

VGC083A, VGC083B, VGC083C

Vacuum Gauge Controller

The Vacuum Gauge Controller VGC083 is a three channel gauge controller for vacuum pressure monitoring and controlling from atmosphere down to ultra-high vacuum (2×10^{-11} mbar). VGC083 can be configured to control and read-out up to 3 passive gauge heads among two types of passive sensors design types: one ionization gauge (hot cathode BAG05x or cold cathode MAG0x0), plus two Pirani gauges PGE050. Six single pole setpoint relays are assignable to any of the gauge heads. Built-in RS232 and RS485 control interfaces are provided for system integration. The industrial design in combination with extended compatibility make VGC083 a flexible yet reliable and economical choice for vacuum applications requiring a wide vacuum measurement range and the ideal solution for existing systems requiring direct drop-in replacements.



ADVANTAGES

- Simple operation with three individual clear and bright LED display for long distance vacuum pressure read-out
- Parameter, sensor and general settings with softkeys
- User selectable filament, degas electron bombardment or I²R resistive heating for gauge conditioning depending on gauge head type
- Three analog outputs, user assignable to a single gauge or to gauges combinations
- Six assignable single-pole double through setpoint relays
- Remote digital I/O sensor & emission on/off
- Sensor 1 can be automatically turned on/off from sensor 2 or 3
- RS232 / RS485 serial communication
- Ion gauge overpressure protection
- Direct drop-in replacement opportunity for MKS / Granville-Phillips® Bayard-Alpert Gauge Controller 307 and accessories
- Alternative active gauge use

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ORDERING INFORMATION

Type	VGC083A	VGC083B	VGC083C
Vacuum Gauge Controller	399-700	399-701	399-702
Power supply 220 W VGC083x ¹⁾	399-710	399-710	-
Power supply 60 W VGC083x ¹⁾	399-711 ²⁾	-	399-711

¹⁾ The IEC 60320 AC power entry receptacle allows use with any user supplied AC mains cord set available worldwide

²⁾ When used with BAG055

OPTIONAL RACK MOUNT ADAPTER

Optional EIA-standard 19-inch wide, 2U height rack mount panels (aluminum – power paint finish)

For installation of one VGC083x as a left-mount or a right-mount:



For installation of two VGC083x side-by-side:



Type	
Rack mount adapter for 19" 2U for one VGC083x	399-714
Rack mount adapter for 19" 2U for two VGC083x	399-715

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Accessories	BAG050		BAG055		PGE050	
	50 °C	200 °C	50 °C	200 °C	50 °C	150 °C
Cables for VGC083A to						
3 m (9.9 ft)	399-780	399-770	399-810	399-860	399-580	399-520
8 m (25 ft)	399-781	399-771	399-811	399-861	399-581	399-521
15 m (50 ft)	399-782	399-772	399-812	399-862	399-582	399-522
Touch protection cover for cables 200 °C (BAG050, BAG051)		399-779				

Other lengths on request

	BAG051		BAG052 BAG053	PGE050	
	50 °C	200 °C	50 °C	50 °C	150 °C
Cables for VGC083B to					
3 m (9.9 ft)	399-780	399-770	399-790	399-580	399-520
8 m (25 ft)	399-781	399-771	399-791	399-581	399-521
15 m (50 ft)	399-782	399-772	399-792	399-582	399-522
Touch protection cover for cables 200 °C (BAG050, BAG051)		399-779			

Other lengths on request

	MAG050 MAG060		PGE050	
	80 °C	250 °C	50 °C	150 °C
Cables for VGC083C to				
3 m (9.9 ft)	399-820	399-830	399-580	399-520
8 m (25 ft)	399-821	399-831	399-581	399-521
15 m (50 ft)	399-822	399-832	399-582	399-522

Other lengths on request

Cable adaptors	
Cable adaptor MKS / GP® 355 Micro-Ion® to VGC083A	399-767

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CONNECTABLE GAUGES

BAG050 Hot Ion Gauge	VGC083A	VGC083B	VGC083C
BA nude EB-degas, DN 40 CF, dual iridium filament (Ir)	399-720	–	–
BA nude EB-degas, DN 40 CF, dual tungsten filament (W)	399-721	–	–

BAG051 Hot Ion Gauge	VGC083A	VGC083B	VGC083C
BA nude I ² R, DN 40 CF, single iridium filament (Ir)	–	399-725	–
BA nude I ² R, DN 40 CF, dual iridium filament (Ir)	–	399-726	–
BA nude I ² R, DN 40 CF, dual tungsten filament (W)	–	399-727	–

