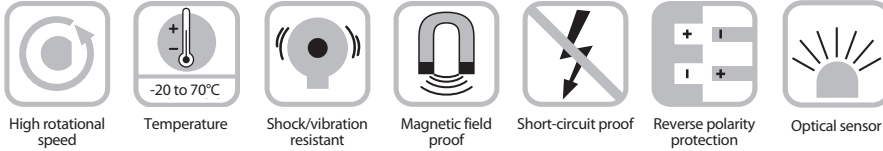


Rotary Position Technology Incremental Encoders



Economy encoder type 3700 (shaft) / 3720 (hollow shaft)



Rugged

- Temperature and aging compensation
- Short-circuit proof outputs
- Flange and cover made from a new High-Tech-Material (composite material)
- High component integration leads to low profile design, high performance and economical pricing
- "Tube Tech®" cable outlet guarantees 10x higher strain relief than traditional cabling methods and ensures IP67 protection



Compact

- Compact size only Ø 37 x 33 mm

Versatile

- Hollow shaft version: Fits directly onto drive shaft - no couplings needed - saves up to 30% on cost and 60% on installation space and time
- 1 1/2" (37 mm) diameter housing suitable for replacing resolvers

Mechanical characteristics:

Speed:	max. 6,000 RPM
Rotor moment of inertia:	Shaft version: approx. 2.2 x 10 ⁻² oz-in ² (0.4 x 10 ⁻⁶ kgm ²)
	Hollow shaft version: approx. 7.7 x 10 ⁻² oz-in ² (1.4 x 10 ⁻⁶ kgm ²)
	Shaft version: < 1.0 oz-in (< 0.007 Nm) Hollow shaft version: < 1.4 oz-in (< 0.01 Nm)
Starting torque:	
Radial load capacity of the shaft:	4.5 lbs (20 N)
Axial load capacity of the shaft:	2.25 lbs (10 N)
Weight:	approx. 0.22 lbs (0.1 kg)
Protection acc. to EN 60 529:	IP65 housing (IP67 on request)

EX approval for hazardous areas:	optional zone 2 and 22
Working temperature:	-4 to 158°F (-20 up to +70°C) ¹⁾
Materials:	Shaft/hollow shaft: stainless steel; housing, flange: composite PPA, 40% CF (carbon fiber); cable: PVC
Shock resistance acc. to EN 60068-2-27:	approx. 100 g (1,000 m/s ²), 6 ms
Vibration resistance acc. to EN 60068-2-6:	approx. 10 g (100 m/s ²), 10-2,000 Hz

¹⁾ For versions with push-pull output and supply voltage >15 VDC: max. 131°F (55°C)

Electrical characteristics:

Output circuit:	RS422 TTL compatible	Push-pull (7272) ³⁾	Push-pull (7272) ³⁾
Supply voltage:	5 V (±5%)	5-30 VDC	10-30 VDC
Power consumption (no load) with inverted signal:	typ. 40 mA / max. 90 mA	typ. 50 mA / max. 100 mA	typ. 50 mA / max. 50 mA
Permissible load/channel:	max. ±20 mA	max. ±20 mA	max. ±20 mA
Pulse frequency:	max. 250 kHz	max. 250 kHz	max. 250 kHz
Signal level high:	min. 2.5 V	min. +V - 2.0 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 proof outputs ¹⁾ :	yes ²⁾	yes	yes
Reverse connection protection at +V:	no	no	yes
UL certified:	File 224618		

Conforms to CE requirements acc. to EN 61000-6-2, EN 61000-6-4 and EN 61000-6-3

RoHS compliant acc. to EU guideline 2002/95/EG

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.)

