## EYL230: nova230, Compact universal automation station

The nova230 automation station, which is a compact AS of the EY3600 family of systems, has a link to non-Sauter systems. It is used for open-loop and closed-loop control in HVAC systems, and has an interface for linking to non-Sauter systems, allowing data to be received from, or sent to, the non-Sauter system. It has a total of 28 hardware inputs and 10 hardware outputs. In total, the AS has 256 MFAs, 192 of which are available for transfer purposes. The parameterisation of the AS and the signal provision to the non-Sauter system are effected via the 'CASE FBD Editor' software in accordance with IEC 1131-3. The configuration of the serial printer interface is done using the 'Hyper Terminal' software (in Windows). The transfer list is parameterised using a parameterisation program with download function.
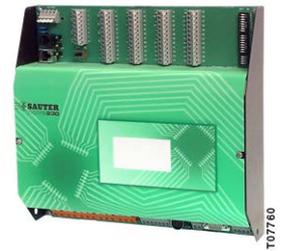
Products

Type	Description	Tension	Weight kg (lb)
EYL230F010	Compact AS, with M-bus interface	230 V~	2.2 (4.8)
EYL230F020	Data-point router with RS232C interface	230 V~	2.2 (4.8)
EYL230F030	Printer interface with RS232C interface, line printer	230 V~	2.2 (4.8)
EYL230F040	Compact-AS, Modbus RTU	230 V~	2.2 (4.8)
EYL230F060	Compact-AS, Grundfos	230 V~	2.2 (4.8)
EYL230F090	Compact-AS, Wilo	230 V~	2.2 (4.8)
EYL230F110	Compact-AS, LON	230 V~	2.2 (4.8)
EYL230F120	Compact-AS, Siemens 3964R/RK512	230 V~	2.2 (4.8)
EYL230F130	Compact-AS, Danfoss VLT6000	230 V~	2.2 (4.8)
EYL230F140	Compact-AS, Danfoss VLT2800	230 V~	2.2 (4.8)
EYL230F015	Compact-AS, with M-bus, UL-certified	24 V~	2.2 (4.8)
EYL230F025	Data-point router, UL-certified	24 V~	2.2 (4.8)
EYL230F035	Printer Interface, UL-certified	24 V~	2.2 (4.8)
EYL230F045	Compact-AS Modbus RTU, UL-certified	24 V~	2.2 (4.8)
EYL230F065	Compact-AS Grundfos, UL-certified	24 V~	2.2 (4.8)
EYL230F095	Compact-AS Wilo, UL-certified	24 V~	2.2 (4.8)
EYL230F115	Compact-AS LON, UL-certified	24 V~	2.2 (4.8)
EYL230F125	Compact-AS Siemens, UL-certified	24 V~	2.2 (4.8)

Technical data

Electrical supply

Power supply	230 V~, 50/60 Hz
	24 V~, 50/60 Hz
Power consumption	36 VA
Power loss, max.	approx. 38 W

Execution

Factory setting	All switches set to "Off"

Inputs / Outputs

Digital inputs	16
Digital outputs	1× 0-I; 3× 0-I-II
Analogue inputs	6× Ni/Pt1000; 4× U/I/R
Analogue outputs	3× 0…10 V; (1× 0…20 mA)
Counter	2

Interfaces, communication

novaNet	2× a/b terminals
	1× RJ11 socket

Interfaces, communication (continued)

modu240 Local Operating Panel	EY-OP240
	1× RJ45 socket
Standard languages:	
German, French, English, Italian, Dutch, Spanish, Swedish, Norwegian, Danish, Portuguese, Finnish (for other languages, see 'Accessories')	
Service	RS232 7pol. DIN-socket
non-SAUTER Link	RS232 from 9
	M-bus from terminal

Permitted ambient conditions

Operating temperature	0…45 °C (32…113 °F)
Humidity	10…90% rh no condensation

Installation

Dimensions W × H × D	280 × 266 × 78 (mm)
	11" × 10,5" × 3" (inch)

Technical data (continued)

Standards, guidelines and directives	
Degree of protection	IP 00 (EN 60529)
Protection class	I (EN 60730-1)
Environmental class	3K3 (IEC 60721)
CE conformity as per	
Directive 2006/95/EC	EN 60730
EMC Directive 2004/108/EC	EN 61000-6-1/EN 61000-6-2
	EN 61000-6-3/EN 61000-6-4
Agency USA/Canada	UL listed: UL 916
EYL230F . . 5	CSA certified: CSA 22.2

