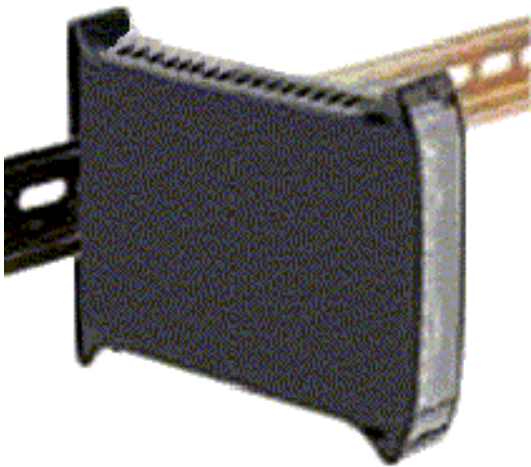


EFA – SERIAL-BRIDGE II



- ✓ **Flexible**
- ✓ **Affordable**
- ✓ **Plug & Play**
- ✓ **Slim outline**
- ✓ **Trouble-free cables plug/unplug**
- ✓ **Easy DIN rail mounting**
- ✓ **Cost-Effective**
- ✓ **Customisable**

The **Serial Bridge II** eliminates the difficulties often encountered in installing and integrating devices with different protocols and media. It allows the coupling of 2 or more devices with different protocol structures, the support of devices using a proprietary protocol, as well as atypical network needs like the exchange of data between Slave Devices and many more applications.

It provides 2 serial ports (RS232/485/422 singly configurable) and an extra slot to optionally support Fieldbus (e.g. Profibus-DP, DeviceNet, CANOpen, ControlNet, Modbus/TCP, Ethernet/IP, etc.) as a standard slave device or to give support to unusual media and/or baud rate.

The **Serial Bridge II** is powered by an industrial 24 Volt DC (11÷32 Volt), hence it can be also affordable for battery based applications.

IP 20 protection, wide DIN rail option (C type DIN EN 50035; Ω type DIN EN 50022-50045) and a self-extinguishing plastic case, complete the profile of a secure industrial unit.

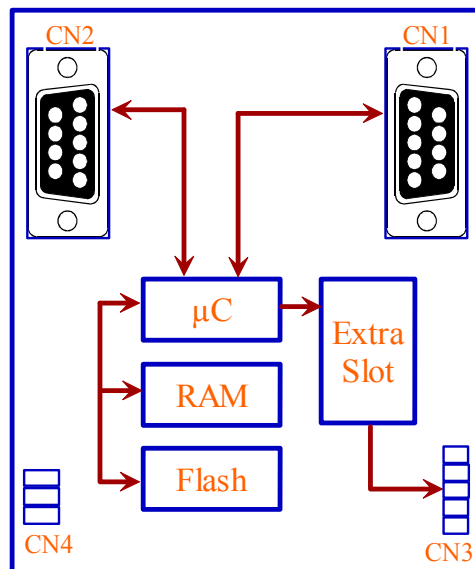
Logical scheme:

CN2 could be configured as:

- RS232
- RS485
- RS422

CN4 power connector:

- ① Shield
- ② 0 VDC
- ③ 24 VDC



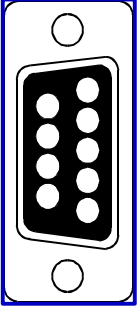
CN1 could be configured as:

- RS232
- RS485
- RS422

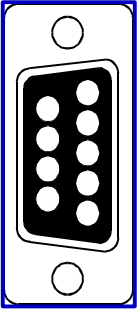
CN3 could be factory configured to supply specific support to Fieldbus or unusual media.



