

# CIP-ALL

## PSEUDO WIRE EMULATION OVER ETHERNET-IP

### ANALOG INTERFACE CONVERSION OVER IP



Analog interface conversion over Ethernet - IP

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ALL : Analog Leased Line voice circuit emulation  
EM: E&M voice and signaling emulation  
FXO / FXS : POTS line emulation

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4x analog modules - ALL / E&M / FXO / FXS

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1x RS232 serial interface, RS232 over IP conversion

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2x optical Gigabit Ethernet interfaces with SFP sockets

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4x 10/100 Mbps Ethernet interfaces  
Pseudo Wire Emulation over IP - Ethernet

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G.711 Codec, Zero distortion 64 kbps sampling Voice Frequency transport over IP, no deterioration of the analog signal

## Voice, E&M, Leased Line and FXO / FXS Emulation over IP - Ethernet

The CIP-ALL emulates and transports up to four analog leased lines, E&M and FXO/FXS telephone interfaces over Ethernet - IP. The analog interfaces are 300 - 3,400 Hz voice frequency type as per ITU-T M.1020 standard for the leased line or E&M voice emulation, and classical FXO/FXS, 600 Ohms impedance, for the telephone interfaces. The CIP-ALL carries the voice frequency channels through pseudo-circuits over Ethernet / IP (Bundles) in compliance with the established CES over Packet Switched Network (RFC 5086) standard. The Analog to Digital conversion is performed by a G.711 CODEC and a high performance processor that delivers a minimum transfer delay and distortion-free transport. Each interface may be encapsulated in a dedicated IP Bundle. This technology does not compare with VoIP as it delivers faster transfer delay, full G.711 quality, which is compatible with any modem application.

The CIP-ALL has four 10/100 BaseT Ethernet interfaces and two GigaBit Ethernet interfaces with optical SFP modules. Several products can be chained to deliver many more analog interfaces. Any user equipment can connect to the network through the copper or optical interface thanks to the high density of accesses delivered by the CIP-ALL. One of the Ethernet interfaces can deliver a 12.5 W Power over Ethernet supply to an IP camera or VoIP set, for example.

The CIP-ALL provides an asynchronous RS232 interface to carry any data from an asynchronous application over the IP network. Data is transported through a connected TCP or a datagram UDP socket. An adaptation layer takes care of the asynchronous data consistency for specific applications.

The CIP-ALL manages the Quality Of Service at all Ethernet access. It classifies all incoming traffic and directs them to four transmit priority queues at the outgoing interface. Several Ethernet and IP applications may then share the same network while the equipment takes care of prioritizing critical traffic.

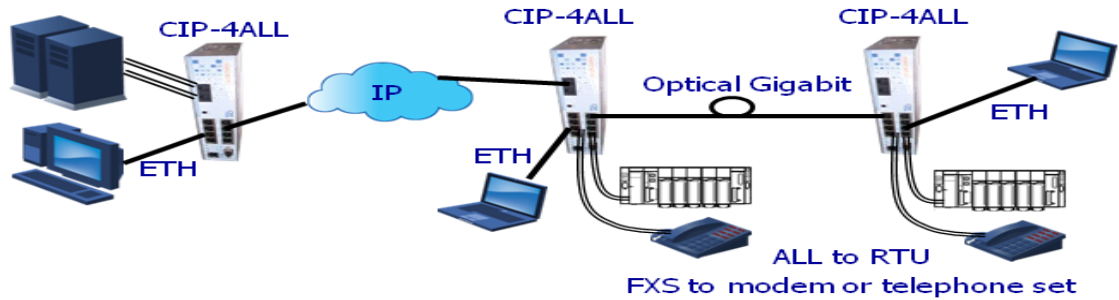
The CIP-ALL comes in a robust metallic enclosure and different mounting options for DIN rail, wall or 19" bay integration. It is powered from one or two 48 Vdc supply sources.

