Datasheet

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Messtechnik eK

Programmable position indicator with
magnetic ring for rotative measurement

Features at a glance

Modbus   PROFINET®   EtherNet/IP   EtherCAT   ETHERNET POWERLINK

- Programmable electronic position indicator with through hollow shaft and fieldbus interface for accurate adjustment control of spindles.
- Evolution of mechanical indicators, with comparable dimensions and the same mounting system, for semi-automatic adjustment monitored by PLC on a vast range of machines and plants even in complex and heterogenous working conditions.
- LCD with two rows with backlight for target- and actual value.
- Suitable for semi-automatic and monitored adjustments of spindles.
- Freely programmable via keyboard operation with RS485 Modbus interface.
- RS485 Modbus for network connection with PLC or remote monitoring system.
- Allowing manual format changeover by the operator using a hand crank or hand wheel.
- User guidance via 2 signal LEDs (green/red) to indicate: position has been reached / not reached.
- Fieldbus connection via gateway interface: Profinet, Ethernet/IP, EtherCat and Powerlink.
- Battery lifetime: 6 to 8 years.
- Extensive accessories available: shaft clamping flange, reducing bushes, hand crank or hand wheel
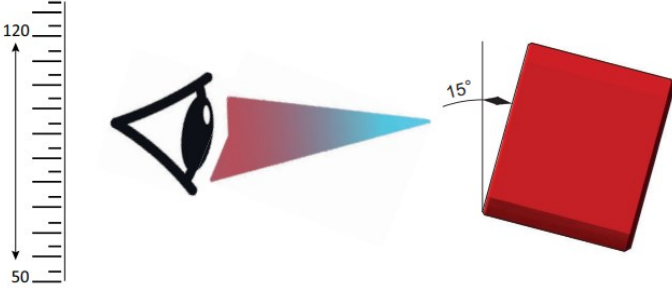
Mechanical characteristics

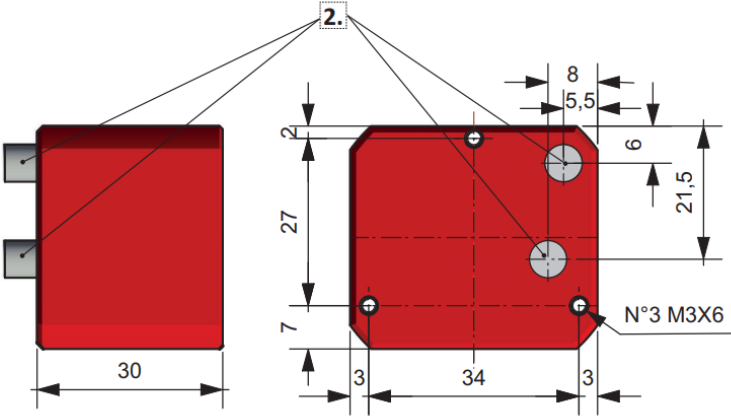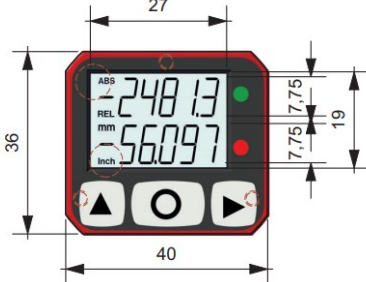|	
Weight	150 g (only display)
Display	LCD with backlight, digit height 7,5 mm
Display range	-99999; +99999
Speed	max. 1.000 rpm
Sensor cable	PUR-cable, Ø5,5 mm – pre-wired, not detachable, for mobile laying in cable chains; cable length: 0.5, 1, 3, 5 or 10 meters
Operating temperature	0°C to +50°C
Relative humidity	35 to 85% (no condensation)
Protection class	IP54 display, IP67 sensor
Connection type /serial connection	T-connector, 4-pole plug + 4-pole socket M12x1 (A-coded), standard Y-connector, 4-pole socket 2x M12x1 (A-coded), optional
Power supply /serial output	Cable length 135 mm (with T-connector) Cable length 200 mm (with Y-connector)

