SRS Vacuum Gauges

Glass Tubulated

Nude

Nude-UHV

PG105 Pirani
PG105-UHV Pirani

SRS Bayard-Alpert Ionization Gauges

SRS offers several types of gauges for the IGC100 Ion Gauge Controller. These include glass tubulated, nude and nude-UHV B-A ionization gauges. Glass tubulated gauges may be purchased with either Pyrex or Kovar tubes, or with a 2.75" Conflat® flange. Nude gauges are available in standard or UHV compatible form. We also supply Convection Enhanced Pirani gauges (back page).

All single, hairpin shaped, filaments used in SRS gauges are spring tensioned to eliminate filament sag and allow the user to mount the gauge in any orientation. Dual filament assemblies provide security against filament burnout if the system cannot be brought to atmosphere to change the gauge.

SRS offers NIST traceable gauge calibration on all of the gauges we sell. Calibration data is stored on a memory card, and is used in conjunction with the IGC100 Ion Gauge Controller. We offer a 6% accuracy full range calibration and a high precision 3% accuracy calibration, for much less than previously available solutions.

For more information on the selection of the correct ionization gauges for your application consult the Vacuum Application Notes @ www.thinkSRS.com.

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Selecting the Right Gauge

To select the appropriate gauge for your application follow the steps below using the Model Numbers Selection and Cross-Reference Table.

1) Select the type of gauge - glass tubulated, nude or nude-UHV.
2) Select the type of connection - Pyrex, Kovar, 2.75 in. CF, etc.
3) Select the connection diameter (if applicable)
4) Select filament type - ThO_2/Ir or Tungsten, single or dual.
5) Note the SRS part number.

If you are trying to replace a gauge, there is a Cross-Reference Table to help in your selection.

Once you have made your gauge selection, you will need to choose the appropriate cable, using the Pin Connector Configuration diagram and the corresponding figure number. Note also the cable number.

Finally, go to the ordering information table to determine the price for the SRS part number you have selected.

Bayard-Alpert Gauge Tube Model Numbers Selection and Cross-Reference Table

Type	Description			Pin Config/ SRS Cable#	SRS Part#	Granville-Phillips	ETI	Duniway Stockroom	Kurt J.Lesker	Varian
Glass Tubulated	Connection		Filament Material							
	Type	Diameter								
	Glass Tube (Pyrex)	0.75 in.	ThO_2/Ir (single)	Fig. 1	GR-075P	274002	4336P	I-075-P	G075P	K2471304
			Tungsten (dual)	Fig. 2	GW-075P	274012	4336TP	T-075-P	G075TP	K7360303
		1 in.	ThO_2/Ir (single)	Fig. 1	GR-100P	274005	4336P/1	I-100-P	G100P	K2471301
			Tungsten (dual)	Fig. 2	GW-100P	274015	4336TP/1	T-100-P	G100TP	K7360301
	Metal Tube (Kovar)	0.75 in.	ThO_2/Ir (single)	Fig. 1	GR-075K	274003	4336K	I-075-K	G075K	K2471305
			Tungsten (dual)	Fig. 2	GW-075K	274013	4336TK	T-075-K	G075TK	K7360304
		1 in.	ThO_2/Ir (single)	Fig. 1	GR-100K	274006	4336K/1	I-100-K	G100K	K2471302
			Tungsten (dual)	Fig. 2	GW-100K	274016	4336TK/1	T-100-K	G100TK	K7360302
	2.75 in. Conflat® Flange	1 in. side tube	ThO_2/Ir (single)	Fig. 1	GR-100F	274008	4336F/1	I-CFF-275	G100F	K2471303
			Tungsten (dual)	Fig. 2	GW-100F	274018	4336TF/1	T-CFF-275	G100TF	K7360307
Nude (2.75 in. CF Flange)	Range	Anode Grid	Filament Material							
	Std.	Bi-Filar Helix	ThO_2/Ir (single)	Fig. 3	NR-F	274028	8140	I-NUDE-BAC	G8140	L5150-302
	UHV	Closed End Cage	ThO_2/Ir (dual)	Fig. 4	NR-F-UHV	274023	8130	I-NUDE-F	G8130	971-5007
	UHV	Closed End Cage	Tungsten (dual)	Fig. 4	NW-F-UHV	274022	8130T	T-NUDE-F	G8130T	971-5008

Bayard-Alpert Gauge
Pin Connector Configuration

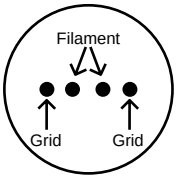

Figure 1.
Glass Tubulated Gauge
Single ThO_2/Ir Filament
IGC100 Cable: **O100C1**

