

AUTOMATION PRODUCTS GROUP, INC.

Operator's Manual

Hammer Union

Pressure Sensor



Automation Products Group, Inc.

APG...Providing tailored solutions for measurement applications

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• Warranty and Warranty Restrictions

APG warrants its products to be free from defects of material and workmanship and will, without charge, replace or repair any equipment found defective upon inspection at its factory, provided the equipment has been returned, transportation prepaid, within 18 months from date of shipment from factory.

THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESSED OR IMPLIED BY OPERATION OF LAW OR OTHERWISE INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

No representation or warranty, express or implied, made by any sales representative, distributor, or other agent or representative of APG which is not specifically set forth herein shall be binding upon APG. APG shall not be liable for any incidental or consequential damages, losses or expenses directly or indirectly arising from the sale, handling, improper application or use of the goods or from any other cause relating thereto and APG's liability hereunder, in any case, is expressly limited to the repair or replacement (at APG's option) of goods.

Warranty is specifically at the factory. Any on site service will be provided at the sole expense of the Purchaser at standard field service rates.

All associated equipment must be protected by properly rated electronic/electrical protection devices. APG shall not be liable for any damage due to improper engineering or installation by the purchaser or third parties. Proper installation, operation and maintenance of the product becomes the responsibility of the user upon receipt of the product.

Returns and allowances must be authorized by APG in advance. APG will assign a Return Material Authorization (RMA) number which must appear on all related papers and the outside of the shipping carton. All returns are subject to the final review by APG. Returns are subject to restocking charges as determined by APG's "Credit Return Policy".

• Description

The HU (Hammer Union) pressure transmitter was designed for the rugged environment of land-based and offshore drilling installations.

APG's HU is an extremely rugged pressure transmitter. It is designed specifically for use with the 1502 Hammer Wing Union. These units are constructed from materials designed for service with highly abrasive and corrosive media and comply with new NACE standards.

• Calibration Shunt Procedure

This design provides a true 20.0 mA calibration shunt output when 10 to 30 VDC is applied to the designated + Shunt Cal pin.

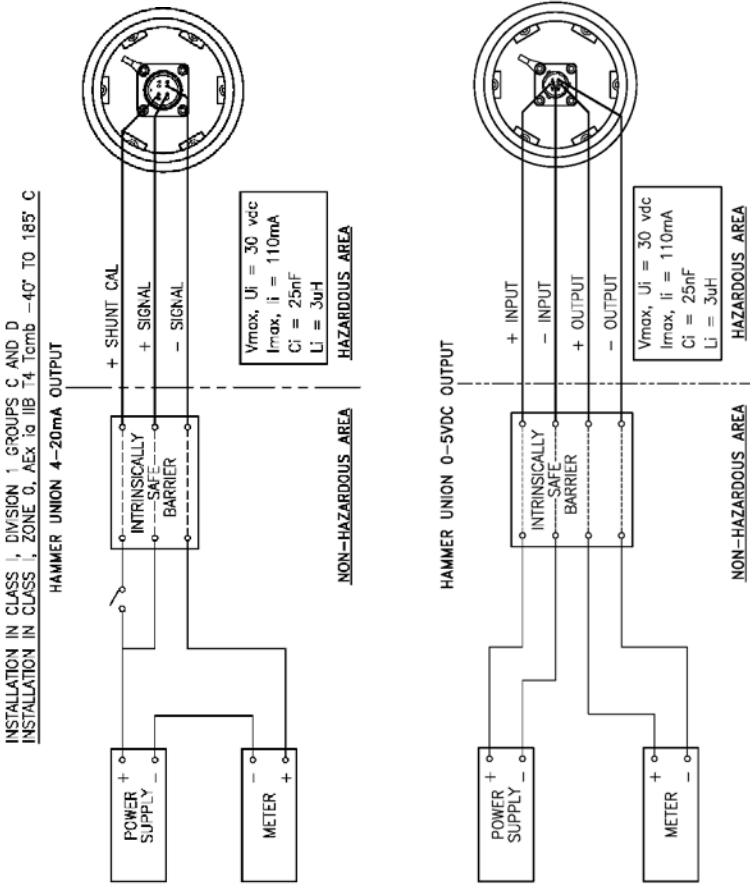
Ref. Wiring Diagram Document# 9002460

• Inspection and Maintenance

NOTE: No serviceable parts inside.

