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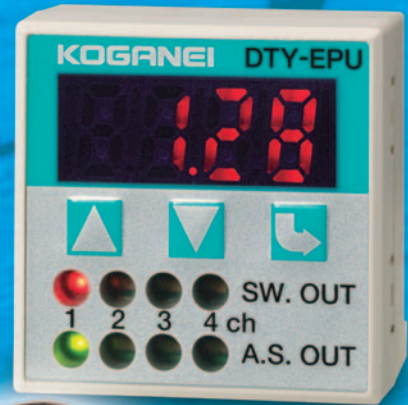
ISO9001
ISO14001



Creceed

Electrostatic Potential Sensor EP Sensor

Environmentally friendly
RoHS Compliant Product



**Optimum sensor for electrostatic
monitoring of automated lines arrives!**

Creceed

Electrostatic Potential Sensor

EP Sensor



Environmentally friendly **RoHS** compliant product!

Optimum sensor for electrostatic monitoring on production line arrives!

Offers electrostatic measurement and constant monitoring on production line difficult to handle with handy-type measuring instruments.

All-in-one configuration achieves lower costs and total space reduction.

EP Sensor



Enables electrostatic control on production line

Constant monitoring of invisible static electricity can be performed without expending manhours on electrostatic measurement or controls. Electrostatic controls through constant monitoring can be performed in measurement locations difficult to reach with handy-type measuring instruments.

Simple function and simple design

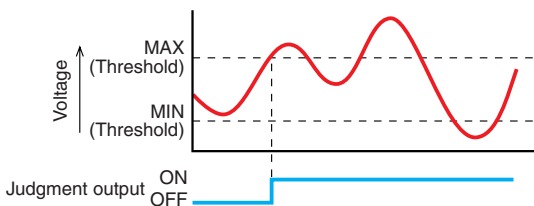
All-in-one design gives functions of judgment output and abnormality output to the EP Sensor unit. Moreover, since it can be connected directly to an external controller unit without passing through an amplifier etc., the unit achieves a total space reduction.

Voltage data includes both digital and analog output, and connection method to control devices can also be selected

Storing history, etc., on a PC can be performed as judgment output externally.

Judgment output function

If the voltage setting (threshold) is exceeded, notification is made by a sensor LED and voltage comparison output (judgment output).



Three operation mode patterns are available

Selectable from the averaged data output mode, actual measured data output mode, and ion balance monitor mode.

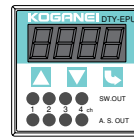
- Averaged data output mode
Averages the measured data and outputs it externally.
For the data output cycle, select from 100ms, 200ms, 500ms, and 1s.
- Actual measured data output mode
Outputs the actual measured data externally.
For the data output cycle, select from 100ms, 200ms, 500ms, and 1s.
- Ion balance monitor mode
Measures the ion balance of the ionizer.

With zero calibration function switch

The zero calibration function can be used to adjust the current measured value to 0V.

Selectable from either EP Monitor or PC software for EP Sensor setting method

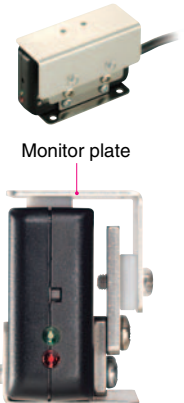
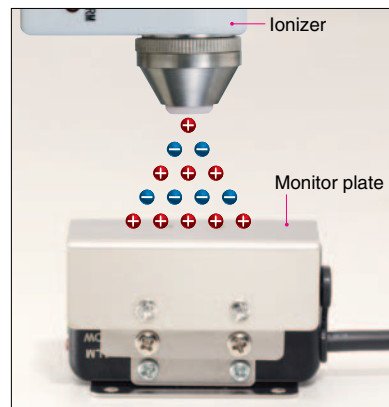
EP Sensor settings can be performed either through the EP Monitor or the PC software. Settings use RS232C communication.



Enables confirmation of ionizer performance with ion balance measurement function

Easy checking of simple ion balance by mounting a monitor plate^{note}.

Note: Monitor plate is optional.



※ For the distance between the ionizer and monitor plate, see the recommended minimum position distances set by each ionizer manufacturer.

Component bracket available

With a separately sold component bracket, various mounting directions become possible.

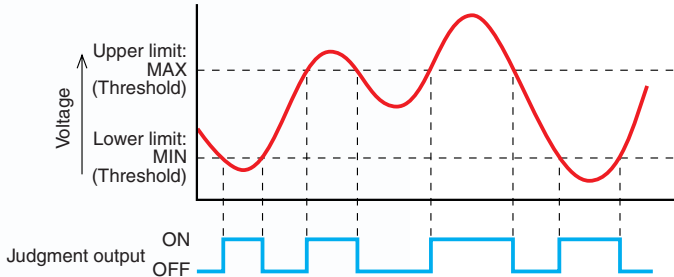


EP Monitor

One EP Monitor can be connected up to 4 EP Sensors, and used for switching displays

LED indicators and alarm signals available when threshold is exceeded

If the setting voltage is exceeded, you can confirm it by the SW.OUT LED and switch output (judgment output).



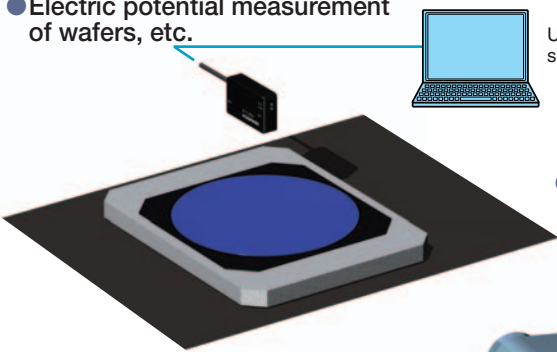
※The upper and lower limit (threshold MAX, MIN) can be changed depending on the setting.



Communication function can be used to make various parameter settings (measurement distance, upper and lower limit, operation mode, and data output cycle)

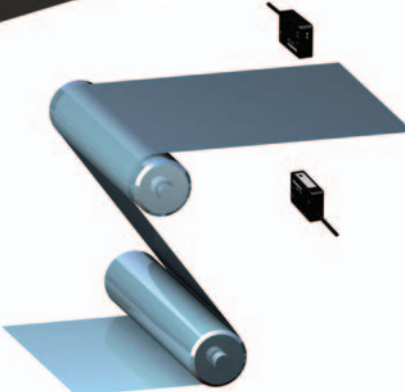
Application Examples

Electric potential measurement of wafers, etc.

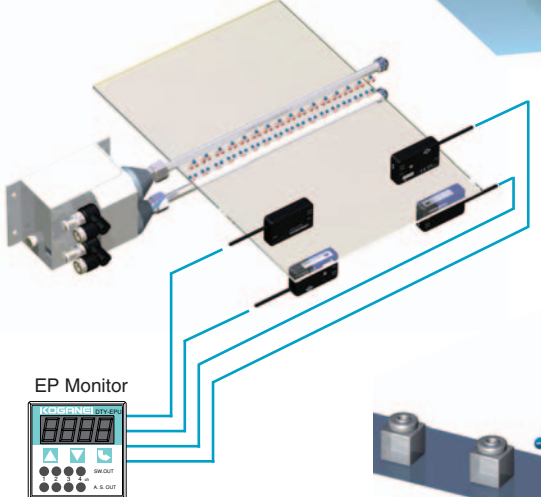


Use the support software for setting, display, and control.

Electric potential measurement of wrapping films, etc.



Electric potential measurement of glass substrates, etc.

