

SERIES HS35R

Dynapar™ brand

Sealed Hollowshaft Encoder

Key Features

- Phased Array Sensor for Reliable Signal Output
- Rugged Design Withstands up to 400g Shock
- Unbreakable Code Disc up to 5000PPR
- Improved Seal Design for Increased Moisture Resistance



SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS

Code: Incremental

Resolution: to 5000 PPR (pulses/revolution) See Ordering Information

Format: Two channel quadrature (AB) with optional Index (Z), and complementary outputs

Phase Sense: A leads B for CW shaft rotation viewing the shaft clamp end of the encoder

Quadrature Phasing: For resolutions to 1200 PPR: $90^\circ \pm 15^\circ$ electrical; For resolutions over 1250 PPR: $90^\circ \pm 30^\circ$ electrical

Symmetry:

For resolutions to 1024PPR: $180^\circ \pm 18^\circ$ electrical
For resolutions over 1024PPR: $180^\circ \pm 25^\circ$ electrical

Waveforms: Squarewave with rise and fall times less than 1 microsecond into a load capacitance of 1000 pf

ELECTRICAL

Input Power: 5-26VDC, 5-15VDC. 50 mA max., not including output loads.

Outputs: ET7272, ET7273, 4469

Frequency Response: 125 kHz (data & index)

Termination: MS Connector; M12 Connector; cable exit w/seal. See Ordering Information

Mating Connector:

6 pin MS, style MS3106A-14S-6S (MCN-N4)

7 pin MS, style MS3106A-16S-1S (MCN-N5)

10 pin MS, style MS3106A-18-1S (MCN-N6)

10 pin Bayonet, MS3116-F12-10S (607545-0001)

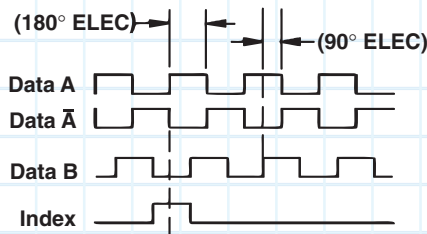
Cable w/ 5 pin M12 connector, p/n 112859-xxx

Cable w/ 8 pin M12 connector, p/n 112860-xxx

DATA AND INDEX

Not all complements shown

\bar{A} shown for reference



A leads B, CW (from clamp end)

MECHANICAL

Shaft Material: 6061-T6 Aluminum

Bore Diameter: 6mm to 28mm, 1.4" to 1.25", electrically isolated

Mating Shaft Length: 1.25", Minimum, 1.60", Recommended

Shaft Speed: 6000 RPM, Maximum (Enclosure Rating is IP64 at speed over 5000 RPM)

Starting torque: 8.0 in-oz. maximum (at 25°C)

Running torque: 5.0 in-oz. maximum (at ambient)

Bearings: ABEC 1

Housing and cover: Hard Anodized and Powder Coated Aluminum

Disc material: Plastic or metal (unbreakable)

Weight: 1.76lb (28 Oz) Typical

ENVIRONMENTAL

Operating Temperature: -40 to +85°C (0 to +70°C with 4469 line driver, see "Ordering Information")

Extended Temperature Range: -40 to +100°C (See ordering information)

Storage temperature: -40 to +100°C

Shock: 400g, 6mSec

Vibration: 5 to 3000 Hz, 20g

Humidity: 100%

Enclosure Rating: IP67 (IP64 at shaft speed above 5000 RPM)

Note: "MS" type mating connectors and prebuilt cables are rated NEMA 12. "M12" Cable assemblies are rated IP67

