

J130/J140 J1 Line *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



Above: 40mm Shafted (J140)
Below: 30mm Shafted (J130)

STANDARD OPERATING CHARACTERISTICS

ELECTRICAL	Outputs	A - [PPR] - SEPP	Incremental 13 bit Quadrature w/ Single Ended Output A B Z
			A - [PPR] - DIPP
		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, <i>not including output loads</i>	
	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	30mm (J130) or 40mm (J140)	
	Housing Material	Aluminum	
	Housing Height	J130 - 1.49" body; 2.15" w/ M12 (and) J140 - 1.7" body; 2.13" w/ M12	
	Mounting	Mounting holes or servo groove	
	Weight	J130 & J140 - 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-bearings	
	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)	

General ordering guide found on next page (S1 ; I2 / 2)



J130/J140 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: **J130-A-0512-SEPP-M12-42** - 30mm Red aluminum (J130), 3/8" slotted shaft (modifier 42), 13 bit incremental quadrature @ 512 PPR

J140-A-1939-SC72-90 - 40mm Red aluminum (J140), 72" Shielded cable (SC72), 13 bit J1939 @ 8192 counts per rotation (modifier 90)

J130-V1-0-270-0-5-CW-C72 - Red aluminum (J130), 72" Cable (C72), 5v input (V1) @ 0-270°, 0v to 5v out, clockwise direction (CW)

Code 1: Housing Style	Code 2: MagElec (Sensor Output)	Code 3: Connection	Code 4: Special Codes
J130 J130 = 30mm shafted made out of red aluminum, Connector orientation BACK EXIT only.	A - SEPP 13 bit single ended quadrature - A B Z	TRM Pluggable Terminal block	40 1/4" (0.250") w/ flat
		INS Wire insertion terminal	41 10mm round
	A - DIPP 13 bit differential quadrature - A B Z, A' B' Z'	M8 M8 male	42 3/8" slotted
		M12 M12 male	43 Extended 3/8" slotted
J140 J140 = 40mm shafted made out of red aluminum, Connector orientation BACK EXIT only.	A - 1939 13 bit J1939 @ 1000 positions	M12P M12 male on 18' pigtail	44 Extended 6mm w/ flat
		CXX Flying lead cable (enter XX as inches)	45 6mm w/ flat
	B - PWM Absolute position PWM	SCXX Shielded cable (enter XX as inches)	51 Red aluminum
			53 Black aluminum
	A - SSI1 Absolute position SSI @ 8192 positions	CSP Cable with custom end	90 13 bit @ 8192 counts per rotation (Typical J1939 option)
<i>* More outputs and connection options available, contact Joral if desired configuration is not listed</i>	V1 5 VDC IN, 0-5 VDC OUT	DE6 DT04 - 6 pin male Deutsch	
	V2 6-36 VDC IN, 0-5 VDC OUT		
	I1 0-24 VDC IN, 4-20 mA OUT		

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

Code 1: Housing Style

- **J130** - 30mm, Red aluminum / Back exit connections only
- **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 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 J130/J140 P/N

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

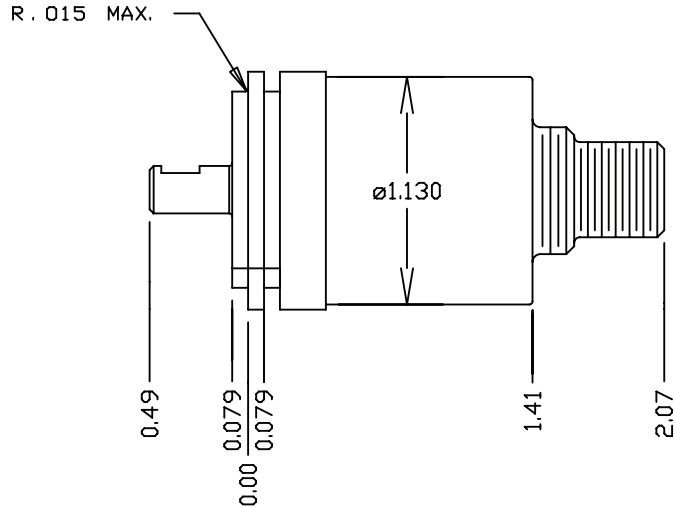
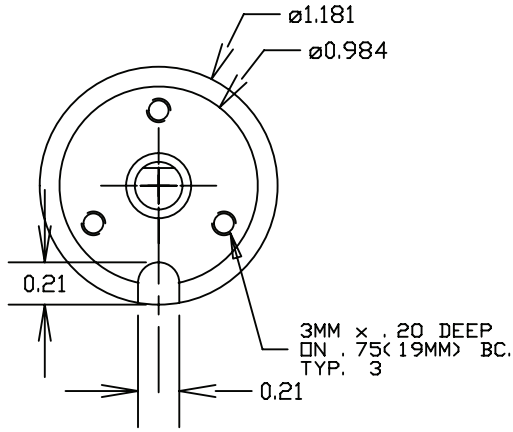
- First select MagElec code (**V1, V2 or I1**) then Angle Range (**A1-A2**), Voltage Range (**VR1-VR2**) and Signal Direction (**Clockwise [CW] or Counter [CCW]**)
- **PART NUMBER FORMULA**
(MagElec)-(A1-A2)-(VR1-VR2)-(CW or CCW)
- **EXACT V1, V2, and I1 EXAMPLES**
J130 - **V1 - 0-360 - 0.5-4.5 - CW - C72**
J140 - **V2 - 0-180 - 0-5 - CCW - DE4**
J130 - **I1 - 180-270 - 4-20 - CW - M12**

