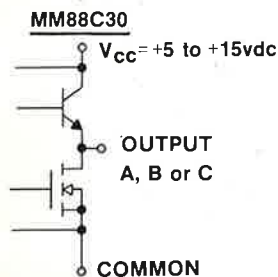


ELECTRICAL SPECIFICATION

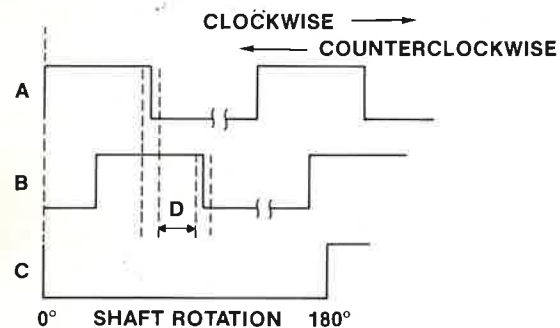
	CODE 4 D or E	
Input Requirements		
Voltage: Measured at Rotopulser	+5 to +15 vdc	
Current: Dependent on load	90 to 160 ma	
Output:		
Logic 0:	Sinking 8.5 ma	0.4v
Logic 1:	Sourcing 35 ma	*V _{cc} -1.6v

*Supply volts (V_{CC}) minus 1.6 volts

OUTPUT CIRCUIT



ELECTRICAL OUTPUT



- NOTES: (1) Signal C (Marker) is low for the first 180° of shaft rotation clockwise (as viewed from shaft end), and is high for the next 180°
- (2) Minimum free path between any A and B transition (Distance D) will not be less 12.5% of one full cycle of signal A. This includes effects of jitter and phase and symmetry shifts.
- (3) For single channel Rotopulsers (unidirectional), maximum out-of-position transition is 10% for counts of 1000 and less, and 12.5% for counts over 1000.

ELECTRICAL CONNECTIONS (Code 4 = D or E only)

For Code 4 = K or L Refer to dwg. 87D1051 and 52.

- a. **Single Ended Output** (Code 4 = E)
Mating Connector: MS3106A-14S-6S
Dynapar Part #16D34-26, 35-2

Function	MS Pin No.	Terminal Strip Connector No.
Signal A	B	1
Signal B	D	3
Signal C (Marker)	A	4
+V	E	5
Common	C	2
Shield	F	6

- b. **Differential Output** (Code 4 = D)
Mating Connector: MS3106A-18-1S
Dynapar Part #16D34-2, 35-4

Function	MS Pin No.	Terminal Strip Connector No.
Signal A	B	1
Signal A	G	12
Signal B	D	3
Signal B	H	11
Signal C (Marker)	A	4
Signal C	I	10
+V	E	5
Common	C	2
Shield	F	6
Not Used	J	7, 8, 9

MECHANICAL SPECIFICATIONS

- Weight:** Standard Housing (Figure 1) 26 oz.
Heavy Duty Housing (Figure 2) 10 lbs.
- Speed Range** 0 to 3,600 RPM or 50 KHz
Maximum Output Frequency
Output Frequency = counts/rev x rev/sec
- Operating Ambient Temperature** +32° to 130° F
(0° to +54° C)

Caution: Do not connect Rotopulser shaft to drive shafts whose operating temperature rises above 130° F. (54° C.)

Load Limits

- Maximum Radial Load Limit 15 lbs. overhung
Maximum Axial Load Limit 5 lbs.
Multiply load limits by 3 for Heavy Duty Housing (Fig. 2).
Load specifications include steady state and transient loads.

Inertia ranges typically from 96 gm-cm² for low count units with 1/4 inch, single shaft (130 gm-cm² for high count) to 170 gm-cm² for high count units with 1/2 inch, double shaft in the standard housing. Inertia can increase to 285 gm-cm² for high count units with 5/8 inch, double shaft in the heavy duty housing.

