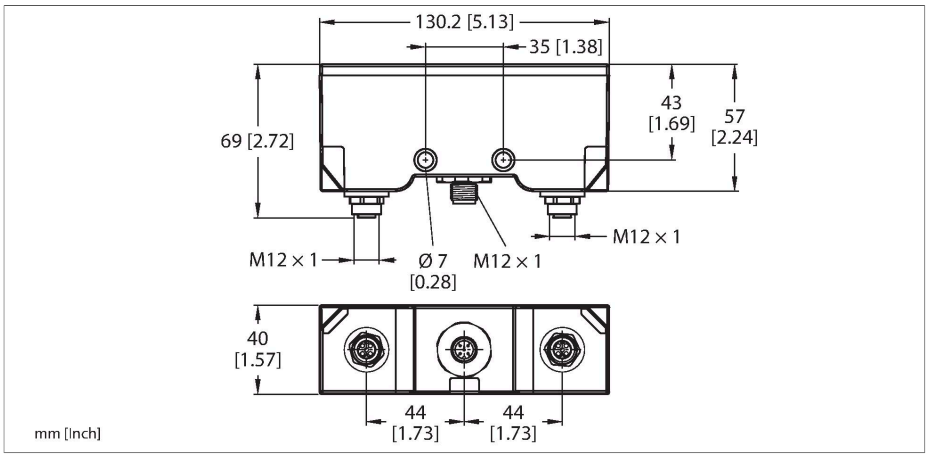
TNSLR-Q130-EN
HF Read/Write Head – Integrated-Interface Multiprotocol Ethernet



Technical data

Type	TNSLR-Q130-EN
ID	100004502
Approvals	CE UKCA UL
Radio approvals (HF)	EU/RED: Europe UK SI 2017/1206: United Kingdom FCC: USA IC: Canada MIC: Japan
Electrical data	
Operating voltage	18…30 VDC
DC rated operational current	≤ 150 mA
inrush current	2400 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
Short-circuit protection	yes
Output function	4-wire, Read/Write
Mechanical data	
Mounting conditions	Non-flush, partially embeddable
Ambient temperature	-40…+70 °C
Storage temperature	-40…+85 °C
Design	Rectangular, Q130
Dimensions	130 x 69 x 40 mm
Housing material	Plastic, Black
Active area material	Plastic, PPS-GF30, black

Features

- Commissioning support through graphical display of the RSSI value and the detuning caused by metal in TAS (Turck Automation Suite, available free of charge at www.turck.com)
- PROFINET device, EtherNet/IP device or Modbus TCP slave
- PROFINET S2 system redundancy
- Integrated Ethernet switch
- Supports 10 Mbps/100 Mbps
- Glass-fiber-reinforced housing
- Shock and vibration tested
- Fully encapsulated module electronics
- Protection class IP69K front, IP67 rear
- Integration in PLC systems without the use of a special function module
- Up to 128 bytes of user data per read/write cycle and use of fragments with 16 kilobytes of FIFO memory each
- Data interface for convenient use of the RFID functions
- Integrated web server with reader parameterization
- LEDs and diagnostics

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).

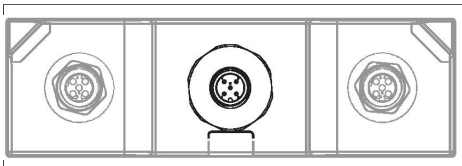
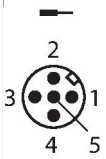
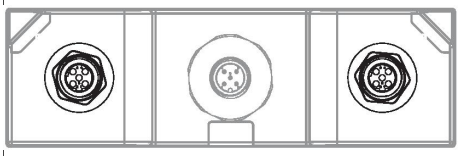
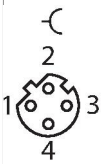
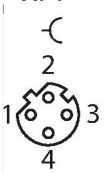
Technical data

Vibration resistance	55 Hz (1 mm)
Shock resistance	30 g (11 ms)
Protection class	IP69K front, IP67 rear
Electrical connection	M12 × 1
Power-on indication	LED, Green
Diagnostic display	Functional description of yellow range-restricted LED: If the read/write head is supplied with voltage, it briefly checks to see whether its resonance frequency is affected by surrounding metal. If this is the case, the oscillating circuit detunes its frequency to reach the (optimum) resonance frequency again. However, this is only possible within a certain range. With too much metal in the environment, the read/write head can no longer re-tune or the surrounding metal takes too much energy from the field and, due to the reduced range, the communication between the read/write head and the tag is cut off (the yellow "range restricted" LED lights up). However, if the LED is off, this does not mean that the range is not reduced. Rather, the lit LED is an indication of too much metal in the environment and a greatly reduced range (about 50 % less).
RFID data interface	HF
Transmission rate Ethernet	10/100 Mbps
Connection technology Ethernet	2 x M12, 4-pin, D-coded
Web server	Default: 192.168.1.254
Modbus TCP	
Addressing	Static IP, BOOTP, DHCP
Supported function codes	FC1, FC2, FC3, FC4, FC5, FC6, FC15, FC16, FC23
Number of TCP connections	8
Ethernet/IP	
Addressing	acc. to EtherNet/IP specification
Device Level Ring (DLR)	supported
Input Assembly Instance	103
Output Assembly Instance	104
Class 1 connections (CIP)	10
Class 3 connections (TCP)	3
Configuration Assembly Instance	106
PROFINET	
Addressing	DCP
MinCycleTime	1 ms
Diagnostics	acc. to PROFINET alarm handling
Automatic addressing	supported
Media Redundancy Protocol (MRP)	supported

Testing of the application under real operating conditions is therefore essential, especially with on-the-fly reading and writing!

