# α MEM-Bus Profinet Encoder


MEM520-Bus


MEM540-Bus


MEM620-Bus

## Features

- High precision measurement
- Rapid data transfer
- System state diagnostic
- Early error detection
- Network topology configuration
- Parameter entering via TCP/IP
- Easy operation through user telegram 860

### Introduction

Ethernet-based communication underwent a huge development in recent years. PROFINET communication protocol, in particular, has become the leading standard in industrial field, thanks to its high performance in safety, accuracy and data transmission speed.

## Encoder profile

- Encoder Profile V4.1 version 3.162
- Application class 3 – 4
- RT real-time & IRT real-time isochronous transmission mode
- Parameter entering via TCP/IP
- Standard Telegram 81, 82, 83, 84 – User Telegram 860

## Settable parameters

- Steps/revolution
- Revolutions number
- Preset
- Rotation direction

## State indicators

4 signalling LEDs for:

- Link 1
- Link 2
- Error
- Ready

## Programming & operation

The encoder **MEM-BUS PROFINET** can be software run by means of **standard telegrams 81, 82, 83 and 84**, or by means of the **simplified telegram 860**.

- **Simplified telegram 860** : Perfectly similar to PROFIBUS telegrams, it provides the **position (32 bit)** and enables to manage the absolute **preset**.
- **Telegram 81** : It provides **the absolute position, the factorized preset position vale** or possible **error**; it allows to manage the **main commands**.
- **Telegram 82** : equivalent to telegram 81, il provides the **16-bit instant speed value, too.**
- **Telegram 83** : equivalent to telegram 82, il provides the **32-bit instant speed value**.
- **Telegram 84** : equivalent to telegram 83, it provides the **64-bit factorized absolute position**

**The speed measuring unit** (step/s, step/100ms, step/10ms, RPM), selected in the starting parameter entering phase, can be modified **run-time**.

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## Mechanical versions

| MEM620-Bus | MEM520-Bus | MEM540-Bus | MEM440-Bus | MEM450-Bus |
|---|---|---|---|---|
| Ø 58 mm body<br>63,5x63,5 mm square flange<br>Ø 31,75 mm centering mask<br>Shaft Ø 6, 8 or 10 mm | Ø 58 mm body<br>Ø 58 mm round flange<br>Servo coupling<br>Ø 50 mm centering mask<br>Shaft Ø 6, 8 or 10 mm<br><br>SYNCHRO FLANGE | Ø 58 mm body<br>Ø 58 mm round flange<br>Ø 36 mm centering mask- 3 holes<br>M4 a 120° on Ø 48 mm<br>Shaft Ø 6, 8 or 10 mm<br><br>CLAMPING FLANGE | Ø 58 mm body<br>Blind hollow shaft for motor fixing<br>Hollow shaft Ø 8, 10, 12, 14 or<br>15 mm<br>Antirotational fixing | Ø 58 mm body<br>Blind hollow shaft for motor fixing<br>Hollow shaft Ø 8, 10, 12, 14 or<br>15 mm<br>Fixing by elastic metal support |

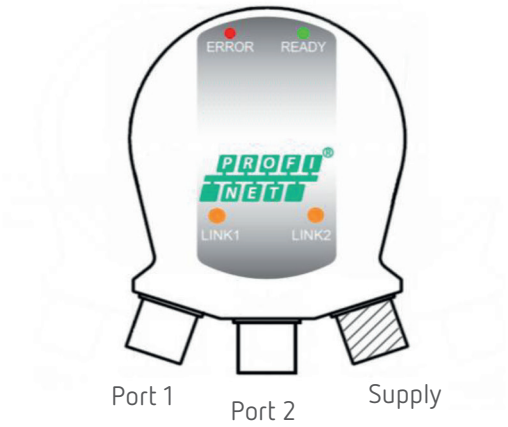
## Mechanical & environmental specifications

| MEM-Bus | 620/520/540 | 440/450 |
|---|---|---|
| Materials:<br>housing shaft | Aluminium<br>Stainless steel | |
| Weight | 500 g ca. | |
| Shaft Ø / Hollow shaft Ø | 6, 8 ,10 mm | 8, 10, 12, 14, 15 mm |
| Revolutions/minute | 6000 | |
| Starting torque | ≤ 0.8 Ncm | |
| Intertia | ≤ 25 g cm$^2$ | |
| Max load | 80 N axial/100 N radial | |
| Vibrations resistance<br>(10÷2000 Hz) | 100 m/sec$^2$ | |
| Shock (11 ms) | 50 G | |
| Protection degree | IP67 – IP65 shaft side | |
| Operating temperature | -30 ÷ 70°C | |
| Stocking temperature | -30 ÷ 85°C | |

