TTCMARCONI

3U-OCH

TELEPROTECTION AND COMMUNICATION SYSTEM (3U type)

The 3U-OCH is an access device based on E1 TDM multiplex. It is designed for transmissions in 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 3U-OCH is a modular device of the PCM30U-OCH family in a 3U / 19" design for standard rack mounting. Compared to the 6U-OCH type, it is somewhat less versatile but due to its spatial capabilities and set of functional features, it is economically and spatially advantageous for medium capacity node solutions. Universality is solved by thense of interchangeable modules, it enables construction for various allowance and line interfaces. The 3U-OCH can be used as an access multiplexer for TDM (E1) networks, packet-based (IP / MPLS) and can have its own fiber-optic transmission means up to a distance of 180 km.

The 3U-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.
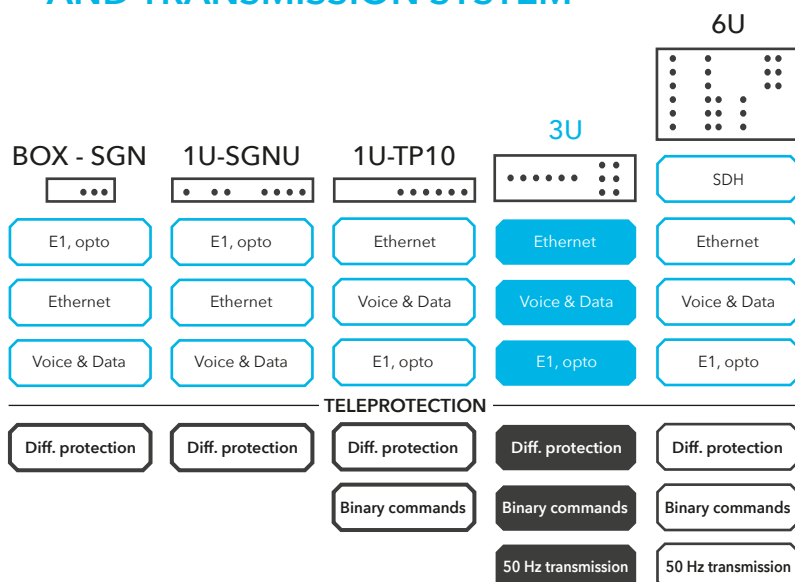
MAIN FEATURES

- Versatility (modular for easy modification and expansion)
- The 3U design allows for an economical solution (compared to 6U)
- Link interface assortment (PDH, IP, fiber optics)
- Services assortment (voice, data, teleprotection)
- Guaranteed transmission delay (2 ms) for teleprotection commands
- Reliability, backup security
- High resistance, EMC compatibility in accordance with EN 60870-2-1
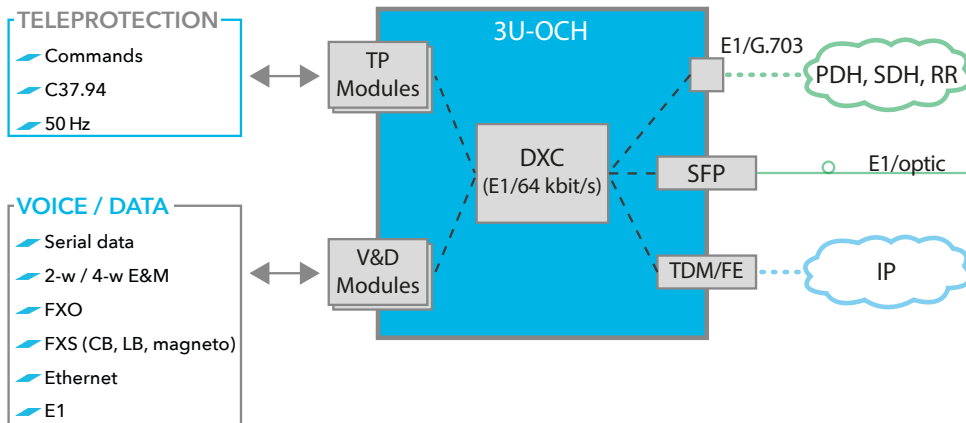
PROPERTIES

- Open modularity by combining 2x6U and 7x3U submodules
- Voice / data services, Teleprotection (bin. commands, diff. protection, special signals)
- Topology (terminal, split, circle, star)
- PDH 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 contributory
- 48 VDC or 220 VDC backup power
- Temperature mode -5 °C to + 50 °C
- Central or local supervision (Eth, SNMP)
- Sub-modules 2 x 6U, 5 x 3U for user interface
- Compatible with the PCM30U-OCH family, 6U-OCH type modules

UNIVERSAL TELEPROTECTION AND TRANSMISSION SYSTEM

BOX - SGN	1U-SGNU	1U-TP10	3U	6U
				SDH
E1, opto	E1, opto	Ethernet	Ethernet	Ethernet
Ethernet	Ethernet	Voice & Data	Voice & Data	Voice & Data
Voice & Data	Voice & Data	E1, opto	E1, opto	E1, opto
TELEPROTECTION				
Diff. protection	Diff. protection	Diff. protection	Diff. protection	Diff. protection
		Binary commands	Binary commands	Binary commands
			50 Hz transmission	50 Hz transmission

Next generation system integration and communication networks

APPLICATION

- TDM cross connect E1/64 kbit/s
- Eth over E1 transmission function
- E1 over Eth transmission function
- SFP Optical Transfer for E1

TELEPROTECTION
- Commands
- C37.94
- 50 Hz

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

3U-OCH
TP Modules
V&D Modules
DXC (E1/64 kbit/s)
E1/G.703 — PDH, SDH, RR
SFP — E1/optic
TDM/FE — IP

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 supply	1	2
E1/G.703	2, 6, 12 or 24	48
E1/SFP/opto	2	8
E1 over IP (Eth)	4	4
Eth over PDH	4	24
Dif. protection	1	6
Bin. I/O commands	10/10	20/20

Number of ports

Typ	Number per module	Max. Number
4dr/2dr with E&M	4 or 10	44
FXS	4, 6 or 10	44
FXO	6 or 10	20
Magneto	6	12
64 kbit/s (CODIR)	4	24
Ser. data (RS...)	2 or 8	28
Sign. contacts I/O	8/8	48/48

General

Power: 2 x 48 VDC / max. 40 W, (220 VDC / 30 W - only for selected teleprotection modules

Dimensions: (W x H x D) mm: 483 x 133 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 (HP, Linux, Backup server, IP access)

Interface Voice & Data

4-w/2-w with 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 Ω / 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, RS485-2dr, RS485-4dr,
RS449, RS530) Synchronous Nx 64 kbit/s

CODIRECTIONAL (G.703/E0): Speed: 64 kbit/s

Ethernet: Transfer: Ethernet over TDM, protocol: HDLC
Throughput: (1-30)x64 kbit/s

Functional

Cross connect PDH: (24x24) x2 Mbit / s, level: 64 kbit/s, TS16 - CAS

Synchronization: Internal, external from E1

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 / 1A - 300V / 0.25A
General signaling: input max. 60 V, output max. 60 V / 200 mA

Line interfaces

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)

Ethernet: Transfer: E1 over IP
Protocol: CESoPSN or AAL1, number of volumes: 16
Throughput: 100 Mbit/s

Teleprotection interface

Differential protection transfer: optical interface 820 nm, multimode 50/125 nm or 62.5 / 125 nm, bridging attenuation 18 db (3 - 4 km), Speed: Nx64 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 kΩ load) 27 – 50/54 – 100
2-w - 60 Vrms

Contacts

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