



Varian Vacuum Gauges Now Available from VRL



DV100 and DV100-2
Diaphragm Gauge Controller

WV100-2
Wide Range Gauge Controller



HV100 and HV100-2
High Vacuum Pirani Gauge Controller

Ordering Information

These gauges have been manufactured by Vacuum Research for the last 10 years and sold by Varian Vacuum under their name. These instruments are now available only from Vacuum Research. Repairs, spare parts, and N.I.S.T. calibration are available for all models with either a Varian or VRL label.

Vacuum Research Ltd. • 2419 Smallman Street • Pittsburgh, PA 15222 USA
Phone: (800) 426-9340 • (412) 261-7630 • FAX: (412) 261-7220 • e-mail: VRL@vacuumresearch.com

Rev. November 2008

DV100 and DV100-2 Silicon Diaphragm Gauge Controller



- Pressure from 1 Torr to 1500 Torr (1 mbar to 2000 mbar)
- Gas Species Independent Over Entire Range
- Easy To Read Digital LED Display
- Two Independent Set Points for Alarm or Process Control
- Process Control with ± 0.02 mTorr Set Point Reliability
- Change Cable Length Without Recalibration

Measurement Range: 1 to 1500 Torr, ± 1 Torr
1 to 2000 millibar, ± 1 mbar

Transducer: 1/4 inch NPT male pipe thread

Sensitivity: ± 1 Torr, ± 1 mbar

Linearity: $\pm 0.15\%$ Full Scale

Analog Output: 0 to 1.500 Volt into 2000 Ohm load or higher. 2 pin connector included (0 - 2 V with mbar calibration)

Set Point Repeatability: ± 2 Torr, ± 2 mbar

Accuracy: 3% of reading or ± 3 milli Torr ($\pm .003$ mbar)

Response Time: Less than 1 second for response to a step change

Materials: Parts contacting the process, including sensor body and diaphragm, are 316 stainless steel

Calibration: Any gas, liquid or vacuum compatible with 316 stainless steel

Set Point Range: 1 to 1500 Torr, 1 to 2000 millibar

Display: 3 1/2 digit, LED character height 11 mm (.43 in.)

Power Consumption: Less than 1 watt for indicator, less than 2 watts for controller

Relays: (Controller Only) Separate relays are provided for high and low set points. Each relay is SPDT with contacts relay for each set point; 3 Amp @115VAC, non-inductive.

Line Power: 115VAC, 50/60 Hz; 230 VAC optional at no additional cost.

Line Regulation: $\pm 20\%$ change in line voltage produces less than 1% change in reading

Temperature Effects: Changes in ambient temperature between 0 °C to 50 °C will change reading no more than $\pm 0.02\%$ per °C

Mounting: Bench or 1/4 Din panel mount. Jack screws for panel mount included.

Transducer Cable: 3 meter (10 ft.) Connectors on both ends, 10 conductors.

Extension Cable: Cables up to 75 meters (250 ft.) 20 gauge wire can be used.

Net Weight: Indicator: 1 lb., 2 oz. (0.5 kg)
Controller 1 lb. 6 oz. (0.6 kg)

Shipping Weight: Indicator: 2 lbs., 8 oz. (1.1 kg)
Controller 3 lbs. (1.3 kg)

