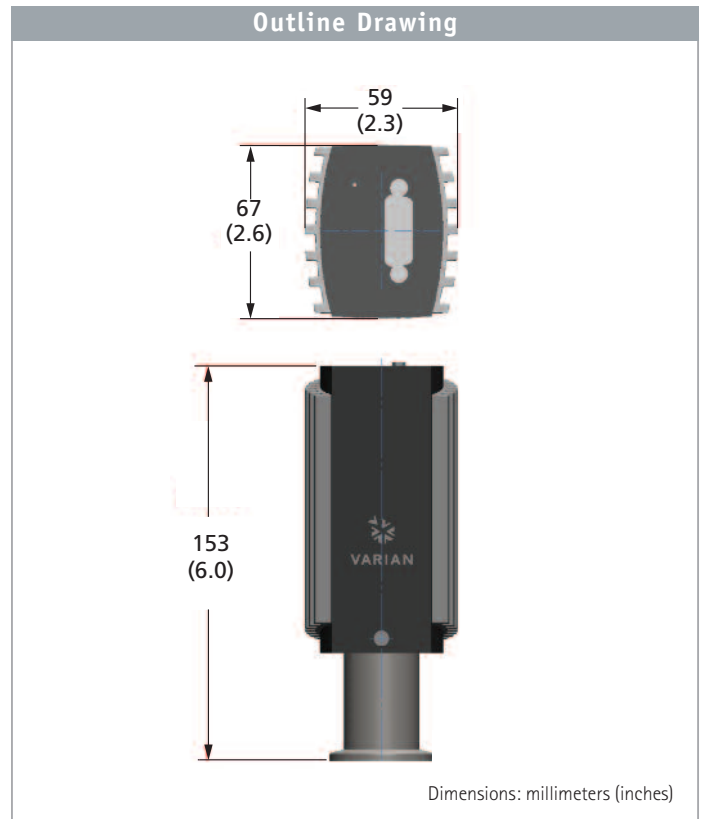


# FRG-720/FRG-730



The Varian FRG-720 and FRG-730 combine Varian's Pirani and Bayard-Alpert sensor into a single compact design that provides measuring capability from  $5 \times 10^{-10}$  mbar to atmosphere ( $3.8 \times 10^{-10}$  Torr to atmosphere). Combining these two technologies into a single unit reduces complexity and integration challenges while protecting the Bayard-Alpert sensor from premature burnout.

## Applications

- Wide range from industrial coating and semiconductor processing to research and laboratory environments
- General vacuum measurement and control in the low to ultra-high vacuum range

Features	Benefits
Combination gauge – Bayard-Alpert and Pirani	Wide measurement range from $5 \times 10^{-10}$ mbar to atmosphere
Pirani interlock	Protects Bayard-Alpert sensor from premature burnout and contamination effects from high pressure operation
Long-life yttrium oxide coated iridium filament	Rugged design for a wide range of applications
Set point control	Utilize pressure readings to perform critical operations
LCD display option	Monitor pressure readings easily
Profibus communication option	Ease of network integration

NOTICE: This document contains references to Varian. Please note that Varian, Inc. is now part of Agilent Technologies. For more information, go to [www.agilent.com/chem](http://www.agilent.com/chem).



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# FRG-720/FRG-730

Technical Specifications					
Measurement range (Air, O <sub>2</sub> , CO, N <sub>2</sub> )	5 x 10 <sup>-10</sup> to 1000 mbar (3.8 x 10 <sup>-10</sup> to 760 Torr)				
Accuracy	10 <sup>-8</sup> to 10 <sup>-2</sup> mbar/torr – ± 15% of reading				
Repeatability	10 <sup>-8</sup> to 10 <sup>-2</sup> mbar/torr – ± 5% of reading				
Degas	p < 7.2 x 10 <sup>-6</sup> mbar – electron bombardment, max. 3 min				
Pressure, maximum	2 bar absolute				
Temperature	Operation (ambient)	Storage	Bakeout at flange w/extension	Bakeout at flange wo/extension	Bakeout w/electronics removed
	0 to 50 °C	-20 to +70 °C	150 °C	80 °C	150 °C
Supply voltage	20 to 28 VDC, 1.4 A on startup for 200 msec, 0.8 A operating				
Output signal analog	0 to 10 V				
Measurement range	0.774 to 10.0 V				
Voltage vs. pressure	0.75 V/decade				
Error signal	0.3/0.5 V				
Minimum loaded impedance	10 kΩ				
Communications interface	RS-232C				
Electrical connection	D-sub, 15 pin, male				
Maximum cable length	100 m (330 ft)				
Materials exposed to vacuum	Yt <sub>2</sub> O <sub>3</sub> , Ir, Pt, Mo, Cu, W, NiFe, NiCr, stainless steel, glass				
Internal volume	KF/CF	24 cm <sup>3</sup> (1.46 in <sup>3</sup> )/34 cm <sup>3</sup> (2.1 in <sup>3</sup> )			
Weight	KF/CF	285g/550g			
Protection type	IP30				
Setpoint relays (1) for FRG-730	Range	Relay Contact	Hysteresis	Contact rating	
	1 x 10 <sup>-9</sup> to 100 mbar	n.o., potential free	10 % of reading	30 V/0.5 A DC	
<b>Profibus Option</b>					
Baud rates	9.6/19.2/93.75/187.5/500 kBaud; 1.5/12 mBaud				
Address	2 switches (address 00 – 127) or network programmable				
Digital functions	Read pressure, select units (Torr, mbar, Pa); degas function, Pirani full scale adjust; monitor gauge status; safe state allows definition of behavior in case of error; detailed alarm and warning information				
Analog functions	0 to 10 V analog output pressure indication; two setpoint relays A + B				
Setpoint relays (2)	Range	Relay Contact	Hysteresis	Contact rating	
	1 x 10 <sup>-9</sup> to 100 mbar	n.o., potential free	10 % of reading	60 V/0.5 A DC	
Connector for Profibus DP	D-sub, 9 pin, female				

Ordering Information			
Description	KF25	CF35	
FRG-720 Pirani/Bayard Alpert combination gauge – single filament	FRG720KF25	FRG720CF35	
with display	FRG720KF25D	FRG720CF35D	
with setpoints and Profibus	FRG720KF25SP	FRG720CF35SP	
FRG-730 Pirani/Bayard Alpert combination gauge – dual filaments w/set pts	FRG730KF25S	FRG730CF35S	
FRG-730 Pirani/Bayard Alpert combination gauge – dual filaments w/set pts. and display	FRG730KF25SD	FRG730CF35SD	
FRG-730 Pirani/Bayard Alpert combination gauge – dual filaments w/set pts and Profibus	FRG730KF25SP	FRG730CF35SP	
<b>Accessories</b>			
FRG-720 Replacement sensor–KF25	FRG720KF25RS	FRG-720/730 Baffle	FRG720BFL
FRG-720 Replacement sensor–CF35	FRG720CF35RS	FRG-720/730 Power Supply 24V DC/RS232C	FRG720PWR
FRG-730 (dual filaments)–KF25 Replacement sensor	FRG730KF25RS	FRG-720/730 Bakeout extension, 100mm	FRG720BKE
FRG-730 (dual filaments)–CF35 Replacement sensor	FRG730CF35RS		