

# Extreme High Vacuum Gauge [AxTRAN]

AxTRAN is a hot cathode type ionization vacuum gauge with a Bessel Box type energy filter installed between the ion source and the ion collector.

This design provides a measurement resolution of  $5 \times 10^{-11}$  Pa ( $3.75 \times 10^{-13}$  Torr,  $5 \times 10^{-13}$  mbar) by reducing the residual current due to soft X-rays and electron stimulated desorption (ESD) ions.



X-11



ISX2

## Features

- ▶ **Measures Ultra High Vacuum to Extreme High Vacuum**  
Measures pressure of  $5 \times 10^{-11}$  Pa ( $3.75 \times 10^{-13}$  Torr,  $5 \times 10^{-13}$  mbar)
- ▶ **Bessel Box Type Energy Filter**  
Reduce soft x-ray and residual current such as ESD ion
- ▶ **Measures a Wide Pressure Range**  
Measure a wide pressure range from  $1 \times 10^{-2}$  to  $5 \times 10^{-11}$  Pa ( $7.5 \times 10^{-5}$  to  $3.75 \times 10^{-13}$  torr,  $1 \times 10^{-4}$  to  $5 \times 10^{-13}$  mbar)
- ▶ **Measured Value Output Signal**  
Pressure is 0 to 10V Log output (pseudo-log output) / 1V linear output within each digit
- ▶ **Control Output Signal**  
2 set points output
- ▶ **Digital Output and Serial Communication**  
BCD/RS232C (option)

## Applications

- ▶ For total pressure measurement of vacuum equipment such as a high-energy accelerators.
- ▶ For pressure measurement of ultra high or extreme high vacuum equipment used in UHV or XHV research work.

## Principle

- ▶ The lower limit of the pressure measurement of an ionization gauge is mainly determined by following factors.  
Soft x-ray effect.  
Electron stimulated desorption (ESD) ions.  
Out gassing from the gauge.
- ▶ The new gauge, axial-symmetric transmission gauge, which a Bessel-Box shape energy filter was included into is specially designed to eliminate these factors. And the lower limit of the pressure measurement of  $10^{-11}$  Pa ( $10^{-13}$  Torr,  $10^{-13}$  mbar) is obtained.

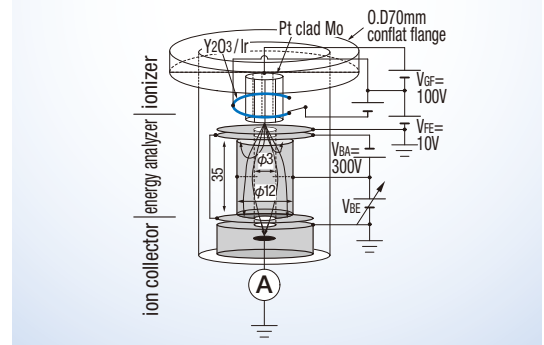
# Extreme High Vacuum Gauge [AxTRAN]

## Specifications

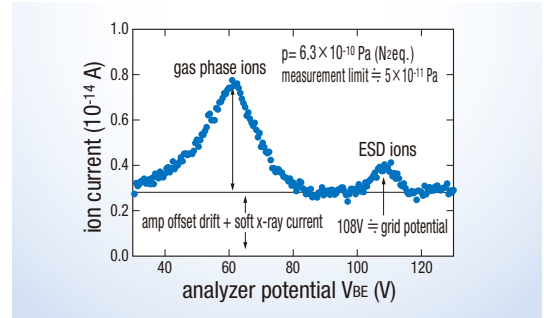
Model	ISX2
Measurable pressure range	$5 \times 10^{-11}$ to $1 \times 10^{-2}$ Pa ( $3.75 \times 10^{-13}$ to $7.5 \times 10^{-5}$ Torr, $5 \times 10^{-13}$ to $1 \times 10^{-4}$ mbar)
Measurement resolution	$0.5 \times 10^{-10}$ Pa ( $0.375 \times 10^{-12}$ Torr, $0.5 \times 10^{-12}$ mbar)
Display	Digital indication, 3 digit mantissa, 2 digit exponent
DEGAS	Electron stimulated desorption
Measurement value output	Linear output 0 to 10 VDC Pseudo-logarithmic output 0 to 10V (1V linear signal in each digit)
Set points	2 points
Operating temperature range	10 to 40°C (50 to 104°F)
Operating humidity range	15 to 80% (not condensing)
Power supply voltage	AC85 to 240V
External dimensions W×D×H	240mm×350mm×99mm
Weight	5.3kg
Standard accessories	AC100V (3P plug with ground) power cable, Manual
Option	Sensor: X-11 Sensor cable: 5, 10, 20m BCD output, RS232C/485

Compatible sensor head	X-11
Energy filter	Bessel-Box type
Filament	Ir / Y <sub>2</sub> O <sub>3</sub> ×2
Mount flange	UFC-070
Max. baking temperature	300°C (572°F) without sensor cable

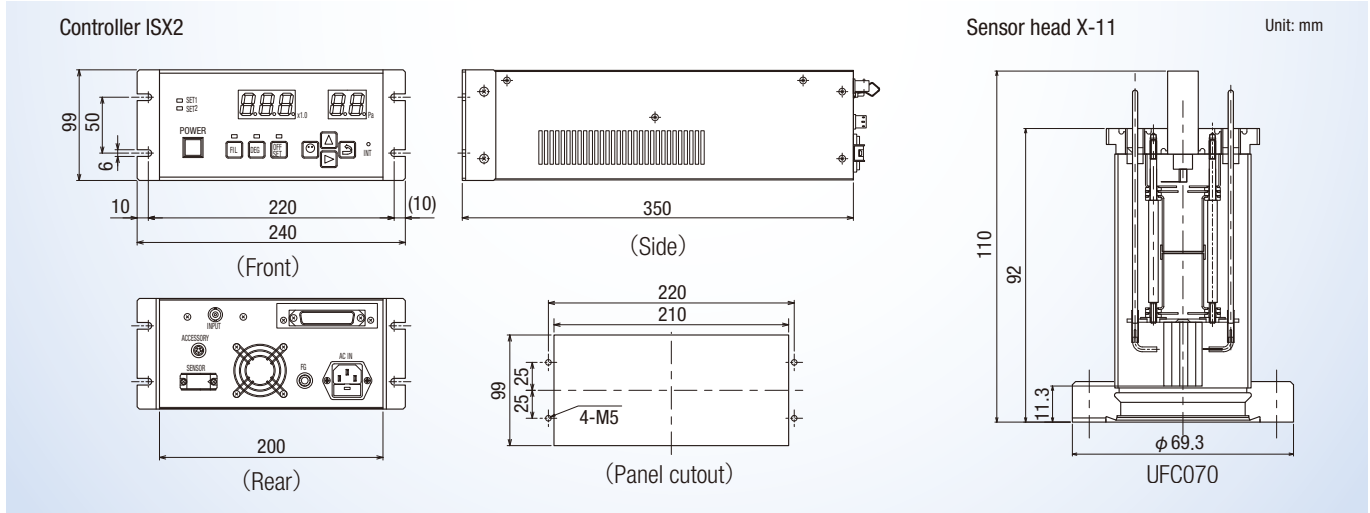
## Outline Drawing Sensor Head



## Energy Spectra



## Dimensions



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