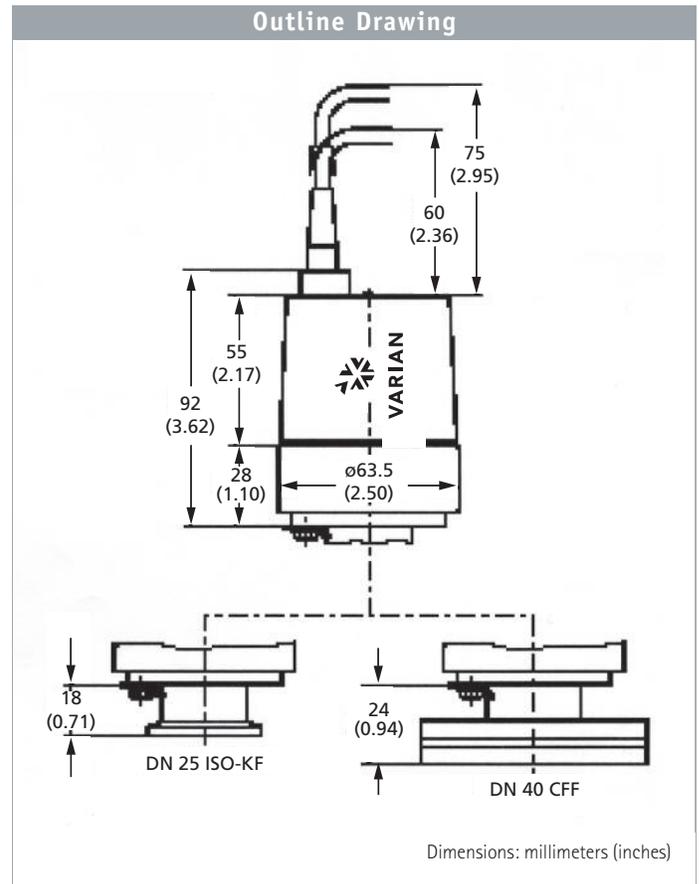


FRG-700/FRG-702



The Varian FRG-700 and FRG-702 (all metal version) are full range gauges that provide 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.



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 and used with the TPS Compact and MiniTask	Greatly reduces cost and space requirements
LED indicator for high voltage on	Provides quick visual indication of status

FRG-700/FRG-702

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 * (w/o electronics)	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	FRG-700-SS, Al ₂ O ₃ , FPM75, Mo, Ni, Au, W FRG-702-SS, Al ₂ O ₃ , Ag, Cu, Sn, Mo, Ni, Au, W			
Internal volume	≈ 20 cm ³			
Weight	FRG-700-DN 25 ISO-KF ≈700g, DN 40 CF ≈980g FRG-702-DN 25 ISO-KF - 730g, DN 40 CF - 1010g			
Standards	EN 61000-6-2, EN 61000-6-3, EN 61010-1			

Ordering Information	
Description	Part Number
FRG-700 Pirani/IMG Combination Gauge, KF 25	FRG700KF25
FRG-700 Pirani/IMG Combination Gauge, DN40 CF	FRG700CF35
FRG-702 Pirani/IMG Combination Gauge, KF25, All Metal - bakeable	FRG702KF25
FRG-702 Pirani/IMG Combination Gauge, DN40 CF, All Metal - bakeable	FRG702CF35
Accessories	
FRG-700 Gauge Maintenance Kit	FRG700MAINT
FRG-700 Gauge Repair Kit	FRG700REPR
FRG-702 Gauge Maintenance Kit	FRG702MAINT
FRG-702 Gauge Repair Kit	FRG702REPR
FRG-700/702 Magnetic Shielding	FRG700MSHD
FRG-700 Cable, Gauge to AG Turbo Controller, 3M	9699960
FRG-700 Cable, Gauge to AG Turbo Controller, 5M	9699961

