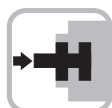


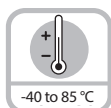
Incremental Type RI-65 (Shaft) / RI-96 (Hollow Shaft), Stainless Steel



Bearing-Lock



High rotational speed



Temperature



High IP



High shaft load capacity



Shock/vibration resistant



Magnetic field proof



Short-circuit protected



Reverse polarity protection

Versatile

- **Reliable mounting in a wide variety of installation situations:** Comprehensive and proven mounting options.
- **Standard encoder for use worldwide:** compatible with II US and European standards, supply voltage 5-30 VDC, various interface options, max. 5000 ppr.



Compact

- **Can be used even where space is tight:** outer diameter 50 mm, installation depth max. 47 mm.

Rugged

- Stays sealed even when subjected to harsh everyday use:
 - IP67 Protection
 - Rugged stainless-steel housing
 - Viton seals
 - High security against failures in the field, ideal for use in outdoor applications
- **Can be used in a wide temperature range:** -40 to +185 °F (-40 to +85 °C)
- **Increased ability to withstand vibration and installation errors:** Eliminates machine downtime and repairs. Sturdy double bearing lock design.

Mechanical Characteristics:

Speed ¹⁾ :	max. 6,000 RPM
Rotor moment of inertia:	approx. 0.098 oz-in ² (1.8 x 10 ⁻⁶ kgm ²)
Starting torque:	< 7 oz-in (< 0.05 Nm)
Weight:	approx. 0.9 lbs (0.4 kg)
Radial load capacity of the shaft:	18 lbs (80 N)
Axial load capacity of the shaft:	9 lbs (40 N)
Protection acc. to EN 60 529 with shaft sealing:	IP66/IP67

¹⁾ For continuous operation 3,000 RPM

Working temperature:	-40 to +185 °F (-40 to +85 °C)
Materials:	Housing, flange, Shaft: 1.4305 (303) stainless steel Connector: stainless steel Seals: viton
Shock resistance acc. to EN 60068-2-27:	250 g (2,500 m/s ²), 6 ms
Vibration resistance to EN 60068-2-6:	10 g (100 m/s ²), 10-2,000 Hz

Electrical Characteristics:

Output circuit [Key Code]:	RS 422 [4A] (TTL compatible)	Push-Pull [2B]	Push-Pull [2F] (7272 compatible)
Supply voltage:	5 V ±5%	10-30 VDC	5-30 VDC
Power consumption (no load):	typ. 40 mA max. 90 mA	typ. 50 mA max. 100 mA	typ. 50 mA max. 100 mA
Permissible load/channel:	max. ±20 mA	max. ±20 mA	max. ±20 mA
Pulse frequency:	max. 300 kHz	max. 300 kHz	max. 300 kHz ³⁾
Signal level high:	min. 2.5 V	min. +V -1.0 V	min. +V -2.0 V
Signal level low:	max. 0.5 V	max. 0.5 V	max. 0.5 V
Rise time t _r :	max. 200 ns	max. 1 µs	max. 1 µs
Fall time t _f :	max. 200 ns	max. 1 µs	max. 1 µs
Short-circuit protected ¹⁾ :	yes ²⁾	yes	yes ^{2) 4)}
Reverse polarity protection:	no	yes	no
UL approval	file E356899		
RoHS compliant acc. to EU guideline 2011/65/EU			

¹⁾ If supply voltage correctly applied

²⁾ Only one channel allowed to be shorted-out:
(If +V=5 V, short-circuit to channel, 0 V, or +V is permitted.) (If +V=5-30 V, short-circuit to channel or 0 V is permitted.)

³⁾ Max. recommended cable length 30 m

⁴⁾ Approximately one minute

Rotary Position Technology

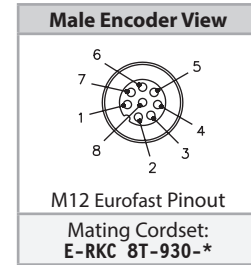
Incremental Encoders

Incremental Type RI-65 (Shaft) / RI-96 (Hollow Shaft), Stainless Steel

Standard Wiring:

Connection Type	Case Ground	Common (0 V)	+V	A	$\bar{A}$	B	$\bar{B}$	Z	$\bar{Z}$
M12 Eurofast	Coupling Nut	1	2	3	4	5	6	7	8
Cable	Shield/Drain	WH	BN	GN	YE	GY	PK	BU	RD

Wiring Diagram:



* Length in meters.

