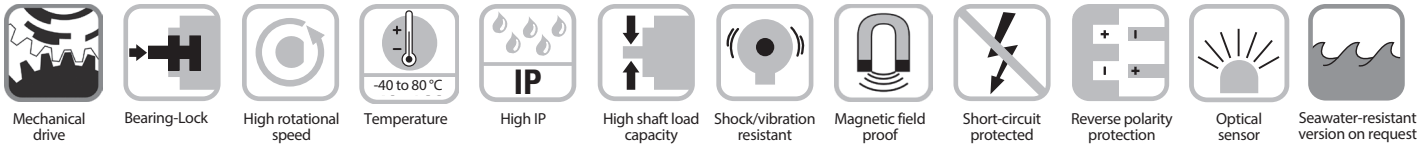
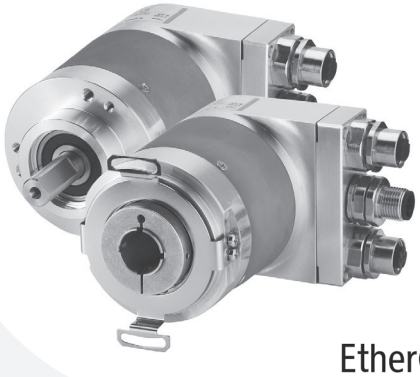
Absolute, Multiturn Type RM-29 (Shaft) / RM-36 (Blind Hollow Shaft) EtherCAT



Mechanical drive | Bearing-Lock | High rotational speed | Temperature | High IP | High shaft load capacity | Shock/vibration resistant | Magnetic field proof | Short-circuit protected | Reverse polarity protection | Optical sensor | Seawater-resistant version on request

Reliable

- **Increased ability to withstand vibration and installation errors.** Sturdy Bearing-Lock design structure **eliminates machine downtime and repairs.**
- **Fewer components and connection points increase the operational reliability:** Turck OptoASIC technology with highest integration density (Chip-on-Board).
- Die cast housing and protection up to IP67: **Remains sealed even when subjected to harsh everyday use.**
- Wide temperature range: -40 to +176 °F (-40 to +80 °C).



Absolute

EtherCAT

Fast

- **Real time-servo position detection of several axes:** Distributed clock for real-time position detection.
- **Fast data availability with reduced loading on the bus and controller:** Intelligent functions such as transmission of speed/velocity, acceleration or leaving a working area.
- **Fast, simple, error-free connection:** Bus terminal cover with 3 x M12 connectors.

Versatile

- Up-to-the minute fieldbus performance: CAN over Ethernet.
- **Real-time data: Position, speed or working area.** Variable PDO mapping in the memory.
- **Fast, error-free start-up, without setting any switches:** All parameters can be programmed via the bus.
- **Numerous special functions:** Temperature monitoring, operating time, customer data.

Mechanical Characteristics:

Max. speed without shaft sealing (IP65) up to 158 °F (70 °C): Max. speed without shaft sealing (IP65) up to Tmax: Max. speed with shaft sealing (IP67) up to 158 °F (70 °C): Max. speed with shaft sealing (IP67) up to Tmax:	9,000 RPM, continuous 7,000 RPM 7,000 RPM, continuous 4,000 RPM 8,000 RPM, continuous 6,000 RPM 6,000 RPM, continuous 3,000 RPM
Starting torque without shaft seal (IP65):	1.4 oz-in (< 0.01 Nm)
Starting torque with shaft seal (IP67):	Shaft version: 7 oz-in (< 0.05 Nm) Hollow shaft version: 4.25 oz-in (< 0.03 Nm)
Moment of inertia:	Shaft version: 0.16 oz-in^2 (3.0 x 10^{-6} kgm^2) Hollow shaft version: 0.41 oz-in^2 (7.5 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. 1.19 lbs (0.54 kg)
Protection acc. to EN 60 529:	Housing: IP67, Shaft: IP65, opt. IP67
Working temperature:	-40 to +176 °F (-40 to +80 °C)
Materials:	Shaft: stainless steel, Flange: aluminum, Housing: die cast zinc,
Shock resistance acc. to DIN-IEC 68-2-27:	> 250 g (> 2,500 m/s^2), 6 ms
Vibration resistance acc. to DIN-IEC 68-2-6:	> 10 g (> 100 m/s^2), 55-2,000 Hz

- Safe operation in strong magnetic fields
- Special gears with specific toothing

Absolute, Multiturn Type RM-29 (Shaft) / RM-36 (Blind Hollow Shaft) EtherCAT

General Electrical Characteristics:

