



PRODUCT DATA

Active Ion Gauge

Range: 5×10^{-2} Torr to 5×10^{-10} Torr

A compact active ion gauge with dual yttria coated iridium filaments, a wide measuring range from 5×10^{-2} to 5×10^{-10} Torr (6.6×10^{-2} to 6.6×10^{-10} mbar) and a 1 Volt/decade linear output.

The new AIGX gauge from BOC Edwards incorporates all the benefits of the industry standard active gauging concept, with integral electronics and replaceable tube. The gauge has a degas facility and includes features to protect and extend the life of the filaments.

The AIGX benefits from extremely low emissions of charged particles, which makes it an excellent choice for processes where background noise is undesirable.

Features & Benefits

- Full 8-decade measurement capability, to 5×10^{-10} Torr (6.6×10^{-10} mbar).
- Two versions available, each with three vacuum coupling variants:
 - 'D' versions have a 9-pin 'D' connector and standard interface.
 - 'S' versions have enhanced functionality and are fully compatible with the range of BOCE controllers.
- Up to a thirty-fold reduction in charged particle process contamination compared to leading competitors.
- Automatic filament protection against switching on at atmosphere and running or degassing at high pressure.
- Gauge sensitivity remains constant over the whole measuring range, thus maintaining output accuracy at higher pressures.
- Continuous pressure measurement output during degas.
- Innovative design eliminates the effects of X-ray limits.
- Bi-colour LED gives local indication of gauge status.
- Wide input voltage range.
- Electronics very easily removable for bakeout at up to 200°C.
- 'S' versions provided with seamless automatic emission current switching, for prolonged filament life.
- 'S' versions provided with diagnostic outputs indicating 'emission off', 'broken filament' and 'overpressure trip' to help with troubleshooting.
- 'S' versions provided with a push-button adjustable set point.

