

KWG-xxx

operator terminal with LED signaling

Operator terminal enables easy and efficient local or remote supervision of control and monitoring processes performed by bay controllers, RTU or other IED equipment.

KWG Operator Terminal is designed to perform local or remote manual control and visual inspection of control or monitoring processes performed in Station Automation Systems (SAS). It can cooperate with bay controllers or RTU type SO-52v11 or other IED devices.

The KWG device can be integrated with the IED devices or installed separately, e.g. in stations control room. The terminal may be also integrated within a control cabinet.

KWG Operator Terminal consists of a large graphic display with an integrated touch panel and of a signaling panel with LEDs. The terminal is configured with the use of pConfig configuration software tool.

Version KWG-32x of the terminal may be mounted inside the cabinet of SO-52v11 controller, to the side panels of the cabinet with screws. In such configuration all signal connectors are located on the back side of the control cabinet.

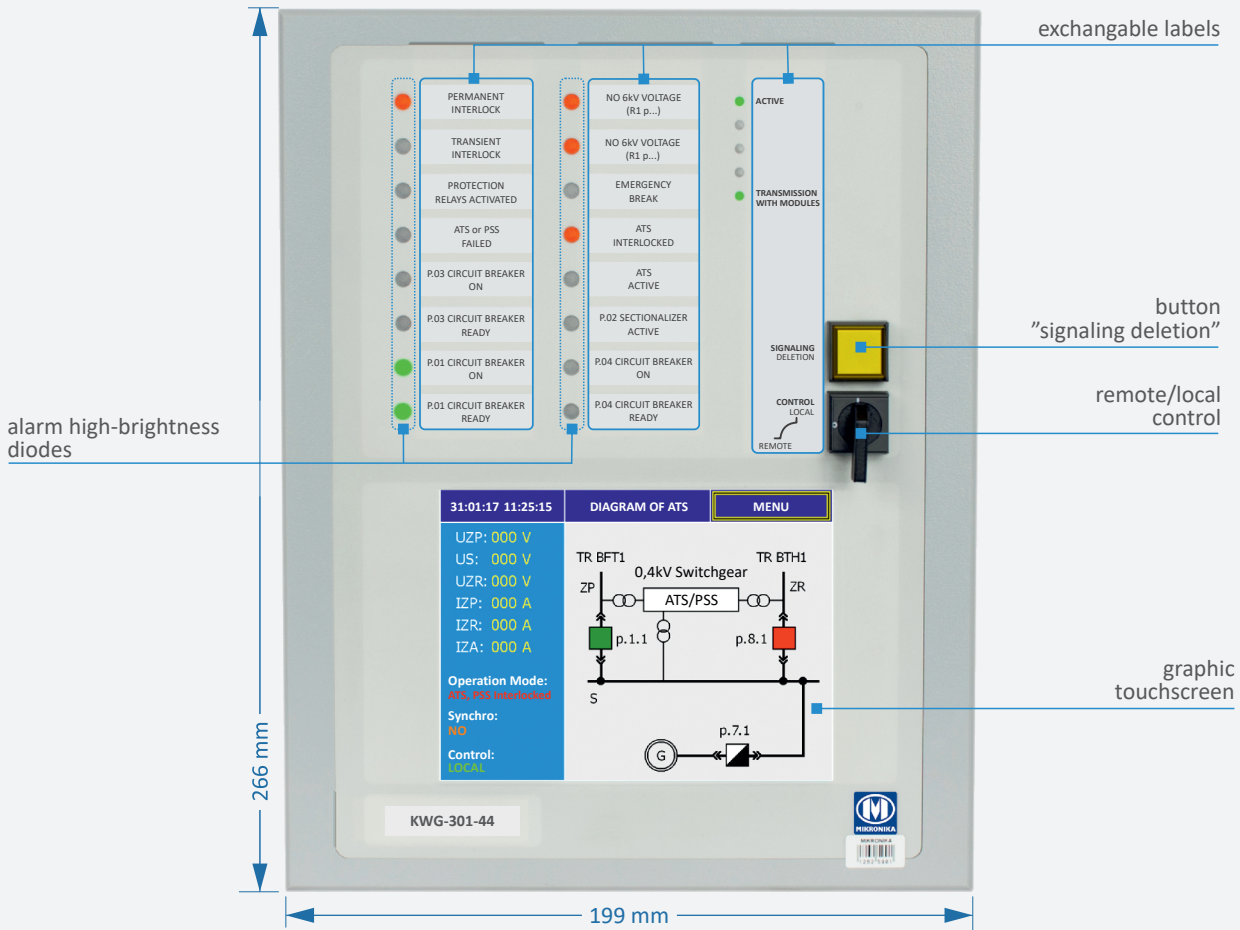
Version KWG-30x of the terminal may be flush mounted, using brackets on side panels of the terminal, in some distance from SO-52v11 controller. In such case communication between the terminal and the controller is executed with the use of RS-485.