## Electrical & operating specifications

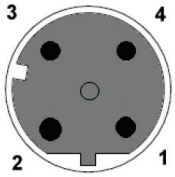
| | |
|---|---|
| Operating principle | Magnetic |
| Resolution/revoltution | 8192 steps/rev – 13 bit |
| Revolutions no. (multiturn) | 65536 - 16 bit |
| Initializing time | < 1 s |
| Data memory | > 20 years<br>No motion – power off |
| Interface | PROFINET |
| Supply | 10 ÷ 30 Vdc<br>Protection against polarity reversal |
| Power consumption | 2 W |
| Accuracy | ± ½ LSB |
| Connection | 2 M12 female connectors<br>+1 M12 male connector |
| Interference immunity | EN 61000-6-2 |
| Emitted interference | EN61000-6-4 |

## Connections



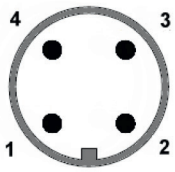

Profinet connector Port 1 and 2
M12 female type, D-code

| Pin | Signal |
|---|---|
| 1 | TX+ |
| 2 | RX+ |
| 3 | TX- |
| 4 | RX- |




Supply connector
M12 male type, A-code

| Pin | Signal |
|---|---|
| 1 | Supply voltage(10-30 Vdc) |
| 2 | N.C. |
| 3 | GND (0V) |
| 4 | N.C. |




Connection by 2 M12 D-coding female connectors + 1 M12 male (supply)

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## Ordering information

| MEM520B | PNT | M | 10 | A |
|---|---|---|---|---|

**TYPE**
**MEM520-B** = Round flange Ø 58 mm
**MEM540-B** = Round flange Ø 58 mm
**MEM620-B** = Square flange 63.5x63.5 mm
**MEM440-B** = Blind hollow shaft for motor coupling
**MEM450-B** = Blind hollow shaft, fixing by elastic support

