



COMMS
HV TELECOMMUNICATION
SYSTEMS



▷ HV TELECOMMUNICATIONS PORTFOLIO

TPU-1



**UNIVERSAL
TELEPROTECTION**

OPU-1



**UNIVERSAL POWER
LINE CARRIER**

UAPA-1



**LINE MATCHING
UNIT**



TPU-1

UNIVERSAL TELEPROTECTION

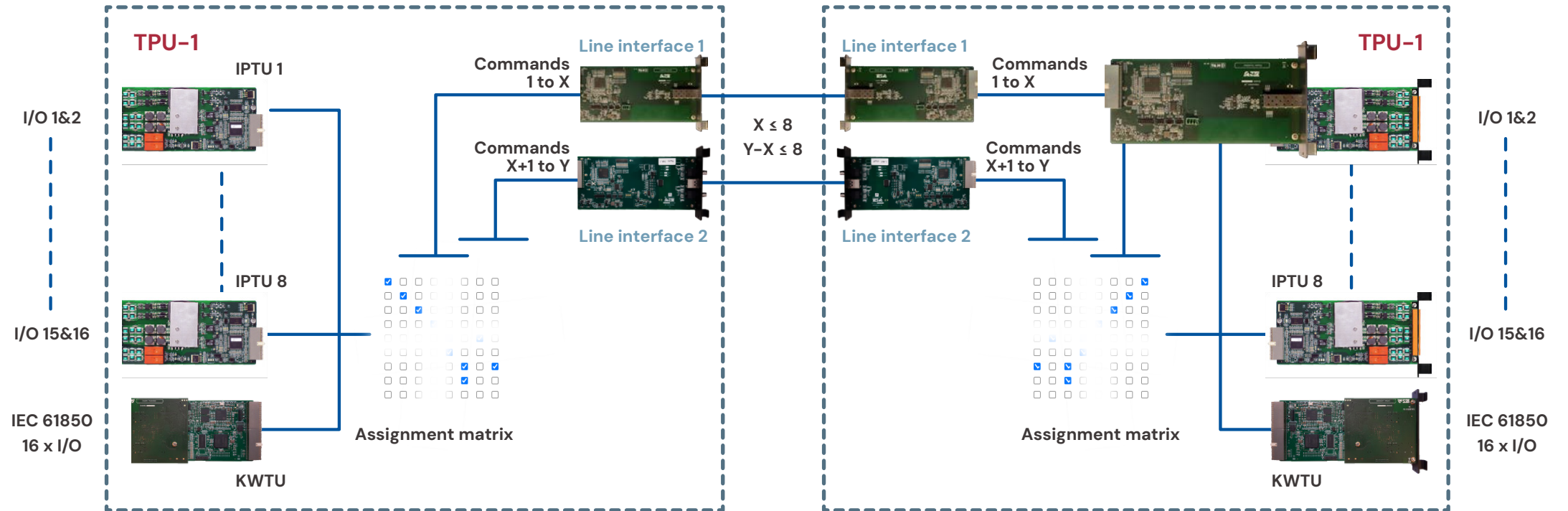


- For analogue and/or digital channels.
- Two communication channels available.
- Electrical and Optical digital line interfaces.
- Up to 4 commands over analogue channel.
- Up to 8 commands over digital channel.
- Command transmits for "T-Lines" applications.
- Interface to protection relay by electrical contacts or IEC 61850 protocol.
- Optional redundant power supply.

KEY MODULES

- **MWTU.02 Module: Processing Module**
Cybersecurity
KWTU Submodule (IEC 61850 Ed.2)
- **DTU: Interface 2 Mbit/s E1 for SDH**
- **IOCS Module: Interface Fiber optics C.37.94 SFP**
- **ICPT.00 module (Ethernet Line Interface)**

