

Heavy Duty Pressure Transducers

MLH Series, 6 bar to 550 bar | 50 psi to 8000 psi

008118

Issue 8

Datasheet**DESCRIPTION**

The MLH Series Heavy Duty Pressure Transducers combine Application Specific Integrated Circuit (ASIC) technology with a media-isolated, metal diaphragm design. This digitally compensated transducer offers value and performance, making it a suitable pressure sensing solution for demanding applications. Fully temperature compensated, calibrated and amplified, the MLH Series is available in pressure ranges of 6 bar to 550 bar | 50 psi to 8,000 psi. The MLH Series provides $\pm 0.25\%$ full scale accuracy Best Fit Straight Line (BFSL) and a TEB (Total Error Band) as low as 2% over a temperature range of $-40\text{ }^{\circ}\text{C}$ to $125\text{ }^{\circ}\text{C}$ [$-40\text{ }^{\circ}\text{F}$ to $257\text{ }^{\circ}\text{F}$]. Industry standard electrical connectors and pressure ports are offered for enhanced reliability and user flexibility.

The MLH Series has six standard output options:

- A. 0.5 Vdc to 4.5 Vdc ratiometric from 5 Vdc excitation
- B. 4 mA to 20 mA
- C. 1 Vdc to 6 Vdc regulated
- D. 0.25 Vdc to 10.25 Vdc regulated
- E. 0.5 Vdc to 4.5 Vdc regulated
- G. 1 Vdc to 5 Vdc regulated

FEATURES

- All metal wetted parts allow for potential use in wide variety of fluid applications
- No internal elastomeric seals mean no O-ring compatibility issues
- Amplified outputs reduce the need to purchase external amplifiers
- Input reverse voltage protection guards against mis-wiring
- Less than 2 ms response time provides more accurate, high speed measurement
- Rated IP65 or better for protection from most harsh environments

POTENTIAL APPLICATIONS

- Industrial: Compressors, cylinder tank pressure, HVAC, hydraulics, oil and gas, refrigeration, water distribution
- Transportation: Multiple applications including braking and alternative fuels
- Medical: Anesthesia delivery machines, blood analyzers, chemistry analyzers, gas chromatography, oxygen concentrators, and ventilators

PORTFOLIO

The MLH Series joins the PX3 Series, PX2 Series, SPT Series, 13 mm Series and 19 mm Series heavy duty pressure transducers.

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Table 1. Pressure Range Specifications¹ (At 25 °C [77 °F] and at rated excitation unless otherwise specified.)

bar			psi		
Operating Pressure	Proof Pressure	Burst Pressure	Operating Pressure	Proof Pressure	Burst Pressure
6	18	60	50	150	500
10	30	100	100	300	1000
16	48	160	150	450	1500
25	75	250	200	600	2000
40	80	400	250	750	2500
60	120	600	300	900	3000
100	200	1000	500	1500	5000
160	320	1600	1000	2000	10000
250	500	2068	2000	4000	20000
350	700	2068	3000	6000	30000
500	750	2068	5000	7500	30000
550	825	2068	8000	12000	30000

¹ Comparable metric units follow same proof and burst specifications.

Table 2. Electrical Specifications

Characteristic	Output Signal					
	Ratiometric (A)	Current (B)	Regulated (C)	Regulated (D)	Regulated (E)	Regulated (G)
Zero output	0.5 Vdc	4 mA	1 Vdc	0.25 Vdc	0.5 Vdc	1 Vdc
Full scale span (FSS)	4 Vdc (0.5 Vdc to 4.5 Vdc)	16 mA (4 mA to 20 mA)	5 Vdc (1 Vdc to 6 Vdc)	10 Vdc (0.25 Vdc to 10.25 Vdc)	4 Vdc (0.5 Vdc to 4.5 Vdc)	4 Vdc (1 Vdc to 5 Vdc)
Excitation	5 Vdc (6 Vdc max.) ¹	9.5 Vdc to 30 Vdc ²	8 Vdc to 30 Vdc ²	14 Vdc to 30 Vdc ²	7 Vdc to 30 Vdc ²	8 Vdc to 30 Vdc ²
Supply current	4 mA typ., 8 mA max.	N/A	5 mA typ., 17 mA max.	5 mA typ., 17 mA max.	5 mA typ., 17 mA max.	5 mA typ., 17 mA max.
Source (nominal)	1 mA	N/A	1 mA	1 mA	1 mA	1 mA
Sink (nominal)	1 mA at zero output	N/A	1 mA at zero output	1 mA at zero output	1 mA at zero output	1 mA at zero output
Supply rejection ratio	90 dB	90 dB	90 dB	90 dB	90 dB	90 dB
Output impedance	25 Ohm max.	N/A	25 Ohm max.	25 Ohm max.	25 Ohm max.	25 Ohm max.

