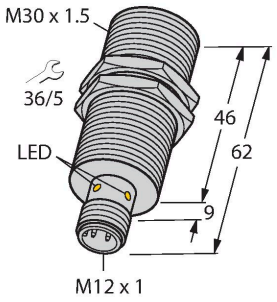
TB-EM30WD-H1147-EX/C53

HF Read/Write Head – For Explosion Hazardous Areas or Areas with Extreme Requirements (e.g. Food Industry) and Bus Line Topology with TBEN-*



Technical data

Type	TB-EM30WD-H1147-EX/C53
ID	100036843
Approvals	CE UKCA UL FDA ATEX
Radio approvals	EU/RED: Europe UK SI 2017/1206: United Kingdom FCC: USA
Device marking	Ⓔx II 3G Ex ec IIC T4 Gc II 3D Ex tc IIIB T135°C Dc
Approval acc. to	TURCK Ex-10005M X
Electrical data	
Operating voltage	10…30 VDC
DC rated operational current	≤ 80 mA
inrush current	700 mA For: 1 ms
Data transfer	Inductive coupling
Technology	HF RFID
Operating frequency	13.56 MHz
Radio communication and protocol standards	ISO 15693 NFC Typ 5
Read/Write distance max.	45 mm
Output function	4-wire, Read/Write
Suitable for bus mode to TBEN-*.	Yes
Mechanical data	
Mounting conditions	Flush
Ambient temperature	-25…+70 °C

Features

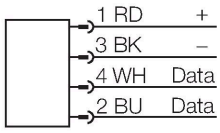
- M30 × 1.5 threaded tube
- Stainless steel 1.4404
- Front cap made of liquid crystal polymer
- High protection class IP69K for harsh environments
- Special double-lip seal
- Protection against all common acidic and alkaline cleaning agents
- Suitable for applications in the food industry
- Laser-engraved label, permanently legible
- Device without end termination
- Device may only be operated in line topology TBEN-S*-2RFID-* or TBEN-L*-4RFID-*
- Max. 32 nodes per line or connection permitted
- Use a corresponding terminating resistor (see accessories)
- Observe the performance of the power supply, especially when turned on, and the maximum current carrying capacity of the cables
- Observe the voltage drop on the line
- The maximum possible length of the spur line is 2 m
- The maximum possible length of the bus is 50 m
- By default, a command can only be processed by one read/write head, making HF bus mode suitable for static applications and slow dynamic applications
- In continuous HF bus mode, a command is executed simultaneously on all read/write heads in a bus topology. The recorded data is stored in the ring buffer of the module
- The read/write head is automatically assigned an address
- For different application requirements, the address and can be parameterized
- Powered and operated only via connection to BL ident interface module
- M12 × 1 connector, connection only via BL ident extension cable
- ATEX category II 3 G, Ex zone 2

Technical data

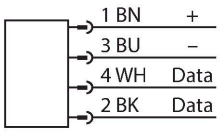
	For explosion hazardous areas see instruction leaflet
Design	Threaded barrel, M30 x 1.5
Dimensions	62 mm
Housing diameter	Ø 30 mm
Housing material	Stainless steel, 1.4404 (AISI 316L)
Active area material	Plastic, LCP
Vibration resistance	55 Hz (1 mm)
Shock resistance	30 g (11 ms)
Protection class	IP68 IP69K
Electrical connection	M12 × 1
MTTF	391 years acc. to SN 29500 (Ed. 99) 20 °C
Power-on indication	LED, Green
Included in delivery	SC-M12/3GD
Packaging unit	1

■ ATEX category II 3 D, Ex zone 22

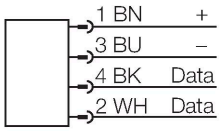
…/S2503 Connectors



…/S2500 Connectors



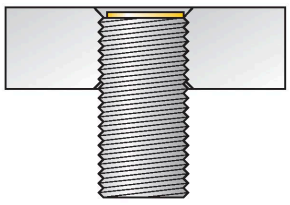
…/S2501 Connectors



Functional principle

The HF read/write devices operating at a frequency of 13.56 MHz form a transmission zone, the size of which (0…500 mm) varies depending on the combination of read/write device and tag used.
The read/write distances mentioned here only represent standard values measured under laboratory conditions, free from any influences caused by surrounding materials.
The read/write distances of the tags for mounting in metal TW-R**-M(MF) were determined in metal.
Attainable distances may vary by up to 30 % due to component tolerances, mounting conditions, ambient conditions and material qualities (especially when mounted in metal).
Testing of the application under real operating conditions is therefore essential, especially with on-the-fly reading and writing!

