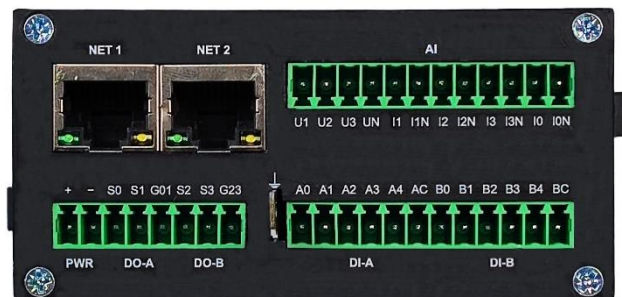# EMU7 – Monitoring and Control Unit of MV Feeders

Unit Description

EMU7 combines a communication unit, measurement, digital inputs and outputs, which together form a functional unit for monitoring and control of medium voltage feeders in electricity distribution substations. Thanks to its compact dimensions and the possibility of installation in the front panels of the cubicles, it is a very versatile and efficient solution with many useful functions that are usually needed for applications in RMUs.

EMU7 front panel

EMU7 rear panel

Typical Applications

- measuring device in connection with low-power sensors,
- feeder terminal,
- fault passage indicator,
- feeder protection.

Basic Features

- 3 x voltage measurement input,
- 4 x current measurement input (incl. sensor for I_0),
- fault indication according to ANSI 27, 46, 47, 50, 50N, 51, 51N, 59, 59N, 67, 67N, 81H, 81L, 81R,
- networks disturbances records in format COMTRADE,
- 10 × DI, 4 × DO (relay),
- 2 × independent 10/100 Mbps Ethernet LAN port, VLAN support,
- operating values display, local control and setup via buttons,
- supported communication protocols IEC 61850 (MMS + GOOSE), IEC 60870-5-104, DNP3, HIOCom2, MODBUS TCP, DLMS, OPC UA, SNMP,
- L2TP, OpenVPN and IPsec tunnel,
- secure communication according to IEC 62351-3 (TLS),
- web configuration interface HTTP/HTTPS, NAT, firewall,
- user access control, RADIUS, RBAC,
- syslog, NTP, SSH, SCEP,
- digitally signed FW,
- SQL database data storage support,
- user programmable, proprietary or according to standard IEC 61131-3,
- internal thermal sensor, embedded RTC,
- panel mounting.

Screw terminals for easy installation are part of the EMU7 delivery

Technical Specification

Power supply voltage	10 ÷ 60 V DC (max. 10 W), isolated from other unit parts, SMD fuse
Communication ports	2 × metallic Ethernet 10/100 Mbps, isolation 1.5 kV AC / 1 min.
Analog voltage inputs	3 × for low-power voltage sensors 3.575 / 4.29 V, 200 kOhm, optionally for VPIS VO or CAPDIS, accuracy ±0.5 % from nominal range
Analog current inputs	4 × for low-power current sensors 0.225 / 4.5 V, SMCS3 JW1004, accuracy ±0.5 % from nominal range
Digital inputs	10 × passive (wet contact) input 24 V DC, two groups with common terminal, nominal input current 4.1 mA
Digital outputs	4 × relay, two groups with common terminal, outputs resistive load 6 A / 250 V AC, 6 A / 30 V DC
HMI	OLED display, 5 buttons
Wire cross-section	0.08 ÷ 1.3 mm^2
Operating temperature	-25 °C ÷ +70 °C
Storage temperature	-30 °C ÷ +75 °C
Ambient relative humidity	≤ 95 % non-condensing
Dimensions	96 × 48 × 120 mm (W × H × D)
Mounting hole dimensions	92 × 45 mm (W × H)
Ingress protection	IP20 (IP54 for front panel)