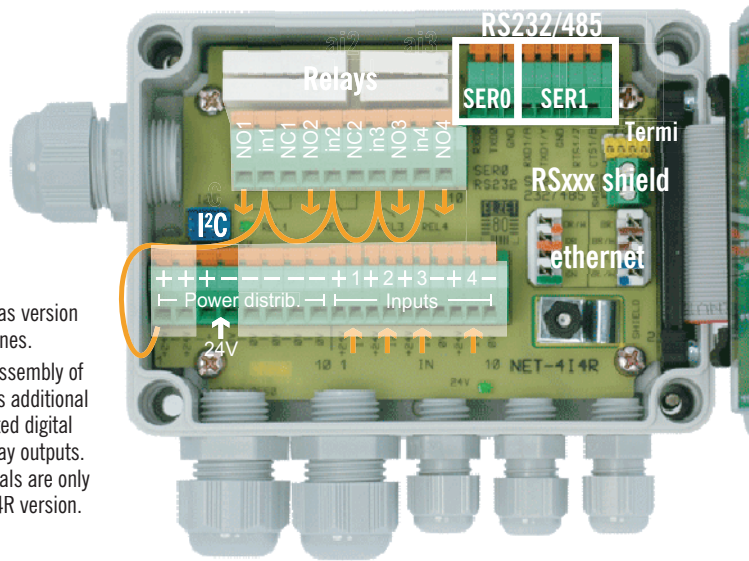


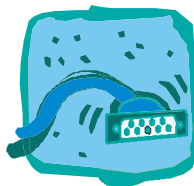


# ETH-A7-4I4R and -2SER

ethernode® serial and digital i/o



The minimum i/o outfit of an ethernode® goes as version 2SER: Two serial lines. 2SER is a partial assembly of 4I4R. 4I4R features additional four 24V optoisolated digital inputs and four relay outputs. The shaded terminals are only available in the 4I4R version.



### Ethernet

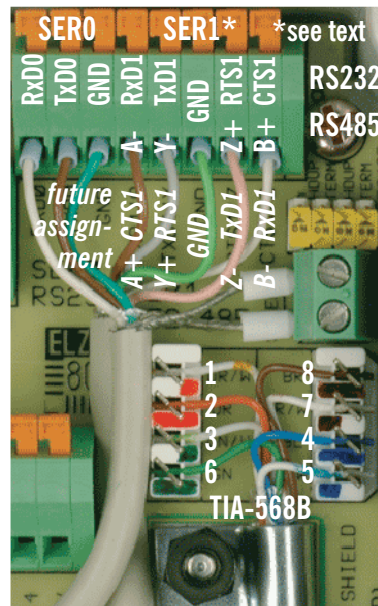
Use a common LSA punch tool to connect either patch cable or wiring cable to the two LSA terminal strips provided. Colour assignment is per TIA-568B, only the left strip connections (1/2 + 3/6) are used on ethernode for data. The right strip can be used for non-standard remote powering, applying 48V AC or DC to the brown and blue terminals (either polarity) for a PoE supply.

### SER0: RS232, SER1: RS232 or RS422/485

SER0 is RS232 only with no handshake signals. By default (EEPROM option) it is the terminal connection to the SYSMON software tool.

SER1 can be set by software to be RS232 with a handshake pair or RS422/485 full duplex. In RS485 mode the two jumper switches marked "HDUP" can be set (please set both!) to ON to use the A/B or Y/Z pair for both transmission and reception (**half duplex** operation). Do **NOT** set to half duplex for RS232 (shorts lines)!

If you are at the physical end of a cable in RS485 mode, please set the "TERM" jumper switch(es) to ON to **terminate** the line properly: One switch for half duplex, both for full duplex.



\*Ser1 terminal assignment will change with future versions of this unit due to an error in the current version that names the RS485 positive terminals Z and B while the negative ones are A and Y. In all its other products, ELZET80 follows the (non-standard!) designations of A/Y being positive and B/Z negative established by the early RS485 chip makers TI, AMD and NSC. Hence the next version will be in line again with our other products: A/Y+, B/Z-. Please follow the marking on the board. RS232 moves to other terminals but there is no polarity change.

### Power and digital i/o

All terminals named 24V are interconnected as all terminals named 0V are.

The left of the lower terminal row is dedicated to 24V and ground wiring to allow the relay output to be configured without having to revert to external terminal boxes. In the 2SER version only one pair of terminals is provided there as power input from external 24V+ (left) and ground (right) to the board. In PoE powered versions (POE24/5 power supply in the lid) these terminals output 24V coming from the powering Ethernet switch. Output is limited to about 4W (150mA) in an on-board 78L24-type foldback regulator to supply external relays, intelligent sensors or standard initiators. If you need more power, then you might feed external power into the same pins. Please note that excessive voltages fed into this port (> 28V) might destroy the PoE power supply.

To the right are four digital **inputs**, all with an associated +24V-terminal to supply a mechanical switch, but two (I3, I4) only with a 0V (GND) terminal needed for electronic initiators (a space constraint).

The upper terminal row presents the relay outputs. Two relays (REL1 and REL2) have changeover contacts providing both NC (normally closed) and NO (normally open) contacts. The remaining two relays (REL3 and REL4) provide make outputs only. Usually you would take 24V from the distribution area in the lower row and feed it to the relay center contacts. The orange arrows show the make (NO) outputs that would carry the 24V in such a wiring setup when outputs 0 to 3 are set to "1" using *expressi/o*.

### Technical data

**Power input:** 24V +/-15%@150mA, fused 10A max. Or PoE power supply option according to IEEE802.3af: 44..57V@240mA in turn supplying 24V at 150..200mA max. to external sensors.

**Ambient temperature:** -40.. +50 °C.

**24V digital outputs:** REL1 and REL2 have a changeover contact rated DC 6A@28V, 3A@30V(!), 0,3A@60V and AC 6A@48V. REL3 and REL4 make relays have a capacity of 3A@30V, 0.3A@60V DC and 3A@48VAC.

Response time 5/2ms. While the relays are listed for 250V AC operation, the narrow circuit structure on the board, terminal spacings, as well as missing safe isolation between low voltage circuits and the relays do **NOT** allow 230VAC operation. Use our model 2I2RHV for mains requirements.

**24V digital inputs:** Opto-isolated inputs 18..30V DC. Input low-pass filter to catch spikes < 100µs.



### Software Setup

To get connected, attach a PC with a serial terminal program, "wLGO" by preference, to the SER0 port at 19200bd 8N1. Alternatively, use Telnet over Ethernet by opening the previously set IP address of the device (Enter "help ipset" at the Sysmon monitor prompt).

Factory set ip address is "192.168.17.17".

The mCAT firmware on each device provides the digital i/o as logical devices in the "Express-I/O" hardware abstraction layer. See the mCAT documentation for details. Express-I/O ports are also available for a quick test through SYSMON commands. Some examples:

- xlist modules** Shows available hardware: BUS=CPU MODULE=01h TYPE=NETA7-DIN CHANNELS=04 etc.
- xin cpu.1.0** Returns the value (0 or 1) of input 1 (channel 0) on module 1 (DIN) of the CPU-board
- xout cpu.2.3 1** Switches on (=1) relay 4 (3 as counted from 0) of the output "module" 2 of the board