Ionizer (Nozzle type)

Series IZN10

Features

- *Slim and compact: 16mm thickness.*
- *Nozzle selectable: Energy saving and large flow types.*
- *±10V ion balance: High frequency AC ion generation method.*
- *Contaminated electrode needle detection function.*
- *Electrode needle (cartridge) easy replacement.*
- *Mounting options: Direct and bracket mounting.*
- *CE marked and RoHS compliant.*

How to Order

IZN10– 01 P 06 –

High frequency AC nozzle type

Nozzle type

Symbol	Type	
01	Energy saving static electricity elimination nozzle	
02	High flow rate nozzle	
11	Female threads for piping Note)	Rc1/8

Note) Used with a fitting and a tube on the end

Output specification

—	NPN output
P	PNP output

Port size

06	ø6: Metric size
07	ø6.35 (1/4): Inch size
16	ø6: Metric size (Elbow)
17	ø6.35 (1/4): Inch size (Elbow)

Power supply cable

—	With power supply cable (3 m)
Z	With power supply cable (10 m)
N	Without power supply cable

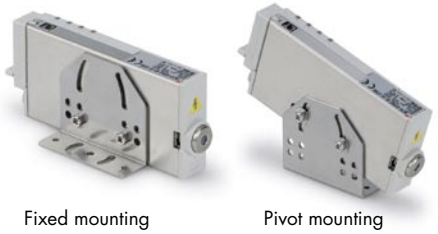
Bracket

—	Without bracket
B1	With L-bracket
B2	With pivoting bracket
B3	With DIN rail mounting bracket

How to Order Accessories

Bracket

IZN10-B1



Fixed mounting　Pivot mounting

IZN10-B2

• Pivoting bracket

DIN rail mounting bracket

IZN10-B3

Manifold　Single unit

Power supply cable (3 m)

IZN10-CP

AC adapter

IZN10-F-X196

Electrode needle cleaning kit

IZS30-M2

FOR MORE DETAILS
SEE OUR SPECIFIC CATALOGUES,
PRODUCTS CD's OR ONLINE INFORMATION

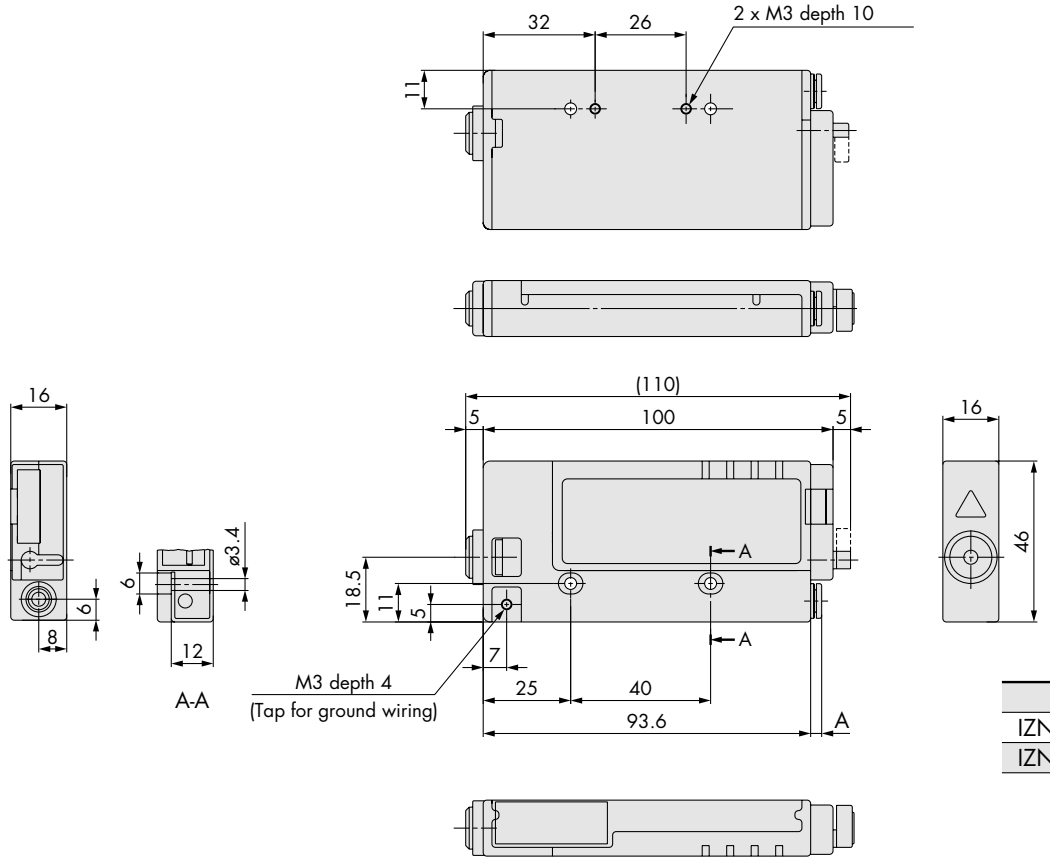
Specifications

Ioniser model		IZN10-□□ (NPN specification)	IZN10-□□P (PNP specification)
Ion generation method		Corona discharge type	
Method of applying voltage		High frequency AC type	
Discharge output Note 1)		2,500 V	
Ion balance Note 2)	Energy saving static electricity elimination nozzle	Within ±10 V	
	High flow rate nozzle	Within ±15 V	
Ozone generation Note 3)		0.03 ppm (0.05 ppm for energy saving static electricity elimination nozzle)	
Air purge	Fluid	Air (Clean dry air)	
	Operating pressure Note 4)	0.05 MPa to 0.7 MPa	
	Connecting tube size	ø6 / ø1/4 inch	
Power supply voltage		24 VDC ±10%	
Current consumption		80 mA	
Input signal	Discharge stop signal	Connected to GND (ON voltage: 0.6 V or less) Current consumption: 5 mA or less	Connected to +24 V (ON voltage: Between +19 V and power supply voltage) Current consumption: 5 mA or less
	Reset signal		
	External switch signal		
Output signal	Discharge signal	Max. load current: 40 mA Residual voltage: 1 V or less (load current at 40 mA) Max. applied voltage: 28 VDC	Max. load current: 40 mA Residual voltage: 1 V or less (load current at 40 mA)
	Error signal		
	Maintenance signal		
Effective static electricity elimination distance		20 mm to 500 mm	
Ambient and fluid temperature		0 to 55°C	
Ambient humidity		35 to 65%RH	
Material		Housing: ABS, Stainless steel Nozzle: Stainless steel Electrode needle: Tungsten	
Vibration resistance		Durability: 50 Hz, Amplitude: 1 mm, XYZ each 2 hours	
Shock resistance		10 G	
Weight		120 g	
Standards/Directive		CE (EMC Directive: 2004/108/EC)	

Note 1) Measured with a probe of 1000 MΩ and 5 pF.
Note 2) Measured with a distance of 100 mm between the charged object and the ioniser at an air purge pressure of 0.3 MPa.
For the static electricity elimination time, refer to technical data.
Note 3) Value above background level, measured with a distance of 300 mm from the front of the nozzle at an air purge pressure of 0.3 MPa.
Note 4) Static electricity cannot be eliminated without an air purge.
Also, failure of the air purge can increase internal ozone condensation, adversely affecting the ioniser and peripheral equipment. Be sure to perform an air purge while energising the ioniser.

Dimensions

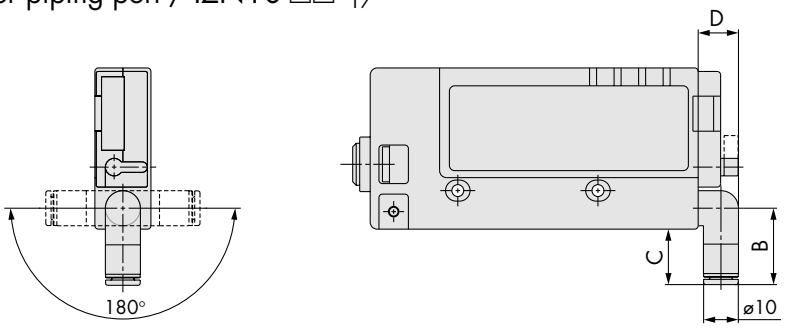
Energy saving static electricity elimination nozzle / IZN10-01□$^{06}_{07}$
High flow rate nozzle / IZN10-02□ $^{06}_{07}$



(mm)

Model	A
IZN10-$^{01}_{02}$□06 (mm)	3.5
IZN10-$^{01}_{02}$□07 (inch)	7

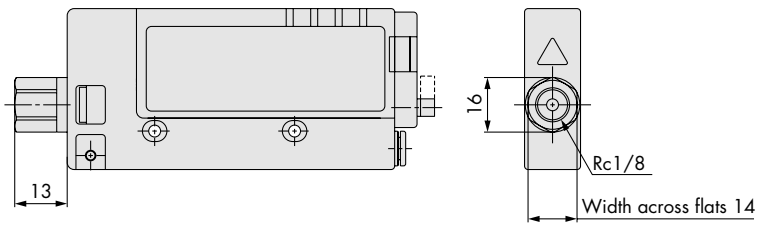
Elbow for piping port / IZN10-□□ $^{16}_{17}$



(mm)

