

Development, Production and Engineering of Industrial Electronics Zagreb

MONITORING AND CONTROL TERMINAL UST-3

Monitoring and Control Program

NU-13083E

Application

Monitoring and control terminal UST-3 is used for remote control, monitoring and state signaling in extendable or compact medium voltage switching devices. The control of the switching devices (disconnector, circuit breaker) is performed via the communication with Info terminal IT-3 or Communication units KJ-10. Besides the control functions, UST-3 signals the status of digital inputs and outputs on the LED elements. Digital inputs on the Monitoring and control terminal can be used for status monitoring of local terminals such as Fault indicator (e.g. IK-5), Transformer protection relay (e.g. NR-300), etc. Depending on the complexity and importance of MV switchgear, Monitoring and control terminals UST-3 are communication integrated via into the

remote terminal DT-10TSp through IT-3 or KJ-10. This represents a very cost-effective system for remote monitoring and control of complex switchgear composed of a set of modules. Mounting the UST-3 in each cabinet of expandable switchgear, and connecting to Remote terminal unit by means of communication ensures savings in cabling, commissioning time and service.

Optical communication link provides high resistance to interference, and increases reliability and system availability. If the UST-3 terminals are mounted in a common cabinet (Remote terminal unit series DT), the RS485 communication link for connecting to the Info terminal IT-3 or communication unit KJ-10 can be used.



Figure 1. Monitoring and Control Terminal UST-3

Main features

- used in expandable and compact medium voltage switchgears and renewable energy source grid connection
- mounting in a common cabinet of Remote terminal unit DT, mounting plate or MV switchgear cabinet
- remote control of the switching devices (disconnectors, circuit breakers)
- microprocessor signal processing
- dynamic signaling the state digital inputs and outputs on the LED elements
- high availability and immunity to interferences

- digital inputs can be used for monitoring local terminals (e.g. Fault indicator, Protection relay etc.)
- 16 digital inputs, 8 relay outputs, 2 analog inputs
- optical or RS485 communication interconnection and link to Central unit
- parameterization with UST-3 DIALOG software
- small dimensions, mounting on DIN rail 35mm
- cost-effective solution
- remote control via central unit, Info terminal IT-3 or Communication unit KJ-10

Functional description

Monitoring and control terminal UST-3 is used for remote monitoring, control and state signaling of disconnectors, circuit breakers and earthing switches. The control of the switching devices is performed remotely via optical or RS485 communication. The change of the state of the switching device is dynamically signaled on LED elements. Connection diagram for UST-3 is given in Figure 2. Switching devices status is monitored by means of potential free contacts (I1...I16) of the signaling switch for each device. The control of switching devices is performed by means of digital outputs O1....O8. Digital inputs I1 ... I16 can be connected to potential-free contacts for monitoring general purpose digital signals in the switchgear (eg. fault indication, protection trip, power supply failure etc.).

UST-3 has two analog inputs (4-20 mA, 0-10 V). Communication with the central unit is realized via RS485 or optical media and standard MODBUS RTU protocol. Parameterization of the device is performed using a PC with USB and UST-3 DIALOG software.



Figure 2. UST-3 connection diagram

Technical specifications

number of input signals: switching devices status, general inputs		<i>communication with central unit</i> (IT-3 or KJ10)RS 485 or optical MODBUS RTU protocol PFO, 660nm, snap in connector GFO, 860nm, ST connector	
switching devices status potential free contact, NO or NC general inputs potential free contact, NO or NC		parameterizationUSB softwareUST-3 DIALOG	
input contact supply	external, 24-72 VDC 90-130 VDC 180-260VDC 210-250VAC	<i>power supply:</i> 24-72 VDC 85-300VDC 100-250VAC <i>consumption</i> 8VA	
input current with			
closed input contact1,5 - 5mA		general data:	4000
number of output signals: switching device control 8 (O1O8)		extended temperature range	
<i>type of output signals:</i> for all relay outputsNO contact, Umax 250V, Imax 5A			among all galvanicaly isolated circuits
for all relay outputs 200VDC, 50VDC,	C, 80W; 100VDC, 55W; 50W; 24VDC, 190W	<i>mechanical data:</i> mounting dimensions	. on DIN rail 35mm . 106 x 90 x 58 mm

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