**INTERFACE**
**PNT** = PROFINET

**No. of TURNS**
**M** = Multiturn

**SHAFT Ø / HOLLOW SHAFT Ø**
6 – 8 – 10- 12 – 14 – 15 **mm**

**CONNECTORS POSITION**
. = Radial outlet
A = Axial outlet

CERTIFICATE NO. Z10989

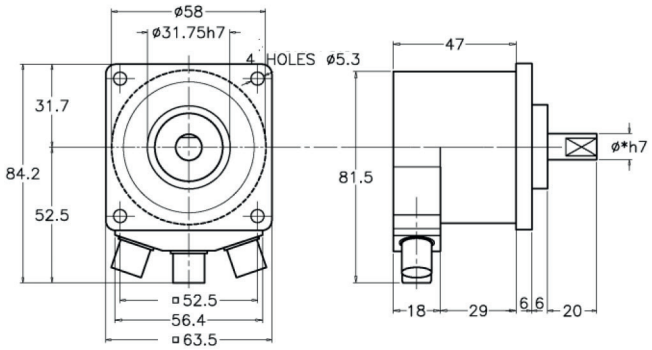
CERTIFICATE NO.E510647

## Dimensions

### MEM-BUS PROFINET – Radial Connectors

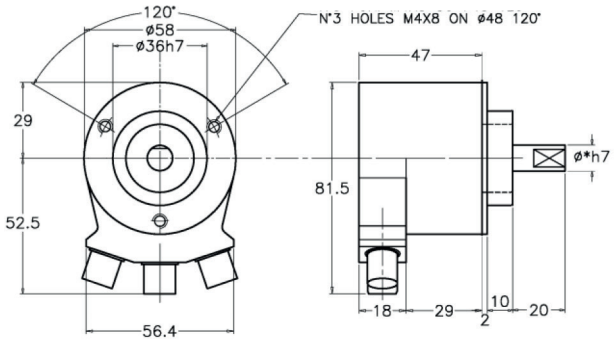
Ref. M1551B

MEM620Bus



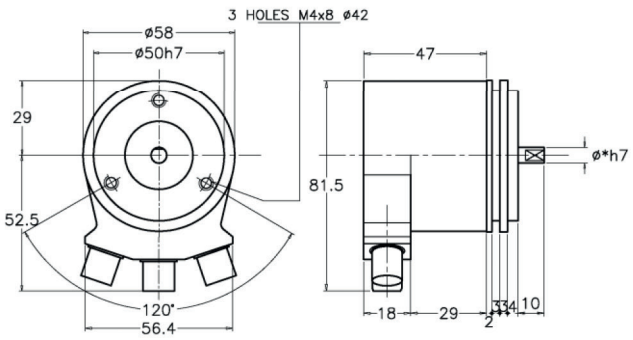

* AVAILABLE SHAFT DIAMETERS
8 – 10 length 20mm
6 length 10mm

MEM540Bus



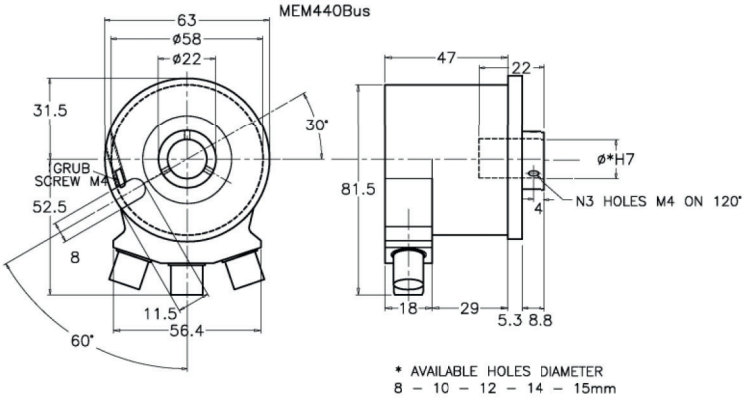

* AVAILABLE SHAFT DIAMETERS
8 – 10 length 20mm
6 length 10mm

MEM520Bus




* AVAILABLE SHAFT DIAMETERS
8 – 10 length 20mm
6 length 10mm

MEM440Bus




* AVAILABLE HOLES DIAMETER
8 – 10 – 12 – 14 – 15mm

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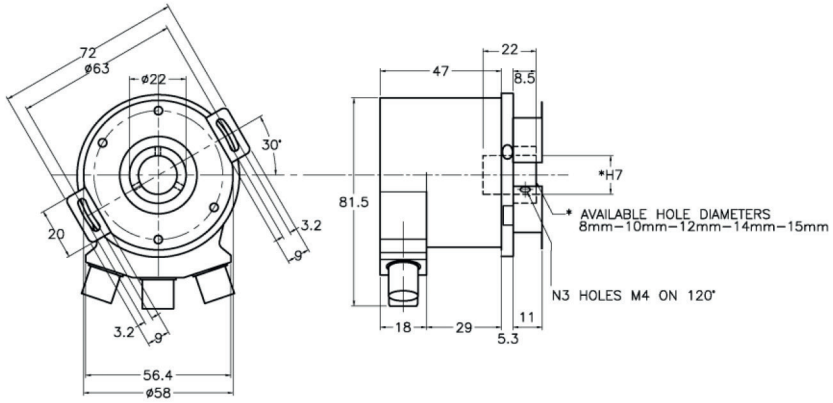
## Dimensions

