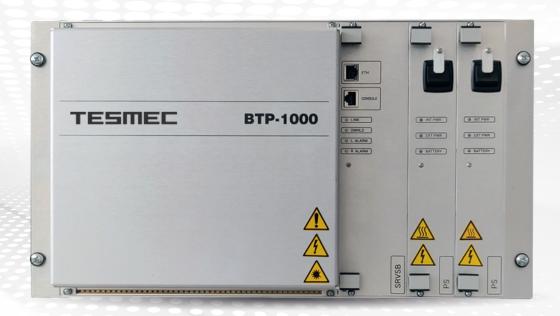# BTP-1000

## TELEPROTECTION

# FEATURES AND APPLICATIONS

A reliable supply of electricity is only possible with the help of protection equipment in conjunction wit communication links. To avoid the power system failure and damage, the teleprotection system allows to selectively identify the location of a fault on high-voltage transmission lines, transformers and other items of electrical substations by transferring command signals within the shortest possible time in a secure and dependable way.

BTP-1000 enables the transmission of protection commands over different communication channels, such as:

- Optical fibers;
- Microwave radio links;
- Digital and analog channels of optical networks;
- Copper wires;
- Power line carrier.

Channel coding and command detection algorithms ensure the optimal combinations of transmission time, security and dependability in accordance with IEC 60834-1.

BTP-1000 can be used in all protection schemes, such as direct tripping, permissive tripping and blocking. BTP-1000 supports the traditional hardwired interface between protection equipment and teleprotection, based on contact type inputs and outputs, and the modern protection interface based on the exchange of GOOSE messages according to the standard IEC 61850. BTP-1000 enables up to two communication channels to protect against communication path failures. The complete configurability and modularity of BTP-1000 equipment adapts easily the device to the protection systems requirements and to the media transmission characteristics. The BTP-1000 device is verified by CESI according to certificate of inspection no.B7007444-1 dated 17th October 2019.

## TELEPROTECTION FOR HIGH-VOLTAGE GRIDS

Designed to be used in harsh substation environments, BTP-1000 is a costeffective teleprotection equipment for fast, reliable and secure transmission of protection signals in optical, digital and analog networks, in compliance with international recommendation IEC 60834-1

## TESMEC

# TECHNICAL FEATURES

| Features | Value |
|---|---|
| Power supply | 24/48/110/220 Vdc, ±20%, redundancy (as option) |
| Weight and Dimensions | Up to 8 kg, 19-inch subrack, height: 6U |
| Standards compliance | IEC 60834-1, IEC 61000-6-2, IEC 61000-6-4, IEC 60255-27 |
| Number of commands | Analog interfaces: up to 4 independent commands in any combination or up to 16 commands with priority<br>Digital interfaces: up to 8 independent commands in any combination or up to 256 commands with priority |
| Number of command cards | Up to 8 |
| Number of command inputs/outputs for each card | 4 command inputs + 8 command outputs + 1 alarm, inputs/outputs completely programmable |
| Command inputs characteristics | Opto-isolated contacts, nominal voltage from 24 Vdc to 250 Vdc, electrically isolated, polarity independence |
| Command outputs characteristics | Solid state relays, nominal voltage from 24 Vdc to 250 Vdc, maximum current up to 6 A (different mounted relays), electrically isolated |
| IEC 61850 support | GOOSE interface to the protection, RJ45 electrical ethernet ports or SFP optical ethernet port |
| Digital lines | V.11 (32/64/128 kbps), G.703 (64 kbps co-directional), E1 (2 Mbps), SFP optical fibers (850/1310/1550 nm, MM/SM), optical IEEE C37.94 |
| Analog lines | 2/4-wire 600 Ω or high impedance, APLC/DPLC (embedded in BUPL-1000 PLC equipment) |
| Number of line interfaces | Up to 2, simultaneously and in "hot back-up" |
| Dependability and security | According to IEC 60834-1 |
| Alarms | Electro-mechanical relays, maximum current up to 5 A, normally closed and/or normally open free contacts, configurable alarm sources |
| Time synchronization | NTP, IEEE 1588, IRIG-B (as option) |
| Events/alarms logging | > 10000 events, non-volatile memory, trip counters |

| Other Features | | |
|---|---|---|
| | Analog interfaces: up to 4 independent commands in any combination or up to 16 commands with priority | Single or redundant power supply |
| | Digital interfaces: up to 8 independent commands in any combination or up to 256 commands with priority | Alarms and events logging with time synchronization |
| | Single and double communication links | Integrated trip counters |
| | High programmability of commands parameters | SNMP agent with standard and private MIBs |
| | Set-reset commands (continuous commands) | Secure management access |
| | Comprehensive self-test diagnostics | RADIUS protocol for Authentication, Authorization and Accounting management (AAA) |
| | Human Machine Interface (HMI) with built-in functions for easy commissioning and maintenance | |

| Applications | BTP-1000 collects vital information for the protection of the electrical power grid and communicates to a remote teleprotection equipment in order to coordinate the protection devices for fault location in high-voltage transmission lines. |
|---|---|

**Stay in touch with us:**

**tesmec.com**