

moduNet292: novaNet-Ethernet interface

How energy efficiency is improved

SAUTER EY-modulo 2 integrated into familiar IP technology

Areas of application

Parameterisation of EY-modulo 2 and EY3600 stations via Ethernet-based internet protocol. Access device for management-level software and all SAUTER novaPro visualisations and novaNet OPC servers.

Features

- Bus access device for novaNet system bus with Ethernet interface
- To integrate novaNet stations (EY3600, EY-modulo 2) in 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 Internet
- Part of the SAUTER EY-modulo 2 system family
- TCP/IP communication
- Communication with 2-wire novaNet system bus

Technical description

- Power supply: 230 V~, 115 V~
- Mounted on DIN rail (F001), desktop model (F002)
- a/b plug (F001), RJ-11 (F002) for novaNet
- RJ-45 plug for Ethernet 10 Base-T (10 MBit/s)
- Fixed IP addressing
- RS-232 interface for parameterisation and updating
- 5 LEDs for Error, novaNet Send, Power, Activity, Link

Products

Type	Description	Weight (kg)
EY-BU292F001	novaNet-Ethernet interface (MCC model)	0.65
EY-BU292F002	novaNet-Ethernet interface (desktop model)	0.70



Technical data

Electrical supply

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

Interfaces, communication

novaNet	
F001	1x a/b terminals
F002	1x RJ-11 socket
Ethernet	1x RJ-45 socket
10Base-T	10 MBit/s
Serial interface	1x DB-9 (male)
RS-232	to 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)

Permitted ambient conditions

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

Installation

Dimensions W x H x D (mm)	
F001	193 x 131 x 41
F002	228 x 131 x 41
Weight (kg)	
F001	0.65
F002	0.70

Standards, guidelines and directives

Type of protection	IP 00 (EN 60529)
Protection class	I (EN 60730-1)
CE conformity as per	
EMC Directive 2004/108/EC	EN 61000-6-1 EN 61000-6-2 EN 61000-6-4
Directive 2006/95/EC	EN 60950-1
Software class A	EN 60730-1 annexe H

Additional information

Fitting instructions	P100002338
Material declaration	MD 96.015
Dimension drawing	
F001	M10445
F002	M10448
Wiring diagram	
F001	A10543
F002	A10544

Accessories

Type	Description
	Software
GZS100F599	novaNet292 driver software, current version on CD (CASE Tools DVD) ¹⁾
	Connecting cable
0367862001	novaNet RJ11 – RJ11, 1.5 m
0367862002	novaNet RJ11 – RJ11, 2.9 m
0367862003	novaNet RJ11 – RJ11, 6.0 m
0367842002	Ethernet RJ45 – RJ45, 1.5 m
0367842003	Ethernet RJ45 – RJ45, 2.9 m
0367842004	Ethernet RJ45 – RJ45, 6.0 m
0386301001	Serial cable for firmware update and software reset (DB 9)
0386507001	Ethernet crossover RJ45 – RJ45, 3 m
	General
0374509001	Power supply connector, 3-pin (supplied with F001)
001024005	Cable housing for 0374509001, cable tension relief
0374677001	Installation kit for 2-DIN rail mounting (for F001)

¹⁾ DVD must be ordered separately or can be obtained from the extranet.

Function

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

1. Access unit for CASE Engine including 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 server:

The moduNet292 can be used together with the additional Windows novaVPort driver as a novaNet291 router. For 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 can communicate from novaPro... via novaVPort with a moduNet292.

