PDS 96.010 | en Product Data Sheet | EY-AM300

moduNet300: novaNet-BACnet Application Master

How energy efficiency is improved

Open communication for interoperable mode of the entire optimised plant.

Areas of application

Integration and migration of EY3600 and EY-modulo 2 plants into BACnet/IP systems, and also into the EY-modulo 5 system family at automation level. Extension of BACnet functionality, and persistent trendlog, external scheduling, BBMD and FD.

Features

- BACnet Application Master for novaNet
- To integrate novaNet stations (EY3600, EY-modulo 2) in BACnet/IP systems (EY-modulo 5)
- Automatic generation of BACnet I/O objects from defined stations, based on novaNet
- Special features such as loop objects and intrinsic reporting for I/O objects
- Objects that can be generated dynamically such as schedules and calendars for optimised time-controlled plant operation
- Trendlog objects that can be generated dynamically to analyse the plant
- Event Enrollment objects that can be generated dynamically for individual alerting
- BACnet/IP network integration with BBMD or/and FD functionality
- Part of the SAUTER EY-modulo system family
- Communication: BACnet/IP (EN ISO 16484-5)
- Communication with 2-wire novaNet system bus as novaNet PC

Technical description

- Power supply: 24 V~/= (F001), 230 V~ (F002)
- RJ-45 plug for Ethernet 10/100 Base-Tx (10/100 MBit/s)
- 2 RS-232 interfaces for parameterisation, configuration
- 6 LEDs for status, link, activity, speed, novaNet send, power
- Total of up to 1000 BACnet objects
- Up to 16 Notification Class and 100 Event Enrollment objects
- Up to 100 Schedule and 40 Calendar objects
- Up to 50 Trendlog objects
- Up to 100 BACnet client connections (peer-to-peer links)

Products

Type	Description	Weight (kg)
EY-AM300F001	novaNet-BACnet Application Master 24 V~/=	0.6
EY-AM300F002	novaNet-BACnet Application Master 230 V~	1.0

Technical data

Electrical supply

Power supply	
F001	24 V~ (± 20%), 50/60 Hz
	24 V= (18...30 V=)
F002	230 V~ (± 10%), 50/60 Hz
Power consumption	10 VA
Dissipated power	5 W

Function

Number of BACnet objects	up to 1000 (total)
Number of dynamic objects	maximum
Time programmes	100 (Schedule)
Calendar	40 (Calendar)
Historical data	50 (Trend Log)
Data files log	10.000 (Log buffer)
Event reporting objects	100 (Event Enrollment)
Number of BACnet client links	100
Number of BBMDs in BDT	16
Number of FDs in FDT	16

Interfaces, communication

COM interface (2x)	DB-9 plug (male, DTE)
COM 1	(RS-232) parameterisation
COM 2	(RS-232)
novaNet interface	RJ-11 socket (6/6), 2x a/b terminals
BACnet interface	RJ-45 Ethernet socket
10/100 Base-Tx	Auto-sensing
Communication protocol	BACnet/IP, novaNet

Permitted ambient conditions

Operating temperature	0...45 °C
Storage and transport temperature	-25...70 °C
Humidity	10...85% rh, no condensation

Installation

Dimensions W x H x D (mm)	244 x 120 x 73
Weight (kg)	
F001	0.6
F002	1.0

Standards, guidelines and directives

Degree of protection	IP 00 (EN 60529)
Protection class	I
Environmental class	3K3 (IEC 60721)
Over voltage category	II
CE conformity as per	
EMC Directive 2004/108/EC	EN 61000-6-2, EN 61000-6-4
EMC Directive 2006/95/EC	EN 60950-1

Additional information

Fitting instructions	P100002334
Material declaration	MD96.010
Product documentation	HB7001007
	PICS7010011
Dimension drawing	M10496
Wiring diagram	A10545, A10546

Accessories

Type	Description
	General
0900240001	Terminal cover (240 mm), pack of 2
	Manual
7001007001	moduNet300 BACnet Manual
7010011003	SAUTER BACnet PICS
	Connecting cable
0367842002	Ethernet RJ45-RJ45 1.5 m
0367842003	Ethernet RJ45-RJ45 2.9 m
0367842004	Ethernet RJ45-RJ45 6 m
0386301001	Serial cable for configuration and Remhost (DB 9)
0367862001	novaNet RJ11-RJ11, 1.5 m
0367862002	novaNet RJ11-RJ11, 2.9 m
0367862003	novaNet RJ11-RJ11, 6 m

Engineering notes

The Application Master is licensed with BACstac™ and carries a license sticker. The second licence sticker supplied with the product can be kept in the project folder or the subsidiary/NSO for the purposes of archiving and licence backup.

The moduNet300 device is designed for installation on a top-hat rail (EN 60715) in an MCC on a plant.

