1. General Information

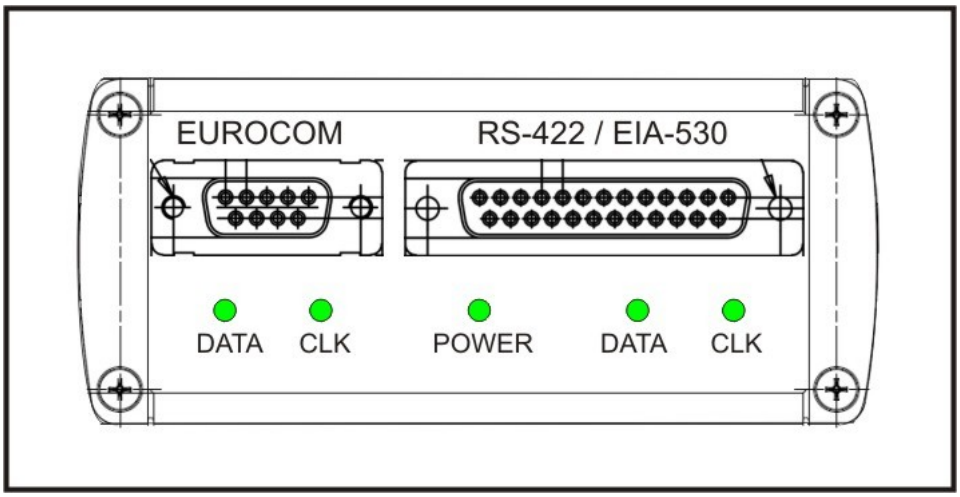
Eurocom/EIA-530 converter box allow to connect any equipment with Eurocom interface to any equipment with RS-422/EIA-530 or EIA-530A interface.

RS-422/EUROCOM converter board specification.

1. Binary throughput: 256..4096 kbps
2. Generated clock frequencies (signal "114"):
   256, 384, 512, 768, 1024, 1536, 2048, 3072 and 4096 kHz ±25ppm
3. RS-422 interface:
   - RS-422/V.11/X.27 electrical parameters
   - D-SUB 25 female-type connector
   - DCE (modem) interface according EIA-530 or EIA-530A standard
4. Eurocom interface
   - B type, as per EUROCOM D/1 1986 IB6 (pages IB6-1 .. IB6-5)
   - interface: D-SUB 9 female-type
5. CLI interface:
   - RS-232 electrical parameters
   - 38,4 kbit/s,
   - 8N2 character format, no sync protocol

6. Power supply (options):
    1. DC +12V..+30, < 2W, non-isolated, '-' connected to boards earth and GND line of RS-422 interface, PSU socket 5.5/2.5mm
    2. AC 85…240VAC, 47…63Hz, IEC60320-C14 socket, fuses: 2 x 0.63A
7. Box size: 106mm • 175mm • 46mm

2. Front panel layout



Front panel contains:

- EUROCOM (DSUB-9) interface
- RS-422/EIA-530 + RS-323 (DSUB-25) interface
- 'Power' status indicator (LED)
- Received 'DATA' and 'CLK' signals indicators (LEDs) for EUROCOM and RS-422/EIA-530 interfaces

3. Connectors layout

1. Interface EIA-530 connector DSUB-25, female

No	Pin	Code	Cat.	Direction	Name (V.24 ITU circuit)	Type in DCE	U
1	-- 1	Shield	---	---	Connected in DTE, not connected in DCE		
2	A 2 B 14	BA **TxD**	I	to DCE	TXD, Transmit Data (103)	Receiver V.11	*
3	A 3 B 16	BB **RxD**	I	from DCE	RXD, Receive Data (104)	Transmitter V.11	*
4	A 4 B 19	CA/CJ **RTS**	I	to DCE	Request To Send (105)/ Ready For Receiving	Receiver V.11	*
5	A 5 B 13	CB **CTS**	I	from DCE	Clear to Send (106)	Transmitter V.11[1]	*
6	A 6 B 22[4]	CC **DSR**	I	from DCE	DCE ready DSR(107) Data Set Ready	Transmitter V.11[2]	*
7	7	AB **GND**	___		GND (102)	---	*
8	A 8 B 10	CF **RLSD**	I	from DCE	Received Line Signal Detector (109)	Transmitter V.11[3]	*
9	A 17 B 9	DD **RxClk**	I	from DCE	Receive Signal Timing (115)	Transmitter V.11	*
10	A 24 B 11	DA **iTxClk**	I	to DCE	Transmit Signal Timing (113)	Receiver V.11	*
11	A 15 B 12	DB **oTxClk**	I	from DCE	Transmit Signal Timing (114)	Transmitter V.11	*
12	A 18	LL	II	from DCE	Local Loopback (141)	Receiver V.10	
13	A 20 B 23[5]	CD **DTR**	I	from DCE	DTE Ready (108) Data Terminal Ready	Receiver	*
14	A 21	CLI RxD	III	input	CLI receiver	Receiver V.24	**
16	A 25	CLI TxD	III	output	CLI transmitter	Transmitter V.24	**