Varian Model	Varian Part Number	VRL Part Number	Price	Model	Operating Voltage	Shipping Wt. lbs (kg)
DV100	6522-08-425	902093	\$432.	No set points (Torr)	115 V	2 (1.0)
DV100-2	6522-08-430	902019	\$573.	Two set points (Torr)	115 V	2 (1.0)
DV100	6522-08-450	902093-230	\$432.	No set points (Torr)	230 V	2 (1.0)
DV100-2	6522-08-455	902019-230	\$573.	Two set points (Torr)	230 V	2 (1.0)
DV100	6522-08-495	902093-mbar	\$432.	No set points (mbar)	115 V	2 (1.0)
DV100-2	6522-08-485	902019-mbar	\$573.	Two set points (mbar)	115 V	2 (1.0)
DV100	6522-08-500	902093-mbar-230	\$432.	No set points (mbar)	230 V	2 (1.0)
DV100-2	6522-08-490	902019-mbar-230	\$573.	Two set points (mbar)	230 V	2 (1.0)
Calibrator	6528-30-005	912027	\$231.	Torr	115 V	1.0 (0.5)
Calibrator	6528-30-025	912027	\$231.	mbar	115 V	1.0 (0.5)
Transducer	6543-25-035	912022	\$388.	SST, 1/4 in. NPT	—	1.0 (0.5)
Transducer		912129	\$438.	SST, 1/8 in. NPT	—	1.0 (0.5)
Transducer		912210	\$438.	SST, 1/2 in. OD Tube	—	1.0 (0.5)
Transducer	6543-25-034	912191	\$438.	SST, mini Conflat, non-rotatable	—	1.0 (0.5)
Transducer	6543-25-036	902050	\$493.	SST, Cajon 8 VCR (female)	—	1.0 (0.5)
Transducer		912219	\$438.	SST, VCR 4	—	1.0 (0.5)
Transducer	6543-25-038	912151	\$438.	SST, KF-16 Flange	—	1.0 (0.5)
Transducer	6543-25-039	912117	\$438.	SST, KF-25 Flange	—	1.0 (0.5)
Transducer	6543-25-040	912091	\$244.	Silicon, 1/8 NPT	—	1.0 (0.5)
Transducer	6543-25-041	912026	\$282.	Silicon mini Conflat, non-rotatable	—	1.0 (0.5)
Transducer	6543-25-045	912023	\$282.	Silicon KF-16 Flange	—	1.0 (0.5)
Transducer	6543-25-044	912119	\$282.	Silicon KF-25 Flange	—	1.0 (0.5)

WV100-2 Wide Range Diaphragm Gauge Controller



- Pressure from 1 mTorr to 1500 Torr (1 X 10⁻³ to 2000 mbar)
- High Accuracy Measurements Unaffected by Gas Composition
- Fast Response Diaphragm Sensor Mounts in any Orientation
- Two Independent Set Points for Alarm or Process Control
- Accuracy Better Than 1% of Reading, ±2 Torr over entire Range
- Change Cable Length Without Recalibration

Measurement Range: 1 milliTorr to 1500 Torr
(Optional: 0.1 to 200 kPascal, .001 millibar to 2000 millibar)

1 to 2000 milliTorr Range Sensor Characteristics

Sensor Type: Platinum alloy Pirani

Resolution: ± 1 milliTorr (± .001 mbar)

Repeatability: ± 1 milliTorr (± .001 mbar)

Linearity: 3% of reading

Accuracy: 3% of reading or ±3 milliTorr (± .003 mbar)

Response Time: Less than 1.25 Sec.

Hysteresis: 2 milliTorr (.002 mbar)

Analog Output: 0 to 2.000 VDC

Maximum Pressure w/o Calibration Change: 60,000 Torr (1250 PSIG)

Effect of Ambient Temp. Changes From 0 °C to 50 °C: Reading will change < 0.2 mT per °C at 50 mT; < 4 mT per °C at 900 mT

Maximum Transducer Temperature: 100 °C

2 to 1500 Torr Range Range Sensor Characteristics

Sensor Type: Silicon Diaphragm

(Optional: 316 Stainless Steel Diaphragm)

Resolution: ± 1 Torr (± 1 mbar)

Repeatability: ± 1 Torr (± 1 mbar)

Linearity: 0.15% of F.S.

Accuracy: 1% of reading or ± 2 Torr (± 2 mbar)

Response Time: Less than 1 Sec.

Hysteresis: 2 Torr (2 mbar)

Analog Output: 0 to 1.500 VDC

Maximum Pressure w/o Calibration Change: 2,300 Torr (30 PSIG)

Effect of Ambient Temp. Changes From 0 °C to 50 °C: Reading will change less than ± 0.02% per °C

Maximum Transducer Temperature: 100°C

Display: 3 1/2 digit, LED character height 11 mm (.43 in.)

Set Points: Two independent set points with LEDs. Front panel adjustable over 100% of range.