Additional information	
Fitting instructions	MV 505556
Dimension drawing	M04744
Wiring diagrams	A07771

Accessories

Type	Description
0501130001	Variant F010, F040…F140 (German, French, English, Italian, Dutch, Spanish, Swedish, Norwegian, Danish, Portuguese, Finnish)
0501130002	Languages: German, French, English, Polish, Slovenian, Hungarian, Romanian, Russian, Czech, Turkish
0501133001	Variant F020
0501136001	Variant F030: (German, French, English, Italian, Dutch, Spanish, Swedish, Norwegian, Danish, Portuguese, Finnish)
0501136002	Languages: German, French, English, Polish, Slovenian, Hungarian, Romanian, Russian, Czech, Turkish
0367862001	Connecting cable, 1.5 m, to novaNet290 or 291(4.9 ft)
0367862002	Connecting cable, 2.9 m, to novaNet290 or 291 (9.5 ft)
0367862003	Connecting cable, 6.0 m, to novaNet290 or 291 (19.7 ft)
0374504001	Protective cover with BACnet communication card, MV 505922

Engineering notes

- On all variants except the F020/F025, the nova230 includes all assemblies and interfaces that are required for operation, for connecting the plant devices, and for communication with other ASs and the management level and the non-Sauter link.

- In addition, the nova230 F010/F015 processes the telegram traffic with the external system direct via terminals (terminals 501/502, 503/504) or via the RS232 interface. This is done by means of the parameterised data-point list, which the non-Sauter system addresses assigns to the AS software range.

- The nova230 automation station can be fitted in a panel by means of two top-hat rails (EN 50022). The station is supplied with either 230 V~ or 24 V~ (USA: power class 2); see wiring diagram. The ground (GND) terminals are connected to the earth connector (PE) and the housing.

- The plant devices are connected via spring terminals. The following conditions must be observed:

Connection requirements for devices

Cable size	min. 0.8 mm², (AWG 18), max. 2.5 mm² (AWG 13) in compliance with the standards
novaNet connection	capacitance: 0.6 nF max.
Digital inputs	• for potential-free contacts • opto-coupler • transistors (open collector)
Digital relay outputs	< 250 V~ /2 A, EYL230F . . 5 < 30 V~/2 A
Analog inputs	$\leq 10 \text{ V} =$
Analog outputs	no residual voltage!
Counter inputs	• for potential-free contacts • opto-coupler • transistor (open collector)

Description of inputs & outputs

Temperature measurement

Number of inputs	6
Type of inputs	• Ni1000 (default), • Pt1000 (software coding)
Measuring range	• Ni1000 –50...+150 °C (–58...+302°F) • Pt1000 –100...+500 °C (–148...+932°F)

The Ni/Pt inputs, which require no calibration, already take the resistance of the cable into account, and can be used for Ni1000 and Pt1000.

Temperature measurement

Linear-correction factors a and b:	$(Y = a X + b)$
Slope a	No entry is needed here. A proportional factor, which gives the result in °C, can be called up direct from the microprogram.
Zero-point shift b	No calibration is needed here. A line resistance of 2 Ω is included and has been compensated for. If the line resistance R is greater (deviation $> 2 \Omega$): • $b = -0.18 \times (R - 2 \Omega)$ in room-temperature range • or $b = -0.16 \times (R - 2 \Omega)$ at approx. 100 °C

The sensors are connected using the two-wire method; the connecting leads can be up to 55 m (180 ft) long if 0.8 mm² (AWG 18), or 170 m (558 ft) if 1.5 mm² (AWG 15). The measuring voltage is pulsed in order to prevent the sensor from warming up. While the inputs are intended for Ni1000 sensors, they can also be used with Pt1000 sensors. The linearisation guarantees error of a mere 0.06 °C. The measuring method is chosen via the software.

The Ni1000 measuring value is strictly linear and is better than ± 0.06 °C (± 0.1°F) from –50 °C to +150 °C. The linearisation for Pt1000 guarantees negligible error between –50 and +100 °C (–58...212°F).