¹ Maintains ratiometricity at 5 ±0.25 Vdc excitation. Product can tolerate 6 Vdc excitation without damage.

² See Figures 1 and 2 for more information regarding maximum excitation voltage vs. operating temperature.

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Table 3. Environmental and Mechanical Specifications

Characteristic	Parameter
Material in contact with media: port diaphragm	stainless steel 304L Haynes 214 alloy
Housing material	black plastic – Amodel AS-4133 HS – PPA
Weight (typical for Metri-Pack 150 and 1/8 NPT pressure port types)	57.0 g [2.0 oz]
Shock	100 g peak [11 ms]
Vibration	MIL-STD-810C, Figure 514.2-5, Curve AK, Table 514.2-V, Random Vibration Test (overall g rms = 20.7 min.)
Compensated and operating temperature range: 0.5 Vdc to 4.5 Vdc ratiometric output all regulated and 4 mA to 20 mA outputs	-40 °C to 125 °C [-40 °F to 257 °F] -40 °C to 125 °C [-40 °F to 257 °F] (See Figures 1 and 2 for operating area details.)
Storage temperature range	-40 °C to 125 °C [-40 °F to 257 °F]
Approvals	RoHS, CE, UL Component Recognition for USA and Canada: File No. E258956

Table 4. Performance Specifications (At 25 °C [77 °F] and under unless otherwise noted.)

Characteristic	Parameter
Response time	<2 ms
Accuracy ¹ : ≥100 psi ≤100 psi	±0.25 %FSS ±0.50 %FSS
Total Error Band ² : Gage: <300 psig ≥300 psig Sealed gage: ≥300 psis without L, M, P electrical connector types: 100 psis to 299 psis (-40 °C to 85 °C [-40 °F to 185 °F]) 100 psis to 299 psis (>85 °C to 125 °C [>185 °F to 257 °F]) ≥300 psis (-40 °C to 125 °C [-40 °F to 257 °F]) with L, M, P electrical connector types: 100 psis to 299 psis (-40 °C to 65 °C [-40 °F to 149 °F]) 100 psis to 299 psis (>65 °C to 125 °C [>149 °F to 257 °F]) ≥300 psis (-40 °C to 65 °C [-40 °F to 149 °F]) ≥300 psis (>65 °C to 125 °C [>149 °F to 257 °F])	±3 %FSS ±2 %FSS ±2 %FSS ±3 %FSS ±10 %FSS ±2 %FSS ±10 %FSS ±15 %FSS ±5 %FSS ±15 %FSS

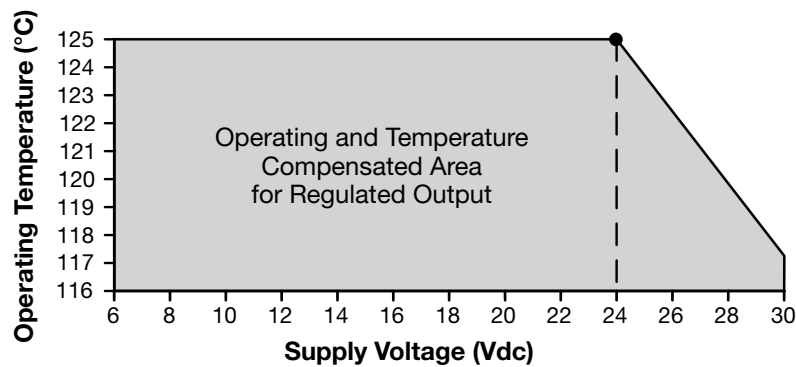
¹ Includes pressure non-linearity (BFSL), pressure hysteresis and non-repeatability. Thermal errors are not included.