Electrical characteristics

Power supply	10-30 VDC, max. 100 mA
Battery	3,6 V ½ AA, lifetime 6-8 years
Available functions	Reset, absolute / incremental value, mm / Inch conversation, offset
Keyboard	Frontside operation - 3 program and function keys
Interface /serial port	RS485 – Modbus RTU
Electromagnetic compatibility (EMC)	2014/30/UE
RoHS	2011/65/UE

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F43-46RS EM43-46 DB 2022 05 16 EN

View / Mounting position

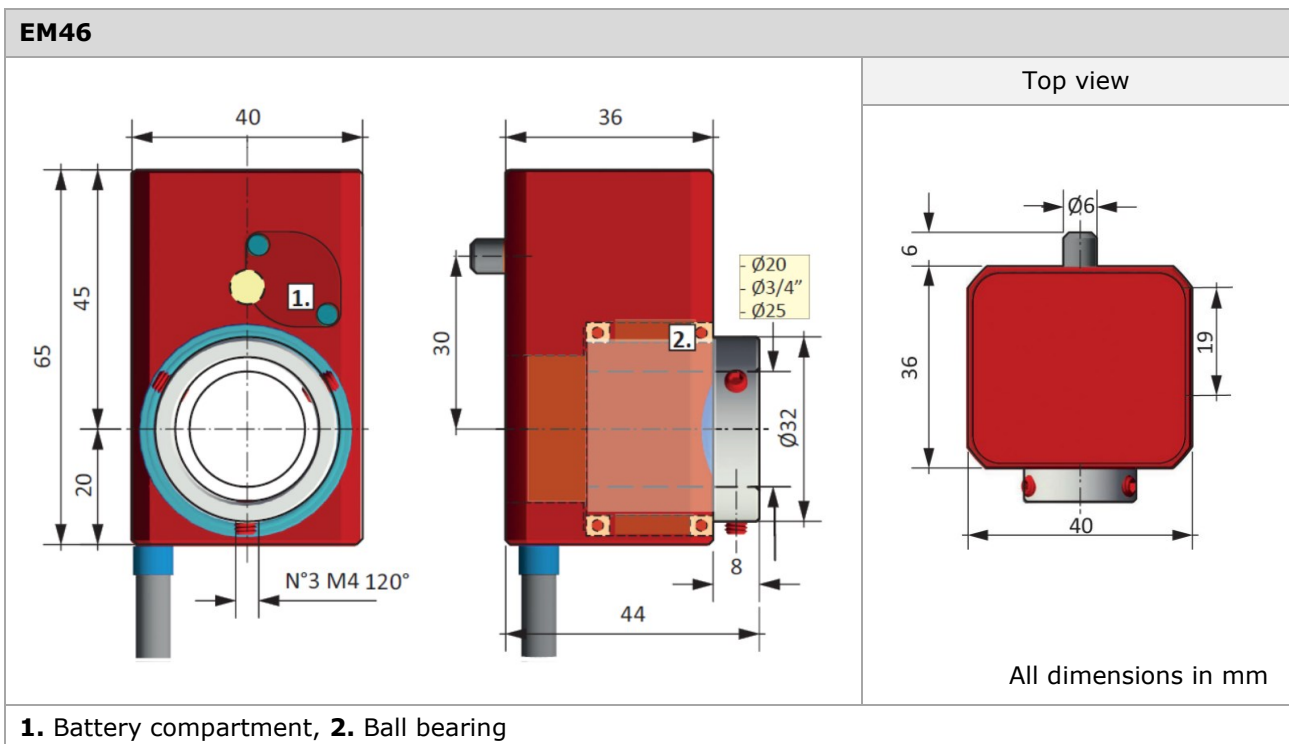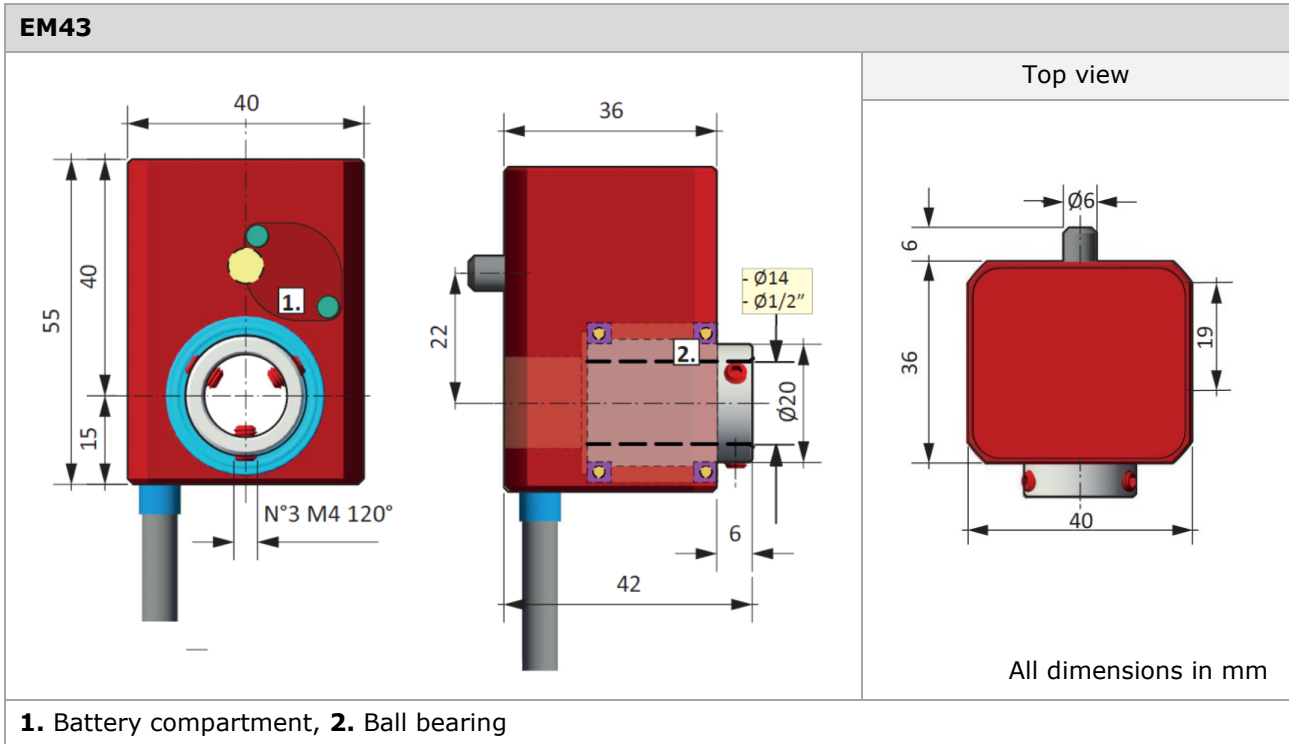| View A	Mounting position
	A For horizontal shaft. To be positioned at a heigh of 50 cm to 120 cm.