* - used in Eurocom/RS-422 converter
** - used by CLI interface

Category (Cat.): I – V.11 / RS-422
II – V.10 / RS-423
III – V.24 / RS-232

Transmitter[1]: CTS is connected directly to RTS or is in constant ON state, depending to X3,X4 jumpers state.
Transmitter[2]: DSR is connected directly to DTR or is in constant ON state, depending to X5,X6 jumpers state.

Transmitter[3]: RLSD reflect RTS state or is in constant ON state, depending on configuration.

Pin 22[4] (CC/DSR – B) is used in EIA-530A as CE/RI (ring indicator).

Pin 23[5] (CD/DTR – B) is used in EIA-530A as GND.

2. Eurocom interface B, DSUB-9 female

No	Pin	Signal Name Eurocom B	Direction	RL-xxx TDM connector	AN/GRC-xxx Eurocom In/Out
1	1	Transmit Clock A	Output from converter	L	F
2	6	Transmit Clock B		M	E
3	2	Transmit Data A		H	H
4	7	Transmit Data B		G	G
5	3	Receive Clock A	Input to converter	K	S
6	8	Receive Clock B		J	R
7	4	Receive Data A		F	T
8	9	Receive Data B		E	J
9	5	GND	Chassis	V	V

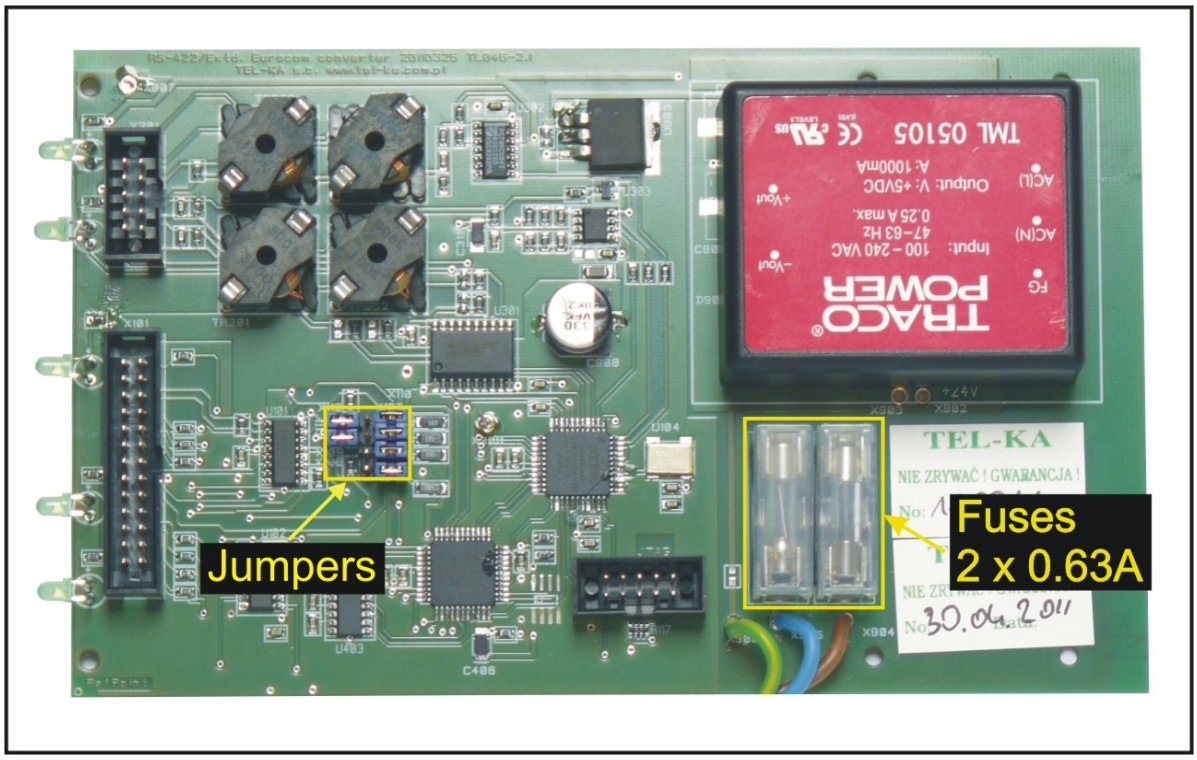
1. RL-xxx : Ericsson/Konsberg
2. AN/GRC-xxx : Marconi/Ultra