Supply voltage:	10-30 VDC
Current consumption (without output load):	Max. 120 mA
Reverse polarity protection at power supply (+V):	Yes
RoHS compliant according to EU guideline 2011/65/EU	
UL approval:	file E356899

Device Characteristics:

Singleturn resolution Default value:	1-65535 (16 bit), (scalable: 1-65535) 8192 (13 bit)
Total resolution:	scalable from 1 to 268435456 (28 bit) 12 Bit Multiturn
Code:	Binary
Interface:	EtherNet/EtherCAT

Diagnostic LED (Red)

LED is ON with the following fault conditions:
Sensor error (internal code or LED error), low voltage, over-temperature

Run LED (Green)

LED is ON with the following conditions:
Preop-, Safeop and Op-State (EtherCat status machine)

2 x Link LED (Yellow)

LED is ON with the following conditions (Port A and B):
Link detected

Modes

Freerun, Distributed Clock (cycle time for Sync 0
pulse min. 125 µs or 62.5 µs with restrictions), Sync-Mode

General Information about CoE (CAN over EtherCAT)

The EtherCAT encoders support the CANopen communication profile according to DS 301. In addition, device-specific profiles like the encoder profile DS 406 are available.

Scaling, preset values, limit switch values and many other parameters may be programmed via the EtherCAT bus. When switching the device on, all parameters are loaded from an EEPROM, where they were saved to protect them against power failure.

Position, speed, acceleration, temperature and working area status output may be combined as PDO mapping).

CANopen Encoder Profile CoE (CAN over EtherCAT)

The following parameters are programmable:
- Units for speed selectable (Steps/Sec or RPM)
- Factor for speed calculation (e.g., circumference of measuring wheel)
- Integration time for the speed value from 1 to 32
- Two working area with 2 upper and lower limits and the corresponding output states
- PDO mapping of position, speed/velocity, acceleration and working area
- Extended error management for position sensing with integrated temperature control
- User interface with visual display of bus and fault status – 4 LEDs
- Alarm and warning messages

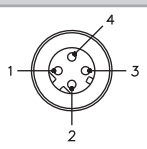
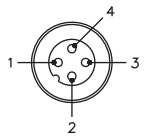
Standard Wiring (Bus): (M12 Eurofast Connector D-Coded)

Direction:	Port A				Port B			
Signal:	Transmit data+	Receive data+	Transmit data-	Receive data-	Transmit data+	Receive data+	Transmit data-	Receive data-
Abbrv:	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
Abbrv:	+V	-	0 V	-
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 441-***	Mating Cordset: **RK 4.4T-***

Absolute, Multiturn Type RM-29 (Shaft) / RM-36 (Blind Hollow Shaft) EtherCAT

Part Number Key: RM-29 Shaft Version

A	B	C		D		E
RM-29S	6	C	-	9C28B	-	R3M12

A	Type
RM-29S	Ø 58 mm, Shaft, IP67 Shaft Seal
RM-29T	Ø 58 mm, Shaft, IP65 Shaft Seal

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"

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
9C28B	10-30 VDC, EtherCAT

E	Type of Connection
R3M12	Radial 3 x M12 Eurofast Connectors w/ Bus Terminal Cover

Part Number Key: RM-36 Blind Hollow Shaft Version

A	B	C		D		E
RM-36B	10	T	-	9C28B	-	R3M12

A	Type
RM-36B	Ø 58 mm, Blind Hollow Shaft, IP67 Shaft Seal
RM-36C	Ø 58 mm, Blind Hollow Shaft, IP65 Shaft Seal

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"

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

D	Voltage Supply and Output Type
9C28B	10-30 VDC, EtherCAT

E	Type of Connection
R3M12	Radial 3 x M12 Eurofast Connectors w/ Bus Terminal Cover

