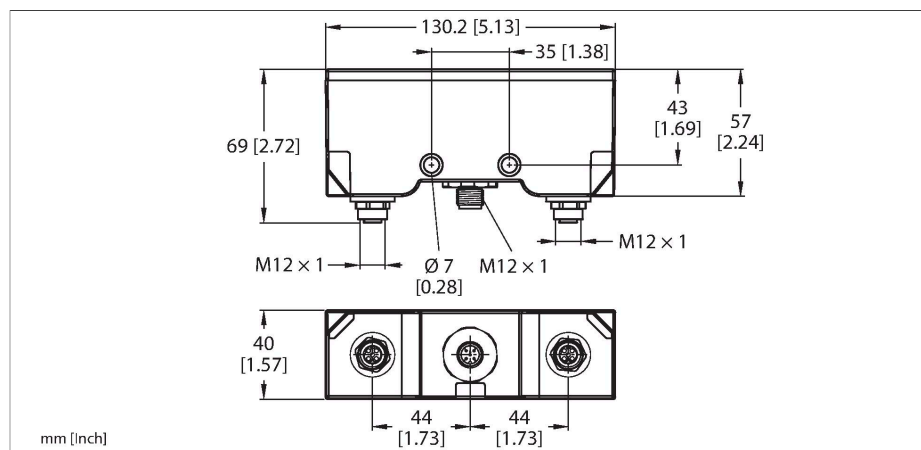


# TNSLR-Q130-EN

## HF Read/Write Head – Integrated-Interface Multiprotocol Ethernet



### Technical data

|  |   |
|--|---|
| Type                                       | TNSLR-Q130-EN   |
| ID   | 100004502   |
| Approvals                                  | CE<br>UKCA<br>UL  |
| Radio approvals (HF)                       | EU/RED: Europe<br>UK SI 2017/1206: United Kingdom<br>FCC: USA<br>IC: Canada<br>MIC: Japan |
| <b>Electrical data</b>                     |   |
| 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<br>NFC Typ 5  |
| Short-circuit protection                   | yes   |
| Output function                            | 4-wire, Read/Write  |
| <b>Mechanical data</b>                     |   |
| Mounting conditions                        | Non-flush, partially embeddable   |
| Ambient temperature                        | -40...+70 °C  |
| Storage temperature                        | -40...+85 °C  |
| Design                                     | Rectangular, Q130   |

### 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](http://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.

## Technical data

|                                |  |
|--------------------------------|--|
| Dimensions                     | 130 x 69 x 40 mm   |
| Housing material               | Plastic, Black   |
| Active area material           | Plastic, PPS-GF30, black   |
| 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  |
| <b>Modbus TCP</b>              |  |
| Addressing                     | Static IP, BOOTP, DHCP   |
| Supported function codes       | FC1, FC2, FC3, FC4, FC5, FC6, FC15, FC16, FC23   |
| Number of TCP connections      | 8  |
| <b>Ethernet/IP</b>             |  |
| Addressing                     | acc. to EtherNet/IP specification  |
| Device Level Ring (DLR)        | supported  |
| Input Assembly Instance        | 103  |
| Input Data Size                | 248  |
| Output Assembly Instance       | 104  |
| Output Data Size               | 248  |
| Class 1 connections (CIP)      | 10   |
| Class 3 connections (TCP)      | 3  |

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!

## Technical data

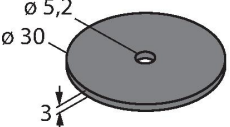
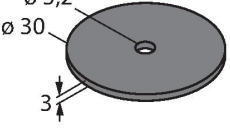
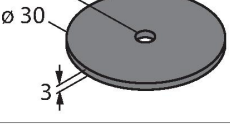
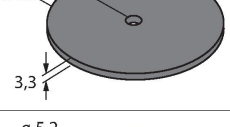
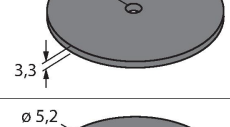
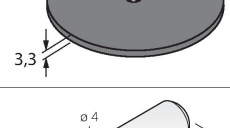
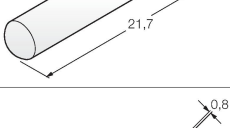

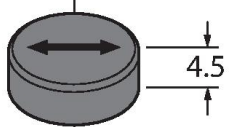
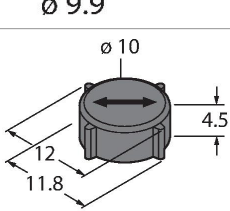
|                                 |                                 |
|---------------------------------|---------------------------------|
| Configuration Assembly Instance | 106                             |
| <b>PROFINET</b>                 |                                 |
| Addressing                      | DCP                             |
| Diagnostics                     | acc. to PROFINET alarm handling |
| Automatic addressing            | supported                       |
| Media Redundancy Protocol (MRP) | supported                       |
| Packaging unit                  | 1                               |