Model	B	C	D
IZN10-□□16 (mm)	22	16	11.5
IZN10-□□17 (inch)	24.5	18.5	12

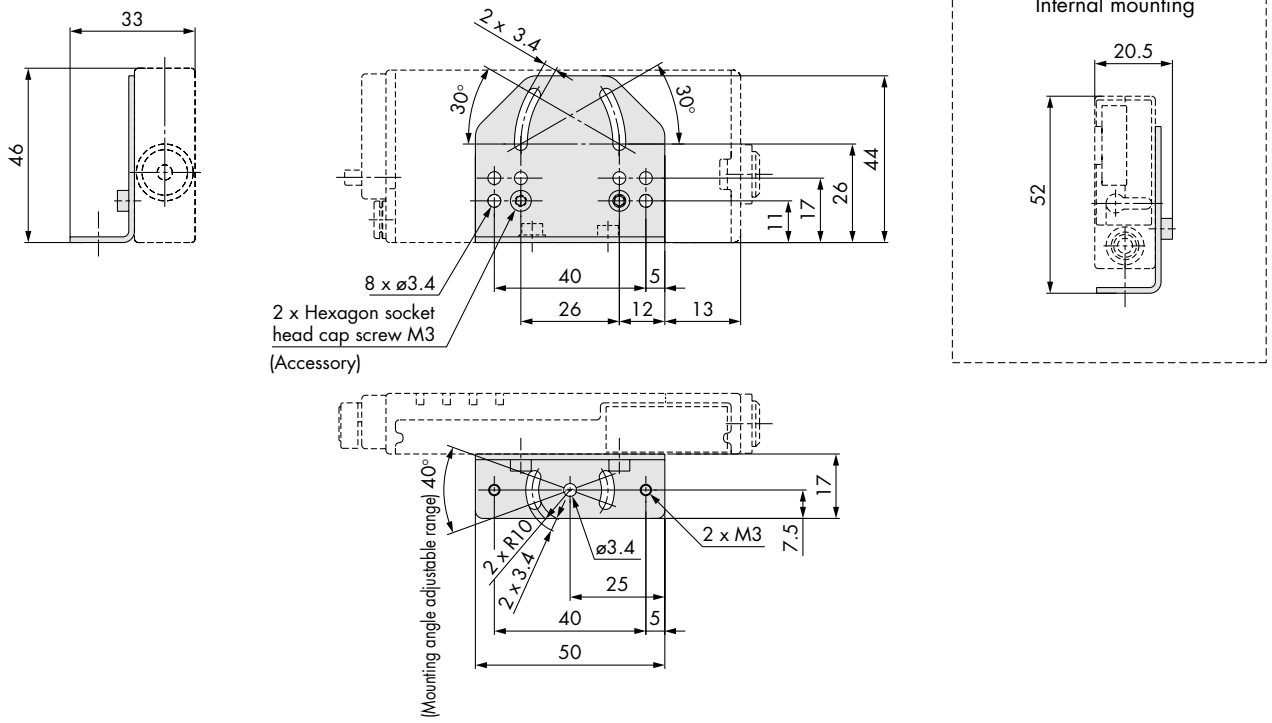
IZN10-11
Female threads for piping (Rc1/8)



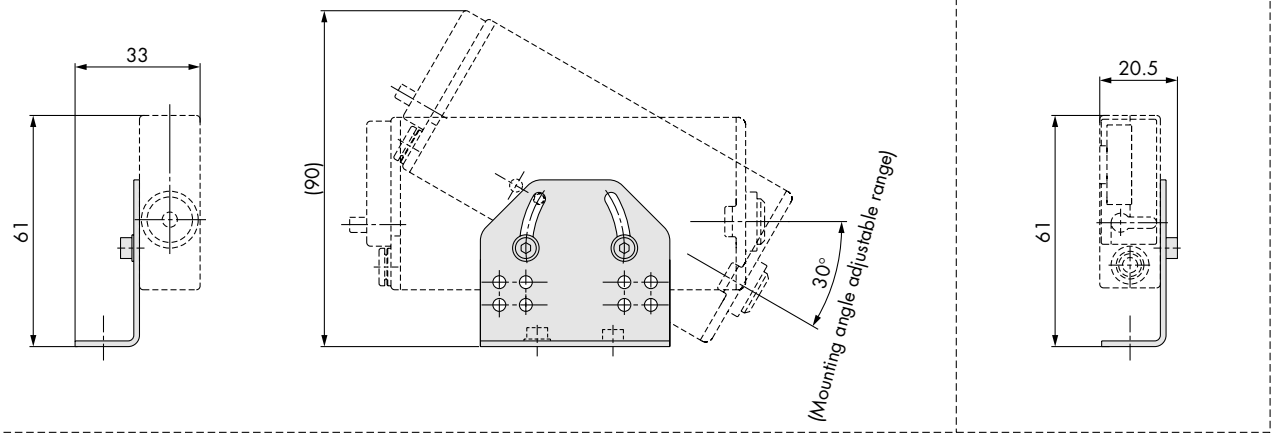
Sensors, Switches

Dimensions

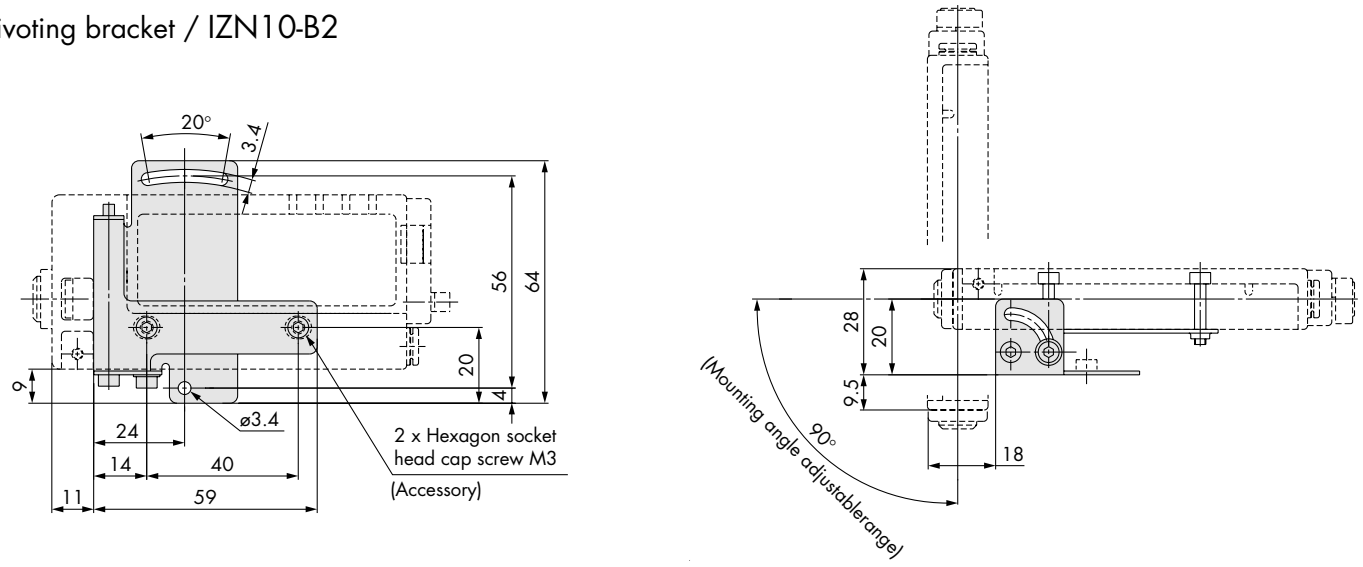
L-bracket / IZN10-B1



Pivot mounting

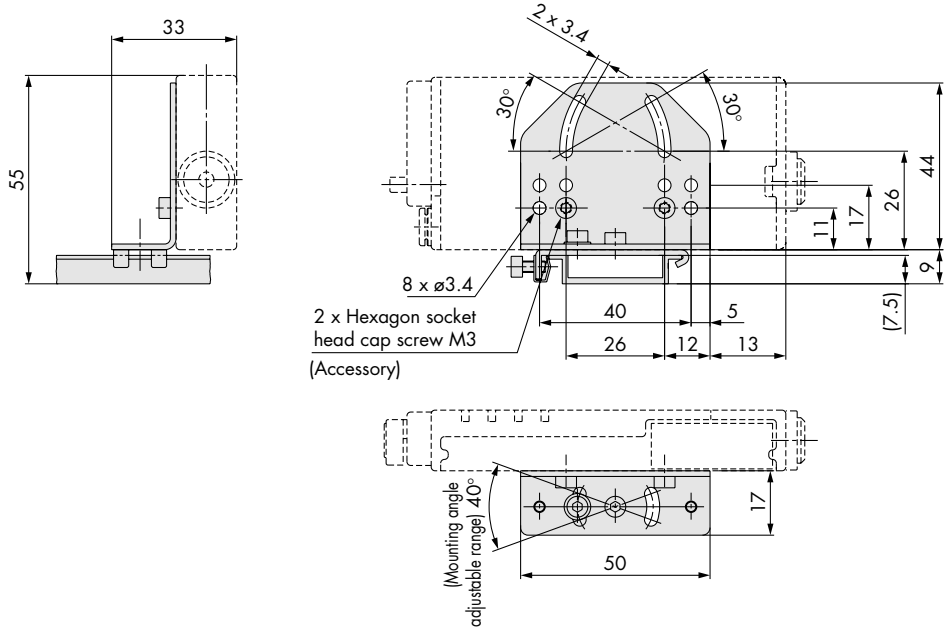


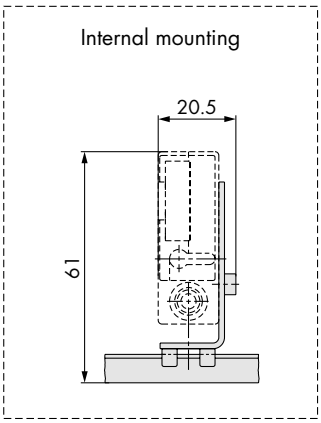
Pivoting bracket / IZN10-B2

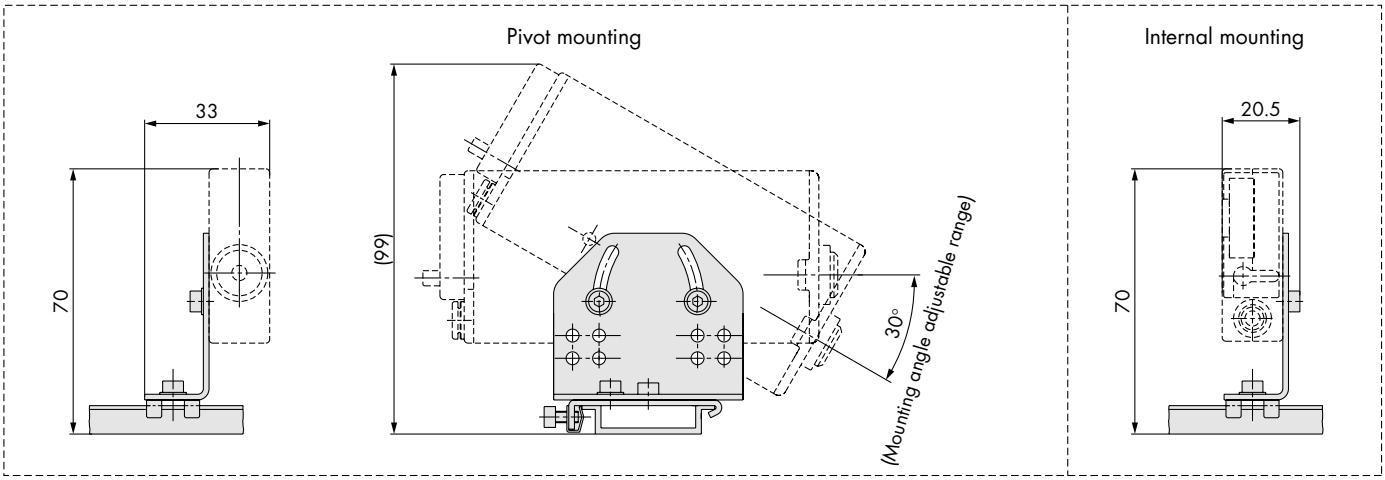


Dimensions

DIN rail mounting bracket / IZN10-B3







Manifold mounting parts set

This set consists of a hexagon socket head cap screw, a spacer and a hexagon nut.

