Model DKG300
Digital Pressure Gauge

PRODUCT DESCRIPTION

The **DKG300** Family of Pressure Gauges are specifically designed for low pressure sensing and display. These units use solid state pressure sensing circuitry that insures high accuracy and low drift. Dual set point output relays are included to allow control of external devices. The system uses an embedded microprocessor to ensure accurate and repeatable results. The standard unit is designed for panel mount and meets requirements for U.L. type 4 applications. They mount in a 4-47/64 inch diameter panel cutout (same as Dwyer Photohelic™ A3000 Series). These units can sense positive and differential pressure.

SPECIFICATIONS (1 "in H_2O" = 1"in WC")

Input Power: Single phase, 50/60 Hertz, 115/230 volts AC jumper selectable, 10VA
Display: 3 Digit, .6 in red LED, "in WC"
Front Panel Annunciators: numeric display inches of water column, "output one" LED indicates set point one activated, "output two" LED indicates set point two activated
Keypad: 4 keys, Set 1, Set 2, Up Arrow, Down Arrow
Differential Pressure Input: Various ranges from 0 to 0.50in WC to 0 to 40 in WC
Relay Outputs: Two independent relay outputs, Form C, 10 amp @ 230 VAC, 10 amp @ 30 VDC relays energize above set point, auto reset
Digital Inputs: Programming disable (isolated contact closure)
Analog Output: 4-20ma equaling min. to max., 500 ohm max load
Power Supply Fusing: 100ma, 5mm x 20mm fuse, Bussman gdc-100ma or equivalent
Programmable Parameters: Set point one, set point two
Media: Limited only to media that will not attack Polyphenylene Sulfide (PPS). Polyetherimide (PEI), Silicon, or Fluorosilicone, Silicone RTV. Contact factory for Liquid applications.
Parameter Retention: E^2 Prom

Environmental:
- Operating: 10-50 degrees C, optional -25 to 50 degrees C
- Storage: -40 to 60 degrees C
- Operating and Storage Humidity: 0-85% non-condensing
- Altitude: 6000 feet

Construction:
- Meet UL 508 Type 4 and 12 panel mount
- Max enclosure thickness 12 gauge
- Black zinc chromate steel front panel with polycarbonate overlay

Certificate of Compliances: Designed to meet UL, CSA, and CE specifications. UL Listed
Weight: 2 lbs. (Approximately)
Dead Band: Fixed @ 1% of full scale
Transducer Pressure Limits: 20 PSI
Process Connection Ports: 1/8 inch ID plastic tube, barbed
Accuracy: * +/- 1% F.S.O.
Stability: +/- 0.5% F.S.O./yr.
Thermal Effects: (zero) +/- 0.075% F.S.O./°C, (+/- 0.042% F.S.O./°C)
Thermal Effects: (span) +/- 0.005% F.S.O./°C
*Includes non-linearity, hysteresis, and non-repeatability at a fixed temperature.

MODELS

These **DKG300** is available in single pressure ranges from 0-0.5 in WC (in H_2O) to 0-40 in WC, as well as being available in zero center ranges. An "ETR" (Extended Range) option is available for all models. This option extends the systems operating temperature range from 10 to 50 degrees C to -25 to 50 degrees C.

Single Direction Models

Pressure Range (in WC)	Model
0-0.5	DK3000-0
0-1.0	DK3001
0-2.0	DK3002
0-5.0	DK3005
0-10.0	DK3010
0-20.0	DK3020
0-40.0	DK3040

Zero Center Models

Pressure Range (in WC)	Model
-0.25-0-0.25	DK3300-0
-0.50-0-0.50	DK3301
-1.0-0-1.0	DK3302
-5.0-0-5.0	DK3310
-10.0-0-10.0	DK3320