COMMANDS ASSIGNMENT



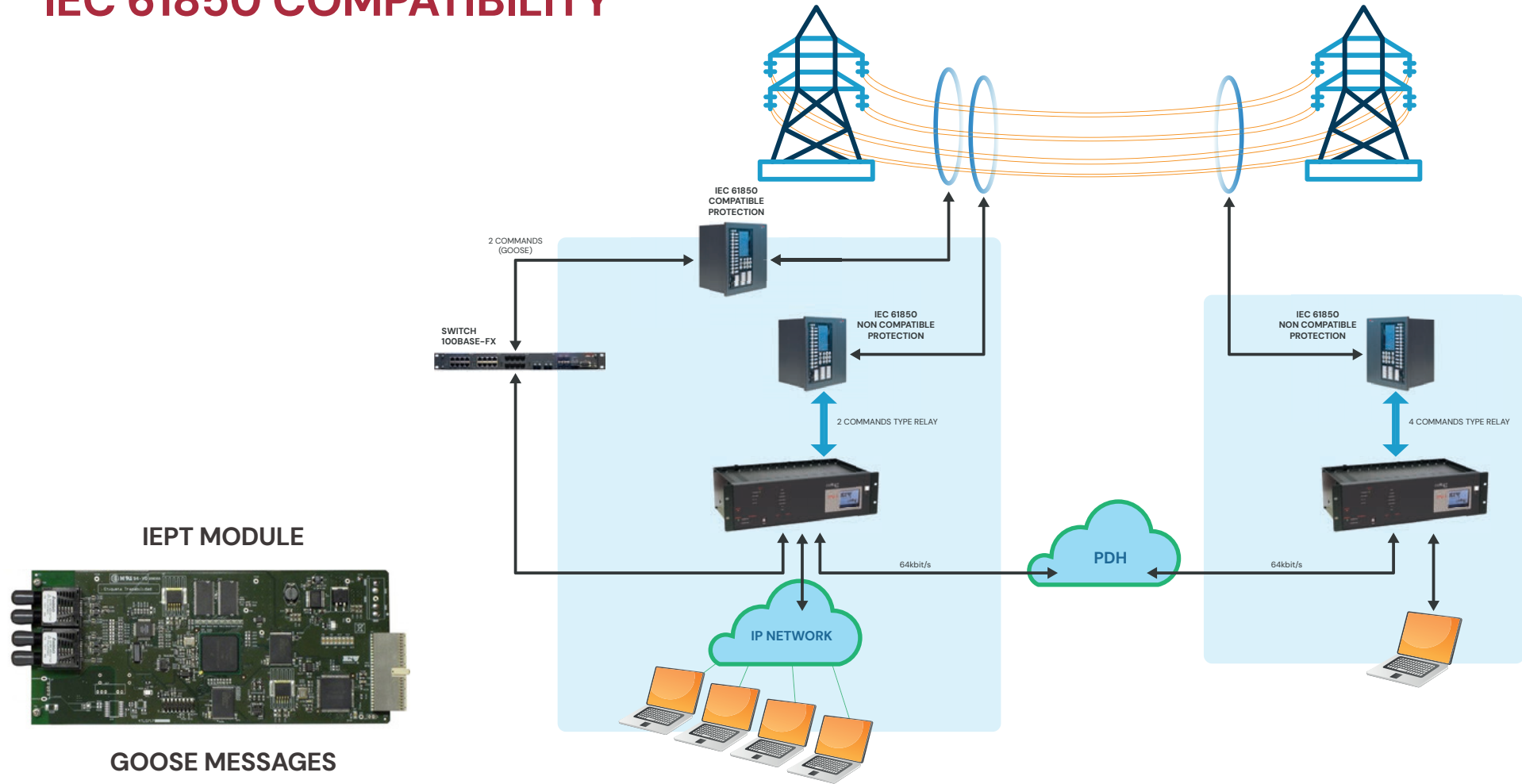
CYBERSECURITY

The management includes:

- HTTPS
- Role Based Access Control (RBAC) (new feature)
- TACACS+
- Radius
- Only one Management session at once
- Separate cybersecurity LOG