3. Power

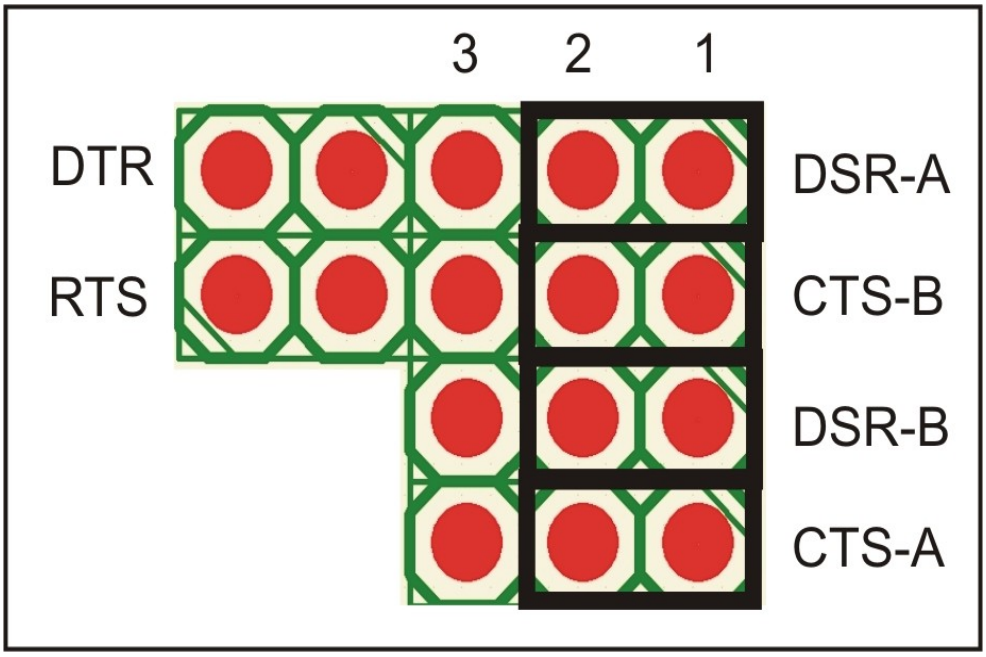
1. DC option
   Converter box is powered by +9..+30VDC. The equipment is resistant to incorrect power connection, if the voltage is below 35V.
2. AC option
   Converter box is powered by 85…240VAC, 47…63Hz, connector IEC60320-C14

