How to install the

ELZET 80
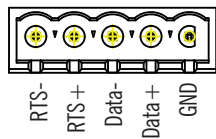
ETH-BITR2

Ethernet/BITBUS-Gateway

ETH-BITR2 is a rail-mount gateway between ETHERNET and BITBUS, working as master or slave. It is based on the NET-A7T board that is used in ETH-BITE and ETH-BITM, too.

A firmware task implements a BEUG-compliant BAPI-over-TCP server that can be accessed directly using a TCP/IP connection on port 8044. Under Windows, a DLL encapsulates the TCP/IP transfer and mimics a local board to the application.
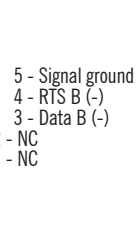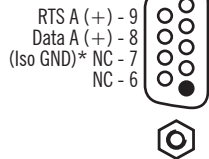
Technical data:

Power requirements:
24V +/15% @80mA, fused 8A max.
Ambient temperature: -40..+50°C
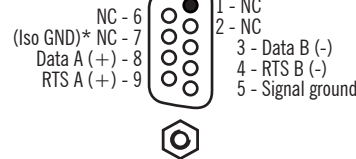Dimensions: 49x106x130mm (including DIN rail)

BITBUS

Socket:

RTS A (+) - 9
Data A (+) - 8
(Iso GND)* NC - 7
NC - 6
5 - Signal ground
4 - RTS B (-)
3 - Data B (-)
2 - NC
1 - NC

Plug:

NC - 6
(Iso GND)* NC - 7
Data A (+) - 8
RTS A (+) - 9
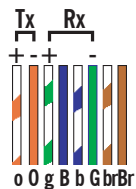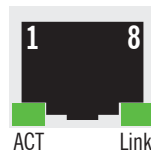1 - NC
2 - NC
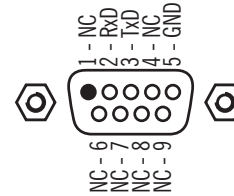3 - Data B (-)
4 - RTS B (-)
5 - Signal ground

The BITBUS port not only provides data but also RTS lines as needed in a repeater coupled subnet. The pins used are the Intel defined standard pins 3 and 8 for data, 5 for signal ground and 4/9 for RTS. The signals are isolated (500V test voltage) and driven by 75LBC176 BiCMOS RS485 line drivers that allow up to 50 node loads.

ETHERNET

The Ethernet connection is a standard Modular 8P8C (RJ45) connector with EIA/TIA-568B pin assignments as shown left. The PHY (physical layer driver) used in ETH-BITR2 accepts normal and uplink (reversed) cables.
The right LED within the ETH connector signals "Link established" while the left LED is lit during Ethernet activity.

RS232 Service terminal port (back)

The Sub-D-9 plug connects to the system monitor for debug or setup. Use this connection with a normal PC crossover (nullmodem) cable and a terminal program to set the IP address etc. (see below).

Termination (inside housing)

(To reach the termination, remove the housing on the power supply side.)
ETH-BITR2 can be terminated using four switches of SW60. Switches 1,2 and 7,8 have to be set to ON for active termination. Use termination only at the physical ends of the cable.
For standard BITBUS, the other switches have to be set like: 3,5 = ON and 4,6 = OFF

LEDs (inside housing)

The three LED indicators are lit as follows:
- Green 5Vi: When the isolated BITBUS driver supply is working
- Yellow BITBUS activity: When this device transmits to BITBUS
- Green SYS: Flashes when mCAT real time kernel is working

X3: 24V Power supply input

24V +/15% @80mA
+24V
GND
+24V
GND

SW60 (inside housing)

unterminated
terminated
NO

Boot jumper (inside housing)

In case you need to update the firmware, set the boot jumper to "ON" and reset the device. Then download a new mCAT firmware .shx file using BAPImon over Ethernet or the RS232 debug connection.
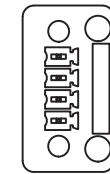
Software Setup

The factory default for the IP address is 192.168.17.17, it can be modified from the device's web site, via TELNET or the RS232 debug port. For TELNET or RS232 access, please use a terminal program like Hyperterm set to 19200 bit/s, 8N1 ANSI. After restart, the gateway will come up with the SYSMON start message. At the prompt, enter "help ipset" to see how to set IP, network mask and DNS (if needed).

To set the IP, enter IPSET IP "xxx.xxx.xxx.xxx" with xxx to be replaced by the decimal IP address part. Also set the network mask, though usually it can remain at the 255.255.255.0 default in small nets. Now RESET to make the setting take effect!
BITBUS is set to master (node 255 or FFh) and 375kBit/s by default. This corresponds to a code of 1ffh in the configuration eeprom's address 2. To set it to 62.5kBit and master, use the monitor command:
```
eewrite 2 0ff
```
Other settings are explained in the readme-bapitcp-node-cfg.htm file that comes with the BAPI/TCP software.

On the PC side, please download BAPI/TCP from files.elzet80.de/bapitcp.zip and follow the directions in the readme. The tool bapitcpcfg.exe is used to assign logical BITBUS names per BAPI convention (BBUS0, BBUS1, ...) to multiple ETH-BITs with their respective IP addresses. Each ETH-BIT can talk to up to 16 PC applications concurrently, even from different PCs.
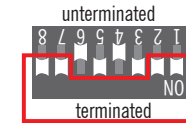
Using the bapitcp.dll, ETH-BITR2 simulates a PC add-on-board within Windows. For other operating systems there is the option to directly send BITBUS messages to port 8044 of the ETH-BIT.
If you want to program on ETH-BITR2, for instance to scan BITBUS slaves automatically and present data in the web server, you should buy and install the mCAT developers package. Information about memory usage on ETH-BIT can be found in chapter XIV-2.2.1 of the manual. To use the RS232 serial line for a local peripheral, please refer to chapter VIII-4.2 to negotiate this with SYSMON.
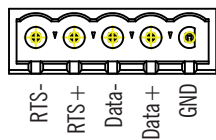
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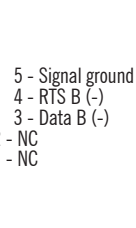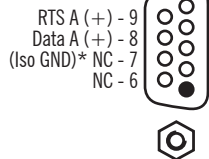
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Power requirements:

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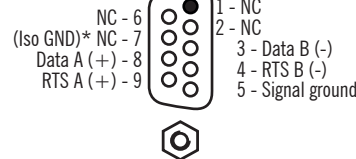
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2 - NC
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Data A (+) - 8
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3 - Data B (-)
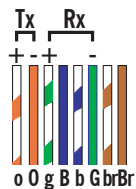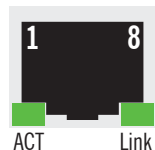4 - RTS B (-)
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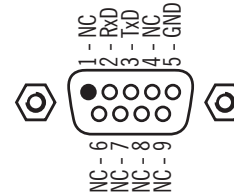
RTS- RTS+ Data- Data+ GND

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ETHERNET

Tx   Rx
+ - + -   -

1   8

ACT   Link

o O g B b G brBr

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RS232 Service terminal port (back)

1 - NC
2 - RxD
3 - TxD
4 - NC
5 - GND
NC - 6
NC - 7
NC - 8
NC - 9

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24V +/15% @80mA

+24V
GND
+24V
GND

SW60 (inside housing)

unterminated

8 7 6 5 4 3 2 1

NO

terminated

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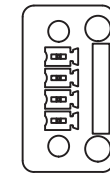
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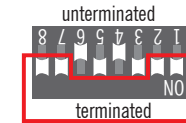
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