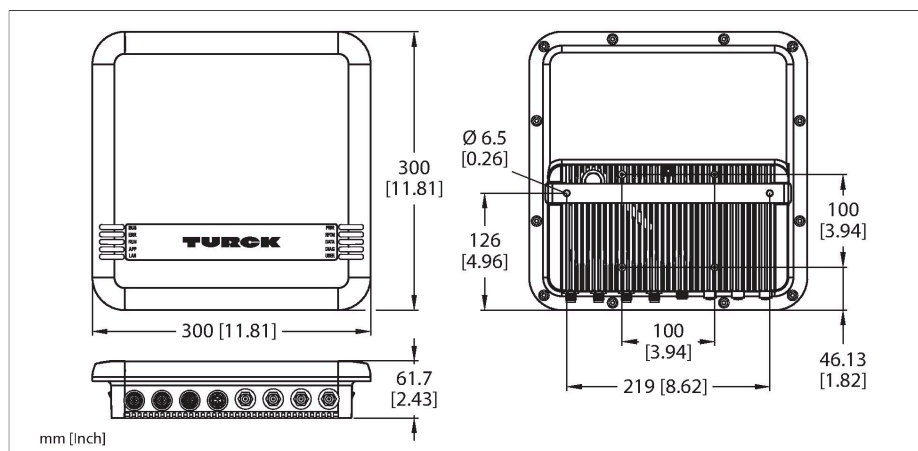


TN-UHF-Q300-NA-CDS

UHF Reader



Technical data

Type	TN-UHF-Q300-NA-CDS
ID	100000900
Approvals	UL FCC IC IFETEL
Electrical data	
Operating voltage	18...30 VDC
DC rated operational current	≤ 3500 mA
PoE standard	IEEE 802.3at (PoE+)
Data transfer	Alternating electromagnetic field
Technology	UHF RFID
Region (UHF)	USA, Canada, Mexico (902...928 MHz)
Radio communication and protocol standards	ISO 18000-63 EPCglobal Gen 2
Channel spacing	500 kHz
Output power	≤ 36 dBm (EIRP), adjustable
Antenna polarization	circular/linear, adjustable
Antenna HPBW	65°
Output function	Read/Write
Mechanical data	
Mounting conditions	Non-flush
Ambient temperature	-20...+50 °C
Design	Rectangular
Dimensions	300 x 300 x 61.7 mm
Housing material	Aluminium, AL, Silver
Active area material	Glass fiber-reinforced polyamide, PA6-GF30, black
Vibration resistance	55 Hz (1 mm)
Shock resistance	30 g (11 ms)

Features

- Integrated web server with reader parameterization
- Web-based UHF RFID test tool for easy air interface evaluation
- Resistant to UV radiation
- 4 connections for passive UHF RFID antennas
- 4 configurable digital channels as PNP inputs and/or outputs with 0.5 A per channel
- Programmable according to IEC 61131-3 with CODESYS V3
- Codesys V3 PLC Runtime
- CODESYS OPC-UA server
- PROFINET device, EtherNet/IP device or Modbus TCP master/slave
- "U" data interface for convenient use of the RFID functionality
- Close-to-control integration in PLC systems without the use of a special function module
- LEDs and diagnostics
- Device only suitable for operation in North America (NA) at 902...928 MHz (USA, Canada, Mexico)

Functional principle

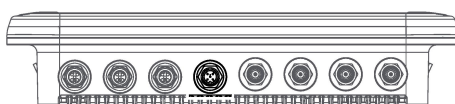
The UHF readers form a transmission zone, the size of which may vary depending on the combination of reader and tag used. The achievable distances may be different due to component tolerances, mounting location in the application, ambient conditions and the effect of materials (particularly metal). Testing of the application under real operating conditions is therefore essential, especially with on-the-fly reading and writing!