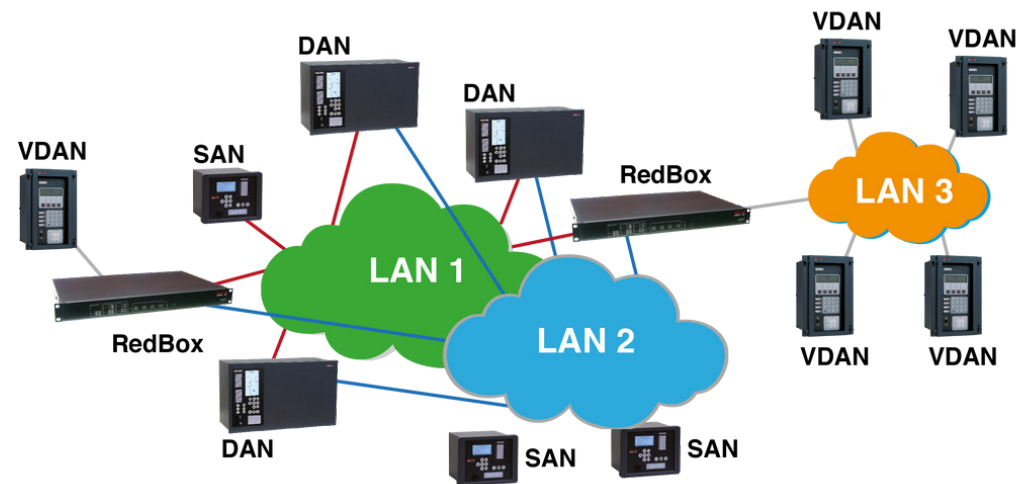
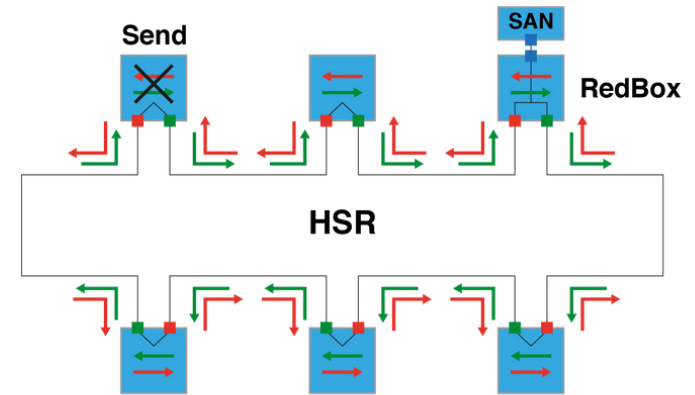
IEC 61850 COMPATIBILITY