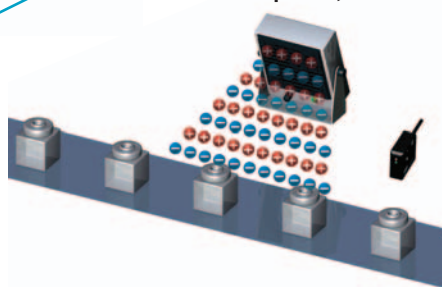


EP Monitor

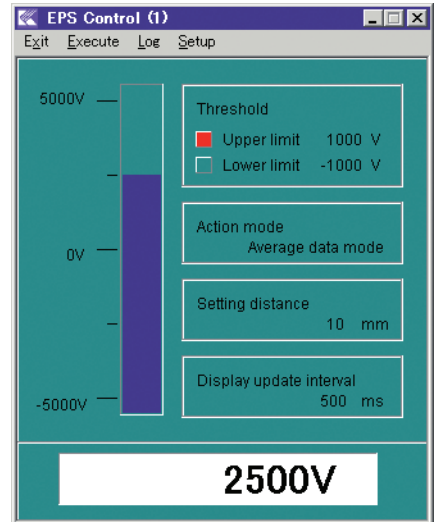


Up to 4 EP Sensors can be connected.

Electric potential measurement of plastic containers and parts, etc.



Support software (free)



Download the software from the Koganei website.

Major characteristics

- Can perform displays of EP Sensor settings and measurement data.

(Compatible OS: Windows NT, 2000, XP)

*Windows is a registered trademark of Microsoft Corporation.

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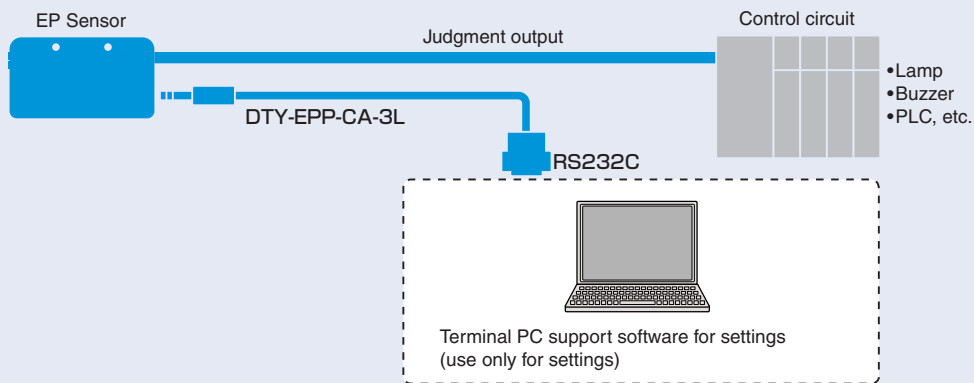


Caution

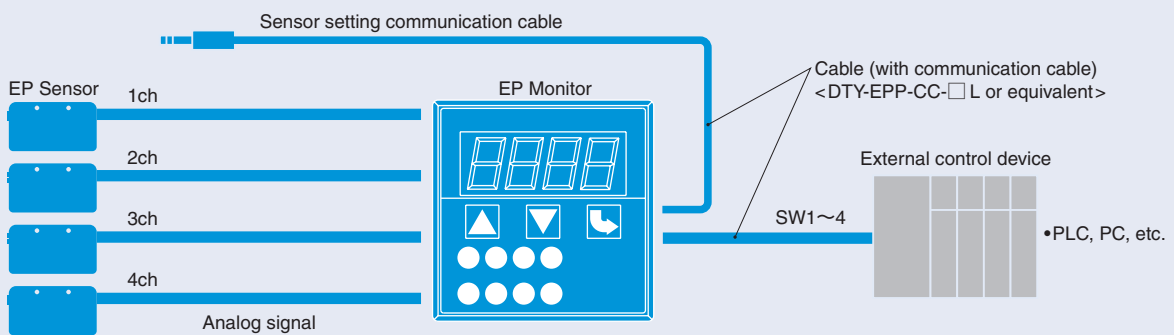
Before use, be sure to read the "Safety Precautions" on p.4.

Connection Patterns

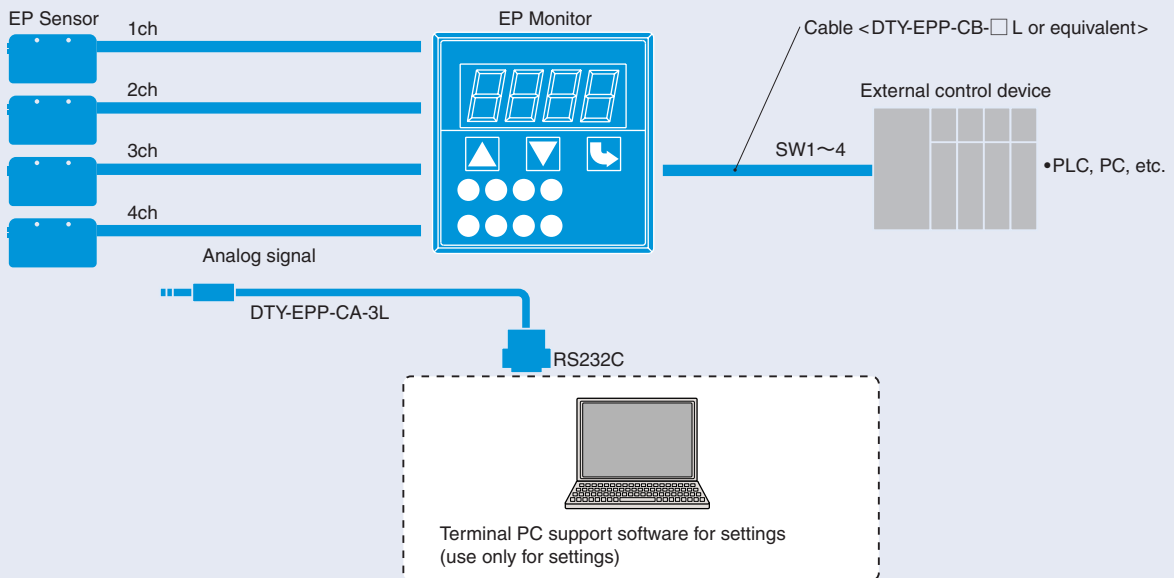
① Simple configuration



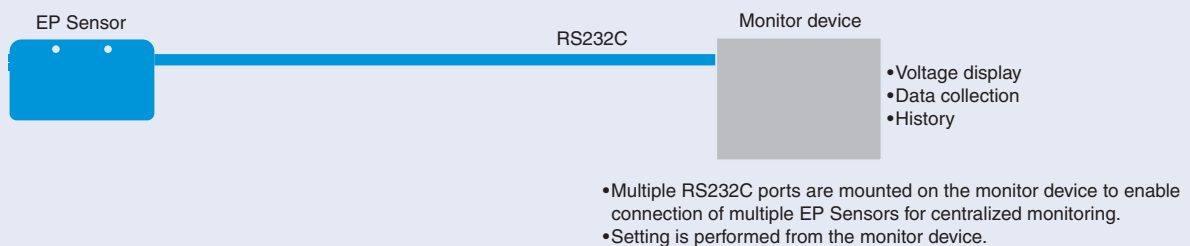
② EP Monitor connection (with setting from EP Monitor)



③ EP Monitor connection (setting from PC)







④ Status monitoring application



※ The power supply wiring has been omitted from the above connection pattern illustrations.

Before selecting and using the product, please read all the Safety Precautions carefully to ensure proper product use. The Safety Precautions shown below are to help you use the product safely and correctly, and to prevent injury or damage to you, other people, and assets beforehand.

The directions are ranked according to degree of potential danger or damage: “DANGER!”, “WARNING!”, “CAUTION!”, and “ATTENTION!”

 DANGER	Expresses situations that can be clearly predicted as dangerous. If the noted danger is not avoided, it could result in death or serious injury. It could also result in damage or destruction of assets.
 WARNING	Expresses situations that, while not immediately dangerous, could become dangerous. If the noted danger is not avoided, it could result in death or serious injury. It could also result in damage or destruction of assets.
 CAUTION	Expresses situations that, while not immediately dangerous, could become dangerous. If the noted danger is not avoided, it could result in light or semi-serious injury. It could also result in damage or destruction of assets.
 ATTENTION	While there is little chance of injury, this content refers to points that should be observed for appropriate use of the product.