Torque: Typical torques in ounce-inches are:

Code 3: Shaft	Shaft Diameter	Torque (oz.-in.)	
		Starting	Running
G, H	0.250 inch	0.30	0.15
A, B, C, D	0.500 inch	0.45	0.35
M*, N*	0.625 inch	15.0	9.0

*Heavy Duty Housing

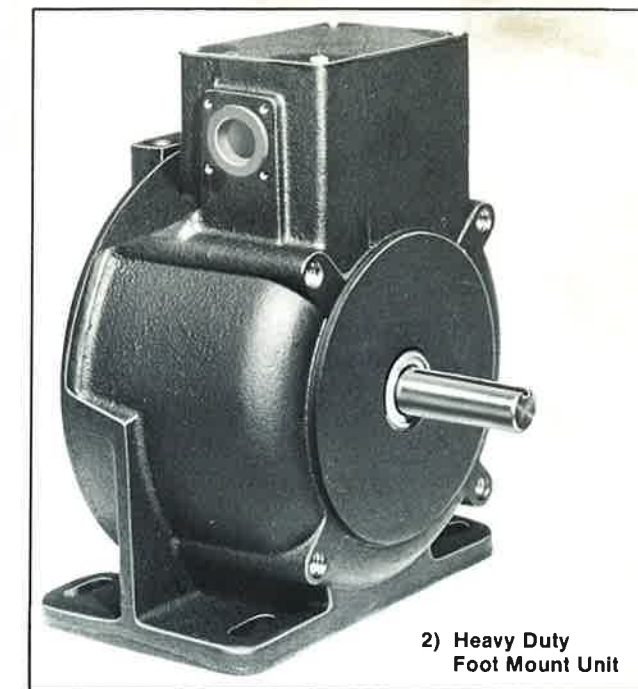
ROTARY INCREMENTAL ENCODER SERIES 60

This product has been discontinued. Please contact Dynapar for assistance. 1-800-873-8731 www.dynapar.com

UNI-DIRECTIONAL AND BI-DIRECTIONAL, PHOTO-ELECTRIC, ZERO SPEED ROTOPULSER®



1) Standard Unit With 6-Hole Front Face Bolt Circle & Servo Ring Mount



2) Heavy Duty Foot Mount Unit

RUGGED INDUSTRIAL DUTY, HIGH ACCURACY, and FLEXIBLE FOR A WIDE RANGE OF APPLICATIONS

GENERAL DESCRIPTION

Dynapar Series 60 Rotopulser® is an extremely rugged, general purpose optical rotary transducer that generates a pulse output proportional to shaft rotation. It is suitable for industrial applications that require operation over a wide range of shaft speeds including low and zero speed. The Series 60 Rotopulser is available in four types:

Type 61: a single output device for uni-directional applications such as displacement and length measurement where motion is continuous in a single direction and rate and ratio measurement when applied with the correct counter or control.

Type 62: a dual output device for bi-directional applications such as displacement in either direction. Typical applications include strip length measurement, cut-to-length, and numerical control feedback.

Type 63: a three output device for bi-directional applications requiring a marker track (zero index) output. A typical application is positioning where the zero index, a single count per revolution output, is used to establish a precise mechanical reference point.

FEATURES

Significant standard features include:

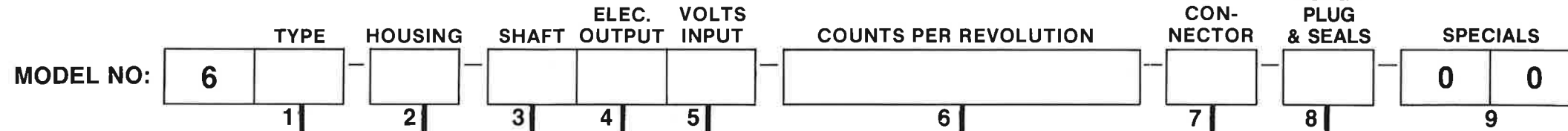
- High Resolution: Up to 2,500 counts per revolution.
- Wide selection of resolutions available as standard.
- LED light source for long-term reliability and trouble-free operation.
- Built-in low impedance amplifier for driving long lines.
- Switches from line-to-line for current sourcing and sinking.
- Operation from an unregulated 5 to 15 vdc power supply.
- TTL compatible.
- Precision machined die-cast aluminum housing and sealed construction.
- Extra wide bearing span with precision ball bearings front and rear.
- Industrial duty 1/2" (12,7 mm) shaft and servo ring and front face mounting used on Standard Unit.
- Heavy duty 5/8" (15,875 mm) shaft used on foot mount unit.