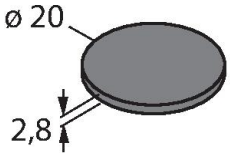
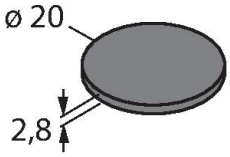
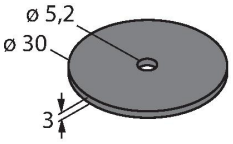
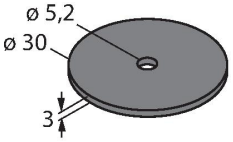
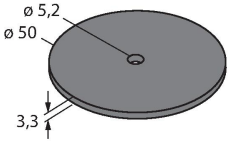
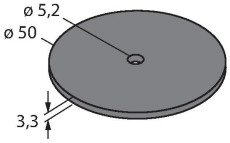
Mounting instructions/Description



Diameter active area B	Ø 30 mm
Width active area B	30 mm

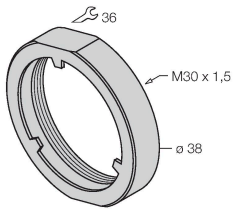
flush mounting

LED	Color	Status	Meaning
1	OFF	OFF	Operating voltage switched off
	GREEN	ON	Operating voltage switched on
	GREEN	FLASHING (1 Hz)	HF field switched off
	GREEN	FLASHING (2 Hz)	Tag in detection range

Dimensions	Type designation	Read-write distance		Transfer zone		Minimum distance between two read-write heads
	Ident - no.	Recommended (mm)	max. [mm]	length max. [mm]	width offset max. [mm]	[mm]
	**IN TAG 200 SLIX2** 100037960	15	27	20	10	90
	**IN TAG 200 2K FRAM** 100002358	15	22	20	10	90
	**IN TAG 300 SLIX2** 100002356	13	30	32	16	90
	**IN TAG 300 2K FRAM** 100002359	15	27	32	16	90
	**IN TAG 500 SLIX2** 100027728	20	43	46	23	90
	**IN TAG 500 2K FRAM** 100002360	15	33	36	18	90

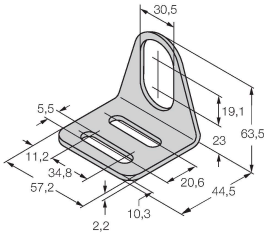
Accessories

PN-M30 6905308



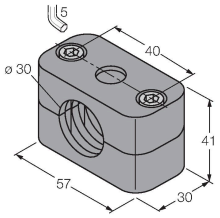
Protective nut for M30 x 1 threaded barrel devices; material: Stainless steel A2 1.4305 (AISI 303)

MW-30 6945005



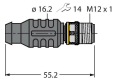
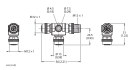
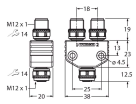
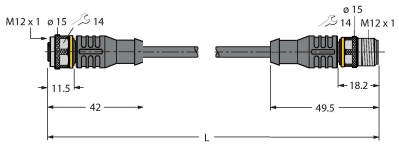
Mounting bracket for threaded barrel sensors; material: Stainless steel A2 1.4301 (AISI 304)

BSS-30	6901319



Mounting clamp for smooth and threaded barrel sensors; material: Polypropylene

Accessories

Dimension drawing	Type	ID	
	RSE57-TR2/RFID	6934908	Terminating resistor to build an RFID line topology
	VT2-FKM5-FKM5-FSM5	6930573	T-splitter to build an RFID line topology
	VB2-FKM5-FSM5.205-FSM5.305/ S2550	6936821	Y-splitter for re-powering a supply voltage for the RFID bus topology
	RK4.5T-2-RS4.5T/S2503	7030331	BL ident cable, M12 female connector, straight to M12 male connector, straight, cable length: 2 m, jacket material: PUR, black; other cable lengths and qualities available, see www.turck.com