HP58 Hockey Puck™ *non-contact rotary position sensor*

- Patented true non-contact position sensing
  - 0.5" (12mm) gap between sensor and application
  - 0.10" (2.5mm) center alignment
  - 30° planar tilt
- Totally sealed IP69K *(connector dependent)*
- LED indicators for power and output feedback
- Incremental or Absolute position
- Outputs: Quadrature, Step and Direction, SSI, PWM, Analog, Modicon MODBUS, & J1939 Can Bus
- Detects rotation through non-ferrous barriers; Special applications include use in explosion proof housings, high PSI zone separation, and enclosed rotational measurement

STANDARD OPERATING CHARACTERISTICS

ELECTRICAL	**Outputs**	**A - *[PPR]* - SEPP**	Incremental 13 bit Quadrature w/ Single Ended Output | A B Z
		A - *[PPR]* - DIPP	Incremental 13 bit Quadrature w/ Differential Output | A B Z & A' B' Z'
		A - 1939	J1939 13 bit @ 1000 positions (8192 positions max)
		A - MOD1	Modicon MODBUS @ 8192 positions
		B - PWM	PWM absolute position
		A - SSI1	SSI absolute position @ 8192 positions
		V1	Voltage Out / 5 VDC IN, 0-5 VDC OUT *(code V3 for 2x redundant output)*
		V2	Voltage Out / 6-36 VDC IN, 0-5 VDC OUT
		I1	Current Out / 0-24 VDC IN, 4-20 mA OUT *(code I1 for 2x redundant output)*
	Input Power		6 to 30 VDC at approx 60 mA max, *not including output loads*
	Electrical Protection		Over-voltage, reserve-voltage, output short-circuit protected
	LED Indicators		Power and output channels
	Connections		Terminal Plug, M8, M12, M12 Pigtail, Flying Lead Cable, Shielded Flying Lead, or Deutsch - 4 or 6 pin
	Resolution		0.3°
	Repeatability		0.30%
	Nonlinearity		<1%
MECHANICAL	**Housing Diameter**		58mm
	Housing Material		HP58 Black Delrin™ *(standard)* or White Delrin™; HP58SE Red Aluminum
	Housing Height		0.75" *(19mm)* body; 1.5" *(38.1mm)* w/ M12 connector
	Mounting		60.128 mounting holes
	Weight		2.6 oz
** Non-contact tolerances rated using MAGH-RING 1/4x20 magnet accessory.*	**Magnet / sensor gap***		Standard 0.5" *(12mm) (Max w/ custom mag assembly up to 1" [30mm])*
	Rated planer tilt / axial gap*		Planar 30° *(Max 45°)* / Axial 0.1" *(2.5mm) (Max 0.16" [4mm])*
	Speed		3000 RPM max
ENVIRONMENTAL	**Operating Temperature**		-30° to +80° C
	Storage Temperature		-40° to +90° C
	Humidity		100%
	Shock		400g/6ms *(MIL STD 202)*
	Vibration		5 to 3000 Hz, 20g *(MIL STD 202)*
	Protection Class		IP69K *(connection dependent)*

General ordering guide found on next page (S2 ; I5 / 2)

HP58 GENERAL ORDERING GUIDE

Build part number first by selecting **Housing Style** (code 1), **MagElec** (code 2), and **Connection** (code 3). Add **Special Codes** (code 4) to the end of the Joral part number. Refer to **'Special Part Number Information'** for explanation of modifiers.