BAG052 Hot Ion Gauge	VGC083A	VGC083B	VGC083C
BA glass I ² R, 3/4" Kovar metal inlet port, single iridium filament (Ir)	–	399-740	–
BA glass I ² R, 1" Kovar metal inlet port, single iridium filament (Ir)	–	399-741	–
BA glass I ² R, 3/4" glass inlet port, single iridium filament (Ir)	–	399-742	–
BA glass I ² R, 1" glass inlet port, single iridium filament (Ir)	–	399-743	–
BA glass I ² R, DN 25 ISO-KF, single iridium filament (Ir)	–	399-744	–
BA glass I ² R, DN 40 ISO-KF, single iridium filament (Ir)	–	399-745	–
BA glass I ² R, DN 16 CF, single iridium filament (Ir)	–	399-746	–
BA glass I ² R, DN 40 CF, single iridium filament (Ir)	–	399-747	–

BAG053 Hot Ion Gauge	VGC083A	VGC083B	VGC083C
BA glass I ² R, 3/4" Kovar metal inlet port, dual tungsten filament (W)	–	399-750	–
BA glass I ² R, 1" Kovar metal inlet port, dual tungsten filament (W)	–	399-751	–
BA glass I ² R, 3/4" glass inlet port, dual tungsten filament (W)	–	399-752	–
BA glass I ² R, 1" glass inlet port, dual tungsten filament (W)	–	399-753	–
BA glass I ² R, DN 25 ISO-KF, dual tungsten filament (W)	–	399-754	–
BA glass I ² R, DN 40 ISO-KF, dual tungsten filament (W)	–	399-755	–
BA glass I ² R, DN 16 CF, dual tungsten filament (W)	–	399-756	–
BA glass I ² R, DN 40 CF, dual tungsten filament (W)	–	399-757	–

BAG055 Hot Ion Gauge	VGC083A	VGC083B	VGC083C
BA, 3/4" tube, Y ₂ O ₃ coated single iridium filament (Ir)	399-760	–	–
BA, DN 16 ISO-KF, Y ₂ O ₃ coated single iridium filament (Ir)	399-761	–	–
BA, DN 25 ISO-KF, Y ₂ O ₃ coated single iridium filament (Ir)	399-762	–	–
BA, DN 40 ISO-KF, Y ₂ O ₃ coated single iridium filament (Ir)	399-763	–	–
BA, DN 16 CF-R, Y ₂ O ₃ coated single iridium filament (Ir)	399-764	–	–
BA, DN 40 CF-R, Y ₂ O ₃ coated single iridium filament (Ir)	399-765	–	–
BA, 8 VCR female, Y ₂ O ₃ coated single iridium filament (Ir)	399-766	–	–

PGE050 Pirani Gauge Enhanced	VGC083A/B/C
Pirani Gauge, DN 16 ISO-KF, tungsten filament (W)	352-500
Pirani Gauge, DN 25 ISO-KF, tungsten filament (W)	352-501
Pirani Gauge, DN 40 ISO-KF, tungsten filament (W)	352-502
Pirani Gauge, DN 16 CF-R, tungsten filament (W)	352-503
Pirani Gauge, DN 40 CF-R, tungsten filament (W)	352-504
Pirani Gauge, 4 VCR female, tungsten filament (W)	352-505
Pirani Gauge, 8 VCR female, tungsten filament (W)	352-506
Pirani Gauge, 1/8" NPT, tungsten filament (W)	352-507

MAG050 Cold Cathode Gauge	VGC083A	VGC083B	VGC083C
Cold Cathode Gauge, DN 25 ISO-KF, FPM sealed	–	–	399-840
Cold Cathode Gauge, DN 40 ISO-KF, FPM sealed	–	–	399-841

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MAG050 Cold Cathode Gauge	VGC083A	VGC083B	VGC083C
Cold Cathode Gauge, DN 40 CF-F, FPM sealed	–	–	399-842
MAG060 Cold Cathode Gauge	VGC083A	VGC083B	VGC083C
Cold Cathode Gauge, DN 40 ISO-KF, metal sealed	–	–	399-845
Cold Cathode Gauge, DN 40 CF-F, metal sealed	–	–	399-846