4. Configuration

1. Board layout



2. Jumpers layout and default configuration



3. RTS load configuration

RTS jumper	RTS load
short	resistive 100Ω
open	without load

4. CTS source configuration (EIA-530)

CTS-A/B jumper	CTS source
1 ─ 2	Always ON
2 ─ 3	RTS

5. DTR load configuration (EIA-530)

DTR jumper	DTR load
short	resistive 100Ω
open	without load

6. DSR source configuration (EIA-530)

DSR-A/B jumper	DSR source
1 ─ 2	Always ON
2 ─ 3	DTR

7. DTR/DSR configuration (EIA-530A)

DSR-A jumper	DSR source
1 ─ 2	Always ON
2 ─ 3	DTR

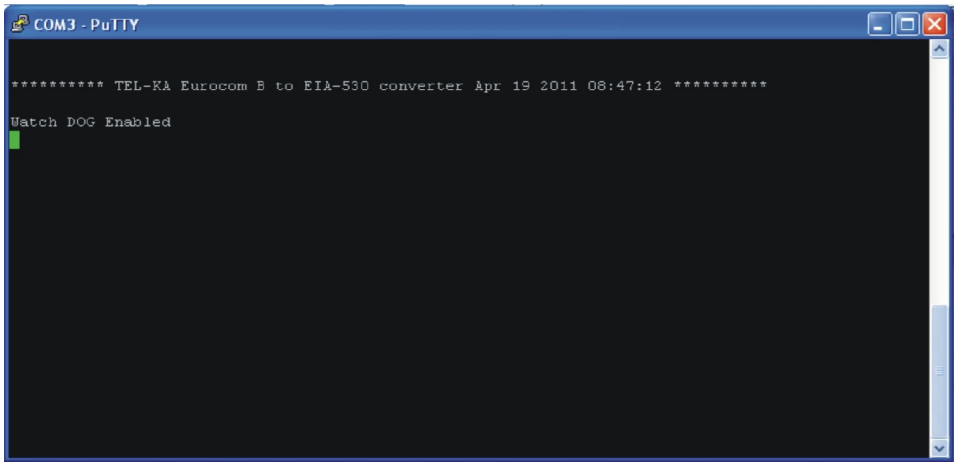
Fixed settings for the EIA-530A interface:
DSR-B – **always 1-2**
CTS-A – **always open**

5. Command Line Interface

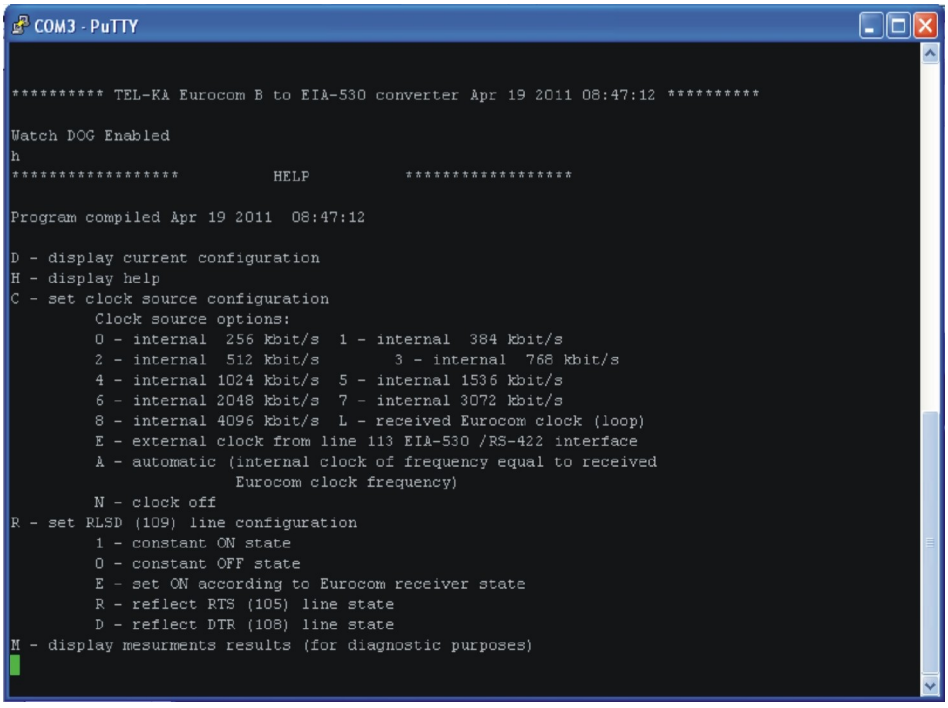
CLI allows to configure and check statuses of the running application. CLI is available via RS-232 interface. To connect with CLI, use attached interface adapter (connect it to EIA-530 connector and use the DB-9 female-type socket to connect to RS-232 interface of the PC computer). Then set the following parameters on COMx port on PC-computer:

throughput:	38400 bit/s
character format	8 bit, no parity
flow control	none

You will see the following prompt:

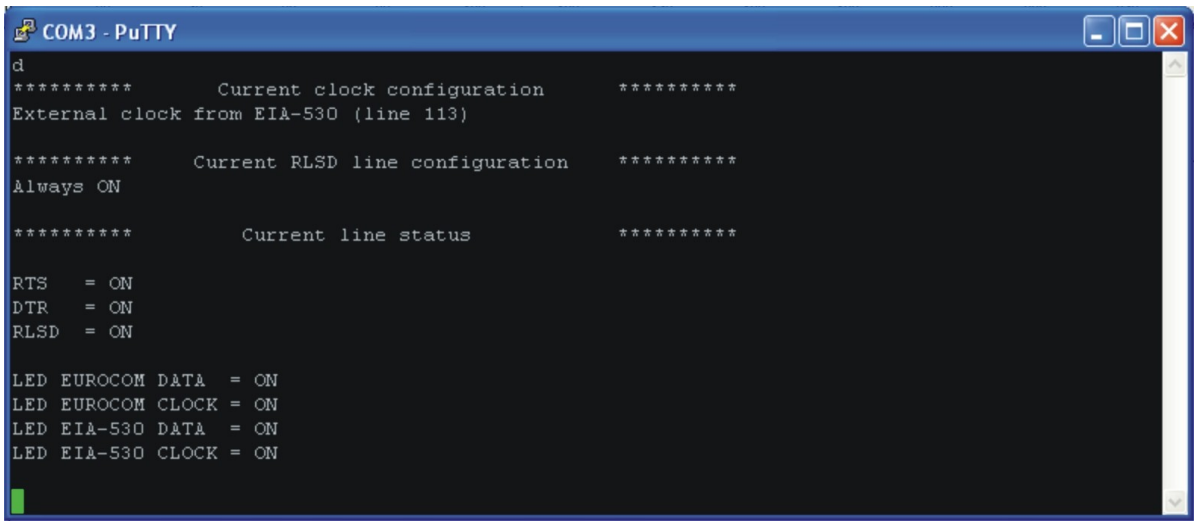


After you are connected to CLI type in ***h*** **(help)** to see list of available commands. With each displayed command comes a brief description:



To set a parameter, you must first select the command (**C, D, H, R** or **M**) and then the number of options (**C** or **R** commands only). The selected value is stored in nonvolatile memory. To check the current configuration and the state of input lines use **D** command.

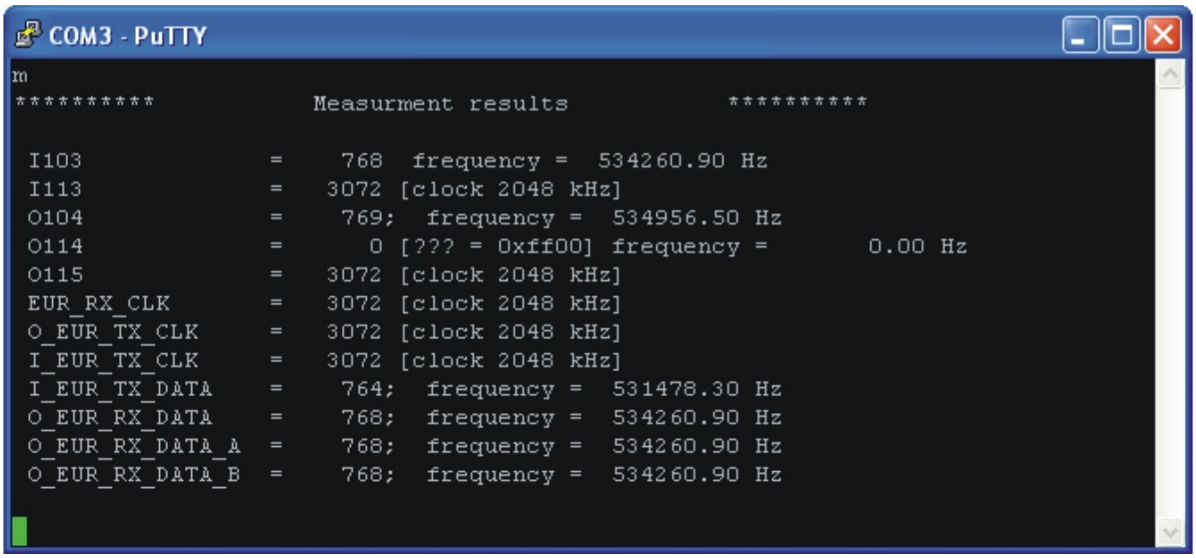
1. **D** – display the current configuration and the state of the input lines