Part Number Key: RI-65 Shaft Version

A	B	C		D	E		F
RI-65S	6	C	-	2B	360	-	H1181

A	Type
RI-65S	Ø 2" Shaft, IP67 Shaft Seal

B	Shaft (Ø x L)
6	Ø 6 mm x 10 mm
10	Ø 10 mm x 20 mm
A1	Ø 3/8" x 7/8"

C	Flange
C	Ø 58 mm Clamping Flange
S	Ø 58 mm Servo Flange
R	2.5" Square Flange

D	Voltage Supply and Output Type
2B	10-30 VDC, Push-Pull (w/ Inverted Signal)
2F	5-30 VDC, Push-Pull (w/ Inverted Signal)
4A	5 VDC, RS 422 (w/ Inverted Signal)

E	Pulse Rate
	1, 5, 10, 12, 36, 100, 200, 250, 256, 360, 400, 500, 512, 600, 800, 1000, 1024, 1200, 2000, 2048, 2500, 3600, 4096, 5000 (e.g. 250 Pulses => 250) Other Pulse Rates Available on Request

F	Type of Connection
H1181	Radial 8-pin M12 Eurofast Connector

Part Number Key: RI-96 Hollow Shaft Version

A	B	C		D	E		F
RI-96H	A0	E	-	2B	360	-	H1181

A	Type
RI-96H	Ø 2" Hollow Shaft, IP67 Shaft Seal

B	Bore
10	Ø 10 mm
12	Ø 12 mm
15	Ø 15 mm
A0	Ø 1/4"
A1	Ø 3/8"
A3	Ø 1/2"

C	Flange
E	Ø 63 mm w/ Slotted Flex Mount
T	Flange w/ Torque Stop

D	Voltage Supply and Output Type
2B	10-30 VDC, Push-Pull (w/ Inverted Signal)
2F	5-30 VDC, Push-Pull (w/ Inverted Signal)
4A	5 VDC, RS 422 (w/ Inverted Signal)

E	Pulse Rate
	1, 5, 10, 12, 36, 100, 200, 250, 256, 360, 400, 500, 512, 600, 800, 1000, 1024, 1200, 2000, 2048, 2500, 3600, 4096, 5000 (e.g. 250 Pulses => 250) Other Pulse Rates Available on Request

F	Type of Connection
H1181	Radial 8-pin M12 Eurofast Connector

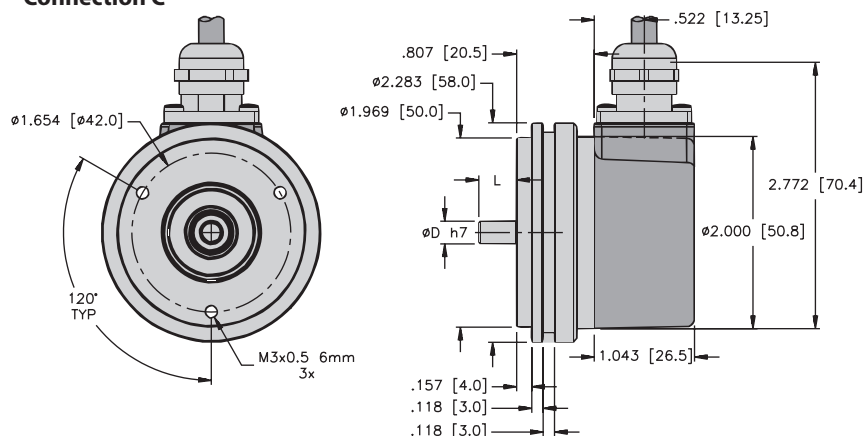
Accessories:

- See page H1, Connectivity, for cables and connectors
- See page G1, Accessories, for mounting attachments and couplings