The following table shows the full measurement range of the Pt1000:

Measuring accuracy

Temperature	Absolute difference
–100 °C (–148°F)	–0.05 °C (–0.09°F)
–50...+100 °C (–58...212°F)	< ± 0.02 °C (± □0.04°F)
+150 °C (302°F)	+0.05 °C (+0.09°F)
200 °C (392°F)	+0.11 °C (+0.2°F)
300 °C (572°F)	+0.29 °C (+0.52°F)
400 °C (752°F)	+0.10 °C (+0.18°F)
500 °C (932°F)	–0.31 °C (–0.56°F)

Measurement of U/I/R

Number of inputs	4
Type of inputs	• voltage 0 (2)...10 V • 0 (0.2)...1 V, current 0 (4)...20 mA • Potentiometer 500 Ω...2 kΩ
Linear-correction factors a and b	(Y = a X + b) The linearity can be adapted very accurately for every input.

Settings for a standardised signal (0...1)

Linear-correction factors		Inputs
a	b	
1	0	0...10 V
10	0	0...1 V
1	0	0...20 mA
20	0	0...1 mA
1.25	–0.25	2...10 V
1.25	–0.25	4...20 mA
12.5	–0.25	0.2...1 V

Input limits

Voltage measurement	< ± 50 V
Current measurement	< 50 mA
Rating of the reference outputs	< 10 mA
Return line for all signals	earth
Accuracy	U = ± 0.1% (±0.01 V) I = ± 0.1% (±0.02 mA) R = ± 0.5% (±0.05 V)
Resolution	U = 5 mV

Voltage input (U)

The voltage is connected between an input terminal for voltage (inscribed with 'U') and a ground (GND) terminal. The signal is connected to ground at one end and must, therefore, be either 'potential-free' or 'earthed'. If 'earthed', then the ground should be linked with wire of 2.5 mm² (because of error). The two measurements 0 (0.2)...1 V and 0 (2)...10 V are selected by the software. The maximum voltage is < ± 50 V, but the range shown is restricted to 10 V. The internal resistance R_i of the input (load) is 60 kΩ in this case.

Current input (I)

There are several terminals available (inscribed with 'I') for measuring current. The current signal must be potential-free. The maximum input current must be restricted to 50 mA, and the internal resistance R_i is 100 Ω.

Potentiometer input (R)

The potentiometer is connected to the terminals U, ground and +1 V. In order to prevent the +1 V reference outputs (which are clocked) from being overloaded, the lowest potentiometer value (500 Ω) should not be undercut. The reference output is protected against short circuits. The upper value of 2 kΩ is prescribed in order to guarantee stable measurement unaffected by interference.

Quantity-counter input

Number of inputs	2
Type of inputs	• for potential-free contacts • opto-coupler • transistor (open collector)
Input frequency	< 15 Hz,
Max. output current of the inputs	0.7 mA with respect to earth
De-bounce time	20 ms
Max. line resistance	1 kΩ
Protection against extraneous V	up to 24 V ac/dc

Potential-free contacts, opto-couplers or transistors with open collectors can be connected to the QC inputs. The maximum pulse frequency is 15 Hz.

A de-bounce time of 20 ms is provided so that the switching contacts are correctly registered. The pulse is registered on the falling flank and can remain present indefinitely. The automation station's internal counter value is interrogated every cycle and stored in DW 2 as a dual partial sum. The counter values are updated approx. every 20-30 sec. in DW 6 (exactly 128 times per hour). Through using the FP format, the counter value can have a maximum of approx. 2.147×10^9. With the FP format, it is possible to show counter values up to 67,108,864 with a resolution of 1. Any counter overflow can be curbed by resetting using the 'C_Preset' function module.

Digital inputs

Number of inputs	16
Type of inputs	• for potential-free contacts, switched with respect to earth • opto-coupler • transistor (open collector)
Max. output current of the input	0.7 mA with respect to earth
Max line resistance	1 kΩ
Protection against extraneous V	up to 24 V ac/dc

The nova230 station registers 16 items of digital information. The monitored inputs are connected between the input terminals (DI) and ground. Each input can be defined either as an alarm or a status input (the standard setting is status). The station applies a voltage of approx. 12 V to the terminal. When the contacts are open, this is equivalent to a bit = 0 (status). When the contacts are closed, this is equivalent to a bit = 1, and the current is approx. 0.5 mA. The change of state, which must be present for at least 30 ms, is first placed in the buffer and then processed at the next cycle.

Digital outputs

Number of outputs	1× 0-I 3× 0-I-II
Type of outputs	relay
Switch rating	250 V~/ 2 A EYL230F . . 5 30 V~/2 A

The digital outputs can also be used as 4 × 0-I. The feedback signals can be realised (exclusively real) via the digital inputs.