Standard displays

All displays presented on the terminal may be edited by the user with the use of SCHEMATY (DIAGRAMS) editing tool – this is a part of SYNFILE software tool. As standard, the following 5 displays are presented:

- **bay diagram:** this display presents a bay or a device being supervised
- **control:** on this diagram the element (e.g. circuit breaker, disconnector or earthing switch) may be selected
- **measurements:** presents all measurements edited for the bay: voltages, currents, powers
- **event log:** presents event log of a bay
- **bay status:** on this display other signals, coming from the bay, may be viewed, e. g.:
 - ▣ operation mode (local/remote)
 - ▣ test/normal operation
 - ▣ “bay in survey” signal



LED signaling panel constitutes a part of graphic terminal that serves for presentation of significant bay statuses, such as e.g. alarms or operational errors. The occurrence of a strictly defined situation results in lighting of the corresponding, configurable LED diode, labeled with easy to pull out paper strips. Standard panel comprises 16 LEDs for bay statuses signaling and 5 device status diodes. Assigning the displayed information to the tasks of a specific application is possible via a configuration tool.

Within SO-52v11 bay controller, a diode signaling panel, integrated with touch screen, creates an operator terminal. It may be installed within the cabinet housing the controller or on mimic board on control room.

Operation

The terminal works with graphic RGB displays of NHD 5.7-320240-WFB type and KWG-LED-001 signaling module. It executes images displaying on a display with resolution of 320x240 dots as well as control of LED signaling diodes. Display brightening function is available, display's touch panel may be also equipped. It is possible to save a sequence of commands of macro type in a memory of the device and then launching their execution from the master system level. The terminal is equipped with a following transmission channels:

- non-isolated RS-232 channel for local communication
- isolated RS-485 and LVDS for communication with master system
- one Ethernet channel

Definition of transmission parameters, buttons labeling on the screen, address assigning is done with the use of configuration tool.

Switch and buttons

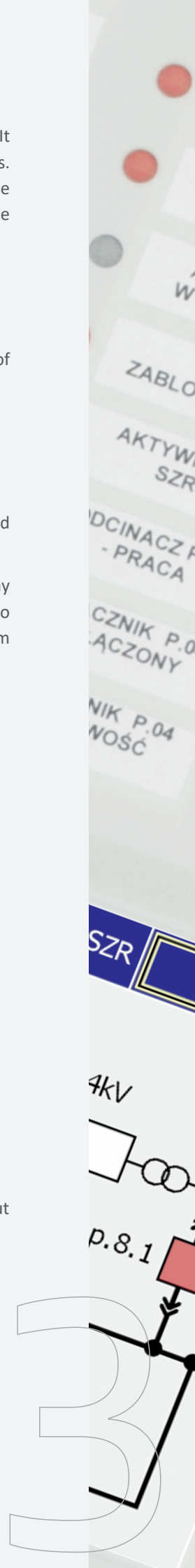
The front panel of the terminal comprises the module with 3 buttons and a switch.