IEC 61850 COMPATIBLE

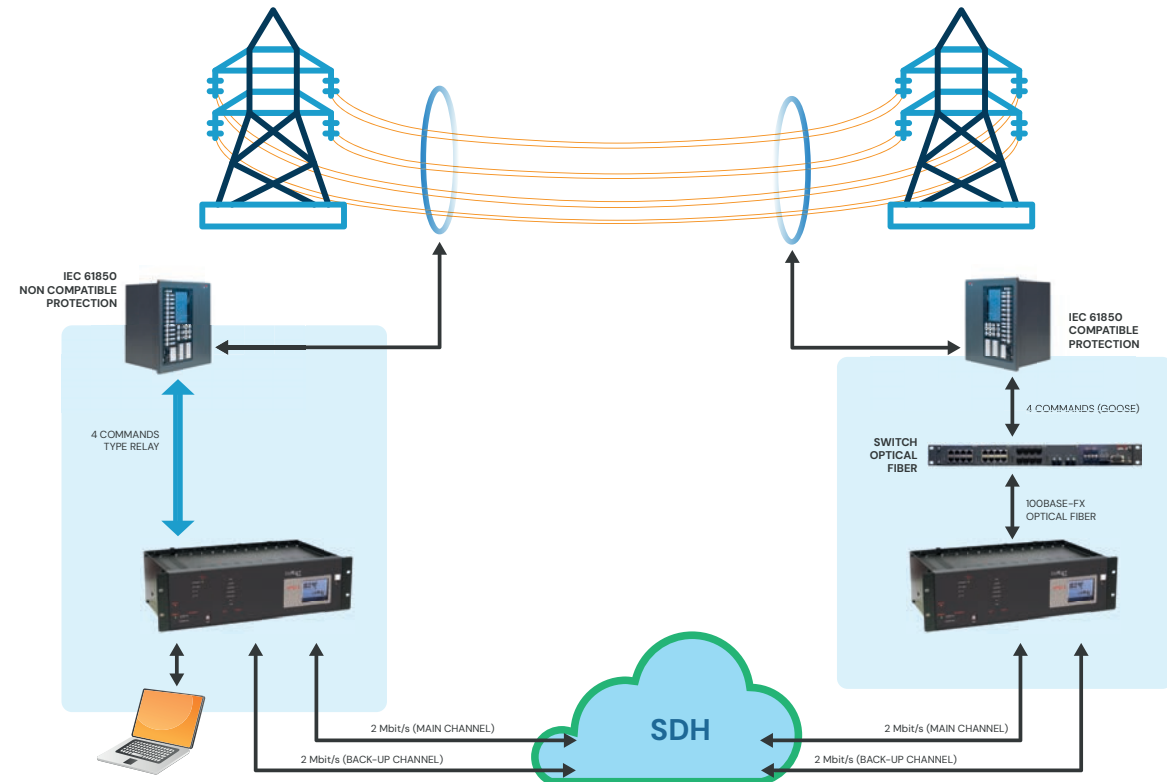
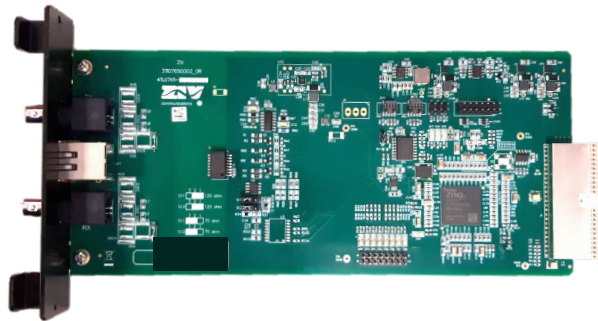
- GOOSE
- BRCB and URCB
- ICD File
- Configuration via CID file

- HSR – High availability Seamless Redundancy Protocol
- PRP – Parallel Redundancy Protocol
- PTP – Precision Time Protocol (IEEE 1588)



IDTU: INTERFACE 2 MBIT/S E1 FOR SDH

- 2.048 Mbit/s (G.703) digital
- Use of one to five 64 kbit/s slots of the 2 Mbit/s frame
- BNC (75 Ohm) and RJ-45 (120 Ohm) connectors
- Internal or recovered clock