Examples:
- **HP58-A-0080-SEPP-SC72-31** - Black Delrin™ (HP58), Side exit (31), 72" shielded cable (SC72), 13 bit incremental quadrature @ 80 PPR
- **HP58-A-1939-M12-90** - Black Delrin™ (HP58), Back exit (standard), M12 connector (M12), J1939 @ 8192 positions (modifier 90 for 8192)
- **HP58SE-V1-0-180-0.5-4.5-CW-C72-31** - Red Aluminum (HP58SE), Side exit (31), 0-5v Out (V1) @ 0-180°, 0.5-4.5v out, clockwise signal

Code 1: Housing Style	Code 2: MagElec (Sensor Output)		Code 3: Connection		Code 4: Special Codes	
HP58 HP58 material Black Delrin™, connector orientation BACK EXIT standard. To designate SIDE EXIT connection use special code 31. (Side exit for HP58 CABLE ONLY)	**A - _ _ _ _ - SEPP**	13 bit single ended quadrature - A B Z	**TRM**	Pluggable Terminal block	**31**	Side (housing wall)
			INS	Wire insertion terminal	**32**	Front (magnet side)
	A - _ _ _ _ - DIPP	13 bit differential quadrature - A B Z, A' B' Z'	**M8**	M8 male	**33**	Back (epoxy side)
			M12	M12 male	**50**	White Delrin
	A - 1939	13 bit J1939 @ 1000 positions	**M12P**	M12 male on 18' pigtail	**51**	Red Aluminum
			CXX	Flying lead cable (enter XX as inches)	**71**	Roller
	B - PWM	Absolute position PWM			**72**	Spindle
HP58SE HP58SE made out of Red Aluminum, connector orientation BACK EXIT standard. To designate SIDE EXIT connection use special code 31.	**A - MOD1**	13 bit Modicon MODBUS @8192 positions	**SCXX**	Shielded cable (enter XX as inches)	**90**	13 bit @ 8192 counts per rotation (Typical J1939 option)
	A - SSI1	Absolute position SSI @ 8192 positions	**CSP**	Cable with custom end		
			DE4	DT04 - 4 pin male Deutsch	**91**	13 bit @ 1000 counts per rotation (Typical MODBUS option)
	V1	5 VDC IN, 0-5 VDC OUT	**DE6**	DT04 - 6 pin male Deutsch		
	V2	6-36 VDC IN, 0-5 VDC OUT				
	V3	0-24 VDC IN, 4-20 mA OUT x2 (Redundant output)				
**** More outputs and connection options available, contact Joral if desired configuration is not listed***	**I1**	0-24 VDC IN, 4-20 mA OUT				
	I2	0-24 VDC IN, 4-20 mA OUT x2 (Redundant output)				

Special Part Number Information *Review below code sections for important P/N build information*

Code 1: Housing Style

- **Modifier 31** - For side exit connector on HP58 and HP58SE add 31 to end of Joral P/N
- **HP58** - Handles all back exit connections and CABLE ONLY side exit connections *(M12P, CXX, SCXX, DE4 & DE6)*
- **HP58SE** - Handles ALL back and side exit connections *(including M12 leaded side exit)*

Code 2: MagElec

(A - _ _ _ _ - SEPP) or **(A - _ _ _ _ - DIPP)**

- Enter Quadrature PPR in place of _ _ _ _
- A = 13 bit PPR
- **Available 13 bit PPR:** 0008, 0010, 0016, 0020, 0025, 0032, 0040, 0050, 0064, 0080, 0100, 0125, 0128, 0200, 0250, 0256, 0400, 0500, 1024, 2048

A - 1939

- Standard J1939 output is 1000 positions
- A = 13 bit
- **MODIFIER 90 -** for 8192 positions (max resolution) add code 90 to end of HP58 P/N

A - MOD1

- Standard MOD1 output is 8192 positions
- A = 13 bit
- **MODIFIER 91 -** for 1000 positions add code 90 to end of HP58 P/N

V1, V2, and **I1** (Analog MagElec P/N Guide)

- First select MagElec code **(V1, V2 or I1)** then Angle Range **(A1-A2),** Voltage Range **(VR1-VR2)** and Signal Direction **(Clockwise [CW] or Counter [CCW])**
- **PART NUMBER FORMULA** (MagElec)-(A1-A2)-(VR1-VR2)-(CW or CCW)
- **EXACT V1, V2, and I1 EXAMPLES**
  HP58 - **V1 - 0-360 - 0.5-4.5 - CW** - C72
  HP58 - **V2 - 0-180 - 0-5 - CCW** - DE4
  HP58 - **I1 - 180-270 - 4-20 - CW** - M12