Order Information

When ordering please specify:

1. A complete model number by filling in the blocks below to meet your application requirements. For example: 62-P-NBA-1250-A-A-00 is a bi-directional Rotopulser in a heavy duty foot-mounted housing, a 5/8-inch diameter double shaft, a full differential signal output, a +5 vdc volt input, with 1250 counts-per-revolution, an MS connector, and purge plugs.

2. Any special options must be described.
3. Accessories, if required, should be listed. See accessory listing and prices in price list D2.



CODE 1	TYPE
1	Uni-directional
2	Bi-directional
3	Bi-directional With Marker Pulse

CODE 5	INPUT VOLTAGE
F	+5 to +15 vdc (Code 4 = D or E)

CODE 4	ELECTRICAL OUTPUT (See Application Note Below)
D	Full Differential Output +5 to +15 vdc (Output Drive MM88C30)
E	Single Ended Output +5 to +15 vdc (1/2 MM88C30 Driver)
K	Dual Isolated, Single Ended Outputs (A,B only) (With Code 1 = 1 or 2 only, Code 7 = A only and Code 2 = P only)
L	Dual Isolated, Differential Outputs (A,A) (With Code 1 = 1 only) (A, A, B, B) (With Code 1 = 2 only, Code 7 = A only and Code 2 = P only)
X	Special Output as Described

CODE 2	HOUSING
A	Standard Housing for Single Shaft, see Fig. 1 (with Code 3 = A thru H only)
C	Standard Housing for Double Shaft, see Fig. 1 (with Code 3 = A thru H only)
H	Hand-Held Housing with Double-Shaft and Two 12-inch Measuring Wheels (with Code 3 = A thru D only) (Code 4 = E only)
P	Foot Mount Heavy Duty Housing, see Fig. 2 (with Code 3 = M and N only)
X	Special Housing as Described

CODE 3	SHAFT
A	0.500 Dia., 1.0 Inch Length with Flat (with Code 2 = A, C or H only)
B	0.500 Dia., 1.0 Inch Length without Flat (with Code 2 = A, C or H only)
C	0.500 Dia., 1.5 Inch Length with Flat (with Code 2 = A, C or H only)
D	0.500 Dia., 1.5 Inch Length without Flat (with Code 2 = A, C or H only)
G	0.250 Dia., 1.0 Inch Length without Flat (Low Torque) (with Code 2 = A or C only)
H	0.250 Dia., 1.0 Inch Length with flat (Low Torque) (with Code 2 = A or C only)
M	0.625 Dia., Single Shaft with Keyway (with Code 2 = P only)
N	0.625 Dia., Double Shaft with Keyway (with Code 2 = P only)
X	Special Shaft as Described

Shaft Diameter

Nominal	Actual	OPTION CODE 3
1/2 inch (12,7 mm)	0.4997 +0.0000-0.0002 inches (12,69 +0,000-0,0051 mm)	A thru D
1/4 inch (6,35 mm)	0.2497 +0.0000-0.0002 inches (6,34 +0,000-0,0051 mm)	G or H

CODE 8	PURGE PLUG & SHAFT SEALS
O	None
A	Two 1/4" NPT (with Code 2 = P only)
B	Shaft Seals
C	Plugs & Seals

CODE 7	CONNECTOR
A	MS Connector With Code 2 = A, C or H With Code 2 = P
T	Terminal Strip (with Code 2 = P only, Code 4 = D or E only)

CODE 6: COUNTS PER REVOLUTION
Standard Counts From 1 thru 999
Uni-directional Standard Counts From 1000 thru 2500
Bi-directional Standard Counts From 1000 thru 2500
Special Counts/Revolution
One-time Set Up Charge: See price page

STANDARD COUNTS PER REVOLUTION									
1	2	5	10	12	15	20	45	50	60
64	90	100	120	125	150	180	192	200	203
240	250	256	300	360	375	384	390	400	450
500	512	530	600	625	720	750	800	805	833
900									
STANDARD HIGH COUNTS PER REVOLUTION									
1000	1024	1200	1250	1270	1500	1800			
2000	2160	2250	2400	2500					

APPLICATION NOTE:

Differential output permits Rotopulser signals to be transmitted over longer distances by reducing the effect of common-mode noise. Line receiver DS88C20 can be used with Rotopulser having MM88C30 driver. See device manufacturers application notes for proper line terminations.