Note) The ioniser, L-bracket and DIN rail mounting bracket need to be prepared separately.

How to Order

IZN10–ES 2

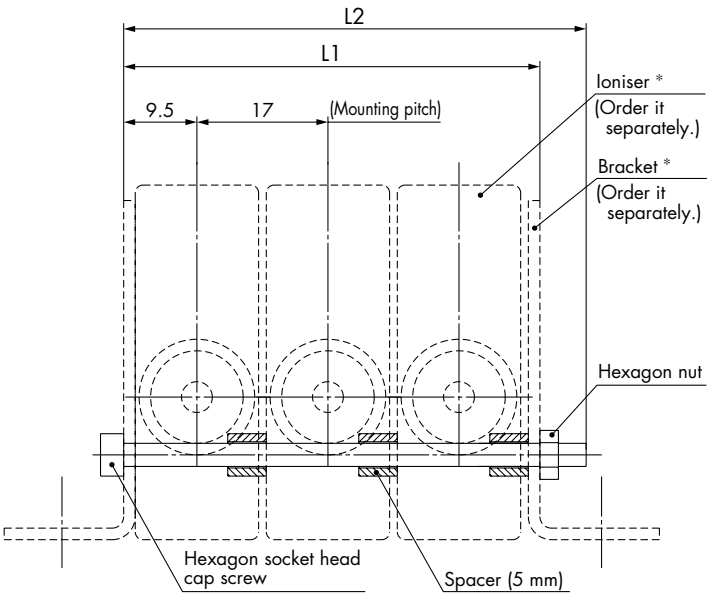
Mounting pitch

Symbol	Pitch
ES	17 mm

Mounting stations

Symbol	Stations
2	2
3	3
4	4

	L1	L2	Number of spacers
IZN10-ES2	37	40	2
IZN10-ES3	54	60	3
IZN10-ES4	71	75	4



* Prepare two brackets and ioniser separately.

FOR MORE DETAILS
SEE OUR SPECIFIC CATALOGUES,
PRODUCTS CD's OR ONLINE INFORMATION

Ionizer
Series IZS31

Features

- *3 types of sensors available:*
  - *Auto-balance sensor (high precision type); Monitoring of the ion balance condition*
  - *Auto-balance sensor (body mounting type); Monitoring of the ion balance condition*
  - *Feedback sensor: Rapid removal of static electricity*
- *Electrode cartridge variations:*
  - *Cartridge with high efficiency nozzle: Improved discharge time with low air consumption*
  - *Cartridge with low maintenance. Contamination of the needle reduced*
- *3 types of electrode needle materials:*
  - *Tungsten: Ion balance ±30V*
  - *Monocrystal silicon: Ion balance ±30V*
  - *Stainless steel: Ion balance ±100V*
- *Switch over frequency: 60Hz, applicable to fast moving workpieces.*
- *Effective removal of static electricity at short distances.*
- *Indicator and safety functions.*
- *Continious ion emission of a desired polarity in DC mode.*

How to Order

Ionizer **IZS31 – 780 [ ] P [ ] – E**

Bar type

Bar length

Symbol	Bar length
300	300 mm
380	380 mm
620	620 mm
780	780 mm
1100	1100 mm
1260	1260 mm
1500	1500 mm
1900	1900 mm
2300	2300 mm

Electrode cartridge type / Electrode needle material

Symbol	Electrode cartridge type	Electrode needle material
-	Rapid elimination of static electricity	Tungsten
C		Silicon
S		Stainless steel
J	Low maintenance	Tungsten
K		Silicon

Output

P	PNP output

Power cable

-	With power cable (3 m)

Sensor

-	Without sensor
E	Autobalance sensor [Body-mounting type] *
F	With feedback sensor
G	Autobalance sensor [High-precision type]

* Connection cable A/B, with sensor bracket, but not assembled.

FOR MORE DETAILS
SEE OUR SPECIFIC CATALOGUES,
PRODUCTS CD's OR ONLINE INFORMATION

Accessories

Feedback sensor
IZS31-DF

Autobalance sensor
[High-precision type]
IZS31-DG

Autobalance sensor
[Body-mounting type]
IZS31-DE

- Connection cable A/B (1 pc. each)
- Sensor bracket (1 pc.)
- Hexagon socket head cap screw for sensor bracket (2 pcs.)

} Accessories

Power cable
- IZS31-CP (3 m)
- IZS31-CPZ (10 m)

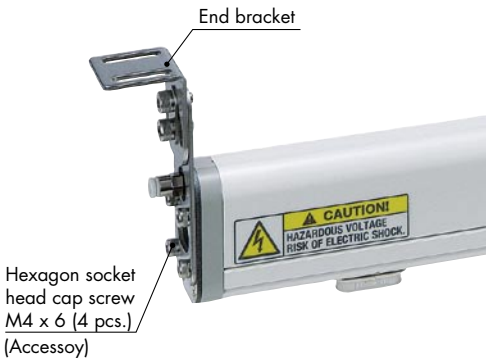
Connection cable A/B for connecting autobalance sensor to the body
- For driving:
  IZS31-CF (12P)

- For I/O signals:
  IZS31-CR (6P)

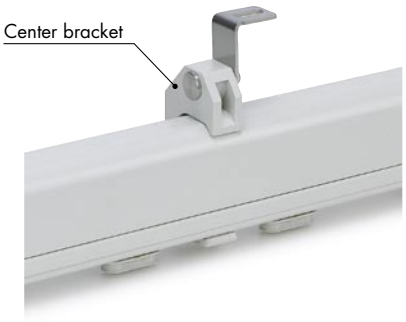
Electrode cartridge with rapid elimination of static electricity
- IZS31-NT
  (Material: Tungsten)
- IZS31-NC
  (Material: Silicon)
- IZS31-NS
  (Material: Stainless steel)

Electrode cartridge with low maintenance
- IZS31-NJ
  (Material: Tungsten)
- IZS31-NK
  (Material: Silicon)

End bracket / IZS31-BE



Center bracket / IZS31-BM



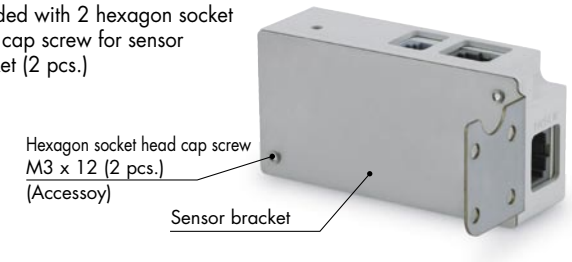
Note) The number of center brackets required, as listed below, depends on the bar length. Two end brackets are always required regardless of the bar length.

Bar length (mm)	Quantity	
	End bracket	Center bracket
300, 380, 620, 780	2 pcs.	None
1100, 1260, 1500		With 1 pc.
1900, 2300		With 2 pcs.

Note) The model number is for a single bracket.

Sensor bracket / IZS31-BL
(For mounting IZS31-DE on the body)

* Provided with 2 hexagon socket head cap screw for sensor bracket (2 pcs.)



Specifications

Ionizer model		IZS31-□□ (NPN specification)	IZS31-□□P (PNP specification)
Ion generation method		Corona discharge type	
Method of applying voltage		Sensing DC, Pulse DC, DC	
Electricity discharge output		±7000 V	
Ion balance Note 1)		±30 V (Stainless steel electrode needle: ±100 V)	
Air purge	Fluid	Air (Clean and dry)	
	Operating pressure	0.7 MPa or less Note 2)	
	Connecting tubing O.D.	ø4	
Power supply voltage		24 VDC ±10%	
Current consumption	Sensing DC mode	200 mA or less (While standing by: 120 mA or less)	
	Pulse DC mode	Autobalance sensor [Body-mounting type] : 300 mA or less Autobalance sensor [High-precision type] : 200 mA or less When sensor is not used: 170 mA or less	
	DC mode	170 mA or less	
Input signal	Electricity discharge stop signal	Connected to GND (Voltage: 5 VDC or less, Current consumption: 5 mA or less)	Connected to +24 V (Voltage: Between 19 VDC and power supply voltage, Current consumption: 5 mA or less)
	Maintenance signal		
Output signal	Static electricity removal completion signal	Max. load current: 100 mA Residual voltage: 1 V or less (Load current at 100 mA) Max. applied voltage: 28 VDC	Max. load current: 100 mA Residual voltage: 1 V or less (Load current at 100 mA)
	Maintenance output signal		
	Error signal		
	Sensor monitor output Note 3)	Voltage output 1 to 5 V (Connect a 10 kΩ or larger load.)	
Effective distance of static electricity elimination		50 to 2000 mm (Sensing DC mode: 200 to 2000 mm)	
Ambient temperature, Fluid temperature		0 to 50°C	
Ambient humidity		35 to 80% Rh (With no condensation)	
Material		Cover of ionizer: ABS, Electrode needle: Tungsten, Monocrystal silicon, Stainless steel	
Vibration resistance		Durability 50 Hz Amplitude 1 mm XYZ each 2 hours	
Shock resistance		10 G	
Compliance with overseas standards/directive		CE (EMC directive: 89/336/EEC, 92/31/EEC, 93/68/EEC, 2004/108/EC, Low voltage directive: 73/23/EEC, 93/68/EEC) UL U.S. Standard for Electrostatic Air Cleaner, UL857, fourth edition CSA Canadian Standard for Electrostatic Air Cleaner, CAN/CSA C22.2 No.187-M1986	

Note 1) When the air purge is performed between a charged object and an ionizer at a distance of 300 mm
Note 2) When the electrode cartridge with low maintenance is used, the operating pressure must be 0.05 MPa or more.
Note 3) When the potential of a charged object is measured by a feedback sensor, the relationship between the potential being measured and the sensor monitor output voltage, and the detection range of the sensor vary depending on the sensor's installation distance.

