

TP10/TP4



Transmission of digital protection commands and differential protection signals via Optical Cable, Eth/PDH/SDH Network

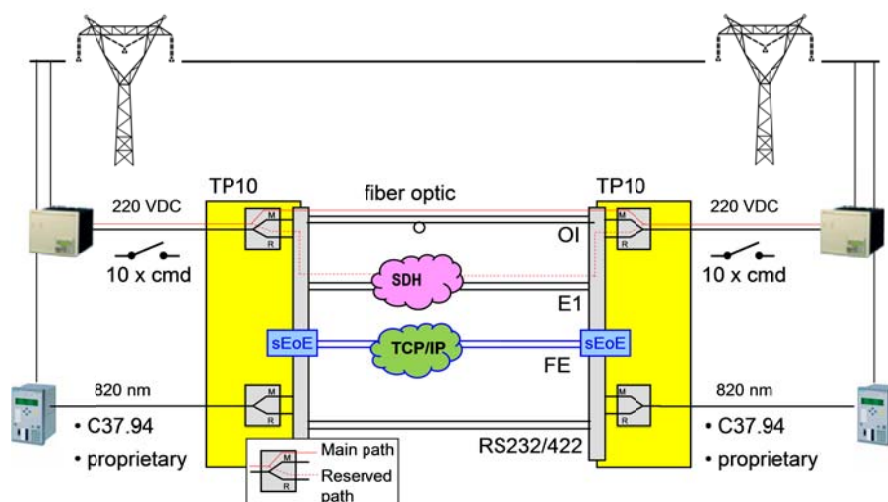


- ▶ 10 bi-directional commands
 - Direct Trip/Permissive/Blocking
- ▶ Dual power supply 220 VDC/230 VAC
- ▶ 820 nm optical interface for differential protection
 - C37.94
 - Proprietary
- ▶ Local/network management
- ▶ NTP/PTP time synchronization
- ▶ Line interface (protective switching 1+1)
 - Optical (OI)
 - E1
 - RS232/422
 - **Fast Ethernet (FE) – Eth / IP (optional)**

PCM30U-OCH mux family member

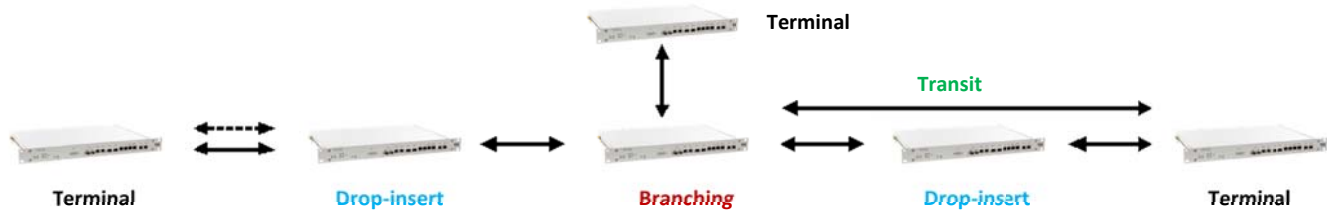
← 6U (PDH/SDH/Eth)
3U (PDH/Eth)
1U(PDH/Eth)
Box converter

- low input impedance increase immunity to distortion
- voltage and time filtering
- galvanically separated inputs and outputs
- 8 bit addressing
- cross-connect a drop-insert for command groups
- continuous check of transmission time and connection
- transmission up to 4 directions (4 command groups)
- transmission time from 0,5 ms
- command log accuracy 1 ms (command + alarm + time)
- T-line function for multi-ended circuits
- Independent command configuration (DT/P/B), filtering,...



The TP10 equipment is intended for the transmission of 10 bi-directional commands within power grids, and, in addition, of digital teleprotection signals on optical interfaces. Aggregated signal is transmitted via optical cable or Eth/SDH network. Its reliability can be enhanced by making the transmission path redundant, 1+1.

Universal solution for various command topologies:



Technical Specifications

Command interface 10 bidirectional commands + 1 acknowledgment input Inputs 110, 220 VDC Outputs (solid state) 220 VDC/2A (5A @250ms) Two alarm relays 220 VDC/1A Insulating voltage 4 kV Command log with ±1 ms accuracy Transmission time 0.5 to 3 ms (64 to 512 kbit/s)		Digital differential protections <ul style="list-style-type: none"> IEEE C37.94 (820 nm) -RED670, SEL311L, ... Proprietary <ul style="list-style-type: none"> 7SD511, 7SD512 7SD523, 7SD61 Serial data (sync./async.) 	
Line Interface Electrical interface 2 x E1 2x Fast Ethernet (FE) 2 x RS232 / 422 (Rx, Tx, RxC) Optical interface 2 x OI (SFP module) Wavelength 1310 nm 1550 nm Distance One fibre WDM 1310/1550 nm up to 120 km		General Specifications Supply voltage 2 x 220 VDC/230VAC Power consumption 15 W Dimensions 482,6 x 43,65 x 285 (w x h x d) mm Subrack design 1U height subrack to be mounted into 19" rack. Operating temperature -5 to +55 °C Path backup switchover within 5 ms	
Standards EN 60834-1 Teleprotection equipment of power systems. IEC 60870-5-104 Informative interface of protection equipment		EMC EN 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-8, 4-9, 4-12, 4-16, 4-17, 4-18, 4-29 Immunity EN 61000-6-4 Emission	

Ordering information

Subrack – main device

Name	Product No:
TP10 Device with 10 commands	469R050
TP4 Device with 4 commands	469R049

Submodules

Name	Product No:
SEoE Ethernet link interface, 2 ch	469N079

Front panel (link and user interfaces)



Back panel (command, power supply, alarm interfaces)



Manufacturer:



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