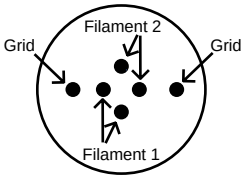

Figure 2.
Glass Tubulated Gauge
Dual Tungsten Filaments
IGC100 Cable: **O100C2**

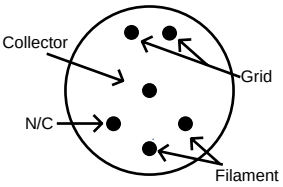

Figure 3.
Nude Gauge
Single ThO_2/Ir Filament
Bi-Filar Helical Anode Grid
IGC100 Cable: **O100C3**

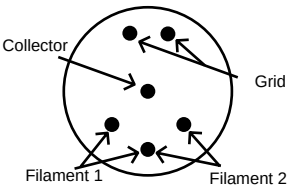

Figure 4.
Nude Gauge
Dual ThO_2/Ir or W Filament
Closed End Anode Grid Cage
IGC100 Cable: **O100C3**

Bayard-Alpert Gauge Specifications

	Glass Tubulated	Nude	Nude-UHV
Physical Data			
Connection	Side Tube or 2.75 in. Conflat® Flange	2.75 in. CF Flange	2.75 in. CF Flange
Side Tube Diameter	0.75 in. (19.1 mm) or 1 in. (25.4 mm)	N.A.	
Side Tube Material	Pyrex or Kovar (*1)	N.A.	
Envelope	Nonex 7720 Glass, 2.25 in. dia. (57 mm) x 5.25 in. (133 mm) long	Nude	
Mounting Position	Any, vertical preferred (*2)	Any	
Collector	Tungsten, 0.05 in. diameter		
Filament	Single ThO_2/Ir (*4) or dual tungsten	Single ThO_2/Ir (*4) Replaceable	Dual ThO_2/Ir or dual tungsten
Grid	Tungsten, bi-filar helix config.	Tungsten, bi-filar helix config.	Tantalum and Pt/Moly support, closed end (“squirrel”) cage.
Overall Length, (max)	6.0 in. (152 mm)	4.13 in. (105 mm)	
Insertion Length, (max)	N.A.	3.30 in. (84 mm)	3.00 in. (76 mm)
Operating Data			
Operating Pressure	$2x10^{-10}$ to $1x10^{-3}$ Torr	$4x10^{-10}$ to $1x10^{-3}$ Torr	$2x10^{-11}$ to $1x10^{-3}$ Torr
Sensitivity for N2, (Nominal)	10/Torr	10/Torr	25/Torr
X-Ray Limit	$2x10^{-10}$ Torr	$4x10^{-10}$ Torr	$2x10^{-11}$ Torr
Electron Bombardment Degas, Power @500V	70 Watts (nom), 100 Watts (max)	70 Watts (nom), 100 Watts (max)	40 Watts (max)
Resistance Heated Degas	6.3 to 7.5 Volts @ 10 Amps	6.3 to 7.5 Volts @ 10 Amps	N.A.
Bakeout Temperature	250 °C	450 °C	450 °C
Electrical Operating Parameters (*3)			
Anode Grid Bias Voltage	180 VDC		
Collector Bias Voltage	0 VDC		
Filament Bias Voltage	30 VDC		
Filament Supply Current	4 to 6 Amps		
Filament supply Voltage	3 to 5 VDC		

*1: Glass-to-metal transition
*2: Vertical orientation provides strain relief for electrode structures increasing long term stability
*3: Direct current (DC) bias and supply voltages are recommended for all electrical connections
*4: Single filaments are hair pin shaped and spring loaded to eliminate sagging.

Ordering Information

Glass Tubulated		
SRS Part#		
GR-075P	Pyrex, 0.75 inch, single filament, ThO_2/Ir	$110
GW-075P	Pyrex, 0.75 inch, dual filament, Tungsten	$100
GR-100P	Pyrex, 1 inch, single filament, ThO_2/Ir	$120
GW-100P	Pyrex, 1 inch, dual filament, Tungsten	$110
GR-075K	Kovar, 0.75 inch, single filament, ThO_2/Ir	$125
GW-075K	Kovar, 0.75 inch, dual filament, Tungsten	$115
GR-100K	Kovar, 1 inch, single filament, ThO_2/Ir	$135
GW-100K	Kovar, 1 inch, dual filament, Tungsten	$125
GR-100F	2.75 inch Conflat® Flange, 1 inch side tube, single filament, ThO_2/Ir	$190
GW-100F	2.75 inch Conflat® Flange, 1 inch side tube, dual filament, Tungsten	$180
Nude (2.75 inch Conflat® flange)		
NR-F	Bi-filar helix anode grid, single filament, ThO_2/Ir	$395
NR-F-UHV	Closed-end cage anode grid, dual filament, ThO_2/Ir	$420
NW-F-UHV	Closed-end cage anode grid, dual filament, Tungsten	$395
O100RFADW	Dual Tungsten replacement fil. for NW-F-UHV	$130
O100RFASR	Single ThO_2/Ir replacement fil. for NR-F	$130
O100RFADR	Dual ThO_2/Ir replacement fil. for NR-F-UHV	$155

