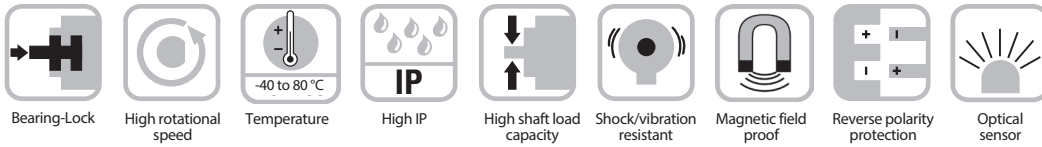


Absolute, Multiturn Type RM-105 (Shaft) / RM-106 (Blind Hollow Shaft)

EtherNet/IP



Reliable

- Increased ability to withstand vibration and installation errors. Sturdy Bearing-Lock design structure eliminates machine downtime and repairs.
- Wide temperature range of -40 to +176°F (-40 to +80°C).
- Fewer components and connection points increase the operational reliability: TURCK OptoASIC technology with highest integration density (Chip-on-board).



Absolute



EtherNet/IP™

Fast

- 5x faster position value transfer than the usual market encoder – RPI time of 1 ms
- Fast and easy commissioning, configuration possible through cyclic services
- M12 connector ensures fast, simple, error-free connection

Versatile

- Thanks to the implementation of DLR (Device Level Ring) a single cable break does not lead to a "machine down" state.
- 32 bits total resolution, shafts up to 10 mm, blind hollow shafts up to 15 mm and certified EtherNet/IP functionality.
- The optical absolute multiturn EtherNet/IP encoders were designed for time sensitive applications. Their distinctive features help not only with the machine's performance as well as uptime, but also contribute to time and cost savings.

Mechanical Characteristics:

Max. speed shaft version (IP65) up to 158 °F (70 °C):	8,000 RPM, continuous 6000 RPM
Max. speed shaft version (IP65) up to Tmax:	6,000 RPM, continuous 4000 RPM
Max. speed blind hollow shaft version (IP65) up to 158 °F (70 °C):	6,000 RPM, continuous 4000 RPM
Max. speed blind hollow shaft version (IP65) up to Tmax:	4,000 RPM, continuous 3,000 RPM
Starting torque at 68 °F (20 °C):	1.4 oz-in (< 0.01 Nm)
Moment of inertia:	Shaft version: 0.16 oz-in ² (3.0 x 10 ⁻⁶ kgm ²) Hollow shaft version: 0.32 oz-in ² (6.0 x 10 ⁻⁶ kgm ²)
Radial load capacity of shaft:	18 lbs (80 N)
Axial load capacity of shaft:	9 lbs (40 N)
Weight:	approx. 1.0 lbs (0.45 kg)
Protection acc. to EN 60 529:	IP65
Working temperature:	-40 to +176 °F (-40 to +80 °C)
Materials:	Shaft: stainless steel, Flange: aluminum, Housing: aluminum
Shock resistance acc. to EN 60068-2-27:	> 250 g (> 2,500 m/s ²), 6 ms
Vibration resistance acc. to EN 60068-2-26:	> 10 g (> 100 m/s ²), 55-2,000 Hz

General Information about EtherNet/IP

EtherNet/IP conformance tested acc. to version CT-12 of Dec. 11, 2014
EtherNet/IP specification Vol 2, Ed 1.17
CIP specification Vol 1, Ed 3.16.

Applications

Industrial Ethernet is increasingly imposing itself as the new communication standard in automation technology. The goal is to create a vertical integration – that is to say: only one core computer, from the control level up to the industrial production plants – that will be able to control any devices.

The Turck EtherNet/IP encoders demonstrate their abilities in the following application examples: automotive production, logistics, metal-working, textile, printing and packaging machines.

Rotary Position Technology

Absolute Encoders, Multiturn

Absolute, Multiturn Type RM-105 (Shaft) / RM-106 (Blind Hollow Shaft)

EtherNet/IP

General Electrical Characteristics:

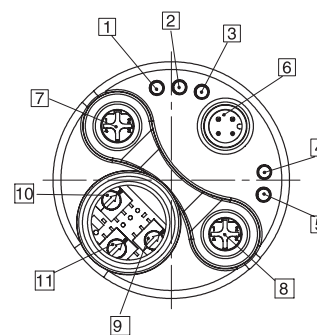
Supply voltage:	10-30 VDC
Current consumption (without output load):	Max. 250 mA
Reverse polarity protection at power supply (+V):	Yes
CE compliant acc. to:	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU

Device Characteristics:

