

# VACUUM MEASUREMENT AND CONTROL

 **EDWARDS**





## OUR VACUUM PRODUCTS

**Alongside our market leading pumps, Edwards can help you further by being your partner to create the ultimate Vacuum system. We offer a broad range of Measurement and Instrumentation devices which set the standard in terms of performance and reliability. Whether your application requires the ability to measure and analyse in overpressure or UHV we have the product to meet your needs.**

Starting from the basics we have a wide variety of fittings, switches, and valves to connect all your equipment together and to protect it, and a gauges portfolio that can measure from 2000mbar to  $1 \times 10^{-12}$  mbar. Then at the more advanced level we have Leak Detectors to test your connected system is ready to go or running at its optimum performance, and Residual Gas Analysers to give you deeper insights into your process.

This brochure will take you through our wide portfolio of products that can be used in any application, and for further details on any one item there are more details located on our website or you can contact your local sales representative for further support

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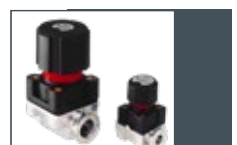
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## APG200 - Active Pirani Gauge

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Ultra High Vacuum		High Vacuum			Medium Vacuum			Low Vacuum					

The Active Pirani Gauge (APG200) is the perfect vacuum measurement solution across a spectrum of applications due to its compact size, LED light ring, integrated set-points and flexibility of connections/outputs.

The APG200 is suitable for all vacuum markets, from Analytical instruments who can take advantage of the reduced size and flexible outputs, to Semiconductor for whom the new interfaces and light rings enable better maintenance of systems, to Research and development for whom the local pressure indication helps to monitor experiments away from the main interfaces.



### Features and benefits

- Light ring pressure indication
- Compact size
- Long filament for increased sensitivity
- Integrated filter
- Wide range power supply
- Drop in compatible
- Digital and Analogue
- Set-point relay

### Technical data

Performance	APG200
Pressure range	APG200 XM / XMP atmosphere to 5x10 <sup>-4</sup> mbar (3.75x10 <sup>-4</sup> torr) APG200 LC atmosphere to 1x10 <sup>-4</sup> mbar (7.5x10 <sup>-5</sup> torr)
Accuracy APG200 XM/XMP	Atmosphere to 100 mbar +-50% 100 to 1x10 <sup>-3</sup> mbar +-15%. 1x10 <sup>-3</sup> mbar to 5x10 <sup>-4</sup> mbar +-50%
APG200 XLC	100 to 10 mbar +-50% 10 to 1x10 <sup>-3</sup> mbar +-15%. 1x10 <sup>-3</sup> mbar to 5x10 <sup>-4</sup> mbar +-50%
Dimension mm (NW25)	63 x 40 x 40
Max overpressure	10 bar absolute (145 psi)
Operating temperature range	5 to 60 °C
Storage temperature	-30 to +70 °C
Maximum bakeout temperature with electronics removed	150 °C

### Order information

Product description	Order number
APG200-XM-NW16	D1G1011100
APG200-XM-NW25	D1G1021100
APG200-XLC-NW16	D1G2011100
APG200-XLC-NW25	D1G2021100

## APGX H - Active Linear Convection Gauge

10 <sup>-10</sup>	10 <sup>-9</sup>	10 <sup>-8</sup>	10 <sup>-7</sup>	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>	10 <sup>-3</sup>	10 <sup>-2</sup>	10 <sup>-1</sup>	1	10	10 <sup>2</sup>	10 <sup>3</sup>
Ultra High Vacuum		High Vacuum				Medium Vacuum			Low Vacuum				

The Active Linear Convection Vacuum Gauge has a wide measuring range from 1333 to 3 x 10<sup>-4</sup> mbar. The use of convection technology ensures accuracy and sensitivity are maintained to the top of the pressure range compared to conventional Pirani gauges, which lose accuracy above 100 mbar.

The gauge is compact and may be mounted in any orientation, simplifying installation where space is limited. The gauge incorporates a setpoint and two LEDs, which indicate setpoint and gauge status.



### Features and benefits

- Wide measuring range
  - 1333 to 3 x 10<sup>-4</sup> mbar (1000 to 2.3 x 10<sup>-4</sup> Torr)
- Consistent measuring accuracy
  - Use of convection technology ensures consistent measuring accuracy (typically ±15%) and repeatability (±5%) to top of range
- Reduced cost of ownership
  - Replaceable tubes are available
- Standard analog output
  - Log linear in range 2.5 to 9.125 V (1V/decade)
  - Compatible with our ADC, AGD and TIC controllers
- Calibration data held in tube
  - Tubes are shipped pre-calibrated
- Easy installation in restricted spaces
  - Maintains accuracy in any orientation across the whole measuring range
- Compact instrument
  - Significantly smaller than leading competitor convection gauges
- Local status indication
  - LEDs indicate setpoint and gauge status at the gauge head
- CSA, C/US approved

### Technical data

Performance	APGX-H
Pressure range	1333 to 3 x 10 <sup>-4</sup> mbar
Accuracy	Typically +/- 15%
Max overpressure	10 bar absolute (145 psi)
Power supply	14.5 to 30 V d.c.
Power consumption	1.5 W maximum
Output signal	1.9 V to 9.12 SV d.c.
Enclosure rating	IP40
Dimension mm (NW25)	75x56x56
Temperature range	
Operating	+5 to +60°C
Storage	-30 to +70°C
Maximum bakeout temperature with electronics removed	70°C

### Order information

Product description	Order number
APGX-H NW16 aluminium	D02391000
APGX-H NW16 stainless steel	D02395000
APGX-H NW25 stainless steel	D02392000
APGX-H 1/8" NPT stainless steel	D02396000
<b>Spare electronics module</b>	
APGX-H electronics module	D02391800
<b>Spare tube assembly</b>	
NW16 AL tube	D02391801
NW16 ST/ST tube	D02395801
NW25 ST/ST tube	D02392801
1/8" NPT ST/T tube	D02396801
APGX-H filter pack 5 (not NPT version)	D02391805

## AIM200 - Active Inverted Magnetron Gauge

10 <sup>-10</sup>	10 <sup>-9</sup>	10 <sup>-8</sup>	10 <sup>-7</sup>	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>	10 <sup>-3</sup>	10 <sup>-2</sup>	10 <sup>-1</sup>	1	10	10 <sup>2</sup>	10 <sup>3</sup>
Ultra High Vacuum		High Vacuum			Medium Vacuum			Low Vacuum					

The Active Inverted Magnetron Gauge AIM200 is rugged and reliable and due to its compact size, LED light ring, integrated set-points and flexibility of connections/outputs, is suitable for a wide range of applications from scientific instruments to industrial processes.

The AIM200 gauge head and gauge controller have been combined into a single compact unit, and features a very low stray magnetic field, coupled with reduced footprint and improved striking mechanism makes it the perfect choice for use within analytical applications where the gauge needs to be mounted in close proximity to sensitive equipment.