3. Interface for novaMit29x for monitoring and inspecting the novaNet system bus.

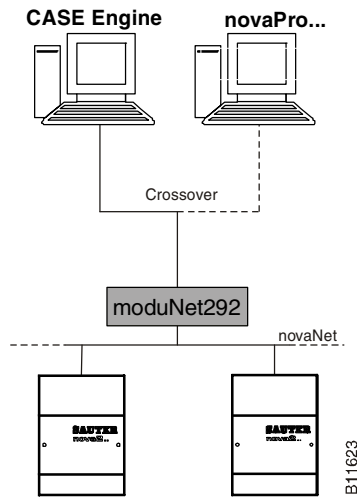
Notes on operation:

- The nova291 emulation of moduNet292 cannot emulate 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 an ISA slot. An Ethernet interface is needed on the computer for this purpose.
- The applications can also be run in parallel. A switch located in the motor control centre enables the technician to connect into the system with CASE and, for example, to make FBD modifications or check novaNet bus loads without having to disconnect the higher-level management system (such as novaPro...). (Topology c)

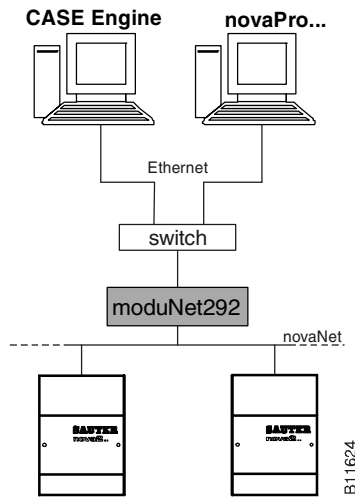
Topologies

The following Ethernet network topologies are supported by the moduNet292:

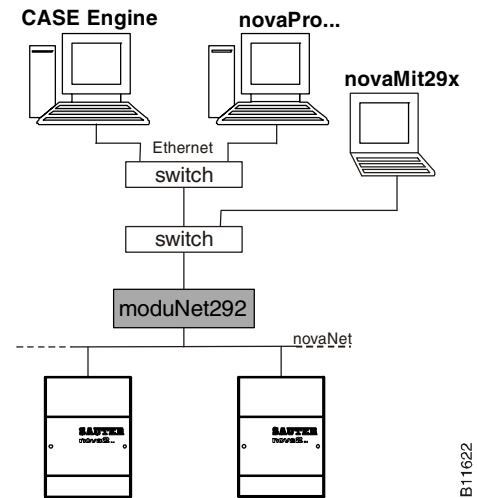
a) Directly at PC with Ethernet crossover cable ("PTP")



b) With novaNet supply line and one switch/hub



c) With Ethernet supply line and two switches/hubs



Notes on topologies:

- The more switches or hubs there are fitted in the Ethernet network, the longer are the times needed to transmit the telegrams on the Ethernet network. Experience shows that the PC moduNet292 network still works well with 'ping times' of about 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 advisable to structure the network in such a way that the integration of process data, i.e. the communication between PC and moduNet292, is carried out in 'isolation'.
- When installed in an MCC with type EY-BU292F001, it is also advisable to fit a small switch so that a service technician has access on site.
- More information on these notes and the supported topologies can be found in the help file that is installed with the novaNet292 software.

Wiring

a) novaNet:

With the novaNet link from the moduNet292 to an automation station, the maximum extended novaNet network time constant should not exceed 120 µs. This means that a segment of a moduNet cable can have a maximum time constant of 30 µs. (max. 300 Ω / 200 nF)

Note: When using a moduNet292, a resistor of 1000 Ω (1/4 Watt, 10%) is required. If it does not exist, it should be fitted at a position between a and b in the novaNet in order to reduce the interference from incorrectly-fitted novaNet communication subscribers (e.g. due to inadequate earthing) or from wiring that is susceptible to interference.

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 cores (two twisted pairs) of a CAT-3 or CAT-5 cable. A hub or switch is in the middle and has one port for each subscriber. The transmission speed is 10 Mbit/s and the maximum length of any segment is 100 metres.

c) Serial interface:

The serial interface on the moduNet292, as an item of data terminal equipment (DTE), is laid out as follows:-

Pin 2:	RD (Receive Data: line which receives one data bit)
Pin 3:	TD (Transmit Data: line which sends one data bit)
Pin 5:	GND (Ground: "earth", reference potential to 0 V)
Pin 7:	RTS (Request To Send: device indicates something is to be sent)
Pin 8:	CTS (Clear To Send: ready to send)
Pins 1, 4, 6, 9:	NC (Not connected: not used)

The connection with a PC COM interface can be made using a serial null-modem cable (accessory no.: 0386301 001) For further information, consult the fitting instructions, P100002338.