Singleturn resolution Default value:	1-65536 (16 bit), (scalable: 1-65536) 65536 (16 bit)
Multiturn resolution:	Max. 65536(16 bit) scalable only via the total resolution
Total resolution:	scalable from 1 to 4,294,967,296 (32 bit)
Code:	Binary
Interface:	EtherNet/IP

Rear side connection and display elements

- 1 LED: Link 1
- 2 LED: Mod.
- 3 LED: Net.
- 4 LED: Encoder
- 5 LED: Link 2
- 6 Power
- 7 Port 1
- 8 Port 2
- 9 Switch: x1
- 10 Switch: x100
- 11 Switch: x10



The following functionalities are integrated:

Adjustable parameters

- Preset
- Count direction
- Resolution
- Unity of speed
- IP address
- Number of revolutions
- Position
- Diagnosis
- Position limit
- Warning messages

Objects (CIP Objects)

- Identity Object
- Message Router
- Assembly Object
- Connection Manager
- Parameter Object
- Position Sensor Object
- Qos Object
- Port Object
- TCP / IP Interface Object
- EtherNet Link Object

EtherNet/IP features

- DLR (Device Level Ring) possible
- Qos (Quality of Service) possible
- ACD (Address Conflict Detection)
- Multicast and unicast capability

Universal Scaling Function (USF)

This Encoder has the Turck Universal Scaling Function (USF) always activated. There is no position error at the end of the total measuring range, when using a decimal divider for position scaling.

Without the USF function, you can only use a binary scaling divider. Otherwise you get an position error at the end of the total measuring range (TMR).

Standard Wiring (Bus):

(M12 eurofast® Connector, D-Coded)

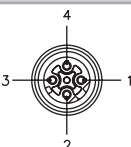
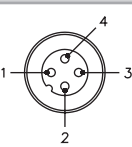
Direction:	Port 1				Port 2			
Signal:	Transmit data+	Receive data+	Transmit data-	Receive data-	Transmit data+	Receive data+	Transmit data-	Receive data-
Abbrev:	TxD+	RxD+	TxD-	RxD-	TxD+	RxD+	TxD-	RxD-
M12 eurofast®:	1	2	3	4	1	2	3	4

Standard Wiring (Power Supply):

M12 eurofast® Connector

Signal:	Power Supply	N/C	Common	N/C
Abbrev:	+V	-	0V	-
M12 eurofast®:	1	2	3	4

Wiring Diagrams:

Bus	Power Supply
Female Encoder View	Male Encoder View
	
M12 eurofast® Pinout	M12 eurofast® Pinout
Mating Cordset: RSSD 420-*	Mating Cordset: RK 4.4T-*

Absolute, Multiturn Type RM-105 (Shaft) / RM-106 (Blind Hollow Shaft)

EtherNet/IP

Part Number Key: RM-105 Shaft Version

A	B	C		D		E
RM-105T	6	C	-	9N32B	-	B3M12

A	Type
RM-105T	Ø 58 mm, Shaft, IP65 Shaft Seal

D	Voltage Supply and Output Type
9N32B	10-30 VDC, EtherNet/IP w/DLR

B	Shaft (Ø x L)
6	Ø 6 mm x 10 mm
10	Ø 10 mm x 20 mm
A0	Ø 1/4" x 7/8"
A1	Ø 3/8" x 7/8"

E	Type of Connection
B3M12	Axial 3 x M12 eurofast ® Connectors

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

Part Number Key: RM-106 Blind Hollow Shaft Version

A	B	C		D		E
RM-106C	10	T	-	9N32B	-	B3M12

A	Type
RM-106C	Ø 58 mm, Blind Hollow Shaft, IP65 Shaft Seal

D	Voltage Supply and Output Type
9N32B	10-30 VDC, EtherNet/IP w/DLR

B	Bore (30 mm Insertion Depth)
10	Ø 10 mm
12	Ø 12 mm
14	Ø 14 mm
15	Ø 15 mm
A1	Ø 3/8"
A3	Ø 1/2"

