

## EY-BU 292: novaNet-Ethernet interface, moduNet292

### How energy efficiency is improved

SAUTER EY-modulo 2 integrated into established IP technology

### Features

- Part of the SAUTER EY-modulo 2 system family
- Bus access device for novaNet system bus with Ethernet interface
- To integrate novaNet stations (EY3600, EY-modulo 2) into IP networks based on Ethernet (LAN/WAN)
- For SAUTER CASE Suite applications
- To download programmes onto the stations
- For SAUTER novaPro visualisations
- For remote monitoring via the internet
- TCP/IP communication
- Communication with two-wire novaNet system bus
- RJ-45 plug for Ethernet 10 Base-T (10 Mbit/s)
- Fixed IP addressing
- RS-232 interface for parameterisation and updating
- Five LEDs for Error, novaNet Send, Power, Activity, Link



EY-BU292F001



EY-BU292F002

### Technical data

#### Power supply

Power supply	230 V~, +10%, -15%
	115 V~, +10%, -15% (50...60 Hz)
Power consumption	6 VA, < 7 W

#### Ambient conditions

Operating temperature	0...45 °C (32...113 °F)
Storage and transport temperature	-25...70 °C (-13...158 °F)
Admissible ambient humidity	10...85% rh, no condensation

#### Interfaces and communication

Ethernet	1 × RJ-45 socket 10 Mbit/s (10 Base-T)
RS-232 serial port	1 × DB-9 (male) as per DTE (57k6, 8n1)

#### Standard settings

TCP/IP address	192.168.10.20
Subnet mask	255.255.255.0
TCP port (App 1)	51806 (nova292-Server)
TCP port (App 2)	51807 (nova291-Emulation)

#### Construction

Fitting	EY-BU292F001: DIN rail Installation EY-BU292F002: desktop model
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#### Standards and directives

Type of protection	IP 00 (EN 60529); IP 20 (EN 60529)
Protection class	I (EN 60730-1)
Software class A	EN 60730-1 Annexe H

#### CE conformity as per

EMC directive 2004/108/EC	EN 61000-6-1, EN61000-6-2, EN 61000-6-4
Low-voltage directive 2006/95/EC	EN 60950-1

#### Overview of types

Type	Description	Dimensions W x H x D	novaNet	Weight
EY-BU292F001	panel-fitted model	193 × 131 × 41 mm	1 × a/b terminal	0.65 kg
EY-BU292F002	desktop model	228 × 131 × 41 mm	1 × RJ-11 socket	0.7 kg



**Accessories****Software**

Type	Description
GZS100F599	CASE Tools CD, latest version (CASE TPC, CASE HWC, CASE Sun, novaNet292 SW ...)

**Connecting cables**

Type	Description
0367862001	novaNet RJ-11 to RJ-11: 1.5 m
0367862002	novaNet RJ-11 to RJ-11: 2.9 m
0367862003	novaNet RJ-11 to RJ-11: 6.0 m
0367842002	Ethernet RJ-45 to RJ-45: 1.5 m
0367842003	Ethernet RJ-45 to RJ-45: 2.9 m
0367842004	Ethernet RJ-45 to RJ-45: 6.0 m
0386507001	Ethernet crossover RJ-45 to RJ-45: 3.0 m

**General information**

Type	Description
0374509001	Connector, 3-pin, packaged
0010240105	Cable housing for 0374509 001, cable cord grip
0374677001	Installation kit for 2-DIN rail mounting (for F001)

**Additional information**

Fitting instructions	P100002338
Declaration on materials and the environment	MD 96.015

**Description of operation**

The moduNet292 can be used for various tasks and applications, for example:

1.

Access unit for CASE Engine incl. CASE Monitor (for time programmes):

The moduNet292 is an access unit for CASE Engine for parameterising and programming EY-modulo 2 and EY3600 automation stations (modu, nova), compact controllers (moduFlex, novaFlex) and room controllers (ecos). The moduNet292 runs as a nova292 server. Up to five CASE Engines can use a moduNet292 at the same time.

2.

Interface for novaPro32, novaPro Open, novaPro and novaNet OPC servers:

The moduNet292 can be used together with the additional novaVPort Windows driver as a novaNet291 router. For the novaPro\*\* visualisation, the EY3600 driver is configured for the novaVPort virtual COM port driver. The moduNet292 runs as a nova291 emulation. Up to six novaVPort drivers can be set up on one computer. However, only one EY3600 driver of novaPro\*\* can communicate with a moduNet292 via novaVPort.

3.

Interface for novaMit29x for monitoring and investigating the novaNet system bus.