Ordering Information

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

Code 1: Model	Code 2: PPR	Code 3: Bore Size	Code 4: Fixing	Code 5: Output Format	Code 6: Termination	Code 7: Options
HS35R	□□□□	□	□	□	□	□□
Ordering Information						
HS35R Industrial-duty, hollowshaft encoder	0001 0500	0 6mm	0 None	0 ABZ, 5-26VDC push-pull	0 6 pin	Not available when Code 6 is 3, 8, A through J, or when Code 5 is 4 through G or L through R and Code 6 is 0 or 5 PS LED Output
	0003 0512	1 1/4"	1 4.5" C-face tether	1 ABZ, 5-26VDC O/C	1 7 pin	
	0010 0600	2 5/16"	2 8.5" C-face tether	2 ABZ, 5-26VDC O/C w2.2kOhm	2 10 pin	
	0012 0900	3 8mm	3 Slotted tether (to fit standard AC motor fan cover)	H Same as "0" with Extended temp range	3 12 pin	
	0015 1000	4 3/8"	Not available when Code 5 is D,E,F,G, Q, R	J Same as "1" with Extended temp range	4 10 pin bayonet	
	0032 1024	5 10mm		K Same as "2" with Extended temp range	5 6 pin+mating	
	0050 1200	6 12mm	4 Same as 1 w/cover	Not available when Code 6 is H	6 7 pin+mating	
	0060 1500	7 1/2"	5 Same as 3 w/cover	4 Differential AB only, 5-26VDC, 5-26VDC out (7272)	7 10 pin+mating	
	0100 2000	8 5/8"	Not available when Code 5 is 0 through C or H through P	5 Differential AB only, 5-26VDC in, 5VDC out (7272)	8 12 pin+mating	
	0120 2048	9 15mm		A Differential AB only, 5-26VDC in, 5VDC out (4469)	9 10pin bayonet+mating	
0200 2400	A 16mm	6 Same as 1 w/dual cover	C Differential AB only, 5-15VDC in, 5-15VDC out (4469)	A 0.5m (18") cable		
0240 2500	C 19mm	7 Same as 3 w/dual cover	L Same as "4" with Extended temp range	C 1m (36") cable		
0240 2500	D 3/4"		M Same as "5" with Extended temp range	D 2m (72") cable		
0250 3072	E 20mm		Not available when Code 6 is 0, 1, 5, 6, or H	E 3m (120") cable		
0300 4000	F 7/8"		6 Differential ABZ, 5-26VDC in, 5VDC out (7272)	F 0.3m (13") cable with 10 pin connector and mate		
0360 4096	G 24mm		7 Differential ABZ, 5-26VDC in, 5-26VDC out (7272)	G 0.3m (13") cable		
5000	H 1"		8 Differential ABZ, 5-26VDC in, 5VDC out (4469)	H 5 pin M12		
	J 1-1/8"		9 Differential ABZ, 5-15VDC in, 5-15VDC out (4469)	J 8 pin M12		
	K 1-1/4"		D Dual isolated outputs, same as "6"			
	M 14mm		E Dual isolated outputs, same as "7"			
	N 18mm		F Dual isolated outputs, same as "8"			
	P 25mm		G Dual isolated outputs, same as "9"			
	R 28mm		N Same as "6" with Extended temp range			
			P Same as "7" with Extended temp range			
			Q Same as "D" with Extended temp range			
			R Same as "E" with Extended temp range			

10 foot Cable Assemblies with MS Connector

- 108594-0010** 6 Pin MS, Cable Assy. For Use with Single Ended Outputs
- 108595-0010** 7 Pin MS, Cable Assy. For Use with Single Ended Outputs
- 108596-0010** 7 Pin MS, Cable Assy. For Use with Differential Line Driver w/o Index Outputs
- 112123-0010** 6 Pin MS, Cable Assy. For Use with Differential Line Driver w/o Index Outputs
- 1400635-0010** 10 Pin MS, Cable Assy. For Use with Differential Line Driver with Index Outputs
- 114448-0010** 10 Bayonet, Cable Assy. For Use with Differential Line Driver with Index Outputs
- 109209-0010** NEMA4 10 pin MS, Cable Assy. For Use with Differential Line Driver with Index Outputs

10 foot Cable Assemblies with M23 Connector

- 108615-0010** 12 M23, Cable Assy. For Use with Differential Line Driver with Index Outputs, CCW

15 foot Cable Assemblies with M12 Connector

- 112859-0015** 5 Pin M12, Cable Assy. For Use with Single Ended Outputs
- 112860-0015** 8 Pin M12, Cable Assy. For Use with Single Ended Outputs
- 112860-0015** 8 Pin M12, Cable Assy. For Use with Differential Line Driver Outputs

Mating Connectors (no cable)

- 6 pin, style MS3106A-14S-6S (MCN-N4)
- 7 pin, style MS3106A-16S-1S (MCN-N5)
- 10 pin, style MS3106A-18-1S (MCN-N6)
- 10 pin bayonet, style MS3116-F12-10S (607545-0001)

Accessory Kits:

- 114573-0001** Tether Kit, 4.5" C-face single point with 3/8" bolt
- 114574-0001** Tether Kit, Slotted with T-bolts for standard AC motor fan covers
- 114575-0001** Tether Kit, 8.5" C-face single point with 1/2" bolt
- 114591-0001** Cover Kit, 56C face
- 114592-0001** Cover Kit, fan cover
- 114593-0001** Dual Cover Kit, 56C face
- 114594-0001** Dual Cover Kit, fan cover

SERIES HS35R

ELECTRICAL CONNECTIONS

6, 7 & 10 Pin MS Connectors and Cables - Code 6 = 0 to 9, A to G

Connector & mate/accessory cable assembly pin numbers and wire color information is provided here for reference. Models with direct cable exit carry the same color coding as shown for each output configuration.

