

Series H58

- Rugged, ultra-reliable design using long-life bearings
- Available unbreakable metal code disk
- Complete electrical protection and noise immunity tested to EN50082-2
- Available with environmental sealing to IP66 / NEMA4
- Economical solution for medium resolution applications
- Industry-standard size 58 packages



APPLICATION/INDUSTRY

The Dynapar brand Series H58 is a rugged, reliable and economical encoder for industrial motion applications.

DESCRIPTION

Models with resolutions of 1024 or less are equipped with an unbreakable code disk that meets the demands of the most severe shock and vibration generating processes. Long life, heavy-duty bearings keep tough loads from disrupting internal alignment, avoiding failure due to the disk "crashes" so typical in competitive encoders. Protection against installation problems such as wiring errors prevents the encoder from damage, while immunity to electrical noise keeps the encoder signals intact. An IP66 / NEMA 4 sealing option protects against damage from contamination.

Packaged in the European standard 58mm enclosure, the Series H58 offers a variety of mechanical options: servo or face mounting on 42mm or 48mm bolt circles, 6mm or 10mm shafts, and an optional 36mm pilot. Electrical options include: resolutions from 1 to 2540 pulses/revolution; single ended push-pull or differential line driver outputs; and a choice of connector or cable terminations.

The Series H58 utilizes the latest technology optical emitters and sensors, surface mount assembly and precisely fabricated metal components to deliver high reliability and performance in a compact and economical package.

FEATURES AND BENEFITS

Mechanical / Environmental Features

- Long Life bearings
- Extended temperature range option
- Industry Standard, 58mm Form Factor
- IP66/NEMA4 washdown rating option
- Operation to 10,000 RPM

Electrical Features

- Noise Immune to ESD, RFI and electrical transients
- High current outputs
- Over-Voltage protection
- Reverse Voltage protection
- Output Short-Circuit protection
- 100 kHz frequency response

SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS

Code: Incremental
Resolution: 1 to 2540 PPR (pulses/revolution)
Accuracy: (Worst case any edge to any other edge) ≤ 1024 PPR (metal disk): ± 7.5 arc-min.
 > 1024 PPR (glass disk): ± 2.5 arc-min.
Format: Two channel quadrature (AB) with optional Index (Z) and complementary outputs
Phase Sense: A leads B for CCW shaft rotation as viewed from the shaft end of the encoder
Quadrature Phasing: $90^\circ \pm 22.5^\circ$ electrical
Symmetry: $180^\circ \pm 18^\circ$ electrical
Index: $180^\circ \pm 18^\circ$ electrical (gated with B low)
Waveforms: Squarewave with rise and fall times less than 1 microsecond into a load capacitance of 1000 pf

ELECTRICAL

Input Power:
 4.5 min. to 26 VDC max. at 80 mA max., not including output loads
Outputs:
 7272 Push-Pull and Differential Line Driver: 40 mA sink or source
 4469 Differential Line Driver: 100 mA, sink or source
Frequency Response: 100 kHz min.
Electrical Protection: Overvoltage, reverse voltage and output short circuit protected
Noise Immunity: Tested to EN50082-2 (Heavy Industrial) for Electro Static Discharge, Radio Frequency Interference, Electrical Fast Transients, Conducted and Magnetic Interference

CONNECTIONS

Mating Connector:
 7 pin, style MS3106A-16S-1S (MCN-N5);
 10 pin, style MS3106A-18-1S (MCN-N6)
 12 pin, CW (605560-0001)
 12 pin, CCW (605560-0002)
 5 pin, style M12: Cable with connector available
 8 pin, style M12: Cable with connector available

MECHANICAL

Shaft Loading: (at 6 mm from encoder face)
 Resolutions ≤ 1024 PPR: 356 N radial, axial
 Resolutions > 1024 PPR: 178 N radial, axial
Shaft Speed:
 Resolutions ≤ 1024 PPR: 10,000 RPM max.
 Resolutions > 1024 PPR: 5,000 RPM max.
Starting Torque: (max at 25 °C)
 without shaft seal: 0.007 N-m;
 with shaft seal: 0.014 N-m
Moment of Inertia: 21.2 g-cm²
Weight: 283 g. (10 oz.) max.