- This product was designed and manufactured as parts for use in General Industrial Machinery.
- In the selection and handling of the equipment, the system designer or other person with fully adequate knowledge and experience should always read the Safety Precautions, Catalog, Owner’s Manual and other literature before commencing operation. Making mistakes in handling is dangerous.
- The customer should take responsibility to verify that the product is compatible with the customer’s systems. Use the product based on your good judgment.
- After reading the Owner’s Manual, Catalog, etc., always place them where they can be easily available for reference to users of this product.
- If transferring or lending the product to another person, always attach the Owner’s Manual, Catalog, etc., to the product where they are easily visible, to ensure that the new user can use the product safely and properly.
- The danger, warning, and caution items listed under these “Safety Precautions” do not cover all possible cases. Read the Catalog and Owner’s Manual carefully, and always keep safety first.

DANGER

- Do not use the product for the purposes listed below:
 1. Medical equipment related to maintenance or management of human lives or bodies.
 2. Mechanical devices or equipment designed for the purpose of moving or transporting people.
 3. Critical safety components in mechanical devices.

This product has not been planned or designed for purposes that require advanced stages of safety. It could cause injury to human life.
- Do not use the product in locations with or near dangerous substances such as flammable or ignitable substances. It could ignite or burst into flames.
- When mounting the product and workpiece, always firmly support and secure them in place. Dropping or falling the product or improper operation could result in injury.
- Persons who use a pacemaker, etc., should keep a distance of at least 1 meter away from the product. There is a possibility that the pacemaker will malfunction due to the strong magnet built into the product.
- Never attempt to remodel the product. It could result in abnormal operation leading to injury, electric shock, fire, etc.
- Never attempt inappropriate disassembly, or assembly of the product relating to its basic inner construction, or to its performance or functions. It could result in injury, electric shock, fire, etc.
- Do not splash water on the product. Spraying it with water, washing it, or using it underwater could result in malfunction of the product leading to injury, electric shock, fire, etc.

WARNING

- Do not use the product in excess of its specification range. Such use could result in product breakdowns, function stop, damage, or drastically reduce the operating life.
- If using the product in the locations listed below, implement adequate shielding measures. Failure to take these measures may cause erratic operation and lead to equipment damage and/or injuries:
 1. Locations subject to large electric current or magnetic fields
 2. Locations with the possibility of exposure to radiation
- Design safety circuits and equipment systems so as to avoid equipment damage or personal injury when the machine is shut down due to an emergency stop, power outages, or other system abnormalities.
- Do not use the same conduit or parallel wiring with power lines and high voltage lines. The resulting noise may lead to erratic operation of the EP Sensor and EP Monitor.
- Always shut off the power supply when performing wiring work. There is a possibility of electric shock.
- Check the Catalog, etc., to ensure that product wiring is performed correctly. Miswiring could result in damage to the EP Sensor and EP Monitor, etc., or in abnormal operation.

- When wiring is completed, check that there are no errors in the wiring connections before switching on the power.
- Correctly apply the specified voltage to the EP Sensor and EP Monitor. Applying of the wrong voltage will prevent the equipment from performing its specified functions, and may result in damage or burnout of the product itself.
- Do not insert or pull out the connector while the device is powered on. Also, do not apply unnecessary stress to the connector. It could result in erratic operation of the equipment leading to personal injury, damage to equipment, or electric shock, etc.
- Do not touch the terminals and the miscellaneous switches, etc., while the device is powered on. There is a possibility of electric shock and abnormal operation.
- Avoid scratching the cords of cables, etc. Letting the cords be subject to scratching, excessive bending, pulling, rolling up, or being placed under heavy objects or squeezed between two objects, may result in current leaks or defective continuity that could lead to fire, electric shock, or abnormal operation.
- Do not throw the product into fire. The product could explode and/or release toxic gases.
- Do not sit on the product, place your foot on it, or place other objects on it. Accidents such as falling could result in injury. Dropping or toppling the product may result in injury, or it might also damage or break it, resulting in abnormal or erratic operation, runaway, etc.
- For inspection, maintenance, replacement, or other kinds of operations related to the product, always completely turn off the power supply before beginning.

CAUTION

- Do not use the product in locations that are subject to direct sunlight (ultraviolet rays), dust, salt, iron powder, high humidity, or in the ambient atmospheres that include organic solvents, phosphate ester type hydraulic oil, sulphur dioxide, chlorine gas, acids, etc. It could lead to an early shutdown of some functions or a sudden degradation of performance, and result in a reduced operating life.
- The EP Sensor and EP Monitor use delicate electronic parts inside. When handling, do not strike, drop, or bump the product so that it is not subjected to excessive shocks. Even if it does not appear to be damaged, internal parts could be damaged and erratic operation could occur.
- When installing the product, leave room for adequate working space around it. Failure to ensure adequate working space will make it more difficult to conduct daily inspections or maintenance, which could eventually lead to system shutdown or damage to the product.
- Always post an “operations in progress” sign for installations, adjustments, or other operations, to avoid unintentional supplying of electrical power, etc. Such accidental supplies may cause electric shock or sudden activation of the product that could result in physical injury.

⚠ ATTENTION

- When considering the possibility of using this product in situations or environments not specifically noted in the Catalog or Owner's Manual, or in applications where safety is an important requirement such as in an airplane facility, combustion equipment, leisure equipment, safety equipment, and other places where human life or assets may be greatly affected, take adequate safety precautions such as an application with enough margins for ratings and performance or fail-safe measure.
Be sure to consult us about such applications.
- Always check the Owner's Manual and other reference materials for product wiring.
- When handling the product, wear protective gloves, safety glasses, safety shoes, etc., to keep safety.
- Perform daily inspections to check that system functions are performing as required to prevent accidents from happening beforehand.
- When the product can no longer be used, or is no longer necessary, dispose of it appropriately as industrial waste.
- Equipment performance and function can deteriorate over the service lifetime. Perform daily equipment inspections to check that the required system functions are being satisfied and to prevent accidents before they happen.

⚠ OTHERS

- Always observe the following items.
 - When using this product into systems, always use genuine KOGANEI parts or compatible parts (recommended parts).
When performing maintenance and repairs, always use genuine KOGANEI parts or compatible parts (recommended parts).
Always observe the required methods and procedure.
 - Never attempt inappropriate disassembly or assembly of the product relating to basic construction, or its performance or functions.

Koganei cannot be responsible if these items are not properly observed.

Handling Instructions and Precautions



General precautions

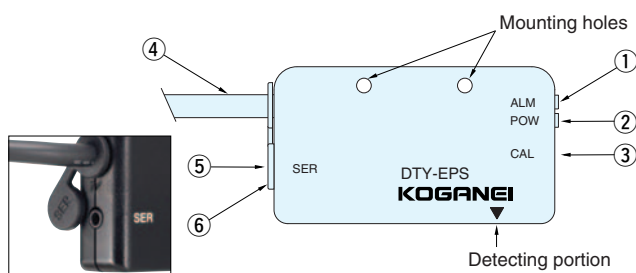
Wiring

- When using a switching regulator obtained on the market for the power supply, always ground the frame ground (F.G.) terminal.
- When using equipment (switching regulator, inverter motor, etc.) that can become a source of noise around the EP Sensor mounting area, always ground the equipment frame ground (F.G.) terminal.
- When wiring is completed, check that there are no errors in the wiring connections.

Others

- Check power supply fluctuations to ensure that power input does not exceed the rated value.
- Avoid use during the transient period (0.5s) when the power is switched on.
- Do not use needle tips or other sharp points to perform key operation.