The switch serves for local or remote operation mode selection. In local operation mode a control may be executed only from the operator terminal, in remote operation mode - only from the master system.

Two out of four buttons serve for confirmation of local control of the element already selected on a display (operation "make", operation "break"). One button may be assigned to LED acknowledgement, the next one to displaying information of bay being currently surveyed. Other configuration of buttons, as well as switching from a button to switch, is also possible.

Technical data

- **resolution:** 320x240 pixels
- **screen:** LCD TFT with LED backlight
- **touch panel:** resistive
- **power consumption:**
 - **standalone mounting:** 10W - 230/220V AC/DC
 - **inside of SO-52v11 control cabinet:** 10W - 5V DC
- **ambient conditions:**
 - **front:** Ip51
 - **back:** Ip40
- **data exchange:** RS-485, LVDS, Ethernet
- **isolation withstand:**
 - **power supply:** 2,5 kV; RMS during 1min
 - **transmission channels:** 1 kV; RMS during 1min
- **operating conditions for flush mounting:**
 - **temperature range:** class C1, extended operating range -5°C up to +60°C
 - **humidity:** 5÷98% without condensation
 - **atmosphere:** pressure 70÷106kPa without corrosion stimulating vapours or gases
 - **vibrations:** amplitude 0,1mm within 0÷25Hz range; acceleration 2,5m/s² within 25÷80Hz range, without mechanical impacts
- **electromagnetic compatibility (EMC):**
 - **voltage dips:** IEC 61000-4-11; Class 3; A
 - **power supply interruptions:** IEC 61000-4-11; Class 3; A
 - **voltage changes:** IEC 61000-4-11; Level 1; A
 - **surge disturbances:** IEC 61000-4-5; Level 4; A
 - **fast electric transients:** IEC 61000-4-4; Level 4; A
 - **electrostatic discharges (ESD):** IEC 61000-4-2; Level 4; A
 - **electromagnetic emission:** ...; ...; Level B



Product selection

KWG-xxx-xx

■ Switch on front panel:

- 0 - (or lack) – terminal not equipped with a switch
- 1 - terminal equipped with a switch
- 2 - terminal equipped with a toggle switch
- 3 - terminal equipped with a switch and a single button
- 4 - terminal equipped with a toggle switch and a single button
- 5 - terminal equipped with a switch and three buttons

■ Type of front panel:

- 0 - panel only for touch panel
- 1 - 16 signaling diodes - green, 5 status diodes - green
- 2 - 16 signaling diodes - green, 5 status diodes - green, 1 space for button or switch
- 3 - 16 signaling diodes - green, 5 status diodes - green, 4 spaces for button or switch
- 4 - 8 signaling diodes - green, 8 alarm diodes - red, 5 status diodes - green
- 5 - 16 signaling diodes - red, 5 status diodes - green, 4 spaces for button or switch
- 6 - 10 signaling diodes - green, 6 alarm diodes - red, 5 status diodes - green, 1 space for button or switch
- 7 - 9 signaling diodes - green, 7 alarm diodes - red, 4 status diodes - green, 1 status diode - red, 1 space for button or switch

■ Type of Ethernet:

- 0 - without Ethernet
- 1 - TP - Ethernet 10/100TP - twisted pair
- 2 - FS - Ethernet 10/100TP - single-mode fiber-optic
- 3 - FM - Ethernet 10/100TP - multi-mode fiber-optic

■ Type of module execution:

- 0 - as a standalone module, power supply 230/220V AC/DC; connectors on bottom panel
- 1 - as a standalone module, power supply 5V or 12V DC; connectors on bottom panel
- 2 - for mounting inside a cassette, power supply 5V or 12V DC

■ Version of construction:

- 3 - diode signaling panel integrated with color graphic display