Relays: One SPDT relay for each set point; 3 Amp @115VAC, non-inductive.

Transducer Orientation: Calibration is not affected by orientation.

Power Required: Less than 5 watts (with both relays energized).

Line Voltage: 115V, 50/60 Hz standard; 220 V available.

Line Cord: 1.7 meter (65 inch) attached, 3 conductor.

Mounting: Bench or 1/4 Din panel mount. Jack screws for panel mount included.

Transducer Cable: 3 meter (10 ft.) Connectors on both ends, 10 conductors.

Extension Cable: Cables up to 75 meters (250 ft.) 20 gauge wire can be used.

Weight: Net 2.3 kg (5 lb.); Shipping 3 kg (6.5 lb)

Description	Varian Part Number	VRL Part Number	Price	Model	Operating Voltage	Shipping Wt. lbs (kg)
WV100-2	6522-08-410	902056	\$792.	Two set points (Torr)	115 V	4.5 (2.3)
WV100-2	6522-08-405	902074	\$792.	Two set points (Torr)	230 V	4.5 (2.3)
WV100-2	6522-08-475	902072	\$792.	Two set points (mbar)	115 V	4.5 (2.3)
WV100-2	6522-08-405	902075-mbar	\$792.	Two set points (mbar)	230 V	4.5 (2.3)
Calibrator	6528-30-015	912110	\$530.	Torr	115 V	1.0 (0.5)
Calibrator	6528-30-035	912110	\$530.	mbar	115 V	1.0 (0.5)
Transducer	6543-25-015	902057-mini	\$687.	SST, 1/8 NPT	—	1.0 (0.5)
Transducer	6543-25-016	902154-mini	\$731.	SST, mini Conflat, non-rotatable	—	1.0 (0.5)
Transducer	6543-25-017	902092-mini-FEM	\$753.	SST, Cajon 8 VCR (female)	—	1.0 (0.5)
Transducer	6543-25-018	902150-mini-FEM	\$753.	SST, Cajon 8 VCO (female)	—	1.0 (0.5)
Transducer	6543-25-020	902067-mini	\$731.	SST, KF-16 Flange	—	1.0 (0.5)
Transducer	6543-25-019	902151-mini	\$731.	SST, KF-25 Flange	—	1.0 (0.5)
Transducer	6543-25-005	902058-mini	\$543.	Silicon, 1/8 NPT	—	1.0 (0.5)
Transducer	6543-25-006	902153-mini	\$593.	Silicon mini Conflat, non-rotatable	—	1.0 (0.5)
Transducer	6543-25-007	902091-mini-FEM	\$615.	Silicon Cajon 8 VCR (female)	—	1.0 (0.5)
Transducer	6543-25-008	902146-mini-FEM	\$615.	Silicon Cajon 8 VCO (female)	—	1.0 (0.5)
Transducer	6543-25-010	902068-mini	\$593.	Silicon KF-16 Flange	—	1.0 (0.5)
Transducer	6543-25-009	902147-mini	\$593.	Silicon KF-25 Flange	—	1.0 (0.5)

HV100 and HV100-2 High Vacuum Pirani Gauge Controller



- Pressure from 0.01 to 100 mTorr (10^{-5} mbar to 0.1 mbar)
- Ideal for Analytical and Industrial Applications
- Easy To Read Digital LED Display
- Two Independent Set Points for Alarm or Process Control
- Set Points Adjustable Over 100% of Range
- Change Cable Length Without Recalibration

Measurement Range: 0.01 to 100.00 mTorr
0.01 to 100.00 X 10^{-3} mbar

Resolution: ± 0.01 mTorr ($\pm 10^{-5}$ mbar) resolution over entire range

Accuracy: Better than 5% of value or ± 0.03 milli Torr, whichever is larger

Set Point Range: Full Scale, adjustable over full scale of instrument.