If the unit requires recalibration, or if the electrical connector needs to be replaced, please contact the factory.

• Intrinsically Safe Wiring



WIRING DIAGRAM
 REF. DOCUMENT# 9002460

PERFORMANCE

- PRESSURE RANGES:..... 0 TO 15K PSIS PER PART NUMBER
- ANALOG OUTPUT:..... 4/20mA PRESSURE
0-5VDC PRESSURE
- OVER PRESSURE:..... 1.5x FULL SCALE OR LIMIT OF
FITTING, (22,500 PSI) WHICHEVER IS
LESS
- BURST PRESSURE:..... 3x FULL SCALE OR LIMIT OF
FITTING, WHICHEVER IS LESS

ACCURACY

- LINEARITY, HYSTERESIS &
REPEATABILITY:..... ±0.35% OF FULL SCALE (BFSL)
- THERMAL ZERO SHIFT:..... ±0.026% FSO / DEGREE C
(1% / 38° C (100° F))
- THERMAL SPAN SHIFT:..... ±0.026% FSO / DEGREE C
(1% / 38° C (100° F))
- LONG TERM STABILITY:..... ≤±0.5% FSO PER 6 MONTH

ELECTRICAL

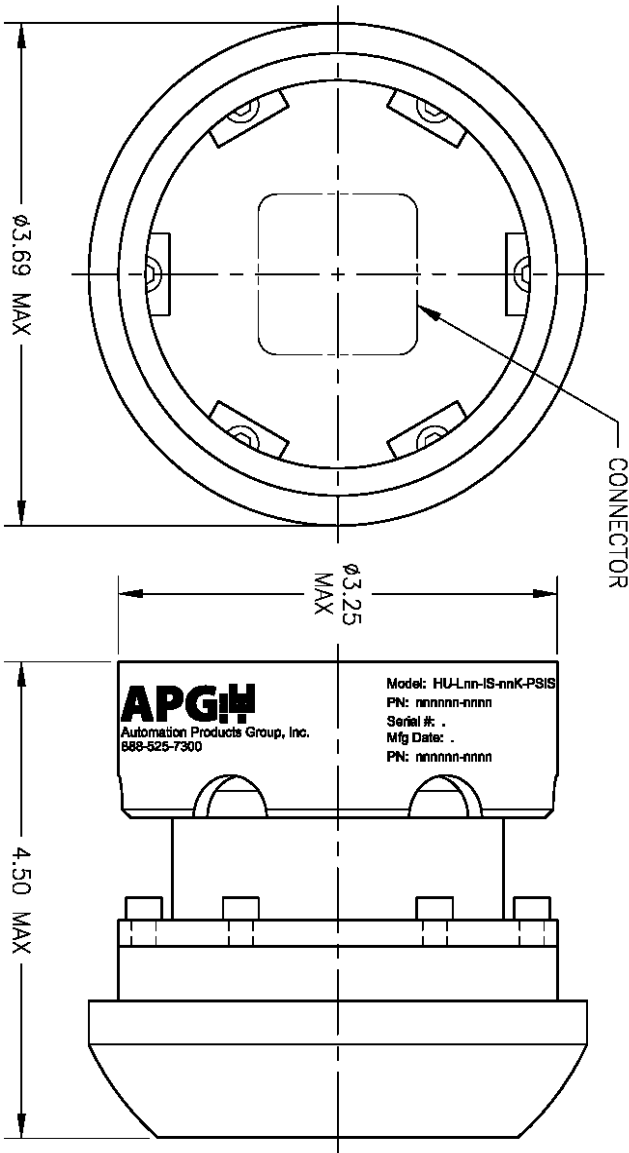
- EXCITATION:..... 10-30 VDC @ CONNECTOR
- PROTECTION:..... REVERSED POLARITY
- INSULATION RESISTANCE:..... >100 MEGOHMS @ 500VAC AND
21° C (70° F)
- LOOP RESISTANCE:..... 1500 OHMS MAX @ 40VDC
DECREASING LINEARLY TO 0 OHMS
AT 10VDC
- SHUNT CALIBRATION:..... SINGLE WIRE, 10-30VDC
AT CONNECTOR