Analogue outputs

Number of outputs	3
Type of outputs	2× 0(2)...10 V, 1× 0(2)...10 V or 0...20 mA
Return line for all signals	earth
Accuracy	U = +0.5% (+0.05 V) I = +0.5% (+0.1 mA)

The output voltage is tapped between the appropriate output terminal and a ground terminal. An output can provide 20 mA. The outputs are protected against static discharges and short circuits, but not against local alternating or direct current. For this reason, the plant device (e.g. a valve drive) should always be connected in the plant first. Then a check should be made to ensure that there is no potential at all (i.e. 0 V) at both wires with respect to ground and with respect to each other. If this is the case, the earth lead should be connected first and the signal lead last to their respective terminals at the station.

Explanations

The nova230 station is programmed (control loops and parameters) via the novaNet automation network. The data are then stored in a battery-backed memory. The battery's serviceable life is at least ten years. The data can be saved permanently by using a USER-EPROM. Every station needs an AS address (0...28671); this is set via coding switches.

The nova230 station is available in various variants which differ in their non-Sauter link (see appendix). It has on the EY3600 side a green LED for power, two yellow LEDs for the novaNet line (Send and Receive). It has on the side for the non-Sauter link a green LED for the cycle and a red LED for fault.

The nova240 control panel (EYT240F001) (Accessoris) is coupled to the station via an RJ-45 socket. It can be recessed in the cover on the nova230 AS. The control panel enables all the station's data (with the exception of the HDB) to be processed (e.g. to read measured values, alarms and status; to change setpoints; and to issue positioning commands).

The nova230 automation station has an operating program which reads in all inputs, processes the parameterised modules, updates the outputs and carries out communication with other stations or visualisation PCs.

A real-time clock for the time programmes is also integrated in the automation stations. A lithium battery ensures that the user data (FBD data), time programmes and historical data (HDB) are retained in the SRAM in the event of a power failure. The real-time clock also runs off this lithium battery. The battery makes it possible to retain the data and run the real-time clock for at least 10 years without power having to be applied. Date and time are set ex works. When power is restored, the automation station checks the consistency of the data and starts communication. The user programmes can be loaded from any point in the novaNet. The data stay in the battery-backed SRAM even in the event of a power failure. In addition, the data can be stored captive in a user EPROM. Therefore, the level of protection against loss of data is very high. Every station needs an AS address (0...28671), which is set via coding switches.

Putting into operation

When connecting the power supply, the earthing lead must be connected to the screw provided (protection class I).

When working on the unit, the power supply must be disconnected.

Before being linked to the novaNet, each station must be given a unique address. The address area is split into segments. For the AS station, only the range from 0 to 28671 should be used. This AS number is binary-encoded via the block of DIL switches.

DIL Switch Blocks, Example AS number 10'255

Off On		Value	Off	On	
		1		x	1
		2		x	2
		4		x	4
		8		x	8
		16	x		
		32	x		
		64	x		
		128	x		
		256	x		
		512	x		
		1024	x		
		2048		x	2048
		4096	x		
		8192		x	8192
		16384	x		
		Even Parity	x	x	

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The numbers 0...28671 are available for the automation stations. The AS address is set by means of the 16-digit switch-blocks. The last switch is for setting the parity, which refers to the address and not to the four other switches situated below. The parity should be set so that the number of switches in the 'on' position, including parity, is even.
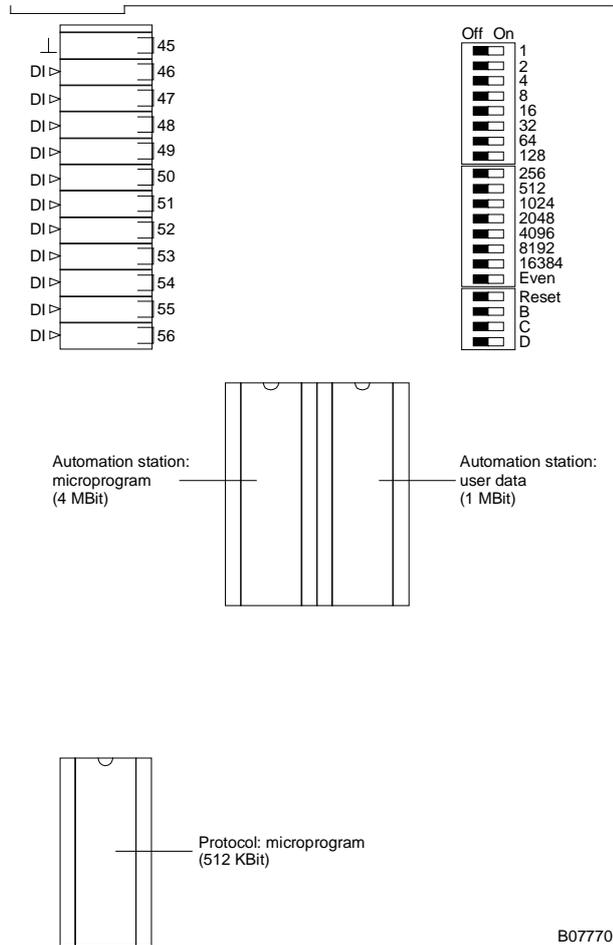
Example: 8192 + 2048 + 8 + 4 + 2 + 1 = 10255

