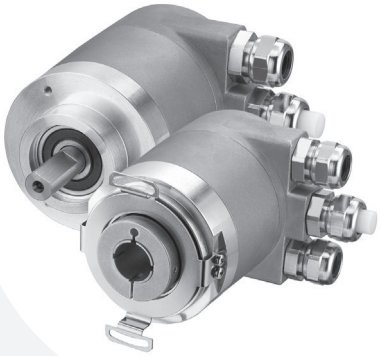
Absolute, Multiturn Type RM-29 (Shaft) / RM-36 (Blind Hollow Shaft) PROFIBUS-DP

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.
- **Immediate recognition of bus operation.**



Absolute

Fast

- **Fast data availability with reduced loading on the bus and controller:** Intelligent functions like the transmission of speed, acceleration or exiting a working area.
- **Fast, simple, error-free connection.**

Versatile

- **Up-to-the minute fieldbus performance:** PROFIBUS-DPV0 supports Class I and II.
- **Connection options:** Bus cover with M12 connector or cable connection.
- **Fast start-up** with pre-defined GSD file: A variety of scaling options, 16 bit singleturn resolution, 12 bit multiturn resolution.
- Comprehensive diagnostics, programmable to Class II.

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):	4.25 oz-in (< 0.03 Nm)
Moment of inertia:	Shaft version: 0.219 oz-in^2 (4.0×10^{-6} kgm^2) Hollow shaft version: 0.41 oz-in^2 (7.5×10^{-6} kgm^2)
Radial load capacity of shaft:	18 lbs (80 N)
Axial load capacity of shaft:	9 lbs (40 N)
Weight:	approx. 1.26 lbs (0.57 kg) with bus terminal cover approx. 1.15 lbs (0.52 kg) with fixed connection
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) PROFIBUS-DP

General Electrical Characteristics:

Supply voltage:	10-30 VDC
Current consumption (w/o output load):	Max. 120 mA
Reverse polarity protection:	Yes at power supply (+V)
RoHS compliant according to EU guideline 2011/65/EU	
UL approval:	file E356899

SET control button (zero or defined value, option):

Protected against accidental activation, can only be depressed with the tip of a ballpoint pen or similar.

Diagnostic LED (yellow):

LED on with: sensor error (PROFIBUS error)

Interface Characteristics PROFIBUS-DP:

Singleturn resolution	1-65536 (16 bits), default 8192 (13 bits)
Total resolution:	28 bit (scalable 1-2^{28} steps)
Number of Revolutions:	4096 (12 bits), (scalable 1-4096)
Code:	Binary
Interface:	Specification according to PROFIBUS-DP 2.0 Standard (DIN 19245 Part 3) RS485 driver galvanically isolated.
Protocol:	PROFIBUS Encoder Profile V1.1 Class 1 and Class 2 with manufacturer-specific enhancements
Baud rate:	Max. 12 Mbits/s
Node address:	1-127 (set by rotary switches)
Termination switchable:	Set by DIP switches

PROFIBUS Encoder-Profile V1.1

The PROFIBUS-DP device profile describes the functionality of the communication and the user-specific component within the PROFIBUS fieldbus system. The encoder profile is definitive. Here the individual objects are defined independent of the manufacturer. Furthermore, the profiles offer space for additional manufacturer-specific functions. This means that PROFIBUS compliant device systems can be used now with the guarantee that they are ready for the future as well.

The following parameters may be programmed:

- Direction of rotation
- Scaling
  Number of steps per revolution
  Number of revolutions
  Total resolution over Singleturn/Multiturn
- Preset value
- Diagnostics mode
- Position 16/32 Bit
- Speed UPM or Unit/s (16/32) Bit

The following functionality is integrated:

- Galvanic isolation of the bus stage with DC/DC converter
- Line driver according to RS485; max. 12 MB
- Address programmable via DIP switches
- Diagnostics LED
- Full Class I and Class II functionality

Standard Wiring Connection RC

Signal:	BUS IN				BUS OUT			
	B	A	Common (0 V)	+V	Common (0 V)	+V	B	A
Pin:	1	2	3	4	5	6	7	8

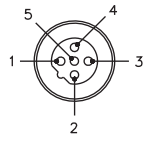
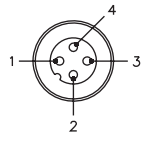
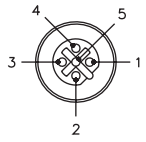
Connection R3M12

Bus In	**Signal:**	**-**	**BUS-A**	**-**	**BUS-B**	**Shield**
	Pin:	1	2	3	4	5

Power Supply	**Signal:**	**+V**	**-**	**Common (0 V)**	**-**
	Pin:	1	2	3	4

Bus Out	**Signal:**	**BUS-VDC** [1]	**BUS-A**	**BUS_GND** [1]	**BUS-B**	**Shield**
	Pin:	1	2	3	4	5

Wiring Diagrams:

Bus In	Power Supply	Bus Out
Male Encoder View	**Male Encoder View**	**Female Encoder View**
		
M12 Eurofast Pinout	M12 Eurofast Pinout	M12 Eurofast Pinout
Mating Cordset: [2] [3] **RKSW-590-*M**	Mating Cordset: [2] **RK 4.4T-***	Mating Cordset: [2] [3] **RSSW-590-*M**

[1] For powering an external PROFIBUS-DP terminating resistor.
[2] See Connectivity section H for corresponding cable color code.
[3] "S" denotes shield tied to coupling nut.
* Length in meters. Available in 0.1 meter increments ≥ 0.2 meters.

