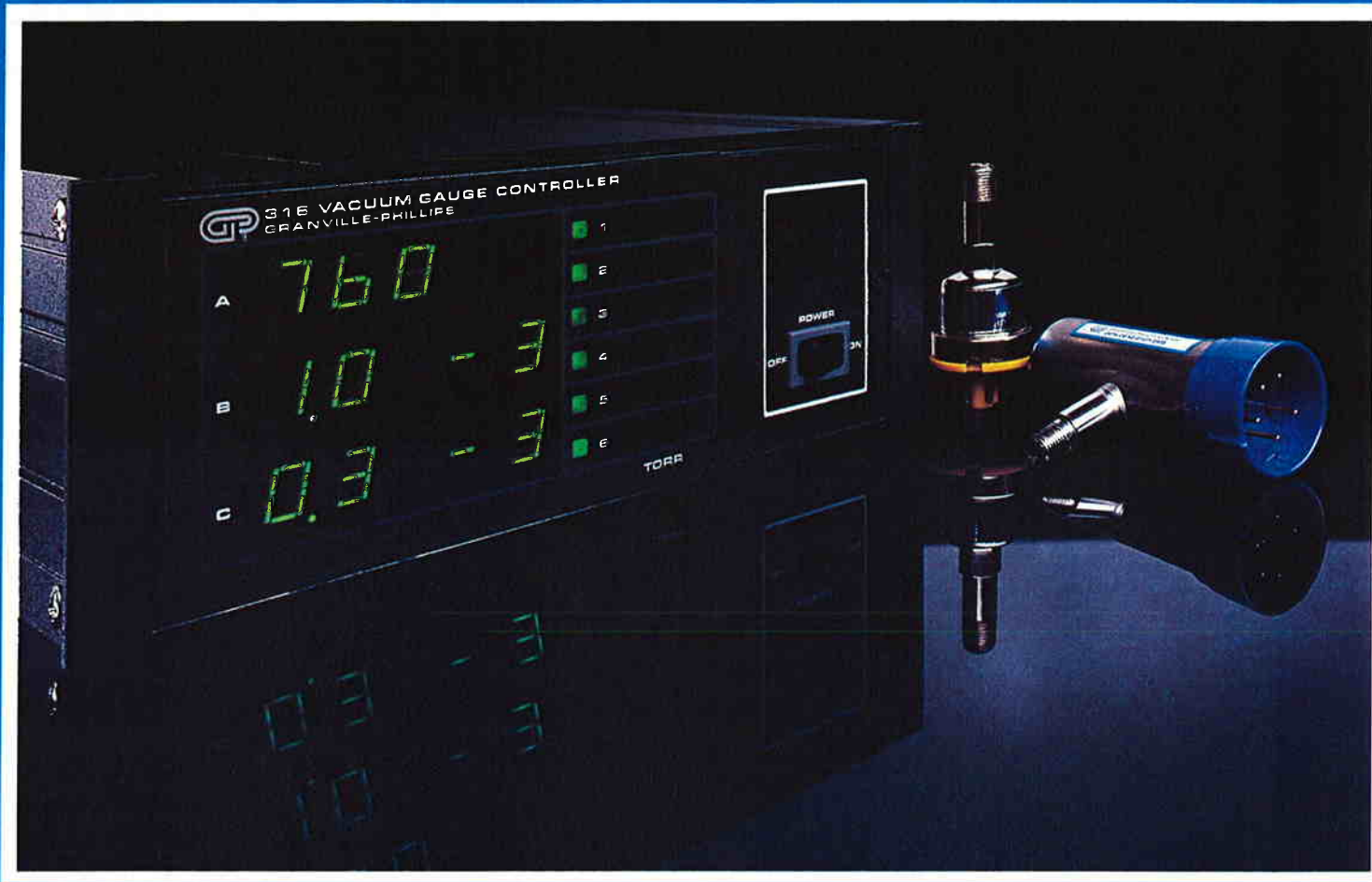


316 VACUUM GAUGE CONTROLLER



For *CONVECTRON*[™], thermocouple, and capacitance manometer gauges.

