Model 960 Single Turn Thru-Bore Absolute, 8-11 Bits

Principle Engineering

Features

- Low Profile - 40mm
- Thru-Bore and Blind Bore Styles
- Sturdy all Metal Construction
- State-of-the-Art Opto-ASIC Circuitry

The single-turn Model 960 Absolute Series provides an unique solution to a wide variety of industrial applications requiring absolute position information. By providing a low profile package of just 40mm, a variety of thru-bore and blind-bore sizes, and an easy to use flexible mounting system, the Model 960 goes where traditional absolute encoders do not fit. In addition, its innovative Opto-ASIC circuitry, coupled with its digital output, make it an excellent choice in those applications plagued by an unusually high level of electrical noise.The Model 960 can easily be mounted directly on a motor shaft, bringing the advantage of absolute positioning in an all metal housing while eliminating the fixtures, couplers, and adapters required by other absolute encoder designs.

Common Applications

Machine Tools, Robotics, Telescopes, Antennas, Rotary & X-Y Positioning Tables, Medical Scanners

Model 960 Ordering Guide

Red type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.

Mechanical

960 — T01 — AF

SHAFT STYLE

T01 Thru 0.250"
T02 Thru 0.375"
T04 Thru 6mm
T08 Thru 8mm
T05 Thru 10mm

B01 Blind 0.250"
B02 Blind 0.375"
B04 Blind 6mm
B08 Blind 8mm
B10 Blind 10mm

FIXING STYLE
AF Adjustable Radius Fixing
SF Standard Slotted Fixing

Electrical Specification

0256-G — PP

PPR/CODE

0256-G 8 Bit Graycode
0360-X 9 Bit XS 76 Graycode
0512-G 9 Bit Graycode

0720-X 10 Bit XS 76 Graycode
1024-G 10 Bit Graycode
2048-G 11 Bit Graycode

OUTPUT TYPE
PP Push-Pull
OC Open Collector

Optional Features

G2 — IP50

CONNECTOR TYPE

G2 Gland + 2 Metre Cable
G5 Gland + 5 Metre Cable

Note 1

SEALING
IP50
IP64

For specification assistance call Customer Service

Model 960 Resolution Table

Output Code	Counts Per Resolution			
Gray Code	0256	0512	1024	2048
Excess Gray	0360	0720		

NOTES:
1 For non-standard cable lengths, call the sales office

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Rev B

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Model 960 Specifications

Electrical

Input Voltage	4.75 to 24 VCC max
Regulation	100 mV peak-to-peak, max ripple at 0 to100 kHz
Input Current	100 mA max with no output load
Output Format	Absolute- Parallel Outputs
Output Type	Open Collector- 20 mA max per channel Push-Pull- 20 mA max per channel
Code	Gray Code, Excess Gray Code
Max Frequency	25.6 kHz (LSB)
Rise Time	Less than 1 microsecond
Resolution	up to 11 bit
Accuracy	±1/6 LSB

Control

Directional Control	Field selectable for increasing counts (CW or CCW). Standard configuration user selects the applicable MSB wire for direction of count. Direction control option allows user to select count direction by applying 0 VCC to the direction control input. See *Absolute Series Wiring Tables* below.

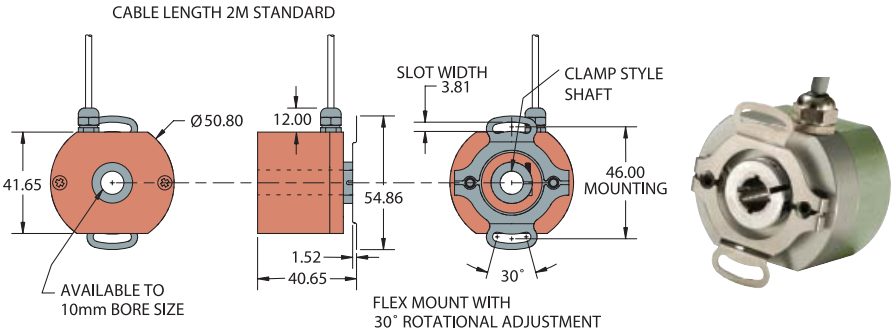
Mechanical

Max. Shaft Speed	6000 RPM continuous
Bore Size	0.250", 0.375", 6 mm, 8 mm,10 mm
Bore Tolerance	H7, Sliding fit for g6 host shaft
User Shaft Tolerances	
Radial Runout	0.2mm
Axial Endplay	±0.75mm
Starting Torque	3.53 x 10^{-3} Nm typical for IP50 7.65 x 10^{-3} Nm typical for IP64
Max Acceleration	1 x 10^{5} rad/sec^2
Electrical Conn	Gland with 2M cable (braid shield, 30 AWG conductors)
Housing	Aluminum with non-corrosive finish
Mounting	Slotted Flex Mount standard, Adjutable Radius Fixing Optional
Weight	200 gms typical

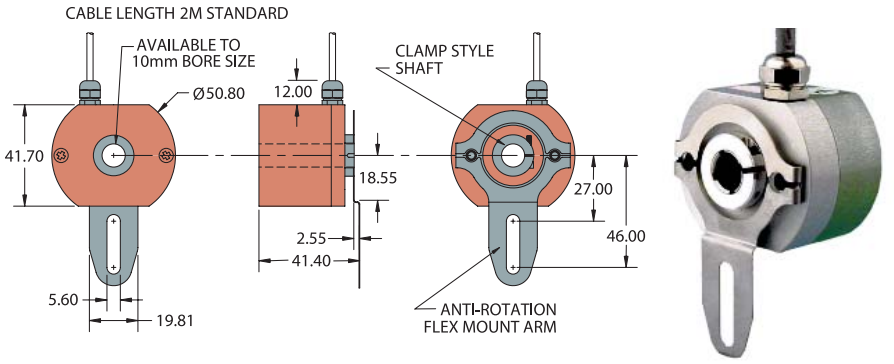
Environmental

Operating Temp	0º to 70º C
Storage Temp	-20º to +85º C
Humidity	98% RH non-condensing
Vibration	10 g @ 58 to 500 Hz
Shock	20 g @ 11 ms duration

Model 960 Slotted Flex Mount (SF)



Model 960 With Flex Arm (AF)



Wiring Table

Function	Gland Cable Wire Color
Common	Black
+VDC	Red
S1 cw MSB	Brown
S1 ccw MSB	Yellow
S2	White
S3	Green
S4	Orange
S5	Blue
S6	Violet
S7	Grey
S8 LSB 8-bit	Pink
S9 LSB 9-bit	Red/Green
S10 LSB 10-bit	Red/Yellow
S11 LSB 11-bit	Turquoise
Direction Control*	Red/Blue
Case Ground	Shield

NOTES:

* Standard is CW increasing count (when viewed from shaft end, and using brown wire for MSB). Direction Control is pulled up internally to 5 VDC. To reverse count direction, Direction Control must be pulled low (0 VDC). If 5 VDC is applied to Direction Control, unit remains in standard CW increasing count mode. Count direction can also be reversed by using the Yellow MSB wire instead of the Brown. 0V only, should be applied to Direction Control Conductor.

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