Major parts and functions of EP Sensor



Handling Instructions and Precautions

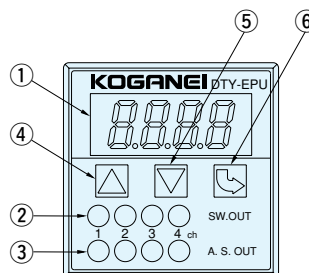
	Name	Description
①	Alarm LED (red)	Blinks when judgment output is ON, lights up when sensor abnormality occurs
②	Power LED (green)	Lights up when power supply is ON
③	Calibration switch	Executes zero calibration, outputs reset after judgment output
④	Cable	Power and signal wiring connection
⑤	Communication cable jack	Communication cable connection for setting
⑥	Dust cover	Rubber cover for protection against dust

- For mounting the EP Sensor, use either the screws provided (M3×0.5, length 18mm [0.709in.]) or M3×0.5 screws. Use a tightening torque of 0.4N·m [3.5in·lbf]. Be careful when tightening, since over-tightening will damage the EP Sensor.
- Always perform grounding. Because measurement of electric potential uses the ground electric potential as the reference, the electric potential cannot be accurately measured unless connected to a ground.
- The EP Sensor body is connected to a ground. Be sure to provide adequate insulation when mounting in a location subject to applying voltages.
- Do not touch the detecting portion. Also, do not let high pressure air blow against it. The detecting portion could be damaged.
- Ensure a dust-free environment around the detecting portion.
- If the detecting portion requires cleaning, position the detecting portion so that it faces downward, and blow air at a pressure of 0.1MPa [14.5psi] or less from a distance of at least 100mm [3.94in.].
- Where stability in electric potential detection is needed, a wait of at least 15 minutes after the power supply is switched on before starting operation is recommended.
- This sensor measures the strength of electric field to calculate the voltage value. As a result, be aware that the presence of items capable of disturbing the electric field (relays, solenoids, metal chips, etc.) near the sensor, or between the sensor and the item being measured, could affect the measurement value.

Zero calibration

- Zero calibration is a function for adjusting the reference electric potential where the measured value is 0V. The 0V electric potential is recorded at space where no metal plate or charged object is connected to the ground.
- When the power supply is connected and the operation mode is switched between the ion balance monitor mode and averaged data output mode, or between the ion balance monitor mode and actual measured data output mode, the reference electric potential is automatically set to the ground electric potential connected to the body.

Major parts and functions of EP Monitor



	Name	Description
①	LED display (red)	Displays the detected electric potential value, setting contents, and error content
②	Switch output indicator (red)	Lights up when switch output is ON
③	Autoscan indicator (green)	Channel displaying current electric potential lights up
④	UP key (▲)	Used when adjusting setting value upward
⑤	DOWN key (▼)	Used when adjusting setting value downward
⑥	Mode key (⏏)	Used for all types of settings

- Since miswiring in the EP Sensor, or in the power supply, switch, and communication cable, can damage both the EP Monitor and EP Sensor, always check the wiring before switching on the power.
- The setting conditions are written to EEPROM and saved. Be aware that EEPROM has a finite lifetime, with a write guarantee times up to 100,000 times.

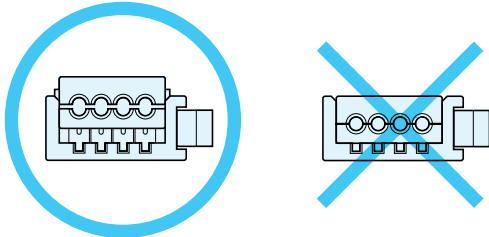


Mounting and wiring

Sensor and connector connection procedure

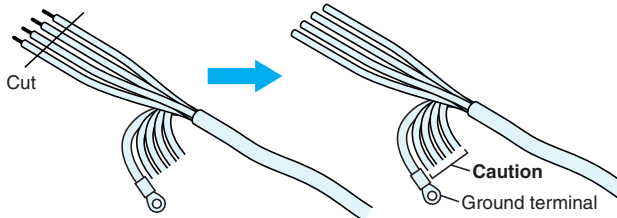
Connect the EP Sensor **DTY-EPS** and the mini clamp connector. Follow the procedure below to perform the connections.

1. Check that the connector cover (the part where lead wire is inserted) is protruding from the connector body.



It cannot be used if it's flat and placed at the same level against the body.

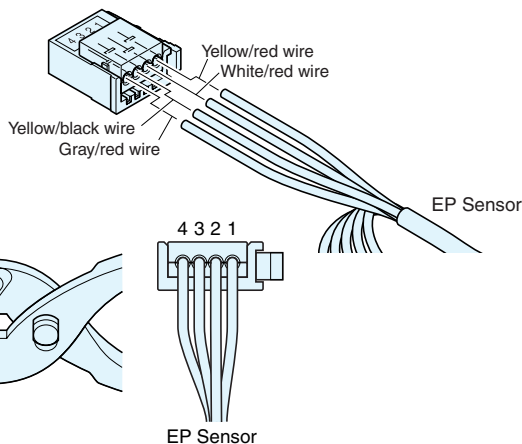
2. Arrange the EP Sensor cable into the required form. Since the insulation on the tip of the lead wire has been peeled off and soldered, cut the wires at about 10mm [0.39in.] from the tip so that it does not protrude from the insulation.



Caution: Prepare any unused lead wires so that they will not short circuit.

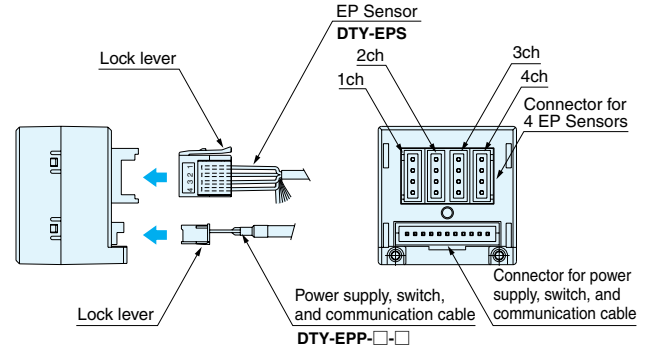
3. Follow the instructions in the table to insert the lead wires into the hole in the connector cover. Look through the top of the semi-transparent cover to check that the lead wires have been firmly inserted all the way to the back. (Insertion is about 9mm [0.35in.]) Use caution in making the connections, since switching on the power with mistakes in the connections will damage the EP Sensor and EP Monitor.

No. on the connector	Signal name	Color of lead wire
1	EP Sensor power supply (+)	EP Sensor yellow/red wire
2	EP Sensor analog output	EP Sensor white/red wire
3	EP Sensor power supply (0V)	EP Sensor yellow/black wire
4	EP Sensor abnormality	EP Sensor gray/red wire



4. Taking care to avoid letting the lead wire slip out from the connector, use pliers or some other hand tool to crimp the cover and connector body, and push the cover into the connector body. Limit the crimping force to 980.7N [220lbf.] or less. When the cover is flat and placed at the same level against the connector body, the connection is complete.
5. Check one more time that the wiring is correct.