Notes on operation:

- The nova291 emulation of the moduNet292 cannot be emulated by a novaNet291 router in dial-up mode (no remote operation [router] and no remote monitoring [routel] via analogue/ISDN modem).
- The moduNet292 is ideal for laptops and PCs that do not have a serial interface or ISA slot. For this, an Ethernet interface is required on the computer.
- The applications can also be operated in parallel. A switch positioned in the cabinet enables the technician to connect to CASE on site and, for example, make FBD changes or investigate novaNet bus loads. This functions without having to disconnect the higher-level management system, such as novaPrP\*\*. (Topology c)

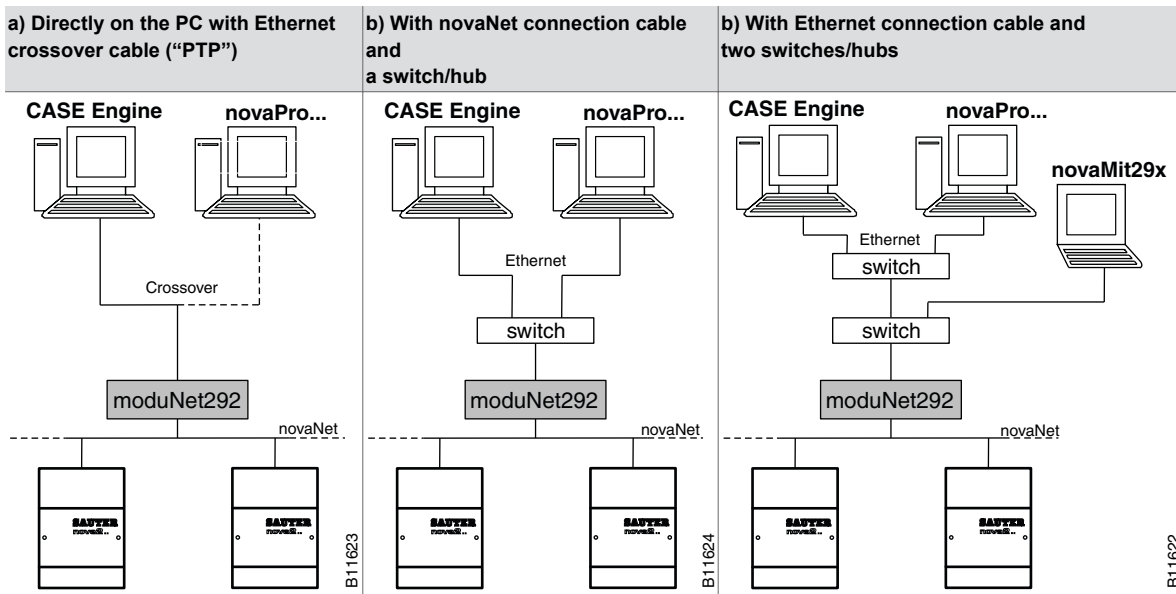
**Intended use**

This product is only suitable for the purpose intended by the manufacturer, as described in the "Description of operation" section.

All related product documents must also be adhered to. Changing or converting the product is not admissible.

**Topologies**

The following Ethernet network topologies are supported by moduNet292:



## Notes on topologies:

- The more switches or hubs are incorporated into the Ethernet network, the greater the times for transmitting the telegrams on the Ethernet network. Experience has shown that the network PC moduNet292 still works well with "PING times" of around 30 ms. There should be no telegram time-outs on the network.
- For the moduNet292, which is always used together with an application on the PC, it is also recommended to set up the network structure so that the process data connection, i.e. the PC-moduNet292 communication is operated "in isolation".
- For fitting in a cabinet of type EY-BU292F001, it is also recommended to position a small switch so that a service technician can access it on site.
- More detailed information on these instructions and the supported topologies can be found in the help file installed with the novaNet292 software.

## Wiring

## a) novaNet:

With the novaNet connection from the moduNet292 to an automation station (AS), the maximum extended novaNet network time constant must not exceed 120  $\mu$ s. This means that a segment of a novaNet cable may have a maximum time constant of 30  $\mu$ s (max. 300  $\Omega$  / 200 nF).

Note: When using a moduNet292, a resistance of 1000  $\Omega$  (1/4 W, 10%) should also be implemented, if it is not already there, at a position in the novaNet between a and b. This is done to reduce the interference effects of incorrectly installed novaNet communication subscribers (e.g. lack of connection to the protective earth) or interference-sensitive wiring.

## b) Ethernet:

The Ethernet connection of the moduNet292 is a 10Base-T connection and can be used with standard Ethernet cables, preferably CAT-5.

10Base-T (IEEE 802.3i) runs via four wires (two twisted pairs) of a CAT-3 or CAT-5 cable. A hub or switch is located in the middle and has a port for each subscriber. The transmission speed is 10 MBit/s and the maximum length of a segment is 100 m.

## c) Serial interface:

The serial interface on the moduNet292 is set up as a DTE (Data Terminal Equipment) device as follows:

Pin 2:	RD (Receive Data: connection cable that receives a data bit)
Pin 3:	TD (Transmit Data: connection cable that sends a data bit)
Pin 5:	GND (Ground, reference potential at 0 V)
Pin 7:	RTS (Request To Send: device indicates that it has something to send)
Pin 8:	CTS (Clear To Send)
Pin 1, 4, 6, 9:	NC (not connected: not used)

The connection with a PC COM interface can be created with a serial null-modem cable (accessory: 0386301001).