E	Type of Connection
B3M12	Axial 3 x M12 eurofast ® Connectors

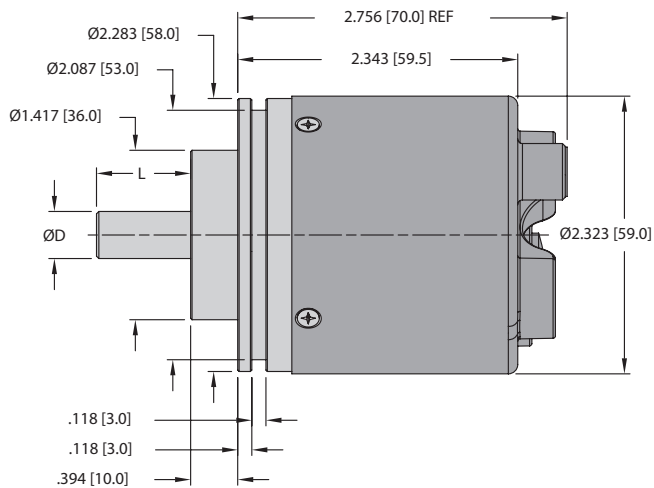
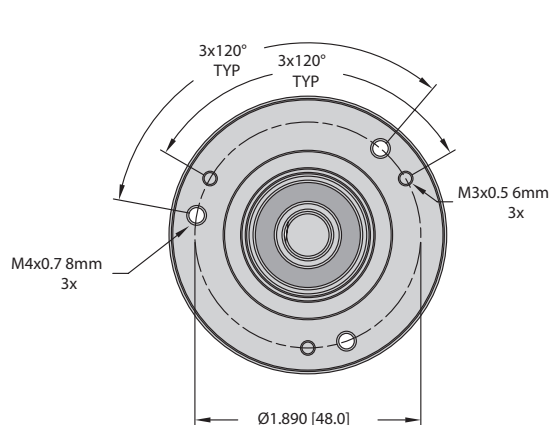
C	Flange
T	Ø 50 mm Flange w/ Torque Stop
E	Ø 63 mm Flange w/ Slotted Flex Mount
E1	Ø 65 mm Flange w/ Flex Mount

Accessories:

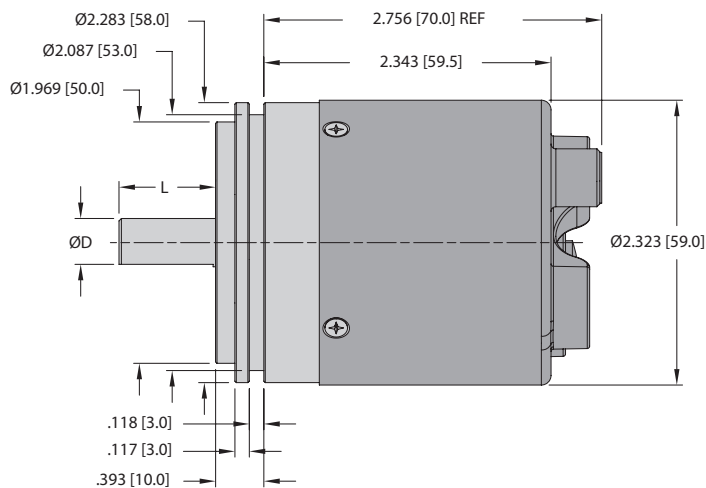
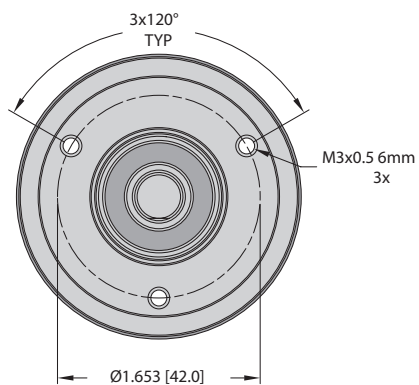
- See page H1, Connectivity, for cables and connectors
- See page G1, Accessories, for mounting attachments and couplings

Dimensions: RM-105 Shaft Version

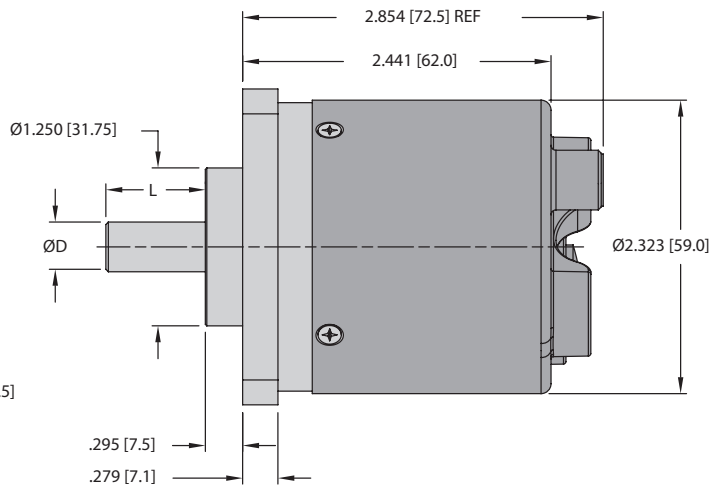
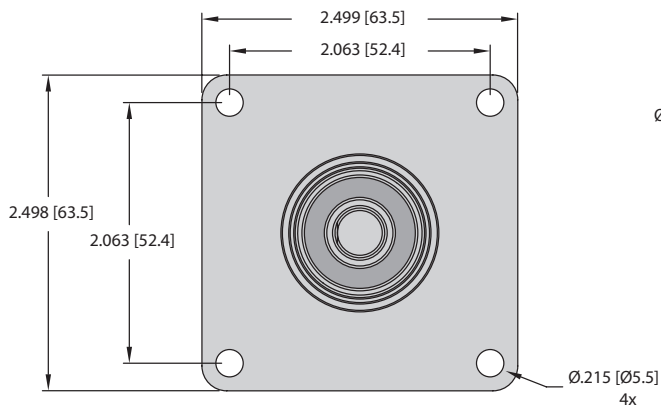
RM-105 Flange C Connection B3M12