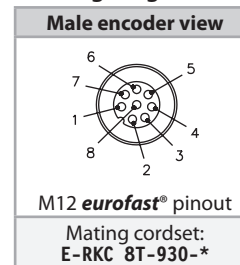
³⁾ Max. recommended cable length 30 m

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Standard wiring:

Output:	Case Ground	Common (0 V)	+V	A	\bar{A}	B	\bar{B}	Z	\bar{Z}
M12 <i>eurofast</i> [®]	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: 3700 shaft version

T8.3700.XXXX.XXXX

Type

Flange

1 = flange without adapter
A = flange adapter, mounted

Shaft (Ø x L) with flat

1 = Ø 4 mm x 12.5 mm
2 = Ø 5 mm x 12.5 mm
3 = Ø 6 mm x 12.5 mm
4 = Ø 1/4" x 12.5 mm
6 = Ø 8 mm x 12.5 mm

Voltage supply and output circuit

1 = 5 VDC, ±5 %, RS422
3 = 5-30 VDC, push pull with inverted signals,
4 = 10-30 VDC, push pull with inverted signals

Pulse rate

10, 16, 20, 25, 36, 40, 50, 60, 80, 100, 120, 125, 180,
200, 250, 300, 360, 400, 500, 512, 1000, 1024
(e.g. 250 pulses => 0250)
Other pulse rates available on request

Type of connection

1 = axial cable* (1 m PVC cable)
2 = radial cable* (1 m PVC cable)
3 = axial (2 m PVC cable)
4 = radial (2 m PVC cable)
5 = axial (3 m PVC cable)
6 = radial (3 m PVC cable)
7 = axial (5 m PVC cable)
8 = radial (5 m PVC cable)
I = axial cable with molded 8-pin, M12 *eurofast* connector
J = radial cable with molded 8-pin, M12 *eurofast* connector

* Tube Tech[®] cable outlet guarantees 10x higher strain relief than traditional cabling methods plus higher IP-Protection. Other cable lengths on request.

Part number key: 3720 hollow shaft version

T8.3720.XXXX.XXXX

Type

Flange

1 = hollow shaft with short torque stop
2 = hollow shaft with long torque stop
5 = hollow shaft with slotted flex mount

Hollow shaft

1 = Ø 4 mm
2 = Ø 5 mm
3 = Ø 6 mm
4 = Ø 1/4"
6 = Ø 8 mm

Pulse rate

10, 16, 20, 25, 36, 40, 50, 60, 80, 100, 120, 125, 180,
200, 250, 300, 360, 400, 500, 512, 1000, 1024
(e.g. 250 pulses => 0250)
Other pulse rates available on request

Type of connection

1 = radial cable* (1 m PVC cable)
2 = radial (2 m PVC cable)
3 = radial (3 m PVC cable)
4 = radial (5 m PVC cable)
9 = radial M12 *eurofast* pigtail

Voltage supply and output circuit

1 = 5 VDC, ±5 %, RS422
3 = 5-30 VDC, push pull (with inverted signals)
4 = 10-30 VDC, push pull (with inverted signals)

* Tube Tech[®] cable outlet guarantees 10x higher strain relief than traditional cabling methods plus higher IP-Protection. Other cable lengths on request.

Accessories:

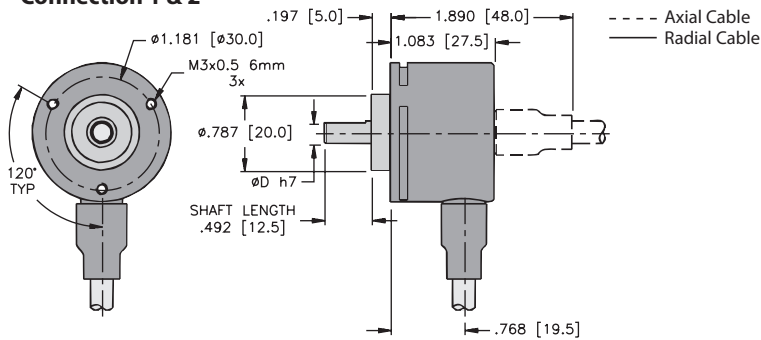
- See page J1, Connectivity, for cables and connectors
- See page G1, Accessories, for mounting attachments and couplings

