

SERIES HDP30

NorthStar™ brand

Shaft-Less Encoder

Key Features

- Incremental, Analog & Absolute Outputs Available
- Non-Contact Magnetic Sensing
- LED Indicators for Easy Installation and Troubleshooting
- Sealed & Encapsulated Electronics
- Wide Sensing Envelope Tolerant to Misalignment



SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS

Resolution (Incremental): 1 to 512 quadrature pulses per revolution

Resolution (SSI Binary Absolute): 13 Bits

Resolution (J1939 CAN): 13 Bits

@ 1000 positions per rotation

Resolution (Analog): See Config Table

ELECTRICAL

Input Power: Quadrature Output Type:
6-32VDC, 60mA max not including output load

Analog Voltage & Current Output Type:

5VDC/6-32VDC or 12-32VDC

J1939 CAN & SSI Output Type:

6-32VDC

Outputs: 7272 Differential Line Driver: 40mA
sink or source

Analog Voltage: 0.5-4.5VDC

Analog Current: 4-20mA

SSI Binary

J1939 CAN (250KB/s Baud): Optional

Addressing via varying value resistor connection

Electrical Protection: Overvoltage, Reverse

Polarity, Output Short Circuit Protected

Connections: M12, M12 on Pigtail, Flying

Lead Cable

LED Indicators: Power and Output Channels

MECHANICAL

Housing Diameter: 30mm (1.18")

Housing Height (not including connection):

30.5mm (1.2")

Housing Material: Anodized Black Aluminum

Thread: M30 x 1.5

Mounting Nuts: Stainless Steel (Qty 2 Supplied)

Weight: 1.0 oz w/o Mounting Nuts (2.2 oz w/
Recommended Nuts)

Target Magnet Type: Neodymium

Sensor-Target Magnet Ratings:

Air Gap (w/1/4-20 Magnet): Up to 0.50"

Center Alignment (w/ 1/4-20 Magnet): 0.1" max.

Rated Planar Tilt: 30 degrees

Maximum Speed: 3000 RPM

ENVIRONMENTAL

Operating Temperature: -30°C to +80°C

Storage temperature: -40°C to +90°C

Shock: 400g, 4000 m/s² (6ms)

Vibration: 20g, 200 m/s² (5 to 3000Hz)

Potting Compound: Non-Porous. Water &
Chemical Resistant. ROHS Compliant

Humidity: 100%

Enclosure Rating:

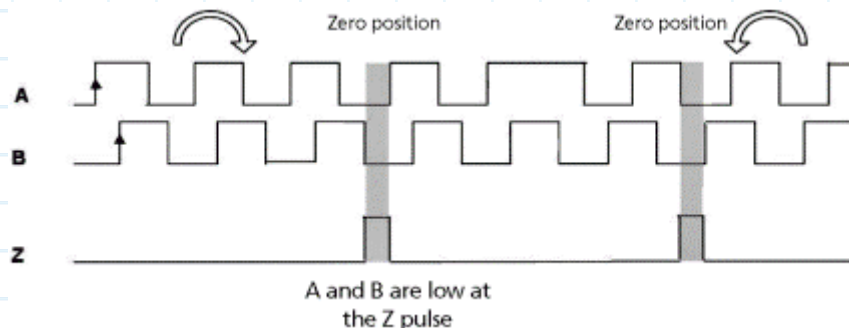
M12 - IP67

M8 - IP67

Flying Leads/Pigtail - IP69K

RoHS Compliant: YES

HDP30 Quadrature Output Format



Ordering Information

To order, complete the model number with code numbers from the table below:

Code 1: Model	Code 2: PPR	Code 3: Format	Code 4: Connection	Code 5: Target Magnet
HDP30T	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Ordering Information

HDP30T	<p>Incremental Output: Code 3 must be 0 or 1</p> <p>Enter Custom Quadrature PPR from 0001-0512</p> <p>Ex: 0001 = 1 PPR 0256 = 256 PPR 0500 = 500 PPR</p>	<p>Code 4 must be 0, 1, or 2</p> <p>0 Single Ended A, B, Z Push-Pull (7272) 6-32VDC in, 6-32VDC Out</p> <p>Code 4 must be 4, 5, or 6</p> <p>1 Differential Line Driver A, B, Z (7272) 6-32VDC in, 6-32VDC Out</p> <p>2 13 Bit SSI - 8192 Counts, 6-32VDC Input</p>	<p>0 5 pin M12, Axial</p> <p>1 5 Pin M12 on 18" Pigtail, Axial</p> <p>2 5 Conductor 72" cable, Axial</p> <p>4 8 Pin M12, Axial</p> <p>5 8 Pin M12 on 18" Pigtail, Axial</p> <p>6 8 Conductor 72" cable, Axial</p>	<p>0 No Magnet, Customer Supplied</p> <p>3 Dual Magnet Nylon Collar, 1/2" Bore</p> <p>4 Dual Magnet Nylon Collar, 3/4" Bore</p> <p>5 Dual Magnet Nylon Collar, 1" Bore</p> <p>6 Dual Magnet Nylon Collar, 1-1/2" Bore</p> <p>8 Dual Magnet Nylon Collar, 5/8" Bore</p> <p>R Ring Magnet w/Knurled Alumnum Bolt, 1/4-20</p>
	<p>Absolute Output: Code 3 must be V1, V2, I1, J, or 2</p> <p>ABS0</p>	<p>Code 2 must be ABS0 and Code 4 must be 0, 1, or 2</p> <p>V1 5VDC Input Voltage, 0.5 to 4.5V Output 0-360 CW</p> <p>V2 6-32VDC Input Voltage, 0.5 to 4.5V Output 0-360 CW</p> <p>I1 12-32VDC Input Voltage, 4-20mA Output 0-360 CW</p> <p>J CANbus J1939 Protocol, 6-32VDC Input at 1000 counts per rotation</p>		