The CIP-ALL is controlled from an intuitive and powerful management interface with secured ssh and https protocols. Clear user friendly menus make it easy to configure and run the product. A full set of IP, ftp, snmp protocols serve the integration into a global snmp network management system.

# Applications

Migration of audio services such as E&M, analog leased lines and POTS telephone lines for remote industrial equipment

The CIP-ALL connects classical analog, voice frequency equipment through an Ethernet - IP Packet Network. Such equipment may have Leased Line or FXO / FXS POTS telephone interfaces sometime with embedded modems.



The Circuit Emulation over Packet processor delivers high performance, extremely low latency, and a perfect distortion-free transport of the analog signals. The CIP-ALL provides many emulation protocols and a dual 10/100 BaseT and optical Gigabit Ethernet connectivity to adapt to any network requirement.

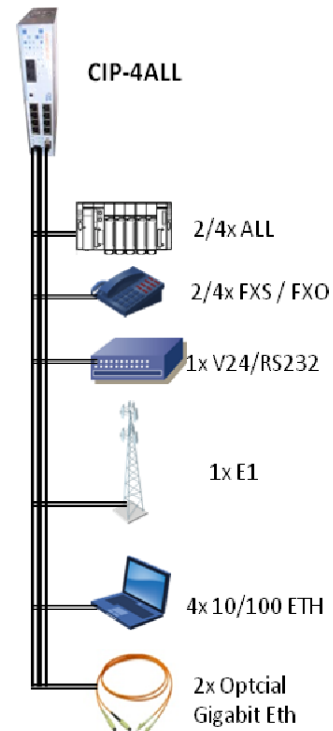
# Technical Specifications

## E&M AND ANALOG LEASED LINE INTERFACES (ALL)

- 0 or 4 ALL or E&M interfaces
- 2 and 4 wires modes
- Frequency response : ITU-T M.1020
- Bandwidth : 300 - 3400 Hz
- Impedance : 600 Ohms
- Level control : +/- 6 dB
- Max input level : -10 dBm
- Socket : RJ45
- 1 bundle per interface
- E&M: type 1-5 selection through jumpers

## FXS INTERFACES

- 0 or 4 FXS interfaces
- Connects to a telephone set
- DTMF multi frequency dialing
- Line current : 10 mA / 48 Vdc
- Ring generator : > 40 Vrms / 20 - 25 Hz
- REN = 3
- PLAR mode, red line
- Bandwidth : 300 - 3400 Hz
- Impedance : 600 Ohms
- Level control : +/- 6 dB
- Max input level : -10 dBm
- Socket : RJ45
- 1 bundle per interface



CES over PSN and SAT over PSN

QoS, 4 transmit queues per interface

Per port Rate limiting

Per port VLAN and 802.1Q

Ethernet frame buffer : 1 MB

MAC address memory : 8K

Secured and intuitive management : ssh, http, https, snmp-v2, ftp

MIB for SNMP

Robust metallic enclosure, 19", wall and DIN rail mounting kits

Operating temperature: -10°C to +60°C, fan-less

Dual power supply inputs : 12-24 (C2) 48 Vdc (18~72) (C1) and 110-230 Vac with external mains adapter

**FXO INTERFACES**

0 or 4 FXO interfaces  
 Connects to a PBX  
 DTMF multi frequency dialing  
 Ring detector : > 24 Vrms  
 Bandwidth : 300 - 3400 Hz  
 Impedance : 600 Ohms  
 Level control : +/- 6 dB  
 Max input level : -10 dBm  
 Socket : RJ45  
 1 bundle per interface

**MANAGEMENT**

Light indicators : Ethernet Link/act and 100 Mbps, SFP optical signal, TD and RD on RS232, AIS and LOS on E1, operation and test  
 TCP-IP protocols: Telnet, http, ssh, https, and ftp for firmware upgrade and configuration management  
 Clear intuitive HTML menus  
 In-line commands : ssh and console port  
 Snmp : v1/v2, and graphical MIB for SNMP-C  
 Diagnostics and transmission statistics on each interface  
 Syslog and logging of major events  
 Alarm relay