### Features and benefits

- 360° LED light ring visual pressure indicator
- Reduced footprint
- Multipoint star striker
- Analogue/digital
- Wide range power supply
- Drop in compatible
- New magnets
- Set-point relay

### Technical data

Performance	AIM200
Pressure range	10 <sup>-2</sup> to 10 <sup>-9</sup> mbar
Accuracy	Typically +/- 30%
Max overpressure	10 bar absolute (145 psi)
Power supply	+13.5 to +36 V d.c. (max 1 V ripple)
Power consumption	2 W maximum
Output signal	2 to 10 V d.c.
Enclosure rating	IP40
Dimension mm (NW25)	92x45x45
Temperature range Operating	0 to 50°C
Maximum bakeout temperature with electronics removed	150°C

### Order information

Product description	Order number
AIM200 - NW25 - S matched output	D2G0021150
AIM200 - NW25	D2G0021100
AIM200 - NW25 - RS485 - 9Pin d-sub	D2G0020200
AIM200 - DN40CF	D2G0041100
nAIM200-X-RS485-NW25-9 Pin DSUB	D2G0020200
nAIM200-X-RS485-DN40CF-9 Pin DSUB	D2G0040200
nAIM200-X-RS232-NW25-9 Pin DSUB	D2G0025200
nAIM200-X-RS232-DN40CF-9 Pin DSUB	D2G0045200

## AIGX - Active Ion Gauge

10 <sup>-10</sup>	10 <sup>-9</sup>	10 <sup>-8</sup>	10 <sup>-7</sup>	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>	10 <sup>-3</sup>	10 <sup>-2</sup>	10 <sup>-1</sup>	1	10	10 <sup>2</sup>	10 <sup>3</sup>
Ultra High Vacuum		High Vacuum				Medium Vacuum		Low Vacuum					

The Active Ion Gauge (AIGX) is a compact active ion gauge with dual yttria coated iridium filaments, a wide measuring range from  $6.6 \times 10^{-2}$  to  $6.6 \times 10^{-10}$  mbar and a 1 Volt/decade linear output.

The AIGX incorporates all 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 and benefits

- Full 8-decade measurement capability, to  $6.6 \times 10^{-10}$  mbar ( $5 \times 10^{-10}$  Torr)
- 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 Edwards 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

Performance	AIGX
Pressure range	$6.6 \times 10^{-2}$ to $6.6 \times 10^{-10}$ mbar
Accuracy	Typically +/- 15%
Max overpressure	10 bar absolute (145 psi)
Power supply	+14.5 to +30.0 d.c.
Power consumption	Normal operation: 7W (max) Degas: 14W (max)
Output signal	0.7 V to 8.7 V
Enclosure rating	IP30
Dimension mm (NW25)	70x70x96
Temperature range	
Operating	0 to +40°C
Storage	-30 to +70°C
Maximum bakeout temperature with electronics removed	200°C

### Order information

Product description	Order number
AIGX-S NW25	D04850000
AIGX-S DN16CF	D04851000
AIGX-S DN40CF	D04852000
AIGX-D NW25	D04860000
AIGX-D DN16CF	D04861000
AIGX-D DN40CF	D04862000
<b>Spare electronics module</b>	
AIGX-S - replacement electronics module	D04850800
AIGX-D - replacement electronics module	D04860800



## WRG200 - Active Wide Range Gauge

10 <sup>-10</sup>	10 <sup>-9</sup>	10 <sup>-8</sup>	10 <sup>-7</sup>	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>	10 <sup>-3</sup>	10 <sup>-2</sup>	10 <sup>-1</sup>	1	10	10 <sup>2</sup>	10 <sup>3</sup>
Ultra High Vacuum		High Vacuum				Medium Vacuum			Low Vacuum				

The Active Wide Range Gauge (WRG200) offers the capability of single port pressure measurement in the range atmosphere to 10<sup>-9</sup> mbar with a linear output.

The WRG200 is a compact and efficient solution that significantly reduces the required space and hardware for connectivity. Its compact design makes it ideal for various applications. This gauge has undergone numerous technical improvements such as its innovative striker design, a 360° LED light ring, easy push-button calibration, integrated set-point controls, and comprehensive diagnostics.

The WRG200 offers cost-effectiveness as a vacuum management solution, either when used with an Edwards controller or directly integrated into the system controls. This gauge is perfect for monitoring pressure in systems that are rapidly pumped down from atmospheric pressure to high vacuum levels.



### Features and benefits

- 360° LED light ring visual pressure indicator
- Reduced footprint
- Filament technology
- New magnets
- Wide range power supply
- Drop in compatible
- Digital/analogue
- Set-point relay

### Technical data

Performance	WRG200
Pressure range	1x10 <sup>-9</sup> up to 1000mbar
Accuracy	<25% measured value from 1x10 <sup>-8</sup> to 1x10 <sup>-2</sup> <15% measured value from 1x10 <sup>-2</sup> to 50mbar
Max overpressure	10 bar absolute (145 psi)
Power supply	+14.5 to + 36 V d.c.
Power consumption	2 W maximum
Output signal	1.8 to 10.2 V d.c.
IP rating	IP 40
Dimension mm (NW25)	92x45x45
Temperature range	
Operating	0 to 50°C
Maximum bakeout temperature with electronics removed	150°C

### Order information

Product description	Order number
WRG200 - NW25	D3G0021200
WRG200 - NW25 - RS485 - 9Pin d-sub	D3G0021100
WRG200 - DN40CF	D3G0041100

## WRH - Active Hot Cathode Pirani Gauge

10 <sup>-10</sup>	10 <sup>-9</sup>	10 <sup>-8</sup>	10 <sup>-7</sup>	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>	10 <sup>-3</sup>	10 <sup>-2</sup>	10 <sup>-1</sup>	1	10	10 <sup>2</sup>	10 <sup>3</sup>
Ultra High Vacuum		High Vacuum				Medium Vacuum			Low Vacuum				

The Active Hot Cathode Wide Range Gauge (WRH) offers the ability to measure from atmosphere to 10<sup>-10</sup>mbar with a single gauge, with accuracy and repeatability.

The WRH gauge utilises 2 measurement methods (bayard-alpert & pirani) in a single package, giving you everything you need to measure and control your system. With analogue and RS485 output available via the D-SUB connector, 2 onboard relays and easy calibration, control and monitoring is simple. Utilising the included software, you can easily track and log your system's performance and also make adjustments to the gauges behaviour, such as setting the set points or changing the output scaling. This gauge is the perfect companion for many applications, from R&D institutes to high end mass spectrometry and through to general industry.