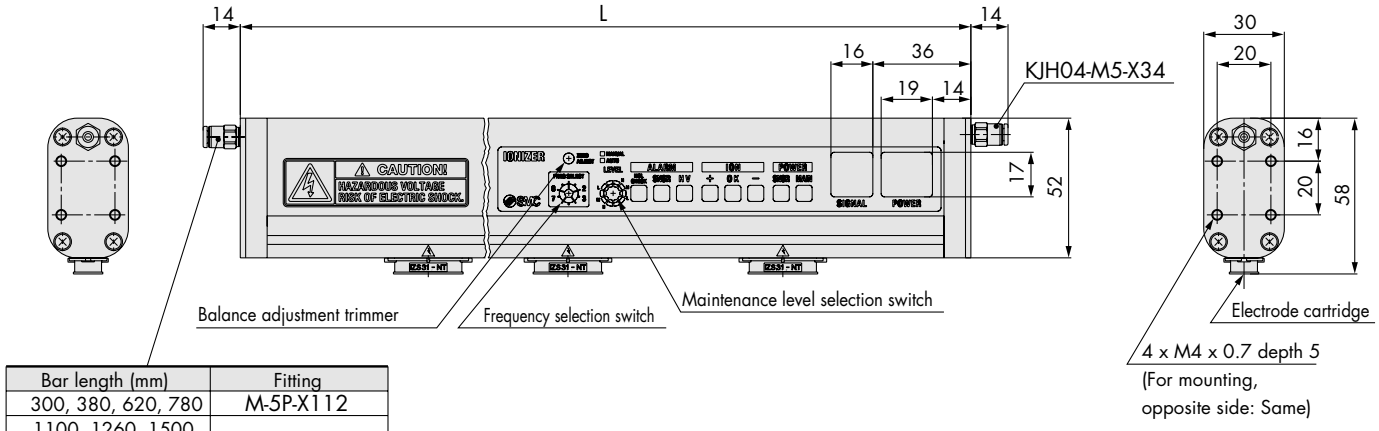
Sensor Specifications

Sensor model	IZS31-DF (Feedback sensor)	IZS31-DG (Autobalance sensor [High-precision type])	IZS31-DE (Autobalance sensor [Body-mounting type])
Ambient temperature	0 to 50°C		
Ambient humidity	35 to 85% Rh (With no condensation)		
Case material	ABS	ABS, Stainless steel	ABS
Vibration resistance	Durability 50 Hz Amplitude 1 mm XYZ each 2 hours		
Shock resistance	10 G		
Weight	200 g (Including cable)	220 g (Including cable)	110 g (Including cable)
Installation distance	10 to 50 mm (Recommended)	—	
Compliance with overseas standards/directive	CE (EMC directive: 89/336/EEC, 92/31/EEC, 93/68/EEC, 2004/108/EC, Low voltage directive: 73/23/EEC, 93/68/EEC)		

FOR MORE DETAILS
SEE OUR SPECIFIC CATALOGUES,
PRODUCTS CD's OR ONLINE INFORMATION

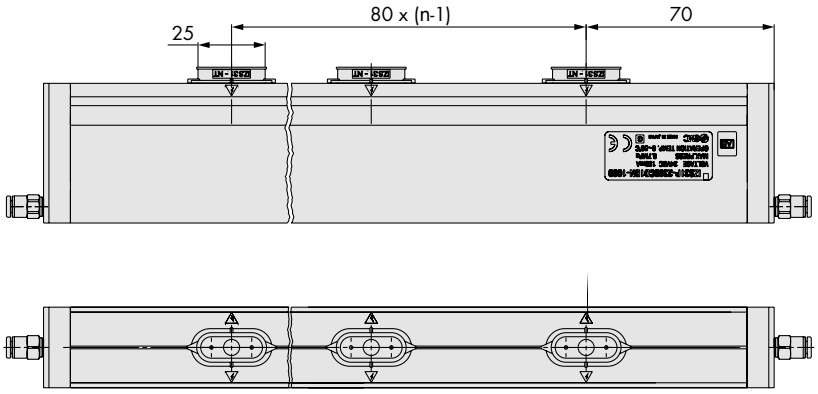
Dimensions

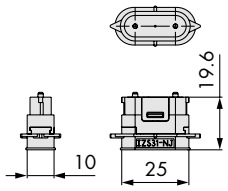
Ionizer / IZS31-□□□□-□□



Bar length (mm)	Fitting
300, 380, 620, 780	M-5P-X112
1100, 1260, 1500, 1900, 2300	KJH04-M5-X34 Note)

Note) Plug (M-5P-X112) 1 pc. is shipped together.





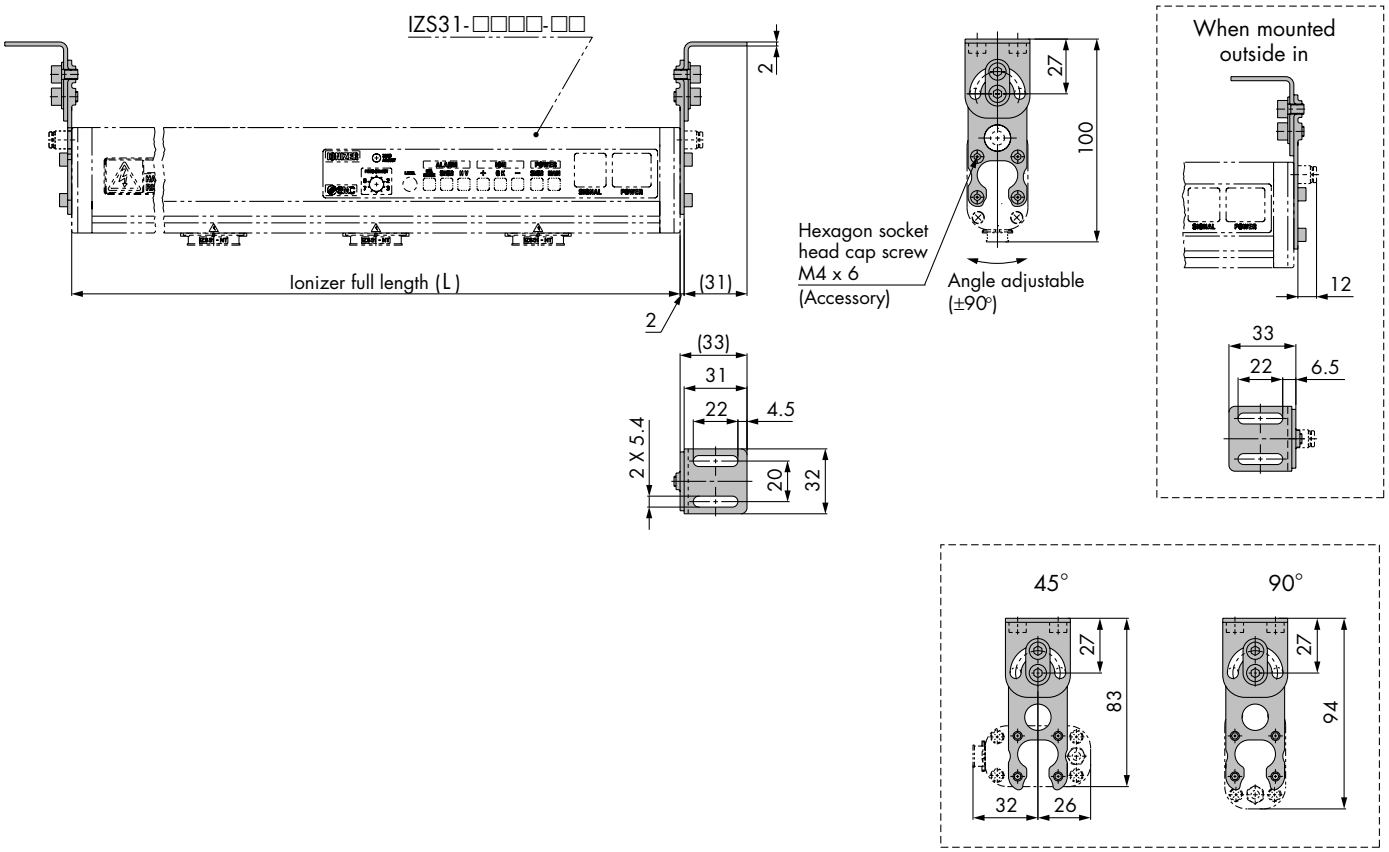
Electrode cartridge

n (Number of electrode cartridges), L Dimension

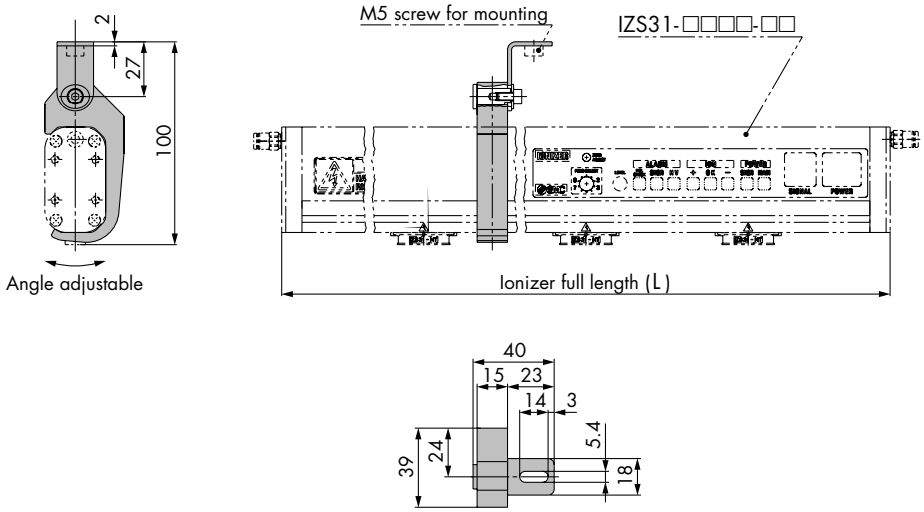
Part no.	n	L (mm)
IZS31-300	3	300
IZS31-380	4	380
IZS31-620	7	620
IZS31-780	9	780
IZS31-1100	13	1100
IZS31-1260	15	1260
IZS31-1500	18	1500
IZS31-1900	23	1900
IZS31-2300	28	2300