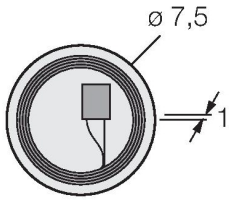
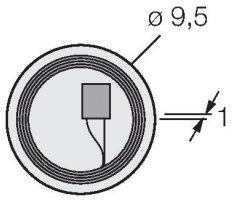
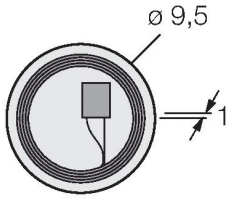
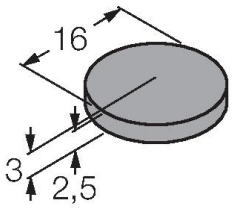
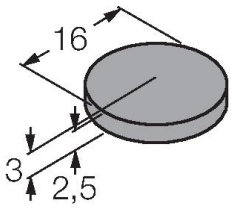
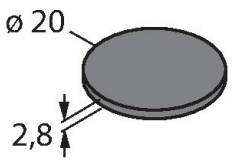
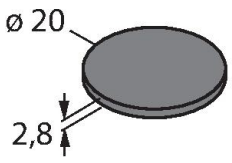
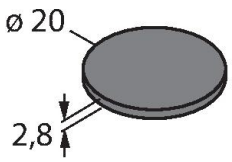
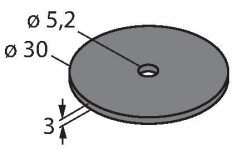
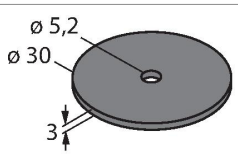
Technical data

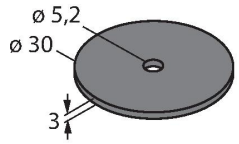
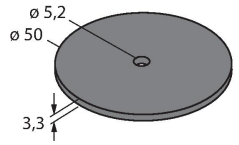
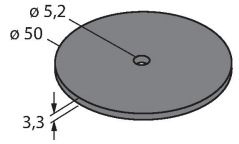
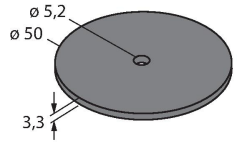
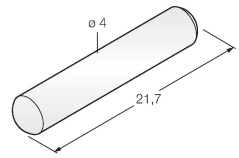
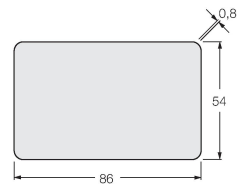
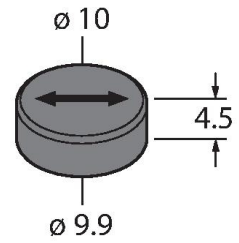
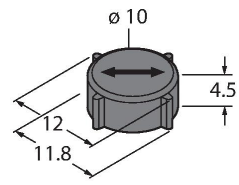
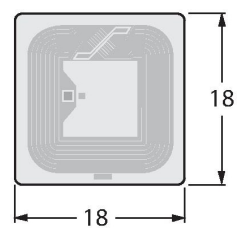
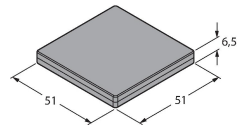
Packaging unit	1

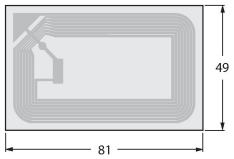
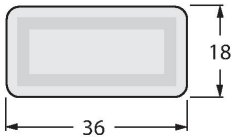
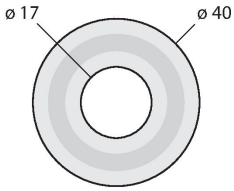
	Note Power cable (example): M12 ID 6625503 RKC4.4T-2/TXL	M12 × 1 power supply  1 = V1 2 = n.c. 3 = GND 4 = n.c. 5 = n.c. 24 VDC
	Note We strongly recommend only using ready-made Ethernet cables! Ethernet cable (example): M12-M12: ID 6441405 RSSD-RSSD-4414-2M M12-RJ45: ID 6441631 RSSD-RJ45S-4416-2M	M12 × 1 Ethernet  1 = TX + 2 = RX + 3 = TX – 4 = RX – flange = FE XF1  1 = RX + 2 = TX + 3 = RX – 4 = TX – flange = FE XF2

