions. Also, using batteries at temperatures outside of the manufacturer's specified range, may lower the performance and/or the life and cause liquid leakage, fever, or explosion.
- Use the product within the operating humidity range.
Use in a humid place exceeding the specified range or where it is exposed to splashing water may lower the performance and cause trouble.
- Take care of condensation after an abrupt change in the environment.
Abrupt changes in ambient temperature during transportation, etc. may cause condensation, which may cause degradation of performance and/or malfunctions. Make sure that there is no condensation before using the product.
- Avoid exposing the product to liquid.
The product is not waterproof or drip-proof. Make sure no liquids come into contact the product. It may cause electrical leakage or malfunctions.
- Use the product under environment without excessive vibration or high impact.
Use the product in an area where vibration, impact and/or centrifugal acceleration can be kept within the scope of specifications. Continuous vibration or severe impact may cause deteriorated performance and system failure.
- Pay attention to static electricity.
It may cause damage due to static electricity. Before touching the equipment, touch a metal object to discharge static electricity.
- Avoid installing sensors and products near a welding machine.
Failure to do so will pose the risk of erroneous data, malfunction and failure.
- Do not disassemble or remodel the product.
Or, it may cause electric shock hazards or damage the product. This warranty does not cover any damaged or defective parts that results from disassembling or remodeling.
- Do not use or strage the product under dusty or fine particles or corrosive gas environment.
Use or strage under these environment, may result in lower performance and troubles.
- Do not expose the product to the air if it is used and stored nearby sea.
Air exposure nearby sea may cause lower performance and products failure.
- Take care when operating this product in high or low pressure environments.
Failure to observe this precaution may result in malfunction, performance degradation, or failure. This product is designed to be used under pressure of the standard atmosphere.
- After power is turned OFF, wait at least 5 seconds before turning ON power once again.
If power is turned on again within 5 seconds or if the power is repeatedly turned ON and OFF, the product may cause performance deterioration or failure due to the inrush current generated by the product being turned on.
- Allow the product to warm up before use.
After the power ON, always preheat the product for approximately 1 hour.
- Do not pull on or apply excessive tension to the cables.
Lay the cables with a certain safety margin of length to avoid subjecting the connections to excessive force. Applying excessive tension to a cable may result in abnormal output, conductor damage, or connector damage.
- Cleaning.
When the product gets dirty, clean the product with a dry soft cloth.

NOTATIONS USED IN THE MANUAL

The following notations are used in the manual for convenience.

Informational notes

Certain notations are used as necessary to attract your attention to information that requires special care when handing the product, and to information provided for reference purposes.

Examples of Notations

NOTE

Essential precautions required when handling the product.

MEMO

Reference items required when handling the product.

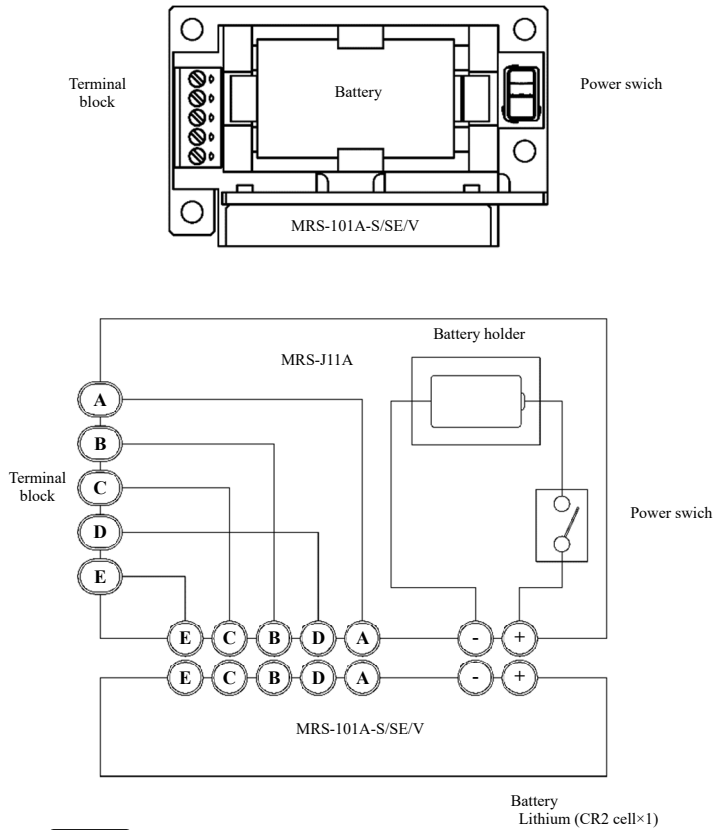
OUTLINE OF PRODUCT

OUTLINE

This unit consists of a power battery holder, power switch, and terminal block for sensor connection, and it can be used to easily make measurements without the need for soldering just by connecting a 1ch-Strain Transmitter (MRS-101A-S/SE) or 1ch-Voltage Transmitter (MRS-101A-V).