Technical data

Protection class	IP67
Electrical connection	RP-TNC
Input impedance	50 Ohm
MTTF	49 years acc. to SN 29500 (Ed. 99) 20 °C
System description	
Processor	ARM Cortex A8, 32 Bit, 800 MHz
Memory	256 MB Flash
RAM memory	512 MB DDR3
Programming	CODESYS V3
Released for CODESYS version	V 3.5.11.20
Programming languages	IEC 61131-3 (IL, LD, FBD, SFC, ST)
Application tasks	10
Number of POUs	1024
Programming interface	Ethernet
Cycle time	< 1 ms for 1000 IL commands (without I/O cycle)
Input data	8
Output data	8
RFID data interface	UHF
System data	
Transmission rate Ethernet	10/100 Mbps
Connection technology Ethernet	1 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
Output Data Size	max. 1024
Input Data Size	max. 2014
Ethernet/IP	
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
Configuration Assembly Instance	106
PROFINET	
Addressing	DCP

Technical data

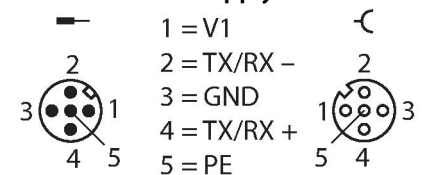
MinCycleTime	4 ms
Diagnostics	acc. to PROFINET alarm handling
Automatic addressing	supported
Media Redundancy Protocol (MRP)	supported
Input Data Size	max. 512
Output Data Size	max. 512
Digital inputs	
Number of channels	4
Connectivity inputs	M12, 5-pin
Input type	PNP
Switching threshold	EN 61131-2 type 3, PNP
Low-level signal voltage	< 5 V
High level signal voltage	> 11 V
Low level signal current	< 1.5 mA
High level signal current	> 2 mA
Type of input diagnostics	Channel diagnostics
Digital outputs	
Number of channels	4
Connectivity outputs	M12, 5-pin
Output type	PNP
Type of output diagnostics	Channel diagnostics
General Information	
Packaging unit	1



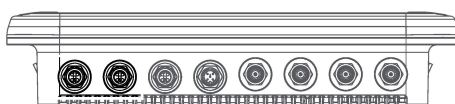
Note

Power cable:
 UX18415 RKC 4.4T-0.5-RSM 40/S3520
 UX18416 RKC 4.4T-2-RSM 40/S3520
 UX14184 RKC 4.4T-3-RSM 40/S3520
 UX14185 RKC 4.4T-5-RSM 40/S3520

M12 × 1 Power Supply



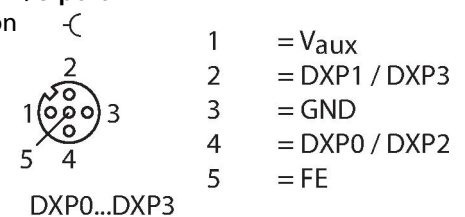
24 VDC / COM



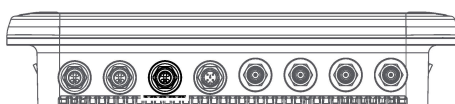
Note

Actuator and sensor cable/PUR connection cable (example):
 RKC4.4T-2-RSC4.4T/TXL
 ID no. 6625608
 Y-piece for DXPs
 VBS2-FSM4.4-2FKM4
 ID no. 6930560

I/O port M12 × 1



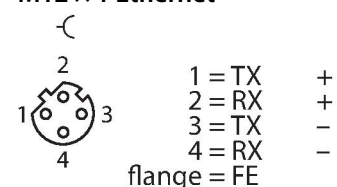
DXP0...DXP3



Note







Ethernet cable (example):
 RSSD-RJ45S-4416-5M
 Ident. no. 6441633

M12 × 1 Ethernet

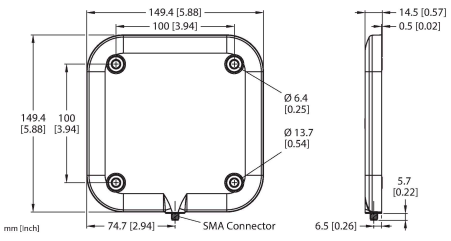
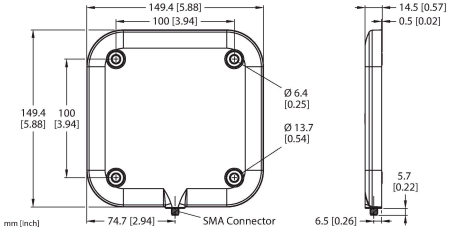
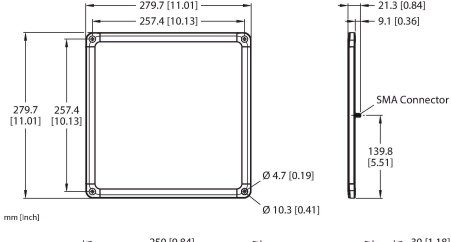
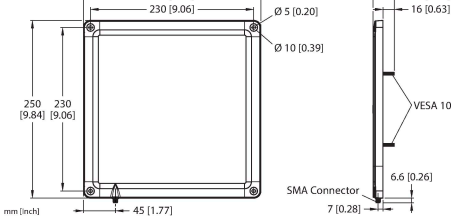