GRANVILLE-PHILLIPS
HELIX TECHNOLOGY CORPORATION

Advanced Vacuum Measurement Solutions

FEATURES

Convenience and Versatility

The ever increasing expense and complexity of today's vacuum systems demands easy to use gauging that delivers higher performance and high value. The 316 Vacuum Gauge Controller (VGC) meets these demands.

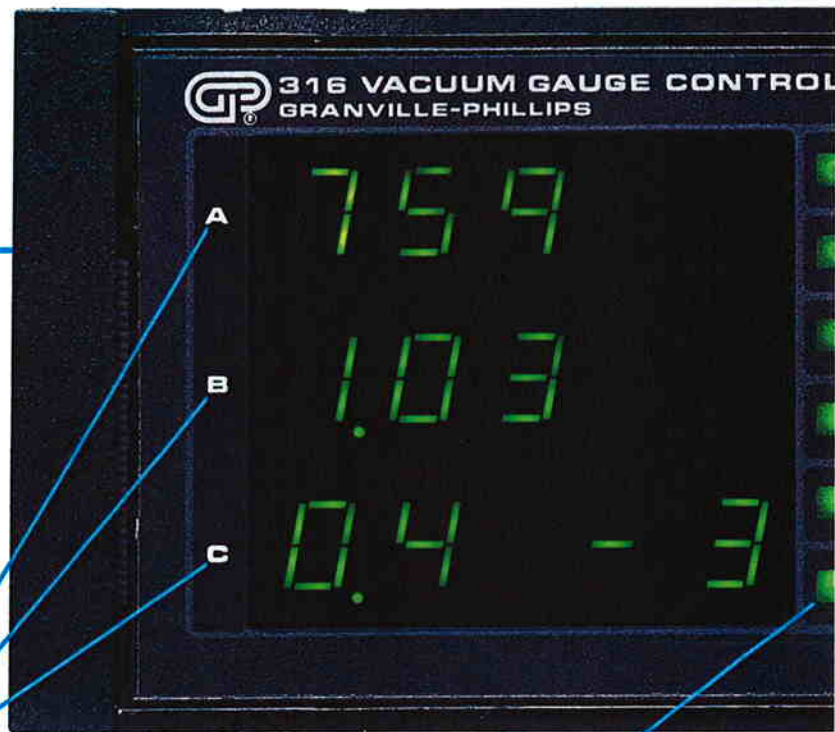
Now you can measure pressure at three points in a vacuum system simultaneously with a single 316 VGC. The 316 VGC displays pressure from up to either three wide-range *CONVECTRON* gauges, two *CONVECTRON* gauges and a capacitance manometer, or three thermocouple gauges.

The compact 3½ in. high half-rack controller replaces up to three single controllers, saving rack or bench space. Modular design makes upgrading fast and simple. Optional RS-232 (wire or fiber optic interface) or IEEE-488 computer interfaces provide convenient remote operation.

Improved Process Control

The 316 VGC allows automatic control of pressure related events in your vacuum system by offering optional one to four user defined, two- or six-channel process control modules, each with visual status indication of the processes being controlled. Manual override switches for each setpoint allow the operator to assume direct control of the process when required, and may be secured against unauthorized use.