TECHNICAL DATA

SPECIFICATIONS

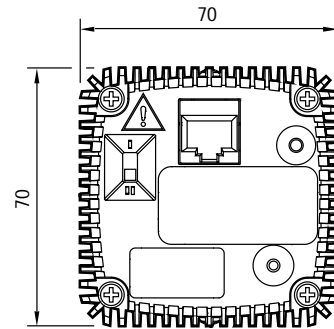
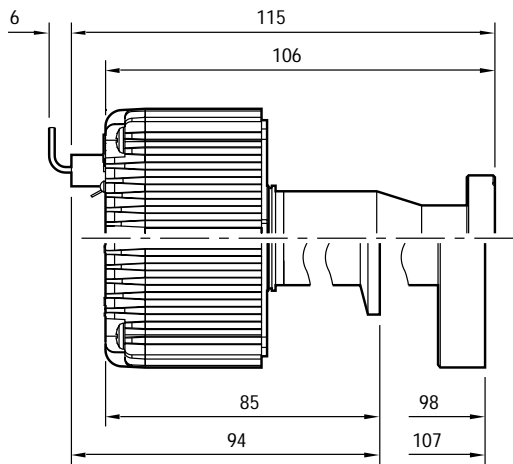
• Pressure range	5 x 10 ⁻² to 5 x 10 ⁻¹⁰ Torr (6.6 x 10 ⁻² to 6.6 x 10 ⁻¹⁰ mbar)		
• Power supply	+14.5 to +30.0V dc		
• Power consumption	Normal operation: 7W (Max), Degas: 14W (Max)		
• Output signal	Linear, 1 Volt / decade		
• Response time	> 10 ⁸ Torr (1.33 x 10 ⁸ mbar) ≈100ms < 10 ⁸ Torr (1.33 x 10 ⁸ mbar) ≈1-2s		
• Tube details			
Accuracy*	Typically +/-15% of reading (better with optional calibration)		
Repeatability	+/-5%		
Filaments	Manually selectable dual yttria coated iridium		
Degas	Three minute electron bombardment cycle		
Emission current	0.1mA & 1mA		
'S' versions	Automatically switches at 10 ⁻⁵ Torr (1.33 x 10 ⁻⁵ mbar) to protect filaments at higher pressures		
'D' versions	Manual control		
Maximum overpressure	10 bar absolute		
Materials exposed to vacuum	Tungsten, Tantalum Pt clad Mo, Yttria coated Iridium, St St 304L and UHV compatible glass/ceramic		
Vacuum fittings	NW25, DN16CF & DN40CF (CF couplings rotatable)		
Bakeout	Max 200° C with electronics removed		
• Diagnostics (error/status - gauge output)			
Note: all errors require a manual off/on re-start	'S' versions	'D' versions	
Emission off (supply on, emission off)	9.0V	10.0V	
Emission error (e.g. selected filament broken)	9.5V	10.0V	
Overpressure trip (protection against turn-on at atmosphere)	9.7V	10.0V	
• Diagnostics (error/status - LED)			
Supply connected, emission off	Amber		
Emission initiation	Green / amber alternating flash		
Normal operation	Green		
Degas	Green flash		
Overpressure error	Red		
Emission error	Red flash		
• Protection			
High pressure shutdown	In all cases, the gauge will shut down at > 5 x 10 ⁻² Torr (6.6 x 10 ⁻² mbar), requiring an off/on cycle to re-start		
Degas	In degas, if the pressure rises above 1 x 10 ⁻⁴ Torr (1.33 x 10 ⁻⁴ mbar), degas will be turned off, but the degas timer will continue to run. Degas will automatically resume when the pressure falls below 3 x 10 ⁻⁵ Torr (4 x 10 ⁻⁵ mbar) if the degas timer has not timed-out.		
• Adjustments	No user calibration adjustments required		
• Set point (open collector transistor)	1 on 'S' versions only		
Maximum voltage	30V dc		
Maximum current	100 mA max		
• Temperature range			
Operating temperature	0° to +40° C		
Storage temperature	-30° to +70° C		
• External interface connectors			
'S' versions	8-way FCC68/RJ45 socket		
'D' versions	9-way 'D' type plug (pins)		
• Interface cables			
'S' versions	Using a BOCE instrument controller or 24V supply, a maximum cable run of 30m may be achieved using the cables specified. (Lower supply voltages will reduce cable lengths)		
'D' versions	Maximum cable lengths for given conductor cross sections and supply voltages are shown in the table below.		
	Conductor section	24V Supply	15V Supply
	0.75 mm ²	100 m	10 m
	0.50 mm ²	75 m	6 m
	0.34 mm ²	50 m	4.5 m
	0.22 mm ²	30 m	3 m
• Weight	NW25	DN16CF	DN40CF
'S' & 'D' versions	260g	300g	510g
• Standards			
Electronic design	EN 61010-1		
Electromagnetic compatibility	EN 61326 (Industrial Location, Class B Emissions)		
Enclosure rating	IP30		
• Compatibility	The AIGX is supported by all new AGC's with serial numbers greater than 006737476 (non-RS 232 versions) and 006741851 (RS 232 versions). Earlier controllers will require a software upgrade.		
• Pin allocation	'S' versions	'D' versions	
Gauge on/off control	7	1	
Supply common	2	2	
Signal output	3	3	
Supply positive	1	4	
Set point	8	-	
Degas status	-	5	
Degas on/off control	6	6	
Signal common	5	7	
ID resistor	4	-	
Emission current select	-	8	
Emission status	-	9	

*Accuracy is reduced at the lower limit of the measuring range

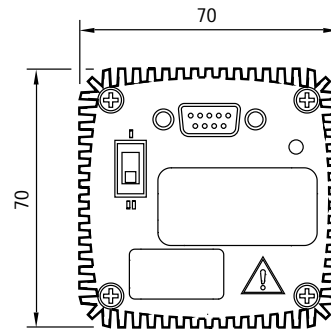
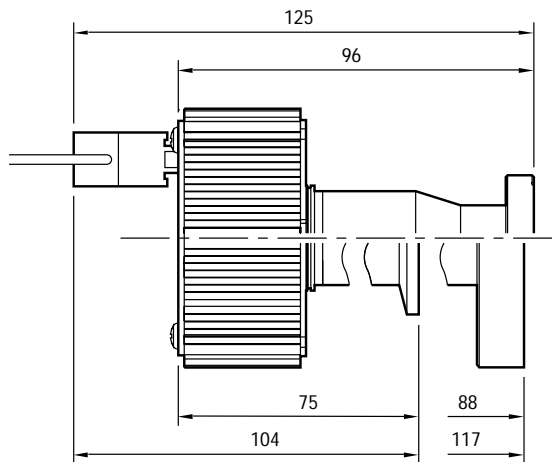
TECHNICAL DATA