RM-105 Flange S Connection B3M12



RM-105 Flange R Connection B3M12

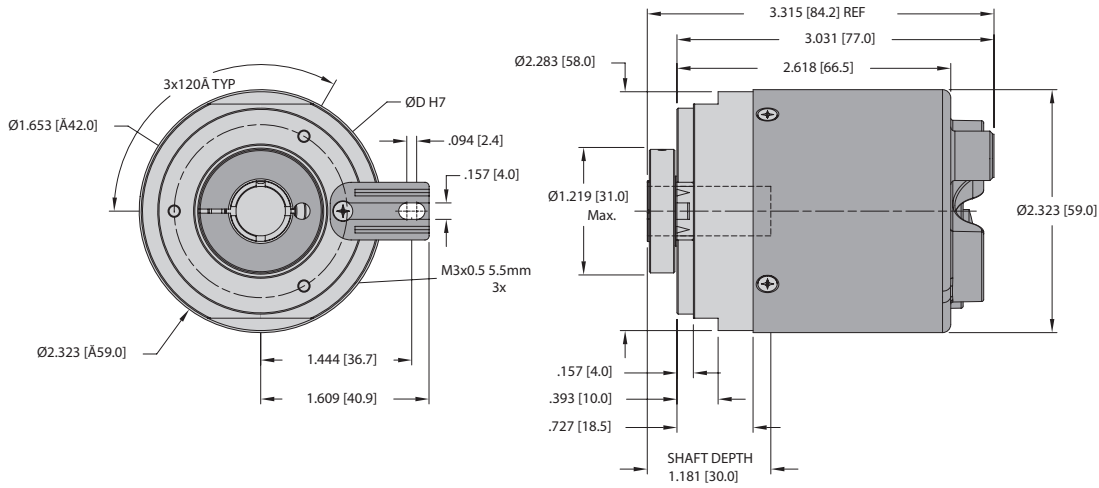


Absolute, Multiturn Type RM-105 (Shaft) / RM-106 (Blind Hollow Shaft)

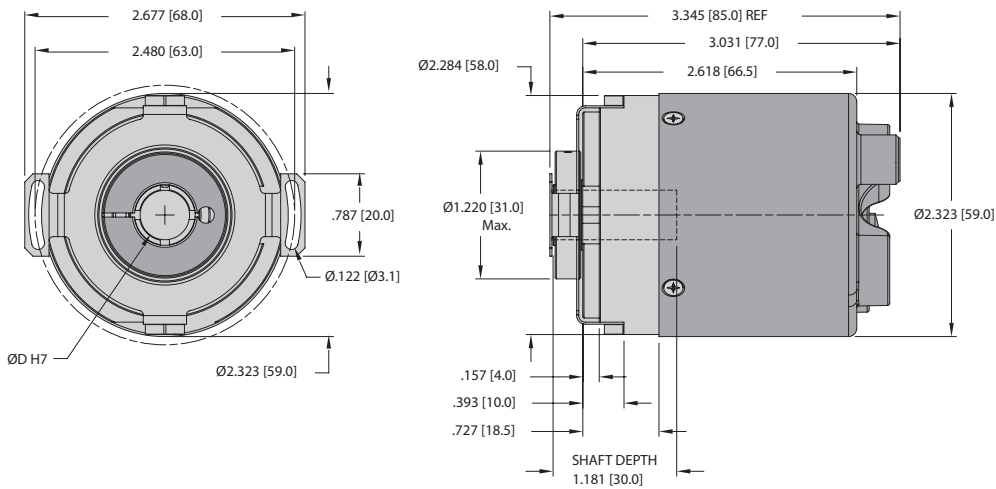
EtherNet/IP

Dimensions: RM-106 Blind Hollow Shaft Version

RM-106 Flange T
Connection B3M12



RM-106 Flange E
Connection B3M12



RM-106 Flange E1
Connection B3M12