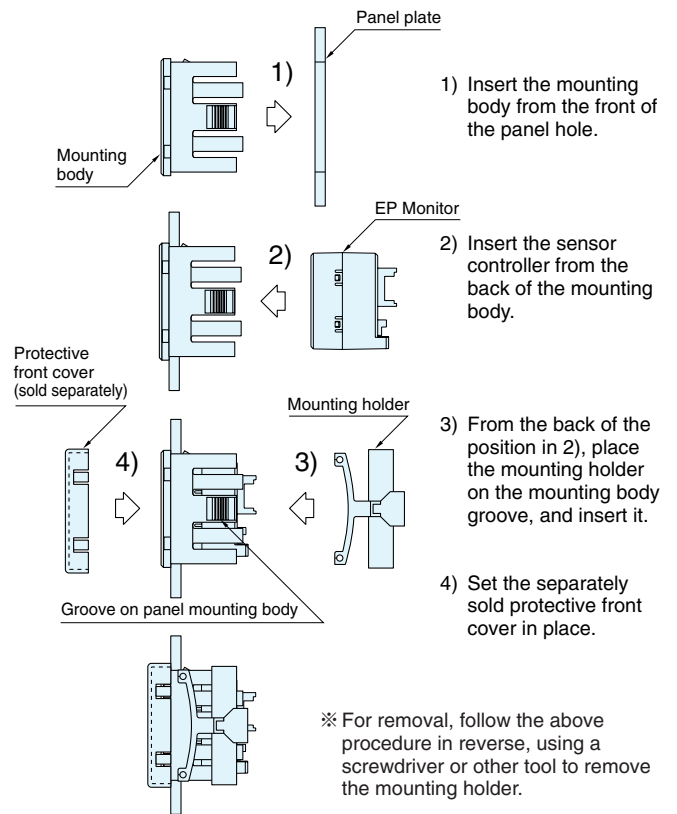
Attaching and removing of the EP Sensor, and the power supply, switch, and communication cable



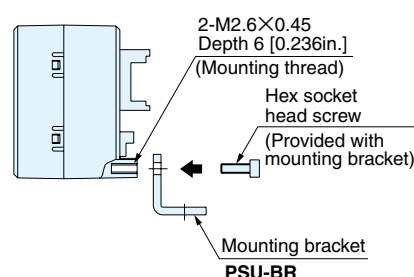
To mount the EP Sensor and the power supply, switch, and communication cable, align the lock lever position as shown in the figure, and push until the lock hooks on the controller-side connector.

To remove, push down hard on the lock lever, take the connector and pull it out. At this time, be careful to avoid applying unnecessary force on the lead wires.

Attaching the panel mounting parts and protective front cover



Attaching the mounting bracket



Use the hex socket head screws (M2.6×0.45, length 5mm [0.197in.]) to mount the mounting bracket into the mounting holes on the back of the sensor controller. The tightening torque should be 0.32N·m [2.83in·lbf].

EP Sensor Specifications

Item	Model	DTY-EPS	DTY-EPS-10L
Voltage		24VDC ± 10%	
Current		Max. 50mA	
Measurement range		5~50mm [0.20~1.97in.]	
Accuracy		±5%rdg ±2dig	
Judgment output	Method	NPN transistor open collector	
	Applied voltage	30VDC or less	
	Sink current	20mA or less	
Sensor abnormality output	Method	NPN transistor open collector	
	Applied voltage	30VDC or less	
	Sink current	20mA or less	
Analog output	Output voltage	1~5V	
	Zero point	3V	
Communication I/F		Conformity with RS232C	
Sampling period		Approximately 10ms	
Data output cycle		100ms, 200ms, 500ms, 1s	
Input/output response time (for averaged data output mode) ^{Note 1}		Maximum of double the data output cycle	
Temperature characteristics		-0.5% F.S./°C	
Operating temperature range		0~40°C [32~104°F]	
Operating humidity range		80% RH or less (no condensation)	
Storage temperature range		-20~60°C [-4~140°F]	
Cable length		3m [9.84ft.]	10m [32.8ft.]
Case material		Conductive ABS resin	
Outer dimensions		61.2(W)mm × 34.2(H)mm × 15.0(D)mm	
Mass		Approximately 30g [1.06oz.] ^{Note 2}	
Accessories		L shaped mounting bracket 1 pec. (with 2 mounting screws)	

Notes: 1. Response time in the actual measured data output mode is 100ms or less.

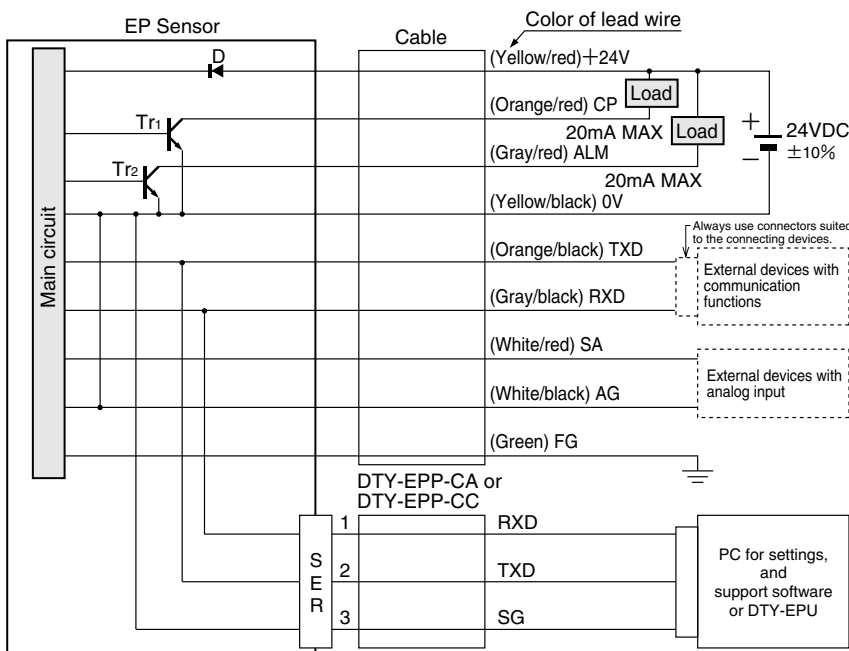
2. Does not include the mass of the cable.

Remark: If not specified, the measurement condition assumes an ambient temperature of 25°C.

Measurement distance and measurement voltage range

Measurement distance	Maximum voltage	Resolution
Ion balance mode	±1kV	2V
5~10mm [0.20~0.39in.]	±5kV	10V
11~20mm [0.43~0.79in.]	±10kV	20V
21~30mm [0.83~1.18in.]	±15kV	30V
31~40mm [1.22~1.57in.]	±20kV	40V
41~50mm [1.61~1.97in.]	±20kV	40V

EP Sensor Output Circuit and Cable Signal Table



Cable signal table

No.	Color	Signal name	Description
1	Orange/black	TXD	Communicating and sending data
2	Orange/red	CP	Voltage comparison output (Judgment output)
3	Gray/black	RXD	Communicating and receiving data
4	Gray/red	ALM	Sensor abnormality
5	White/black	AG	Analog GND
6	White/red	SA	Analog output
7	Yellow/black	0V	Power supply GND
8	Yellow/red	+24V	Power supply +24V
9	Green	FG	Frame GND

SER jack signal table

No.	Signal name	Description
1	RXD	Communicating and receiving data
2	TXD	Communicating and sending data
3	SG	Signal GND (Power supply GND)