Code 3: Connections

- **All Outputs, All Connections** - Connector exit standard is BACK EXIT (sensor epoxy side) for housing HP58 and HP58SE *(for SIDE EXIT use modifier 31)*
- **J1939 Output** - Addressing via varying value resistor in connection requires at least five conductors *(M12, DE6 and Cables addressing compatible)*
- **All Outputs w/ Deutsch -** DE4 and DE6 connection Deutsch connectors add $20 to HP58 list

HP58 DIMENSIONS & GENERAL PIN OUTS *DIMENSIONS 1 OF 2*

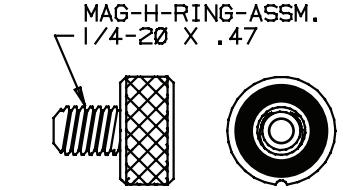
MAGNET NOTE:
STANDARD MAGNET INCLUDED AS ACCESSORY WITH PURCHASE OF NON-CONTACT SENSOR

HOUSING/INSTALL NOTES:
MAGNET MOUNT MATERIALS MUST HAVE Ø1.0 [25.4] HOLE CENTERED ON SENSOR CENTERLINE

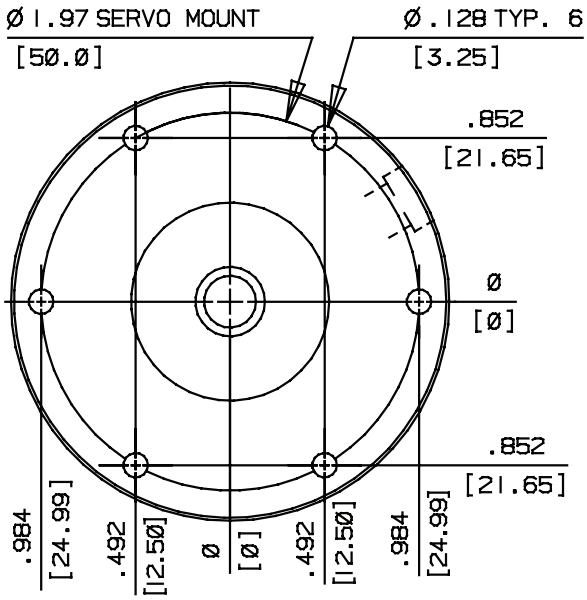
NON-MAGNETIC MOUNT MATERIAL, MAY BE SOLID

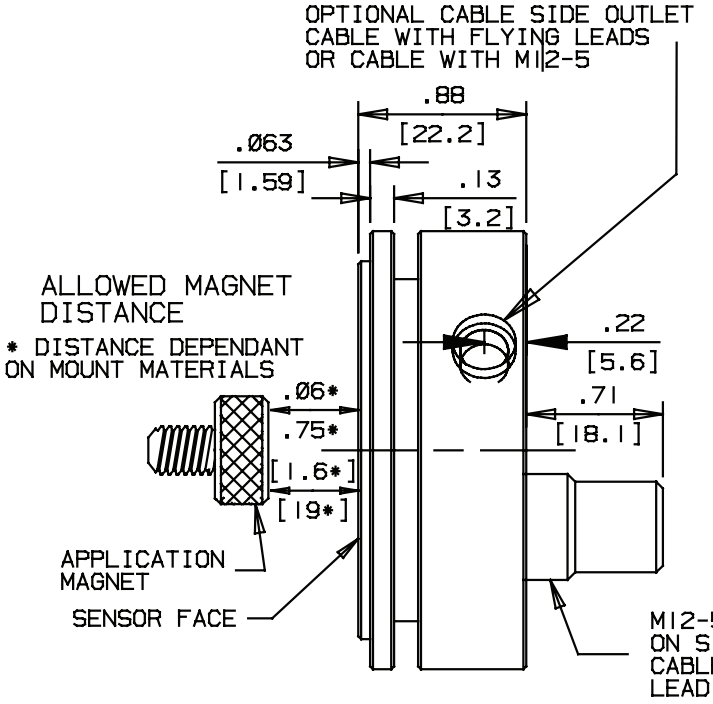
MOUNT WITH 316 STAINLESS STEEL 4-40 SCREWS