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

Part Number Key: RM-29 Shaft Version

A	B	C		D		E		F
RM-29S	6	C	-	9A28B	-	R3M12	/	N46

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
9A28B	10-30 VDC, PROFIBUS-DP V0 encoder Profile V1.1

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

F	Options
(BLANK)	No Options
N46	SET Button

Part Number Key: RM-36 Blind Hollow Shaft Version

A	B	C		D		E		F
RM-36B	10	T	-	9A28B	-	R3M12	/	N46

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
9A28B	10-30 VDC, PROFIBUS-DP V0 encoder Profile V1.1

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

F	Options
(BLANK)	No Options
N46	SET Button

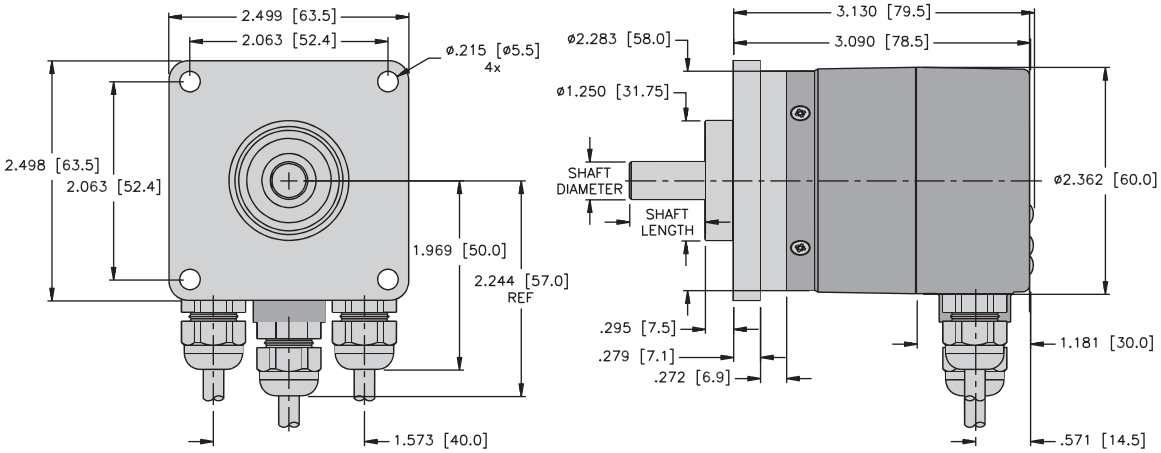
Accessories:

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

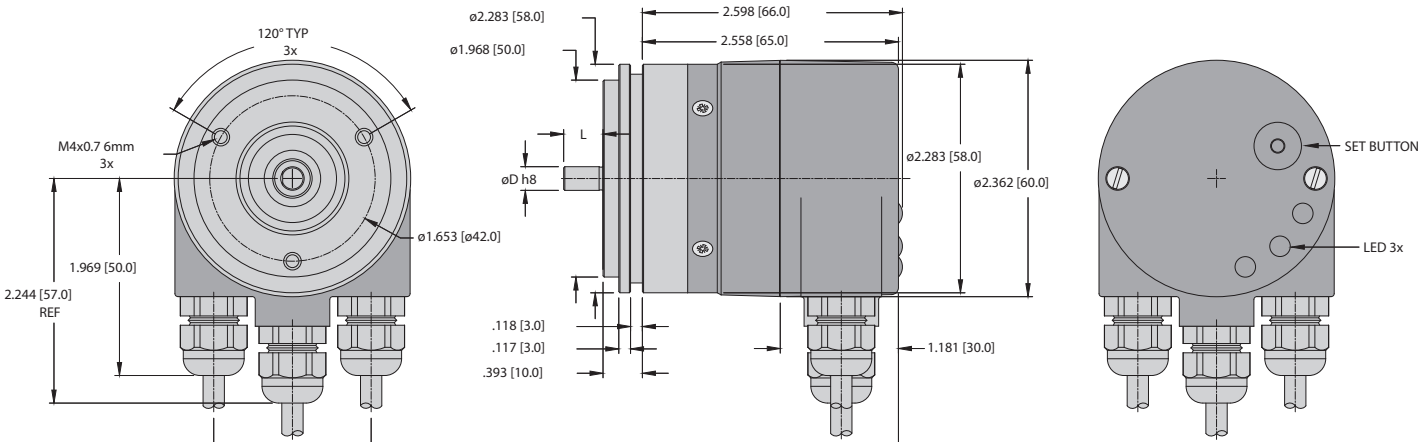
Absolute, Multiturn Type RM-29 (Shaft) / RM-36 (Blind Hollow Shaft) PROFIBUS-DP