CONNECTION

Wire as shown below.



NOTE

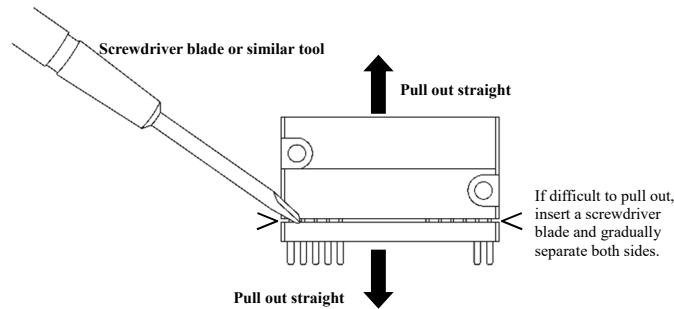
Keep the sensor wire short. Long wiring may introduce noise into sensor signals and negatively affect signal transmission and reception.
Should use a twisted-pair cable from gage terminals to the main unit for noise reduction.
Don't use terminnals A and C, when use the MRS-101A-V.

MEMO

When use the MRS-101A-S/SE, product is compatible with four-gage bridges.

Detachment of adapter Board

When removing the Adapter Board from the transmitter, after removing the small screw (M2), pull out the Adapter Board straight.
Be careful when handling the transmitter pins, as they can bend easily.
If the Adapter Board is difficult to pull out, insert a flat tool, such as a screwdriver blade, between the transmitter and Adapter Board and gradually separate both sides, one after the other.

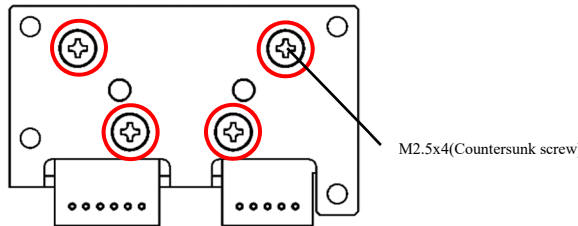


NOTE

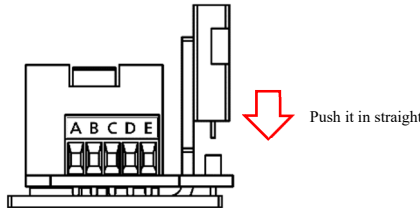
If the pins become bent, use tweezers or similar tool to straighten them before use.
Attempting to assemble the unit when the pins are bent can result in damage to the transmitter pins.
Be especially careful about this.

ASSEMBLING PROCEDURE

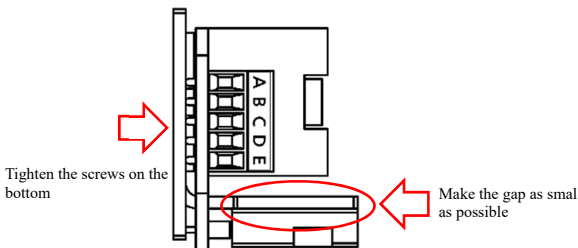
(1) Loosen the four countersunk screws (M2.5x4) on the bottom.



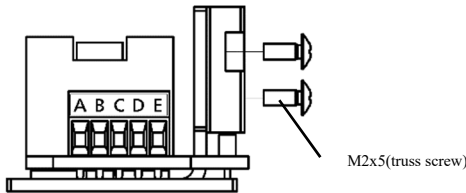
(2) Install the MRS-101A-S/SE/V.



(3) Retighten the screws on the bottom while being careful to make the gap as small as possible.



(4) Use the two truss screws (M2x5) to fix the MRS-101A-S/SE/V in place.



(5) Insert the CR2 battery and use two cable ties to fix it in place.
For details on the cable-tie fixation procedure, see the appendix below.