The device is designed for use in TN-S network systems, but can also be employed in TT or IT network systems if local regulations are observed. The ground connection should be durable, have low resistance and a low leakage current. Ethernet, novaNet and Com are SELV/PELV power circuits and must not be connected to ELV or TNV networks.

Connection work must only be carried out when there is no voltage (dead). When connecting an EY-AM300F001 to a 24 V power supply, an external, primary 2 A fuse ('slow-blow' type) must also be fitted.

The earthing terminals are internally connected to the earth connection (PE) (PELV power circuits). When connecting the voltage supply, it is essential to connect the protective earth with the clamping screw provided (protection class I).

Communication cabling must be undertaken correctly and must meet the requirements of standards EN 50174-1, -2 and -3. Communication cabling must remain separate from other cabling that carries power.

No account has been taken of special standards such as IEC/EN 61508, IEC/EN 61511, IEC/EN 61131-1 and 2 or similar standards. Local regulations on installation, application, access, access authorisations, accident prevention, safety, dismantling and disposal must be observed. Compliance is also required with installation standards EN 50178, 50310, 50110, 50274, 61140 and similar.

There is a switch (µP-Power, "OFF/ON") at the top left of the Application Master. This is not a device for disconnection from the mains; the switch merely disconnects the secondary circuit from the switching power supply unit. An additional disconnection device (such as a mains switch) must also be present in installations.

The connection to the novaNet system bus and the automation stations is made using twisted 2-wire cables of a novaNet network. The Ethernet connection is made to an RJ-45 Ethernet socket. Communication is handled via the BACnet/IP data communication protocol.

The configuration of the IP address and other parameters is handled with one of the software tools in SAUTER CASE Suite, the "BACnet Server Configurator". For further details, consult manual 7001007.
The novaNet-BACnet Application Master moduNet300 integrates the "BACnet Server/Client" functionality into the SAUTER automation stations (nova, modu) and room automation stations (ecos) in the EY-modulo 2 series and the SAUTER EY3600 system. The moduNet300 turns the novaNet network into a BACnet/IP system. The novaNet-AS addresses for the stations and controllers may range from 1 to 4194. However, no more than 100 novaNet stations may be integrated for each moduNet300. Each moduNet300 in the novaNet has a novaNet PC address.

The addresses (MFA: machine fine addresses) used in the automation stations (AS) are converted into BACnet objects when the house address is engineered (data points); management and updating of the corresponding BACnet object list is handled automatically. This means that there is no additional outlay on generation to produce BACnet I/O objects in order to integrate the BACnet functionality at novaNet automation level. An EDE file (Engineering Data Exchange) is created automatically for these BACnet objects.
Thanks to the scheduler (daily and weekly calendar) which is also implemented, and the "Schedule" and "Calendar" BACnet objects connected to it, local BACnet time programmes can be processed so that process variables for the connected AS can be controlled on a time-dependent basis.

Historical data can also be run on the Application Manager with dynamically created Trendlog objects for BACnet systems. These data are stored persistently on the device.

Notification Class and Event Enrollment objects are supported for alerting and event notification.

The processing capacity for BACnet objects per Application Master moduNet300 is a total of 1000 objects.
Up to 100 objects can be parameterised as a BACnet client connection (peer-to-peer link).

The BACnet objects (data points) can be transmitted by BACnet clients either via a cyclical polling process or via the COV-Subscription (Change-Of-Value Subscription) mechanism in the BACnet Applications Master.

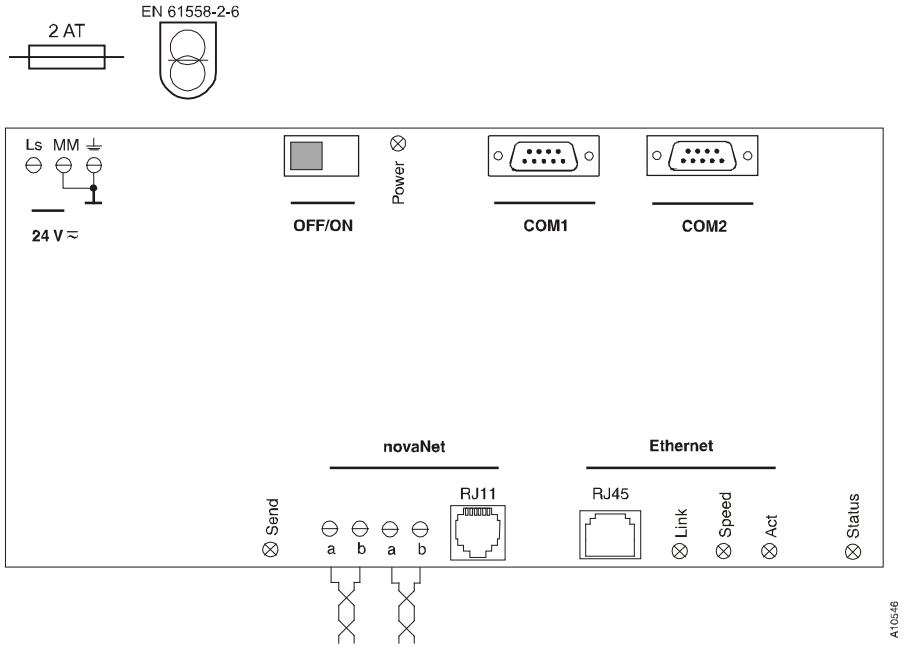
Additional BACnet specifications are defined as per the separate BACnet PICS (Protocol Implementation Conformance Statement). See document: SAUTER BACnet PICS, 7010011 003.