### Features and benefits

- All in one wide pressure measurement
- Dedicated software package included to allow full control/monitoring/modification
- Bakeable up to 180°C
- Analogue and RS485 output on same gauge
- LED status indicators
- 2 adjustable set points

### Technical data

Performance	WRH
Measuring range	1000 – 5x10 <sup>-10</sup> mbar
Accuracy	1000 to 10 mbar ± 30%, 10 to 1x10 <sup>-8</sup> mbar: ± 10%
Repeatability	10 to 1x10 <sup>-2</sup> mbar ± 2%, 1e <sup>-2</sup> to 1x10 <sup>-8</sup> mbar: ± 5%
Dimension	141 mm x 69 mm x 55 mm
Weight	0.475 kg
Max overload pressure	4 bar abs.
Materials in contact with vacuum	Stainless steel 1.4307, Tungsten, Nickel, Glass, Platinum, Iridium, Yttrium Oxide
Emission current	9 µA, 100 µA, 1.0 mA, 2.0 mA
Operating temp	+5...+60°C
Storage temp	40...+65°C
Bake out temp	Max. 180°C at the flange (voltage supply switched-off)
Voltage supply	20 – 30 VDC
Power consumption	Max. 8 W
Output signal	0 – 10 VDC analogue or RS485
Electrical connection	15 pin D-Sub
Protection class	IP40

### Order information

Part description	Order number
WRH-NW25	D14750100
WRH-NW40	D14750110
WRH-DN40CF	D14750120
WRH-NW25 Spare sensor	D14750101
WRH-NW40 Spare sensor	D14750111
WRH-DN40CF Spare sensor	D14750121
WRH to TIC adaptor cable	D14750100
WRH to TIC adaptor cable	D14750100

## Barocel - Active Capacitance Gauges

$10^{-10}$	$10^{-9}$	$10^{-8}$	$10^{-7}$	$10^{-6}$	$10^{-5}$	$10^{-4}$	$10^{-3}$	$10^{-2}$	$10^{-1}$	1	10	$10^2$	$10^3$
Ultra High Vacuum		High Vacuum				Medium Vacuum			Low Vacuum				

### The Barocel Capacitance Gauge 7000 series is our most accurate offering ever in vacuum gauging

Barocel Gauges have been introduced based on customers needs for ever more accurate measurement and control of systems. With ambient and heated offerings we can offer superior performance and reliability that means you can fit and forget it.



7025m



7025



7045, 7100

### Features and benefits

- Superior performance
  - Excellent zero stability and accuracy
- System enhancement
  - Simple integration with dual set points for enhanced control
- Flexible solutions
  - From compact to heated and everything between
- Low cost of ownership
  - Zero maintenance required

### Applications

- Semiconductor
  - Load lock, PVD, CVD, Etch
- High energy physics
  - Beam lines, accelerators, laser evacuation, medical systems
- Analytical
  - Mass spectrometry and electron microscopy
- Quality & control
  - Reference vacuum, batch control
- Industrial
  - Coating systems, furnaces, sterilisation, food processing, oxidation

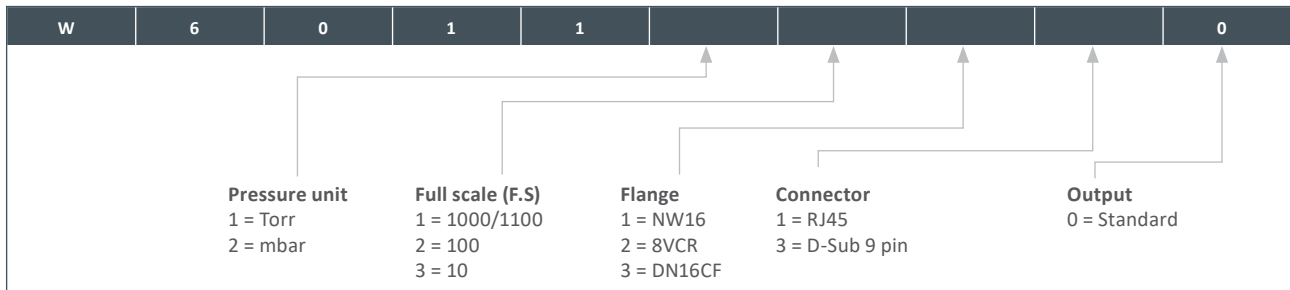
You can be assured Edwards has the application expertise and vacuum solution to meet your needs.

## Technical data

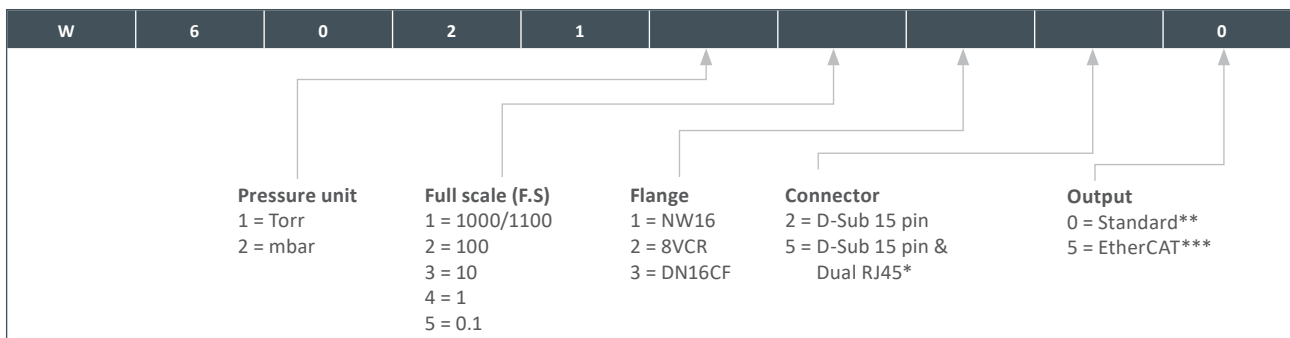
	7025m	7025			7045		7100	
FS options	1000/100/10	1000/100/10	1	0.1	1000/100/10/1	0.1	1000/100/10/1	0.1
Accuracy (% of reading)	1	0.2		0.5	0.15	0.15	0.2	0.4
Temperature effect								
On zero (percentage FS/°C)	0.02	0.005	0.015	0.02	0.0025	0.005	0.0025	0.005
On span (% of reading/°C)	0.02	0.01		0.03	0.01		0.02	
Resolution (percent FS)	0.05	0.003			0.003		0.003	
Lowest reading (percent FS)	0.05	0.05			0.05		0.05	
Admissible temps								
Ambient(°C)	0 to +70	+5 to +50			+10 to +40		+10 to +50	
Bakeout (at flange) (°C)	<110	<110			<110		<110	
Storage (°C)	-20 to +85	-40 to +65			-20 to +65		-20 to +65	
Burst pressure (bar) absolute	6	5			6		6	
Supply voltage V (dc)	+13 to +30	+13 to +30			+14 to +30 or +-15V		+14 to +30 or +-15V	
Power consumption								
During heat up (W)	N/A	N/A			<12		<15	
At normal operation (W)	<0.3	<1			<8		<10	
Output signal V (dc)	+0 to +10	+0 to +10			+0 to +10		+0 to +10	
Response time (ms)	100	30			30		30	
IP rating	40	30			40		40	
Dimensions NW16 (mm)	28.3x28.3x99	55x55x113			82x82x142		82x82x142	
Set points								
Numbers of	N/A	2			2		2	
Relay contact (V (dc))	N/A	30			30		30	
Hysteresis (percent F.S)	N/A	1			1		1	
Materials exposed to vacuum	Aluminium oxide ceramic (Al2O3), stainless steel 1.4404 (AISI 316L)							

