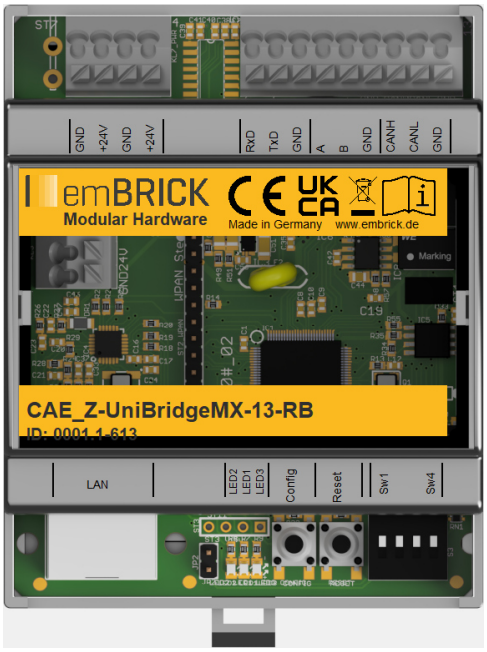
CAE_Z-UniBridgeMX-13-RB-p



1.1 Description

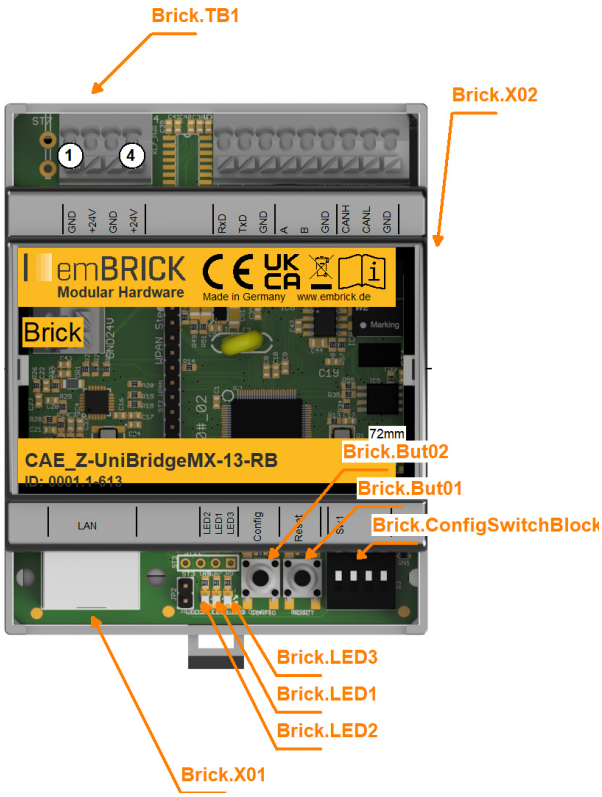
ID: 1-613
Order No.: CAE_Z-UniBridgeMX-13-RB-p
Terminal: push-in (for < 1.5mmÂ²)
Size: (72mm x 90mm)
BBFCP: 2-1-1
Weight: 70g

The UniBrigdeMX is a coupling mode between an emBRICK Remote Bus and a Local Bus. Here it acts as a "non intelligent" remote bus slave and a local bus master and connects e.g. a PC with a string of the brickBUSÂ® slaves modules.
The largest variant (1-613) contains the interfaces LAN, CAN and Serial (RS232 and RS485) which can be used to couple a remote-master. It is also possible to use the CAN and RSxxx as an IO-device (on request).

The unit is driven by 24Vdc (nominal) and also serves as power-supply unit that delivers 3.3V and 24V for the slave modules. Nevertheless the bus is controlled by the connected remote-master. The UniBrigdeMX acts as the bus master of the local bus and the connected slaves modules. Therefore it has the ability to control its string in exceptional situations autarkic e.g. with a teached output pattern. Away from the coupling mode, the board can furthermore act as a low cost/low power I4.0/IoT-Interface adapter that supports the connection between local control units (RSxxx, TTL, CAN) and the WAN/Internet and also as a standalone bus master.

With PTR Terminals.

1.2 Connectors and Indication-/Operation-Elements



1.2.1 Connectors (X)

Hereinafter the necessary connections, connectors and there specification for operation are listed. The location of a specific connector is documented with the ID (left coloumn) in the previous Illustrations.

ID	Model	Usage	Num. of term.	Model / Series	connection	elec. usage
Brick.X01	Box connector	emBRICK I/O-Bus	10		-	brickBUS master
Brick.X02	Plug	LAN		RJ45	-	Ethernet IEEE 802.3

1.2.2 Terminal block (TB)

The following Illustration the technical details for Terminal blocks are listed. The location of a specific block is documented with the ID (left coloumn) in the preavious Illustrations.

