

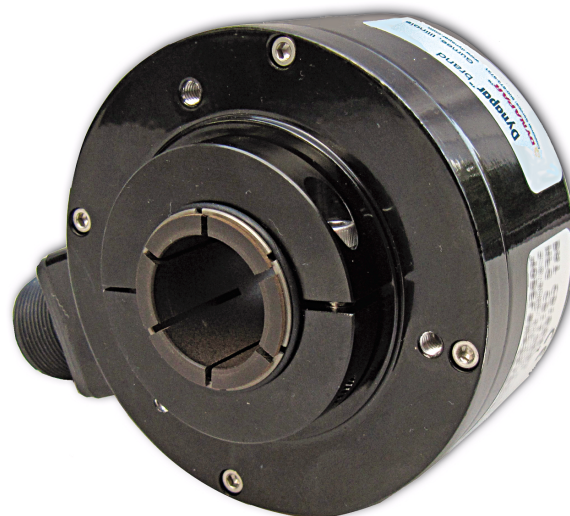
SERIES HS35R

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)

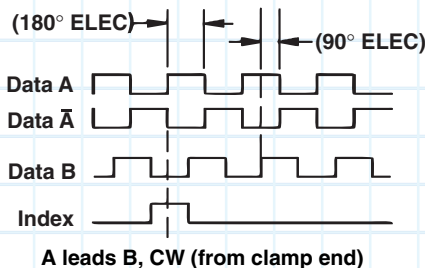
Cable w/ 5 pin M12 connector, p/n 112859-xxx

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

DATA AND INDEX

Not all complements shown

A shown for reference



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

Standard Operating Temperature: -40 to +85°C (0 to +70°C with 4469 line driver, see "Ordering Information"). At shaft speed above 3000 RPM, derate 10°C per 1000 RPM

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
	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"		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			6 7 pin+mating
	0060	1500	7 1/2"			7 10 pin+mating
	0100	2000	8 5/8"	Not available when Code 5 is D,E,F,G, Q, R	Not available when Code 6 is H	8 12 pin+mating
	0120	2048	A 16mm	4 Same as 1 w/cover	4 Differential AB only, 5-26VDC, 5-26VDC out (7272)	9 10pin bayonet+mating
	0200	2400	C 19mm	5 Same as 3 w/cover	5 Differential AB only, 5-26VDC in, 5VDC out (7272)	A 0.5m (18") cable
	0240	2500	D 3/4"		A Differential AB only, 5-26VDC in, 5VDC out (4469)	C 1m (36") cable
	0250	3072	E 20mm		C Differential AB only, 5-15VDC in, 5-15VDC out (4469)	D 2m (72") cable
	0300	4000	F 7/8"	Not available when Code 5 is 0 through C or H through P	L Same as "4" with Extended temp range	E 3m (120") cable
	0360	4096	G 24mm		M Same as "5" with Extended temp range	F 0.3m (13") cable with 10 pin connector and mate
		5000	H 1"			G 0.3m (13") cable
			J 1-1/8"	6 Same as 1 w/dual cover	Not available when Code 6 is 0, 1, 5, 6, or H	H 5 pin M12
			K 1-1/4"	7 Same as 3 w/dual cover	6 Differential ABZ, 5-26VDC in, 5VDC out (7272)	J 8 pin M12
			M 14mm		7 Differential ABZ, 5-26VDC in, 5-26VDC out (7272)	
			N 18mm		8 Differential ABZ, 5-26VDC in, 5VDC out (4469)	
			P 25mm		9 Differential ABZ, 5-15VDC in, 5-15VDC out (4469)	
			R 28mm		D Dual isolated outputs, same as "6"	
					E Dual isolated outputs, same as "7"	
					F Dual isolated outputs, same as "8"	
					G Dual isolated outputs, same as "9"	
					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
0V 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.