Dimensions: RM-29 Shaft Version

RM-29 Flange R
Connection RC



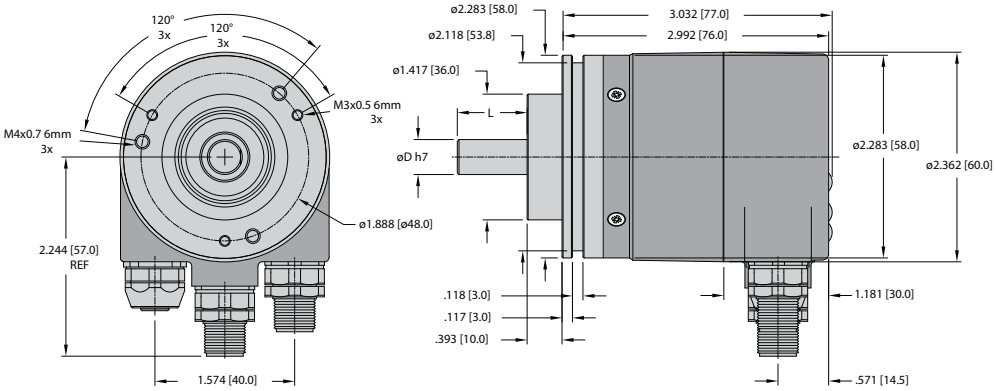
RM-29 Flange S
Connection RC



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

Dimensions: RM-29 Shaft Version

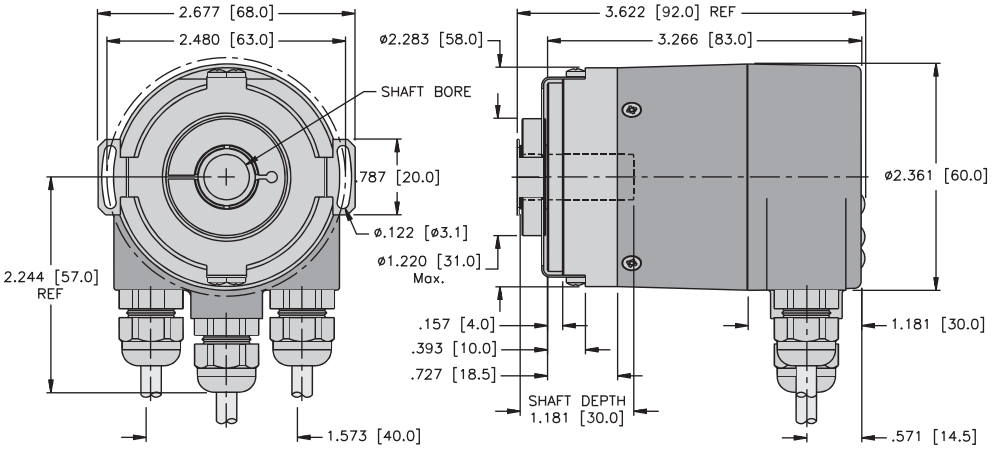
RM-29 Flange C
Connection R3M12



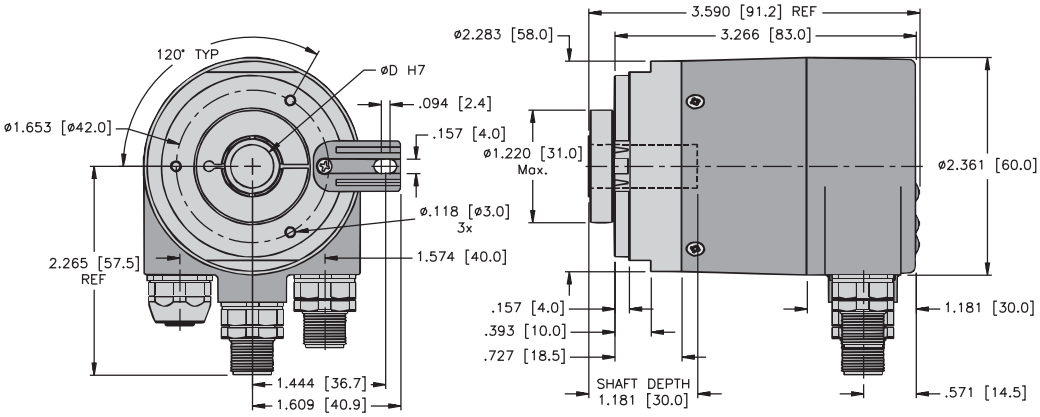
Absolute, Multiturn Type RM-29 (Shaft) / RM-36 (Blind Hollow Shaft) PROFIBUS-DP

Dimensions: RM-36 Blind Hollow Shaft Version

RM-36 Flange E
Connection RC



RM-36 Flange T
Connection R3M12



RM-36 Flange E1
Connection R3M12