Dimensions

End bracket / IZS31-BE



Center bracket / IZS31-BM

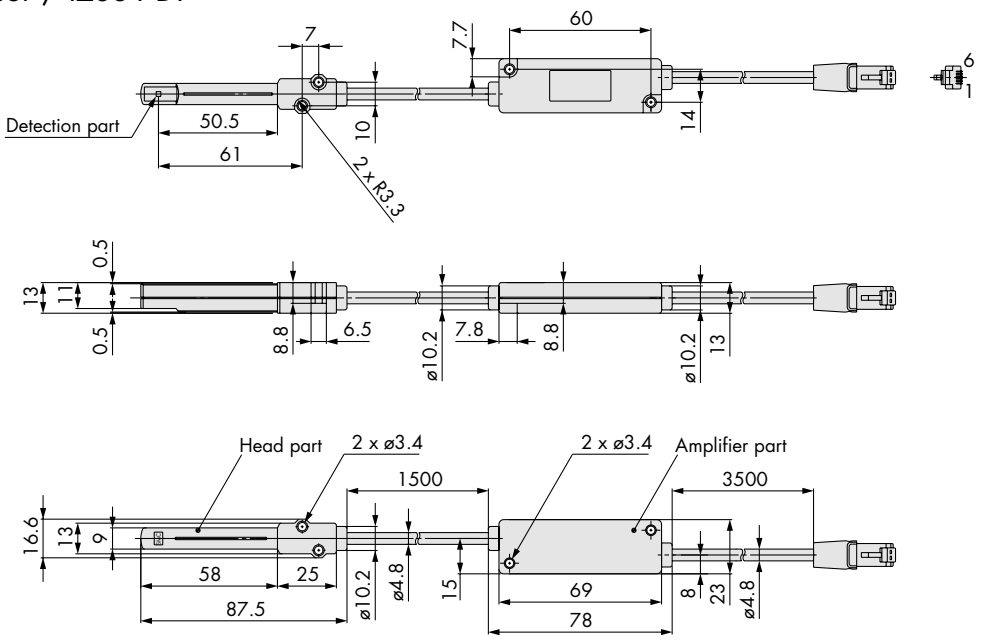


Note) Number of center brackets included in a model with brackets.

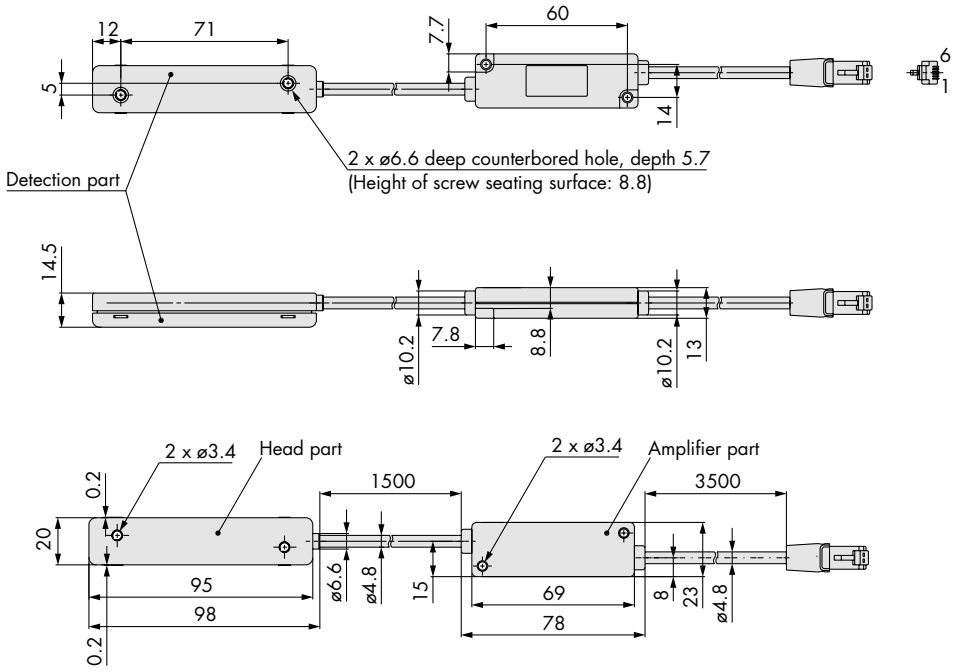
Bar length (mm)	Center bracket
300, 380, 620, 780	None
1100, 1260, 1500	With 1 pc.
1900, 2300	With 2 pcs.

Dimensions

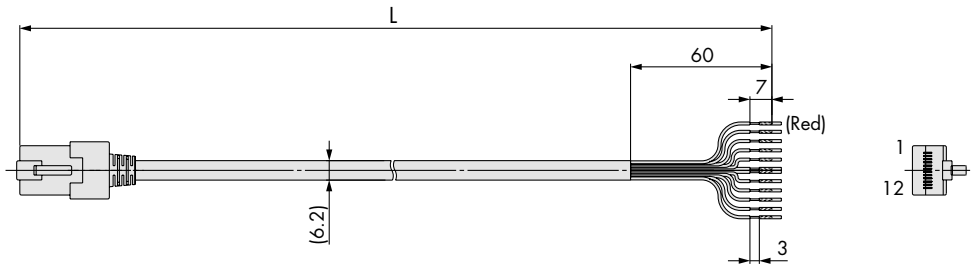
Feedback sensor / IZS31-DF



Autobalance sensor [High-precision type] / IZS31-DG



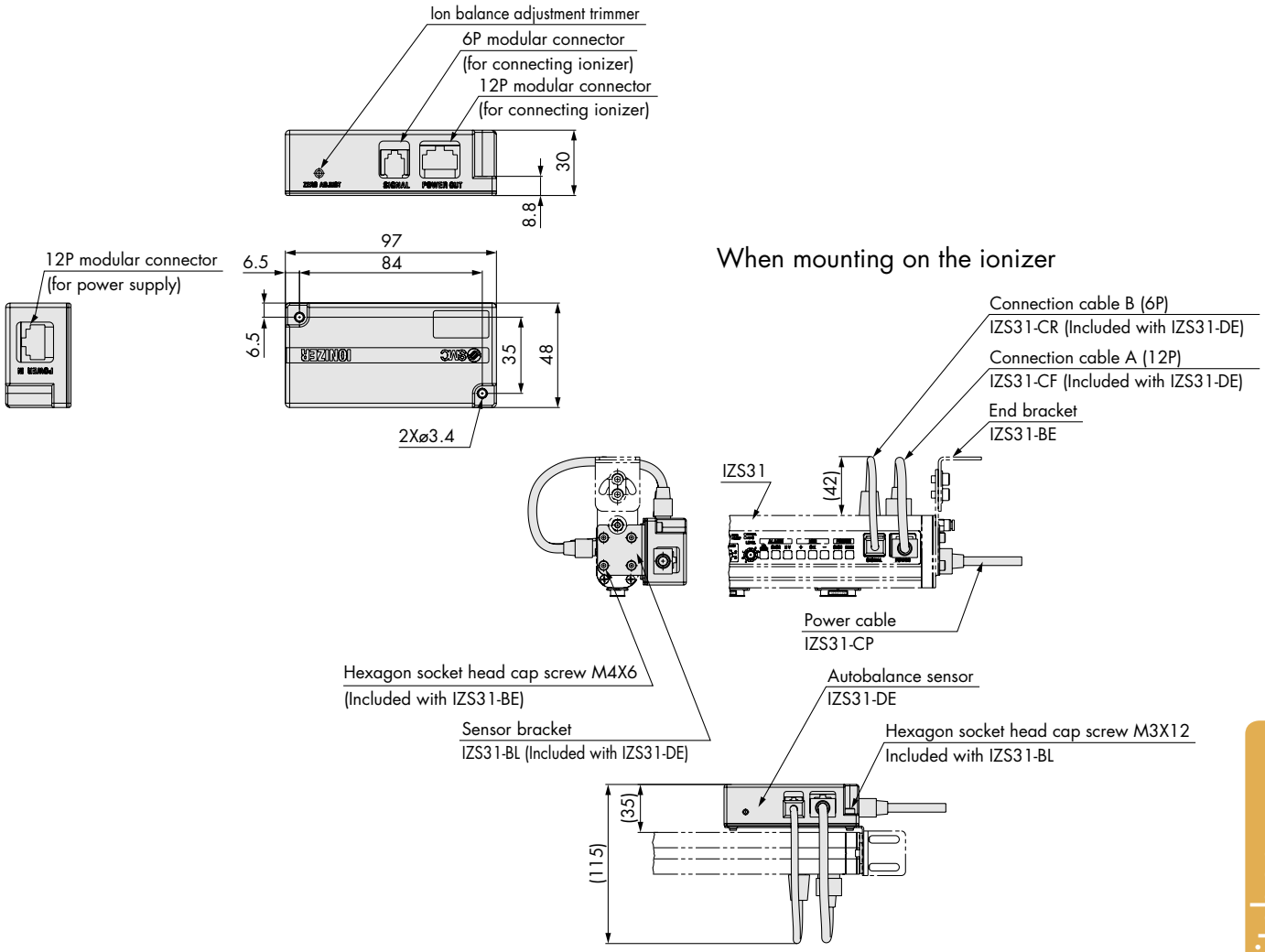
Power supply cable / IZS31-CP□



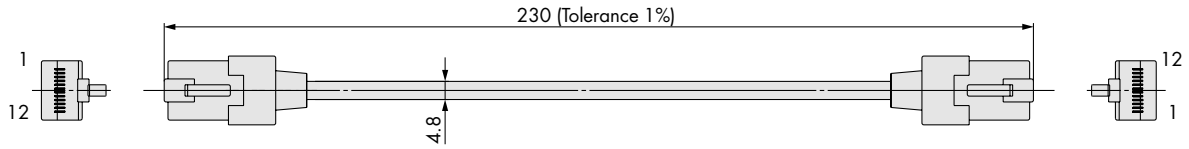
Model	L (mm)
IZS31-CP	3000
IZS31-CPZ	10000

Dimensions

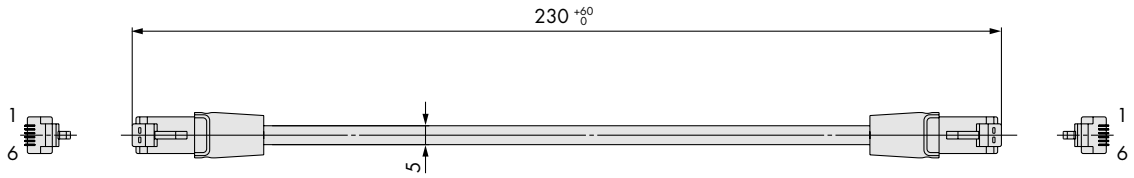
Autobalance sensor [Body-mounting type] / IZS31-DE