Encoder Function	Cable #108594-* 6 Pin Single Ended		Cable #112123-* 6 Pin Dif Line Drv w/o Id x		Cable #108596-* 7 Pin Dif Line Drv w/o Id x		Cable #108595-* 7 Pin (If Used)		Cable #1400635- or 109209- (NEMA4) 10 Pin Dif Line Drv w/Id x (If Used)		Cable #108615-* 12 Pin CCW (If Used)		Cable #114448-* 10 Pin Bayonet	
	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color
Sig. A	E	BRN	E	BRN	A	BRN	A	BRN	A	BRN	5	BRN	A	BRN
Sig. B	D	ORN	D	ORN	B	ORN	B	ORN	B	ORN	8	ORN	B	ORN
Sig. Z	C	YEL	—	—	—	—	C	YEL	C	YEL	3	YEL	C	YEL
Power +V	B	RED	B	RED	D	RED	D	RED	D	RED	12	RED	D	RED
N/C	F	—	—	—	—	—	E	—	E	—	7	—	E	—
Com	A	BLK	A	BLK	F	BLK	F	BLK	F	BLK	10	BLK	F	BLK
Case	—	—	—	—	G	GRN	G	GRN	G	GRN	9	—	G	GRN
Sig. A	—	—	C	BRN/WHT	C	BRN/WHT	—	—	H	BRN/WHT	6	BRN/WHT	H	BRN/WHT
Sig. B	—	—	F	ORN/WHT	E	ORN/WHT	—	—	I	ORN/WHT	1	ORN/WHT	J	ORN/WHT
Sig. Z	—	—	—	—	—	—	—	—	J	YEL/WHT	4	YEL/WHT	K	YEL/WHT
OV Sense	—	—	—	—	—	—	—	—	—	2	GRN	—	—	—
5V Sense	—	—	—	—	—	—	—	—	—	11	BLK/WHT	—	—	—

5 & 8 Pin M12 Accessory Cables when Code 6 = H or J

Connector pin numbers and cable assembly wire color information is provided here for reference.