ENVIRONMENTAL

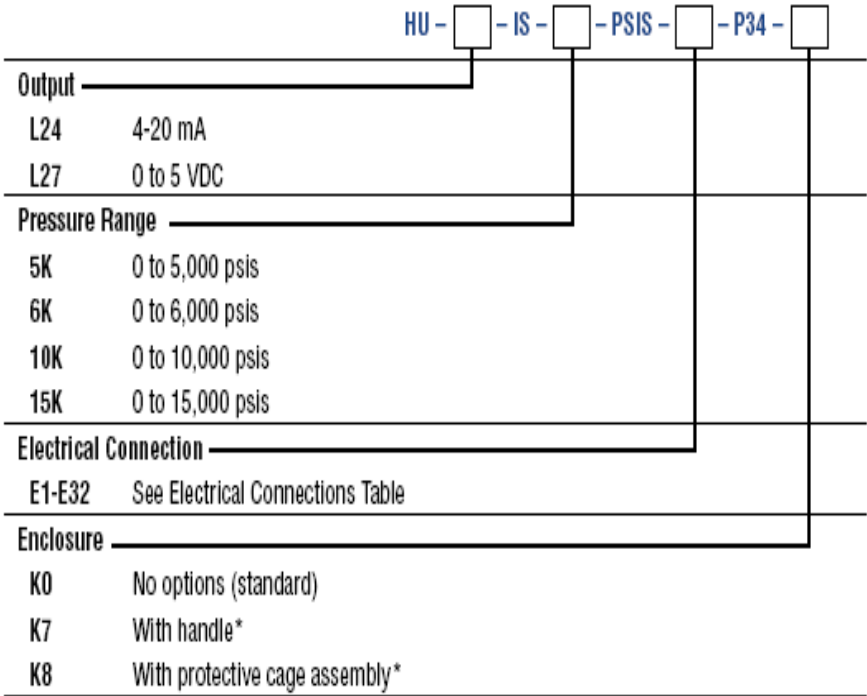
- OPERATING TEMP RANGE:..... -40° C TO 85° C
(-40° F TO 185° F)
- COMPENSATED TEMP RANGE:.... -40° C TO 66° C
(-40° F TO 150° F)
- ENCLOSURE RATING:..... NEMA 4X (IP44)

PHYSICAL

- WEIGHT:..... < 2.3 kg (5.10 lbs)
- WETTED MATERIALS:..... INCOLOY 925
- CASE MATERIALS:..... 316L SS
- CONNECTOR:..... 4-PIN MS3102 OR EQUIVALENT
6-PIN BAYONET / BENDIX OR EQUIVALENT
4-PIN "MINI" STYLE OR EQUIVALENT
5-PIN "MINI" STYLE OR EQUIVALENT



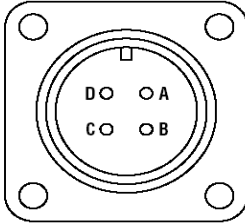
• Model Configurator



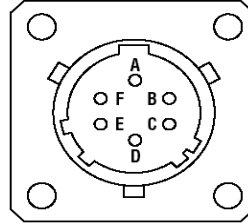
*Consult factory

• **Electrical Connections**

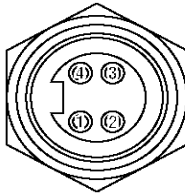
Face view, male connector on HU shown on connectors