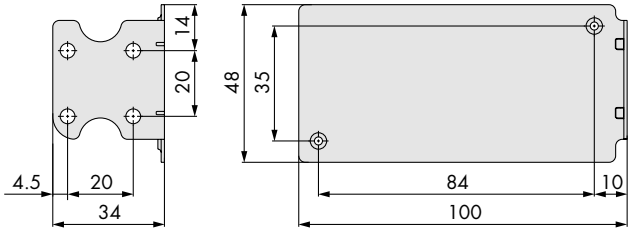
Connection cable A (12P) / IZS31-CF



Connection cable B (6P) / IZS31-CR



Sensor bracket / IZS31-BL



Electrostatic Sensor
Series IZD10

Features

- *Potential measurement: ±20 kV (detected at a 50 mm distance)*
  ±0.4 kV (detected at a 25 mm distance)
- *Detects the electrostatic potential and outputs an analogue voltage.*
- *Small and easy to mount.*

How to Order

IZD10 – 1 10

Model

10	Electrostatic sensor

Potential measurement

1	±0.4 kV
5	±20 kV

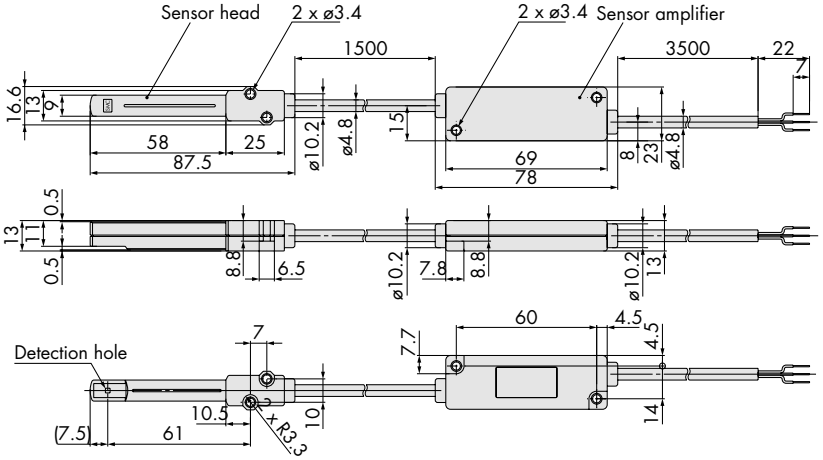
Specifications

Model	IZD10-110	IZD10-510
Potential measurement	±0.4 kV (at detection distance: 25 mm)Note)	±20 kV (at detection distance: 50 mm)Note)
Output voltage	1 to 5 V (Output impedance: Approx. 100 Ω)	
Effective detection distance	10 to 50 mm	25 to 75 mm
Linearity	±5% F.S. (0 to 50°C, at detection distance: 25 mm)	±5% F.S. (0 to 50°C, at detection distance: 50 mm)
Output delay time	100 ms or less	
Power supply voltage	24 VDC ±10%	
Current consumption	40 mA or less	
Operating ambient temperature	0 to 50°C	
Operating ambient humidity	35 to 85% Rh (with no condensation)	
Material	Head case : ABS Amplifier case : ABS	
Vibration resistance	Durability 50 Hz Amplitude 1 mm X, Y, Z each 2 hours	
Shock resistance	100 m/s^2	
Weight	185 g (including cable weight)	
Compliance with EN standards	Protective class : Class III (EN60950-1) Pollution Degree 3 CE marking : Low voltage directive : 73/23/EEC, 93/68/EEC Only when connected to a SELV-type external circuit.	
EMC directive	89/336/EEC, 92/31/EEC, 93/68/EEC, 2004/108/EC	
UL standard	UL508	

Note) The relationship between the measured potential and the output voltage varies depending on the detection distance.
For details on the relationship in the detection distance between the measured potential and the output voltage, refer to the graph in "Technical Data - Output Signal".

Dimensions

IZD10-110
IZD10-510



Electrostatic Sensor
Series IZE11

Features

- *Output: Switch output x 2 + Analogue output (1 to 5 V, 4 to 20 mA).*
- *2–colour display (Red/Green).*
- *Display accuracy: ±0.5% F.S. ±1 digit or less.*
- *Detection distance correction function (adjustable in 1 mm increments).*
- *Supports two types of sensors.*
- *Connection by connector. Connector for power supply/output. e-con connector: connector for sensor*

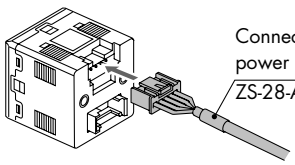
How to Order

IZE11 0 — [ ] [ ] [ ]

Input/Output specifications

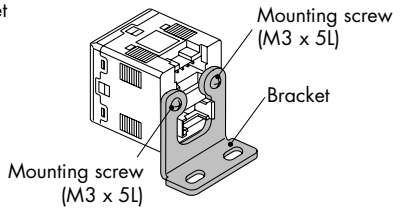
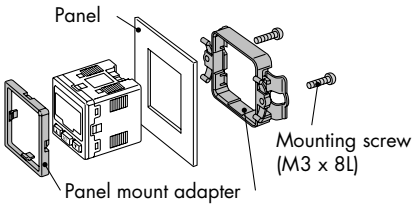
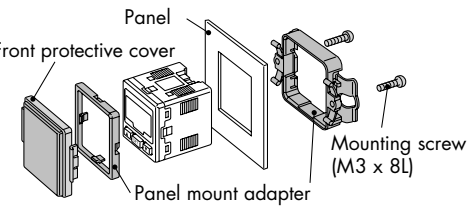
0	NPN open collector 2 outputs + Analog output 1-5 V
1	NPN open collector 2 outputs + Analog output 4-20 mA
2	PNP open collector 2 outputs + Analog output 1-5 V
3	PNP open collector 2 outputs + Analog output 4-20 mA

Option 1

Nil	None
L	Connector cable for power supply / output  Connector cable for power supply / output ZS-28-A

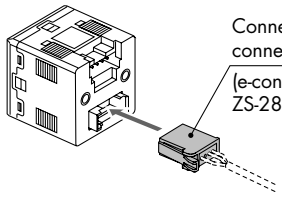
Note) The cable is not connected but packed together with product for shipment.

Option 2

Nil	None
A	Bracket  Mounting screw (M3 x 5L) Bracket Mounting screw (M3 x 5L)
B	Panel mount adapter  Panel Mounting screw (M3 x 8L) Panel mount adapter
D	Panel mount adapter + Front protective cover  Panel Front protective cover Mounting screw (M3 x 8L) Panel mount adapter

Note) The options are not attached but packed together with product for shipment.

Option 3

Nil	None
C	With connector for sensor connection  Connector for sensor connection (e-con connector) ZS-28-C

Note) The connector is not connected but packed together with product for shipment.

Options / Part No.

Description	Part no.	Note
Connector cable for power supply / output (2 m)	ZS-28-A	
Bracket	ZS-28-B	With M3 x 5L (2 pcs.)
Connector for sensor connection	ZS-28-C	1 pc.
Panel mount adapter	ZS-27-C	With M3 x 8L (2 pcs.)
Panel mount adapter + Front protective cover	ZS-27-D	With M3 x 8L (2 pcs.)

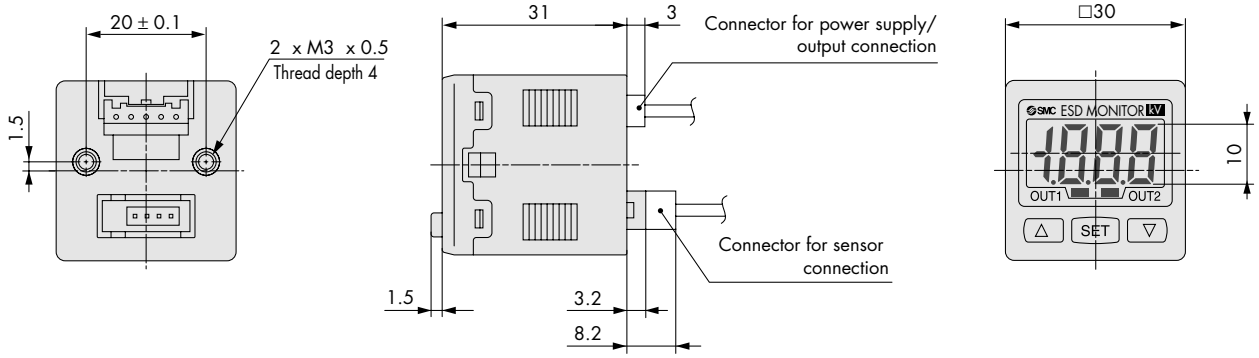
FOR MORE DETAILS
SEE OUR SPECIFIC CATALOGUES,
PRODUCTS CD's OR ONLINE INFORMATION

