



RTU7K (PC2) – control and communication unit, measurement 3V + 3I

Unit description

The RTU7K is derived from a well-established series of compact RTUs from ELVAC a.s., designed for remote monitoring of energy networks, and further areas with high requirements for system reliability and robustness. The compact design integrates in one unit three-phase measurement of voltages and currents, digital inputs and outputs, a communication module and a charger of backup batteries which is very cost-effective and simplifies system installation and maintenance. The unit can record the waveforms of signals on analogue inputs triggered from fault events. These records can be remotely downloaded and analyzed. Similarly, it is possible to remotely parameterize the unit and upgrade firmware. The RTU7K PC2 version is fitted with a more powerful communication card to support more demanding communication tasks.

Typical applications

- ❑ measurement of P, Q, U, I,
- ❑ reclosers and load break switches control,
- ❑ protection.



Basic features of unit

- ❑ 20 × digital input, periodical evaluation and filtering of input changes,
- ❑ three-phase measurement of voltages and currents, periodical evaluation of values,
- ❑ 5 × relay output, automation functions,
- ❑ auxiliary contact ON REL, useful for example for disconnection of a devices connected to battery,
- ❑ internal temperature of RTU is measured directly, another input for external sensor for environment measurement of RTU,
- ❑ external power supply 10 V DC to 40 V DC, the voltage must be 5 V higher than voltage of a backup battery,
- ❑ controlled charging of backup battery 12 V or 24 V, periodical testing of battery status (capacity),
- ❑ protections – short circuit, overcurrent (time depending or not, directional or not), earth fault (directional or not) voltage, frequency, current and voltage asymmetry,
- ❑ automation functions – reclosing, switch off in zero voltage pause,
- ❑ time information is provided by master system (SCADA) or via GPS receiver,
- ❑ optional extension via RS-485 – external I/O modules, another RTUs,
- ❑ optional control via HMI terminals,
- ❑ communication card COMIO4 - RS-232/485, Ethernet, GPRS/EDGE/UMTS, version PC2 additionally RS-422, CSD,
- ❑ supported communication protocols – MODBUS, HIOCom2, IEC 60870-5-101, IEC 60870-5-103, IEC 60870-5-104, FTP, HTTP,
- ❑ version RTU7K PC2 supports also IEC 61850, DNP3, L2TP, DLMS secured communication according to IEC TS 62351-3 and another option according to user demands,
- ❑ user programming by logical and relational expressions,
- ❑ DIN rail or panel mounting.

Technical specification

Voltage inputs	3 × 10 or 100 or 230 V AC (DC), optionally fourth input 100 V or inputs for capacitive sensors
Current inputs	3 × 20 mA, optionally 1 A AC (DC)
Digital inputs	20 × optocoupler, active or passive inputs, signaling voltage 24 V (optionally 12 V)
Digital outputs	4 × relay (NO contact 3 A / 240 V AC / 30 V DC), 1 × relay (changeover contact 5 A / 240 V AC / 30 V DC)
Communication cards	Standard COMIO4, optionally card COMIO-PC2 with embedded PC
Communication interfaces	Depending on the type of communication card - Ethernet LAN, GPRS/EDGE/UMTS, RS-232/422/485
Antenna connector	FME with card COMIO4 or SMA with card COMIO PC2
Power supply voltage	10 V DC to 40 V DC
Voltage of backup battery	12 V, optionally 24 V
Max. charging current of battery	1 A
Max. maintenance battery voltage	13.7 V, optionally 27.4 V
Switch off voltage (battery protection)	11 V, optionally 22 V
Temperature sensor	Measured range -55 °C to 125 °C, accuracy ±0.5 °C in range -10 °C to 85 °C
Operating temperature	-25 °C to 50 °C (possible increase up to 65 °C – on demand)
Storage temperature	-30 °C to 75 °C
Ambient relative humidity	5 % – 95 % non-condensing
Dimensions	157 × 90 × 60 mm (W × H × D) without connectors
Ingress protection	IP20 (IP21 with protection cover – for free on demand)