ENVIRONMENTAL

Operating Temperature:
 Standard: 0 to +70 °C;
 Extended: -40 to +85 °C
Storage Temperature: -40 to +90 °C
Shock: 50 G's for 11 milliseconds duration
Vibration: 5 to 2000 Hz at 20 G's
Humidity: to 98% without condensation
Enclosure Rating: NEMA12/IP54 (dirt tight, splashproof); NEMA4/IP66 (dust proof, washdown) when ordered with shaft seal and either MS connector or watertight cable exit

ELECTRICAL CONNECTIONS

Series H58

7, 10 and 12 Pin Connectors and Cables - Code 7= 0 to 7

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 # 108595-7 Pin (If Used)		Cable # 1400635-10 Pin (If Used)		Cable # 108615-12 Pin CCW (If Used)		Cable # 108616-12 Pin CW (If Used)	
	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color	Pin	Wire Color
Sig. A	A	BRN	A	BRN	5	BRN	3	BRN
Sig. B	B	ORN	B	ORG	8	ORG	4	ORG
Sig. Z	C	YEL	C	YEL	3	YEL	7	YEL
Power +V	D	RED	D	RED	12	RED	2	RED
N/C	E	—	E	—	7	—	—	—
Com	F	BLK	F	BLK	10	BLK	1	BLK
Case	G	GRN	G	GRN	9	—	—	—
Sig. \bar{A}	—	—	H	BRN/WHT	6	BRN/WHT	5	BRN/WHT
Sig. \bar{B}	—	—	I	ORG/WHT	1	ORG/WHT	6	ORG/WHT
Sig. \bar{Z}	—	—	J	YEL/WHT	4	YEL/WHT	8	YEL/WHT
5V Sense	—	—	—	—	2	GRN	—	—
0V Sense	—	—	—	—	11	BLK/WHT	—	—

Mating connector/cable assembly wire color information is provided here for reference. H58 models with direct cable exit carry the same color coding as shown for each output configuration.

Cable Configuration: PVC jacket, 105 °C rated, overall foil shield; 3 twisted pairs 26 AWG (output signals), plus 2 twisted pairs 24 AWG (input power)

5 & 8 Pin M12 Accessory Cables when Code 7= C to F

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. \bar{A}	—	—	—	—	3	BRN/WHT
Sig. \bar{B}	—	—	—	—	5	ORG/WHT
Sig. \bar{Z}	—	—	—	—	8	YEL/WHT

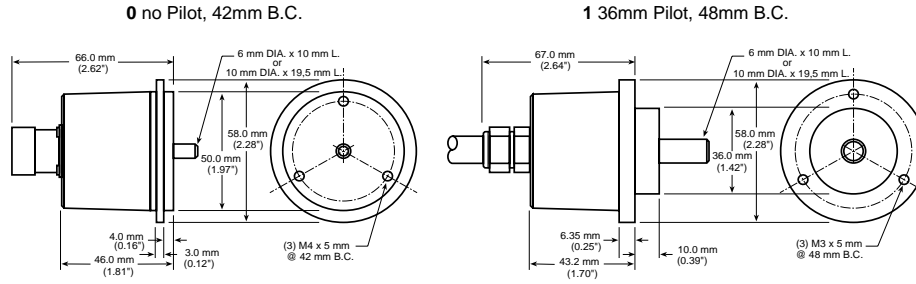
Cable Configuration: PVC jacket, 105 °C rated, overall foil shield; 24 AWG conductors, minimum

See "Accessories" Section for Connectors and Cable Assemblies Ordering Information