LED displays for moduNet300 (Ethernet / application):

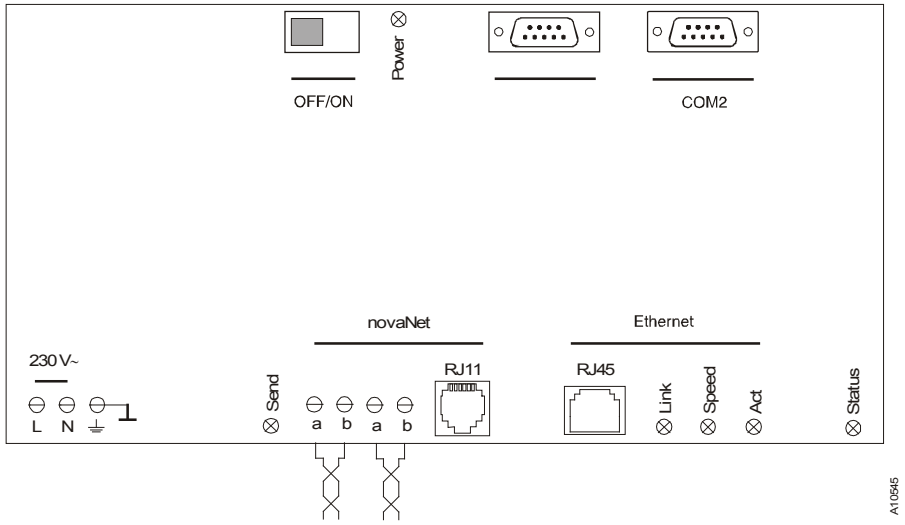
Status	Off	Application could not be initialised correctly
	Red	BACnet device offline; no novaNet connection; memory capacity utilisation in limit range
	Red	Flashing with ¼-second pulses: BACnet communication error
	Red (SOS)	Flashing: 3 short, 3 long: Faulty device (factory repair / Remhost)
	Green	Flashing: novaNet communication
Speed	Green	Data transmission speed is detected automatically: LED dark: 10 Mbit / s LED bright: 100 Mbit / s
Link	Green	Physical connection is present (link)
Act	Green	Transmission of BACnet protocol (activity)
Send	Green	Sending a novaNet telegram (novaNet Send – Tx)
Power	Green	Device on; power supply OK

Wiring diagram

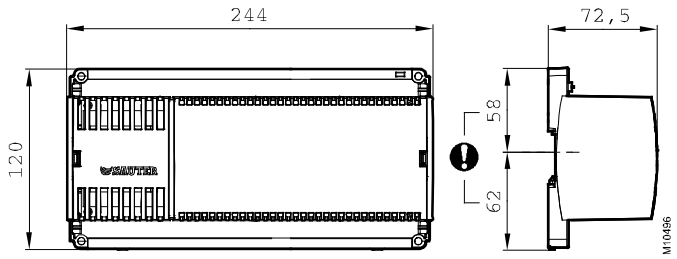
EY-AM300F001



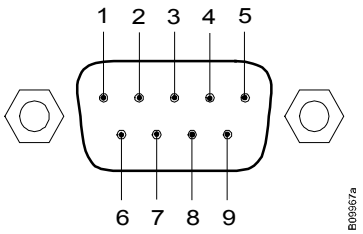
EY-AM300F002



Dimension drawing

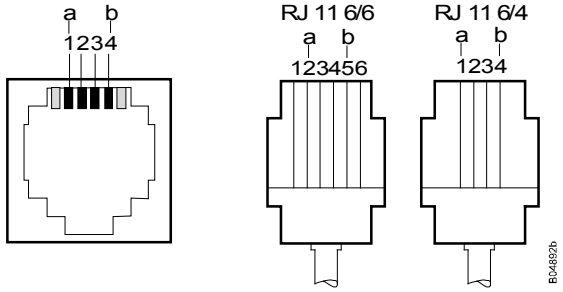


COM1; DB 9 Male



1	DCD (IN)
2	RD (IN)
3	TD (OUT)
4	DTR (OUT)
5	GND
6	DSR (IN)
7	RTS (OUT)
8	CTS (IN)
9	RIN (IN)

novaNet; RJ11



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