² Includes zero error, span error, thermal effect on zero, thermal effect on span, thermal hysteresis, pressure-non-linearity, pressure hysteresis and non-repeatability.

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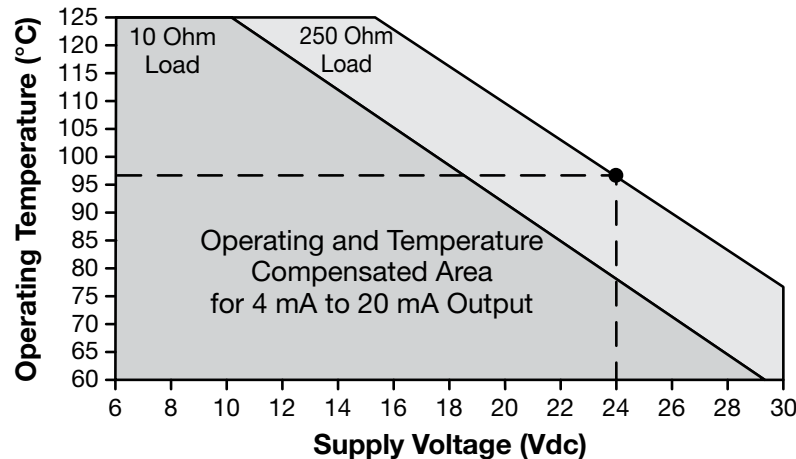
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Figure 1. Operating and Temperature Compensation for All Regulated Output Options



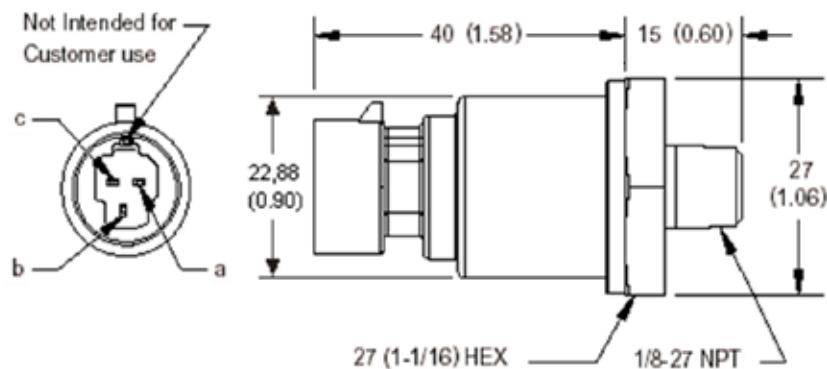
Note: Dot indicates the maximum operating temperature of 125 °C [257 °F] with a 24 V supply.

Figure 2. Operating and Temperature Compensation for 4 mA to 20 mA Output



Note: The operating area is extended with a 250 Ohm resistor. Higher loads extend the operating area. Dot indicates the maximum operating temperature when using a 24 V supply and a 250 Ohm resistor.

Figure 3. Example Mounting Dimensions (Electrical Termination “B” Shown. For reference only. mm/(in).)



Pin/Wire Colors		
Pin	Voltage	Current
a	+ excitation	+ excitation
b	output	- excitation
c	common	no connection