USER INTERFACE GUIDE

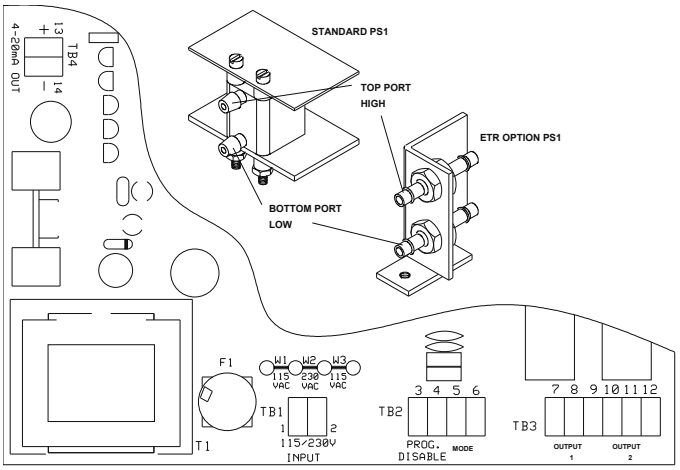
The **DKG Digital Pressure Gauge** is factory calibrated and configured to the pressure range specified by the model number. Set Point One (*Set One*) and Set Point Two (*Set Two*) may be modified by the user; however, the range of the gauge may not. The system's differential pressure is the measured difference in pressures between the transducers top port (high) and bottom port (low). When the differential pressure reaches or exceeds the user modifiable set point, *Set One,* the SPDT relay CR1 energizes and *Output 1* led turns on. This closes the normally-open contacts between TB3 pins 7 and 8 and opens the normally-closed contacts between pins 8 and 9. When the differential pressure reaches or exceeds the user modifiable set point, *Set Two,* the SPDT relay CR2 energizes and *Output 2* led turns on. This closes the normally-open contacts between TB3 pins 10 and 11 and opens the normally-closed contacts between pins 11 and 12.Once the differential pressure falls below the *Set One* and *Set Two* values, relays CR1 and CR2 de-energize, opening their normally-open contacts and closing their normally-closed contacts (See the "Rear View" figure below).

Excluding models with the "ETR" option, manual gauge zeroing is accomplished one of two ways. First, if the 4-20 ma Analog Output signal is used, ensure both ports of the solid state pressure transducer are at equal pressure values (typically standard atmospheric pressure) and connect a current meter to TB4. If using a Single Direction Model DKG, adjust the pressure transducers potentiometer until the current meter reads 4ma. If using a Zero Center Model DKG, adjust the pressure transducers potentiometer until the current meter reads12ma. Finally, press and hold the *Set One* and *Set Two* pushbuttons simultaneously for 5 seconds to complete the manual gauge zeroing. The second way to manually zero is when TB3's Discrete Output signals are used. Again, ensure both ports of the solid state pressure transducer are at equal pressure values (typically standard atmospheric pressure). Press and hold the *Set One* and *Set Two* pushbuttons simultaneously for 5 seconds to complete the manual gauge zeroing. Once the unit has been successfully zeroed, the pressure gauge LED display will show "0.00". To ensure optimum gauge performance and accuracy, annual calibration is recommended.

Models with the "ETR" option do not need to be manually zeroed unless the 4-20 ma Analog Output signal is used. The "ETR" option provides the DKG300 with an auto-zeroing valve which periodically connects both ports of the solid state pressure transducer to equal pressure values, zeroing the unit automatically.

The filtering level, which is the amount of time the differential pressure is averaged, is adjusted by first pressing and holding the *Set One* and *Set Two* pushbuttons ***prior to power-up.*** After the unit has been powered up, release the *Set One* and *Set Two* pushbuttons, and adjust the filtering level by pressing the *up/down* pushbuttons. The minimum level is 0 and the maximum level is 100, each numerical level being equal to 2 seconds. For example, a filtering level of 15 is equal to 30 seconds of averaging.

DKG300 FRONT VIEW



DKG300 REAR VIEW

Front

Up/Down arrows allow the user to scroll through the range of pressure values for *Set One* and *Set Two*.

Set One is the user modified pressure value at which relay CR1 energizes. Holding this pushbutton while pressing the up/down arrow pushbuttons will adjust set point one's value.

Set Two is the user modified pressure value at which relay CR2 energizes. Holding this pushbutton while pressing the up/down arrow pushbuttons will adjust set point two's value.