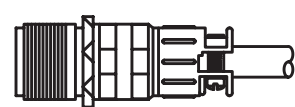
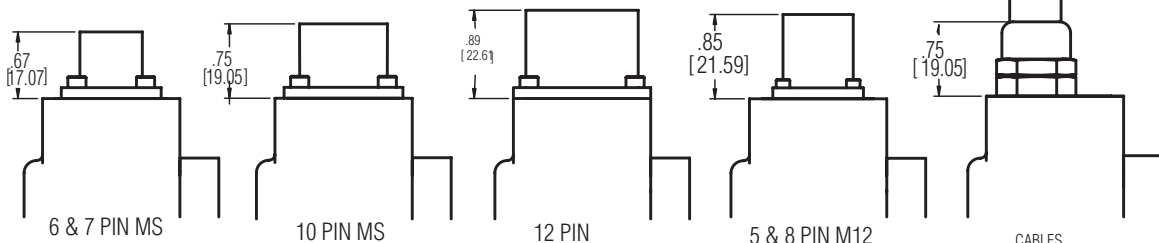
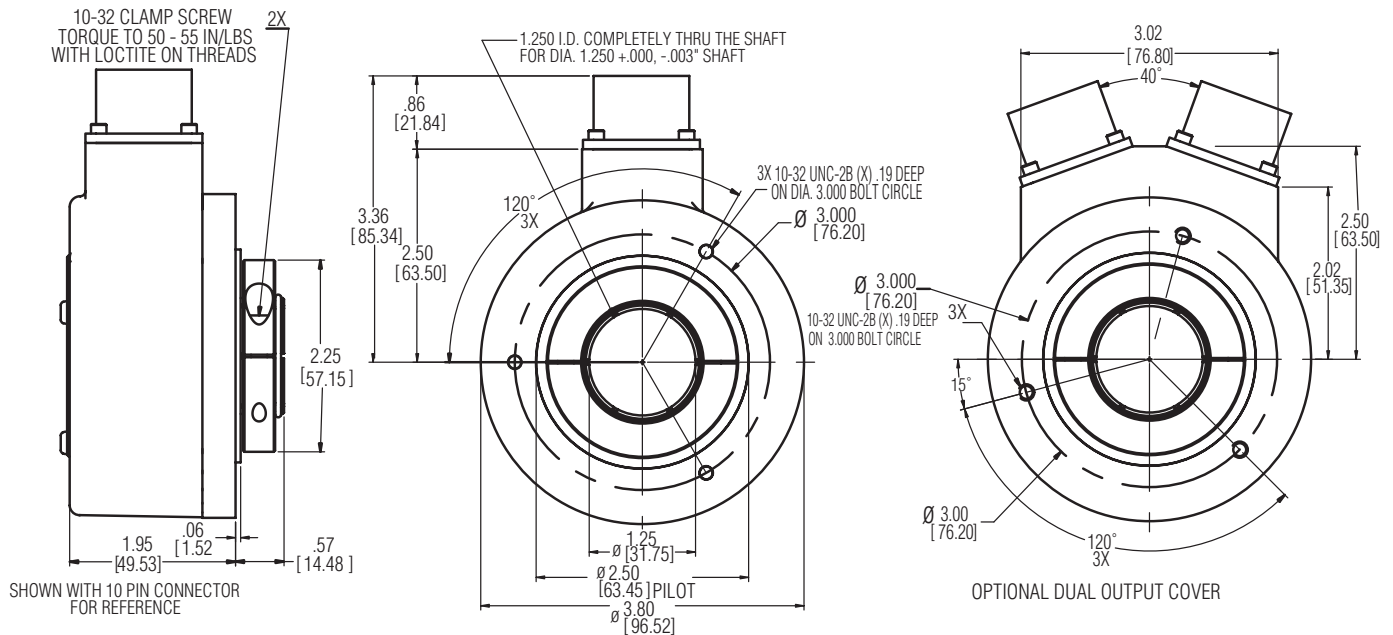
Encoder Function	Cable # 112859- 5 Pin Single Ended		Cable # 112860- 8 Pin Single Ended		Cable # 112860- 8 Pin Differential	
	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color
Sig. A	4	BLK	1	BRN	1	BRN
Sig. B	2	WHT	4	ORG	4	ORG
†Sig. Z	5	GRY	6	YEL	6	YEL
Power +V	1	BRN	2	RED	2	RED
Com	3	BLU	7	BLK	7	BLK
Sig. A	—	—	—	—	3	BRN/WHT
Sig. B	—	—	—	—	5	ORG/WHT
†Sig. Z	—	—	—	—	8	YEL/WHT

† Index not provided on all models. See ordering information

Cable Configuration: PVC jacket, 105 °C rated, overall foil shield; 24 AWG conductors, minimum

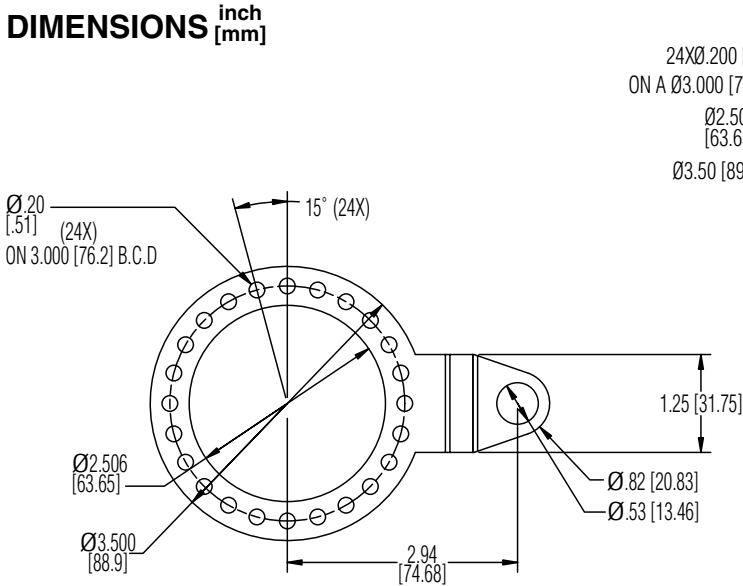
- * 1) Note: Standard cable length is 10 feet but may be ordered in any length in 5 foot increment. For example, -0020 is a 20 foot cable.
- 2) "MS" type mating connectors and prebuilt cables are rated NEMA 12. "M12" Cable assemblies are rated IP67
- 3) For watertight applications, use NEMA4 10 pin cable & connector 109209-XXXX.