ID	Model	Model / Series	Grid	Num. of term.	connection	elec. usage
Brick.TB01	Cage Terminal		5mm	3	up to 1.5mm²	power supply input 24V dc
Brick.TB01	Cage Terminal	WAGO250	3.5mm	4	up to 1.5mm²	power supply input 24V dc
Brick.TB02	Cage Terminal	WAGO250	3.5mm	9	up to 1.5mm²	data signal

1.2.3 Terminal assignment

Here the assignment of individual terminals and there affilation to terminal blocks (Te block), terminal numbers (Te no.) and short description (T.desc.) aswell as there electrical function and usage are explained.
The associated mechanical and electrical properties are stated with the specific terminal block in the previous chapter. The position of a terminal is dedicated through the "Te block" and the actual terminal number (Te no.) or the therminal description (T.descr.) in the previous Illustration respectivly.
In the coloumn "usage" the technical-/ device-functional use is listed.

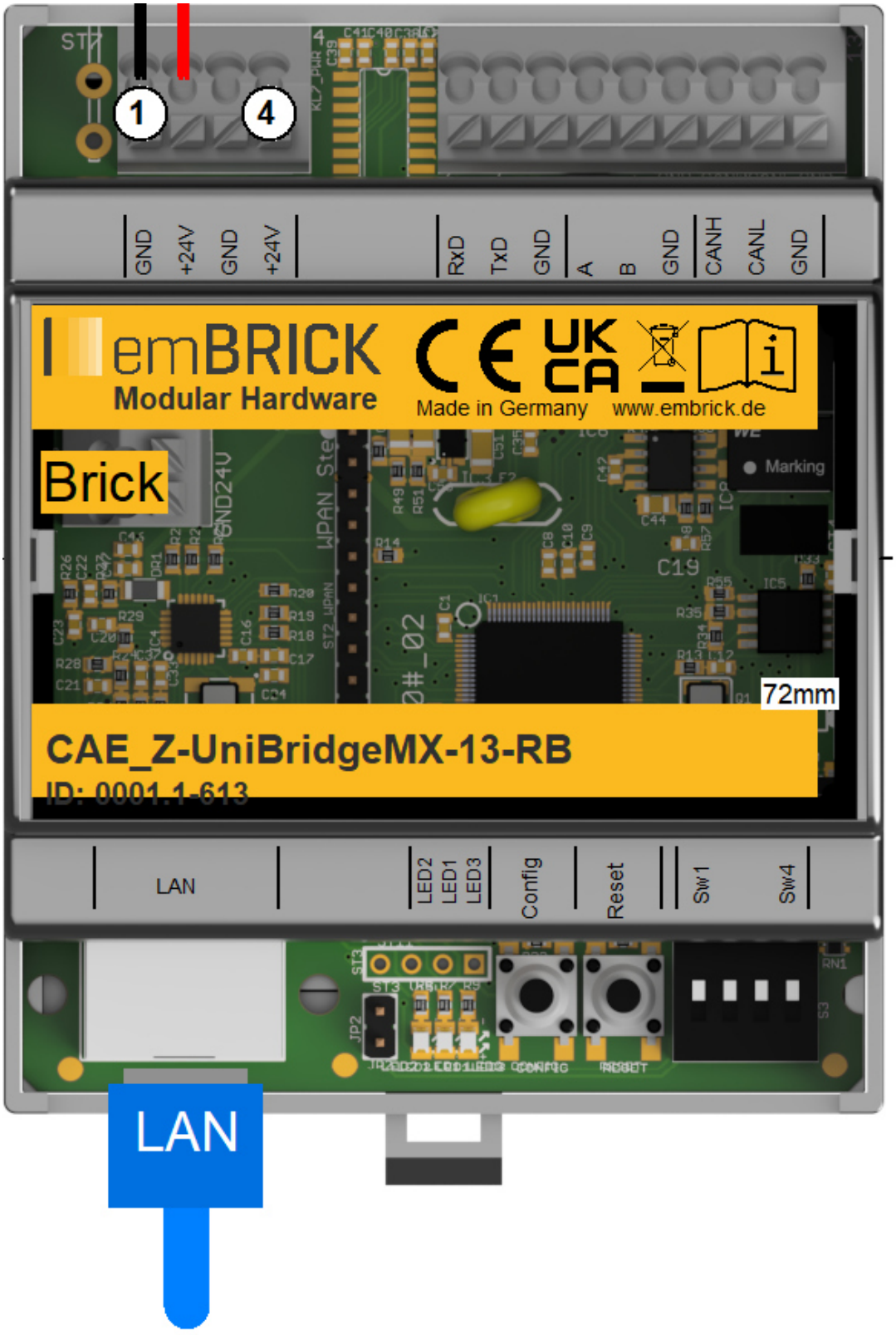
Te block	Te no.	T. descr.	Function	Usage
Brick.TB01	1	+24V	Supply	-
Brick.TB01	2	GND	Ground	-
Brick.TB02	5	RX	RS232 Rx	RS232
Brick.TB02	6	TX	RS232 Tx	RS232
Brick.TB02	7	GND	Ground	RS232
Brick.TB02	8	A	RS485 A	RS485 Bus
Brick.TB02	9	B	RS485 B	RS485 Bus
Brick.TB02	10	GND	Ground	RS485 Bus
Brick.TB02	11	CAN H	CAN H	CAN Bus
Brick.TB02	12	CAN L	CAN L	CAN Bus
Brick.TB02	13	GND	Ground	CAN Bus
Brick.TB02	14	GND	Ground	Supply
Brick.TB02	15	+24V	Supply	Supply

