

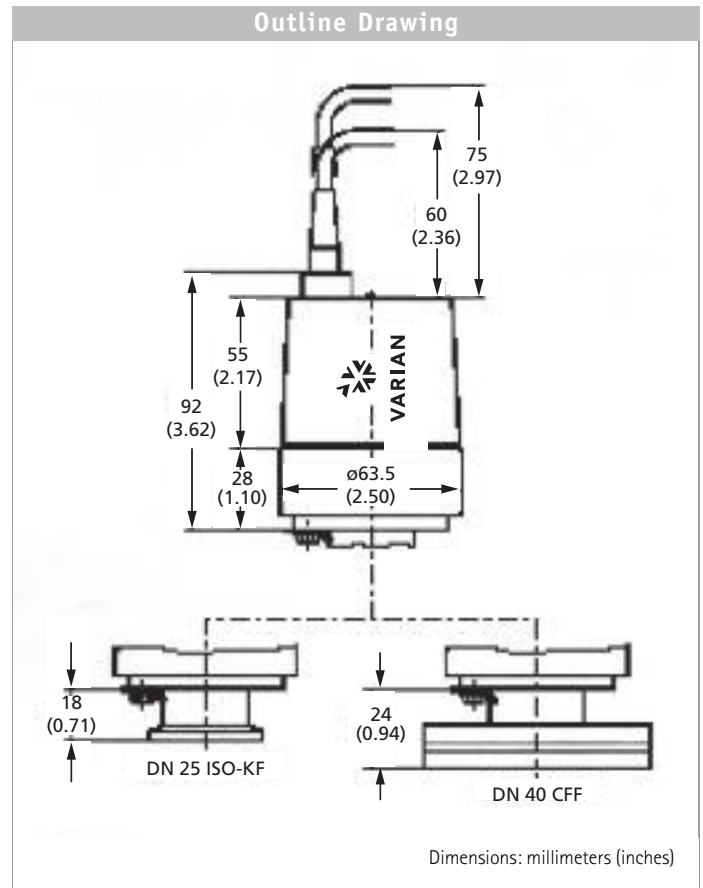
FRG-700 Full Range Pirani/Inverted Magnetron Gauge



The Varian FRG-700 is a full range gauge that provides two measuring technologies in a single, compact and economical package to measure process and base pressure from 5×10^{-9} mbar to atmosphere (3.8×10^{-9} Torr to atmosphere). The single, compact unit with one logarithmic analog output signal significantly reduces the complexity of installation, setup and integration. The benefit is reduced cost and reduction in valuable space requirements.



FRG-700 Controller – Compatible with FRG-700, the FRG-700 Single Gauge Controller has a wide pressure range, from 10-10 to 1500 mbar (10-10 to 1125 Torr), adjustable set-point, and a menu-driven user interface that provides flexible vacuum control.



Applications

- High vacuum pressure monitoring
- Base pressure for evaporation and sputtering systems
- General vacuum measurement and control in the medium and high vacuum range

Features	Benefits
Combination gauge – inverted magnetron and Pirani, with wide measurement range from 5×10^{-9} mbar to atmosphere	Measures 9 decades using 1 compact gauge, 1 connection, 1 sensor cable and 1 A/D converter; reduces complexity and cost
No filament to burn out; easy to clean	Low maintenance and reduced cost
Excellent ignition properties	Rapid start-up
Can be operated by a Varian V-81 or V-301 rack controller	Greatly reduces cost and space requirements
LED indicator for high voltage on	Provides quick visual indication of status

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.

FRG-700 – Full Range Gauge

Technical Specifications				
Measurement range	5 x 10 ⁻⁹ to 1000 mbar (3.8 x 10 ⁻⁹ to 760 Torr)			
Accuracy	± 30 % of reading, typical			
Repeatability	± 5 % of reading, typical			
Mounting orientation	Any			
Admissible temperature	Operation (ambient)	Storage	Bake-out *	Filament temperature (Pirani)
	5 to 55 °C	-40 to +65 °C	150 °C	120 °C
Supply voltage	At gauge	Ripple		Power consumption
	15 to 30 VDC	≤1 V _{pp}		≤2 W
Output signal (measurement signal)	Voltage range		Measurement range	
	0 to 10.5 V		1.82 to 8.6 V	
Voltage vs. pressure	0.6 V/decade, logarithmic			
Error signal	<0.5 V (no supply), >9.5 V (Pirani sensor, filament rupture)			
Minimum loaded impedance	10 kΩ, short-circuit proof			
Response time	<10 ms (@ p > 10 ⁻⁶ mbar), ≈ 1000 ms (@ p = 10 ⁻⁸ mbar)			
Identification gauge	85 kΩ, referenced to supply common			
Status	Pirani-only mode	Combined Pirani/cold cathode mode		LED
	0 V (low)	15 V to 30 (high)		LED green high voltage on
Electrical connection	FCC 68 appliance connector, 8 poles, female			
Sensor cable	8 poles plus shielding			
Maximum cable length	≤ 50 m			
Operating voltage/current	≤3.3 kV/≤500 A			
Materials exposed to vacuum	SS, Al ₂ O ₃ , FPM75, Mo, Ni, Au, W			
Internal volume	≈ 20 cm ³			
Weight	DN 25 ISO-KF ≈700g, DN 40 CF ≈980g			
Standards	EN 61000-6-2, EN 61000-6-3, EN 61010-1			

*Without electronics and magnetic shielding.

Ordering Information

Description	Part Number
FRG-700 Full Range Gauge Pirani/IMG, KF 25	FRG700KF25
FRG-700 Full Range Gauge Pirani/IMG, 2.75" CF	FRG700CF35
FRG-700 Single Gauge Controller, 1 channel	FRG700CNTR1
Accessories	
FRG-700 Adapter for Controller	FRG700ADPT
FRG-700 Full Range Gauge Maintenance Kit	FRG700MAINT
FRG-700 Full Range Gauge Repair Kit	FRG700REPR
FRG-700 Cable, Gauge to FRG Controller, 3M	FRG700CBL3
FRG-700 Cable, Gauge to FRG Controller, 5M	FRG700CBL5
FRG-700 Cable, Gauge to AG Turbo Controller, 3M	TBD

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