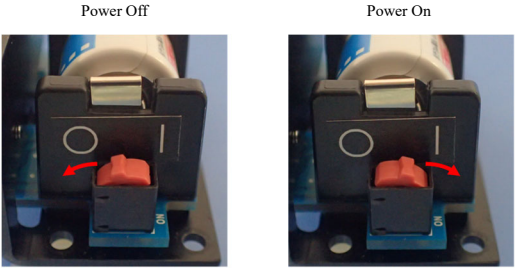
NOTE

If the cable ties are not sufficiently binding, it may cause damage to the battery holder and/or the battery fly off.
Take care of the following when binding the cable ties.

- Use the cable ties attached as standard accessories "TY-5232M (made by Thomas&Betts)".
- Be sure to use two cable ties for binding.
- Use cable ties that are not deteriorated and/or damaged.
- When binding cable ties, confirm that there is no looseness and/or no gaps in the ties.
- In an environment where vibration, shock, and/or centrifugal acceleration is to occur, confirm that the screws are no looseness and/or that the cable ties are no looseness and/or gaps before installation or testing.

NOTE

Take care regarding the battery direction when inserting it. The electrode direction is indicated on the battery holder. Leaving the power on will result in battery consumption. Flip the switch to the off position when not using the unit.

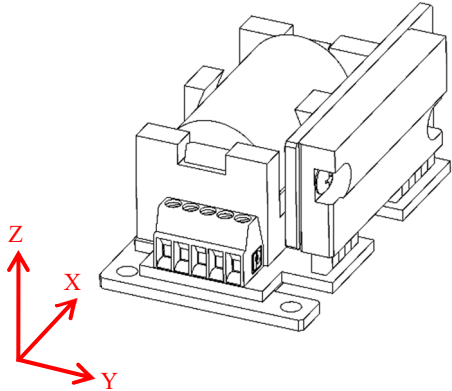


NOTE

Be sure to follow the vibration resistance, shock resistance, and centrifugal acceleration resistance values indicated in the MRS-J11A specifications. If the specified value is exceeded, it may cause damage to the battery holder, severed cable ties, and/or the battery may fly off and be lost. Please confirm the following before installation.

- Use the cable ties attached as standard accessories "TY-5232M (made by Thomas&Betts)".
- Be sure to use two cable ties for binding.
- Use cable ties that are not deteriorated and/or damaged.
- In an environment where vibration, shock, and/or centrifugal acceleration is to occur, confirm that the screws are no looseness and/or that the cable ties are no looseness and/or gaps before installation or testing.
- When installing this product on a rotating body, install a safety cover to secure safety from flying debris.

In addition, if centrifugal acceleration is applied in the longitudinal direction (X axis direction) of the battery as shown in the figure below, the battery-holder electrodes might separate from the battery, which will prevent power from being supplied, so consider this during installation.



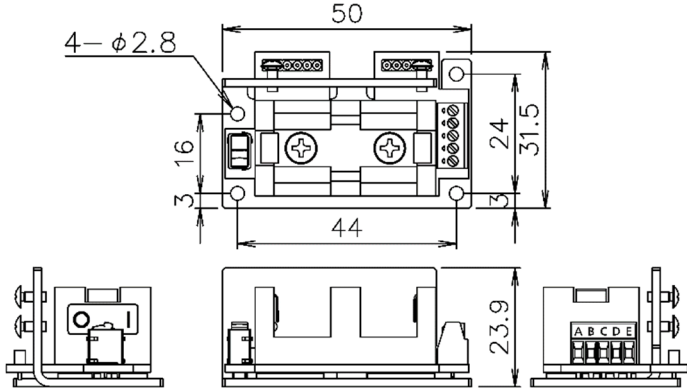
●SPECIFICATIONS

Model	MRS-J11A
Product Name	MRS Junction Kit
Compatible Transmitters	MRS-101A-S, MRS-101A-SE, MRS-101A-V
Measuring Targets	MRS-101A-S, MRS-101A-SE Strain gages (Full-bridge system *), Strain-gage Transducers *Other bridge systems need bridge box.
	MRS-101A-V
	Voltage
Channels	1
Input Terminals	Screw-fixed terminal block * Compatible lead wire 0.14 to 0.5 mm ²
Operating Temperature, Humidity *1	-10 to 60 °C, 20 to 85 % (Non-condensing)
Vibration Resistance *1, *2	98.07 m/s ² (10 G) , 5 to 55 Hz
Shock Resistance *1, *2	490.3 m/s ² (50 G) , 11 ms or less, Half sine wave
Centrifugal Acceleration Resistance *1, *2, *3, *4	4903 m/s ² (500 G)
Compatible Battery	CR2 Lithium battery
Dimensions	50 (W) × 23.9 (H) × 31.5 (D) mm (Excluding protrusions)
Weight Approx.	25 g (Excluding battery and transmitter)