LED	Color/status	Color/status	Meaning
ETH1/ETH2	Green/off	Yellow/off	No connection
	Green/on	Yellow/off	100-Mbit connection
	Green/flashing	Yellow/off	100-Mbit connection and data exchange
	Green/off	Yellow/on	10-Mbit connection
	Green/off	Yellow/flashing	10-Mbit connection and data exchange
BUS	Green/off	Red/off	No supply voltage
	Green/on	Red/off	Connection to master
	Green/flashing	Red/off	Ready
	Green/off	Red/on	Conflict IP address or restore mode or Modbus/TCP connection timeout
	Green/flashing	Red/flashing	Alternating flashing: auto-negotiation and/or DHCP/ BootP waiting for assignment of IP address
ERR	Green/off	Red/off	No supply voltage
	Green/on	Red/off	No diagnostic data available
	Green/off	Red/on	Diagnostic data available
HF	Green/off	Yellow/off	No supply voltage
	Green/on	Yellow/off	V1 and HF field switched on
	Green/flashing (1 Hz)	Yellow/off	HF field switched off
	Green/flashing (2 Hz)	Yellow/off	Data transfer
AT	Green/off	Yellow/on	Less than 50 % range due to too much metal in the vicinity
WINK	White/flashing	-	Blink/Wink command executed, optical device detection
PWR	Green/off	Red/off	No supply voltage or supply voltage too low
	Green/on	Red/off	Supply voltage present

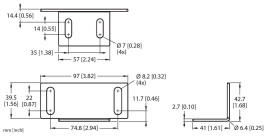
Dimensions	Type designation	Read-write distance		Transfer zone		Minimum distance between two read-write heads
	Ident - no.	Recommended (mm)	max. [mm]	length max. [mm]	width offset max. [mm]	[mm]

	**TW-R7.5-B128** 7030231	16	58	110	60	390
	**TW-R9.5-B128** 7030252	20	63	116	58	390
	**TW-R9.5-K2** 7030558	22	68	110	55	390
	**TW-R16-B128** 6900501	38	93	128	64	390
	**TW-R16-K2** 7030410	25	76	120	60	390
	**TW-R20-B128** 6900502	35	90	122	61	390
	**TW-R20-B320** 100005244	35	90	122	61	390
	**TW-R20-K2** 6900505	35	90	122	61	390
	**TW-R30-B128** 6900503	60	127	150	75	390
	**TW-R30-B320** 100005245	60	127	150	75	390

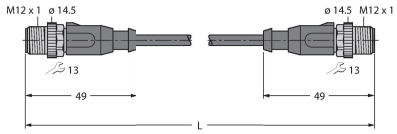
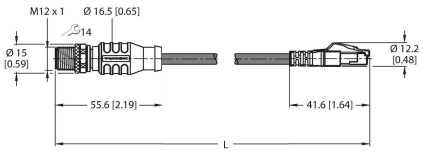
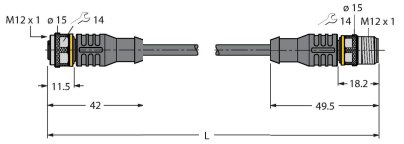
	**TW-R30-K2** 6900506	50	119	150	75	390
	**TW-R50-B128** 6900504	86	174	185	92	390
	**TW-R50-B320** 100005246	86	174	185	92	390
	**TW-R50-K2** 6900507	86	174	185	92	390
	**TW-R4-22-B128** 7030237	25	79	120	60	390
	**TW-L86-54-C-B128** 6900479	80	168	196	98	390
	**TW-R10-M-B146** 7030545	17	20	86	37	390
	**TW-R12-M-B146** 7030500	17	20	86	38	390
	**TW-L18-18-F-B128** 7030634	35	92	134	67	390
	**TW-Q51WH-HT-B128** 7030661	100	194	196	98	390

	**TW-L81-49-P-B128** 7030260	80	174	188	94	390
	**TW-L36-18-F-B320** 100025059	49	115	150	75	390
	**TW-L40-P-B128** 7030658	70	147	160	80	390

Accessories

MB-Q130WD	A900166
	Mounting clip for Q130WD sensors; material: stainless steel, 1.4401 (AISI 316)

Accessories

Dimension drawing	Type	ID	
	RSSD-RSSD-4414-2M	6441405	Cable for Industrial Ethernet, M12 male connector, D-coded, straight to M12 male connector, straight, cable length: 2 m, jacket material: PUR, green
	RSSD-RJ45S-4422-2M	6635170	Cable for Industrial Ethernet, M12 male connector, D-coded, straight to RJ45 male connector, straight, cable length: 2 m, jacket material: PUR, green
	RKC4.4T-2-RSC4.4T/TXL	6625608	Extension cable, M12 female connector, straight, 4-pin to M12 male connector, straight, 4-pin; cable length: 2 m, jacket material: PUR, black; cULus approval
	RKC4.4T-2/TXL	6625503	Connection cable, M12 female connector, straight, 4-pin, cable length: 2 m, jacket material: PUR, black; cULus approval