

6U-OCH

TELEPROTECTION AND COMMUNICATION SYSTEM (6U type)

The 6U-OCH device is an access device based on E1 TDM multiplexer or the STM-1/4 system. The system is designed for both TDM and IP networks. It allows for the transmission of voice, serial data, and Ethernet user services. For power engineering, binary commands for remote protection, proprietary or standardized (C37.94) differential protection protocols are available, and special functions such as 50 Hz signal transmission.

The 6U-OCH is a modular device of the PCM30U-OCH family in a 6U / 19" design for standard rack mounting. Due to its spatial capabilities and set of functional features, it provides the most universality within the PCM30U-OCH family. Universality is solved by the use of interchangeable modules, and thus enables construction for various contributor and line interfaces. The 6U-OCH can be used as an access multiplexer for backbone networks (SDH), packet (IP / MPLS), and can have its own fiber optic transmission means up to a distance of 180 km or over metallic (SHDSL) cable as a back-up or last mile connection.

The 6U-OCH is optimized for transmission parameters in the „Teleprotection“ category (minimum delay from 1 ms, and maximum reliability). The transmission reliability is further enhanced by the channel backup, i.e. when the user data is simultaneously propagated by two independent paths (optical fiber / E1) with minimal switching time.

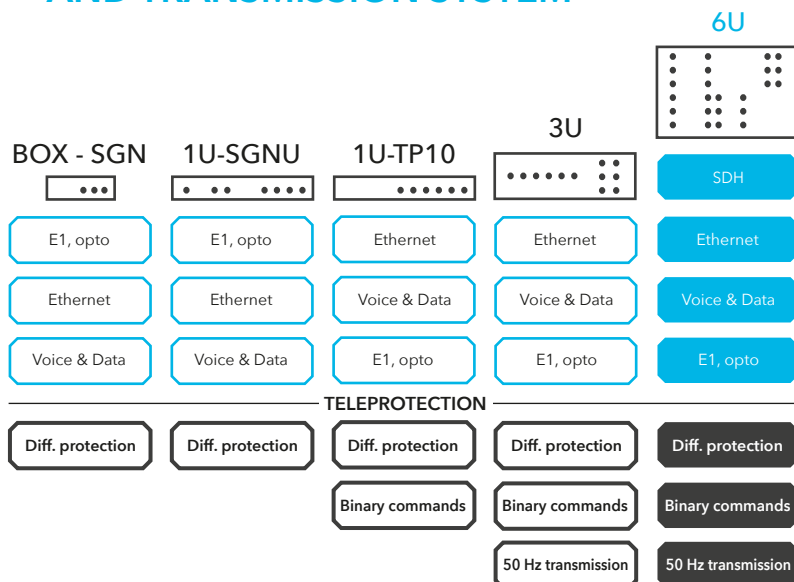
MAIN FEATURES

- Versatility (modular for easy modification and expansion)
- The 6U design allows for maximum capacity
- Link interface assortment (SDH, PDH, IP, fiber optic, metal cable)
- Services assortment (voice, data, teleprotection)
- Guaranteed transmission delay (2 ms) for teleprotection commands
- Reliability, backup security
- High EMC Compatibility in accordance with EN 60870-2-1

PROPERTIES

- Open modularity by combining 12x6U and 13x3U submodules
- Voice / data services, Teleprotection (bin. commands, diff. protection, special)
- Topology (terminal, split, circle, star)
- PDH, SDH cross connect levels
- Backup type MSP, SNCP, channel with switching up to 5 ms
- Alarm signaling Nx input / Nx output
- Ethernet interface FE Line or FE/GBE contributory
- 48 VDC or 220 VDC backup power
- Temperature mode -5 °C to + 50 °C
- Central or local supervision (Eth, SNMP)
- Sub-modules 12 x 6U 11 x 3U for user interface
- Compatible with the PCM30U-OCH family, 3U-OCH type modules

UNIVERSAL TELEPROTECTION AND TRANSMISSION SYSTEM



APPLICATION

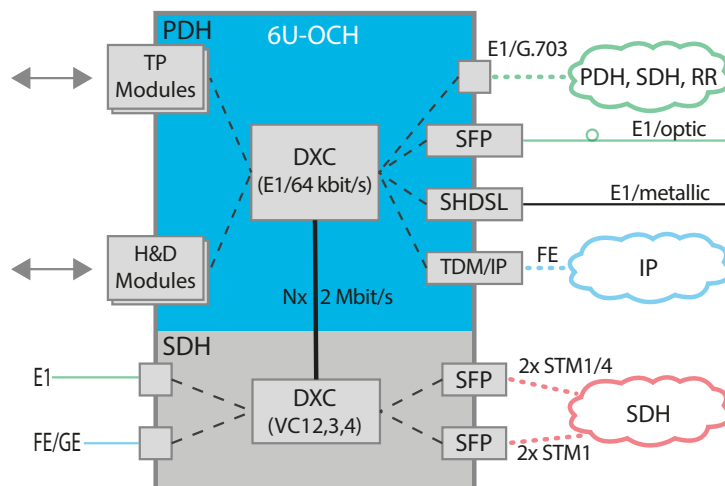
- STM-1/4 built-in SDH module
- SDH cross connect levels VCxx
- TDM cross connect E1/64 kbit/s
- Transmission function Eth over E1 and Eth over SDH
- E1 over Eth transmission function
- E1/SHDSL modem
- Optical transmission of SFP for E1 or STM1 / 4

TELEPROTECTION

- Commands
- C37.94
- 50 Hz

VOICE / DATA

- Serial data
- 2-w / 4-w E&M
- FXO
- FXS (CB, LB, magneto)
- Ethernet
- E1



Universality and modularity allow for a wide range of applications: e.g. access devices to TDM or IP network, independent transport device, purely teleprotection system or combined teleprotection/TELCO system, etc.

