



Digivac Model 22W[™] and 22wLcd[™] *Wide Range* Linearized Vacuum Controller/Transmitter/232

Thank you for purchasing the Digivac Model 22W (LCD) Vacuum Transmitter. This instrument works in conjunction with a DC powered Vacuum Gauge tube to produce a linear voltage and RS-232 output proportional to the sensed vacuum. Its range is from Atmosphere to .001 Torr (Torr version) or 999 to .001 millibars (millibar version).

The 22wLcd is similar to the 22W and includes a 12 x 2 blue character LCD display (12 characters on two lines)

The unit, as shipped, is pre-tested, pre-calibrated and ready for operation.

The unit consists of the instrument housing, vacuum gauge tube (sensor), signal/power cable, and 5 volt power adapter. It can be powered by an external regulated 5 volt source through the signal cable if omitting the 5 volt supply allows a more efficient installation.

Installation.

Mount the vacuum sensor into a clean, dry part of a vacuum system. The vacuum sensor should be stem down for correct operation and to facilitate drainage. The axis of the tube should be vertical although angles of up to 45 degrees are generally well tolerated.

Note: a new signal/power cable wiring scheme was implemented on units starting with serial numbers K14XXXX to present. If your unit is older than 2014 or your cable differs in wire colors from those listed below, please consult Digivac to obtain either a new cable or a wiring guide for the older cable.

Make Electrical connections as follows:

(It is not necessary to connect everything; only the features you wish to use)

Pin 1	No Connection
Pin 2	Blue - TX Data
Pin 3	No Connection
Pin 4	White - Analog Output
Pin 5	Black – Supply & Signal Common (power supply negative connection)
Pin 6	No Connection
Pin 7	No Connection
Pin 8	No Connection
Pin 9	Red +5 VDC (5 volts power supply positive connection)

Power Connection: Your instrument may be powered with either the included 5 volt AC adapter or through the signal/power cable as described above. The 22w requires 5 volts DC at 1 amp maximum. Observe wiring polarity, the 22w does not have reverse polarity protection!

It is best to avoid mounting the unit where it will be subjected to excessive vibration or oil vapors. For this reason, the unit should not be mounted directly on a vacuum pump. If it must be placed close to a vacuum pump, it is desirable to have at least two 90 Degree turns in the piping. In this way, there will be no direct optical path for oil vapors, and gauge tube life and calibration will be maximized. One way to protect the tube is to use a pressure gauge "siphon", available from DigiVac.

The vacuum sensor has a 1/8 pipe thread connection. If any significant torque is to be applied to this connection, Use a 9/16 open-end wrench. Do not use the body of the instrument as a wrench!

Operation: When the unit is energized, the vacuum measurement will be indicated on the LCD screen (on units equipped with the LCD option).

RS-232 Operation:

The RS-232 output transmits a text string displaying the current measured level of vacuum. Its parameters are 9600 baud 8 data bits, no parity, one stop bit. Data is sent unsolicited at one-second intervals; no handshaking or troublesome commands are required.

Simply connect pins 2 and 5 to a female 9 pin D-sub connector, and connect that to any pc serial port or USB -> serial bridge.

Data may be monitored by any common terminal program. Data may be saved to the user's PC using "Receive File" and "Save File" instructions, which are included. Data may be plotted using Microsoft Excel or any other spreadsheet program.

Analog Output The unit has an analog (DC voltage) output, which can be used to transmit vacuum to external equipment such as PLC's or chart recorders. The analog output is available in either of two voltage scaling schemes and is pre-set at the factory. Consult your packing list or contact DigiVac to confirm which analog output your 22w was shipped with.

Output impedance is 1K Ohms.

This analog output is normally scaled 5V5T, which means the output voltage will be 1 millivolt for each measured millitorr, up to 5000 millitorr (5 Torr).

<u>Torr</u>	<u>Display</u>	<u>Volts</u>
.000	000	0.000
.100	100	0.100
.200	200	0.200
.500	500	0.500
.925	925	0.925
1.00	1.00	1.000
2.20	2.20	2.200
5.00	5.00	5.000
8.86	8.86	5.000
11.9	11.9	5.000
34.7	34.7	5.000
55.3	55.3	5.000
71.9	71.9	5.000
96.4	96.4	5.000
110	110	5.000
340	340	5.000
550	760	5.000

This analog output is also available in an optional Linear-by-Decade scheme, scaled as follows:

0.0 to 0.999 volts = 0 to 999 millitorr
1.1 to 1.99 volts = 1.0 to 9.9 torr
2.1 to 2.99 volts = 10.0 to 99 torr
3.1 to 3.76 volts = 100 to 760 torr

<u>Torr</u>	<u>Display</u>	<u>scale</u>	<u>Volts</u>
.000	000	0	0.000
.100	100	0	0.100
.200	200	0	0.200
.500	500	0	0.500
.925	925	0	0.925
1.00	1.00	1	1.100
2.20	2.20	1	1.220
5.18	5.18	1	1.518
8.86	8.86	1	1.886
11.9	11.9	2	2.119
34.7	34.7	2	2.347
55.3	55.3	2	2.553
71.9	71.9	2	2.719
96.4	96.4	2	2.964
110	110	3	3.110
340	340	3	3.340
550	550	3	3.550
760	760	3	3.760

Note that some readings of the analog output are not possible; the output jumps directly from .999 millivolts to 1.100 volts so there will be no readings in between.

If a different scaling scheme is desired, it can usually be accommodated for a modest one-time fee. For example, certain freeze dryer customers prefer 0 to 5 volts = 0 to 10 torr.

Special units. It is the policy of the Digivac Company to manufacture custom vacuum instrumentation for special applications whenever it is economically feasible to do so. Visit our web site www.digivac.com for examples. The Model 22W has a socketed, flash microprocessor which is programmed in a high level language. It can often be economically reprogrammed for custom time delays and other special functions. We encourage inquiries about your special needs.

For repair or recalibration, obtain an RMA # and return instruments to:

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