## Order information

### Barocel 7025m selection tree



### Barocel 7025 selection tree

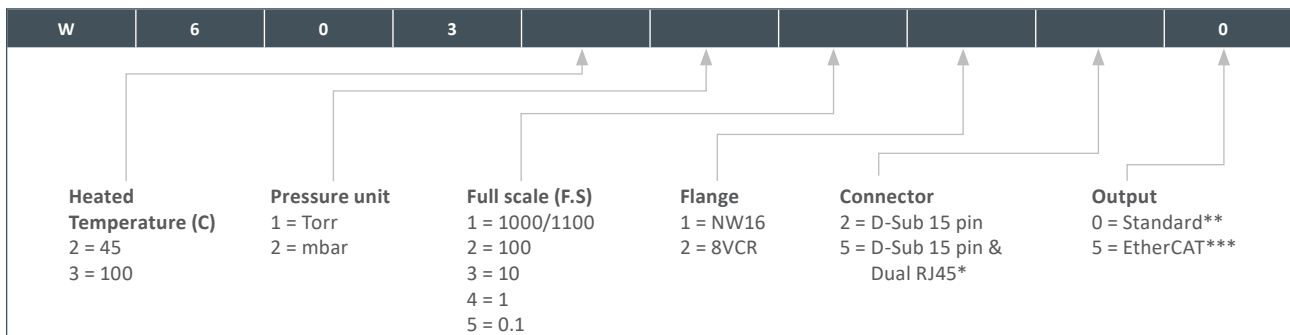


\*Only selectable with pressure units of torr and Output of "EtherCAT".

\*\*Only available with D-Sub 15 pin.

\*\*\*Only available with D-SUB 15 pin & Dual RJ45

### Barocel 7045/7100 selection tree



\*Only selectable with pressure units of torr and Output of "EtherCAT".

\*\*Only available with D-Sub 15 pin.

\*\*\*Only available with D-SUB 15 pin & Dual RJ45

## ASG2 - Active Strain Gauge

10 <sup>-10</sup>	10 <sup>-9</sup>	10 <sup>-8</sup>	10 <sup>-7</sup>	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>	10 <sup>-3</sup>	10 <sup>-2</sup>	10 <sup>-1</sup>	1	10	10 <sup>2</sup>	10 <sup>3</sup>
Ultra High Vacuum		High Vacuum				Medium Vacuum			Low Vacuum				

The Active Strain Gauge (ASG2) is a rugged, corrosion resistant diaphragm gauge which provides accurate, gas independent measurement from 2000 mbar to 1 mbar or 1000 mbar to 1 mbar.

It can be used as a stand-alone transducer allowing OEMs and system builders to develop low cost, flexible solutions to their vacuum instrumentation needs. Alternatively, it can be connected to the TIC Turbo and Instrument Controller family with an adapter cable where it can be combined with many other sensor types to provide a complete vacuum instrument solution.



### Features and benefits

- Drive electronics combined in the gauge head
  - Simplifies system design
  - Saves valuable rack space
- Wide range, regulated internal power supply
  - Runs from standard d.c. power supplies +12 to +32 V
  - Tolerant to voltage fluctuations
- Standard analogue output 0 to 10 V d.c.
  - Easy to interface with a computer or PLC
- High accuracy and stability
  - Accuracy ±0.2% full scale
  - Stability 0.1% full scale
- Corrosion resistant, rugged design
  - Material exposed to vacuum is stainless steel 316L and Hastelloy C276
  - Enclosure rating IP65
- Gas independent measurement
  - Pressure measurement is completely independent of gas type making this gauge ideal for applications where gases other than nitrogen are used
- Excellent high pressure resolution
  - Ability to resolve 1 mbar changes in system pressure even at pressures near atmospheric makes the gauge ideal for monitoring large slow-pumping systems
- Part of the Active gauge range
  - Standard supply requirements and output voltage allow simple integration into systems using Active pirani, thermocouple, inverted magnetron, strain, wide range and ionization gauges. All of these are compatible with the TIC Turbo and Instrument Controller family of multi channel digital displays and controllers

### Technical data

Performance	ASG2
Pressure range	ASG2-1000, 1000 to 1 mbar ASG2-2000, 2000 to 1 mbar
Accuracy	±0.2% full scale
IP rating	65
Power supply	12 to 32 V
Output signal	0 to 10 V d.c. linear
Dimension mm (NW25)	30x81x35
Enclosure rating	IP65
Temperature range	
Compensated	-10 to +50°C
Operating/storage	-40 to +80°C

### Order information

Product description	Order number
ASG2 NW16 1000 mbar	D35736000
ASG2 NW16 2000 mbar	D35738000
ASG2 ½" NPT 1000 mbar	D35735000
ASG2 ½" NPT 2000 mbar	D35737000
ASG2 adaptor cable (0.5 m) 4 pin DIN43650 form A to FCC68	D40003160

## Active Digital Controller

The Active Digital Controller (ADC) is a compact single gauge controller and display. It features a bright LED display and simple push button controls. The ADC automatically recognises compatible Edwards gauges, loads the appropriate look-up table and displays the pressure in commonly used vacuum units.



- Plug and measure operation
- Bright LED display for clear visibility
- Choice of display units - mbar, Torr, Pascal
- Supports APG200, APGXH, WRG200 and ASG2 gauges

## Enhanced Active Digital Controller

The Enhanced Active Digital Controller (eADC) is a compact dual gauge controller and display. It features a bright LED display and simple push button controls for two compatible Edwards gauges. The Enhanced ADC automatically loads the appropriate look-up table and displays the pressure in commonly used vacuum units.



- Controls two active gauges
- 2 set-point relays
- Simple push button control
- RS232 interface and analog output
- Supports APG200, APGXH, WRG200, AIM200 and ASG2 gauges

## TIC Controller

The TIC Instrument Controller offers comprehensive control and display of up to 6 compatible Edwards gauges. Intuitive user interface, 6 set points and full Windows Software for control and data logging functionality.



- Universal controller for up to 6 active gauges
- Compact design
- Clear, easy-to-use graphical user interface
- Serial communication Windows™ PC program including data logger, plus analogue outputs
- RS232 interface and analogue output
- Supports APG200, APGXH, WRG200, AIM200 and AIGX gauges and Barocel 7000 series (variant dependent) and ASG2

## Active gauge cables

Connection cable options	Order number	Controller	Order number	Max no. of gauges	No. of setpoints	Windows software	Data logging
0.5 m	D40001005	TIC controller (3 gauge)	D39700000	3	3	Yes	Yes
1 m	D40001010	TIC controller (6 gauge)	D39701000	6	6	Yes	Yes
3 m	D40001030	Active digital controller (ADC)	D39590000	1	0	No	No
5 m	D40001050	Enhanced digital controller (eADC)	D39591500	2	2	No	No
10 m	D40001100	UK power cable for TIC/ADC	D40013025	-	-	-	-
15m	D40001150	EU power cable for TIC/ADC	D40013030	-	-	-	-
25m	D40001250	US power cable for TIC/ADC	D40013120	-	-	-	-
50m	D40001500						

Cables include FCC68/RJ45 compatible connections at both ends.