We use the following example to explain the binary encoding: AS number 10255.

If the station has not already got an EPROM with the parameterised user data, they must be transmitted to the station.

Communication is performed via the novaNet bus and the corresponding terminals or the RJ-11 connector. Programming can be done in parallel to the data traffic, through this may lengthen the response time of the other network subscribers. For this reason, the station can be separated from the novaNet for the duration of the data transfer and the 'parameterising' PC can be connected locally. After the data transfer has been completed, the data are immediately active. The station can then be re-connected to the novaNet network and is ready for operation.

nova230

Automation station:
microprogram
(4 MBit)

Automation station:
user data
(1 MBit)

Protocol: microprogram
(512 KBit)

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You are strongly advised to save the AS user data in the relevant EPROM as well. The EPROM can be loaded with any normal loading device.

Before opening the station, disconnect the power supply! Protective measures to prevent electrostatic discharges must be taken before performing any work on the unit.

Reset

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The reset switch should be set to 'ON' for approx. ½ s, causing the station to load the user data from the EPROM and to start operation under defined conditions.

Afterwards, the station must be reset by means of the reset switch. If the reset switch is left in the ON position, the station remains in the reset mode and cannot function correctly.

The nova230 has in the top left-hand corner three LEDs which indicate the status of the automation station:-

- The green 'Power' LED indicates when lit continuously that the power supply is on.
- The yellow 'Receive' LED, when flashing, indicates telegram traffic on the novaNet. In stand-alone mode (without novaNet), this LED remains unlit.
- The yellow 'Send' LED, when it flashes, indicates the telegram being sent from the AS. It shows, therefore, the telegram cycle or the internal cycle of the AS. In stand-alone mode, the LED flashes faster, because the AS is sending only dummy telegrams.
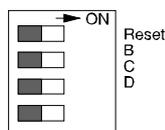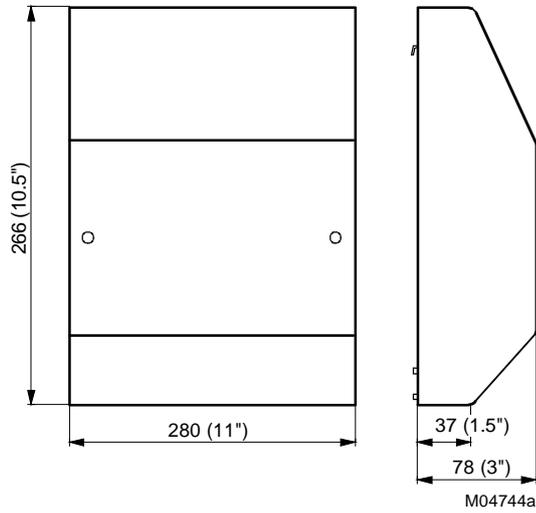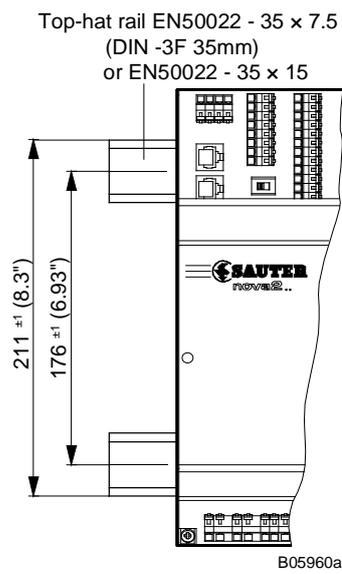
Terminal plan