Economy encoder type 3700 (shaft) / 3720 (hollow shaft)

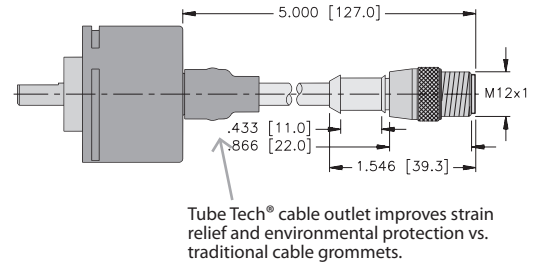
Dimensions: 3700 shaft version

3700 flange 1

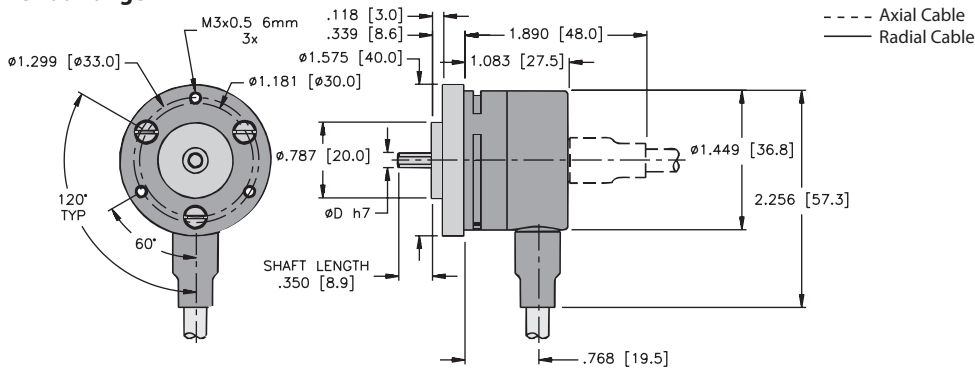
Connection 1 & 2



3700 optional molded M12 eurofast® Connection I



3700 flange A

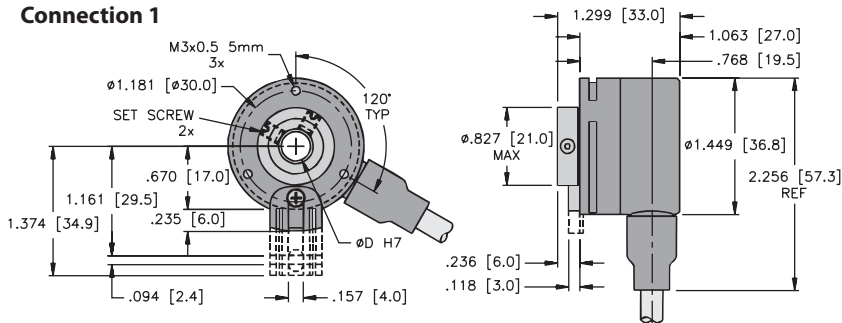


Mounting advice:

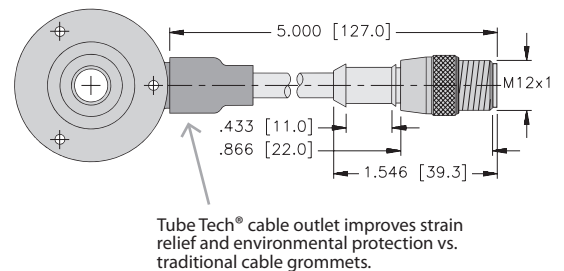
The flanges and shafts of the encoder and drive should not be rigidly coupled together at the same time. We recommend the use of suitable couplings (see page G1, Accessories).

Dimensions: 3720 hollow shaft version

3720 flange 1 & 2 Connection 1



Optional molded M12 eurofast® Connection 9



3720 flange 5 Connection 1