- *1 Do not exceed the specification range of the transmitter to be combined.
*2 Fix a battery by using the provided cable ties.
*3 Exclude the longitudinal direction (X axis direction) of the battery.
Use a shatterproof cover for safety.
*4 Based on the results of an 8-hour continuous demonstration test.

* This product does not contain the 10 restricted substances beyond the maximum concentration limit under RoHS Directive (2011/65/EU, (EU)2015/863). * Excluding exemptions allowed under RoHS Directive (2011/65/EU, (EU)2015/863).

●OUTSIDE DRAWING

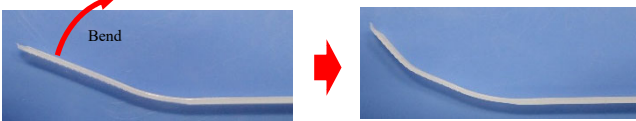


●Appendix

Cable-tie fixation procedure

(1) Bend the tip of an included cable tie as shown in the photo below.

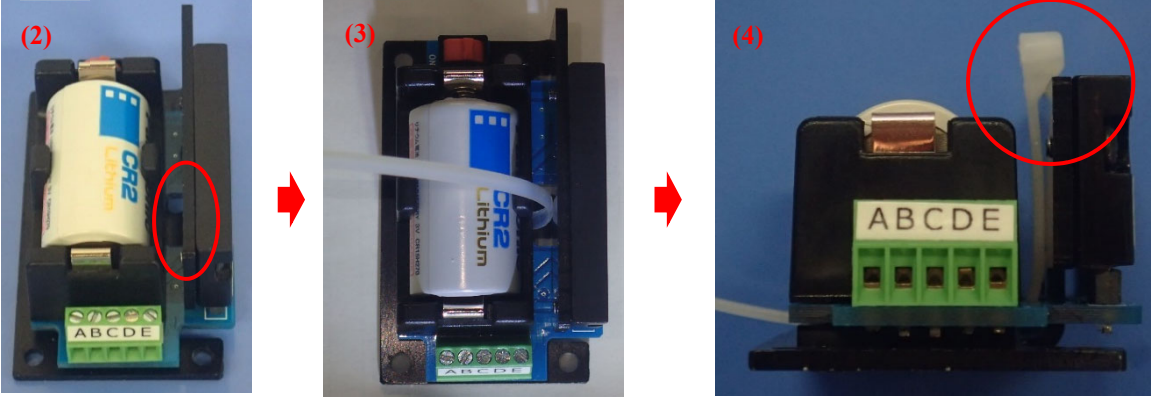
* Use a TY-5232M (Thomas&Betts made) or TY-232M (Thomas&Betts made) cable tie.



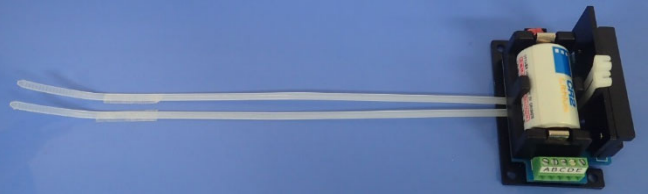
(2) Insert the cable tie into the gap between the board and right-angle plate.

(3) Push the cable tie into the gap in line with the bend of the right-angle plate.

(4) Pull out the cable tie until its ratchet case reaches the position shown in the photo.



(5) Insert a second cable tie in the same way.



(6) Close the cable ties and cut off the extra tie material.



NOTE

If the cable ties are not sufficiently binding, it may cause damage to the battery holder and/or the battery fly off.
Take care of the following when binding the cable ties.

- Use the cable ties attached as standard accessories "TY-5232M (made by Thomas&Betts)".
- Be sure to use two cable ties for binding.
- Use cable ties that are not deteriorated and/or damaged.
- When binding cable ties, confirm that there is no looseness and/or no gaps in the ties.
- In an environment where vibration, shock, and/or centrifugal acceleration is to occur, confirm that the screws are no looseness and/or that the cable ties are no looseness and/or gaps before installation or testing.