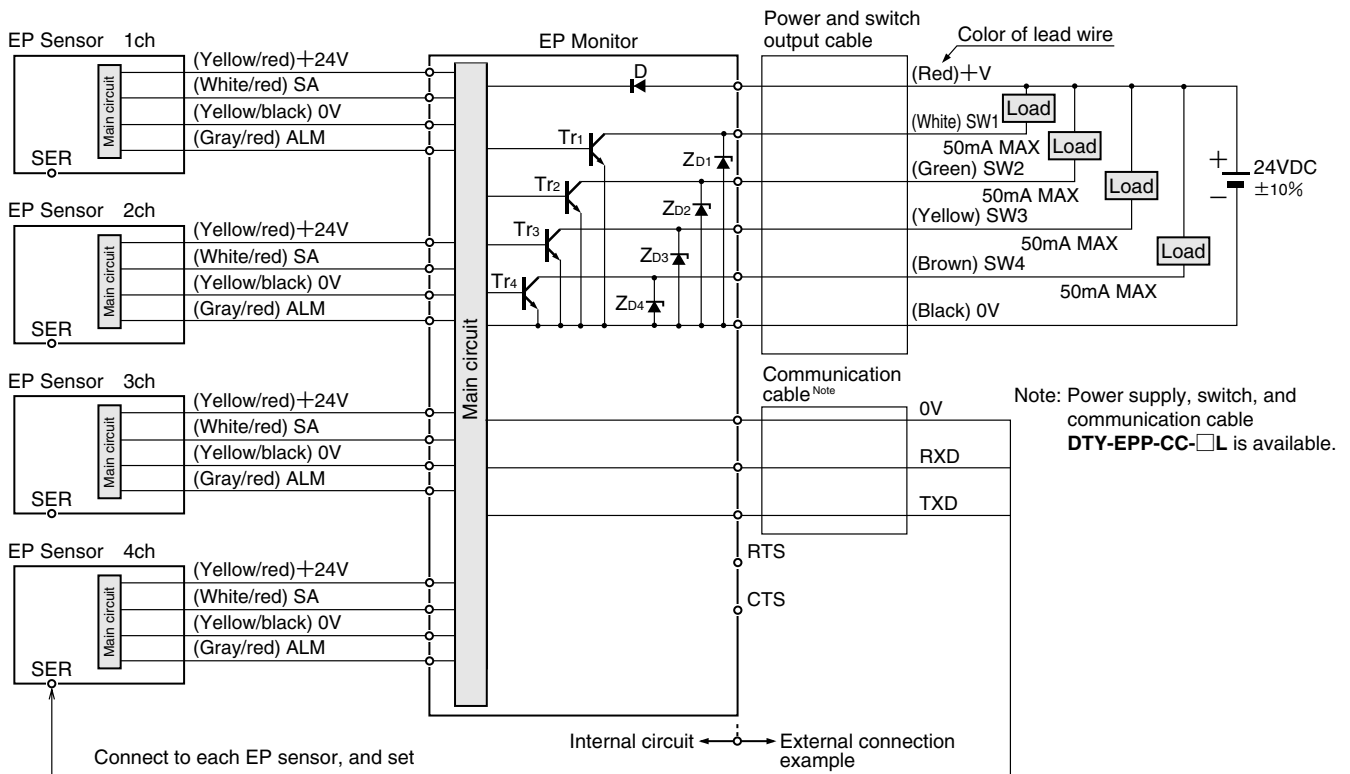
EP Monitor Specifications

Item	Model	DTY-EPU
Voltage		24VDC ± 10%
Current		100mA MAX ^{Note 1}
Sensor input	Number of inputs	4 channels
	Voltage range	1 ~ 5VDC
	Maximum applied voltage	5.3V
Switch output	Number of outputs	4
	Method	NPN open collector
	Applied voltage	30VDC MAX
	Current	50mA MAX
	Voltage drop	0.3V MAX/At 5mA
Electric potential display		7-segment LED 4 digits, Unit: kV (with decimal point) ^{Note 2}
Switch output check display		Red LED 4 pcs.
Input channel check display		Green LED 4 pcs.
Setting key switch		Pushbutton type, 3 keys (UP, DOWN, MODE)
Communication I/F		Conformity with RS232C
Operating temperature range		-10 ~ 50°C [14 ~ 122°F]
Operating humidity range		35 ~ 80%RH
Storage temperature range		-20 ~ 80°C [-4 ~ 176°F]
Case material		PBT
Outer dimensions		40(W)mm × 40(H)mm × 32(D)mm
Mass		Approximately 45g [1.59oz.]
Accessories		Mini clamp wire mount plug 4 pcs.

Notes: 1. At EP Sensor in unconnected state

2. When in the ion balance monitor mode, the unit is V (no decimal point).

Internal Circuit and Wiring Specifications



Note: When the cable is extended, be aware that voltage will drop due to resistance in the cable.

Key to codes D: Reverse current protection diode for power supply
ZD1 ~ ZD4: Zener diode for surge voltage absorption
Tr1 ~ Tr4: NPN output transistor

Order Codes

EP Sensor

DTY - EPS - []

EP Sensor series

Cable length
Blank: 3m [9.84ft.]
10L: 10m [32.8ft.]

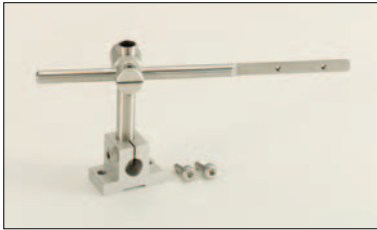


Note: The EP Sensor is provided with an L shaped bracket (with 2 mounting screws) for mounting.

Additional parts (to be ordered separately)

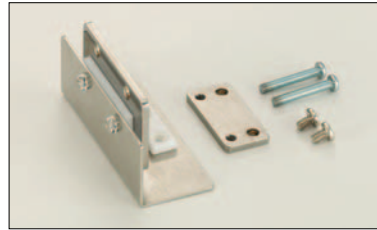
Component bracket

●DTY-EPP-BR2



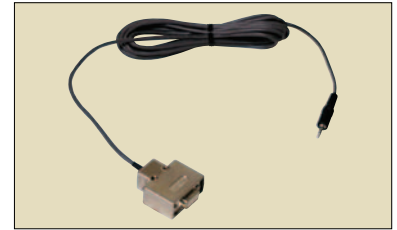
Monitor plate

●DTY-EPP-MP



Communication cable for EP Sensor (3m)

●DTY-EPP-CA-3L



EP Monitor

DTY - EPU - [] - [] - []

※Comes with 4 pcs. mini clamp wire mount plugs.



Power supply, switch, and communication cable

Blank: No cable

3L: With 3m [9.84ft.] cable <DTY-EPP-CB-3L or equivalent>

10L: With 10m [32.8ft.] cable <DTY-EPP-CB-10L or equivalent>

3LD: With 3m [9.84ft.] cable (with communication cable) <DTY-EPP-CC-3L or equivalent>

10LD: With 10m [32.8ft.] cable (with communication cable) <DTY-EPP-CC-10L or equivalent>

Protective front cover^{Note}

Blank: Without protective front cover

C: With protective front cover

Note: The protective front cover can only be selected when the panel mounting parts are selected.

Mounting part

Blank: None

B: With mounting bracket

P: With panel mounting parts

Additional parts (to be ordered separately)

Power supply, switch, and communication cable

●DTY - EPP - [] - []

Communication cable

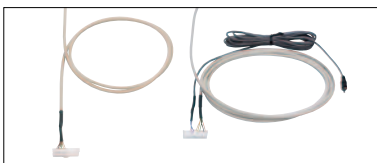
CB: No communication cable

CC: With communication cable

Cable length

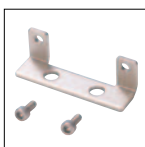
3L: 3m [9.84ft.]

10L: 10m [32.8ft.]