nova230 connection	MFA	Bit	Code	Terminals			
Ni1000/Pt1000				**GND**	**Input**		
	00		51	5	6		
	01		51	7	8		
	02		51	9	10		
	03		51	11	12		
	04		51	13	14		
	05		51	15	16		
Analogue Input				**GND**	**U/R**	**I**	**+1 V Ref**
U/I/R	08		50	17	18	19	20
U/I/R	09		50	21	22	23	24
U/I/R	10		60	25	26	27	28
U/I/R	11		60	29	30	31	32
Analog Out				**GND**	**U**	**I**	
0-10 V	20		82	113	114		
0-10 V	21		82	115	116		
0-10 V oder 0-20 mA	22		82	117	118	119	
Digital Out				**COM**	**I**	**II**	
0-I	32		20	102	103		
0-I-II	36		20	104	105	106	
0-I-II	37		20	107	108	109	
0-I-II	38		20	110	111	112	
Pulse counter				**GND**	**Input**		
	50		C1	33	34		
	51		C1	35	36		
Digital In				**GND**	**Input**		
	52-1	24	10		40		
	52-2	25			41		
	52-3	26		37/	42		
	52-4	27		38/	43		
	52-5	28		39/	44		
	52-6	29		45	46		
	52-7	30			47		
	52-8	31			48		
	53-1	24	10		49		
	53-2	25			50		
	53-3	26		37/	51		
	53-4	27		38/	52		
	53-5	28		39/	53		
	53-6	29		45	54		
	53-7	30			55		
	53-8	31			56		
M-bus interface							
M–					501 und 503		
M+					502 und 504		
Test Out				125	126		
					Ground connection		

Dimension drawing

266 (10.5")

280 (11")

37 (1.5")

78 (3")

M04744a

Fitting to top-hat rail

Top-hat rail EN50022 - 35 × 7.5
(DIN -3F 35mm)
or EN50022 - 35 × 15

211 ±1 (8.3")

176 ±1 (6.93")

SAUTER
nova2..

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Wiring diagram

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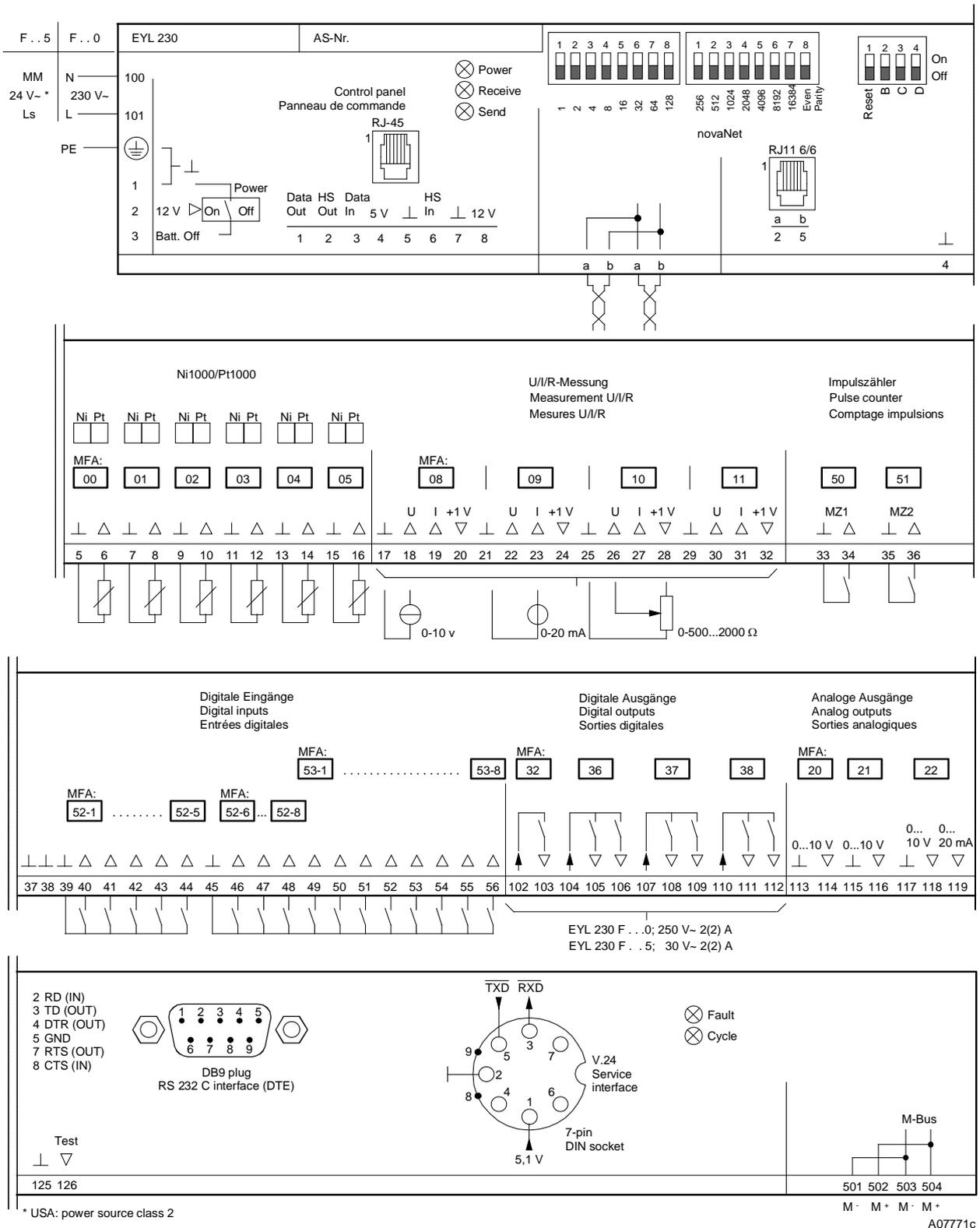
In cases where the industry standard (EN 61000-6-2) has to be met, the power cables for the digital inputs (DI), the analogue inputs/outputs (AI/AO) and the counter inputs (CI) should be no longer than 30 m.

