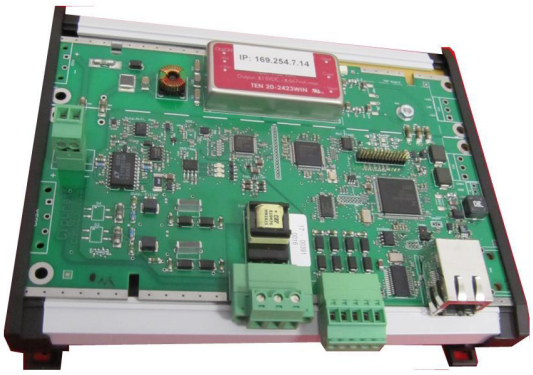
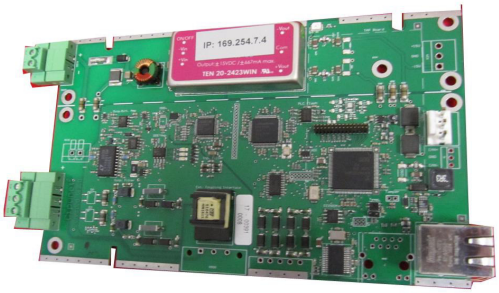
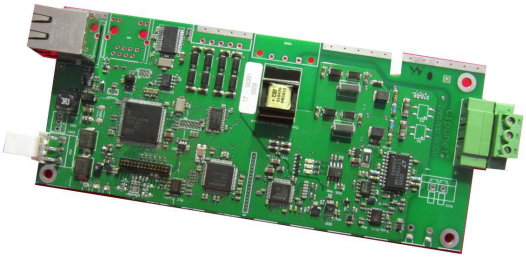


CMM1000 DIN Rail Version



CMM1000 Rack Version



CMM1000 Downhole Version

Fully transparent Narrowband PLC Modem.

Cipunet® developed the novel modem technology to enable the use of PLC technology in industrial and high voltage environments. Our long experience with such technologies enabled Cipunet® to release a complete range of modems and couplers for the utility and industrial market.
Nowadays Cipunet® is able to offer modem and coupling solutions for nearly every requirement and environment.

Modems of Type CMM1000 are mainly used to communicate via medium voltage overhead lines and cable systems as well as inbetween offshore, downhole and subsea installations
The offered modem parameters are widely independent of cable type, network configuration and grounding technology.
The novel modem technology is the result of accumulated 50 years of experience in PLC systems.

The CMM1000 has been especially developed where the efficient transparent transmission of IP and serial data over long haul multidrop energized electrical conductors is required.

The CMM1000 is designed for external couplers allowing it to be used within a wide range of applications.
Typical Applications are:

- Medium Voltage cable and overhead line based communication
- Low voltage Communication for dedicated applications
- Subsea Communication between Platform and subsea electronic modules
- Inter-Rig based communication
- Communication via Pilot wires and high attenuation networks.
- Drill Control and downhole control systems
- Downhole Artificial Lift monitoring and control

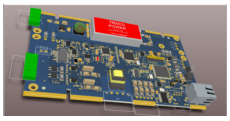
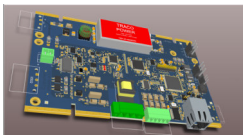
Principle of operation

The CMM1000 is a power line modem using OFDM modulation with a variable channel separation. The modem can work in the CENELEC A, B, C, the FCC or ARIB range between 30 kHz and 482 kHz.
The modem has very short telegram synchronization times and can deal with up to 86 dB line attenuation. All parameters can be monitored and configured via Ethernet and powerline using Telnet or a similar interface.

Onboard Remote Diagnostics

- Measurement of Output Current while transmitting to detect problems with external couplers
- Measurement of Board Temperature. Indication of maximum, actual and minimum temperature for warranty purposes
- External Watchdog supervising supply voltage and software.
- Optional remote controllable sweep generator for in system channel analytics.

Technical Data

Supply Voltage	9VDC-36VDC opt:18VDC-75VDC
Power Consumption	Maximum: 10.0W Average: 2.4W
Interfaces	10Mbps Ethernet RJ45 RS232 / RS485 / RS422
Shapes	Rack Vers. : 100x160mm  DINRail Vers.: 110x162mm  Downhole Vers.: 65x160mm
Cross Data Rate	Up to 250 kbps
Payload Data Rate IP	Up to 61kbps
Distance	Umbilical :<=60km Pilot Wire :<=30km MV Cable :<=15km Overhead line:<=50km Drill :<=10km
Adjustable Output Power	+6dB / – 10dB
Adjustable Modulation	Robust, DPSK, DBPSK, DQPSK, D8BPSK
Operating Temperature	-40 to +80C
MTBF	>20 years MIL 217 Rev.F; Nominal Voltage 30^{0}C; Grounded 30 years expected
Weight	DINRail Vers. approx. 250g RackVers. approx. 120g DholeVers approx. 80g

Protection

Safety Case	In accordance with IEC 60950 protection class 1 equipment according to IEC 60950

CE Conformity

EN50082-2	Generic Immunity
EN50081-1	Generic Emission
EN 60950 (IEC 950)	Safety

Reliability

MTBF	175'000 hours according to MIL 217 Rev. F Notice 2 350'000 hours expected demonstrated value Specifications are subject to change without prior notice

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