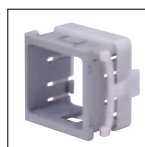
Mounting bracket

●PSU-BR



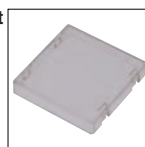
Panel mounting parts

●PM100



Protective front cover

●KB100



Mini clamp wire mount plug

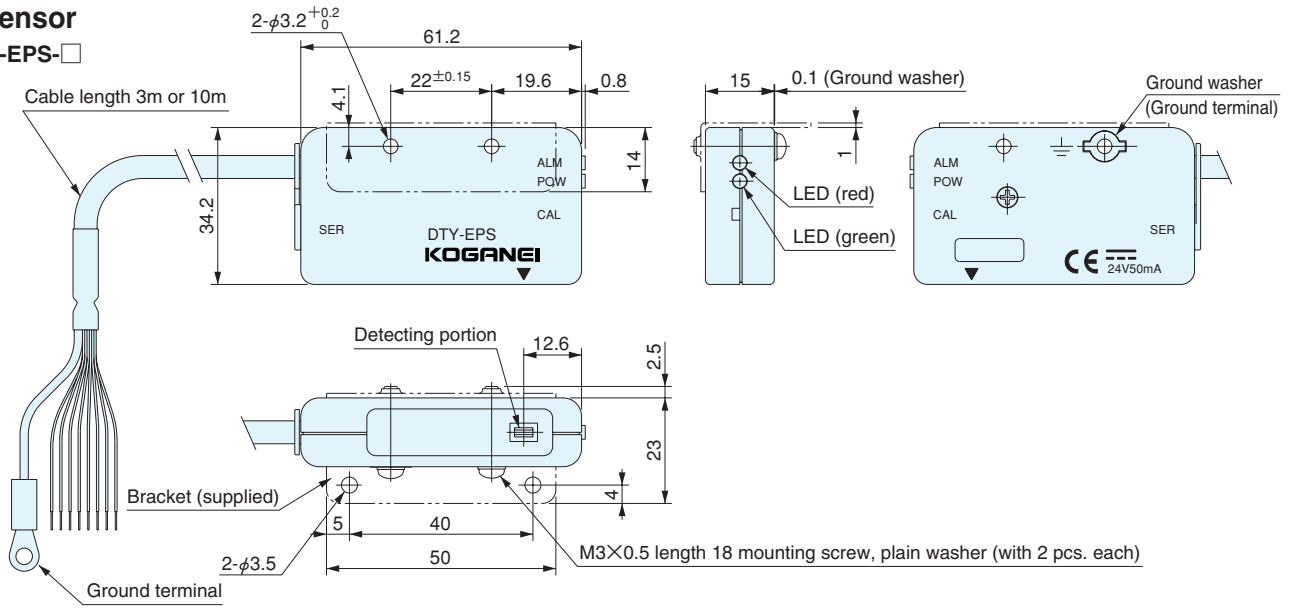
●PSU-M



Dimensions (mm)

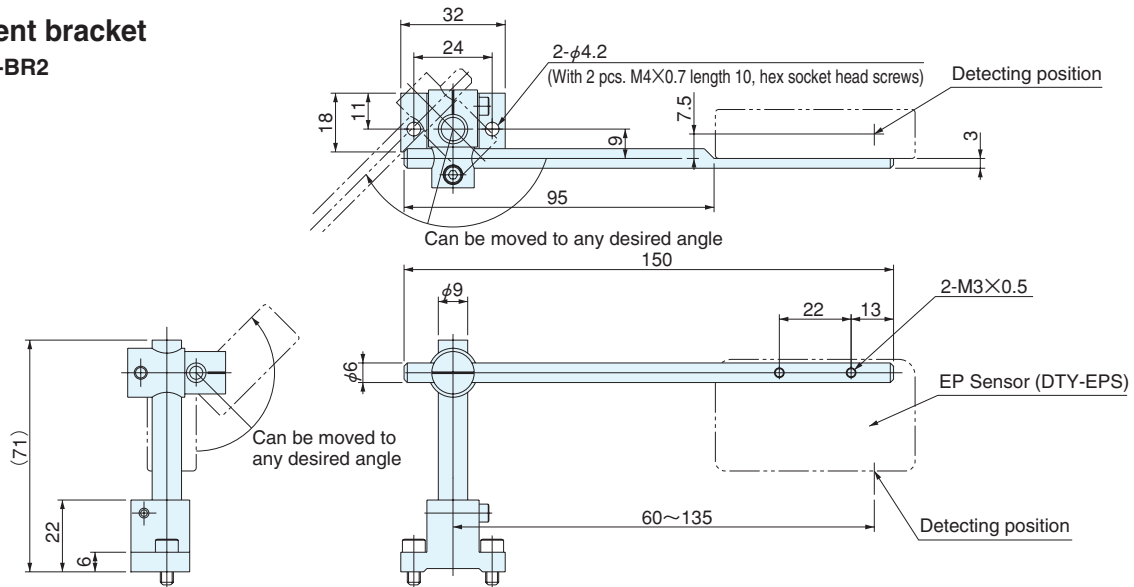
EP Sensor

● DTY-EPS-□



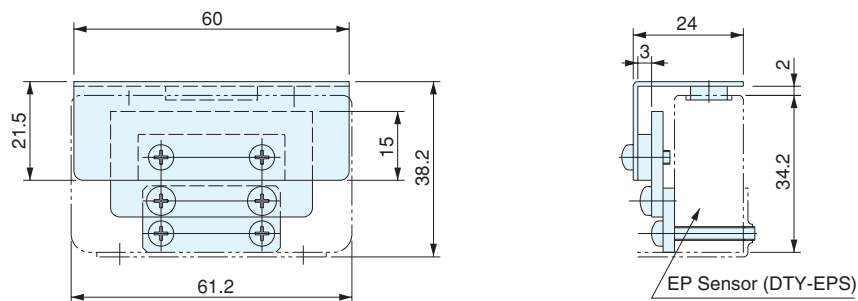
Component bracket

● DTY-EPP-BR2



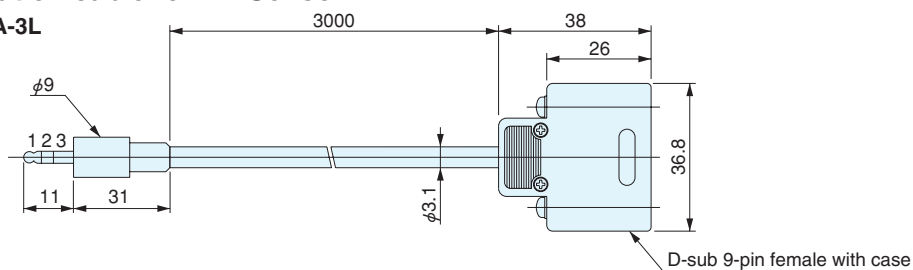
Monitor plate

● DTY-EPP-MP



Communication cable for EP Sensor

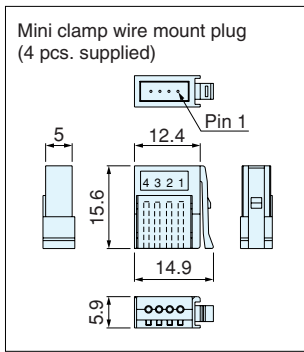
● DTY-EPP-CA-3L



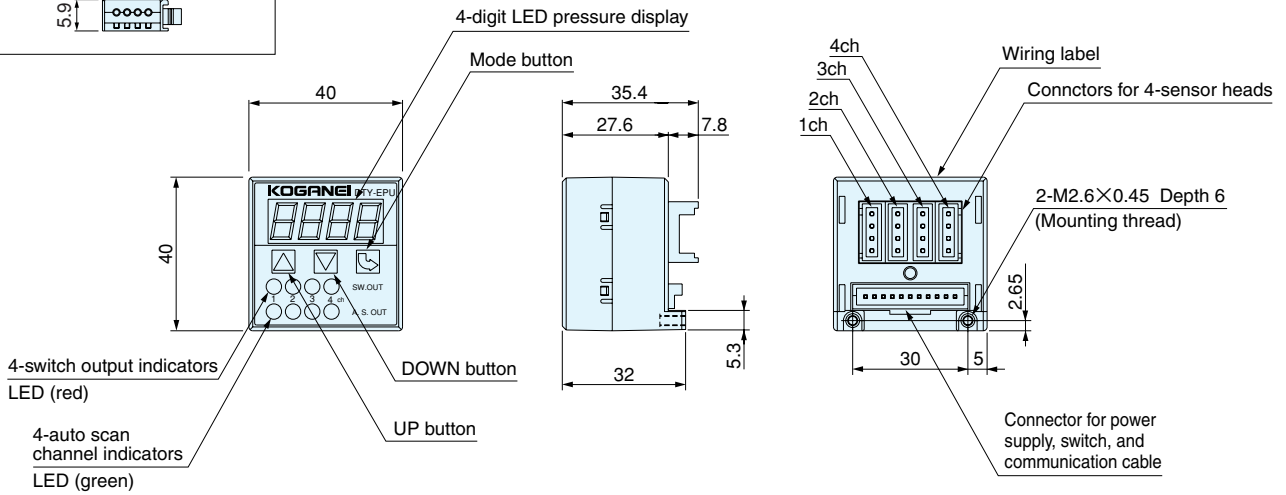
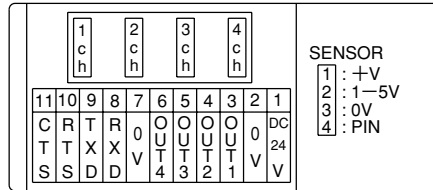
Dimensions (mm)