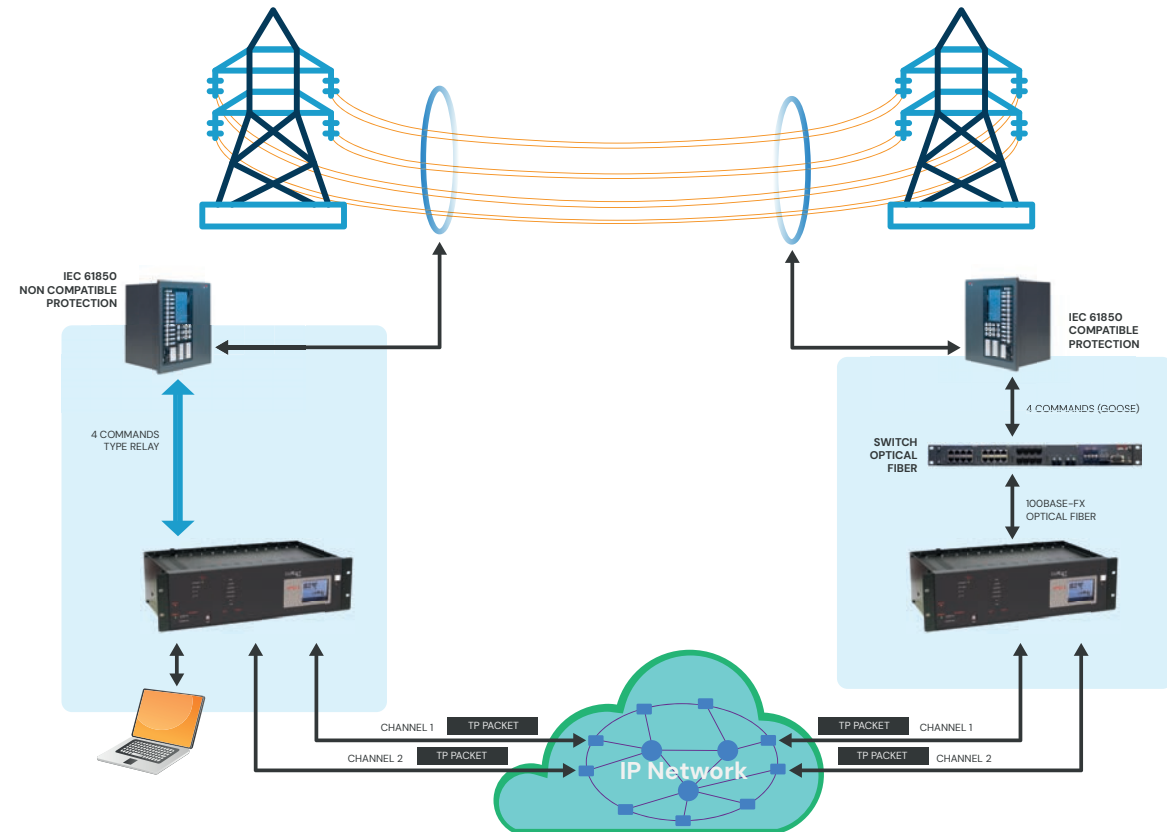
IOCS: INTERFACE FIBER OPTICS C.37.94 SFP

- According to IEC C.37.94 standard
- Digital Communications at 2 Mbit/s over optical fiber (twelve 64 kbit/s slot used)
- SFP interface
- DDM (Digital Diagnostic Monitoring)



ICPT.00 MODULE (ETHERNET LINE INTERFACE)

- 2 SFP interfaces (up to 1 GBEth)
- New internal frame
- Optimized Ethernet frame
- Communications securization (SHA-256)
- PRP protocol
- PTP synchronization





OPU-1

UNIVERSAL POWER LINE CARRIER



- Analogue and Digital PLC in the same equipment.
- Both QAM and OFDM modulations available for the digital data transmission.
- One or two analogue channels (4kHz).
- Selectable total bandwidth (4, 8, 12, 16, 20, 24 or 32 kHz) depending on requirements.
- 20, 40 and 80W models (PEP).
- Multiple connection interfaces for the user (V.35, V.11, V.24, V.28, G.703, Ethernet).
- Teleprotection inside the digital QAM band or inside an independent analogue channel.
- Possibility of double HF stage for T-lines. Redundant power-supply and advanced management options (Web Management and SNMP agent).
- Possibility of synchronization by external GPS.

▷ UAPA-1

LINE MATCHING UNIT



- Designed according to IEC 60481 standard (composite loss ≤ 2 dB and return loss ≥ 12 dB in the selected bandwidth).
- Nominal power (P.E.P): 400 W for two tones.
- Distortion and intermodulation: 80 dB below the level corresponding to the nominal P.E.P.
- Band-pass or high-pass filter configuration.
- Can be equipped with a differential hybrid circuit.
- Power frequency insulation: >10 kVrms.
- Frequency range: 40÷500 kHz.
- Coupling capacitor: 2 to 10 nF. Specific model for 2 to 12.5 nF.
- Equipment-side impedance: 50 and 75 Ω . Others on request. Specific model for 150 Ω .
- Line-side impedance: 100 to 600 Ω .
- Protection elements:
Line side: earthing switch, air-gap surge arrester and solid-state surge arrester.
Equipment side: gas surge arrester.
- Optional mounting: line connection at the bottom of the chassis or protection elements on the outside.
- Box and cover: GRP (glass-fibre reinforced polyester) in RAL-7035. Specific model in stainless steel.



For more information, please
consult our website:
www.zivautomation.com
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