Appendix A

nova230 M-bus (EYL230F010): project engineering

On the AS with M-bus interface, 60 machine fine addresses are used for the AS functionality, leaving max. 192 transfers (software addresses) for M-bus communication. It should be noted that, when software addresses are used for the automation function, the number of transfer addresses falls accordingly (max. 192 transfer addresses – X soft addresses for AS functions).

Using a suitable parameterising program, the project technician must make a list of the non-Sauter system's data points and the target addresses of the EY3600 system. These transfer data (data-point list) are then transferred into the serial EEPROM using a download function via the RS232 interface.
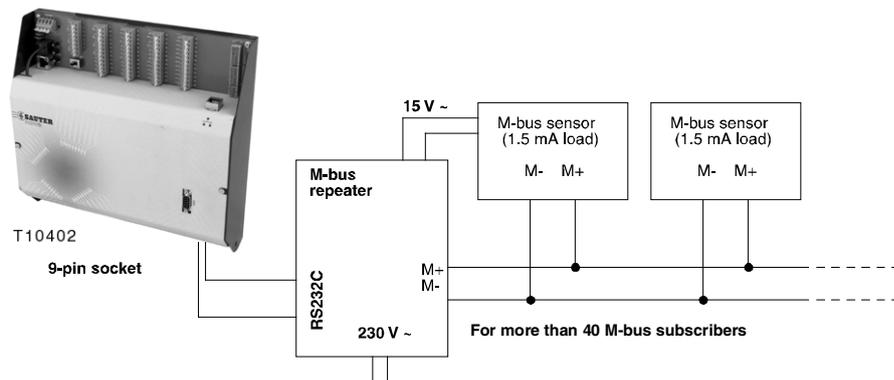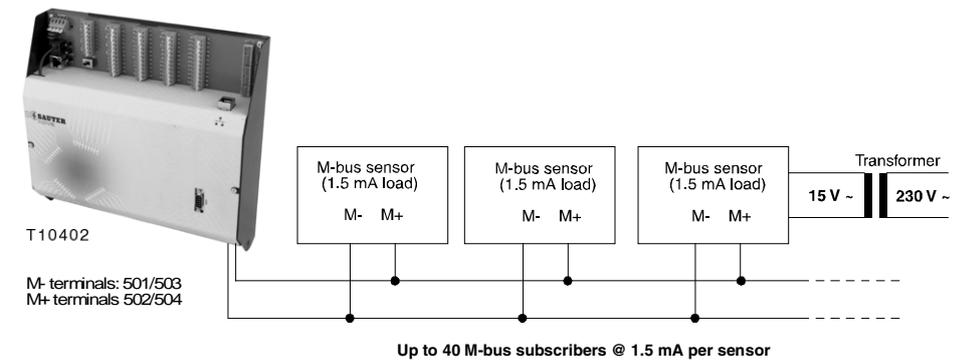
The requisite parameterising program can be downloaded from the Sauter intranet.