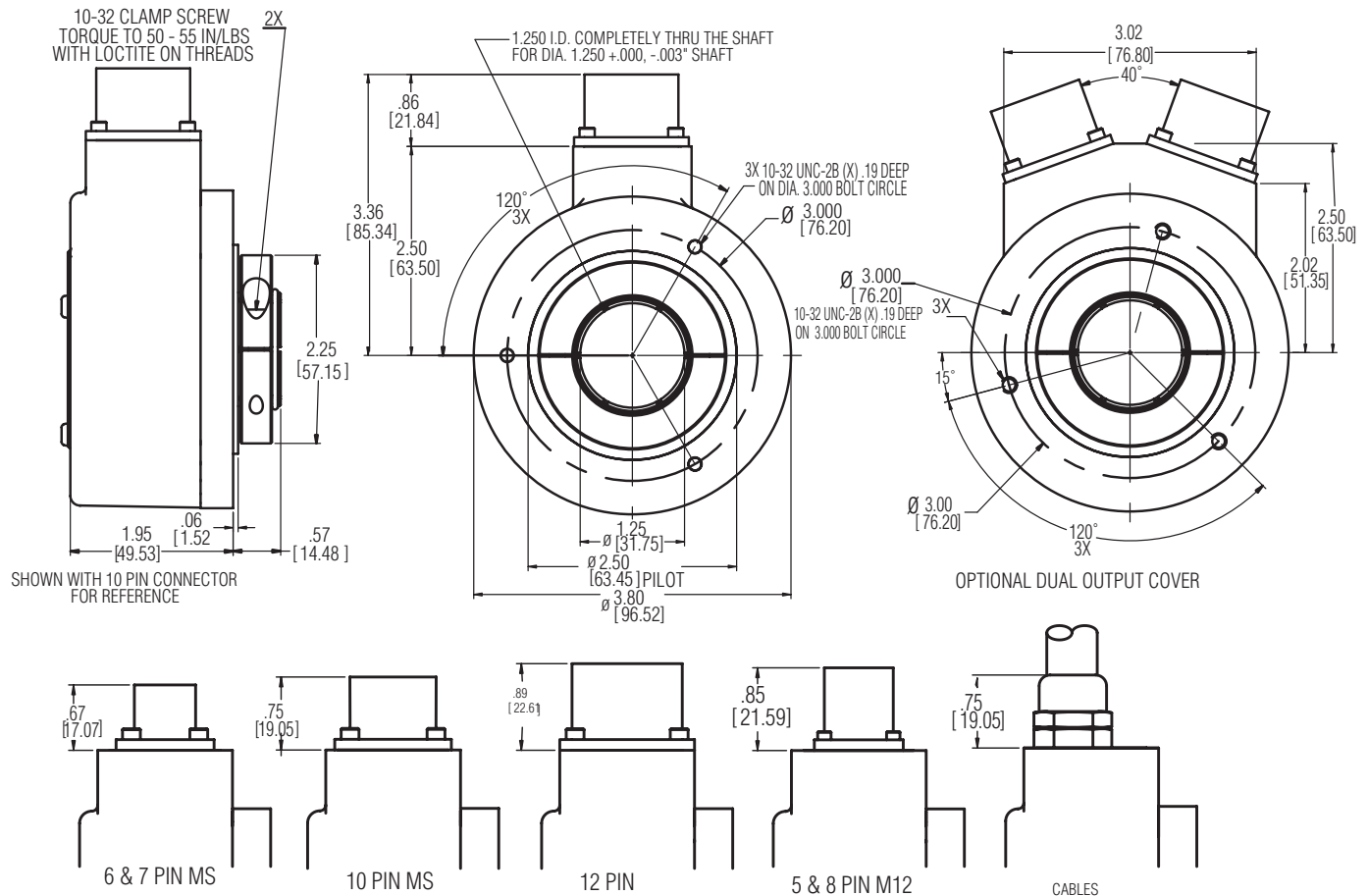
Encoder Function	Cable # 112859- 5 Pin Single Ended		Cable # 112860- 8 Pin Single Ended		Cable # 112860- 8 Pin Differential	
	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color
Sig. A	4	BLK	1	BRN	1	BRN
Sig. B	2	WHT	4	ORG	4	ORG
†Sig. Z	5	GRY	6	YEL	6	YEL
Power +V	1	BRN	2	RED	2	RED
Com	3	BLU	7	BLK	7	BLK
Sig.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