Our Active and Digital gauges can be calibrated to UK national standards. To order calibrated parts, replace the last digit of the part number with letter 'C'.

# PASSIVE GAUGE HEADS

## PRG20K - Pirani Gauge Sensors

10 <sup>-12</sup>	10 <sup>-11</sup>	10 <sup>-10</sup>	10 <sup>-9</sup>	10 <sup>-8</sup>	10 <sup>-7</sup>	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>	10 <sup>-3</sup>	10 <sup>-2</sup>	10 <sup>-1</sup>	1	10	10 <sup>2</sup>	10 <sup>3</sup>
Ultra High Vacuum				High Vacuum				Medium Vacuum				Low Vacuum			

The Pirani Gauge Sensors are available in 3 models. The PRG20K-NW16 AI is an aluminium sensing cell with tungsten filament. The PRG20K-DN16CF SS is a stainless steel sensing cell with tungsten filament and is overpressure resistant.

The PRG20KCR-NW16 SS is a stainless steel sensing cell with platinum filament and ceramics feed through, which is well suited for corrosive processes and water vapour atmospheres.



### Features and benefits

- Measurement range 5 x 10<sup>-4</sup> to 1000 mbar (3.8 x 10<sup>-4</sup> to 750 Torr)
- Tungsten or platinum filament
- Cost-effective sensing cell
- Fully aligned and temperature compensated 0 to +40°C
- Constant filament temperature

### Technical data

Performance	PRG20K
Pressure range	10 <sup>3</sup> to 0.5x10 <sup>-4</sup> mbar
Accuracy	<10 <sup>-2</sup> mbar ±20% 10 <sup>-2</sup> to 10 <sup>2</sup> mbar ±15%
Max overpressure	3 bar (aluminium tube) 10 bar (stainless tube)
Temperature range	
Operating	0 to +40°C
Storage	-20 to +70°C
Maximum bakeout temperature	80°C
Radiation tolerance	5x10 <sup>4</sup> Grays

### Order information

Product description	Order number
PRG20K - NW16 AI	D03000200
PRG20K - DN16CF SS	D03000210
PRG20KCR - NW16 SS	D03000220
PRG cable 5m	D03000201
PRG cable 10m	D03000202
PRG cable 20m	D03000203
PRG cable 30m	D03000204
PRG cable 50m	D03000205



## CPG35K - Penning Gauge Sensors

10 <sup>-12</sup>	10 <sup>-11</sup>	10 <sup>-10</sup>	10 <sup>-9</sup>	10 <sup>-8</sup>	10 <sup>-7</sup>	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>	10 <sup>-3</sup>	10 <sup>-2</sup>	10 <sup>-1</sup>	1	10	10 <sup>2</sup>	10 <sup>3</sup>
Ultra High Vacuum			High Vacuum				Medium Vacuum			Low Vacuum					

The Penning Gauge Sensors are available in 4 models. All 4 have a measurement range of  $1 \times 10^{-9}$  to  $10^{-2}$  mbar ( $0.75 \times 10^{-9}$  to  $10^{-2}$  Torr) and are insensitive to air in rushes and vibration.

These passive sensors use cold cathode ionization technology according to Penning. The cathode plate is exchangeable, and demonstrates improved ignition through the use of titanium cathodes. The CPG35KB is bakeable to 200°C.

### Features and benefits

- Rugged
- Insensitive to air inrushes and vibrations
- Easy disassembly and cleaning of the measurement system
- Exchangeable cathode plate
- Improved ignition characteristic through titanium cathodes



### Technical data

Performance	CPG35K
Pressure range	$10^{-2}$ to $10^{-9}$ mbar
Accuracy	$10^{-4}$ to $10^{-8}$ mbar $\pm 30\%$
Max overpressure	10 bar
Temperature range	
Operating	+5 to +80°C
Storage	-20 to +70°C
Maximum bakeout temperature	Standard gauge 80°C bakeable gauge 200°C
Radiation tolerance	$10^6$ Grays

### Order information

Product description	Order number
CPG35K - NW40	D03000100
CPG35K - DN40CF	D03000110
CPG35K - NW25	D03000130
CPG35KB - DN40CF	D03000140
CPG cable 5m	D03000101
CPG cable 10m	D03000102
CPG cable 20m	D03000103
CPG cable 30m	D03000104
CPG cable 50m	D03000105

## IG40 - Ion Gauge Sensors

10 <sup>-12</sup>	10 <sup>-11</sup>	10 <sup>-10</sup>	10 <sup>-9</sup>	10 <sup>-8</sup>	10 <sup>-7</sup>	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>	10 <sup>-3</sup>	10 <sup>-2</sup>	10 <sup>-1</sup>	1	10	10 <sup>2</sup>	10 <sup>3</sup>
Ultra High Vacuum				High Vacuum				Medium Vacuum				Low Vacuum			

Using hot cathode ionization technology, both the Bayard-Alpert and Extractor gauges have highly accurate individually calibrated sensing systems and exchangeable cathodes:

- The Bayard-Alpert sensing system has a measurement range from 10<sup>-2</sup> to 2 x 10<sup>-11</sup> mbar (1.5 x 10<sup>-11</sup> Torr) with its protection shield welded in place.
- The Extractor sensing system has a measurement range from 10<sup>-4</sup> to 2 x 10<sup>-12</sup> mbar (1.5 x 10<sup>-12</sup> Torr), alongside a significant reduction of X-ray and ion desorption effects.



### Features and benefits

- Exchangeable cathode in both the Bayard-Alpert and Extractor gauges
- High accuracy of the measurements due to individually calibrated sensing system

### Technical data

	IG40 BA	IG40 EX
Pressure range	10 <sup>-2</sup> to 2x10 <sup>-11</sup> mbar	10 <sup>-2</sup> to 2x10 <sup>-12</sup> mbar
Accuracy	±2%, ±5x10 <sup>-13</sup> mbar	±2%, ±3x10 <sup>-13</sup> mbar
Max overpressure	2 bar	2 bar
Radiation tolerance	10 <sup>6</sup> Grays	10 <sup>6</sup> Grays
Temperature range		
Operating	+20 to +80°C	+20 to +80°C
Storage	+20 to +50°C	+20 to +50°C
Maximum bakeout temperature	with cable 250°C without cable 400°C	with cable 250°C without cable 400°C

### Order information

Product description	Order number
IG40 BA DN40CF	D03000300
IG40 EX DN40CF	D03000310

Product description	Order number
IG40 BA/EX cable 5m bakeable	D03000301
IG40 BA/EX cable 10m bakeable	D03000302
IG40 BA/EX cable 50m bakeable	D03000305

## PGC201 Pirani and Penning Controller & PGC202 Pirani and Ion Controller

The PGC201 controller covers the pressure range between  $10^{-9}$  and 1000 mbar by combining two measurement principles from the PRG and CPG gauges.

The PGC202 combines PRG gauges and IG40 BA or IG40 EX gauges for measurements of vacuum pressures in the range between  $10^{-12}$  and 1000 mbar. Both these controllers provide monitoring and control functions for the connected gauges.