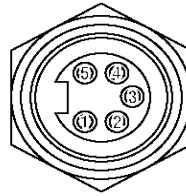
**4-Pin
MS3102
Connector**



**6-Pin
Bayonet
Connector**



**4-Pin
"Mini" Style
Connector**



**5-Pin
"Mini" Style
Connector**

Pin	0 to 5 VDC Output		4-20 mA Output					
	E3	E4	E1	E2	E26	E27	E29	E32
	4 pin MS3102	6 pin Bayonet SS	4 pin "Mini" Style	5 pin "Mini" Style	4 pin MS3102	6 pin Bayonet SS	6 pin Bayonet SS	4 pin MS3102
	Electroplate	Stainless Steel	Nickel Plated Zinc	Nickel Plated Zinc	Electroplate	Stainless Steel	Stainless Steel	Electroplate
A (1)	+Power	+Power	+Signal	+Signal	No Connection	+Signal	+Signal	+Signal
B (2)	-Power	-Power	-Signal	-Signal	-Signal	-Signal	-Signal	-Signal
C (3)	+Signal	+Signal	Shunt Cal	No Connection	+Signal	Case Ground	No Connection	Shunt Cal
D (4)	-Signal	-Signal	No Connection	Shunt Cal	Shunt Cal	No Connection	Shunt Cal	No Connection
E (5)	-	No Connection	-	No Connection	-	Shunt Cal	No Connection	-
F	-	No Connection	-	-	-	No Connection	No Connection	-

Note: Mating connectors sold separately.



Certificate of Compliance

Certificate:	1916494	Master Contract:	237484
Project:	1916494	Date Issued:	2007/05/30
Issued to:	Automation Products Group Inc 1025 West 1700 North Logan, UT 84321 USA Attention: Karl Reid		

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US'



Issued by: *P Andrew Redeker*
Andrew Redeker

Authorized by: Patricia Pasemko, Operations Manager

Patricia Pasemko

PRODUCTS

- CLASS 2258 84** - PROCESS CONTROL EQUIPMENT - Intrinsicly Safe, Entity - - For Hazardous Locations - Certified to US Standards
- CLASS 2258 04** - PROCESS CONTROL EQUIPMENT - Intrinsicly Safe, Entity - For Hazardous Locations

Class I, Division 1, Groups C,D; Ex ia IIB T4; Class I, Zone 0, AEx ia IIB T4

Hammer Union, Model HU-Ln-IS (Where Ln = L1, L3, L24 or L27) ; Ambient range -40Â°C to +85Â°C; Temperature Code Rating T4; Enclosure Type 4X (IP 44); MWP 20,000 PSI; Intrinsicly Safe with the

The 'C' and 'US' indicators adjacent to the CSA Mark signify that the product has been evaluated to the applicable CSA and ANSI/UL Standards, for use in Canada and the U.S., respectively. This 'US' indicator includes products eligible to bear the 'NRTL' indicator. NRTL, i.e. National Recognized Testing Laboratory, is a designation granted by the U.S. Occupational Safety and Health Administration (OSHA) to laboratories which have been recognized to perform certification to U.S. Standards.



Certificate: 1916494

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Project: 1916494

Date Issued: 2007/05/30

following Entity Parameters: V_{max} , $U_i = 30V_{dc}$, I_{max} , $I_i = 110mA$, P_{max} , $P_i = 1W$, $C_i = 25nF$, $L_i = 3uH$

Note: suffixes are added to indicate options not affecting safety.

APPLICABLE REQUIREMENTS

C22.2 No 0 - M1991 - General Requirements - Canadian Electrical Code Part II.

C22.2 No 94 - M1991 - Special Purpose Enclosures.

C22.2 No 142 - M1987 - Process Control Equipment.

C22.2 No 157 - M1992 - Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations.

CAN/CSA E60079-0:07 - Electrical apparatus for explosive gas atmospheres. PART 0: General requirements.

CAN/CSA E60079-11:02 - Electrical apparatus for explosive gas atmospheres. PART 11: Intrinsic safety "i".

UL 50, Eleventh Edition - Enclosures for Electrical Equipment

UL 508, Seventeenth Edition - Industrial Control Equipment.

UL 913, Seventh Edition - Intrinsically Safe Apparatus and Associated Apparatus for use in Class I, II, III, Division 1, Hazardous (Classified) Locations.

UL 60079-0 Fourth Edition - Electrical apparatus for explosive gas atmospheres. PART 0: General requirements.

UL 60079-11 First Edition - Electrical apparatus for explosive gas atmospheres. PART 11: Intrinsic safety "i".

MARKINGS

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