Code 3: Connections

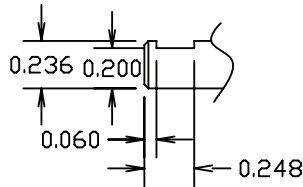
- **All Outputs, All Connections** - Connector exit back exit only (sensor epoxy side) for housing style J130 and J140
- **J1939 Output** - Addressing via varying value resistor in connection requires at least five conductors (*M12, DE6 and Cables addressing compatible*)
- **All Outputs w/ Deutsch** - DE4 and DE6 connection Deutsch connectors add \$20 to J130/J140 list



J130 DIMENSIONS & GENERAL PIN OUTS



6MM SHAFT WITH FLAT END DETAIL



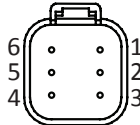
DT04-4P MALE FACE VIEW



DT04-4P J1939 OUTPUT

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

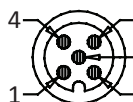
DT04-6P MALE FACE VIEW



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/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

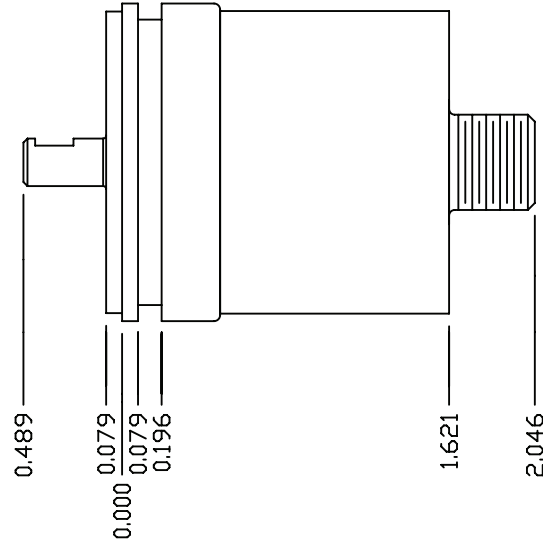
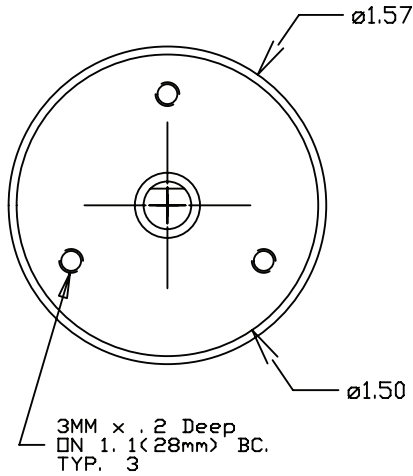
M12-5P AND 5 CONDUCTOR CABLE J1939 OUTPUT

- 1 = BRN = +VDC (VIN)
- 2 = WHT = CAN HIGH
- 3 = BLUE = COMMON/GROUND
- 4 = BLK = CAN LOW
- 5 = GRY = OPTIONAL ADDRESS PROGRAMMING RESISTOR

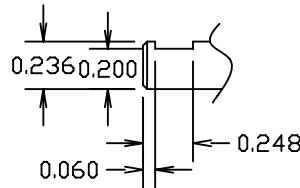
Dimensions informative only
For most recent dimensions please consult factory



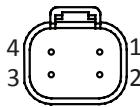
J140 DIMENSIONS & GENERAL PIN OUTS



6MM SHAFT WITH FLAT END DETAIL



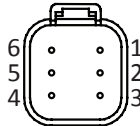
DT04-4P MALE FACE VIEW



DT04-4P J1939 OUTPUT

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

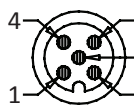
DT04-6P MALE FACE VIEW



DT04-6P J1939 OUTPUT

- 1 = YEL = CAN HIGH
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- 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