DIMENSIONS [mm]

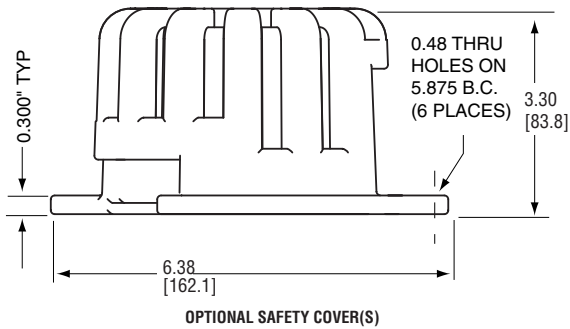
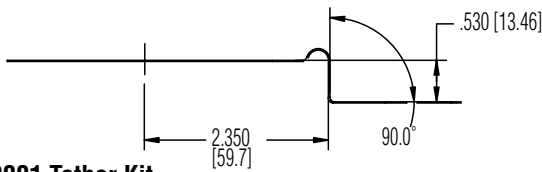


PIGTAIL WITH MS CONNECTOR (OPTION F)

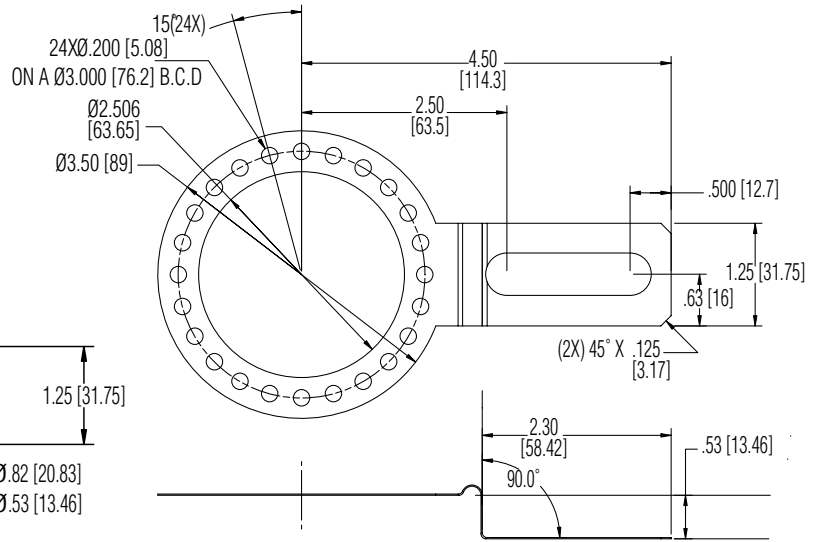
DIMENSIONS ^{inch} [mm]



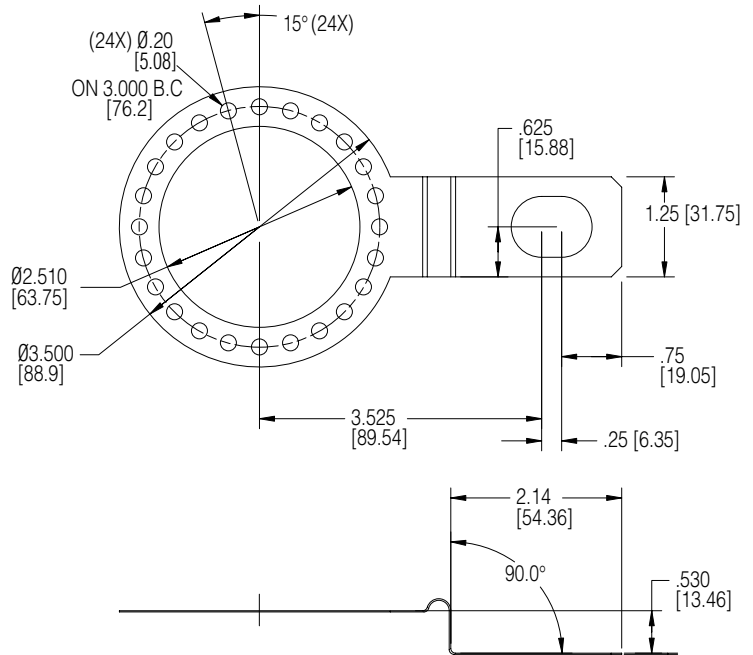
114573-0001 Tether Kit



OPTIONAL SAFETY COVER(S)



114574-0001 Slotted Tether Kit



114575-0001 Tether Kit

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