



MONITORING AND CONTROL TERMINAL UST-10G

Monitoring and Control Program

NU-13011

Application

Monitoring and Control Terminal UST-10G is used for control, signaling and display status of medium voltage switching devices in electric distribution networks (Ring Main Unit). Control of the switching devices (disconnectors, circuit breakers) can be performed locally (from the keyboard) and remotely (by means of RS485 communication). Besides the control function, UST-10G performs visual indication of switching device status for selected switchgear configuration on graphical LCD display, with tekstual description for each medium voltage feeder. Every change of device status also dynamically changes the indication on the display. Monitoring and Control Terminal also enables the alert function with 8 LED elements. In this way status of

digital inputs in medium and low voltage plant can be signaled by means of their contacts (i.e. Buchholz protection, overcurrent trip, transformer protection trip etc.).

Optionally by means of sensor inputs (unconventional current sensors) UST-10G can be used for short-circuit and ground fault detection in particular feeders.

If UST-10G is connected to the overcurrent protection relay, it can accomplish the auto reclosure function (AR).

Monitoring and Control Terminal can be used in distribution switchgears 10(20) kV, distribution and industrial substations 10(20)/0.4kV, as well as in other switchgears.

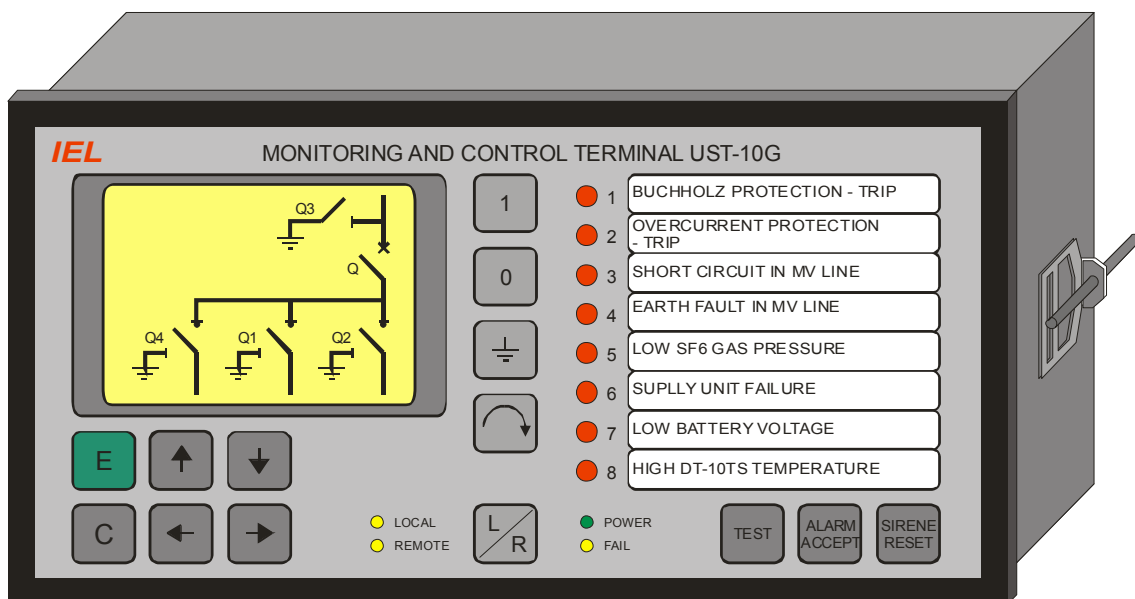


Fig. 1. Monitoring and Control Terminal UST-10G

Main features

- microprocessor signal processing
- graphic display of the switching devices
- local and remote switching devices control
- alert processing according to the DIN 19235 or ISA alarm sequences
- self-test, local and remote availability indication
- internal supplying of potential free input contacts galvanically insulated from auxiliary supply
- high transient immunity
- auto reclosure function (fast and slow)
- text entry on the template for inputting text description for each medium voltage feeder
- small dimensions, according to DIN 43700 standard for flush mounting instruments
- easy connection by means of plugg in terminals
- remote control via RS485 communication, MODBUS protocol

Functional description

Monitoring and Control Terminal UST-10G's wiring diagram is shown in Fig. 2. Switching devices status are monitored by means of potential free contacts (K1...K16) of the signaling switch for each device. The control of switching device is performed by means of output relays O1...O16 that are connected to actuators for remote switching circuit breakers and disconnectors. If higher power is required for the actuators, the appropriate power relays should be additionally applied.