EP Monitor

● DTY-EPU-□



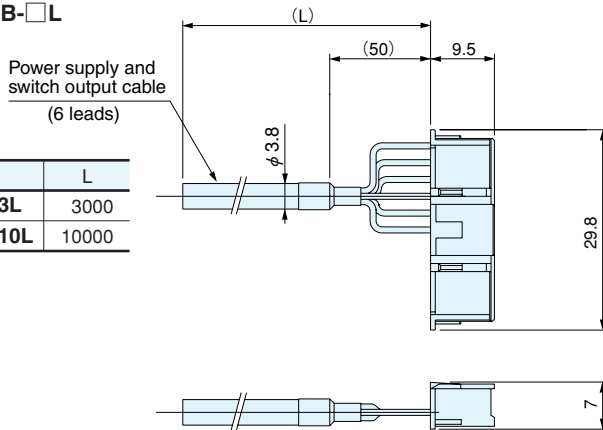
Wiring label enlarged view



Power Supply and Switch Cable

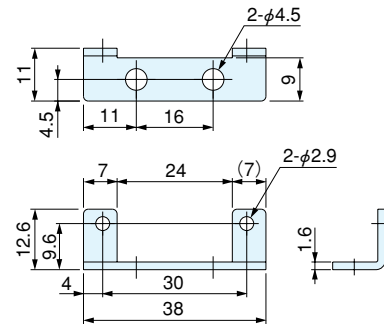
● DTY-EPP-CB-□L

Model	L
DTY-EPP-CB-3L	3000
DTY-EPP-CB-10L	10000



Mounting Bracket

● PSU-BR

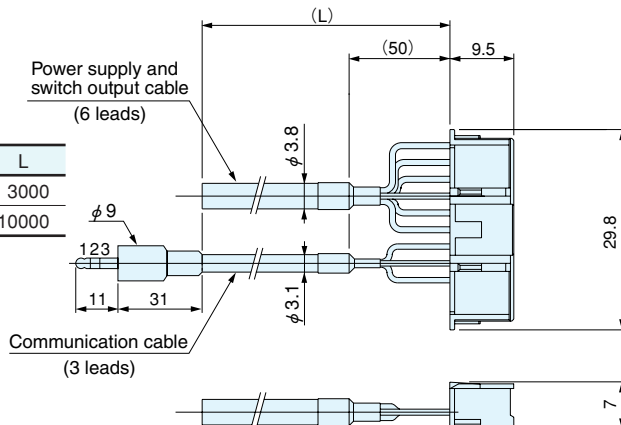


With 2 hex socket head screws
M2.6×0.45 length 5

Power Supply, Switch, and Communication Cable

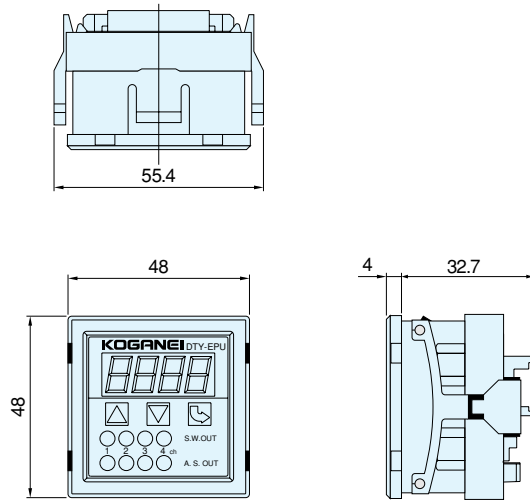
● DTY-EPP-CC-□L

Model	L
DTY-EPP-CC-3L	3000
DTY-EPP-CC-10L	10000

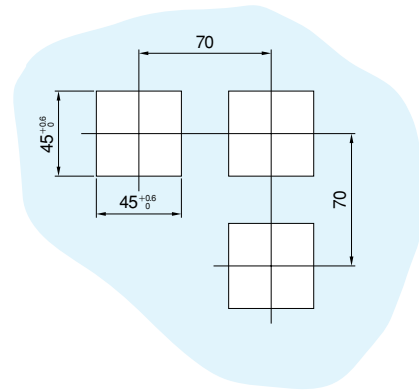


Panel Mounting Parts Installed Diagram

● DTY-EPU-P (Panel mounting parts installed diagram)



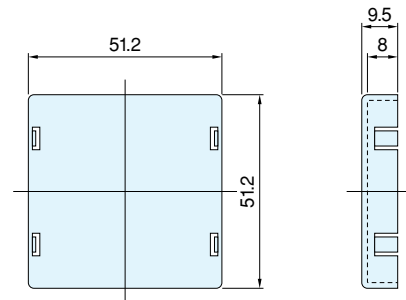
● Machining dimensions for the EP Monitor mounting hole



Notes: 1. Use a mounting panel thickness of 1 to 3.2mm.
 2. If mounting in adjacent positions, make the interval larger than the value shown in the figure above.
 3. Conforms to DIN43700.

Protective front cover

● KB100



Limited Warranty

KOGANEI CORP. warrants its products to be free from defects in material and workmanship subject to the following provisions.

Warranty Period The warranty period is 180 days from the date of delivery.

Koganei Responsibility If a defect in material or workmanship is found during the warranty period, KOGANEI CORP. will replace any part proved defective under normal use free of charge and will provide the service necessary to replace such a part.

Limitations

- This warranty is in lieu of all other warranties, expressed or implied, and is limited to the original cost of the product and shall not include any transportation fee, the cost of installation or any liability for direct, indirect or consequential damage or delay resulting from the defects.

- KOGANEI CORP. shall in no way be liable or responsible for injuries or damage to persons or property arising out of the use or operation of the manufacturer's product.

- This warranty shall be void if the engineered safety devices are removed, made inoperative or not periodically checked for proper functioning.

- Any operation beyond the rated capacity, any improper use or application, or any improper installation of the product, or any substitution upon it with parts not furnished or approved by KOGANEI CORP., shall void this warranty.

- This warranty covers only such items supplied by KOGANEI CORP. The products of other manufacturers are covered only by such warranties made by those original manufacturers, even though such items may have been included as the components.

The specifications are subject to change without notice.

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KOGANEI CORPORATION

OVERSEAS DEPARTMENT

3-11-28, Midori-cho, Koganei City, Tokyo 184-8533, Japan
Tel: 042-383-7271 Fax: 042-383-7276

MICHIGAN REPRESENTATIVE OFFICE

5070 East N Ave., Kalamazoo, Michigan, 49048, U.S.A.
Tel: 269-388-8769 Fax: 269-388-8771

SHANGHAI KOGANEI INTERNATIONAL TRADING CORPORATION

Room 2606-2607, Tongda Venture Building No.1, Lane 600, Tianshan Road, Shanghai, 200051, China
Tel: 021-6145-7313 Fax: 021-6145-7323

KOGANEI-PORNCHAI CO., LTD.

89/174 Moo 3, Vibhavadee Rangsit Road, Talad Bangkhen, Laksi, Bangkok, 10210, Thailand
Tel: 02-551-4025 Fax: 02-551-4015