TARGET MAGNET ACCESSORIES

Part Number	Description
MAGH-RING	1/4-20 Knurled Magnet Bolt
MAGCOLLAR1/2	Dual Magnet Nylon Collar 1/2" Bore
MAGCOLLAR3/4	Dual Magnet Nylon Collar 3/4" Bore
MAGCOLLAR5/8	Dual Magnet Nylon Collar 5/8" Bore
MAGCOLLAR1	Dual Magnet Nylon Collar 1" Bore
MAGCOLLAR11/2	Dual Magnet Nylon Collar 1-1/2" Bore

SERIES HDP30



ELECTRICAL CONNECTIONS

Quadrature Signal Format

Function	5 Pin M12 Conn / 5 Pin M12 on Cable	5 Conductor Cable	Pin M12 Conn / 8 Pin M12 on Cable	8 Conductor Cable
	Pin	Wire Color	Pin	Wire Color
+VDC	1	BRN	2	BRN
Common	3	BLU	7	BLU
Signal A+	4	BLK	1	WHT
Signal B+	2	WHT	4	YEL
Signal Z+	5	GRY	6	PNK
Signal A-	-	-	3	GRN
Signal B-	-	-	5	GRY
Signal Z-	-	-	8	RED

Analog Signal Format

Function	5 Pin M12 Conn / 5 Pin M12 on Cable	5 Conductor Cable
	Pin	Wire Color
+VDC (Vin)	1	BRN
Common/Ground	3	BLU
Voltage (0-5VDC)	2	WHT
Current (4-20mA)	4	BLK
Common/Ground	5	GRY

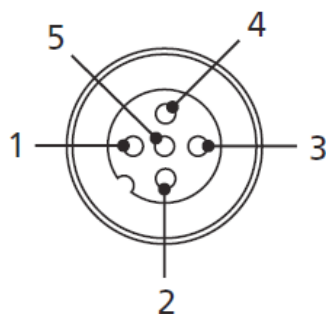
CAN J1939 Signal Format

Function	5 Pin M12 Conn / 5 Pin M12 on Cable	5 Conductor Cable
	Pin	Wire Color
+VDC (Vin)	1	BRN
Common/Ground	3	BLU
CAN HIGH	2	WHT
CAN LOW	4	BLK
ADDRESS SET	5	GRY

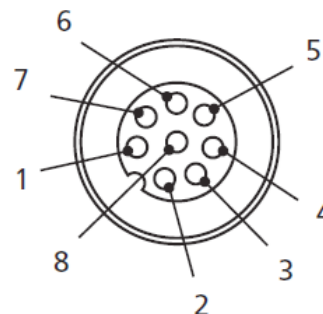
SSI Signal Format

Function	8 Pin M12 Conn / 8 Pin M12 on Cable	8 Conductor Cable
	Pin	Wire Color
+VDC	2	BRN
Common	7	BLU
SSI Data+	1	WHT
SSI Data-	3	GRN
CLK +	4	YEL
CLK -	5	GRY
0 - 10VDC (not used)	6	PNK
RESET INPUT (not used)	8	RED

CONNECTORS



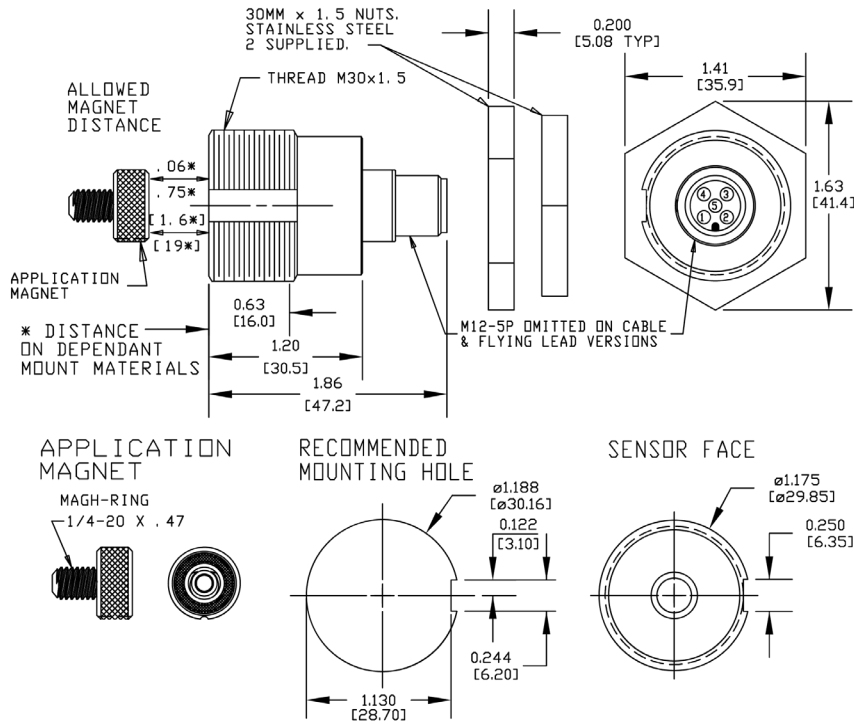
Male 5-pin M12 (Code A)



Male 8-pin M12 (Code A)

DIMENSIONS

Application Recommendations



HDP30 TARGET MAGNETS

- Neodymium
- Distance from user magnet to face of encoder: up to 0.5 inches
- Center alignment: 0 to 0.10 inches
- Planar tilt: 30 degrees



(Magnet Options 3,4,5,6,8)



(Magnet Option R)



Worldwide Brands: NorthStar™ • Dynapar™ • Hengstler™ • Harowe™

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