1.2.4 LED Indications

ID	Type	Specification	Type / Usage
Brick.LED01	SMD-LED	orange	Network configuration - Off : Not in network configuration mode and no error pending - Flashing (approx.. 1Hz) : Network configuration, searching address from DHCP. - Permanently on : in network configuration mode, connected. Error notification - Off : Not in network configuration mode and no error pending - Morse code (5 bit, 0.5 sec = 1 / 0.2 sec = 0, Pause 5 sec) : an error is pending (see User Notes).
Brick.LED02	SMD-LED	green	Local Bus Indicator - Flashing (approx.. 5Hz) : Local Bus is configurating, at start or after failiure. - Flashing (approx.. 1Hz) : Local Bus is operating.
Brick.LED03	SMD-LED	yellow	Remote Bus indicator - Off : No connection to remote master - On : Remote master connected and sending - Flashing (approx. 1Hz) Connection to remote master is established, but no data is sent (timeout).

1.3 Input-/Output Scheme

The following diagram shows the adaption of the control unit. To avoid overlapping, some wires are displayed interrupted and dashed.



1.4 Technical Data

1.4.1 User Notes

IP adress setting
1. When setting the DIP-Switches to “DHCP” you need a possibility to get the actual IP address of the coupling master. Tools for this purpose are available from different suppliers.
2. When setting the DIP-Switches to “Software set Adress”, the shipped value of the IP address is 192.168.1.0

• Blinking behavior StateLED:
Each Morse code is 3 seconds long!
not initialized = flashing continuously at approx. 5Hz
no communication = short-long-short
too little communication = short-short-short
disturbed communication = short-long-long
OK = continuous flashing at approx. 1Hz (0.6-1.5Hz)

• Some errors make the LED1 (orange) send an error code repeated every 5 seconds. These errors will occur immediately after power on. The codes mean the following:

0x000: remanent data storage corrupteds or defective
0x001 .. 0x004: remanent parameter area corrupted
0x005 .. 0x008: remanent system parameter area corrupted
0x009 .. 0x00C: remanent calibration data area (most times unused) corrupted
0x00D .. 0x010: remanent process data area corrupted
0x011 .. 0x014: REMA data area corrupted
0x01F: internal program error which can not be repaired

The different numbers of certain errors are for use by embrick support to identify the error more specifically.

If such an error occurs, the program is halted. To continue, press the Config button.
CAUTION: Pressing the Config Button in this case sets the corrupted area back to factory default values! Therefore, the device will then enter the Configuration mode and the configu-ration must be checked and eventually updated / corrected.
If the error persists even after the configuration has been updated or in case of error code 0x1F please contact support@embrick.com.

1.4.2 Developer Notes

• The UniBrigdeMX offers multiple operation and communication methods and can be used in fol-lowing different modes. The first 3 modes supports an integrated parallel working Web Server (via Port 80) for running configuration and diagnostics via a Web-Browser (under development).

Mode 1: Remote Bus Coupling Device (shipping version)
This mode offers a connection between remote-bus and local-bus and is therefore a Local-Master without own functionality. It contains the following different (alternative) operation sub modes. (for details about the communication see http://embrick.de/downloads/dokumente/eB_Programmer.pdf):

- eB-Remote TCP Ethernet via Port 7086

- eB-Remote CAN via CAN – planned
- eB-Remote RS485 via RS485 Half-Duplex (ModBUS Large Block)
- eB-Remote RS232 via RS232 Full-Duplex (ModBUS Large Block)
- Modbus TCP Ethernet via Port 502
- Modbus RTU via RS485

More features supported in this mode:
♣ Parallel to this, a Bluetooth interface expansion allows to couple another Coupling Bridge running in the "Wireless Slave Sting" mode (see below) to append its Bricks to the main string – under development
♣ For the eB-Remote TCP communication and different common programming systems, ready-to-use drivers are available (MSVC++, Gamma). See => eB_Developer-Manual. For own/individual programming of connections to the CouplingBrick see eB_Developer-Manual.

Mode 2: Standalone Target
This offers an individual programming with C/C++ or radCASE model-based programing. For details send a request to support@embrick.com.

Mode 3: eWAC
This is the embedded web access mode and an expanded version of mode 2 with libraries / functionality that offers a TCP/IP-Slave to connect to cloud based Web Server. This mode also offers the full security package with TLS encryption. For details send a request to sup-port@embrick.com.

Mode 4: Standalone Target (for own Development with MPLAB and radCASE®)
The hardware of the UniBrigdeMX supports also an individual programming using the existing environment and libraries. For details send a request to support@embrick.com

1.5 History

On the following page you will find a list of changes that have been made to the product.

1.5.1 History

Date	Entry scope (HW, SWappl, SWapi, Release)	Entry type (Enhancement, Improvement, Bugfix, Release)	Version	Status (development, implemented, tested)	Responsible	Reason for the modification	Items of the modification	Impact for (end-)customer	Comment	location in model/source
xxxx-xx-xx		Release	0.99	tested	NSt					

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