Specifications

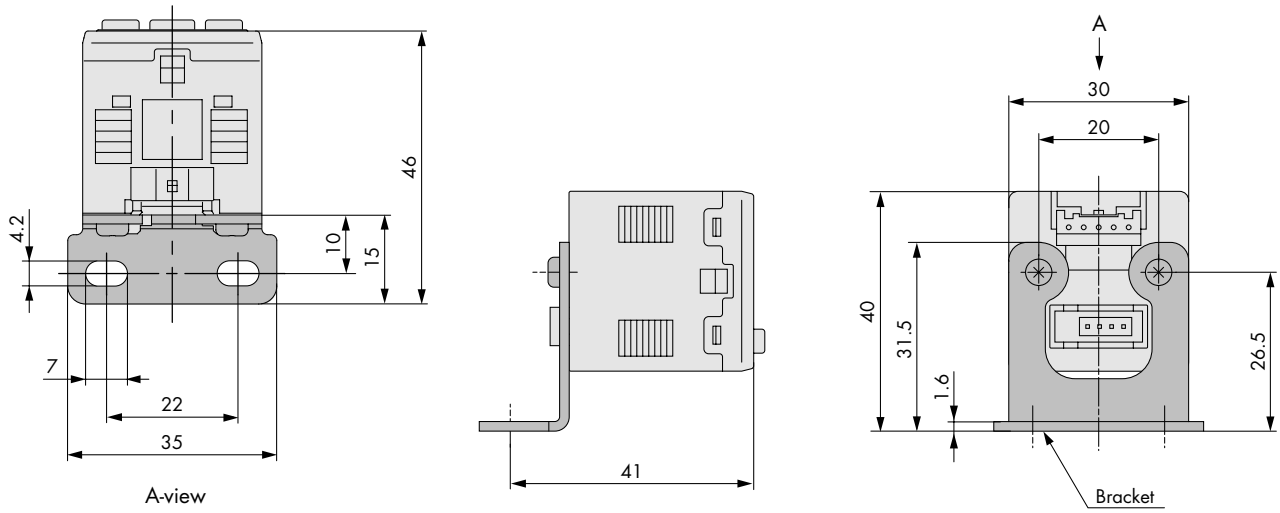
Model			IZE11□	
Connection sensor			IZD10-110	IZD10-510
Rated measurement range			–0.4 kV to +0.4 kV Note 1)	–20 kV to +20 kV Note 2)
Min. unit setting			0.001 kV	0.1 kV
Measurement distance setting			10 to 50 mm	25 to 75 mm
Power supply voltage			24 VDC, Ripple (p-p) 10% or less (with power supply polarity protection)	
Current consumption			50 mA or less (excluding sensor unit's current consumption)	
Sensor input			1 to 5 VDC (Input impedance: 1 MΩ)	
	Number of inputs		1 input	
	Input protection		With excess voltage protection (up to 26.4 V)	
	Hysteresis		Hysteresis mode: Variable Window comparator mode: Variable	
Switch output			NPN or PNP open collector: 2 outputs	
	Max. load current		80 mA	
	Max. applied voltage		30 VDC (with NPN output)	
	Residual voltage		1 V or less (with load current of 80 mA)	
	Short circuit protection		With short circuit protection	
	Response time (including sensor response time)		100 ms or less Response time with anti-chattering function: 500 ms, 1 s, 2 s or less	
Analog output	Voltage output		Output voltage: 1 to 5 V (with rated pressure range), Output impedance: Approx. 1 kΩ	
		Accuracy (for readings) (25°C)	±1% F.S. or less	
	Current output		Output current: 4 to 20 mA (with rated pressure range) Max. load impedance: 600 Ω (at 24 VDC), Min. load impedance: 50 Ω	
		Accuracy (for readings) (25°C)	±1% F.S. or less	
	Response time (including sensor response time)		200 ms (without filter), 1.5 s (with filter) or less	
Display acurracy			±0.5% F.S. ±1 digit or less	
Display			3 + 1/2 digit, 7-segment indicator, 2-color display (Red/Green) Sampling cycle: 5 times/s	
Indicator light			OUT1: Illuminates when output is turned ON (Green), OUT2: Illuminates when output is turned ON (Red).	
Environmental resistance	Enclosure		IP40	
	Operating temperature range		Operating: 0 to 50°C, Stored: –10 to 60°C (with no freezing or condensation)	
	Operating humidity range		Operating/Stored: 35 to 85% RH (with no condensation)	
	Withstand voltage		1000 VAC for 1 min, between live parts and housing	
	Insulation resistance		50 MΩ or more (with 500 VDC Mega), between live parts and housing	
	Vibration resistance		10 to 150 Hz at whichever is smaller of 1.5 mm amplitude or 98 m/s^2 acceleration, in X, Y, Z direction for 2 hrs. each (de-energized)	
	Impact resistance		100 m/s^2 in X, Y, Z directions 3 times each (de-energized)	
Temperature characteristics			±0.5% F.S. or less (based on 25°C)	
Connection method			Power supply, Output connection: 5-pin connector, Sensor connection: 4-pin connector	
Material			Front case: PBT, Rear case: PBT	
Weight (excluding power supply/output connection cable)			30 g	
Standards			CE marking, UL (CSA) compliant	

Note 1) Rated value when the distance between the charged object and the sensor is 25 mm
Note 2) Rated value when the distance between the charged object and the sensor is 50 mm

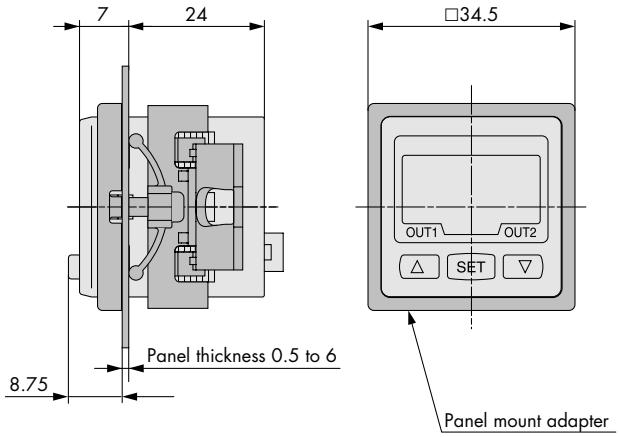
Dimensions



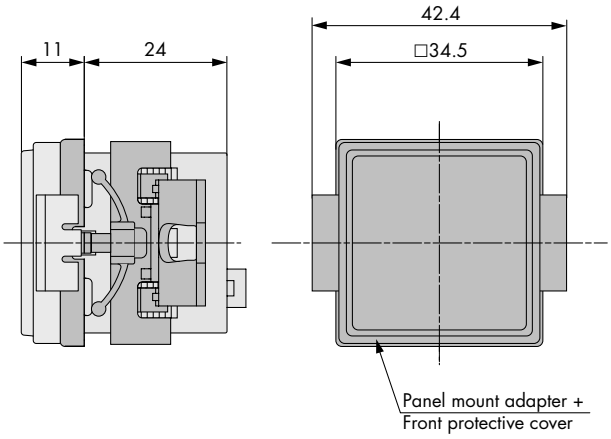
With bracket



With panel mount adapter



With panel mount adapter + Front protective cover



Sensors, Switches

Handheld Electrostatic Meter

Series IZH10

Features

- *Easy to-use handheld electrostatic meter.*
- *Rated charge amount rate: ±20.0 kV*
- *Minimum display unit.*
- *Compact and lightweight.*
- *Functions: peak / bottom display, zero clear, auto power-off.*
- *Low battery indicator.*
- *Backlight for reading in the dark.*

How to Order

IZH10–□

Option

–	None
H	High-voltage measuring handle

Accesories and options

Error description	Error display
Ground wire (1.5m)	IZM-A-01
Soft case	IZM-B-01
High-voltage measuring handle	IZM-C-01

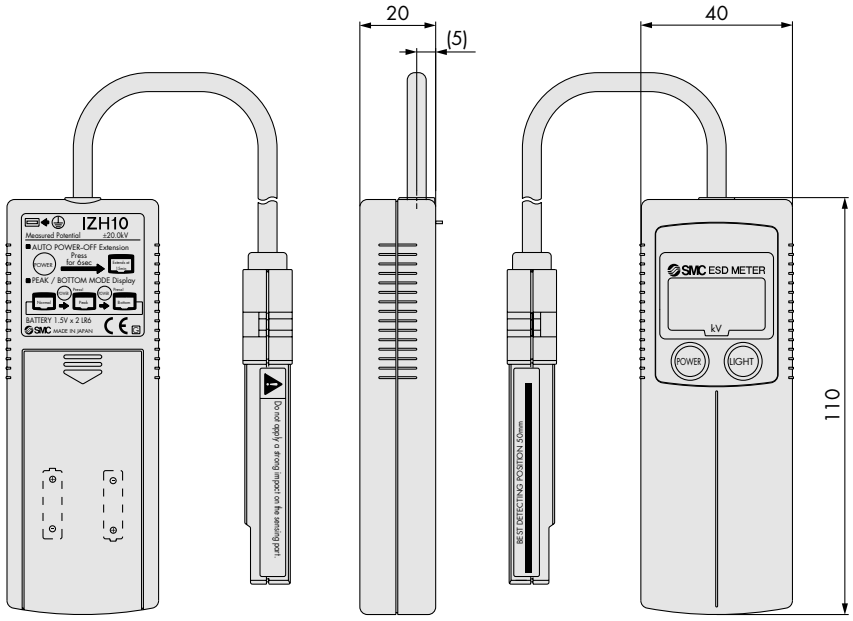
Specifications

Model		IZH10
Rated charge amount range		±20.0 kV
Minimum display unit		0.1 kV (±1.0 kV to ±20.0 kV), 0.01 kV (0 to ±0.99 kV)
Measurement distance		50 mm (between sensor part and measured target)
Power supply Note 1)		DC 1.5 V 2A alkali dry cell battery, 2 pcs (continuous use for 15 hours or more, see Note 2))
Display accuracy		±5% F.S. ±1 digit
Environmental resistance	Enclosure	IP40
	Operating temperature range	Operating: 0 to 40°C, Stored: –10 to 60°C (with no freezing or condensation)
	Operating humidity range	Operating/Stored: 35 to 85% R.H. (with no condensation)
	Impact resistance	100 m/s² in X, Y, Z directions 3 times each (de-energised)
	Vibration resistance	10 to 150 Hz at amplitudes and accelerations smaller than 1.5 mm and 98 m/s², respectively, in X, Y and Z directions (2 hours each) (de-energised)
Material		Display part: PC/ABS Sensor part: ABS
Weight		85 g (excluding dry cell batteries)
Standards		CE marking
Accessories		Ground wire, Soft case

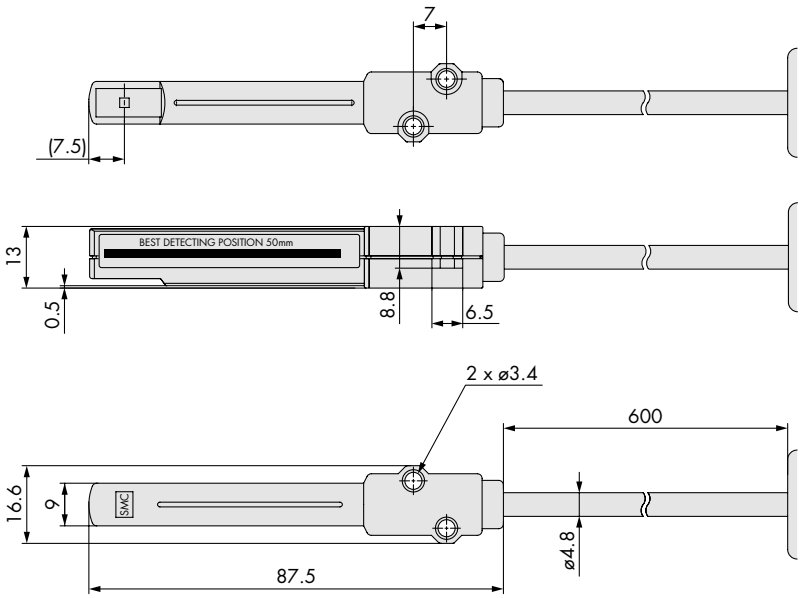
Note 1) 2A alkali dry cell batteries are not included, and must be acquired separately.
Note 2) When new alkali dry cell batteries are used at ordinary temperature.