Hardware :

The novaNet-Ethernet interface moduNet292 is available in two different versions. Type EY-BU292F001 is designed for fitting to a top-hat rail (EN 60715) in an MCC in a plant. Type EY-BU292F002 is a desktop variant of the moduNet292. Normally used in training centres, by commissioning engineers or service technicians etc. The unit has an Ethernet interface (RJ-45, 10Base-T) and a novaNet interface (a/b plugs as screw-type plug-in terminals on the EY-BU292F001, RJ11 plugs on the EY-BU292F002). There is a serial interface (DB-9, male) available for firmware updates, support purposes and for carrying out an IP reset of the moduNet292 configuration.

The unit can run on either 230 Volt~ (50 Hz) or 110 Volt~ (60 Hz) power supplies. On type EY-BU292F001, the power supply is via a screw-on plug, while type EY-BU292F002 has a square connector with three slits for the mains, and an ON/OFF switch. In operation, the unit has a power consumption of max. 7 Watt.

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

Various LEDs are provided to indicate the status of the unit.

LED display and diagnostics

Designation	Colour	Status (speed)	Denotes
Error	Red	Inactive	Operating correctly
		Flashing	In the start-up phase Ready for use after approx. 30 seconds
		Flashing: Every 1 second Every ¼ second	To indicate an operating fault: No novaVPort communication (flashes after Ethernet is interrupted for about 30 seconds) No novaNet telegrams (novaNet Receive – Rx)
novaNet	Yellow	Active	Sending a novaNet telegram (novaNet Send – Tx)
Power	Green	Flashing	Device switched on (mains power present)
Activity	Green	Active	Receiving (Rx-Receive) and sending (Tx-Transmit) an Ethernet telegram
Link	Yellow	Active	Ethernet connection established (physically) and connection to network or network card of the PC.

novaNet292 software

The novaNet292 software is supplied with CASE Suite or novaPro32 for CASE Suite. However, the latest novaNet292 software can be downloaded as a single installation from the SAUTER Extranet. Furthermore, a Tools-DVD containing the novaNet292 software is available to order (accessory no.: GZS100F599).

Minimum PC requirements:

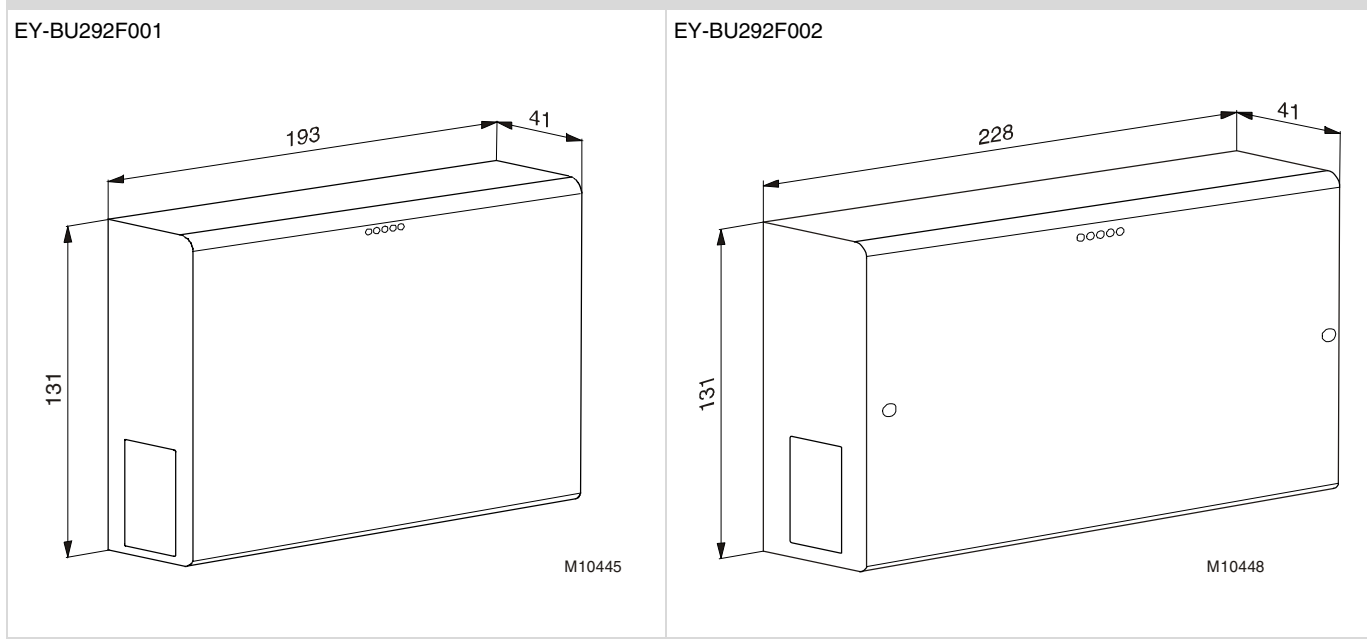
- CPU clock speed: 800 MHz (more recommended)
- RAM: 256 MB (more recommended)
- Hard disk memory: 1 GB (more recommended)
- Installation of the novaNet292 software requires about 9.5 MB
- Ethernet interface with Ethernet cross-over cable
- Serial interface (or standard USB-COM converter) for firmware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