CONTROLLER CONFIGURATION

VGC083A



BAG050

OR



BAG055

PLUS



2 x PGE050

VGC083B



BAG051

OR



BAG052
BAG053

PLUS



2 x PGE050

VGC083C



MAG050

OR



MAG060

PLUS



2 x PGE050

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SPECIFICATIONS

Type	VGC083A	VGC083B	VGC083C
Measurement channels	3	3	3
Display	LED - 3 independent pressure display channels, 3 digit plus 2 digit exponent		
Pressure indication	LED - 3 independent pressure display channels, 3 digit plus 2 digit exponent		
Programming & set-up screen	OLED		
Connectable gauges with display range			
PGE050	1.3 × 10 ⁻⁴ ... 1333 mbar 1 × 10 ⁻⁴ ... 1000 Torr	1.3 × 10 ⁻⁴ ... 1333 mbar 1 × 10 ⁻⁴ ... 1000 Torr	1.3 × 10 ⁻⁴ ... 1333 mbar 1 × 10 ⁻⁴ ... 1000 Torr
BAG050	2 × 10 ⁻¹¹ ... 1.3 × 10 ⁻³ mbar 2 × 10 ⁻¹¹ ... 1 × 10 ⁻³ Torr	- -	- -
BAG051	- -	4 × 10 ⁻¹⁰ ... 1333 mbar 4 × 10 ⁻¹⁰ ... 1000 Torr	- -
BAG052, BAG053	- -	4 × 10 ⁻¹⁰ ... 1333 mbar 4 × 10 ⁻¹⁰ ... 1000 Torr	- -
BAG055	1.3 × 10 ⁻⁹ ... 6.7 × 10 ⁻² mbar 1 × 10 ⁻⁹ ... 5 × 10 ⁻² Torr	- -	- -
MAG050	- -	- -	2 × 10 ⁻⁹ ... 5 × 10 ⁻³ mbar 1.5 × 10 ⁻⁹ 3.75 × 10 ⁻³ Torr
MAG060	- -	- -	1 × 10 ⁻¹⁰ ... 5 × 10 ⁻³ mbar 0.75 × 10 ⁻¹⁰ 3.75 × 10 ⁻³ Torr
Measurement unit (selectable)	mbar (default), Torr, Pa		
Sensor 1 over pressure protection (factory default settings)	1 × 10 ⁻³ Torr at 100 µA emission current 5 × 10 ⁻⁴ Torr at 4 µA emission current 1 × 10 ⁻⁴ Torr at 10 µA emission current		5 × 10 ⁻³ Torr
Connectors			
BAG supply	CPC ¹⁾	CPC ¹⁾	
BAG col	BNC ¹⁾	BNC ¹⁾	
MAG			SHV
PGE050		D-sub, 9 p-pin female	
Remote digital I/O		D-sub, 9 p-pin male	
RS232		D-sub, 9 p-pin female	
RS485		D-sub, 9 p-pin male	
Analog out		2 pole pluggable terminal block ²⁾	
Analog in		3 pole pluggable terminal block ²⁾	
Relay (6x)		3 pole pluggable terminal block ²⁾	
DC power		2 pole pluggable terminal block ²⁾	
Setpoint relays	6 single-pole double-throw relays (SPDT), user assignable to any of the gauges		
Contact rating	5 A at 30 V (dc) / 250 V (ac), resistive load		

¹⁾ Gauge cable assemblies provided by INFICON

²⁾ Mating connector included

³⁾ Command protocol compatibility with GP307

⁴⁾ When used with BAG050

⁵⁾ When used with BAG055

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Type	VGC083A	VGC083B	VGC083C
Analog output			
Ion gauge (BAG, MAG)			
log-linear		0 ... 10 V (dc), 1 V/decade	
log-linear	1.7 ... 9.3 V (dc) (nominal 1.8 ... 8.7 V (dc), 0.8 V/decade)		
linear		0 ... 10 V (dc), usable over 3 decades	
Combination Ion gauge & PGE (or alternative gauge)			
log-linear		0.5 ... 7 V (dc), 0.5 V/decade	
PGE			
log-linear		1 ... 8 V (dc), 1 V/decade	
log-linear		0 ... 7 V (dc), 1 V/decade	
linear		0 ... 10 V (dc), usable over 3 decades	
non-linear, S-curve		0.375 ... 5.659 V (dc)	
Interface (digital)		RS232, RS485 ³⁾	
Supply voltage (external)	+20 ... +28 V (dc), 200 W ⁴⁾ / 36W ⁵⁾	+20 ... +28 V (dc), 200 W	+20 ... +28 V (dc), 12W
Temperature			
Operation (ambient)		+0 ... +40 °C	
Storage		-40 ... +70 °C	
Relative humidity		0 ... 95% , non-condensing	
Housing		aluminum housing	
Weight		0.7 kg	

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DIMENSIONS

[mm]

