SmartLine

Honeywell

Technical Information

STG700 SmartLine Gauge Pressure Specification 34-ST-03-102, December 2025



Introduction

Part of the SmartLine® family of products, the STG700 and STG70L are suitable for monitoring, control and data acquisition featuring piezoresistive sensor technology combining pressure sensing with on chip temperature compensation capabilities providing high accuracy, stability and performance over a wide range of application pressures and temperatures. The SmartLine family is also fully tested and compliant with Experion® PKS providing the highest level of compatibility assurance and integration capabilities. SmartLine easily meets the most demanding application needs for pressure measurement applications.

Best in Class Features:

- Accuracies up to 0.055% of span standard & 0.04% of span optional.
- Stability up to 0.02% of URL per year for 10 years.
- Automatic temperature compensation.
- Rangeability up to 100:1.
- Response times as fast as 100ms.
- Multiple local display capabilities.
- External zero, span, & configuration capability.
- Polarity insensitive electrical connections.
- Comprehensive on-board diagnostic capabilities.
- Integral Dual Seal design for safety based on ANSI/NFPA 70-202 and ANSI/ISA 12.27.0.
- Full compliance to SIL 2/3 requirements as a standard.
- Modular design characteristics.
- Available additional with 4-year warranty.
- Supports NAMUR NE-107 Extended Diagnostics (HART).



Figure 1 – STG700 Gauge Pressure Transmitters feature field-proven piezoresistive sensor technology

Communications/Output Options:

- Honeywell Digitally Enhanced (DE)
- HART ® (version 7.0)

All transmitters are available with the above listed communications protocols.

Span & Range Limits:

Model	URL psi (bar)	LRL psi (bar)	Min Span psi (bar)
STG730/STG73L	50 (3.5)	-14.7 (-1.0)	0.5 (0.035)
STG740/STG74L	500 (35)	-14.7 (-1.0)	5 (.35)
STG770/STG77L	3000 (210)	-14.7 (-1.0)	30 (2.1)
STG78L	6000 (420)	-14.7 (-1.0)	60 (2.06)
STG79L	10000 (690)	-14.7 (-1.0)	100 (6.9)

Modular Features

- Meter body replacement
- Exchange/replace electronics/comms modules*
- Add or remove integral indicator*
- Add or remove lightning protection (terminal connection)*

* Field replaceable in all electrical environments (including IS) except flameproof without violating agency approvals.

With no performance effects, Honeywell's unique modularity results in ***lower inventory needs and lower overall operating costs.***

Performance Specifications

Reference Accuracy: (conformance to +/-3 Sigma)

Table 1

	Model	URL	LRL	Min Span	Maximum Turndown Ratio	Stability (% URL/Year for 10 years)	Reference Accuracy[1,2] (% Span) Standard/ option
Standard Accuracy	STG730	50 psi (3.5 bar)	-14.7 psi (-1.0 bar)	0.5 psi (0.035 bar)	100:1	0.02	0.055 / 0.040
	STG73L	50 psi (3.5 bar)	-14.7 psi (-1.0 bar)	0.5 psi (0.035 bar)			
	STG740	500 psi (35 bar)	-14.7 psi (-1.0 bar)	5 psi (0.35 bar)			
	STG74L	500 psi (35 bar)	-14.7 psi (-1.0 bar)	5 psi (0.35 bar)		0.015	
	STG770	3000 psi (210 bar)	-14.7 psi (-1.0 bar)	30 psi (2.1 bar)		0.02	
	STG77L	3000 psi (210 bar)	-14.7 psi (-1.0 bar)	30 psi (2.1 bar)			
	STG78L	6000 psi (420 bar)	-14.7 psi (-1.0 bar)	60 psi (4.2 bar)			
	STG79L	10000 psi (690 bar)	-14.7 psi (-1.0 bar)	100 (6.9 bar)			

Zero and span may be set anywhere within the listed (URL/LRL) range limits

Accuracy, Span and Temperature Effect: (Conformance to +/-3 Sigma)