Operating system requirements:

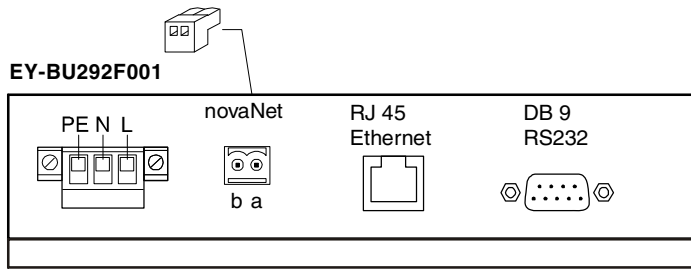
- Windows XP Pro., Server 2003 (recommended with Service Pack)
- .NET-Framework 2.0

Further details on the installation of the novaNet292 software, on the novaNet292 Configurator and the novaVPort virtual COM-Port driver can be found in the help file (novaNet292.chm). The latest help files (in German, French and English) are installed and can also be downloaded from the Extranet.

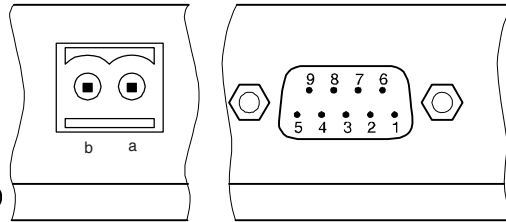
Dimension drawing



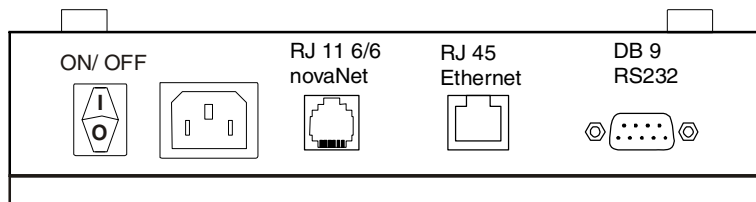
Wiring diagram



- DB9 Male**
- 1 NC
 - 2 RD (IN)
 - 3 TD (OUT)
 - 4 NC
 - 5 GND
 - 6 NC
 - 7 RTS (OUT)
 - 8 CTS (IN)
 - 9 NC



EY-BU292F002



- DB9 Male**
- 1 NC
 - 2 RD (IN)
 - 3 TD (OUT)
 - 4 NC
 - 5 GND
 - 6 NC
 - 7 RTS (OUT)
 - 8 CTS (IN)
 - 9 NC