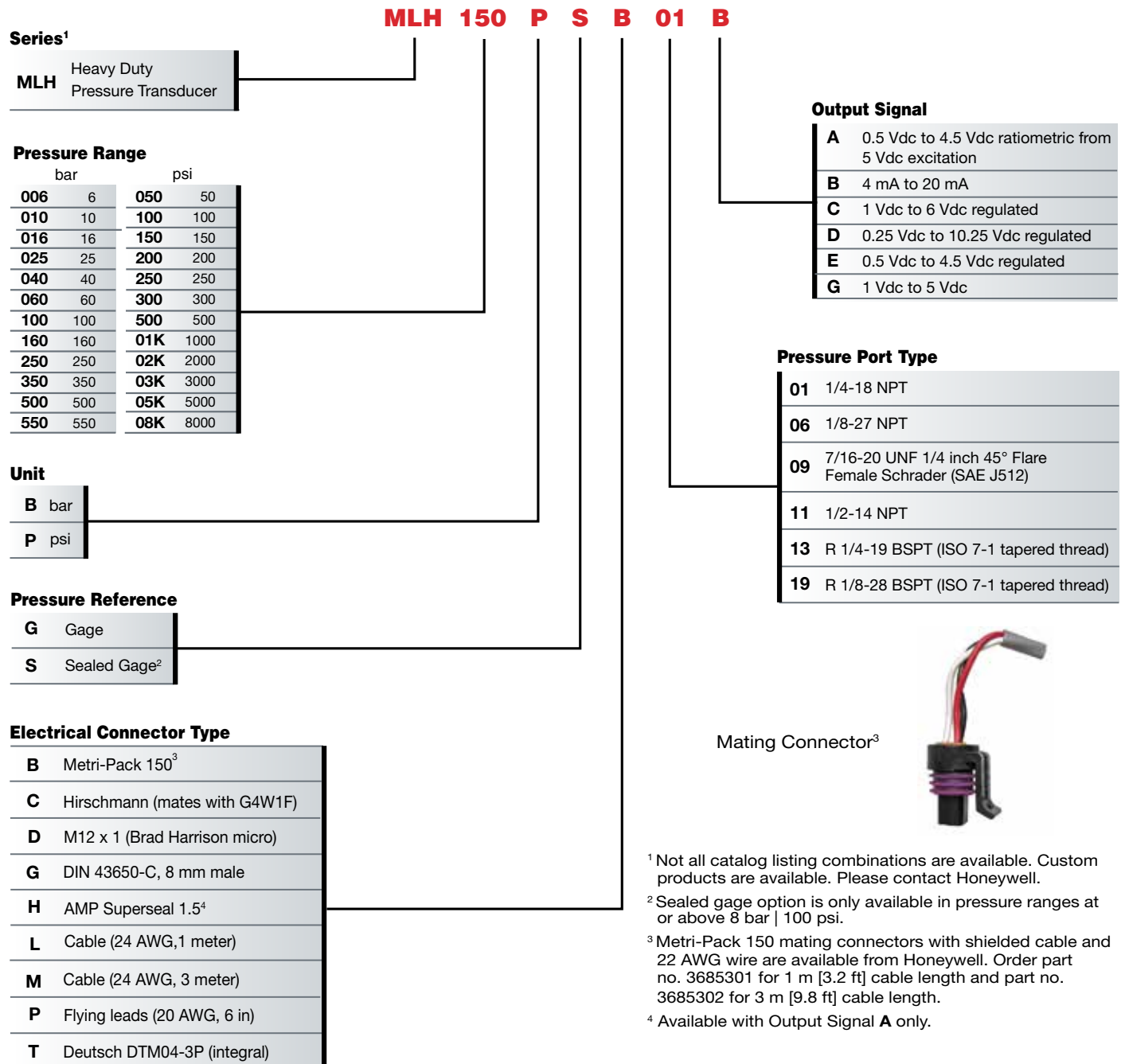
A variety of pressure ports and electrical termination connection options are available. Refer to the Figure 4 for possible combinations. Contact your Honeywell representative for details.

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Figure 4. Nomenclature and Order Guide

For example, **MLH150PSB01B** defines an MLH Series Heavy Duty Pressure Transducer, 150 psi pressure range, sealed gage pressure reference, Metri-Pack 150 electrical connector type, 1/4-18 NPT pressure port type, 4 mA to 20 mA output.



¹ Not all catalog listing combinations are available. Custom products are available. Please contact Honeywell.

² Sealed gage option is only available in pressure ranges at or above 8 bar | 100 psi.

³ Metri-Pack 150 mating connectors with shielded cable and 22 AWG wire are available from Honeywell. Order part no. 3685301 for 1 m [3.2 ft] cable length and part no. 3685302 for 3 m [9.8 ft] cable length.

⁴ Available with Output Signal **A** only.