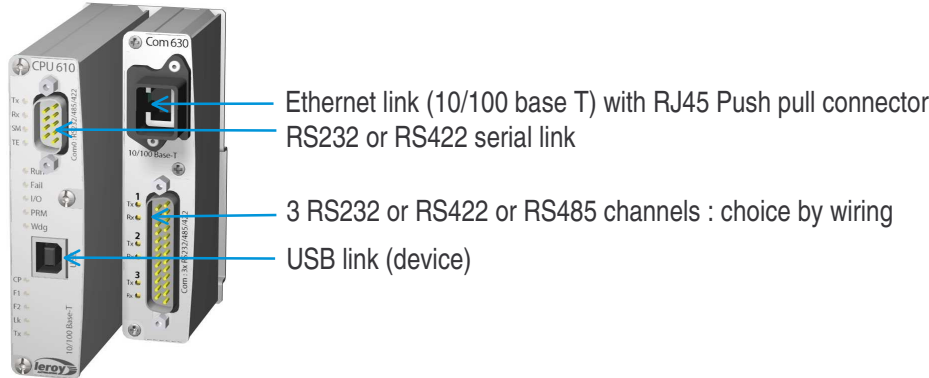


LUC4001 composition

The LUC4001 block consists of a CPU610 central unit module and a COM630 communication module.



CPU610 central unit module

Features

Microprocessor	Intel PXA 255	300 Mhz
Coprocessor for Inputs/Outputs management	FPGA Spartan III	100 Mhz
Working memory	SRAM	32 Mo
Storage memory	FLASH ROM	16 Mo including 4 Mo for user
Permanent memory	FRAM	8 Ko including 4 Ko for user
Real Time Clock / calendar		Quartz stability : +/- 50 10 ⁻⁶ Life : 96h à 25°C (Backup by capacitor)

Serial link on CPU610 module

RS232 or RS422 : choice by wiring (see below)

Connector : SudD 9 plug

Insulations of signals by photocouplers. Insulation of power supply by transformer.

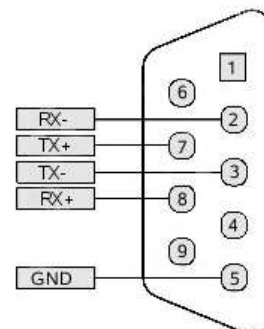
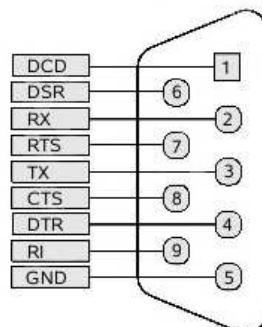
Speeds : 50, 75, 110, 150, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400 bits/s

Frame : 7 or 8 bits of data ; even, odd or no parity; 1 or 1.5 stop bits.

Wiring :

RS232

RS422



NOTA : RS485 is not possible. RS485 would require a bridge between 7 and 8 pins, but this bridge is tested at the power on in order to go into the Program Restart Mode (PRM). Use RS485 channels on COM630 module.

CPU610 module diagnosis lights

Serial link

Marking	Meaning	LED	Behavior
Tx	Transmit	Green	On or flickering if the Com0 channel emits
Rx	Receive	Green	On or flickering if the Com0 channel receives
SM	Serial Mode	Green	OFF : Com0=RS485 ; ON : Com0=RS232
TE	Transmit Enable	Green	if Com0=RS232, ON = RTS active if Com0=RS485, ON = Transmit Enable active

Ethernet link

Marking	Meaning	LED	Behavior
Lk	Link	Green	ON = Ethernet link OK
Tx	Transmit	Green	Flickering = emission

Central unit

Marking	Meaning	LED	Behavior
RUN		Green	Its behavior depends on the applicative software (*).
Fail		orange	Its behavior depends on the applicative software (*).
I/O	Inputs / Outputs	Green	Its behavior depends on the applicative software (*).
PRM	Program Restart Mode	Green	ON= Program Restart Mode active. To move into the PRM, see after.
WDG	Watch Dog	Red	ON during the initialisation or after a fatal hardware failure or after a stop of the Linux kernel.
CP	CoProcessor	Green	ON = the inputs/outputs manager is OK
F1		Green	Reserved
F2		Green	Reserved

(*) The applicative software is the software of the user. It can be an OPAL application, an Isagraf program or an user application in C/C++ language. See the appropriate user manual.

Behavior of the lights after the power on.

Sequence time	Sequence	Behavior
25 s	Start and running of the boot Installation and running of the Linux kernel	RUN and I/O lights are flickering in turn
15 s	Installation and running of services	All lights are ON
Then ...	Start and running of the user applicative software : <ul style="list-style-type: none"> - C/C++ application - Isagraf - OPAL 	Depends of the application. See the appropriate user manual.

Going to the Program Restart Mode (PRM)

Power off the product. Put a bridge between 7 and 8 pins of the SubD9 connector.
 Power on the product. Wait 3s then the PRM Led is ON : the PRM is running.
 To understand the usefulness of the Program Restart Mode, see the user manual of the appropriate applicative software.