Custom Set-Up Select Switches



CONVECTRON Gauge, Capacitance Manometer, or Thermocouple Gauge Readouts

Process Control Status Lights

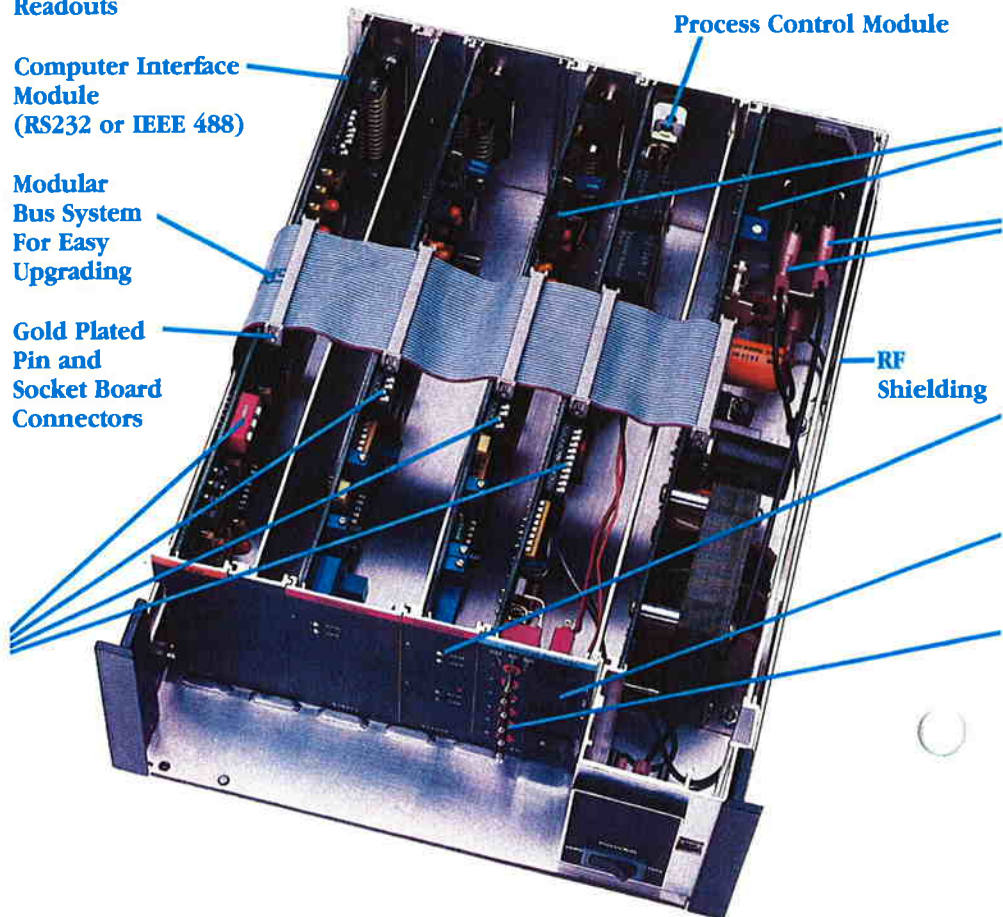
Computer Interface Module (RS232 or IEEE 488)