Ion Gauge Cables		
SRS Part#		
O100C1	10 ft. cable for glass, single filament gauges	$125
O100C1/1	25 ft. cable for glass, single filament gauges	$155
O100C1/2	50 ft. cable for glass, single filament gauges	$205
O100C2	10 ft. cable for glass, dual filament gauges	$125
O100C2/1	25 ft. cable for glass, dual filament gauges	$155
O100C2/2	50 ft. cable for glass, dual filament gauges	$205
O100C3	10 ft. cable for nude or glass gauges	$125
O100C3/1	25 ft. cable for nude or glass gauges	$155
O100C3/2	50 ft. cable for nude or glass gauges	$205
O100CA1	Adapter for Micro-Ion® gauge	$25
Gauge Calibration (Glass gauges)		
OPT 01	NIST traceable 6% calibration	$195
OPT 02	NIST traceable 3% calibration	$750
Gauge Calibration (Nude gauges)		
OPT 01	NIST traceable 6% calibration with nipple	$295
OPT 02	NIST traceable 3% calibration with nipple	$850

SRS PG105 - Convection Enhanced Pirani Gauge

· *1000 Torr to 10^{-4} Torr measurement range*
· *UHV compatible construction (PG105-UHV)*
· *Bakeable to 250 °C (PG105-UHV)*
· *Rugged design*
· *Fast response time*
· *Excellent replacement for capacitance manometers, thermocouple gauges and conventional pirani gauges.*
· *Built-in temperature compensation*
· *Compatible with SRS IGC100 controller*

Standard PG105 gauges are sealed from ambient by viton O-rings, compatible with most medium and high vacuum environments. An all-metal version of the gauge, PG105-UHV, featuring a knife-edge copper gasket seal is also available. This version extends bakeout from 110 °C to 250 °C allowing complete compatibility with UHV environments.

PG105 Specifications

	PG105	PG105-UHV
Type	Convection-Enhanced Pirani Gauge Tube	
Measurement Range	1.0 x 10^{-4} to 1000 Torr	
Materials Exposed to Vacuum	Stainless steel, Nickel “52” Alloy, glass-alumina ceramic, gold, Viton®.	Stainless steel, Nickel “52” Alloy, glass-alumina ceramic, gold, copper.
Sensor	Gold-Plated Tungsten	
Sensor Temperature (nominal)	120 °C	
Reproducibility (at constant temperature)	5%	
Bakeout Temperature *	110 °C	250 °C
Operating Temperature	0 to 50 °C	
Temperature Compensation Range	10 to 40 °C	
Installation Orientation	Gauge tube axis must be horizontal for pressure measurements above 1 Torr.	
Connection	Std.: 0.5 in. diam. side tube terminated in 1/8NPT thread Options: NW16KF, NW25KF, 1.33 in., 2.75 in. Conflat® flange, 1/4” VCR, 1/2” VCR, 1/4” VCO and I/2” VCO.	
Gas Compatibility	·Not intended for use in explosive atmospheres ·Do not use in the presence of fluorine and mercury containing vapors.	
Calibration Gas	N_2/Air	
Internal Volume	28 cm^3	
Dimensions	4.2” L x 2.7” H x 1.3” W	
Weight	0.5 lb	
Electrical Connector	RJ-45	

* Non-operating. Disconnect electronics housing during bakeout.

Ordering Information

Convection Enhanced Pirani Gauges		
SRS Part#		
PG105	1000 Torr to 10^{-4} Torr, bakeout to 110 °C	$125
PG105-UHV	1000 Torr to 10^{-4} Torr, bakeout to 250 °C, UHV compatible	$250
Connection Options		
01, 02	1.33 in., 2.75 in. Conflat® flange	$50
03, 04, 05, 06, 07, 08	NW16KF, NW25KF, 1/4” VCR, 1/2” VCR, 1/4” VCO, I/2” VCO	$30

Pirani Gauge Accesories		
SRS Part#		
O105C4	10 ft. cable, dual gauge (PG105 and PG105-UHV)	$50
O105C4/1	25 ft. cable, dual gauge (PG105 and PG105-UHV)	$65
O105C4/2	50 ft. cable, dual gauge (PG105 and PG105-UHV)	$90
O105CA1	Cable adapter for CONVECTRON® Pirani gauge	$25
O105CA2	Cable adapter for HPS Series 317 Pirani gauge	$25