COM630 communication module

This module consists of an Ethernet link (RJ45) and 3 serial links (subD 25p).

Ethernet link

Features

RJ45 socket with push pull system.
Speeds : 10 or 100 base T

Ethernet cable

- You can get a supply of the cable from
 - Leroy Automation
 - HARTING reference 09 45 701 11 xx. (xx depends of the length and the opposite connector)
- You can make the cable with the RJ45 pushpull connector set from chez HARTING ref 09 45 145 1100 (4 data contacts) .

Ethernet connector pin assignment

Nota : The Cat5 4 poles cable has the threads no 1,2,3,6 only.

Pin	Meaning
1	Out +
2	Out -
3	In +
4	Common
5	Common
6	In -
7	Common
8	Common

Ethernet lights

The Ethernet lights are on the CPU610 module (see above).

Serial links

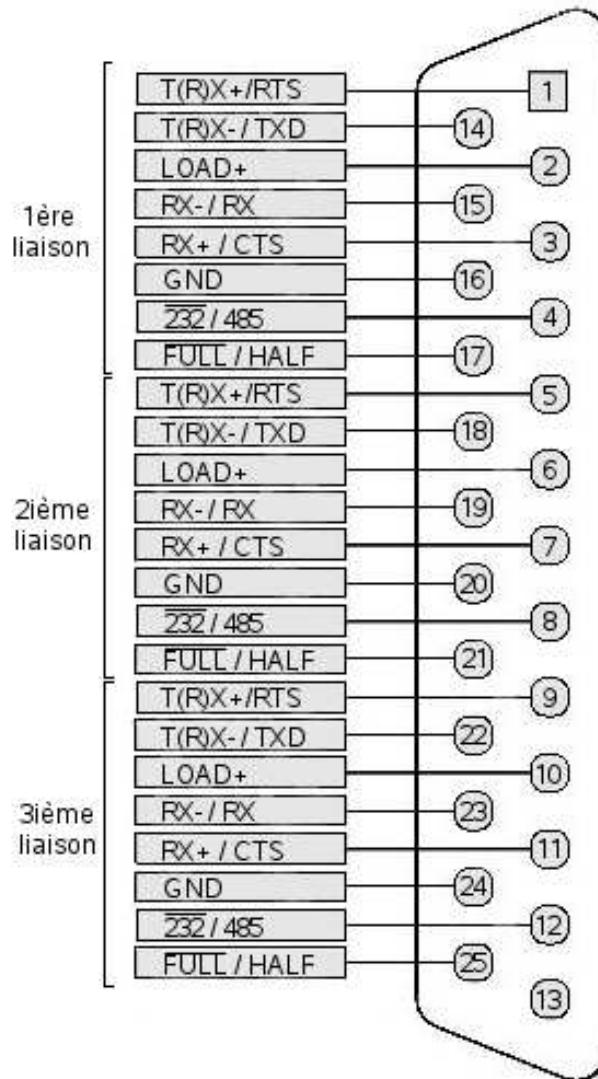
Features

SudD 25 plug connector
RS232 or RS422 or RS485 : choice by wiring (see below)
Insulations of signals by photocouplers. Insulation of power supply by transformer
Speeds :
50, 75, 110, 150, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400 bits/s
Frame : 7 or 8 bits of data ; even, odd or no parity; 1 or 1.5 stop bits.

Lights (for each link)

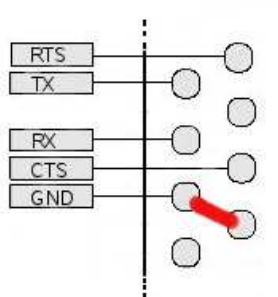
LED	Marking	Meaning
Green	Rx	ON= The channel receives
Green	Tx	ON= The channel emits

SubD 25p connector pin assignment

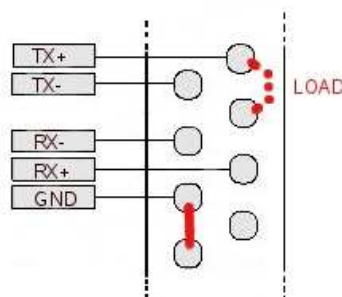


Wiring

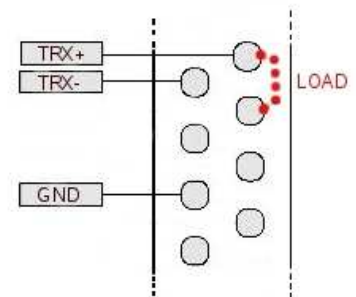
RS232



RS422/RS485 4 wires full duplex



RS485



Bias resistors : Lines TRX+ et TRX- are inside pre-loaded with $R=150\text{ k}\Omega$.

Adaptation resistor : the COM630 module has a resistor $=120\Omega$ inside between TRX+ and TRX-. You can use it by connecting TRX+ and LOAD pins.