CN1 pin function:

	① RS422 Tx+
	② RS232 Rx (or special function)
	③ RS232 Tx (or special function)
	④ RS422 Rx+
	⑤ GND
	⑥ RS422 Tx-
	⑦ RS232 RTS (or special function)
	⑧ RS232 CTS (or special function)
	⑨ RS422 Rx-

CN2 pin function:

	① RS422 Tx+ (or special function)
	② RS232 Rx
	③ RS232 Tx
	④ RS422 Rx+ (or special function)
	⑤ GND
	⑥ RS422 Tx- (or special function)
	⑦ RS232 RTS
	⑧ RS232 CTS
	⑨ RS422 Rx- (or special function)

Notes:

(a): RS485 is provided linking together RS422 Tx+ with RS422 Rx+ and RS422 Tx- with RS422 Rx-.

(b): The pin marked as "special function" could be configured and used by specific drivers to create protocols with complex handshake.

LED's:

On the front panel, protected by a plastic glass, there are 3 LED's to signal the state and the activity of the **Serial Bridge II**.

LED	Freq.	Description
COM 1 (Orange)	Steady off	No communication on that port
	Flashing	Active communication on that port
COM 2 (Orange)	Steady off	No communication on that port
	Flashing	Active communication on that port
Status (Green)	Steady off	No power or critical fault
	Steady on	Normal operation (no errors of any kind)
	1 Hz	Communication errors

Some available protocols:

Brand	Protocol
ABB	Procontic CS31, EIB bus
Aec	PROTIND
AeP	proprietary
Allen Bradley	DF1 (KE protocol)
Atlas Copco	ASCII-HEX protocol for DMC
Control Tecniques	Mentor II
Delta-Tau	PMAC
Festo	FESTO Command Interpreter
GE Fanuc	SNP
Gefran	CENCAL
Hitachi	COMM-H, COMM-2H (E series, H series)
Keyence	(KV protocol)
Klockner Moeller	Sucom A, Sucom B
Lenze	Lecon
Matsushita	MEWTOCOL, MEWTOCOM
Mitsubishi	Melsec A, Melsec AnA, Melsec FX
Modicon	Modbus RTU (both Master and Slave)
Omron	Host Link
PMA	ISO 1745
S.C.S.	CVS protocol
S.B.C. Parker	proprietary (for HPD, LVD and sLVD)
SAIA	S-BUS (both Multipoint and Multidrop)
Siemens	PPI, MPI, 3964R/ RK512
Telemecanique	Uni-Telway
VIPA	MPI
WIT	Clip

SERIAL
BRIDGE II



EFA
AUTOMAZIONE

- ★ Com 1
- ★ Com 2
- ★ Status

OEMs can private label the **Serial Bridge II** to make our technology and knowledge part of their own product offering.

EFA Automazione helps OEMs bring their product to market by offering very special OEM product options and flexible support services.

More than ten years as OEM supplier has trained us how to be ready to get the job done for you.



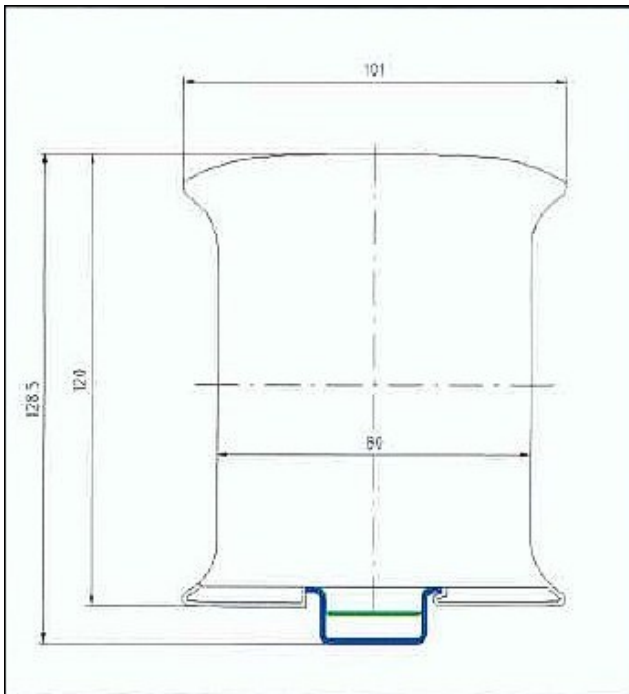
Fieldbuses support:

Fieldbuses are supported via AnyBus® technology. Adding a HMS AnyBus-S card the **Serial Bridge II** currently may support Modbus/TCP, Ethernet/IP, Profibus-DP, DeviceNet, CANOpen, Modbus Plus, ControlNet, Interbus, LonWorks and CC-link.

