

G-SERIES MODELS GT2/GT3 REDUNDANT - ANALOG

G-Series Redundant Linear-Position Sensor Analog Outputs



Temposonics Models GT2 and GT3

Redundancy for enhanced safety

- Up to 3 totally separated, independent measuring systems in 1 housing
- Linear absolute measurement
- Non-contact sensing technology
- Superior accuracy, linearity better than 0.02%
- Repeatability 0.001%
- Direct analog output
- compact design with a 10 mm (0.39 in.) O.D. measuring rod and standard mounting

Parameters	Specifications
Measured variable:	Position
Resolution:	Infinite
Update time:	<1 ms (typical)
Linearity:	<± 0.02% full scale (minimum ±50 µm)
Repeatability:	< ± 0.001% full scale (minimum ± 2.5 µm) Hysteresis: < 4 µm
Outputs:	Model GT2: 2 output channels Model GT3: 3 output channels Voltage: 0 to 10, 10 to 0, -10 to +10, +10 to -10 Vdc (minimum controller load >5k ohms) Current: 4(0) to 20 mA, 20 to 4(0) mA, (min./max. load 0/500 ohms)
Stroke length:	50 mm (2 in.) to 1525 mm (60 in.)
Operating voltage:	+24 Vdc nominal: -15 or +20% Polarity protection: up to -30 Vdc Overvoltage protection: up to 36 Vdc Current drain: 100 mA typical Dielectric withstand voltage: 500 Vdc (DC ground to machine ground)
Operating conditions:	Temperature: - 40 °C (-40 °F) to +75 °C, (+167 °F) Relative humidity: 90% no condensation Protection: IP67 Shock test: 100 g single hit, IEC-Standard 68-2-27 (survivability) Vibration test: 5 g / 10 to 2000 Hz, IEC-Standard 68-2-6
EMC test:	Emissions IEC/EN 61000-6-3, Immunity IEC/EN 61000-6-2, IEC/EN 61000-4-2/3/4/5/6/8, level 3/4 criterion A, CE qualified
Electronic head:	Aluminum housing
Sealing:	IP 67
Sensor rod:	304L Stainless steel
Operating pressure:	350 bar (5000 psi) static, 690 bar (10,000 psi) spike
Mounting:	Threaded flange M18 x 1.5 or 3/4-16 UNF-3A
Typical mounting torque:	45 N-m (33 ft. - lbs.)
Magnet type:	Ring magnet, open-ring magnet, or magnet float

The above specifications for analog output sensors are based on the assumption that output ripple is averaged by the measuring device as with any typical analog device.



OUTPUTS

Temposonics G-Series Redundant

The G-Series Redundant sensor is designed for applications with high safety requirements. Two or three measuring systems, which work totally independent, are installed inside the compact sensor housing. Each measuring system contains its own channel with sensor element, evaluation electronics, output signal, separated power supply, connector and cable.

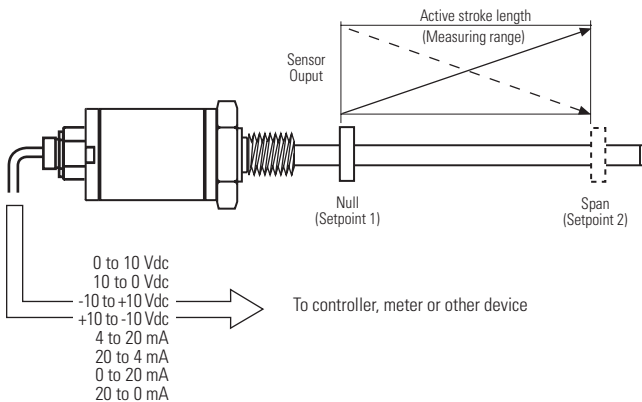
All sensor elements are integrated in one pressure proofed, high-grade steel rod. Rod and housing style feature the approved standard dimensions with 10 mm (0.39 in.) diameter rod and 3/4-16UNF or M18 x 1.5 threaded hex flanges. That qualifies the redundant sensor for measuring linear movements of control valves, linear drives, fluid cylinders and machines.

Applications with safety relevant functions benefit from a redundant position measurement, such as:

- Valves and drives at power plants.
- Pitch settings at water or wind turbines or for marine propellers.
- Ship control systems.
- Floodgate control.