Ref. M1553




MEM440-Bus

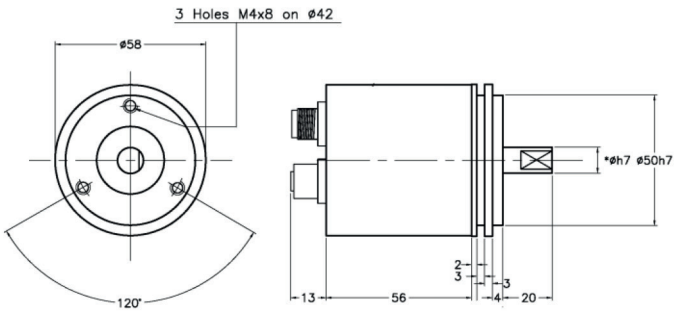
axial connectors

## MEM-BUS PROFINET – Axial Connectors

Ref. M2103

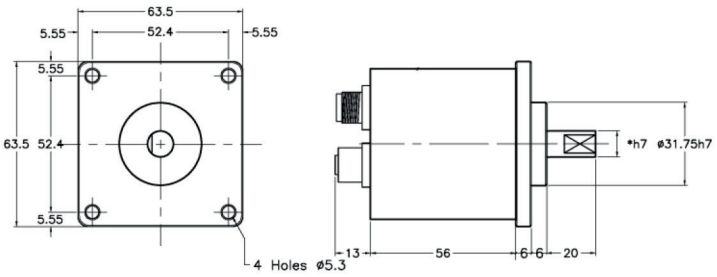
MEM450-Bus

MEM520B PNT/ETC M12 axial



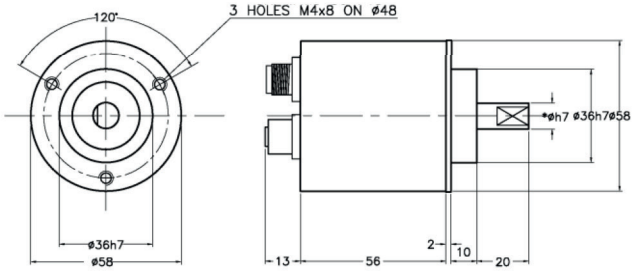

* AVAILABLE SHAFT DIAMETERS
8mm–10mm
shaft diameter 6mm lenght 10mm

MEM620B PNT/ETC M12 axial




* AVAILABLE SHAFT DIAMETERS
8mm–10mm
shaft diameter 6mm lenght 10mm

MEM540B PNT/ETC M12 axial




* AVAILABLE SHAFT DIAMETERS
8mm–10mm
shaft diameter 6mm lenght 10mm

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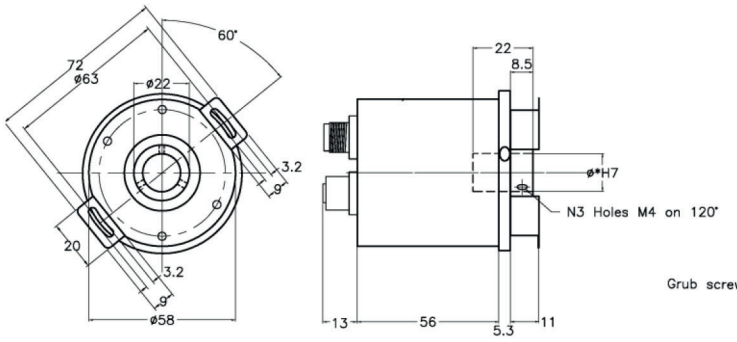
## Dimensions

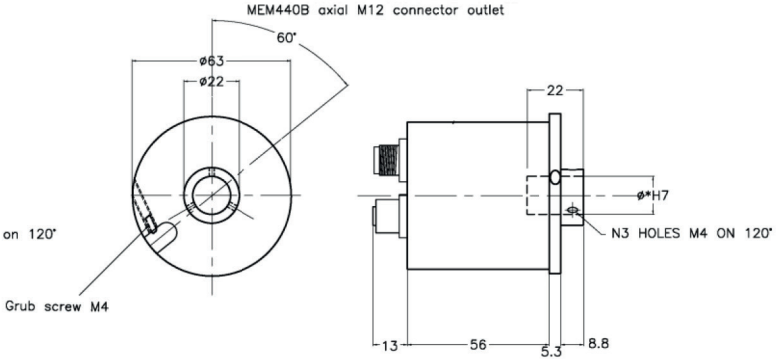
Ref. M2108

MEM450B axial M12 connector outlet




* AVAILABLE HOLE DIAMETERS
8mm–10mm–12mm–14mm–15mm

MEM440B axial M12 connector outlet




* AVAILABLE HOLE DIAMETERS
8mm–10mm–12mm–14mm–15mm