Performance specifications:

Physical layers	RS232 / RS485 / RS422 / CAN / Ask for others
Max baud rate	Up to 115,2 Kb/s
Supported Data bits	7 or 8
Supported Parity modes	NONE / EVEN / ODD
Supported Stop bits	1 or 2
Mounting	C type DIN EN 50035; Ω type DIN EN 50022-50045
Required supply voltage	11-32 VDC
Power consumption (typical)	2,5 W
Dimension	101mm x 120mm x 22,5 mm (W x H x L)
IP grade	IP 20
Operating temperature	0 to +50 °C
Humidity (non-condensing)	5 to 95% RH
Material	Blend PC/ABS (UL-94 V0)
Flammability	UL 94V-0 materials IEC 695.2.1 @ 960 °C

Mechanical dimensions:

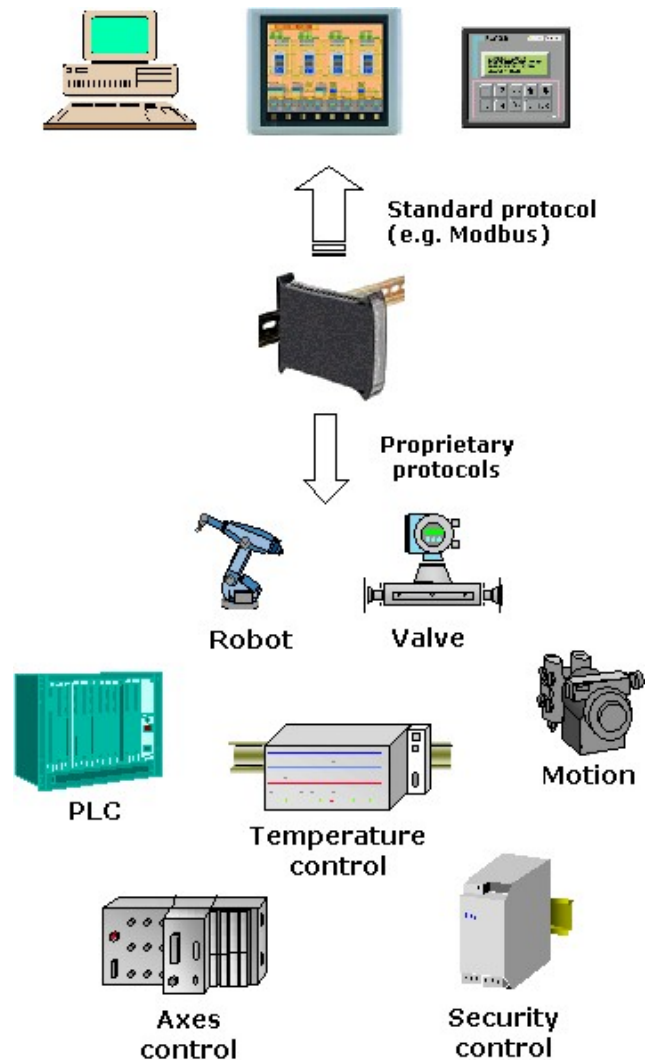


120mm x 101mm x 22.5 mm (H x W x L)

Application examples:

Example 1: Support to proprietary protocols.

It's common to handle devices using a proprietary protocol. In that case the implementation of a new protocol in a high volume product could be very expensive. The solution is to build up a specific version of the **Serial Bridge II** that translates the odd protocol in a standard one.