DIMENSIONS (mm)

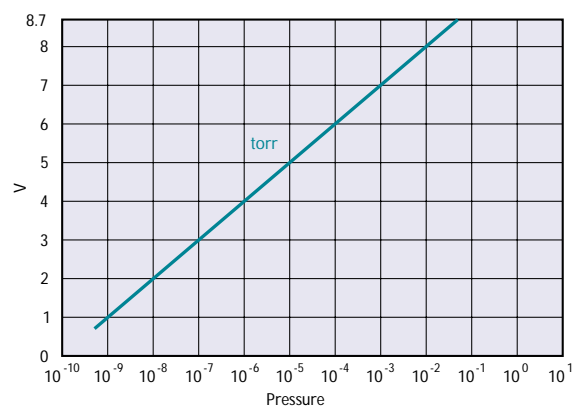
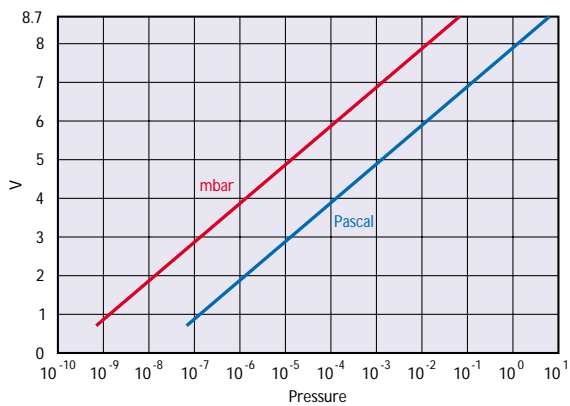
S Versions



D Versions



OUTPUT CHARACTERISTICS



ORDERING INFORMATION

PRODUCT DESCRIPTION	ORDERING INFORMATION
GAUGES	
AIGX-S-NW25	D048-50-000
AIGX-S-DN16CF	D048-51-000
AIGX-S-DN40CF	D048-52-000
AIGX-D-NW25	D048-60-000
AIGX-D-DN16CF	D048-61-000
AIGX-D-DN40CF	D048-62-000
ELECTRONICS MODULES	
AIGX-S	D048-50-800
AIGX-D	D048-60-800
SPARE FUSES	
AIGX spare fuse kit (Pk 5)	D048-50-805
REPLACEMENT TUBES	
NW25	D048-50-801
DN16CF	D048-51-801
DN40CF	D048-52-801
CABLES	
'S' versions (include FCC68 compatible connections at both ends)	
0.5m active gauge cable	D400-01-005
1.0m active gauge cable	D400-01-010
3.0m active gauge cable	D400-01-030
5m active gauge cable	D400-01-050
10m active gauge cable	D400-01-100
15m active gauge cable (24 AWG)	D400-05-150
30m active gauge cable (24 AWG)	D400-05-300
'D' versions	Supplied by customer
Non standard lengths and screened cables available on request	
OTHER ACCESSORIES AND SUPPORTING PRODUCTS	
NW25 trapped 'O' ring carrier (Viton)	C105-14-490
DN16CF annealed copper gasket (Pk 5)	C100-01-270
DN16CF M4 nut, bolt and washer kit (Pk 25)	C100-01-630
DN40CF annealed copper gasket (Pk 5)	C100-05-270
DN40CF M6 nut, bolt and washer kit (Pk 25)	C100-05-630
AGC software upgrade	Call for details

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