**SERIAL V.24 - RS232 INTERFACE**

1x V24 - RS232 asynchronous interface  
 Rate : 300 to 115,200 bps  
 Format : 8 bits or 7 bits with parity  
 Connection through IP address and TCP/UDP port  
 Encapsulation over IP : UDP or TCP  
 Adaptation layer : transparent, bloc, message  
 V.24 Signals : TD, RD, RTS, CTS, DTR, CD, DSR  
 Socket : RJ45, EIA 561

**10/100 BASET ETHERNET INTERFACES**

4x 10/100 BaseTX Ethernet interfaces, IEEE 802.3  
 Speed : 10/100 Mbps automatic  
 Automatic MDI/MDIX detection  
 Socket : RJ45  
 Statistics : counters of sent and received frames, interface diagnostics

**OPTICAL GIGABIT ETHERNET INTERFACES**

2x sockets for SFP optical modules  
 Ethernet 1000-SX interfaces  
 Speed : 1,000 Mbps  
 Counters for sent and received frames, interface diagnostics  
 SFP modules : single WDM or two fibers, multi-mode or single-mode, distances from 300 m to 80 km

**ETHERNET SWITCH FEATURES**

Per port VLAN and VLAN 802.1Q  
 QoS : priority queuing on VLAN and DSCP, 4x transmit priority queues per Ethernet interface  
 Ethernet address memory : 8 K  
 Ethernet frame buffer : 1 MB  
 Rate limiting per Ethernet port  
 Gratuitous ARP

**PSEUDO-WIRE PACKET PROCESSOR**

CES over Packet Switched Network : RFC 5086  
 SAT over PSN : RFC 4553  
 Process of 1 to 34 bundles  
 Minimum transmit encapsulation delay : 125 µs  
 Minimum receive jitter buffer : 1 ms  
 High accuracy TCXO Oscillator  
 Encapsulation at either Ethernet or IP layer

**POWER SUPPLY :**

2 power supply input:  
 Option for power supply range

- CIP-40-C1 (18~72VDC)
- CIP-2S20-C1 (18~72VDC)
- CIP-4EM-C1 (43~53VDC) \*
- CIP-2EM-2S-C1 (48~53VDC) \*
- CIP-2EM-20-C1 (48~53VDC) \*

-C2 option for Analog only (12~24VDC)  
 Max power consumption : 12 W max, no POE  
 External convertor, AC/DC48 (50W) available.

\* : 48VDC is mandatory for E&M (RON/TRON) feature.

**OTHER CHARACTERISTICS**

Enclosure : stainless steel, mounting kits for DIN rail, 19" frame and wall  
 Size : 220 x 140 x 44 mm  
 Weight : 0.8 kg  
 Operating temperature : -10 to +60 °C  
 CE : EN60950, EN55022, EN55024  
 MTBF : 180.000 hours

## ORDERING INFORMATION

### ACCESSOIRES

- ACDC-48V-50W : AC/DC external adapter
- DIN-SWD-SWMD : DIN rail kit
- RACK19-1CIP : 19" brackets
- WALL-1CIP : Wall mount kit

### CIP [ -4ALL / -4EM / -4O / -4S ] [ -C1 ]

Référence	ALL	EM	FXS	FXO	RS232	Power supply
CIP-4ALL	4	-	-	-	1	C1 / C2
CIP-4EM	-	4	-	-	1	C1
CIP-2EM-2S	-	2	2	-	1	C1
CIP-2EM-2O	-	2	-	2	1	C1
CIP-4S	-	-	4	-	1	C1 / C2
CIP-2S2O	-	-	2	2	1	C1 / C2
CIP-4O	-	-	-	4	1	C1 / C2



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