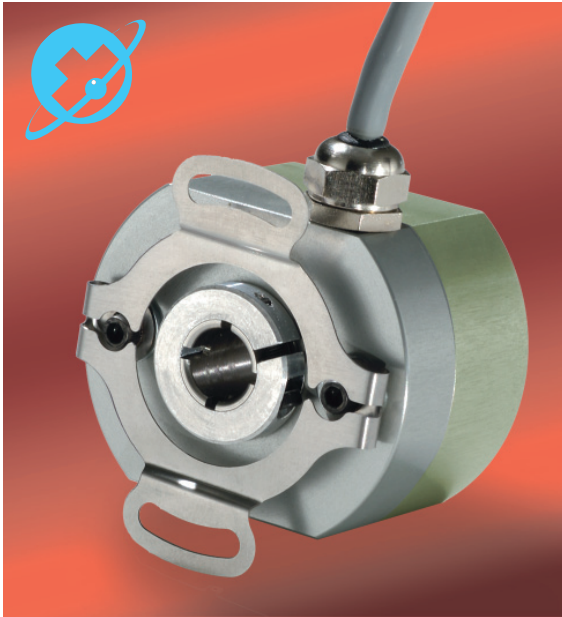


# Model 960 Single Turn Thru-Bore Absolute, 8-11 Bits



## Features

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

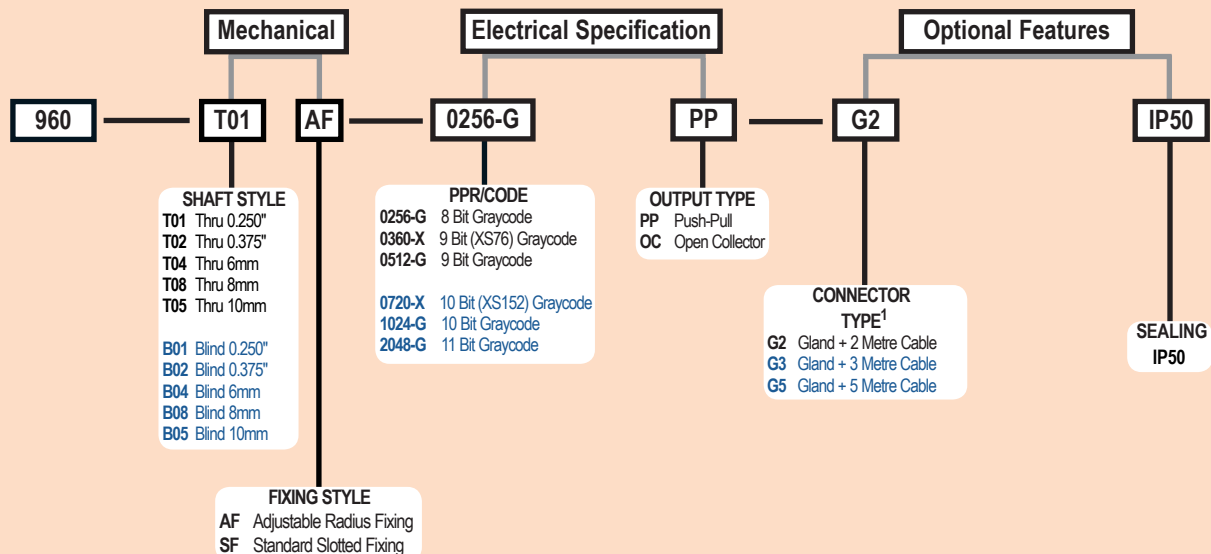
The single-turn Model 960 Absolute Series provides an unique solution to a wide variety of industrial applications requiring absolute position information. By providing a low profile package of just 40mm, a variety of thru-bore and blind-bore sizes, and an easy to use flexible mounting system, the Model 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

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



For specification assistance call Customer Service at +44 (0)1978 262100

### Model 960 PPR Options

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

### NOTES:

- 1 For non-standard cable lengths - contact the sales office for availability

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



## Model 960 Specifications

### Electrical

Input Voltage.....4.75 to 24 VDC max  
 Regulation.....100 mV peak-to-peak, max ripple at 0 to 100 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 0V to the direction control input. See *Absolute Series Wiring Tables* below.

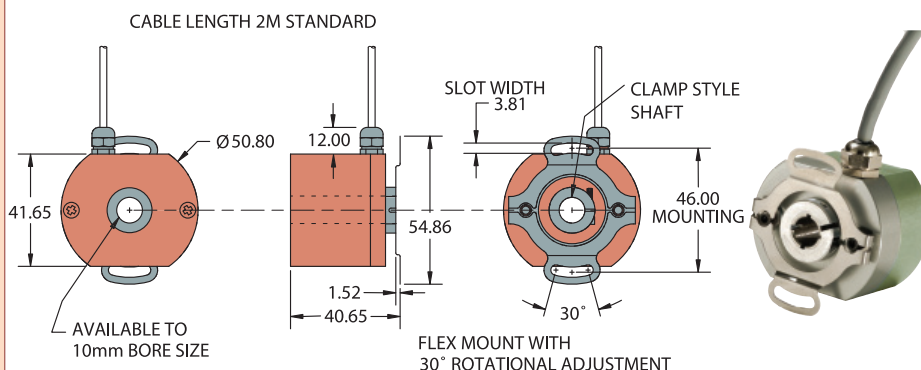
### Mechanical

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<sup>-3</sup> Nm typical for IP50  
 Electrical Conn.....Gland with 2M cable (braid shield, 30 AWG conductors)  
 Housing.....Aluminium with non-corrosive finish  
 Mounting.....Slotted Flex Mount standard, Adjustable  
 Radius Fixing Optional  
 Weight.....200 grams typical

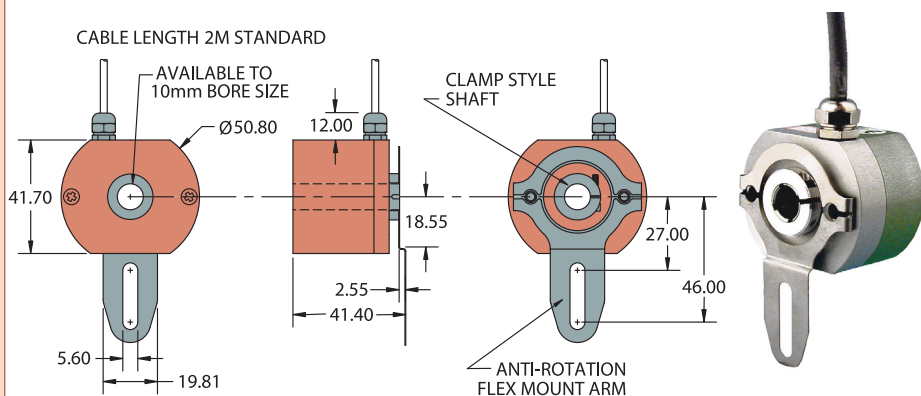
### Environmental

Operating Temp.....0° to 70° C  
 Storage Temp.....-20° to +85° 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 Adjustable Flex Mount (AF)



### Wiring Table

Function	Gland Cable	NOTES:
	Wire Color	
Common	Black	* 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.
+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	0V only should be applied to the direction pin.
S10 LSB 10-bit	Red/Yellow	
S11 LSB 11-bit	Turquoise	
Direction Control*	Red/Blue	
Case Ground	Shield	

Absolute Encoders