- Compact 3 channel operating unit for a pressure range for passive sensors of  $-10^{-9}$  to 1000 mbar PGC201  $-10^{-12}$  to 1000 mbar PGC202
- Automatic switchover from Pirani operation to Penning cold cathode operation (PGC201)
- UHV sensors either Bayard-Alpert measurement system IG40 BA or Extractor measurement system IG40 EX (PGC202)
- Measurement cable lengths up to 50 meters

### Order information

Controllers	Product description	Order number
Pirani/Penning	PGC201	D03000400*
Pirani/Ion	PGC202	D03000410*

\* supplied with US/EU plug

### Connectable sensors

Pirani	Penning Gauge (only PGC201)	Ion Gauge (only PGC202)
PRG20K - NW16 Al	CPG35K - NW25	IG40 BA DN40CF
PRG20K - DN16CF SS	CPG35K - NW40	IG40 EX DN40CF
PRG20KCR - NW16 SS	CPG35K - DN40CF	
	CPG35KB - DN40CF	

# VACUUM SWITCHES

## VS16K & IS16K Vacuum Switches

The VS16K is a general purpose Vacuum Switch with a user adjustable set point and a small switching differential. The switch point can easily be set using a screwdriver over the range 30 - 1000 mbar.

The IS16K vacuum interlock switch is designed to safeguard the operator by ensuring that electrical circuits in the vacuum chamber do not remain energised when the system is let up to atmosphere.

Typical applications include interlocking of the HT cleaning or processing circuits on thin film deposition and vacuum systems.

### Features and benefits

- VS16K
  - Suitable for all applications- only stainless steel parts exposed to vacuum
  - Set point independent of gas composition- ideal for backfilling applications
  - “Normally Open” and “Normally Closed” contacts
- IS16K
  - Suitable for all applications - only stainless steel parts exposed to vacuum
  - Single non-adjustable set point - cannot be tampered with



### Technical data

Performance	VS16K	IS16K
Range of adjustment	30 to 1000 mbar*	-
Fixed set point	-	640 +/- 120 mbar*
Maximum switching differential	30 mbar	1000 mbar
Maximum working pressure	1 bar gauge (2 bar absolute)	1 bar gauge (2 bar absolute)
Electrical rating	10A resistive, 5A inductive at 250 V a.c.	10A resistive, 5A inductive at 250 V a.c.
Electrical connection plug	Type 283 mPm	Type 283 mPm
Materials in vacuum	Stainless steel	Stainless steel
Enclosure classification	IP52	IP52
Vacuum connection	NW16	NW16

\*Set point varies with barometric pressure

### Order information

Product description	Order number
VS16K adjustable vacuum switch	D05915000
IS16K vacuum interlock switch	D05914000

## CG16K Capsule Dial Gauges

**Barometrically compensated Dial Gauges with NW flange fittings. Edwards CG16K Capsule Dial Gauges cover the range from atmosphere of 0 to 1040 mbar.**

These robust gauges provide accurate, repeatable performance even at low pressures making them equally suited for non-corrosive process plant or for laboratory applications.

Fitting is simple: the gauges can be mounted direct or panel mounted using the kit supplied.

### Features and benefits

- Accurate to  $\pm 2\%$  F.S.D.
- Barometrically compensated unaffected by changes in atmospheric pressure
- Reading independent of gas type
- Rugged aluminium casing with removeable bezel for cleaning



### Technical data

Performance	CG16K
Accuracy	$\pm 2\%$ of F.S.D.
Materials in vacuum	Inconel, aluminium, nickel, glass, nitrile, copper, alloy
Internal volume	160 cm <sup>3</sup>
Maximum applied pressure	2 bar absolute (1 bar gauge)
Weight	0.8 kg
Vacuum connection	NW16
Accessories supplied	Clamp and studs for panel mounting

### Order information

Product description	Order number
CG16K capsule dial gauge 0 to 1040 mbar	D35610000
CG16K capsule dial gauge 0 to 125 mbar	D35611000
CG16K capsule dial gauge 0 to 50 mbar	D35612000
CG16K capsule dial gauge 0 to 25 mbar	D35613000
CG16K capsule dial gauge 0 to 760 Torr	D35630000
CG16K capsule dial gauge 0 to 100 Torr	D35631000
CG16K capsule dial gauge 0 to 40 Torr	D35632000
CG16K capsule dial gauge 0 to 20 Torr	D35633000

# HANDHELD MEASURING GAUGE

## P3 Portable Gauge

The P3 Handheld Measuring System is the essential device for on-site service calls and on the spot flexible checking. Thanks to the easy use and integrated measurement data memory, pressures can be directly measured at different locations for monitoring the application. Owing to the advanced measuring range of the high-precision Piezo/Pirani sensor, pressure measurement in the range of 1200 to  $5 \times 10^{-4}$  mbar can be displayed.

The instrument can also be operated completely under vacuum conditions and with the integrated memory function it is possible to store and display up to 2000 measured values.

### Features and benefits

- Measurement range 1200 to  $5 \times 10^{-4}$  mbar (7 decades)
- Usage in vacuum is possible
- Data logging via USB interface or using the internal memory to store up to 2000 values which can then be exported to PC
- Cordless power supply with standard 9 V battery or 12 V a.c. adapter in the accessory pack
- Pressure unit selectable: mbar, Torr and Pascal
- Windows software for measuring data storage and PC analysis in the accessory pack



### Technical data

	Units	P3 Handheld Measuring System
Measurement principle		Piezo-resistive (gas type independent) and thermal conductance Pirani
Indicated units of measurement		mbar, Torr, Pa
Measurement range	mbar (Torr)	1200 to $5 \times 10^{-4}$ (900 to $3.75 \times 10^{-4}$ )
Maximum overload	bar abs.	2
Measurement accuracy		
1200 - 10 mbar (900 to 75 Torr)	%	$\pm 0.3$ of full-scale
$10^{-2} \times 10^{-3}$ mbar ( $7.5$ to $1.5 \times 10^{-3}$ Torr)	approx. %	10 of measured value
$< 2 \times 10^{-3}$ mbar ( $< 1.5 \times 10^{-3}$ Torr)		< factor 2 of measured value
Gas type correction factor		Ar, CO <sub>2</sub> , He, CO, H <sub>2</sub> , N <sub>2</sub> , Kr
Materials in contact with the vacuum		Stainless steel, gold, tungsten, nickel, glass, fluoroelastomer
Measurement cycle	s	1.0
Data storing rate	s	1 to 6000
Operating temperature		
Sensor	°C	+5 to +50
Battery	°C	-20 to +45
Storage temperature		
Sensor	°C	-20 to +60
Battery	°C	+10 to +25
Supply voltage		Rechargeable 9 V battery (recommendation: type Panasonic 6LR61PM, 9 V/500 mAh) or 12 - 15 V d.c. external adaptor (miniature jack, + terminal at the tip)
Power consumption		
< 200 mbar (< 150 Torr)	mW	60
> 200 mbar (> 150 Torr)	mW	2
Operating duration	h	Li-battery: <100 h, 6LR61 Alkaline: <40 h
Display		LCD 12 mm
Connection (stainless steel)		NW16
PC interface		Mini USB-B connector
Data type		ASCII-Text
Dimensions	mm	60x120x61
Protection class	IP	40
Weight (including battery)	kg (lbs)	0.23 (0.51)

### Order information

Product description	Order number
P3 gauge including 9V battery	D03000420
P3 gauge accessory kit Including: USB interface cable (2 m), protection case with foam insert, 15 V wall power supply for 100 - 260 V, 50/60 Hz mains, VacuGraph™ software and AIMn battery, 9 V block 6LR 61	D03000421
P3 gauge (calibrated), including 9V battery	D0300042C

## ELD500 Precision Leak Detector

The ELD500 Precision Leak Detector is designed for fast, accurate leak detection in a wide range of applications, fully mobile and with an easy to control interface. Featuring with low energy consumption, long life ion source which come with an extended warranty. Edwards ELD500 leak detector ensures exceptional low cost of ownership with no compromise on performance.

