

# DSG

## GEN 2000® Electronics

### Radiation-based Density Measurement



#### Application Area

The DSG is well-suited for continuous density measurement of vapors, liquids or slurries in pipes and vessels. The most common industries for the DSG include:

- Mining
- Power
- Pulp and Paper
- Upstream Oil and Gas
- Refining

#### Advantages

Recognizable benefits of the DSG include:

- Non-contact measurement
- May be installed on live process with no piping modifications
- Unaffected by fluid viscosity, deflection, or refractive properties
- Gauge firmware is compatible with a wide range of density units for calibration flexibility

#### Function

The detector uses a compact scintillator inside its housing. This scintillator produces photons when exposed to gamma radiation. The number of photons produced represents the intensity of radiation striking the detector. A photomultiplier tube converts the scintillator's photon signal to an electrical signal. A gamma source is installed on the pipe or vessel opposite the detector. Density changes vary radiation intensity at the scintillator. The detector's microprocessor-based transmitter produces a 4 ... 20 mA HART output proportional to density when properly adjusted.

#### Technical Data

<b>System Accuracy</b>	Typically +/- 1% of span
<b>Power Requirements</b>	
- AC Non-heated	90 ... 250 VAC, 50 ... 60Hz, 15 VA
- AC Heated	115 or 2230 VAC, 50 ... 60 Hz, 25 VA
- DC Non-heated	20 ... 60 VDC (< 100 mV, 1 ... 1000Hz ripple), 15 VA
- DC Heated	24 VDC +/- 10%, 25 VA
- Wire Size	1.63 ... 0.64 mm (14 ... 22 AWG) per local electrical code
<b>Ambient Conditions</b>	
- Temperature	-20 ... +50 °C (-4 ... 122 °F) Extended temperature options available
- Humidity	0-95%, non-condensing
- Vibration	Tested to IEC 68-2-6, IEC 68-2-27, and IEC 68-2-36
<b>Relay Output</b>	
- User Configurable	Diagnostic, Process high/low alarm, X-Ray Interference
- Rating	6A at 240 VAC, or 6A at 24 VDC (SPDT Form C), or ¼ HP at 120 VAC
<b>Auxiliary Inputs</b>	
- Standard	Frequency input (0 to 100kHz)
- Optional	RTD Input, Analog Input, RS-485
<b>Weight</b>	6.8 kg (15 lbs.)

#### Materials

<b>Electronics Housing</b>	Cast Aluminum ASTM A357
<b>Housing Coating</b>	Polyester powder coating (Standard) or PVC coating
<b>Sensor</b>	Sodium Iodide Crystal

#### Housing Versions

The housing carries a NEMA 4X (IP 66) rating and features two ¾" NPT conduit entries. Options for ½" NPT or M20 conduit entry adapters are available.

#### Electronic Versions

The electronic versions available for the DSG is 4 ... 20 mA HART. Optional electronic versions include frequency output and for SmartPro and RS-485 for inter-gauge communication.

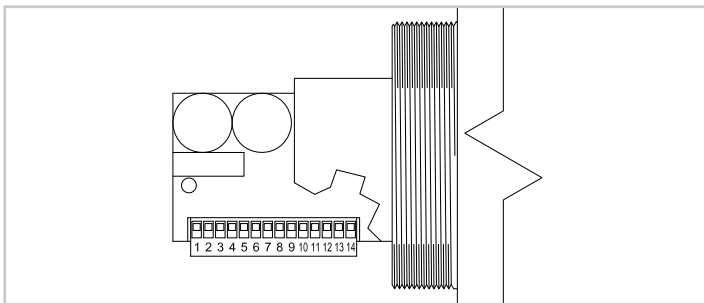
## Approvals

<b>CSA, FM, GOST-R</b>	Class I, Div I, GR. A, B, C, D; Class II, Div I, GR. E, F, G T6 Ta= -20°C to +60°C or Class I, Zone I, GR. IIC T6 Ta= -20°C to +60°C
<b>ATEX</b>	II 2 G/D EExd IIC T6 Ta= -20°C to +60°C
<b>Other Certifications</b>	NEPSI (China), KTL (Korea), JIS (Japan) Consult VEGA for details
<b>Note</b>	Approvals for heated versions may vary. Consult factory.