TECHNICAL PARAMETERS

Number of ports

| Type | Number per module | Max. number |
|--------------------------|-------------------|-------------|
| Power | 1 | 2 |
| STM-1 (SFP), STM-4 (SFP) | 4, 2 | 8, 4 |
| E1/G.703 | 2, 6, 12 or 24 | 48 |
| E1/SFP/opto | 2 | 8 |
| SHDSL | 2 | 4 |
| E1 over IP (Eth) | 4 | 32 |
| (FE/GBE) over SDH | 4 | 8 |
| FE over PDH | 4 | 44 |

General

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| Power: 2 x 18-48 VDC / max. 150 W, (220 VDC / 30 W - only for selected teleprotection modules) |
| Dimensions: (W x H x D) mm: 483 x 266 x 300 |
| Environment: ETSI ETS 300 019 1-3 class 1.1, -5 to +50 °C non-condensing IEC 60721-3-3:1996 3K3, 3Z1, 3B1, 3C1, 3S1, 3M1 |
| EMC: Resistance: 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 Emissivity: EN 61000-6-4 |
| Supervision: Local: Windows Client, IP access Central: TOPONET (SNMP, Backup server) |

Interface voice & data

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| 4dr/2dr s E&M: Input: -17 dB to 4 dB, output: -17 dB to 4 dB, ITU G.711 A /, ITU G.712 |
| FXS: Input: -4 dB to 4 dB, output: -10 dB to 0 dB, ITU G.711 A, Q.552 Range: 1400 Ohm / 1500 m |
| FXO: Input: -7 dB to 3 dB, output: -8 dB to 1 dB, ITU G.711 A, Q.552 |
| Serial data: (RS232/V.28, RS422/V.11, V.35, V.36, RS485-2-w, RS485-4-w, RS449, RS530) Synchronous Nx 64 kbit/s |
| CODIRECTIONAL (G.703/E0): Speed: 64 kbit/s |
| Ethernet: Transfer: Ethernet over TDM, Protocol: HDLC Troughput: (1-30)x 64 kbit/s pro PDH, NxVC12,VC3 or VC4 for SDH |

Teleprotection interface

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| Differential protection transfer: Optical interface 820 nm, multimode 50 / 125 nm or 62.5 / 125 nm, 18 bridging attenuation 18 dB (3 - 4 km) Speed: Nx 64 kbit/s, N = 1, 2, 4, 8, Protection: IEEE C 37.94 Standard, Siemens 7SD52x/53x, 7SD61, 7SD511, 512 |
| Remote Protection Transmission: Inputs: 110, 220 VDC/25 mA, outputs 220 VDC/2 A, (5 A @ 250 ms), insulation strength: 4 kV, command log ± 1 ms, delay: from 0.5 ms |
| 50/60 Hz: 4-w - Input Voltage: 57.7 power supply/100 Vrms, Output voltage: (2 kOhm load) 27-50 / 54-100 2-w - 60 Vrms |

Počty portů

| Type | Number per module | Max. number |
|--------------------|-------------------|-------------|
| 4-w/2-w with E&M | 4 or 10 | 120 |
| FXS | 4, 6 or 10 | 120 |
| FXO | 6 or 10 | 120 |
| Magneto | 6 | 72 |
| 64 kbit/s (CODIR) | 4 | 32 |
| Dif. protection | 1 | 8 |
| Ser. data (RS...) | 2 or 8 | 112 |
| Bin. I/O commands | 10/10 | 120/120 |
| Sign. contacts I/O | 8/8 | 32/32 |

Functional

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| Crossconnect SDH: Level: VC12, VC3, VC4, chained VCxx |
| Crossconnect PDH: (24x24) x2 Mbit / s, level: 64 kbit/s, TS16 - CAS |
| Synchronization: Internal, external from E1, from STM-1/4 |
| Command diary: Capacity: 5000 records Recording accuracy: +/- 1 ms for GPS (for NTP +/- 50 ms) |
| Alarm log: capacity 3000 entries |
| Alarm signaling: LED panel Main alarm relay: Output max. 50 V / 1 A - 300 V / 0.25 A General signaling: input max. 60 V, output max. 60 V / 200 mA |

Line interfaces

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| SDH - STM-1, STM-4: By SFP Type: SM 1310/1550 nm, WDM, range up to 160 km Backup: SNCP ring, MSP |
| Electric E1: E1, G.703, G.704, G.706, code HDB3, impedance - 120 Ω sym |
| Optical SFP: By SFP Type: MM/SM, 850/1310/1550 nm, WDM Range up to 180 km (single fiber 140 km) |
| SHDSL: 2 x 2 x 1-pair (2x E1 + 2x Eth 5 Mbit/s), 16/32TC PAM, HDLC channel range Nx 64 kbit/s (for n= 3-32) |
| CODIRECTIONAL (G.703/E0): Speed: 64 kbit/s |
| Ethernet: Transfer: E1 over IP Protocol: CESoPSN or AAL1, number of volumes: 16 Troughput: 100 Mbit/s |

Contacts

TTC MARCONI s.r.o.

Třebostická 987/5
Prague 10 - 100 00
Czech Republic

Tel.: +420 234 051 001
Fax: +420 234 814 747
E-mail: ttcmarconi@ttc.cz

ID: 48591254
VAT ID: CZ48591254