Analog output

Temposonics G-Series position sensors with analog output provide direct signals, including voltage (0 to 10 Vdc or -10 to +10 Vdc, forward or reverse acting) and current (4 to 20 mA, or 0 to 20 mA, forward or reverse acting). Both voltage and current outputs allow full adjustments of null and span setpoints, (minimum 2 in. between setpoints). Since the outputs are direct, no signal-conditioning electronics are needed when interfacing with controllers or meters.



ADVANCED COMMUNICATION AND PROGRAMMABILITY

G-Series sensors are preconfigured at the factory by model code designation. For many applications no adjustments are required for normal sensor installation and operation. If, however, sensor parameter changes are desired while in the field, the G-Series sensor is easily programmed.

Using external communication for monitoring and programming, there is no need to open the sensor's electronics housing. This can simplify installation and commissioning, saving valuable time. Keeping the sensor electronics isolated ensures that seal integrity and the highest product reliability are maintained.

The new platform technology inside the G-Series position sensor enables:

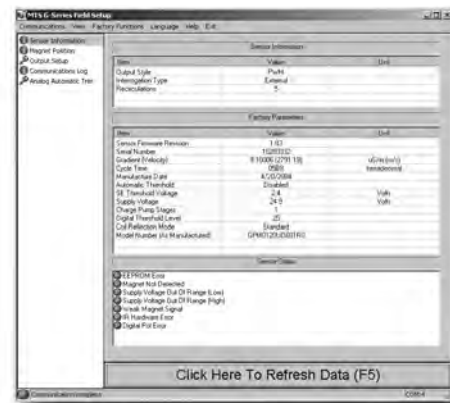
- Built-in serial interfaces for robust hard-wired serial communication, RS-485.
- Remote programmability for operational modes and sensor parameters.
- Enhanced monitoring and diagnostic capabilities (see below).

Programmable modes and sensor parameters for G-Series position sensors include:

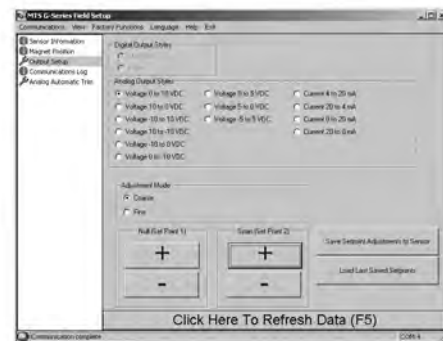
- Voltage or Current output mode
- Voltage or Current output range
- Full adjustment for null and span setpoints

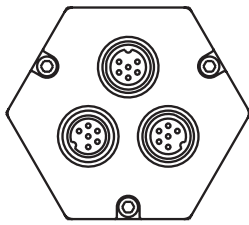
G-Series PC configuration and diagnostics software user interface

G-Series sensor information

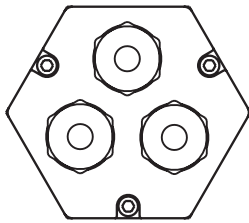
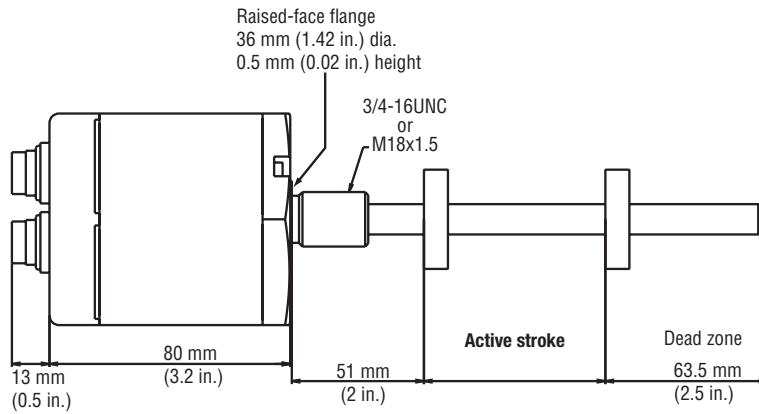


