R3 Solutions

Edge X

Fully managed Wi-Fi 6E communication device

High-speed wireless control, broadband connection and data converter for industrial automation setups

Key Features

- Fully managed remote configuration and monitoring (gNMI & NETCONF)
- IoT edge data aggregation and forwarding (MQTT)
- Soft PLC on board (optional)
- Client and micro Access-Point (µAP) functionality
- Wi-Fi, LAN, CAN and GPIO connectivity
- Bridge transparency modes:
  PROFINET/MAC cloning (single device)
  ETHERNET for IP traffic (multiple devices)
- Power-saving sleep modes:
  (1) wake up on time
  (2) wake up on GPI event
  (3) wake up on LAN
- CAN gateway and bridge with translation
- Signaling power-saving status via GPO
- Convenient wireless and wired bring-up
- On-board secure element
- Single transceiver with dual radio, three band support 2.4 GHz, 5 GHz and 6 GHz
- Two 1-Gigabit Ethernet ports (one TSN-capable)
- Security compliance with IEC 62443

Your Benefits

Operate your machinery at

Reduced cost
Reduced size
Reduced wiring
Reduced complexity

Compared to using a PLC, a communication, and a converting unit as separate devices

Best in class support for control & monitoring: Enhanced productivity through fully fledged gNMI/NETCONF API programming language bindings (e.g., Python, Go, C++, etc.)

Enhanced cyber security & roaming

Disclaimer notice: Please note that the features and specifications are subject to change prior to its official release, as the product is currently under development and refinement to ensure optimal performance.

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Data Sheet Edge X

Product description

Description	Fully managed communication device with Wi-Fi 6E client, micro access point and power management functionalities, as well as optional soft PLC and CAN connectivity on board
Radio standards	IEEE 802.11a/b/g/n/ac/ax

Interfaces

Ethernet	2x 10/100/1000 Mbit/s RJ45 socket
Power Supply	10 – 32 VDC
GPIO	4x IN, 4x OUT 24V capable with a max. current of 500 mA per GPO
CAN	2x CAN
Antenna connector	2x RP-SMA male socket, requires 2x RP-SMA female connectors on the antenna

Radio technology

Wi-Fi Channels	2.4 GHz: 1-13 5 GHz: 36-177 6 GHz: 1-233 Regulatory restrictions apply depending on the country of operation
Modulation	OFDM: BPSK, QPSK, DBPSK, DQPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM
Channel widths	20MHz, 40MHz and 80MHz
Encryption	WPA2-PSK, WPA3-PSK, Enhanced Open (OWE), RADIUS, EAP
Access point function	Yes (µAP)
Client function	Yes
Roaming support	Standard: Open System, OWE, WPA2-PSK, WPA3-SAE, EAP Fast transition: FT-PSK, FT-SAE, FT-EAP Optimized: IEEE 802.11k,v with configurable thresholds
Max. output power	19 dBm Regulatory restrictions apply depending on the country of operation
Additional radio	UL MU OFDMA, BSS coloring, 2x2 MIMO (configurable)

Power requirements

Operating voltage	24 VDC (10-32 VDC), according to ISO 16750-2 E
Max power consumption	10W (GPO externally powered) 34W (GPO internally powered)

Ambient conditions

Operating temperature	-25°C – +65°C
Storage/transport temperature	-40°C – +85°C
Relative humidity (non condensing)	10% – 90%

Product functions

gNMI (gRPC Networking Interface)	API optimized for telemetry
NETCONF (Networking Config Protocol)	API optimized for configuration
MQTT (Message Queuing Telemetry Transport)	API optimized for IoT data
STP (IEEE 802.1D)	Yes
LLDP	Yes
VLAN (IEEE 802.1Q)	Yes
Numbers of VLAN/maximum	24, max. 7 on LAN2/TSN
IPv4 Config (static/DHCP)	Yes
NTP client	Yes
NAT	Yes
Static Routes	Yes
Configuration: web interface	Yes
Configuration: import/export	Yes, incl. config migration
Power interruption resilient FW update	Yes

Mechanical construction

Dimensions	27 × 98 × 148 mm
Mounting	Wall mounting, DIN rail mounting
Weight	510 g
Protection class	IP40

Approvals

Basis standard	CE (Europe), FCC (USA), ISED (Canada)
Environmental	ROHS/REACH
Safety of ind. control equipment	IEC 62368-1:2018
Radio	ETSI EN 300 328:2019 V2.2.2 (2.4GHz), ETSI EN 301 893:2017 V2.1.1 (5GHz)
Shock and vibration	IEC 60068-2-27 IEC 60068-2-6