For optimal visibility, orient the device according to the viewing angle as shown.

Dimensions

F43-46RS

Top view

All dimensions in mm

1. Battery compartment, **2.** Power supply and communication cables

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Dimensions

EM43

40

55 40 15

N°3 M4 120°

36

22

- Ø14
- Ø1/2"

Ø20

6

42

Top view

Ø6

6

36

19

40

All dimensions in mm

1. Battery compartment, **2.** Ball bearing

EM46

40

65 45 20

N°3 M4 120°

36

30

- Ø20
- Ø3/4"
- Ø25

Ø32

8

44

Top view

Ø6

6

36

19

40

All dimensions in mm

1. Battery compartment, **2.** Ball bearing

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Dimensions Connector

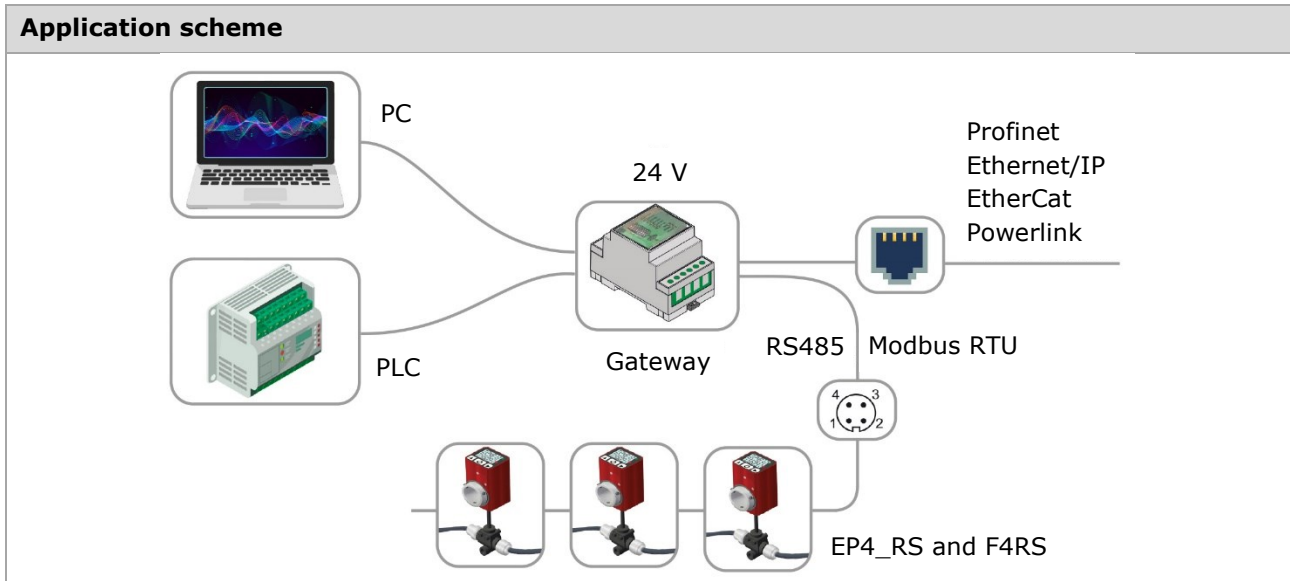| T-Connector M12T (standard)	Y-Connector M12Y (optional)

All dimensions in mm

Fieldbus connectivity

Protocol gateway for EP4_RS and F4RS

GATEWAY-EP4-F4
Protocol converter which connects the EP4_RS and F4RS position indicators to fieldbus networks.

PROFINET® · EtherNet/IP · EtherCAT · ETHERNET POWERLINK

Application scheme

PC

24 V

Profinet
Ethernet/IP
EtherCat
Powerlink

PLC

Gateway

RS485   Modbus RTU

EP4_RS and F4RS

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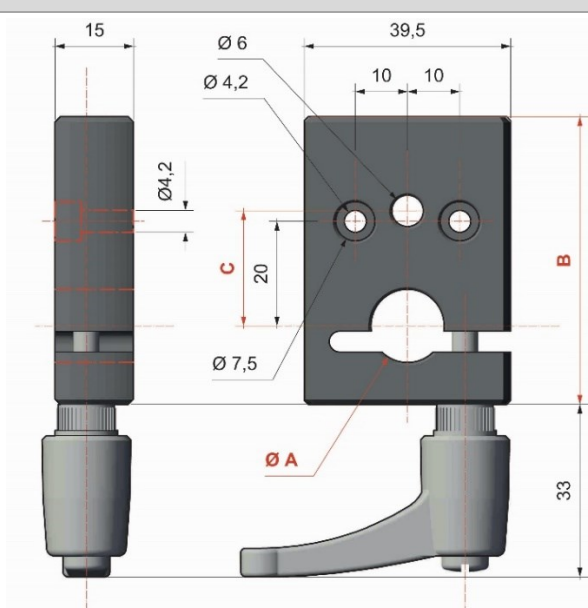
Accessories

Shaft clamping flange	Reducing bushes	Hand crank, Hand wheel
FL-B-EP43, FL-B-EP46	Position indicator/Hollow shaft **BF**	Hand crank **V.M** Hand wheel **V.R**