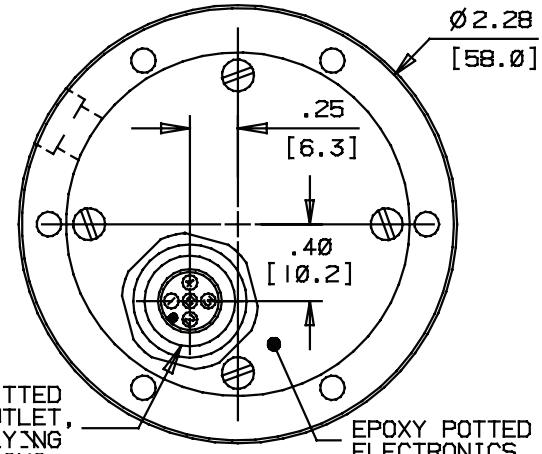
STANDARD MAGNET



SENSOR FACE



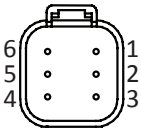




DT04-4P MALE FACE VIEW

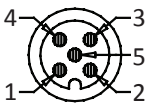
DT04-4P J1939 OUTPUT
1 = YEL = CAN HIGH
2 = GRN = CAN LOW
3 = RED = +VDC (VIN)
4 = BLK = COMMON/GROUND

DT04-6P MALE FACE VIEW



DT04-6P J1939 OUTPUT
1 = YEL = CAN HIGH
2 = GRN = CAN LOW
3 = RED = +VDC (VIN)
4 = BLK = ADDRESS GROUND
5 = WHT = ADDRESS PROG. RESISTOR
6 = BLK = COMMON/GROUND

M12-5P MALE FACE VIEW



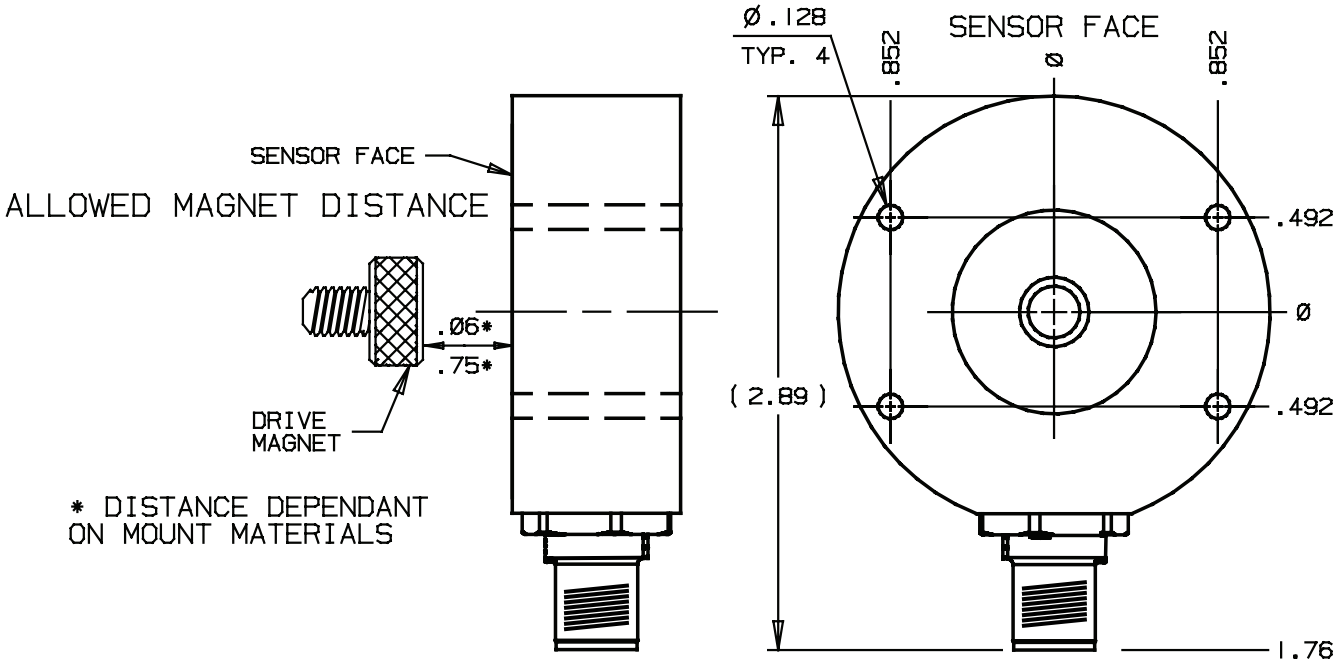
M12-5P/CABLE/FLYING LEAD QUADRATURE OUTPUT
1 = BRN = +VDC (VIN)
2 = WHT = CHANNEL B
3 = BLUE = COMMON/GROUND
4 = BLK = CHANNEL A
5 = GRY = CHANNEL Z