### Available in three variants:

ELD500 FLEX, ELD500 DRY, ELD500.

Edwards ELD500 leak detector is versatile.

All models feature a rugged turbomolecular pump optimised for the rigours of portable leak detection, ideal across all applications.



### Features and benefits

- FLEXIBLE REMOTE CONTROL OPTIONS
  - Colour touch screen control with local graphical display and audible leak detection. Wireless models allow simultaneous control of up to 10 leak detectors.
- MOBILE SOLUTION
  - Low weight and integrated carry handles which allow it to be bench top or trolley mounted.
- HIGH SENSITIVITY
  - Measurement of leaks for Helium of  $<5 \times 10^{-12}$  mbar  $\text{ls}^{-1}$  in vacuum mode and  $<7 \times 10^{-9}$  mbar  $\text{ls}^{-1}$  in sniffer mode.
- CUSTOMISABLE FOR ANY APPLICATION
  - ELD500 version with an integrated oil sealed rotary vane pump
  - ELD500 DRY version with an integrated helium optimised diaphragm pump
  - ELD500 FLEX version without a primary pump.
- PARTIAL FLOW KIT
  - Allows effective pump down of large of contaminate flows compatible with ELD500 and ELD500 FLEX variants.
- ACCURATE PIN-POINTING OF LEAKS
  - Standard sniffer line enables operation up to 4m from the ELD500. Longer sniffer lines of up to 50m can be used with the sniffer extender interface.
- LONG TERM STABILTY
  - Ensured by class leading 180° mass spectrometer.

## Technical data

ELD500 Leak Detector	Units	ELD500	ELD500 DRY	ELD500 FLEX
Lowest detectable helium leak rate				
Vacuum operation	mbar ls <sup>-1</sup>	≤ 5 x 10 <sup>-12</sup>	≤ 3 x 10 <sup>-11</sup>	≤ 5 x 10 <sup>-12</sup> *
Sniffer operation	mbar ls <sup>-1</sup>	≤ 7x10 <sup>-9</sup>	≤ 7x10 <sup>-9</sup>	≤ 7x10 <sup>-9**</sup>
Maximum measurable helium leak rate				
IP protection class	IP	40	40	40
Vacuum operation	mbar ls <sup>-1</sup>	> 0.1	> 0.1	> 0.1
Measurement ranges	decades	12	12	11
Maximum permissible inlet pressure	mbar	15	15	15
Pumping speed during pumpdown, 50 Hz/60 Hz	m <sup>3</sup> h <sup>-1</sup>	2.5/3	1.6/1.8	N/A
Helium pumping speed in the fine mode	ls <sup>-1</sup>	3.1	3.1	3.1
Time constant for leak rate signal	s	< 1	< 1	< 1
Time until ready for operation	min	≤ 2	≤ 2	≤ 2
Power consumption	VA	420	350	200
Inlet flange		NW25	NW25	NW25
Dimensions (WxHxD)	mm	495x456x314	495x456x314	495x456x314
Weight	kg	40	35.5	30

\* Backing pump dependent

\*\* Dependent on sniffer line and ambient conditions. Leak rate display after zero: ≤ 1 x 10<sup>-8</sup> mbar/s with ELD500 SL

## Order information

Product description	Order number
ELD500, 200-240V,50/60Hz	D13510903
ELD500, 100-120V, 50/60Hz	D13510904
ELD500, 100-120V, 60Hz	D13510906
ELD500 DRY, 200-240V,50/60Hz	D13520903
ELD500 DRY, 100-120V, 50/60Hz	D13520904
ELD500 DRY, 100-120V, 60Hz	D13520906
ELD500 FLEX, 100-240V,50/60Hz	D13530000
ELD500 RC - Wired - Remote control	D13550100
ELD500 RC - Wireless - Remote control	D13550110
ELD500 RC - Wired - 8m extension cable	14022
ELD500 RC - Wireless - Extra transmitter	D13550130
ELD500 SL - Standard sniffer line 4m	D13550300
ELD500 SL - Extended SL Interface	D13550200
ELD500 SL - Extended sniffer line 5m	14008
ELD500 SL - Extended sniffer line 20m	14009
ELD500 SL - Extended sniffer line 50m	12183
ELD500 Partial flow adaptor	D13550400
ELD500 Transport Case	D13550500
ELD500 Cart without Ebox	D13550600
ELD500 SG - Helium spray gun	16555
CL-Internal calibrated leak	D13550910
CL-Cal Leak bspk. 0.5 - 1E-7. Screw Skt	D13550930
CL-calibrated leak HE 4 to 6	D13550950

## Extended warranty

Product description	Order number
Extended warranty from 18 months to 3 yrs	EW3AA5100
Extended warranty from 18 months to 5 yrs	EW5AA5100





## PRA & WRA - Residual Gas Analysers Range

The Residual Gas Analysers RGAs includes two families: PRA & WRA. Both come with simple and effective operation assuring high performance and efficiency.

All our RGAs are equipped with dedicated, easy-to-use software which allows you to track your process in realtime from your laptop and do detailed analysis of up to 16 different units. For those wanting a snapshot view, the units have a unique on-board display which can show you the main gas types as well as the overall pressure of your system without having to connect via laptop.

### Features and benefits

- TOTAL PRESSURE MEASUREMENT
  - Ability to combine the partial pressures to give an overall pressure of the system
- ON-BOARD DISPLAY
  - The ability to read key values locally
- SERVICEABILITY
  - Easy to maintain parts requiring standard tooling
- PROTECTION
  - Function that self-protects in the event of mis-use
- COMPLIMENTARY SOFTWARE
  - Software is provided as standard with all units, not at additional cost
- HIGH SENSITIVITY
  - Up to 300A/mbar
- LOW DETECTABLE PARTIAL PRESSURE
  - Down to  $1 \times 10^{-14}$