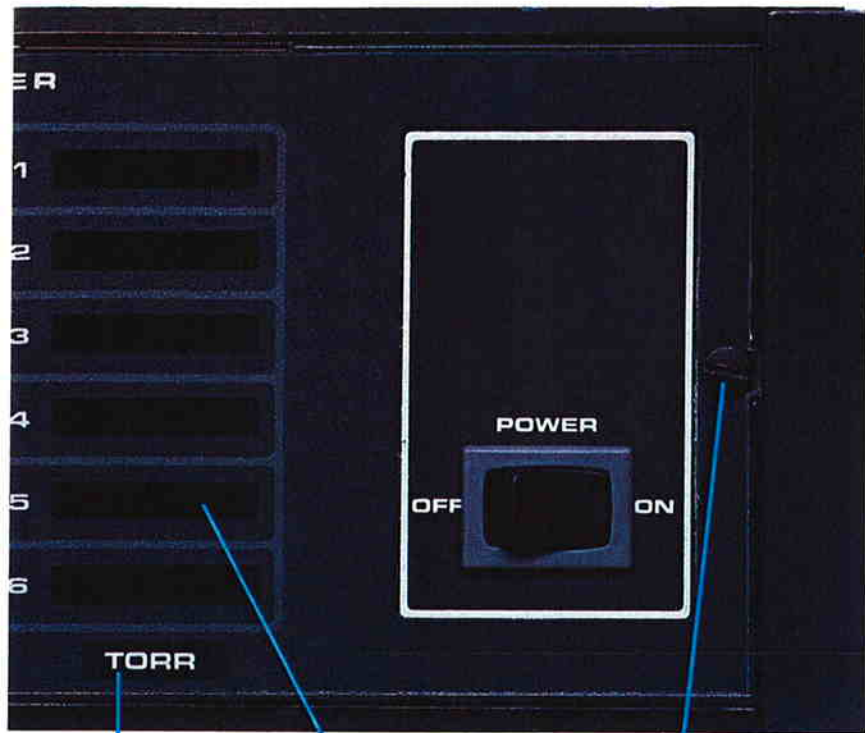
Process Control Module

Modular Bus System For Easy Upgrading

Gold Plated Pin and Socket Board Connectors

RF Shielding





Torr/mbar/Pascal
User Selectable

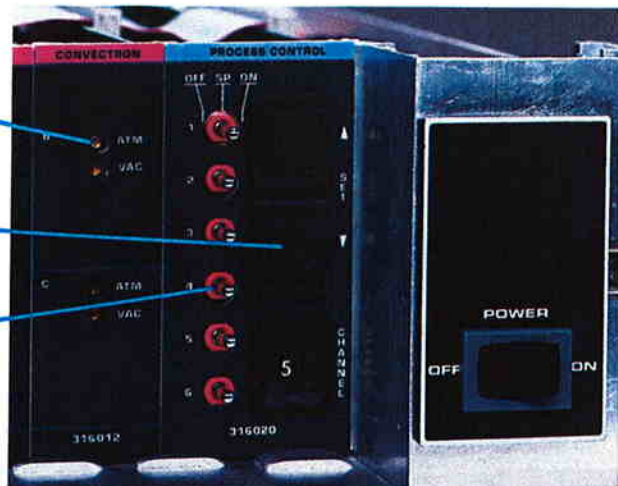
User
Process ID Labels

Optional Security
Lock Available

Trouble Shooting
LED Indicators

Power Line
RF Filter

Control Panel



Accessible
Calibration
Adjustments

Digital
Setpoint
Controls

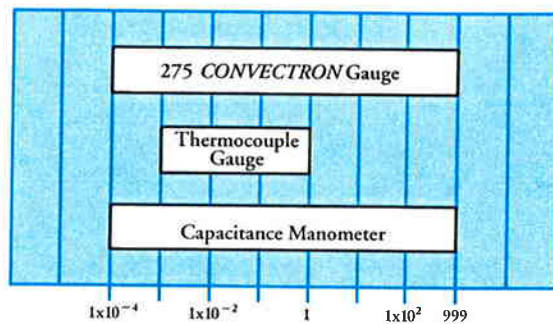
Manual
Override
Switches

Broad Range and Accuracy

Using the unique Granville-Phillips *CONVECTRON* gauge, the 316 VGC gives accurate, repeatable pressure readings with excellent resolution from 1×10^{-4} to 999 Torr. Each *CONVECTRON* tube is individually calibrated to be within $\pm 2\%$ of reading over most of its range and has precise temperature compensation superior to that of conventional Pirani or thermocouple gauges.

The Capacitance Manometer module operates many popular manometer heads with full scale ranges from 1 to 1000 Torr and provides accurate, gas independent measurements.

Pressure
in
Torr

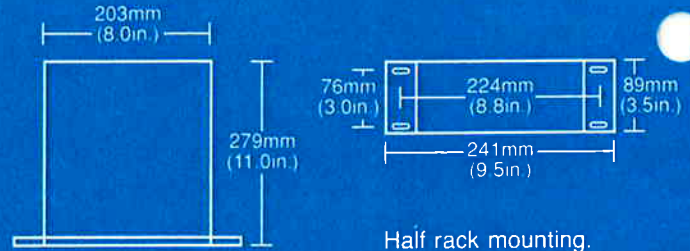


Meeting Your Needs

The 316 VGC was designed to meet the demanding needs of today's vacuum users. When you need high value, improved performance, and the proven reliability that goes into every Granville-Phillips product, select the 316 Vacuum Gauge Controller.