Set Point Repeatability: 2 digits

Calibration: Air or Nitrogen

Analog Output: 0 to 1.000 Volt = 100 mTorr, or 1.0000 volt = 100 X 10^{-3} mbar. 2 pin connector included

Gauge Tube: 100 mTorr tube has 3/4 inch OD smooth tubulation

Power Consumption: Approximately 1 watt for indicator, 2 watts for controller @ 115 VAC

Display: 3 1/2 digit, LED character height 11 mm (.43 in.)

Relays: (Controller Only) Separate relays are provided for high and low set points. Each relay is SPDT with contacts relay for each set point; 3 Amp @ 115VAC, non-inductive.

Temperature Effects: Changes in ambient temperature between 0 °C and 50 °C change the reading less than 0.004 mTorr per °C at hard vacuum and 0.4 mTorr at 50 mTorr

Bakeout Temperature: Gauge tube can be baked to 100 °C (212 °F) in air or vacuum

Line Power: 115VAC, 50/60 Hz; 230 VAC optional at no additional cost.

Line Regulation: $\pm 20\%$ change in line voltage produces less than 1% change in reading

Mounting: Bench or 1/4 Din panel mount. Jack screws for panel mount included.

Gauge Tube Cables: 3 meter (10 ft.) Connectors on both ends, 10 conductors.

Extension Cable: Change gauge tube cable length without recalibration. Extensions to 500 feet (150 meters) can be provided.

Relay Output: 3 pin screw terminal connectors.

Line Cord: 5 1/2 feet (170 cm)

Net Weight: Indicator: 1 lb., 2 oz. (0.5 kg)
Controller 1 lb. 6 oz. (0.6 kg)

Shipping Weight: Indicator: 2 lbs., 8 oz. (1.1 kg)
Controller 3 lbs. (1.3 kg)

Varian Model	Varian Part Number	VRL Part Number	Price	Model	Operating Voltage	Shipping Wt. lbs (kg)
HV100	6522-08-415	902095	\$636.	No set points (Torr)	115 V	2 (1.0)
HV100-2	6522-08-420	902005	\$784.	Two set points (Torr)	115 V	2 (1.0)
HV100	6522-08-440	902095-230	\$636.	No set points (Torr)	230 V	2 (1.0)
HV100-2	6522-08-445	902005-230	\$784.	Two set points (Torr)	230 V	2 (1.0)
HV100	6522-08-515	902095-mbar	\$636.	No set points (mbar)	115 V	2 (1.0)
HV100-2	6522-08-505	902005-mbar	\$784.	Two set points (mbar)	115 V	2 (1.0)
HV100	6522-08-520	902095-mbar-230	\$636.	No set points (mbar)	230 V	2 (1.0)
HV100-2	6522-08-510	902005-mbar-230	\$784.	Two set points (mbar)	230 V	2 (1.0)
Calibrator	6528-30-010	912019	\$231.	Torr	115 V	1.0 (0.5)
Calibrator	6528-30-030	912019	\$231.	mbar	115 V	1.0 (0.5)
Transducer	6543-25-025	912018	\$121.	SS Body, 3/4 O.D. Tubulation	—	1.0 (0.5)
Transducer	6543-25-026	912038	\$159.	SS Body, mini Conflat, non-rotatable	—	1.0 (0.5)
Transducer		912179	\$159.	SS Body, 1.33 in. Conflat, tapped holes	—	1.0 (0.5)
Transducer		912160	\$159	SS Body, 1.33 in. Conflat, through holes	—	1.0 (0.5)
Transducer		912091	\$244.	SS Body, 1/8 NPT	—	1.0 (0.5)
Transducer		912101	\$159.	SS Body, 15 mm Diameter Tube	—	1.0 (0.5)
Transducer	6543-25-030	912037	\$159.	SS Body, KF-16 Flange	—	1.0 (0.5)
Transducer	6543-25-029	912113	\$159.	SS Body, KF-25 Flange	—	1.0 (0.5)

Visit our website at www.vacuumresearch.com for specifications on our complete line of vacuum gauges & equipment

Vacuum Research Ltd. • 2419 Smallman Street • Pittsburgh, PA 15222 USA
Phone: (800) 426-9340 • (412) 261-7630 • FAX: (412) 261-7220 • e-mail: VRL@vacuumresearch.com