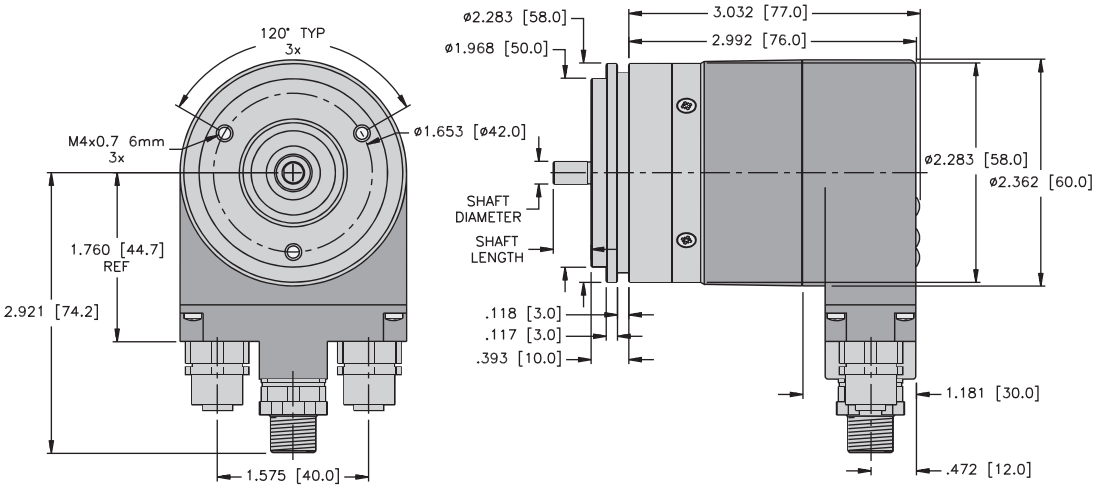
Accessories:

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

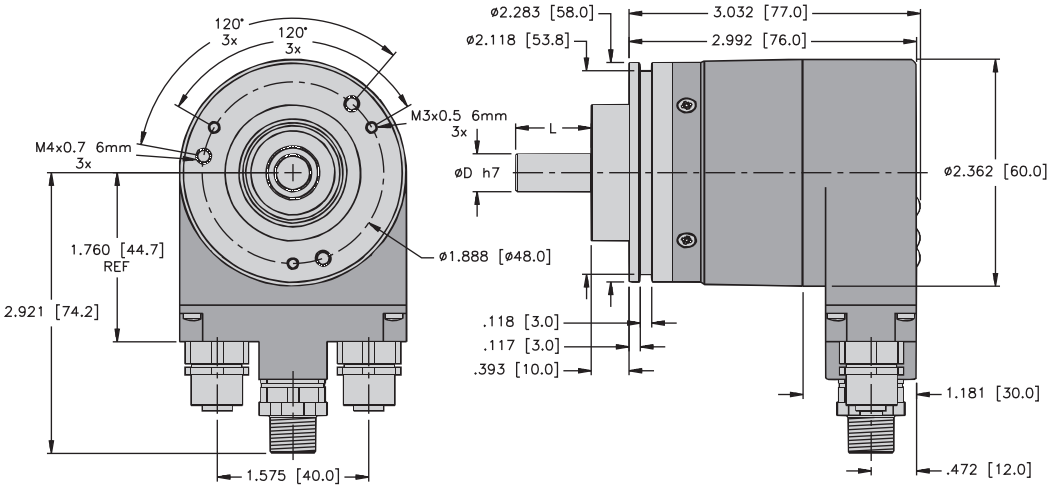
Absolute, Multiturn Type RM-29 (Shaft) / RM-36 (Blind Hollow Shaft) EtherCAT