316 VACUUM GAUGE CONTROLLER

TECHNICAL DATA



316 Basic Controller

Display format:	torr/mTorr notation, 3 digit mantissa with floating decimal point and exponent
Unit of measure:	torr, mbar, pascal User selectable
Display update time:	0.5 second. Selectable to 3 seconds, averaged
Mounting configurations:	Half rack, full rack centered, full rack offset, bench mount, side-by-side
Controller ambient temperature:	0 to 40 °C
Operating line voltage:	100, 115, 230 Vac. 50 to 60 Hz

CONVECTRON Gauge Modules

Gauge type:	GPC Series 275
Pressure range:	1×10^{-4} to 999 Torr, N ₂ equivalent
Gas type:	Calibrated for N ₂
Analog output:	Linear with respect to the logarithm of pressure. 1 volt/decade
Ambient operating temperature; tube:	15 to 50 °C
Bakeout temperature; tube:	150 °C max

Capacitance Manometer Module

Transducer types:	MKS models 220B, 221A, 222A/B (422B), 224, 227A Vacuum General models CML, CM, CMT, CMH, CMHS Please check with GPC regarding compatibility of other transducers.
Pressure range:	1×10^{-4} to 999 Torr, dependent on transducer range
Gas type:	Reading is gas type independent
Analog output:	Capacitance manometer: Linear, 0 to 10 volts CONVECTRON gauge: Logarithmic, 1 volt/decade

Thermocouple Gauge Modules

Gauge type:	GPC 270006
Pressure range:	1×10^{-3} to 1 Torr, N ₂ equivalent
Gas type:	Calibrated for N ₂
Analog output:	0 to 10 volts, nonlinear

ORDERING INFORMATION

CATALOG NUMBER	DESCRIPTION
Basic Controllers	
316001	Single CONVECTRON gauge, upgradable, accepts modules below
316002	Single Thermocouple gauge, upgradable, accepts modules below

Note: the above controllers allow operation of three vacuum gauges

Available Modules

316016	Dual CONVECTRON gauge module, Channels B and C
316018	Dual Thermocouple gauge module, Channels B and C
316019	Two channel Process Control module
316020	Six channel Process Control module
316027	One to four channel (user selectable) Process Control module
316021	RS-232 bi-directional interface
316024	RS-232 fiber optic bi-directional interface
316022	IEEE-488 bi-directional interface
316026	Capacitance manometer/CONVECTRON module
316100	True linear analog output module (for thermocouple gauges only) 0-10V

Cables

Single CONVECTRON Cables	
316007	10 feet
316008	25 feet
316009	50 feet
316010	Custom, 500 ft. max.

Dual CONVECTRON Cables

303030	10 feet
303031	25 feet
303032	50 feet
303040	Custom, 500 ft. max.

Single Thermocouple Cables

316011	10 feet
316012	25 feet
316013	50 feet
316014	Custom, 200 ft. max.

Dual Thermocouple Cables

307054	10 feet
307055	25 feet
307056	50 feet
307057	Custom, 200 ft. max.

Capacitance Manometer Cables

307027	10 feet
307028	25 feet
307029	50 feet

Where to Order

Information regarding order placement, technical assistance, or the location of the sales office nearest you is available through our corporate office: Granville-Phillips Co., 5675 Arapahoe Ave., Boulder, Colorado 80303-1398, USA, Telephone: (303) 443-7660, (800) 776-6543. Fax: (303) 443-2546

Terms and Price Policy

F.O.B. Plant, Boulder, Colorado USA. Other terms will be quoted on request. Granville-Phillips reserves the right to change prices and specifications without notice.

Limited Warranty

This equipment is warranted for a period of one year to be free of defects in materials and workmanship subject to certain exceptions and limitations which are expressly stated in our Limited Warranty for this equipment, a copy of which is included in each instruction manual or which will be mailed to you upon request. Extended warranty available at time of purchase only.

Call to Order

Call Today for applications assistance or to order vacuum gauges that could significantly increase the productivity of your vacuum-based process.

GRANVILLE-PHILLIPS
HELIX TECHNOLOGY CORPORATION

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