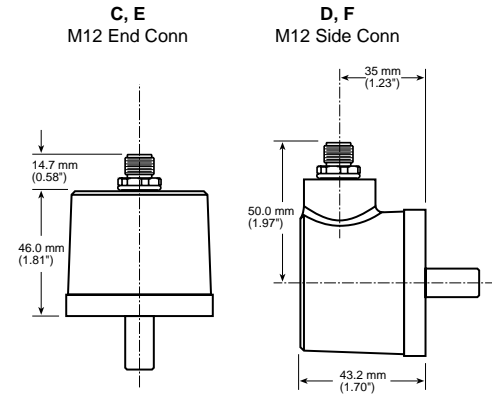
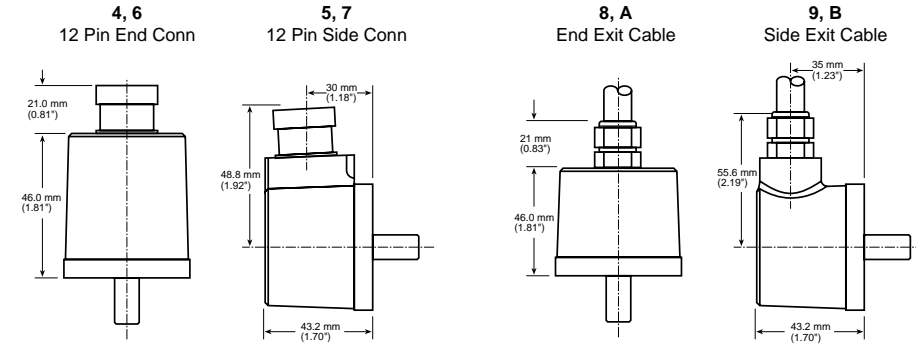
DIMENSIONS

Series H58

Code 3: Pilot, Face Mounts

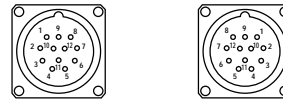


Code 7: Terminations



Code 7: Terminations

4, 5 CCW 6, 7 CW
(when looking at encoder)



ORDERING INFORMATION

Series H58

INDUSTRIAL

Code 1: Model	Code 2: PPR	Code 3: Pilot, Face	Code 4: Shaft	Code 5: Shaft Seal	Code 6: Electrical	Code 7: Termination	Code 8: Connector	
H58	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ordering Information								
H58 Bidirectional with Index (Channels A, B and Z)	0001	0500	0 (3) M4 @	0 6mm Dia. Shaft	0 no Shaft Seal	0 5-26V in, 5-26V Push-Pull out	0 7 Pin Conn, End Mount	0 no Mating Connector
	0005	0512	42mm BC, no Pilot		1 Shaft Seal		1 7 Pin Conn, Side Mount	1 7 Pin Mating Connector
	0010	0600				available when Code 7 is 2 thru B, E or F:	2 10 Pin Conn, End Mount	1 7 Pin Mating Connector
	0012	0800	1 (3) M3 @	1 10mm Dia. Shaft		1 5-26V in, 5-26V Differential Line Driver out (7272)	3 10 Pin Conn, Side Mount	2 10 Pin Mating Connector
	0050	0900	48mm BC, 36mm Dia. Pilot			2 5-26V in, 5V Differential Line Driver out (7272)	4 12 Pin CCW Conn, End Mount	2 10 Pin Mating Connector
	0060	1000				3 5-26V in, 5V Differential Line Driver out (4469)	5 12 Pin CCW Conn, Side Mount	3 12 Pin Mating Connector
	0086	1024				4 5-15V in, 5-15V Differential Line Driver out (4469)	6 12 Pin CW Conn, End Mount	3 12 Pin Mating Connector
	0100	1200				A Same as "0" with extend. temp range	7 12 Pin CW Conn, Side Mount	3 12 Pin Mating Connector
	0120	1250				B Same as "1" with extend. temp range	C 5 pin M12 Conn, End Mount	4 12 Pin CW Mating Connector
	0125	1270				C Same as "2" with extend. temp range	D 5 pin M12 Conn, Side Mount	
	0180	1500					E 8 pin M12 Conn, End Mount	
	0200	1600					F 8 pin M12 Conn, Side Mount	
	0240	1800					available when Code 5 is 1:	
	0250	1968					8 1m Sealed Cbl, End Exit	
	0254	2000					9 1m Sealed Cbl, Side Exit	
0256	2048					A 3m Sealed Cbl, End Exit		
0300	2400					B 3m Sealed Cbl, Side Exit		
0360	2500							
0400	2540							