## Operation

The detector is adjusted using a PC with Ohmview configuration and calibration software via HART modem. Alternatively, a Rosemount 275 or 375 HART handheld communicator with pre-installed VEGA device description may be used.

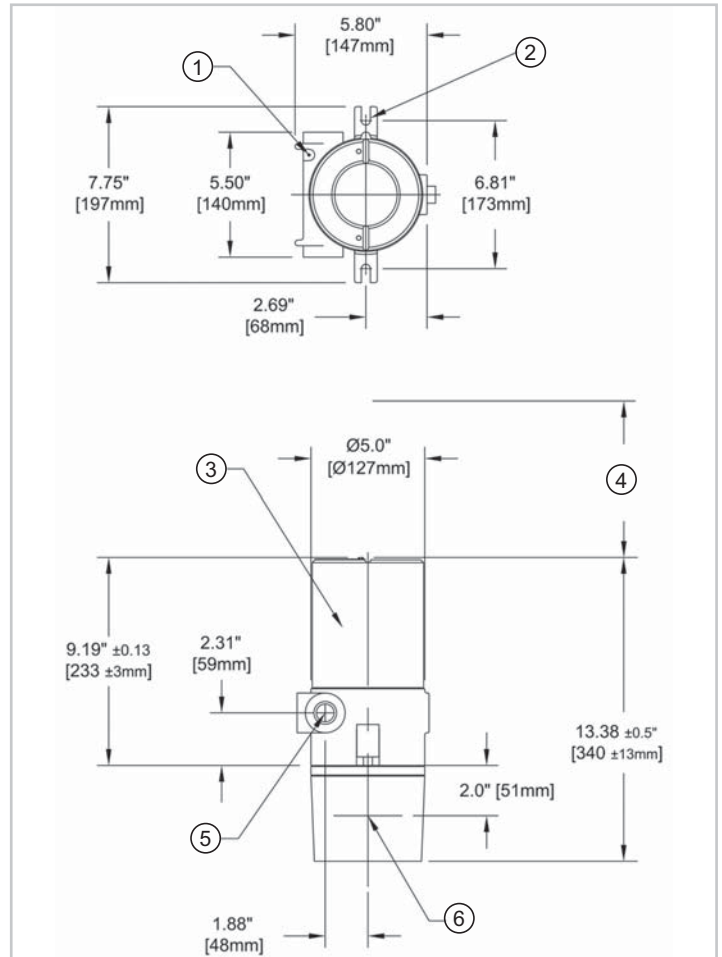
## Electrical Connection



### Terminals

- 1 Power in (L)
- 2 Power in (N)
- 3 Relay NO
- 4 Relay C
- 5 Relay NC
- 6 + Frequency
- 7 - Frequency
- 8 + 6V
- 9 COM
- 10 - 6V
- 11 + Auxiliary
- 12 - Auxiliary
- 13 + mA
- 14 - mA

## Dimensions



### Dimensions

- 1 External Ground Terminal
- 2 Use 8 mm (5/16") Mounting Hardware (2 places)
- 3 Sensor Electronics
- 4 Clearance for Servicing 254 mm (10.0") preferred, 152 mm (6.0") minimum
- 5 3/4" NPT (2 places)
- 6 Sensing Area

## Information

You can find additional information about VEGA product offerings from our home page, [www.vega-americas.com](http://www.vega-americas.com). Brochures, operating instructions, quick reference guides, specification sheets, and drawings are also available from the Downloads section of our homepage.

## Device Selection

The Downloads section of our home page, [www.vega-americas.com](http://www.vega-americas.com) provides application data sheets so you can select the measuring principle or product for your particular application.

## Contact

Please call 1-513-272-0131, Monday through Friday, 8:00 A.M.-5:00 P.M., EST (Eastern Standard Time) if you have any questions. For emergencies after hours, call the number above and follow the voice mail instructions.

*All information is subject to change without notice.*