For further information, see the fitting instructions P100002338.

## Hardware

The moduNet292 novaNet Ethernet interface is available in two versions.

Type EY-BU292F001 is intended for fitting on a top-hat rail (EN 60715) in a cabinet of a plant. Type EY-BU292F002 is a desktop model variant of the moduNet292. It is normally used in training rooms, for commissioning technicians, service technicians, etc.

The device has an Ethernet interface (RJ-45, 10Base-T) and a novaNet interface (*a/b*connectors as pluggable screw terminals in the EY-BU292F001, RJ11 connectors in the EY BU292F002). For firmware updates, support purposes and for an IP reset of the moduNet292 configuration, a serial interface is available (DB 9, male).

The device can be operated with a power supply of 230 V~ (50 Hz) or 110 V~ (60 Hz). With type EY-BU292F001, the power supply is via a screw-type connector, while type EY-BU292F002 has a connector for a housing-mounted plug and an on/off switch. During operation, the device has a power consumption of max. 7 W.

The moduNet292 is an embedded Linux platform based on a Samsung ARM7 processor (S3C44B0; 66 MHz) and has 16 MByte flash PROM and 16 MByte DRAM.

## LED indicator and diagnostics

Various LEDs are available for visualising the status of the device.

Designation	Colour	Status (rate)	Meaning
Error	Red	Inactive	During correct operation
		Flashing	In the start-up phase Ready for operation after around 30 s
		Flashing: • 1 s pulse  • ¼ s pulse	Display of incorrect behaviour: • No novaVPort communication (Flashes after around 30 s Ethernet interruption) • No novaNet telegrams (novaNet Receive – Rx)
novaNet	Yellow	Active	Sending of a novaNet telegram (novaNet Send – Tx)
Power	Green	Flashing	Device switched on (mains power supply present)
Activity	Green	Green	During receiving (Rx Receive) and sending (Tx Transmit) of an Ethernet telegram
Link	Yellow	Active	Ethernet connection set up (physically) and connection to network or network card of PC.

## novaNet292 software

The novaNet292 software is supplied with “CASE Suite” or “novaPro32 for CASE Suite”. However, the latest novaNet292 software is available on the SAUTER Extranet as a single-workstation installation for downloading. If required, a tools DVD can also be ordered with the novaNet292 software (accessory: GZS100F599).

Minimum requirements for the PC:

- CPU clock rate: 800 MHz (more recommended)
- RAM: 256 MB (more recommended)
- Hard disk memory: 1 GB (more recommended)
- The installation of the novaNet292 software requires around 9.5 MB
- Ethernet interface with Ethernet cross-over cable
- Serial interface (or standard USB-COM converter) for firmware updates

Requirements for the operating system:

- Windows XP Pro., Server 2003 (recommended with Service Pack)
- .NET Framework 2.0

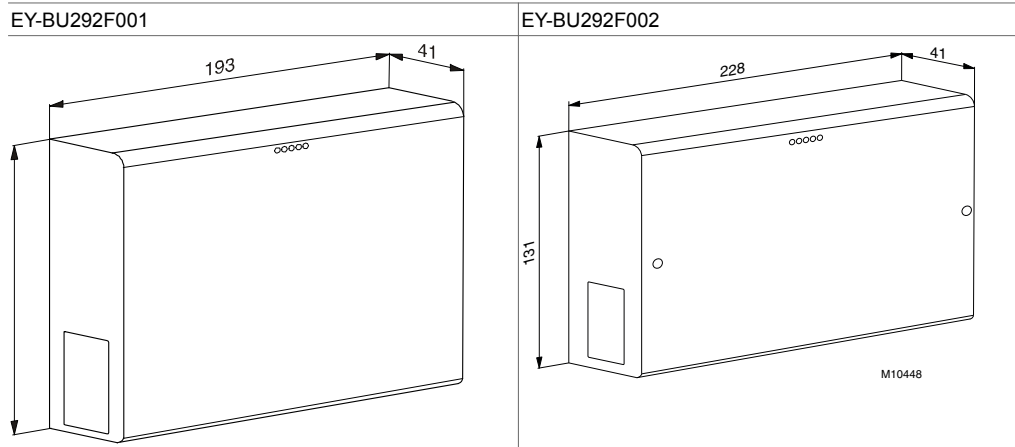
Further information on the installation of the novaNet292 software and the novaNet292 configurator, as well as virtual COM port driver novaVPort, can be found in the help file (novaNet292.chm). The current help files in German, French and English are also installed and can also be obtained from the Extranet.

## Disposal

When disposing of the product, observe the currently applicable local laws.

More information on materials can be found in the Declaration on materials and the environment for this product.

**Dimension drawing**



**Connection diagram**