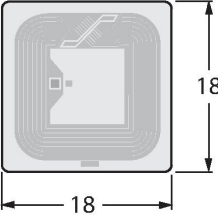
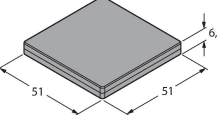
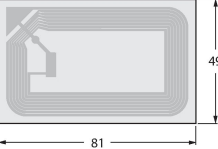
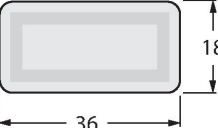
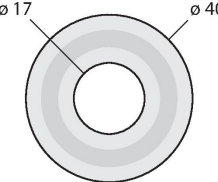
|  |   |   |
|--|---|---|
|  | <p>Accessories<br/>         Power supply cable (example):<br/>         M12-M12 2 M (5.0 Amp)<br/>         EKRT-ESRT-A5.500-GU8K-2<br/>         Ident. No. 200002683<br/>         M12-7/8 2 M (4.0 Amp)<br/>         RKC 4.5T-2-RSM 50<br/>         Ident. No. U0910-35</p>  | <p>M12 × 1 power supply</p> <p>1 = V1<br/>         2 = n.c.<br/>         3 = GND<br/>         4 = n.c.<br/>         5 = n.c.</p> <p>24 VDC</p>  |
|  | <p>Accessories<br/>         It is strongly recommended to use only ready-made Ethernet cables!<br/>         Ethernet cable (example):<br/>         M12-M12:<br/>         RSSD RSSD 441-2M<br/>         Ident. no. U-02482<br/>         M12-RJ45:<br/>         RSSD RJ45S 441-2M<br/>         Ident. no.: U3-00525</p> | <p>M12 × 1 Ethernet</p> <p>1 = TX +<br/>         2 = RX +<br/>         3 = TX -<br/>         4 = RX -<br/>         flange = FE</p> <p>XF1</p> <p>1 = RX +<br/>         2 = TX +<br/>         3 = RX -<br/>         4 = TX -<br/>         flange = FE</p> <p>XF2</p> |

| 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<br>(1 Hz) | Yellow/off      | HF field switched off   |
|           | Green/flashing<br>(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 [mm] |
|------------|---------------------------------|---------------------|------------------|---------------|------------------|--|
|            |                                 | Ident - no.         | Recommended (mm) | max. [mm]     | length max. [mm] |  |
|            | <b>TW-R7.5-B128</b><br>7030231  | 16                  | 58               | 110           | 60               | 390  |
|            | <b>TW-R9.5-B128</b><br>7030252  | 20                  | 63               | 116           | 58               | 390  |
|            | <b>TW-R9.5-K2</b><br>7030558    | 22                  | 68               | 110           | 55               | 390  |
|            | <b>TW-R16-B128</b><br>6900501   | 38                  | 93               | 128           | 64               | 390  |
|            | <b>TW-R16-K2</b><br>7030410     | 25                  | 76               | 120           | 60               | 390  |
|            | <b>TW-R20-B128</b><br>6900502   | 35                  | 90               | 122           | 61               | 390  |
|            | <b>TW-R20-B320</b><br>100005244 | 35                  | 90               | 122           | 61               | 390  |
|            | <b>TW-R20-K2</b><br>6900505     | 35                  | 90               | 122           | 61               | 390  |

TNSLR-Q130-EN | 04/02/2024 19-09 | technical changes reserved

|   |                                    |    |     |     |    |     |
|---|------------------------------------|----|-----|-----|----|-----|
|    | <b>TW-R30-B128</b><br>6900503      | 60 | 127 | 150 | 75 | 390 |
|    | <b>TW-R30-B320</b><br>100005245    | 60 | 127 | 150 | 75 | 390 |
|    | <b>TW-R30-K2</b><br>6900506        | 50 | 119 | 150 | 75 | 390 |
|    | <b>TW-R50-B128</b><br>6900504      | 86 | 174 | 185 | 92 | 390 |
|   | <b>TW-R50-B320</b><br>100005246    | 86 | 174 | 185 | 92 | 390 |
|  | <b>TW-R50-K2</b><br>6900507        | 86 | 174 | 185 | 92 | 390 |
|  | <b>TW-R4-22-B128</b><br>7030237    | 25 | 79  | 120 | 60 | 390 |
|  | <b>TW-L86-54-C-B128</b><br>6900479 | 80 | 168 | 196 | 98 | 390 |
|  | <b>TW-R10-M-B146</b><br>7030545    | 17 | 20  | 86  | 37 | 390 |
|  | <b>TW-R12-M-B146</b><br>7030500    | 17 | 20  | 86  | 38 | 390 |

|  |                                      |     |     |     |    |     |
|--|--------------------------------------|-----|-----|-----|----|-----|
|   | <b>TW-L18-18-F-B128</b><br>7030634   | 35  | 92  | 134 | 67 | 390 |
|   | <b>TW-Q51WH-HT-B128</b><br>7030661   | 100 | 194 | 196 | 98 | 390 |
|   | <b>TW-L81-49-P-B128</b><br>7030260   | 80  | 174 | 188 | 94 | 390 |
|   | <b>TW-L36-18-F-B320</b><br>100025059 | 49  | 115 | 150 | 75 | 390 |
|  | <b>TW-L40-P-B128</b><br>7030658      | 70  | 147 | 160 | 80 | 390 |