† Index not provided on all models. See ordering information

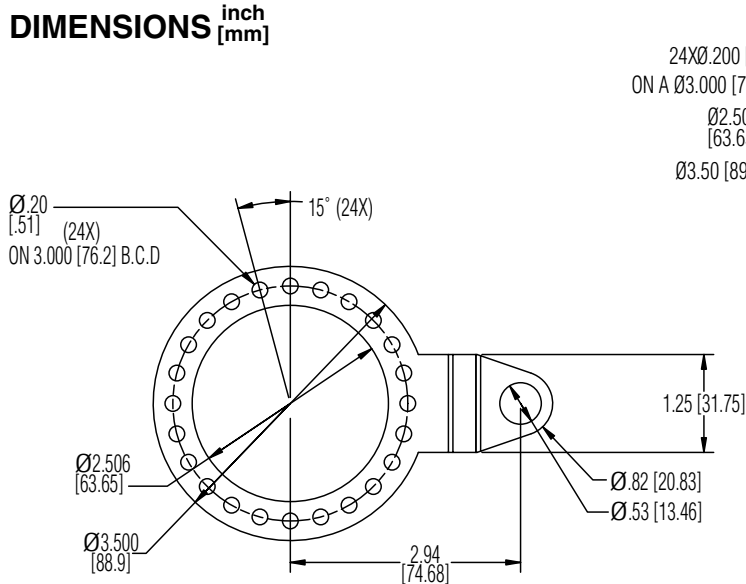
Cable Configuration: PVC jacket, 105 °C rated, overall foil shield; 24 AWG conductors, minimum

- * 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.

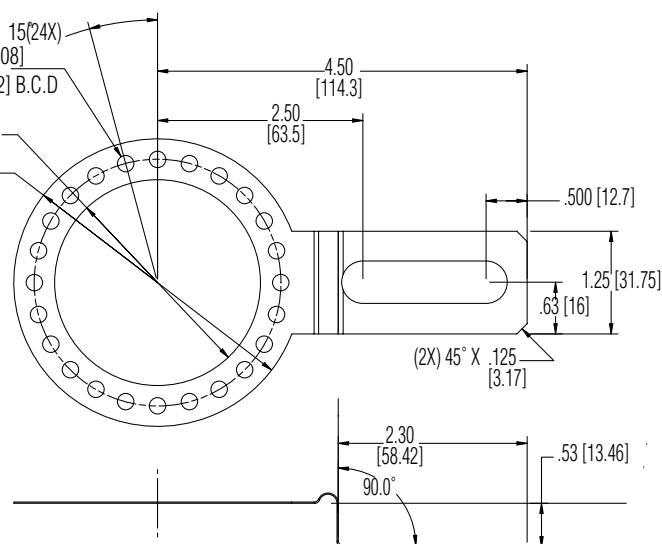
DIMENSIONS ^{inch} [mm]



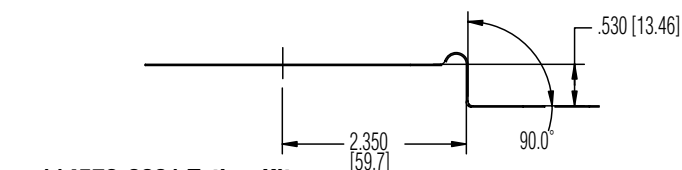
DIMENSIONS ^{inch}
[mm]



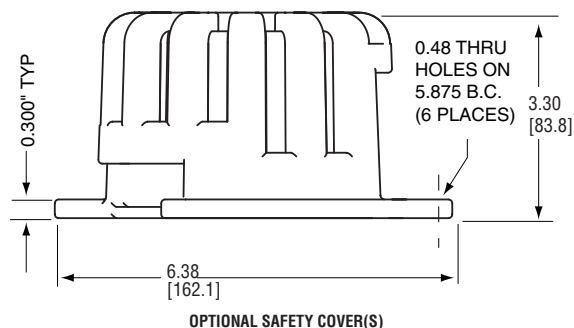
114573-0001 Tether Kit



114574-0001 Slotted Tether Kit



114575-0001 Tether Kit



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