2. **C** – set clock configuration
   The following clock options are available on Eurocom transmit direction (**DB** - Transmit Signal Timing EIA-530 / ITU line 114 and Eurocom Transmit Clock):
   0..8 - internal clock of frequency 256, 384, 512, 768, 1024, 1536, 2048, 3072 or 4096 kHz,
   E – external clock derived from line DA Transmit Signal Timing EIA-530 (ITU line 113),
   L – transmit clock derived from Eurocom Received Clock,
   A – internally generated transmit clock of frequency equal to received Eurocom clock frequency,
   N – clock off

3. **R** – RLSD line configuration
   The following option are available on RLSD line (EIA-530 interface):
   0 – constant OFF state,
   1 – constant ON state,
   E – RLSD line follow Eurocom receiver state,
   R – RLSD line follow RTS line state (EIA-530 interface),
   D – RLSD line follow DTR line state (EIA-530 interface),

4. M – display measurement results



'M' command shows the frequency values which are measured at the measuring points of the converter. The measured values are used for fault location.

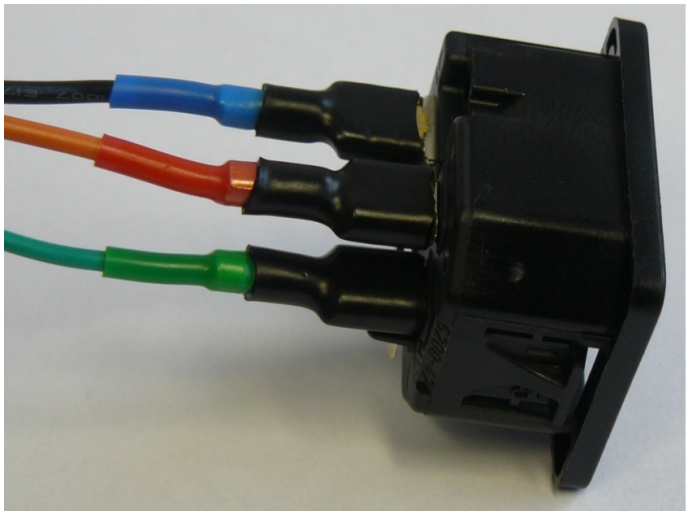
5. H – display Help

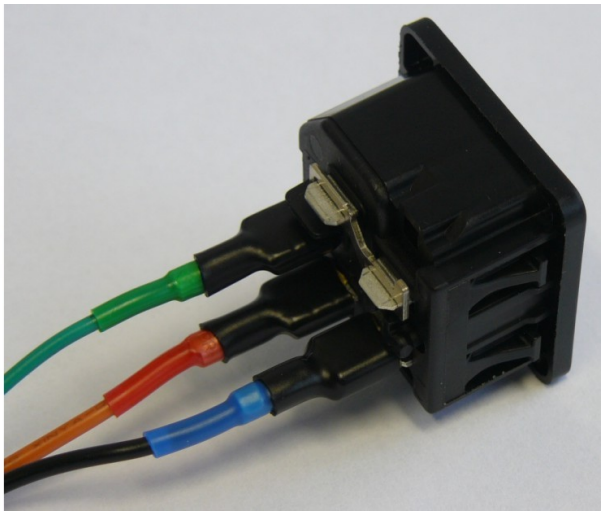
   This command display Help (Menu)

6. Converter board removal

1. Plug off power supply cable
2. Unscrew four screws holding rear panel
3. Disconnect cables from power supply connector (for 230VAC version)
4. Unscrew four screws holding front panel
5. Disconnect flat cables from board
6. Pull out converter board in rear panel direction

The assembly of the equipment is performed by following the steps above in reverse order (5 to 1). The picture below shows the correct connection of power supply cables to the socket (IEC60320-C14).





Colors: Green or Green/Yellow – Earth, Red/Orange/Brown – L (Line), Blue/Black – N (neutral)