### Technical data

Residual gas analysers	Units	PRA100	PRA100S	PRA200	PRA200S
Mass range	amu	1-100	1-100	1-200	1-200
Mass filter type		QMS	QMS	QMS	QMS
Detector type		Faraday cup	EM/Faraday Cup	Faraday Cup	EM/Faraday Cup
Sensitivity	A/mbar	$1 \times 10^{-5}$	$400/1 \times 10^{-5}$	$1 \times 10^{-5}$	$400/1 \times 10^{-5}$
Minimum detectable partial pressure	mbar	$1 \times 10^{-10}$	$1 \times 10^{-14}/1 \times 10^{-10}$	$1 \times 10^{-10}$	$1 \times 10^{-14}/1 \times 10^{-10}$
Max operating pressure	mbar	$1 \times 10^{-4}$	$1 \times 10^{-4}$	$1 \times 10^{-4}$	$1 \times 10^{-4}$
Filament material		Ir/Y2O3	Ir/Y2O3	Ir/Y2O3	Ir/Y2O3
Operating temp	°C	10-40	10-40	10-40	10-40
Max analyser temp	°C	120	120	120	120
Max bake out temp (elec removed)	°C	250	250	250	250
Connection flange		DN40CF	DN40CF	DN40CF	DN40CF
Power input		DC24V +-10% 50W	DC24V +-10% 50W	DC24V +-10% 50W	DC24V +-10% 50W
Weight	kg	2,6	2,84	2,6	2,84
IP		30	30	30	30
Serial communication		RS485	RS485	RS485	RS485
Resolution		M/DeltaM=1M(10%PH)	M/DeltaM=1M(10%PH)	M/DeltaM=1M(10%PH)	M/DeltaM=1M(10%PH)

## Technical data

Residual gas analysers	Units	WRA200S	WRA300S
Mass range	amu	1-200	1-300
Mass filter type		QMS	QMS
Detector type		EM/Faraday Cup	EM/Faraday Cup
Sensitivity	A/mbar	400/2.5x10 <sup>-4</sup>	400/2.5x10 <sup>-4</sup>
Minimum detectable partial pressure	mbar	1x10 <sup>-10</sup> /1x10 <sup>-11</sup>	1x10 <sup>-15</sup> /1x10 <sup>-11</sup>
Max operating pressure	mbar	1x10 <sup>-4</sup>	1x10 <sup>-4</sup>
Filament material		Ir/Y2O3	Ir/Y2O3
Operating temp	°C	10-40	10-40
Max analyser temp	°C	250	250
Max bake out temp (elec removed)	°C	300	300
Connection flange		DN40CF	DN40CF
Power input		DC24V +-10% 50W	DC24V +-10% 50W
Weight	kg	3,21	3,21
IP		30	30
Serial communication		RS485	RS485
Resolution		M/DeltaM=1M(10%PH)	M/DeltaM=1M(10%PH)

## Order information

Product description	Order number
WRA200S	D05002202
WRA300S	D05002302
WRA-S analyzer tube	D05002015
WRA200S/300S filament kit	D05002014
WRA200S/300S ion source	D05002013
PRA-S/WRA-S SEM	D05002012
PRA100	D05001101
PRA100S	D05001102
PRA200	D05001201
PRA200S	D05001202
PRA100/200 analyzer tube	D05001016
PRA100S/200S analyzer tube	D05001015
PRA ion source	D05001013

## Valves for Vacuum Systems

Whatever the application, Edwards has the right solution to meet your process requirements. Well known for its innovation in pump design, Edwards applies the same energy and commitment to its valves. The result is an extensive range of valves, with a choice of actuation methods, materials and size. Materials of construction have been uncompromisingly selected for performance in high vacuum. Confidence in Edwards valves begins early in the design process.

We use techniques such as Finite Element Analysis to optimise the design of the valve. An arduous testing program in our environmental testing laboratory prior to release to production ensures that every valve we supply will meet the needs of your application.

Once in production, all valves are subject to stringent quality control and are individually tested with a helium mass spectrometer leak detector. Bellows sealed pipeline valves are manufactured with 100% grease free O-rings exposed to vacuum delivering unrivalled low contamination levels.



### Product description

Speedivalve

IBV Series vacuum ball valves

PVMK Manual operation right angle isolation valves

IPVMK Manual operation in-line isolation valves

PVPK Pneumatic operation right angle isolation valves

IPVPK Pneumatic operation in-line isolation valves

PVEK Solenoid operation right angle isolation valves

IPVEK Solenoid operation in-line isolation valves

LCPVEK Solenoid operation isolation valves

BRV Backing/roughing valves

### Product description

SIPVP Soft-start isolation valves

BGV Manual gate valves

BGV MK2 Pneumatic gate valves

GV Manual and Pneumatic gate valves

QSB Quarter swing butterfly valves

AV5A Air admittance valve with couplings

AVI0K Air admittance valves

IPVA10EK Air admit valve NW10

LV10K Leak valve NW10 flanges

Electropneumatic control valves

## Selection guide:

When you design a vacuum system, your choice of valves will be determined by the need for certain operating parameters. When you choose a valve for your vacuum system, consider all of the parameters as described below.

- **Actuation** The choice is manual, solenoid or pneumatic, which will be determined by your system design and what facilities are available to the machine.
- **Dirty System Tolerance** Vacuum valves have a differing ability to remain leak tight in "dirty" vacuum systems. If your system generates or contains dust or other particulates, choose a valve with a high tolerance.
- **Size** Choose a valve which complements the size of your vacuum pipeline. To maintain high pumping speeds and throughputs, do not reduce the size of your pipeline to accommodate a smaller valve.
- **Pressure Range** Both the maximum and minimum pressure rating are important, particularly if the vacuum system is occasionally pressurised to above atmospheric pressure.
- **Port Configuration** Depending on the location of the valve, you may need either an in-line or a right angle valve.
- **Life** The mean time to failure is important for solenoid and pneumatic valves in rapid cycle duties, or where you have extended maintenance intervals.
- **Position Indication** You may need local or remote indication of valve, position as part of your control system.
- **Closure Speed** Use either a solenoid valve or pneumatic valve if you must have rapid valve closure.
- **Corrosion Resistance** Valves are available in stainless steel for those applications that process corrosive gases.

## Vacuum Components and Flange Fittings

When you buy vacuum pump components from Edwards, you can expect the quality and service that only a leading international supplier can provide. We understand that flanges and fittings are critical to the performance of your vacuum system, and supply only high quality products which meet the highest specification.

### Convenience of supply:

Single source supplier, able to provide the complete system solution either online or via local supply centres.

### High quality and reliability:

Precision material control ensures a dependable vacuum performance on sensitive or demanding applications.

### Comprehensive choice:

Complete range for all common flange sizes in aluminium and stainless steel.

### NW flange assembly

NW fittings, otherwise known as ISO-KF, are the industry standard for many applications in the low to high vacuum range. They are ideal for achieving dependable cost effective performance down to  $10^{-7}$  mbar across a range of applications from light to harsh duty. A simple fastening method means that systems can be easily assembled and a leak tight vacuum seal is quickly achieved.

- Manufactured to ISO 2861 and DIN 28403 standards
- Nominal diameters 10 mm to 50 mm
- Use with either elastomer or formed aluminium seals
- Choice of clamp type depending on application, access, convenience and cost
- For use in high-vacuum applications: pressures  $>10^{-7}$  mbar











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Edwards Ltd, registered in England and Wales  
No. 6124750, registered office: Innovation Drive, Burgess Hill, West Sussex, RH15 9TW, UK.