Table 2

			Accuracy[1,2] (% of Span)				Combined Zero & Span temperature Effect (% Span/28°C (50°F))	
	Model	URL	Reference Turndown	A	B	C (see URL units)	D	E
Standard Accuracy	STG730	50 psi (3.5 bar)	25:1	0.005	0.050	2 (0.14)	0.060	0.005
	STG73L	50 psi (3.5 bar)	12.5:1			4 (0.28)		0.010
	STG740	500 psi (35 bar)	35:1			14.5 (1.0)	0.050	0.007
	STG74L	500 psi (35 bar)	35:1			14.5 (1.0)		0.010
	STG770	3000 psi (210 bar)	10:1			300 (21)		0.010
	STG77L	3000 psi (210 bar)	8.5:1			350 (24.7)		0.015
	STG78L	6000 psi (420 bar)	12:1			500 (35)		0.050
	STG79L	10000 psi (690 bar)	10:1	0.025	0.040	1000 (69)	0.150	0.100
High Accuracy Option	STG730	50 psi (3.5 bar)	25:1	0.005	0.035	2 (0.14)	0.060	0.005
	STG73L	50 psi (3.5 bar)	12.5:1			4 (0.28)		0.010
	STG740	500 psi (35 bar)	35:1			14.5 (1.0)	0.050	0.007
	STG74L	500 psi (35 bar)	35:1			14.5 (1.0)		0.010
	STG770	3000 psi (210 bar)	10:1			300 (21)		0.010
	STG77L	3000 psi (210 bar)	8.5:1			350 (24.7)		0.015
	STG78L	6000 psi (420 bar)	12:1			500 (35)		0.050
			Turn Down Effect				Temp Effect	
			$\pm[A+B] \quad if\ Span \geq C$ $\pm\left[A+B\left(\frac{C}{Span}\right)\right] \quad if\ Span < C$				$\pm[D+E\left(\frac{URL}{Span}\right)]$	

Total Performance (% of Span):

Total Performance Calculation: $= +/- \sqrt{(\text{Accuracy})^2 + (\text{Temperature Effect})^2}$

Total Performance Examples (for comparison): standard accuracy 5:1 Turndown, +/-50ºF (28ºC) shift

STG730 @ 100 psi: 0.101% of span
STG740 @ 100 psi: 0.101% of span
STG770 @ 600 psi: 0.074% of span
STG78L @ 1200 psi: 0.305% of span
STG73L @ 100 psi: 0.123% of span
STG74L @ 100 psi: 0.114% of span
STG77L @ 600 psi: 0.137% of span
STG79L @ 2000 psi: 0.653% of span

Typical Calibration Frequency:

Calibration verification is recommended every two (2) years

Notes:

1. Terminal Based Accuracy - Includes combined effects of linearity, hysteresis, and repeatability. Analog output adds 0 .005% of span.
2. For zero based spans and reference conditions of: 25ºC (77ºF) for LRV > = 0 psia, 10 to 55% RH, and 316 Stainless Steel barrier diaphragm.
3. STG79L available with 10,150psi (700 bar) special, E = 0.037, F = 0.008. Please contact your sales representative.

Operating Conditions – All Models

Parameter	Reference Condition		Rated Condition		Operative Limits		Transportation and Storage	
	°C	°F	°C	°F	°C	°F	°C	°F
Ambient Temperature[1]	25±1	77±2	-40 to 85	-40 to 185	-40 to 85	-40 to 185	-55 to 120	-67 to 248
Meter Body Temperature[2]	25±1	77±2	-40 to 110	-40 to 230	-40 to 125	-40 to 257	-55 to 120	-67 to 248
Humidity %RH	10 to 55		0 to 100		0 to 100		0 to 100	
Vac. Region – Min. Pressure **mmHg absolute** **inH$_2$O absolute**	Atmospheric Atmospheric		25 13		2 (short term) [3] 1 (short term) [3]			
Supply Voltage **Load Resistance**	HART: 10.8 to 42.4 VDC at terminals (IS versions limited to 30 VDC), 0 to 1,440 ohms DE: 15 to 49.3VDC at terminals (IS versions limited to 30VDC), 0 to 1,200 ohms (as shown in Figure 2)							
Maximum Allowable Working Pressure (MAWP)[4] (ST700 products are rated to Maximum Allowable Working Pressure. MAWP depends on Approval Agency and transmitter materials of construction.)	STG730: 50 psi (3.5 bar) STG740: 500 psi (35 bar) STG770: 3000 psi (210 bar) STG73L: 50 psi (3.5 bar) STG74L: 500 psi (35 bar) STG77L: 3000 psi (210 bar) STG78L: 6000 psi (420 bar) STG79L: 10000 psi (690 bar)							
Over Pressure	1.5 x MAWP of respective model							
No-Burst Pressure	**Transmitter MAWP (psi)** / **Minimum 'no-burst pressure'** MAWP <= 2,000 psi / 3x MAWP MAWP > 2,000 psi / 2.5x MAWP + 1000 psi							

[1] LCD display ambient temperature: -30°C to +70°C. LCD display storage temperature: -30°C to +80°C. The display will be slower and may become unreadable as the ambient temperature drops below -20°C to -30°C. It will return to normal functionality once the ambient temperature rises above -20°C.

[2] Silicone 704 minimum temperature rating is 0ºC (32ºF). CTFE minimum temperature rating is -40°C (-40°F). NEOBEE® M-20 minimum temperature rating is -15ºC (5ºF). NEOBEE® is a registered trademark of Stepan Company.

[3] Short term equals 2 hours at 70°C (158°F).

[4] Consult the factory for MAWP of ST 700 transmitters with CRN approval.