

TZ-600

Teleprotection Signalling Equipment



In order to guarantee their customers a highly reliable and best possible electricity supply, electricity providers are faced with various challenges. In case of a power line failure the faulty part of the network has to be separated as fast as possible in order to preserve secure working conditions and to keep the network stable. An uninterrupted electricity supply has to be guaranteed resulting in the demand to keep the network downtime in case of a failure as short as possible.

To separate the faulty part of the network as fast as possible distance relays have to receive teleprotection signals, which help them to disconnect this part in a concerted action.

TZ-600 – fast and reliable

The TZ-600 teleprotection signalling equipment has been entirely designed, developed and produced by IMP-Telecommunications. It enables information exchange between the ends of protected power lines merging all crucial requirements for teleprotection devices – short transmission time (<10 ms, typically 2 – 4 ms when using optical fiber links), high dependability, security and availability. These parameters are essential for the proper operation of the teleprotection system.

Teleprotection over different medium and communication technologies

TZ-600 enables transfer up to 8 independent protection signals for distance protection via optical fiber links (favorite medium, diagram I), shared communication links (diagram II) or telecommunication network (both via E12 interface, diagram III). TZ-600 can be used in direct tripping, permissive tripping or blocking application schemes.

Easy to use

TZ-600 user interface is very intuitive and easy to handle. Its modular structure comprises several modules such as power supply, universal input-output, central processing unit (including graphical display and control buttons), line unit and teleprotection diagnostics unit. Hereby the joystick buttons on the device front panel help the operator to easily handle the menu. All modules are equipped with LED lights to ease displaying the monitored states.

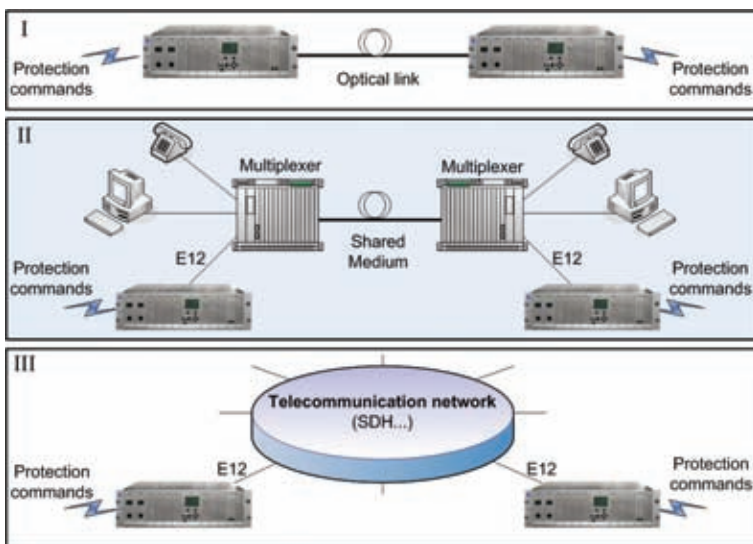
Monitoring and Configuring using a standard PC

TZ-600 is easy and fast to install. It is configurable using a standard PC connected via USB interface. Since any terminal program, for example HyperTerminal, can be used for communication with the device, there is no need for additional configuration software.

The TZ-600 supervision software can access the TZ-600 equipment via Ethernet network. Within the TZ-600 equipment two kinds of databases are generated: the status and the events database. In the status database events like “start”, “system up”, “power down” or “no signal” and local and remote statuses belonging to all kind of system parameters are stored. Critical status changes are very easy to detect thanks to the well-arranged graphical view of the status database. As soon as the status of a monitored variable changes the entry in the databases belonging to this variable changes its color either to red (alert) or orange (notification) depending on the monitored variable.

In the event database all tripping events are stored. Moreover a notification is shown on the graphical display every time a tripping event occurs.

Both databases can be downloaded from the TZ-600 device manually. The graphical view of both databases is clear and intuitive as it arranges all kind of monitored variables by date and time and sets colored accents as described above.



Teleprotection over different medium and communication technologies

Modular design - to meet our customers' special needs

TZ-600 is not an ordinary teleprotection system. Its special nature is to be flexible. That's why there is space for further features in the EMC 19" rack of 3U height. We develop everything our customer needs - as can be seen in the teleprotection diagnostics unit developed for the needs of the "Electric Power Industry of Serbia".

This feature enables a real-time status view of the monitored variables on the front panel of the TZ-600 device so the user does not have to download the complete events database. Besides the described advantages, the TZ-600 equipment features an outstanding quality-to-cost ratio. For IMP-Telecommunications good service is self-evident – in case of any help needed our customers profit from our strong support.



Main Technical Data

• Digital signals (distance protection):

- Number of input channels: up to 8
- Number of output channels: up to 8
- Voltage of input command contacts: 24 Vdc to 250 Vdc
- Independence of input voltage polarity
- Output relay contact: 35 W max
- Output contact type: open or closed (adjustable)

• Command transmission time (in accordance with IEC 60834-1; 1999 Recommendation)

- Optical transmission: < 10 ms (< 2-4 ms typically)
- E12: < 10 ms (< 6 ms typically)

• Optical transmission with 1550 nm wavelength laser diodes

- Optical range ~120 km (basic variant) and more ("booster")
- Optical transmitter power > -2 dBm (basic variant)
- Optical transmitter sensitivity -39.0 dBm
- Optical binary transfer rate 2 Mb/s

• Modular design

- Possibility of using up to 8 user modules
- User modules:
 - for distance protection signals
 - Teleprotection diagnostics unit
 - Teleprotection input interface
 - Teleprotection output interface
 - Communication interface IEC C37.94 (currently under development)

• Power supply

- a wide range of input supply voltages: 48-350 Vdc, 90-260 Vac
- redundant power supply from one or two independent sources

• Equipment monitoring and configuring

- monitoring and configuring using a standard PC (via direct connection or via network)
- monitoring remote equipment
- automatic testing during operation without affecting the basic functions
- graphics display for local monitoring
- copying and reading equipment configuration to/from memory
- automatic event recording in the memory
- applications software for computerized monitoring
- report printing

• Alarm signaling through relay contacts

- transmit side errors to the line
- receive side errors (loss of signal, synchronization, error above the threshold)
- power supply failure
- irregular command signals (short or long duration)

• Mechanical solution

- EMC 19" rack of 3U height



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