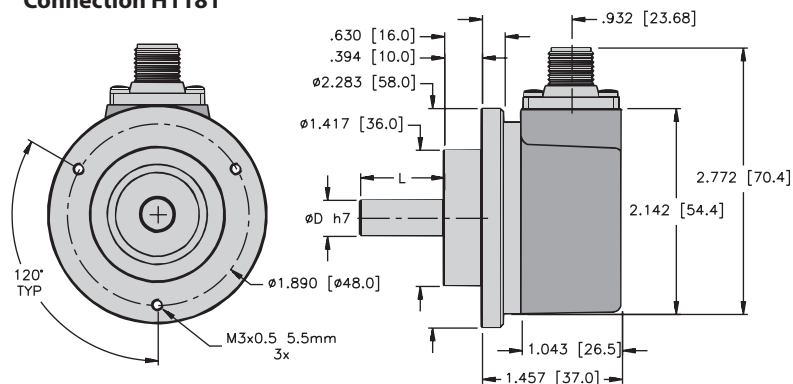
Incremental Type RI-65 (Shaft) / RI-96 (Hollow Shaft), Stainless Steel

Dimensions: RI-65 Shaft Version

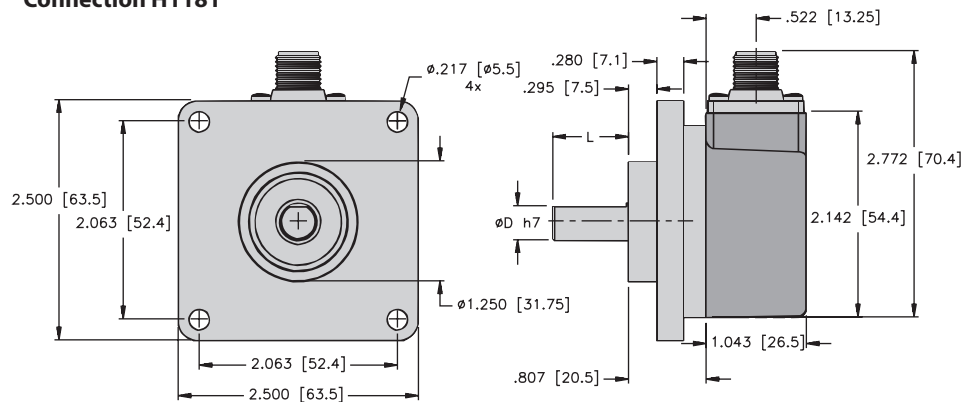
RI-65 Flange S Connection C



RI-65 Flange C Connection H1181



RI-65 Flange R Connection H1181



Mounting advice:

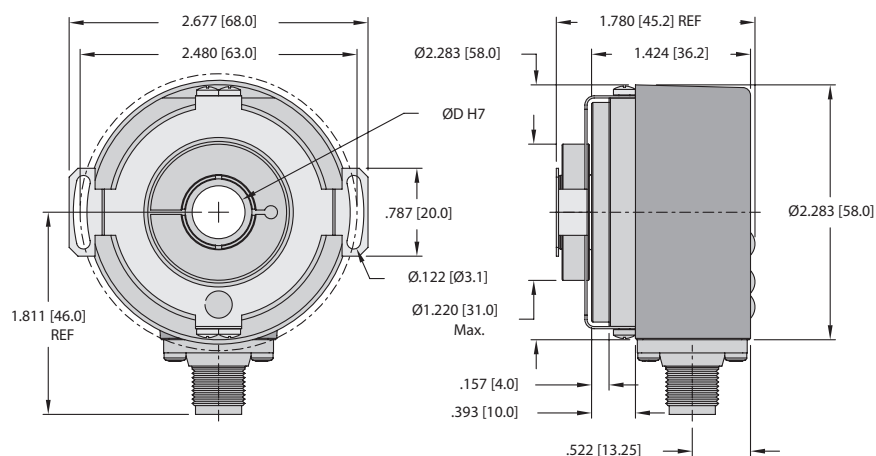
The flanges and shafts of the encoder and drive should not be rigidly coupled together at the same time. We recommend the use of suitable couplings (see page G1, Accessories).

Rotary Position Technology Incremental Encoders

Incremental Type RI-65 (Shaft) / RI-96 (Hollow Shaft), Stainless Steel

Dimensions: RI-96 Hollow Shaft Version

RI-96 Flange E Connection H1181



RI-96 Flange T Connection H1181

