J140 Shafted Rotary Position Sensor

- Multiple shaft and connector options available
- Shaft and captive bearing package resistant to shaft push out forces, withstands extreme mechanical vibration
- Extremely compact, J1939 capable
- LED indicators for power and output feedback
- 100% moisture resistant electronic package (IP67)
- Outputs: Quadrature, Step and Direction, SSI, PWM, Analog, Modicon MODBUS, & J1939 Can Bus

ELECTRICAL

Outputs	**A-PPR-SEPP :** Incremental 13 bit Quadrature w/ Single Ended Output | ABZ
	A-PPR-DIPP : Incremental 13 bit Quadrature w/ Differential Output |ABZ & A'B'Z'
	A-1939 : J1939 13 bit @ 1000 positions (8192 positions max)
	B-PWM : PWM absolute position
	A-SSI1 : SSI absolute position @ 8192 positions
	V1 : Voltage Out / 5 VDC IN, 0-5 VDC OUT
	V2 : Voltage Out / 6-36 VDC IN, 0-5 VDC OUT
	I1 : Current Out / 0-24 VDC IN, 4-20 mA OUT
Input Power	6 to 30 VDC at approx 60 mA max, not including output loads
Electrical Protection	Over-voltage, reverse-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	40mm
Housing Material	Aluminum
Housing Height	1.7" body; 2.13" w/ M12
Mounting	Mounting holes or servo groove
Weight	4 oz
Shaft Form Factor	6mm w/ flat, Extended 6mm w/ flat, 1/4" (0.250") w/ flat, 10mm round, 3/8" slotted, Extended 3/8" slotted
Shaft Material	Non-magnetic stainless steel
Bearing Material	Dual chrome ball-bearing
Shaft 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	IP67 *(connection dependent)*

ORDER TABLE

Code 1: Housing Style		Code 2: MagElec		Code 3: Connection		Code 4: Modifiers	
J140 J140 = 40mm shafted made out of red aluminum, Connector orientation BACK EXIT only.		**A-____-SEPP**	13 bit single ended quadrature	**TRM**	Pluggable terminal block	**40**	**1/4" (0.250") w/ flat**
		A-____-DIPP	13 bit differential quadrature	**INS**	Wire insertion terminal	**41**	**10mm round**
		X - 1939	13 bit J1939 @ 1000 positions	**M8**	M8 male	**42**	**3/8" slotted**
		B-PWM	Absolute Position PWM	**M12**	M12 male	**43**	**Extended 3/8" slotted**
				M12P	M12 male on 18' pigtail	**44**	**Extended 6mm w/ flat**
				CXX	Flying lead cable (enter XX as inches)	**45**	**6mm w/ flat**
				SCXX	Shielded Cable (enter XX as inches)	**51**	**Red aluminum**
				CSP	Cable with custom end	**53**	**Black aluminum**
**More outputs available, contact Joral if desired output not shown*		**V1**	5 VDC IN, 0-5 VDC OUT	**DE4**	DT04 - 4 pin male Deutsch	**90**	**13 bit @8192 counts per rotation**
		V2	6-36 VDC IN, 0-5 VDC OUT	**DE6**	DT06 - 6 pin male Deutsch		
		I1	0-24 VDC IN, 4-20 mA OUT				

SPECIAL PART NUMBER INFORMATION

Code 1: Housing Style

- **J140** - 40mm, Red aluminum / BACK EXIT connections only

Code 2: MagElec

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

- Enter quadrature PPR in place of ____
- A = 13 bit PPR
- Available 13 PPR: 0008,0010,0016, 0020, 0025, 0032, 0040, 0050, 0064, 0080, 0100, 0125, 0128, 0200, 0250, 0256, 0400, 0500, 0512, 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 J130 P/N

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

- First select MagElec code **(V1, V2, or I1)** then Angle Range **(A1-A2)**, Voltage Range **(V1-V2)** and Signal Direction (Clockwise **[CW]** or Counterclockwise **[CCW]**)
- **Formula Example:**

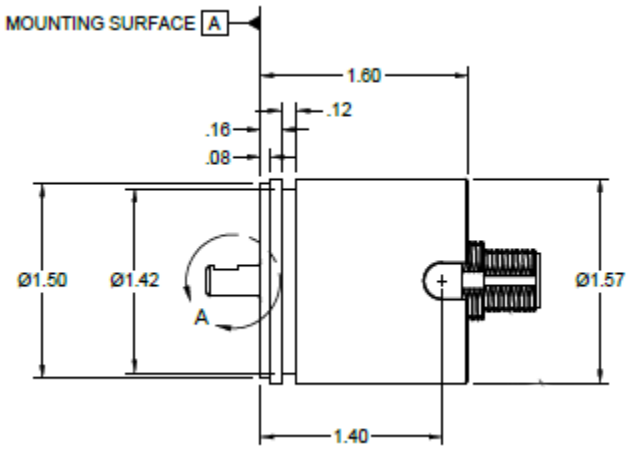
(MagElec)-(A1-A2)-(V1-V2)-(CW or CCW)

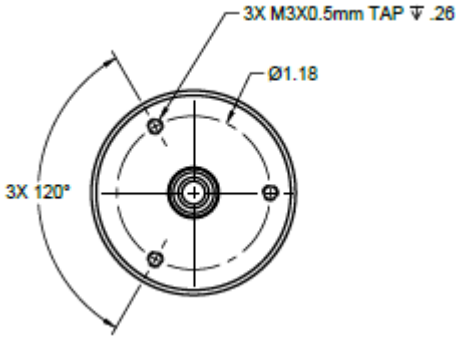
- **Exact Part Number Examples:**

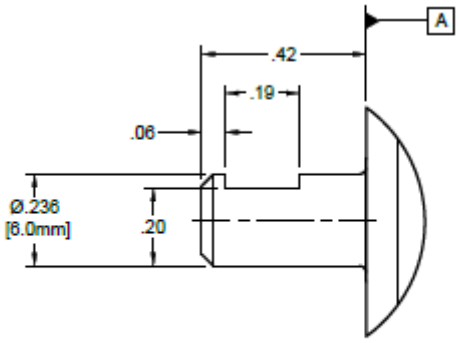
J130-**V1-0-360-.5-4.5-CW**-C72
J130-**V2-180-270-0-5-CCW**-DE4
J130-**I1-0-180-4-20-CW**-M12

Code 3: Connections

- **All Outputs, All Connections** - Connector exit back exit only (sensor epoxy side) for housing style J130
- **J1939 Output** Addressing via varying value resistor in connection requires at least five conductors (M12, DE6, and Cable connections addressing compatible)
- **All Outputs - DE4** and **DE6** Deutsch connectors add **$20** to J130 list

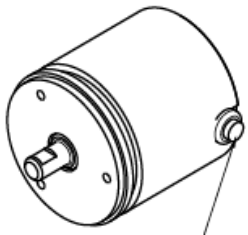






DETAIL A
SCALE 3:1
OUTPUT SHAFT

5 PIN M12 CONNECTOR
OTHER CONNECTION
OPTIONS AVALIBLE



OPTIONAL LEADWIRE SIDE EXIT
WITH GROMMET

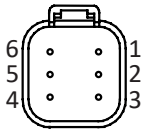
GENERAL PIN OUTS

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

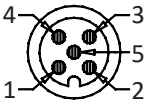
DT04-6P MALE
FACE VIEW



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 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

Dimensions informative only
For most recent dimensions please consult factory