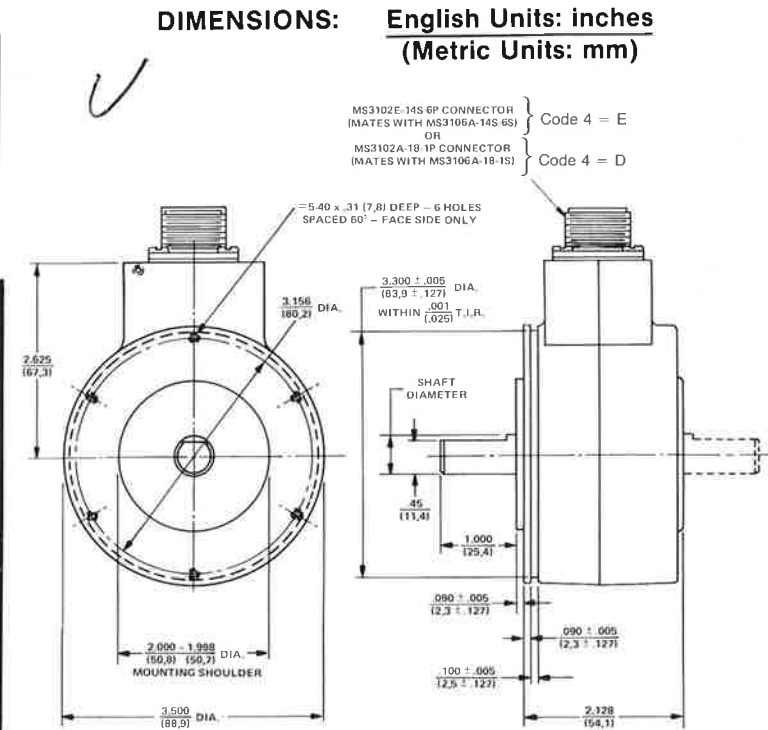


Figure 1: Standard Unit With 6-Hole Front Face Bolt Circle Mount & Servo Ring Mount

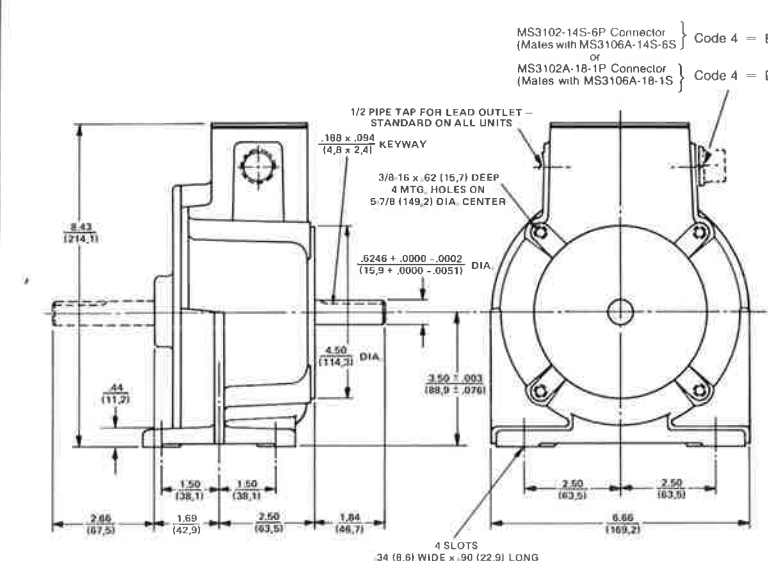


Figure 2: Heavy Duty Foot Mount (Compatible with NEMA 56 and 56C hardware.)