Dimensions Shaft clamping flange
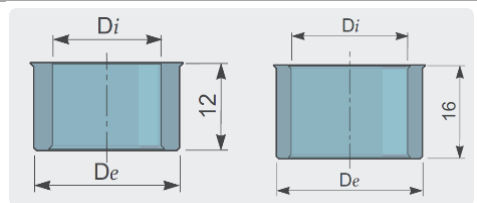
Shaft clamping flange FL-B-EP43, FL-B-EP46		
	FL-B-EP43	**FL-B-EP46**
	Compatible with EM43	Compatible with EM46
	∅**A** = 14 -12,7 (1/2")	∅**A** = 20 – 19,05 (3/4") - 25
	B = 55	**B** = 65
All dimensions in mm	**C** = 22	**C** = 30

Shaft clamping flange in anodised aluminium with handle for a safe locking of the drive shaft.

Dimensions for Position indicator/Hollow shaft

Reducing bushes BF
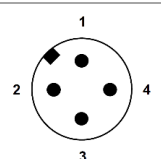
D*i* = inner diameter
D*e* = outer diameter

All dimensions in mm

Pin Assignment Connector: 4-pole plug M12x1 (the assignments of the two connectors are equal)

PIN	Signal/Function	
1	U_V = +10 to 24 VDC	Power supply
2	-GND	Negative voltage
3	RS+	Positive RS485 serial interface
4	RS-	Negative RS485 serial interface

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Ordering example F43RS with EM43

Type		F43RS	-	A	-	M12T	-	EM43	-	F14	-	1.0

F43RS = Programmable position indicator

Mounting position

A = For horizontal shaft
(to be positioned at a heigh of 50 cm to 120)

Connection type

M12T = T-connector,
4-pole plug + 4-pole socket M12x1 (A-coded), standard
M12Y = Y-connector,
4-pin socket 2x M12x1 (A-coded), optional

Type

EM43 = Magnetic encoder with through hollow shaft for rotary measurement

Hollow shaft diameter
F12.7 = 12,7 mm (½")
F14 = 14 mm

Sensor-power supply cable
0.5 = 0,5 m
1.0 = 1 m
3.0 = 3 m
5.0 = 5 m
10.0 = 10 m

Accessories for F43RS with EM43

Type	FL-B-EP43

FL-B-EP43 = Shaft clamping flange EP43

Type	BF	-	14/12

BF = Reducing bush for position indicator/hollow shaft

Hollow shaft diameter
14/12 = 12 mm
14/10 = 10 mm
14/8 = 8 mm
14/6 = 6 mm

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Ordering example F46RS with EM46

Type		F46RS	-	A	-	M12T	-	EM46	-	F20	-	3.0

F46RS = Programmable position indicator

Mounting position
A = For horizontal shaft
(to be positioned at a heigh of 50 cm to 120)

Connection type
M12T = T-connector,
4-pole plug + 4-pole socket M12x1 (A-coded), standard
M12Y = Y-connector,
4-pin socket 2x M12x1 (A-coded), optional

Typ
EM46 = Magnetic encoder with through hollow shaft for rotary measurement

Hollow shaft diameter
F19.05 = 19,05 mm (¾")
F20 = 20 mm
F25 = 25 mm

Sensor-power supply cable
0.5 = 0,5 m
1.0 = 1 m
3.0 = 3 m
5.0 = 5 m
10.0 = 10 m

Accessories for F46RS with EM46

Type		FL-B-EP46

FL-B-EP46 = Shaft clamping flange EP46

Type		BF	-	20/16

BF = Reducing bush for position indicator/hollow shaft

Hollow shaft diameter
20/18 = 18 mm
20/16 = 16 mm
20/15 = 15 mm
20/14 = 14 mm
20/12 = 12 mm

Ordering example GATEWAY-EP4-F4 for fieldbus connectivity (optional)

Type		GATEWAY-EP4-F4	-	PROFINET

GATEWAY-EP4-F4 = Gateway for position indicators

Fieldbus
PROFINET = Profinet
ETHERNETIP = EtherNet/IP
ETHERCAT = EtherCat
POWERLINK = Ethernet Powerlink

Manufacturer: FIAMA since 1913

Without prior notice, the products may be subject to modifications that the Manufacturer reserves to introduce as deemed necessary for their improvement.

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