

WIDE-RANGE GAUGES

MGC-3000 Series Vacuum Gauge Controllers



Benefits

- 3 Channel Controller for one ionization and two convection gauges or one ionization, one convection and one alternate capacitance diaphragm gauge
- Various pressure measurement ranges from 2.00E-11 to 1,000 Torr
- 3 analog outputs, 6 setpoint relays, RS232/RS485 serial communications, remote Digital I/O
- Compact space saving half rack design, bench top or panel/rack mount instrument
- Outstanding product warranty of 5 years

Features

- The ionization gauge on/off, degas functions and emission current selection can be controlled via front panel soft-keys, remote input signals (Digital I/O), or serial communications.
- IG sensor can also be automatically turned on/off using the measurements from one of the user selectable convection or alternate gauges.
- The MGC can be set to automatically switch (auto-ranging) between various emission currents, resulting in optimal and stable pressure readings over the entire measurement range from low to high vacuum.
- The state of all setpoint relays, emission current, filament in use and error messages for all fault conditions are displayed on the easy to read OLED set-up screen.
- Filament operation including filament current, emission current and ion current can be monitored in real time in the research screen mode.
- High efficiency power supply design and effective thermal management techniques are used to enable operation of the MGC without the need for air movement devices such as troublesome fans.

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Specifications

Measurement Range	MGC-3400: 2.00E-11 to 1,000 Torr when used with a UHV Nude EB-degas hot cathode IG and KJL275 CG MGC-3300: 4.00E-10 to 1,000 Torr when used with a Nude/Glass I2R hot cathode IG and KJL275 CG MGC-3200: 1.00E-09 to 1,000 Torr when used with the KJLC351 hot cathode IG and KJL275 CG
Display Pressure Indication Programming & Set-Up Screen	LED - 3 independent pressure display channels - 3 digit plus 2 digit exponent per channel OLED - displays state of all setpoint relays, IG emission current, error messages for fault conditions
Units Of Measure	Torr, mbar, Pa - user selectable
Functionality	IG: powers & operates one KJLC Nude, Glass or KJLC351 ionization vacuum gauge, MGC-3400/3300 are also capable of operating other equivalent brands of nude/glass B-A hot cathode IG CG: powers & operates up to 2 KJL275 convection or Granville-Phillips® (GP) Convectron® gauges Alternate gauge: displays pressure from an alternate gauge such as a CDG or other KJLC modules using the analog input (external power source for these alternate auxiliary devices will be required)
IG Sensor Control	IG sensor on/off, degas on/off and emission current can all be controlled via front panel soft-keys, remote input signals (digital I/O) or serial communications. IG sensor can also be automatically turned on/off using the measurements from one of the user selectable convection or alternate gauges.
IG Remote Input Signals (Digital I/O)	IG sensor on/off, degas on/off and emission current can also be set by applying momentary continuity to ground. Also the 9-pin D-sub remote input DIGITAL I/O connector provides pin-pin compatible signals with the GP 358 controller as well as compatible signals with the GP 307.
Setpoint Relays	Six single-pole, double-throw (SPDT), 1 A at 30 Vdc resistive, or 1 A at 30 Vac non-inductive, user assignable to any of the gauges
Analog Output	Three analog outputs, user assignable to any of the gauges: IG analog output: log linear 0 to 10 Vdc, 1 V/decade, various scaling selections also provide analog output compatibility with Granville-Phillips® controller models 307, 350 and 358 controllers, or log Linear 1.7 V to 9.3 Vdc (nominal 1.8 to 8.7 Vdc) 0.8 V/decade, or linear 0 to 10 Vdc (useable over 3 decades, also compatible with GP 307 controller) Combination IG + CG analog output: log linear 0.5 to 7 Vdc, 0.5 V/decade CG analog output: log linear 1 to 8 Vdc, 1 V/decade, or 0 to 7 Vdc, 1 V/decade (also compatible with GP 307, 350, 358), or non-linear analog S-curve 0.375 to 5.659 Vdc, or linear 0 to 10 Vdc (useable over 3 decades)
Analog Input	CDG: one 0-10 Vdc analog input signal from a CDG when used as an alternate gauge to CG2, or KJLC modules: analog input signal from one of the following KJLC vacuum gauge modules: 275i, 300, 354
Serial Communications	RS485 / RS232 - ASCII protocol (command protocol compatibility with GP 307 and 358 controller is also provided)
Status Output	IG sensor on/off status message is displayed on the front panel, by serial communications and by SPDT relay (DIGITAL I/O Connector) rated at 1 A at 30 Vdc resistive, or 1 A at 30 Vac non-inductive. IG degas on/off status or IG error conditions are displayed on the front panel, by serial communications and by an open collector transistor output (ground emitter) rated at 40 V max. VCE, 50 mA IC max.
IG Hot Cathode Filament Switching	User selectable between filament 1 or 2 using the front panel soft-keys or RS232/485 serial communications
IG Hot Cathode Emission Current	MGC-3400/3300: 100 µA, 4 mA, 10 mA or automatic switching (auto ranging) between 100 µA, 4 mA, 10 mA MGC-3200: 100 µA, 4 mA, or automatic switching (auto ranging) between 100 µA and 4 mA
IG Degas	MGC-3400: 40 W, electron bombardment MGC-3300: 40 W, resistive (I2R) MGC-3200: 3 W, electron bombardment
IG Overpressure Protection	MGC-3400/3300: turns off nude/glass ion gauge filament at the following default settings: 1.00E-03 Torr at 100 µA emission current, 5.00E-04 Torr at 4 mA emission current, 1.00E-04 Torr at 10 mA emission current MGC-3200: turns off KJLC351 ion gauge filament at the following factory default setting: 5.00E-02 Torr at 100 µA emission current and 1.00E-03 Torr at 4 mA emission current
Temperature	Operating: 0 to + 40°C storage: -40 to + 70°C
Humidity	0 to 95% relative humidity, non-condensing
Weight	1.7 lb. (0.7 kg)
Housing	Aluminum extrusion - black powder paint finish
Input Power	MGC-3400/3300: 20 - 28 Vdc, 200 W protected against power reversal and transient over-voltages MGC-3200: 20 - 28 Vdc, 36 W protected against power reversal and transient over-voltages
Connectors	IG & CG: gauge cable assemblies provided by KJLC Digital I/O: 9-pin D-sub male Serial communications: RS232: 9-pin D-sub female, RS485: 9-pin D-sub male Analog I/O, setpoint relays, power: pluggable terminal block (mating connectors included)
CE Compliance	EMC Directive 2014/30/EU, EN55011, EN61000-6-2, EN61000-6-4, EN61326-1, EN61010-1
Environmental	RoHS Directive 2011/65/EU



Note:

Please see our website for detailed illustrations of the Front Panel Operation, Electrical Connections, and Product Dimensions.

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