TECHNICAL DATA SHEET Smart Modem Communication for the Industrial- and Energy market

DINBOX RTU Q7

4G GPRS Distribution Automation RTU

The DinBoxRTU Q7 is the link between the local technical devices and the central SCADA and IT systems. The acquired data is processed locally and prepared for further transport. For this purpose, the DinBox RTU Q7 contains various physical interfaces, protocol converters and a WAN communication module for LTE Cat.1, GPRS (other communication possible by exchanging the modules) Configuration is done via a cloud application, operation can optionally take place online or offline. The Q7 is compatible with the DeMaS management.

ORDER-CODE: DB_RTU_Q7_HL7692

PRODUCT-HIGHLIGHTS

- ✓ 4G LTE Cat-1 / 2G GPRS Fallback
- ✓ IEC 60870-5-104
- ✓ MQTT
- ✓ IEC 61850 (read only for data collection)
- ✓ I / O-Extensions possible
- ✓ Container Technology for individual software
- ✓ TLS Security & VPN IPsec/WireGuard
- ✓ supports SIM with fixed IP v6 Address

SPECIFICATION

The DinBox RTU Q7 uses IEC 60870-5-104 to communicate as a slave with the SCADA system (master). Other protocols like IEC 61850, MQTT, Modbus are also implemented.

The DinBox can be extended with remote I / O via Modbus TCP and / or Modbus RTU. Thanks to the Modbus master implementation and Modbus to IEC104 mapping, the DinBox RTU Q7 can be used as a gateway to connect other Modbus slave IEDs.
The DinBox RTU Q7 can be managed via the management tool DeMaS (Device Management Software) management tool.

TYPICAL APPLICATIONS

Substation IP communication with SCADA systems or central dispatching

IEC-60870-5-104 / IEC 61850 protocol between substation and control center

SCADA installations in industries such as power and distribution, water and gas applications, oil and gas production

IoT applications with MQTT / Modbus mapping

Distributed control systems (DCS), PLC ...

DEMAS DEVICE MANAGEMENT SYSTEM

BAUSCH datacom

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MOBILE COMMUNIKATION	
Frequency bands	4G / LTE (Cat.1): 3 (1800 MHz), 8 (900 MHz), 20 (800 MHz)
	2G / GPRS / EDGE: GSM (900 MHz), DCS (1800 MHz)
Antenne connection	SMA male
SIM Slot	Slot for Mini-SIM card (2FF), locked
Mobilfunk Status Daten	Signal field strength, RSSI, Cell-ID, Location-ID
HARDWARE INTERFACES	
Ethernet ports	2 x RJ45, 10 / 100 MBit/s, Full / half duplex
	Assignment to IP network freely configurable per port, configuration port with DHCP Server
GPIO	2 GPIOs, upgradable by I2C, SPI
Displays (LEDs)	2 LEDs (Modem, System ok)
Modbus	RS-485 half duplex on external connector, isolated
I2C	On external connector
SPI	On external connector
Device Tree	Loadable Device Tree Overlays to support additional Device at I2C and SPI
NETWORK	
Network protocolls	lokal IP Networks, IP static / DHCP, TCP, UDP, IPv4, IPv6, NTP, DNS, HTTP/S, ARP, SSH
Services	DHCP Server v4 / v6 pro IP network, NTP server, DNS, DynDNS, IPv6 RA
Routing	Static Routing, Policy Based routing
Monitoring	Periodic, ping/icmp
VPN	
IPsec	IKEv2
IPsec encryption	DES EDE3 192 Bit, AES 128-256 CBC / GCM, SHA1, MD5, SHA 256-512, DH-Group 1-31 (Diffie-Hellman 768 - 25519), ChaCha20-Poly1305
GRE	GRE via IPsec, point-to-point, multipoint
Wireguard	Client or Server, point-to-point, multipoint
IT SECURITY	
Authentication	X.509 certificates, hashed Passwords, SSH Keys
Firewall / netfilter	IP filters (stateful firewall) also in VPN tunnel; packet filter: TCP, UDP, ICMP, ESP, AP, GRE; MAC filter; pre-defined firewall rules can be activated
Security	Booting signed and encrypted firmware, Bootloader is proteced by HABv4 (CPU protection), dual boot with auto-fallback,using eMMC, Root Filesystem is protected by decompressing to RAM each Boot, password hashing
IOT AND CLOUD	
Data acquisition	Modbus TCP / RTU, MQTT, IEC 60870-5-104 (SCADA), any attached Hardware
Data transmission	Modbus TCP / RTU, MQTT, IEC 60870-5-104 (SCADA),
EVENTS AND ACTIONS	
Event & Action Handler, Events / Alarme, Event-triggered	
CONTAINERS	
Container Umgebung	Any number (limited by RAM) of Containers can be installed
MONITORING AND MANAGEMENT	
Monitoring	configurable system logs, remote syslog
Certificate management	SCEP, CRL
DeMaS management (optional)	Syslog with Graylog, Monitoring with Grafana, Managed Config, Firmware, Mapping
ADMINISTRATION	
Configuration	Web Interface (HTTPS) for local upload of Config, Mapping, Firmware Packages, Cloud Editor for Config and Mapping, SSH
Diagnose Tools	Ping/icmp, tcpdump, traceroute, DNS lookup, AT commands
Firmware update	failsafe, local updates with Web Interface or managed Update by DeMaS
System time	NTP Client and Server, buffered real time clock
SUPPLY	
Voltage	AC 100-240V 50/60Hz, Power Supply on PCB / optional In-/Output 5V or 24V
Terminals	
WARRANTY	
24 Month from delivery, Extension in large projects to 5 years optional	

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