

DaliBox MV D2.0

Distribution Automation 4G RTU

Designed by Bausch Datacom!

4G GPRS Distribution Automation RTU

The DaliBox MV D2.0 is a State of the Art RTU for MV/LV (10-36kV – 230-400V) substations. It allows the connexion of SCADA IEC 60870-5-104 Master(s) to Modbus TCP and RTU sensors. The DaliBox has internal metering (Rogowski or CT connected) and is secured by VPN IPsec or TLS. The device is used for monitoring and light control management. The devices in the field are controlled and mass managed by the DeMas remote management tool.

Product Highlights

- 4G LTE Cat-M1/NB 1&2
- IEC 60870-5-104/Modbus mapping
- MQTT/Modbus mapping
- IEC 61850 (non-GOOSE)
- I/O extensions possible
- Ethernet Routing
- TLS Security & VPN IPsec IKE v1
- Supercap 'Last gasp'
- External Display optional
- Internal Metering transformer load
- DeMas Mass management tool

Typical Applications

- Substation IP communication with SCADA systems or central dispatch
- IEC-60870-5-104 / IEC 61850 protocol
- between substation and control station,
- SCADA installations in industries such as power and distribution, water and gas applications, oil and gas production
- Grid applications with MQTT/Modbus mapping
- Distributed Control Systems (DCS), PLC...

Ordering Codes

- DaliBox_MVD2.0
- DaliBox_MVD2.0_Display
- DaliBox_MVD2.0_LastGasp

BAUSCH DATACOM

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DaliBox MV D2.0 specification

The DaliBox MV D2.0 uses IEC 60870-5-104 to communicate as a slave with the SCADA system (master). Other protocols such as IEC 61850 5nOnon Goose), MQTT, Modbus are also implemented. The DaliBox can be extended by remote I/O through Modbus TCP and/or Modbus RTU.

Thanks to the Modbus master implementation and the modbus-to-IEC104 mapping the DinBox RTU Q7 can be used as a gateway to connect other Modbus slave IEDs. The DaliBox can be mass managed by DeMas (Data Management Software) back office tool.

Housing

- Type: SCAME Junction Box
- Gray Engineering Plastic ABS
- Cover : transparent PC
- Ingress Protection: IP44 excluding connectors
 - 4 solid object > 1mm
 - 4 splashed water
- Limiting Oxygen Index (production)
 - 35% -- self extinguishing
 - scame declaration
- Impact Protection: IK08 Impact 5.0 Joules from 29.5cm
- Dimensions: 240x190x125

Power Supply & Last Gasp

- Mornsun 230/400VAC -10% +10%
- Ceramic fuses 3.15A EATON BUSSMANN S505-3.15R
- FUSE holder BK-HHT
- Works on any phase
- AUX 24Vdc +30% -15%
- LAST GASP:
- LTC3350 based design
- 4 x 50 F supercap , no battery
- System current/power approx 450mA/10.8W
- Main power has 30 Watt, always > 10 W for 24V output
- Typical backup time : 2 min 30 sec

Interface & Connectors

- X01 : voltage
- X02 : Current
- X03 : P1
- X04 : Digital Out + 24Vdc AUX
- X05 : RS485
- X06 : Digital inputs
- 4 x M16 holes
- 1 x M20 hole : can be used for Ethernet



Firmware

- Software Packages
 - Container technology (docker)
 - Kernel (Linux 5.4 Mainline kernel)
 - DNS
 - NTP Server and Client
 - TCP/IP IPv4 (IPv6 in future possible)
 - DHCP
 - IPsec
 - PPP (Point to Point Protocol)
 - Telegraf Agent (Server for collecting and reporting of metrics)
 - Nftables (Firewall)
 - OpenSSH
 - OpenSSL
 - Hardware Watchdog
- Container
 - Open PLC
 - Protocol Converter
 - Modbus RTU Master
 - Modbus TCP Master
 - IEC 60870-5-104 Server (Client Optional)
 - IEC 61850 Client Ed2
 - MQTT v5 Client

Communication Engine

- Communication Quectel BG770A-GL Module
- LTE-Cat M1/NB1/NB2
- Sony Altair ALT1250 based

Certification

- Electrostatic discharge: IEC 61000-4-2 class 3, 8kV/Air and 6kV/Contact
- EMC: IEC 61000-4-3 class 3, 10V/m
- Fast Transient Burst (5nS/50nS): IEC 61000-4-4, 2kV
- Surge protection (1,2/50µS): IEC 61000-4-5 class 3, 2kV CM and 1kV DM
- Conducted Radio Frequency: IEC 61000-4-6 class 3, 10V
- Magnetic fields 50Hz: IEC 61000-4-8, level 3, 10A/m permanent and 100A/m 1-3 sec.
- Damped oscillating waves (1MHz burst): IEC 61000-4-18, 1kV DM/2,5kV CM

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