Dimensions: RM-29 Shaft Version

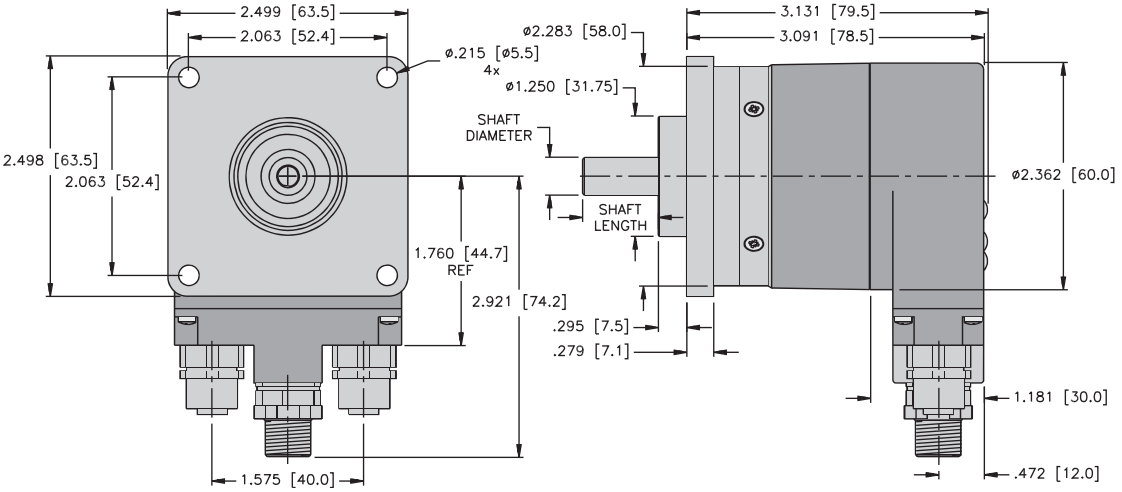
RM-29 Flange S
Connection R3M12



RM-29 Flange C
Connection R3M12



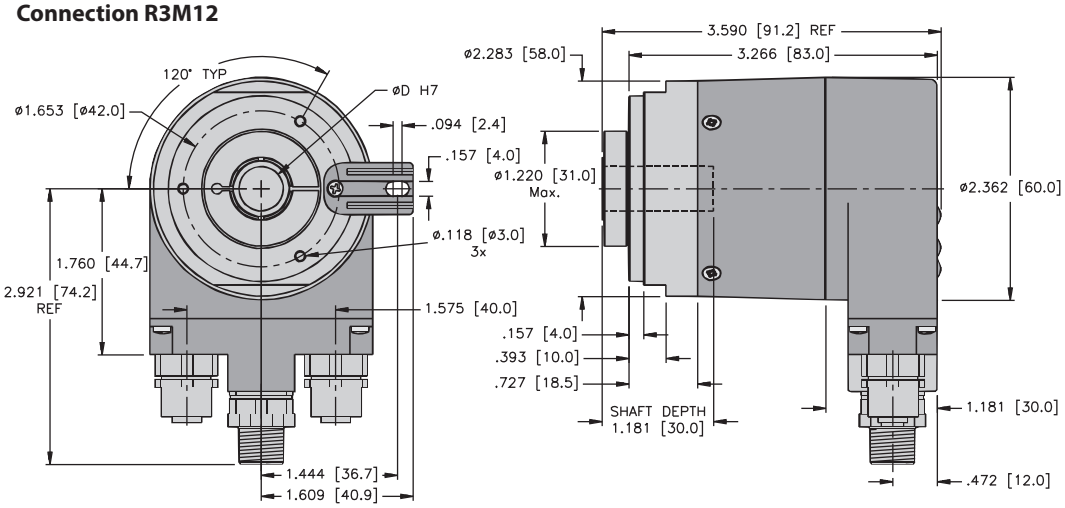
RM-29 Flange R
Connection R3M12



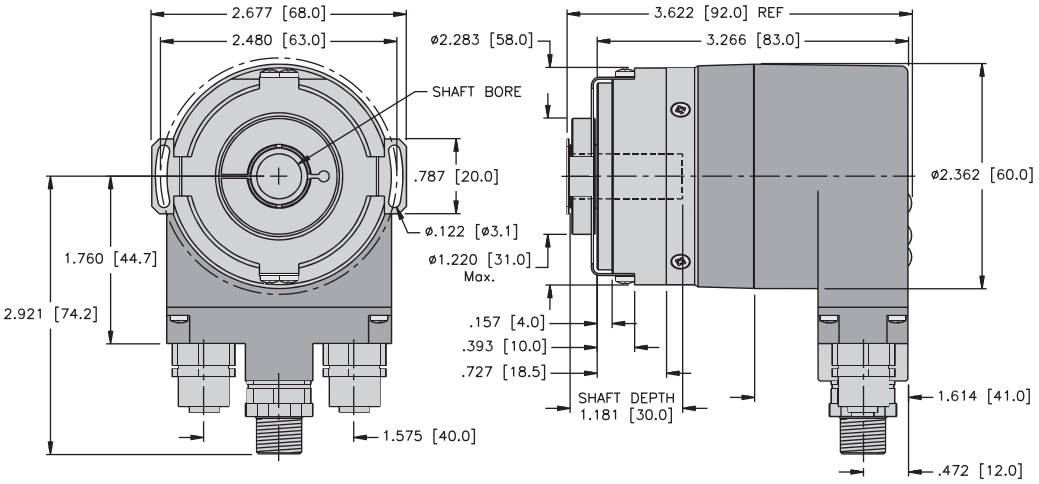
Absolute, Multiturn Type RM-29 (Shaft) / RM-36 (Blind Hollow Shaft) EtherCAT

Dimensions: RM-36 Blind Hollow Shaft Version

RM-36 Flange T
Connection R3M12



RM-36 Flange E
Connection R3M12



RM-36 Flange E1
Connection R3M12