M12-5P AND 5 CONDUCTOR CABLE J1939 OUTPUT
1 = BRN = +VDC (VIN)
2 = WHT = CAN HIGH
3 = BLUE = COMMON/GROUND
4 = BLK = CAN LOW
5 = GRY = OPTIONAL ADDRESS PROGRAMMING RESISTOR

M12-5P/CABLE/FLYING LEAD PROPORTIONAL (ANALOG) OUTPUT
1 = BRN = +VDC (VIN)
2 = WHT = DIG. LIMIT OUT*
3 = BLUE = COMMON/GROUND
4 = BLK = PROP. VDC OUTPUT
5 = GRY = NOT USED
**OPTION CONSULT FACTORY*

Dimensions informative only
For most recent dimensions please consult factory

HP58SE DIMENSIONS & GENERAL PIN OUTS *DIMENSIONS 2 OF 2*



MAGNET NOTE:
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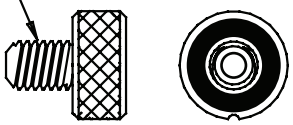
STANDARD MAGNET
MAG-H-RING-ASSM.
1/4-20Ø X .47



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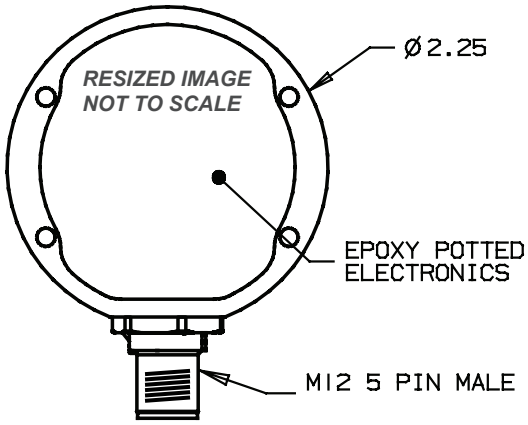
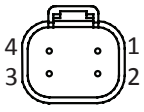
MOUNT WITH 316 STAINLESS STEEL 4-40 SCREWS



DT04-4P MALE FACE VIEW



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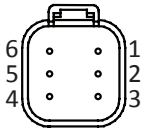
DT04-6P MALE FACE VIEW



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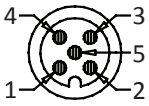
M12-5P MALE FACE VIEW



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