ETH/PoE

Accessories

Dimension drawing	Type	ID	
	TN-UHF-CBL-HF240-RPTNC-1-SMA	100028191	HF240 coaxial cable, length 1 m
	TN-UHF-CBL-HF240-RPTNC-2-SMA	100028192	HF240 coaxial cable, length 2 m
	TN-UHF-CBL-HF240-RPTNC-4-SMA	100028193	HF240 coaxial cable, length 4 m
	TN-UHF-CBL-HF240-RPTNC-6-SMA	100028194	HF240 coaxial cable, length 6 m
	TN-UHF-CBL-HF240-RPTNC-8-SMA	100028195	HF240 coaxial cable, length 8 m
	TN-UHF-CBL-HF240-RPTNC-10-SMA	100028196	HF240 coaxial cable, length 10 m
	TN-UHF-CBL-HF240-RPTNC-12-SMA	100028197	HF240 coaxial cable, length 12 m

Accessories

Dimension drawing	Type	ID	
 <p>Technical drawing showing top and side views of the TN-UHF-ANT-Q150-FCC antenna. Dimensions include: 149.4 [5.88] mm total width, 100 [3.94] mm width between mounting holes, 74.7 [2.94] mm SMA connector offset, 14.5 [0.57] mm total height, 0.5 [0.02] mm SMA connector offset, 5.7 [0.22] mm SMA connector height, 6.5 [0.26] mm SMA connector width, and hole diameters of Ø 6.4 [0.25] mm and Ø 13.7 [0.54] mm.</p>	TN-UHF-ANT-Q150-FCC	100028596	Passive UHF RFID antenna with dimensions of 150 × 150 mm
 <p>Technical drawing showing top and side views of the TN-UHF-ANT-NF-Q150-ETSI-FCC antenna. Dimensions are identical to the TN-UHF-ANT-Q150-FCC antenna.</p>	TN-UHF-ANT-NF-Q150-ETSI-FCC	100028594	Passive UHF RFID near-field antenna with dimensions of 150 × 150 mm
 <p>Technical drawing showing top and side views of the TN-UHF-ANT-Q280-FCC antenna. Dimensions include: 279.7 [11.01] mm total width, 257.4 [10.13] mm width between mounting holes, 279.7 [11.01] mm total height, 257.4 [10.13] mm height between mounting holes, Ø 4.7 [0.19] mm mounting hole diameter, Ø 10.3 [0.41] mm SMA connector hole diameter, 21.3 [0.84] mm total height, 9.1 [0.36] mm SMA connector offset, 139.8 [5.51] mm SMA connector length, and SMA Connector label.</p>	TN-UHF-ANT-Q280-FCC	100028602	Passive UHF RFID antenna with integrated VESA100 pins and dimensions of 280 × 280 mm
 <p>Technical drawing showing top and side views of the TN-UHF-ANT-Q250-FCC antenna. Dimensions include: 250 [9.84] mm total width, 230 [9.06] mm width between mounting holes, 250 [9.84] mm total height, 230 [9.06] mm height between mounting holes, Ø 5 [0.20] mm mounting hole diameter, Ø 10 [0.39] mm SMA connector hole diameter, 30 [1.18] mm total height, 16 [0.63] mm SMA connector offset, VESA 100 label, 6.6 [0.26] mm SMA connector length, SMA Connector label, and 7 [0.28] mm SMA connector width.</p>	TN-UHF-ANT-Q250-FCC	100028600	Passive UHF RFID antenna with dimensions of 250 × 250 mm