Output 1 LED is activated when the DKG's differential pressure is equal to or greater than the user modified *Set One* value.

Output 2 LED is activated when the DKG's differential pressure is equal to or greater than the user modified *Set Two* value.

Rear

TB1* (115/230V Input): Input power is connected to pins 1 (line voltage) and 2 (neutral). If 115Vac is the operating power, *W1* and *W3* jumpers are used. If 230Vac is the operating power, only *W2* jumper is used.

TB2* (Prog. Disable): When pins 3 and 4 are connected together, the functionality of the pushbuttons are disabled. When Pins 5 and 6 are connected, the logic of Output 1 is reversed and the two setpoints are interlocked so that *Set One* can never be adjusted greater than *Set Two*.

TB3* (Outputs 1 and 2): When the differential pressure reaches or exceeds the S*et One* value, CR1 is energized. This closes the normally-open contacts between TB3 pins 7 and 8 and opens the normally-closed contacts between pins 8 and 9.

When the differential pressure reaches or exceeds the S*et Two* value, CR2 is energized. This closes the normally-open contacts between TB3 pins 10 and 11 and opens the normally-closed contacts between pins 11 and 12.

TB4* (Sensor Out): 4-20 ma Analog Output

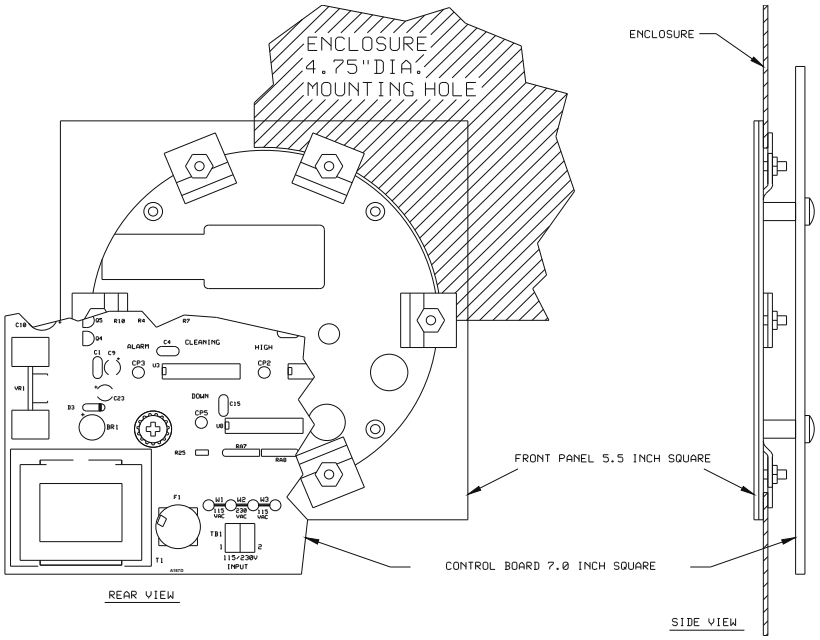
J1: For factory use only.

PS1: The solid state pressure transducer has two ports. The top port is used as the high pressure reference point and the bottom port is used as the low pressure reference point. The difference between these two reference points is called the differential pressure. The potentiometer is used to manually zero the solid state pressure transducer when the 4-20 ma analog output signal is used.

*(TB1,2,3, and 4 have a 4.5 lb-in. torque rating.)

INSTALLATION

The standard unit is designed for panel mount and meets requirements for U.L. type 4 applications. The unit mounts in a 4-47/64 inch diameter panel cutout. First, secure the DKG Front Panel to the enclosure using the six brackets and 6 nuts provided. With the DKG Front Panel in position, secure the DKG Control Board to the Front Panel using the screws and lock- washers provided. Connections to the pressure transducer should be made using a flexible tube with an I/D of 1/8". Depending on the application of the sensing medium, connect the positive/high pressure to the push-on fitting labeled "Top Port -High" and connect the negative/low pressure to the push-on fitting labeled "Bottom Port - Low".



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