The inputs I1...I8 enable the connection of additional 8 potential free contacts for general signaling (i.e. Bucholtz protection, low SF6 gas pressure, power supply failure, overcurrent protection trip...).

As an option, by using the unconventional current sensors, it is possible to detect a short-circuit ($I >>$) and

ground fault (IO) in each particular medium voltage feeder. The device enables measurement of two analogue values: battery voltage and ambient temperature (M1, M2).

RS485 communication with a master system uses MODBUS RTU protocol.

During parametrization switchgear configuration can be selected on the graphic LCD display from the standard switchgear configuration menu. Non-standard configuration can be implemented on demand.

As an option, UST-10G can also accomplish an auto reclosure function (AR). For that option the outputs of a protection relay should be connected to the general inputs 17 or 18.

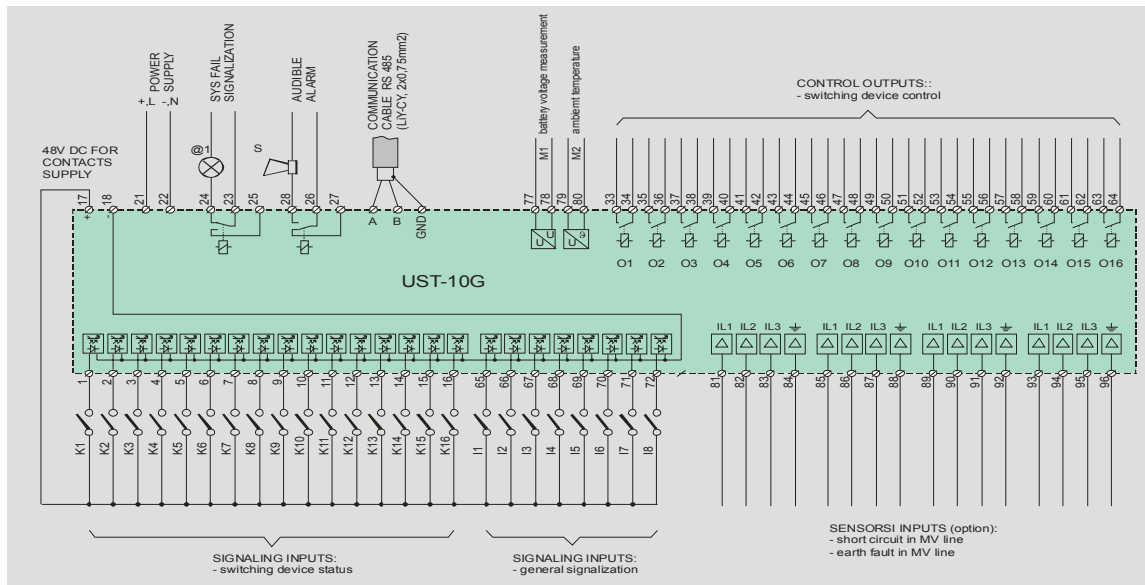


Fig. 2. UST-10G terminal diagram

Technical specifications

number of input signals:

switching devices status 16 (K1...K16)
 general inputs 8 (I1...I8)
 sensor inputs 16 (S1...S16)
 measuring inputs 2 (M1 and M2)

type of input signals:

switching devices status potential free contact, NO or NC
 general inputs potential free contact, NO or NC
 sensor inputs analogue, 0-20mA
 measuring inputs analogue, 0-10V

input contact supply ...48VDC internal, galvanically isolated from the main power supply, external on demand

input current with

closed input contact 4mA at 48VDC

number of output signals:

switching device control 16 (O1...O16)
 audible signal 1
 fault signal 1

type of output signals:

for all relay outputs NO contact, U_{max} 250V, I_{max} 5A
 maximum trip power
 for all relay outputs 200VDC, 80W; 100VDC, 55W;
 50VDC, 50W; 24VDC, 190W

auto reclosure (option)

number of reclosures ... up to 5 attempts
 T fast 0.1-10s step 0., 1s
 T slow 10s - 1000s step 1s
 T AR 1s (pulse)
 TDEF = TBLOCK 1, 5, 10, 20, 100, 200s (standard 10s)

communication:

RS 485 (option) MODBUS RTU protocol
 (other on demand)

power supply: 24, 48, 110 or 220 VDC +45% -20%,
 110 or 220 VAC +10% -20%

consumption 10VA

general data:

temperature range -10°C...+50°C
 extended temperature range -20°C...+60°C
 isolation 2.5 kV, 50Hz, 1min
 among all galvanically
 isolated circuits

mechanical data:

mounting in panel, DIN 43700
 dimensions 192 x 96 x 90 mm