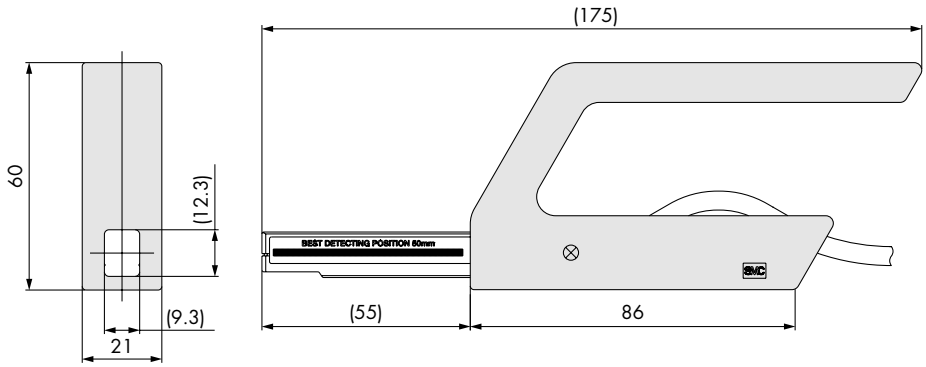
Dimensions (Unit: mm)

Display part



Sensor part





Selecting a Vacuum System

1) Find the vacuum pad size.

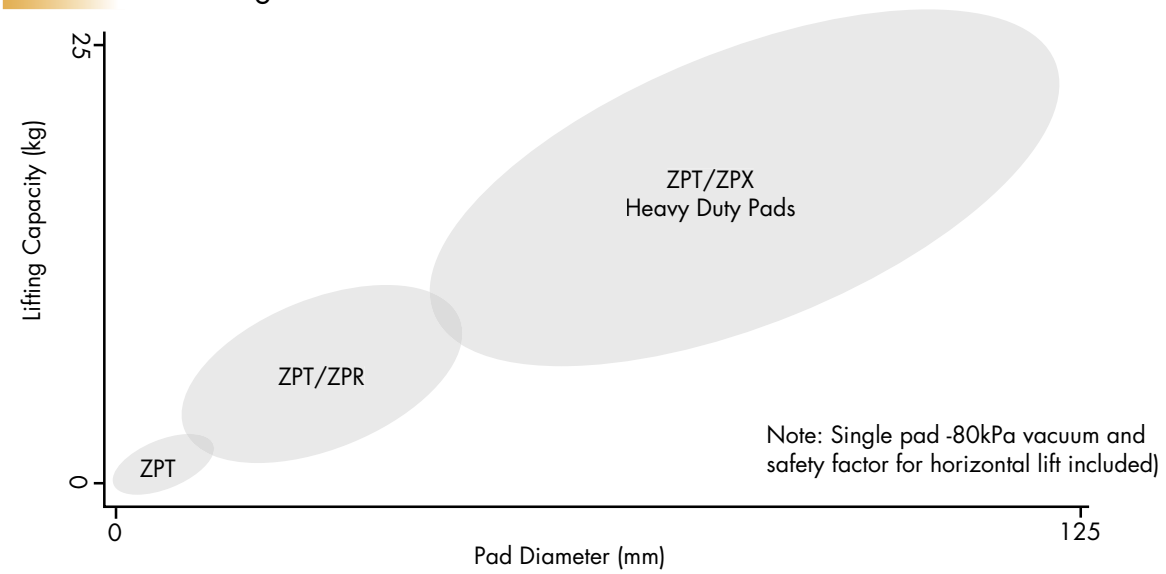
The total area of vacuum pads for a horizontal lift (W) can be easily calculated. from this equation which includes a safety factor.

Where W = Lifting Force (N)
P = Vacuum Pressure (kPa)
S = Pad Area (cm^2)

$$\frac{40W}{P} = S$$

For most vacuum applications, assume a vacuum pressure of (-)80 kPa.

Vacuum Pad Range



The area (Scm^2) is the pad area required. This can be made up by one pad or several smaller pads - depending on the object to be lifted. The shape of the pad (flat, bellows, ribbed etc) is chosen, then the stem style (plain, buffer, etc). For single pads, the area is shown below in the table.

Pad dia (mm)	2 x 4 elliptical	3.5 x 7 elliptical	4 x 10 elliptical	Ø2	Ø4	Ø6	Ø8	Ø10	Ø13	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125
Pad area (cm^2)	0.07	0.21	0.36	0.03	0.13	0.28	0.50	0.7	1 .3	2.0	3.1	4.	8 .0	12.6	1 .6	31.2	50.3	78.6	122.7

Pad Type

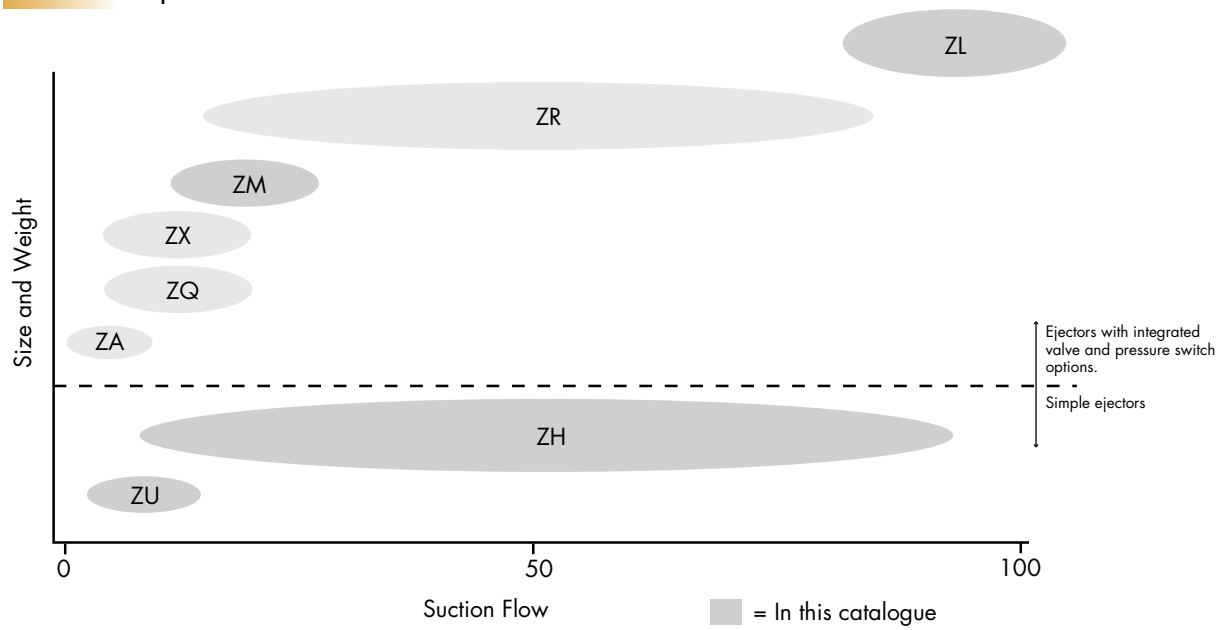
Pad form	Application
Flat 	To be used when adsorption surface of work is flat and not deformed.
Flat with ribs 	To be used when work is likely to deform or in the case of releasing work certainly.
Deep 	To be used when work is curved shape.
Bellows 	To be used when there is not enough space to install buffer or adsorption surface of work is slanted.
Elliptic 	To be used when work has limited adsorption surface or long in length and work is required to locate precisely.

Pad form	Application
Ball oint type 	To be used when adsorption surface of work is not horizontal.
Buffer 	To be used when work height is not even or cushioning toward work is required.
Large size 	To be used when work is heavy weight.
on ductive pad 	As one of the countermeasures against the static electricity, rubber material with reduced resistance is used. For antistatic measures

2) Choose the Ejector

Two things infuence the choice, is a simple ejector suitable (ZU or ZH type), which will be smaller and lighter or are integrated control valves and vacuum switches required? The other factor is suction flow, a higher suction flow will evacuate a system faster, but the ejector will be larger and will consume more air.

Vacuum Ejector Choices



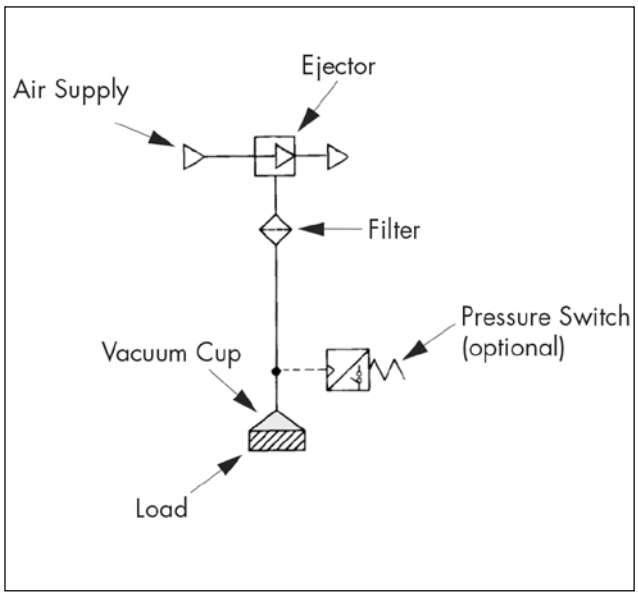
SMC vacuum ejectors produce a vacuum around -80 kPa, most ranges include a variant with lower vacuum levels (eg: -50kPa).

3) Specify the rest of the system

When pad(s) and ejector have been selected, the rest of the system can be specified. If dirt and liquid may be picked up by the pad, a ZF□filter or AMJ separator should be put into the system to protect the ejector. The valves to control compressed air and vacuum, fittings and tubing can also be specified.

Typical Circuit

Simple Ejector Circcuit (eg: ZH)



Integrated Ejector Circuit (eg: ZM)