G-Series output setup

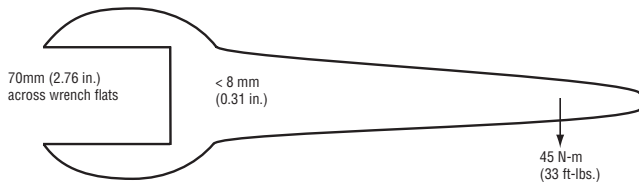
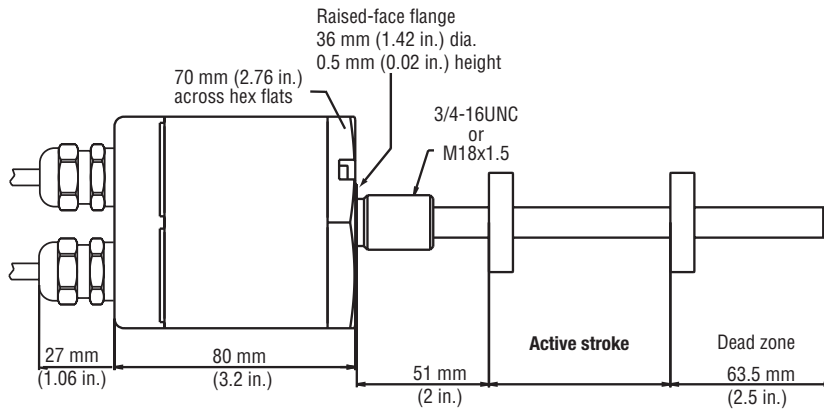




Connector outlet D60



Cable outlet F



Note:
See page 58 for installed magnet dimensions.

When mounting the sensor a basic tool with a maximum 8 mm (0.31 in.) thickness has to be used to ensure tightening torque is only applied to the hex flange and not to the electronics housing.

Sensor integral connectors (D60 Male) or integral cables

Pinout/wire color code (integral or extension cable)

Pin no.	Wire color	Function
Analog outputs		
1	Gray	0 to 10, -10 to +10 Vdc 4 to 20 mA, 0 to 20 mA or reverse acting: 10 to 0, 10 to -10 Vdc or 20 to 4 mA, 20 to 0 mA
2	Pink	Return for pin 1
3	Yellow	Programming (RS-485+)
4	Green	Programming (RS-485-)
5	Red or Brown	Supply voltage (+Vdc)
6	White	DC Ground (for supply)

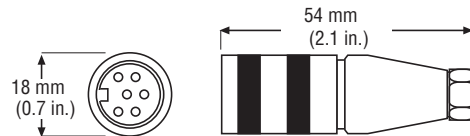
Integral D6 connector (male) as viewed from end of sensor



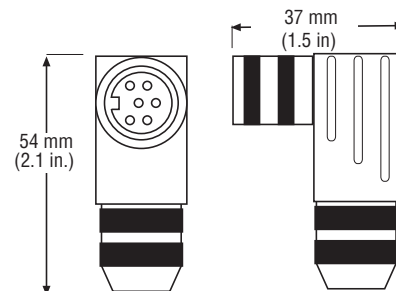
Note:
Appropriate grounding of cable shield is required at the controller end.

**Cable connectors (field-installed D6 female)
Mates with sensor's integral connector**

**D6 Straight-exit connector
part no. 560700**



**D6 90° connector
part no. 560778**



HOW TO ORDER

G	T													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

NUMBER OF CHANNELS _____

- GT3** = Triple redundant sensor
- GT2** = Double redundant sensor

HOUSING FLANGE STYLE _____

Model GT rod-style sensor (magnet must be ordered separately):

- S** = US customary thread, 3/4 16 UNF, flat-faced flange, rod 10 mm (0.394 in.) O.D.
- M** = Metric thread, M18 x 1.5, flat-faced flange, rod 10 mm (0.394 in.) O.D.

STROKE LENGTH _____

- ___ M = Millimeters (Encode in 5 mm increments), stroke length range = 50 to 1525 mm.
- ___ . ___ U = Inches and tenths (Encode in 0.1 in. increments) , stroke length range = 2 to 60 in.

CONNECTION TYPE _____

Connectors:

- D60** = 6-pin DIN (M16), integral, standard connector (3x or 2x)

Cables:

- F** ___ = Integral cable, (3x or 2x), black polyurethane jacket with pigtail termination.

INPUT VOLTAGE _____

- 1** = + 24 Vdc (+20%, - 15%), standard

OUTPUT _____

Voltage:

- V0** = 0 to +10 Vdc
- V1** = +10 to 0 Vdc
- V2** = -10 to +10 Vdc
- V3** = +10 to -10 Vdc

Current:

- A0** = 4 to 20 mA
- A1** = 20 to 4 mA
- A2** = 0 to 20 mA
- A3** = 20 to 0 mA

Note:

Standard factory settings configure the outputs to be all the same per the output option selected (when configuring the model number). If needed, the outputs can be individually reprogrammed in the field to best fit the application, (see page 54 for more information).