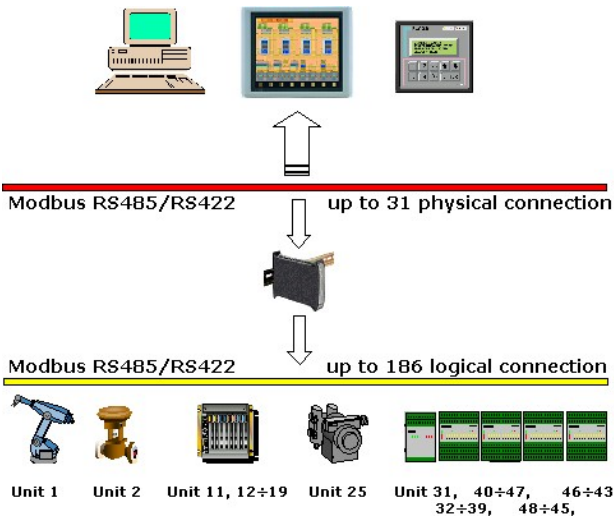
Translation could be both in real-time and buffered. When using the first method **Serial Bridge II** waits for an interrogation from the network master, then translated message is sent to the device and related reply is finally translated back to the Master.

Opposite to this, the second method needs a fixed configuration. In that case the **Serial Bridge II** continuously interrogates the device to keep updating a fixed database, while the network master has direct access to the **Serial Bridge II** memory obtaining an immediate reply.



Example 2: Support to multiple addresses units.

Some devices act as data concentrators regarding other modules connected to a local/private bus. That solution sometimes has the back draw to consume many logical unit addresses for a single physical connection. Hence, even if the electrical standard commonly allow up to 31 unit connected to, in that case there is the necessity to extend logically that limit. The solution is use a **Serial Bridge II** with a special address map that allow this extension with no change of any kind on the network master.



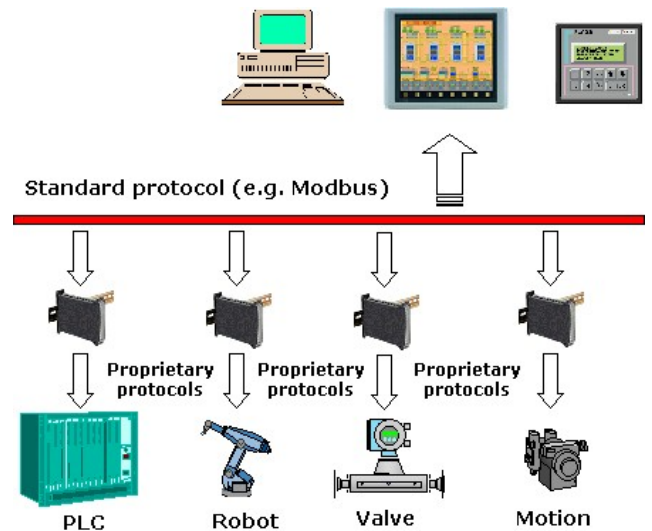
Example 4: Special communication layout

Thanks to **Serial Bridge II** flexibility it's possible to turn a very unusual layout into reality and resolve most of communication problems. For instance, it's possible to put in communication 2 slave devices in order to allow the exchanging of data. In that case the bridge operates as a master for both devices and it is in charge to swap information between the 2 units.



Example 3: Support to "countless" protocols per port.

Extending the concept of protocol standardisation by using **Serial Bridge II** capabilities, it's possible to figure out an extended network while below each bridge there is a different protocol. The result is the possibility to connect several devices to a single port with a variety of different protocols. More, you can also realize that each bridge can manage itself another sub-network of other bridges, and so on ...



Example 5: Solving baud rate problem

Where the overall speed of a network is important, sometimes it happens that just a device supports a lower baud rate causing the downgrade of all units connected to the same network. The solution is to use a **Serial Bridge II** just as baud rate shifter in order to save the overall performance.