The nova230 has a direct M-bus (meter bus) connection and an RS232C interface. Therefore, the non-Sauter bus can be connected (see wiring diagram) either direct via the M-bus connection terminals (terminals 501/502, 503/504) or via the RS232C interface using an interface converter (a.k.a protocol converter or repeater). If the direct M-bus connection is used, the M-bus cable can be up to 1 km in length if the cable used has a capacitance of max. 50 nF/km. In this case, up to 40 loads can be connected directly, which load the bus with 1.5 mA (standard). If more loads are required, a protocol converter (repeater) – which communicates via the nova230 RS232C interface – should be used.

When parameterising the automation part using CASE-FBD, select nova230 (ILext) under 'AutomationStation'.

M-bus wiring diagram

nova230 M-bus

T10402

M– terminals: 501/503
M+ terminals 502/504

M-bus sensor (1.5 mA load) M- M+

M-bus sensor (1.5 mA load) M- M+

M-bus sensor (1.5 mA load) M- M+

Transformer
15 V ~   230 V ~

Up to 40 M-bus subscribers @ 1.5 mA per sensor

T10402

9-pin socket

M-bus repeater

RS232C

15 V ~

M-bus sensor (1.5 mA load) M- M+

M-bus sensor (1.5 mA load) M- M+

M+
M–

230 V ~

For more than 40 M-bus subscribers

DPL parameterisation: using Hyper Terminal
RS232C interface specification: using Hyper Terminal
AS parameterisation via novaNet: using CASE FBD-Editor

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Appendix B

nova230 data-point router (EYL230F020): project engineering

The data-point router (DPR) enables two separate novaNet networks to be linked to one another. At least one DPR should be used in each novaNet network. The DPR does not have automation functionality, although it is equipped for this as far as the hardware is concerned. The maximum number of transferred addresses is 252, since the unusable hardware addresses can be used as transfer addresses.

The two DPRs have a connection via the RS232C serial interface provided by the nova230. Therefore, by using a crossed cable, a direct link with a line length of up to 15 m can be established.

By employing two serial external modems, the interfaces can also be linked over large distances. By using standard RS232/LWL interfaces, it is also possible to establish a fibre-optic line. This is recommendable if the various novaNet networks link different building complexes with different earth potentials.

The DPRs are parameterised like a normal AS, using the CASE FBD-Editor. The nova230 with data-point router functionality is defined as DPRouter in the CASE-FBD 'AutomationStation'. For this communication link, four special modules (DPR_Rec_AI, DPR_Send_AI, DPR_Rec_BI and DPR_Send_BI) were created in the FBD under the menu item Firmware modules – DP-Router. The transfer list should be constructed so that both DPRs complement each other by having common sending/receipt information.

Connections for data-point router

nova230 data-point router

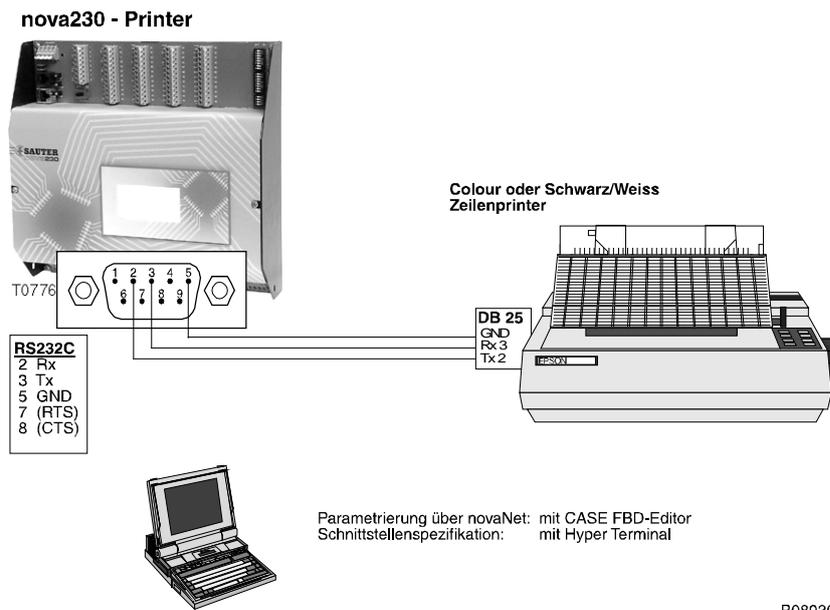Parameterised using CASE FBD-Editor
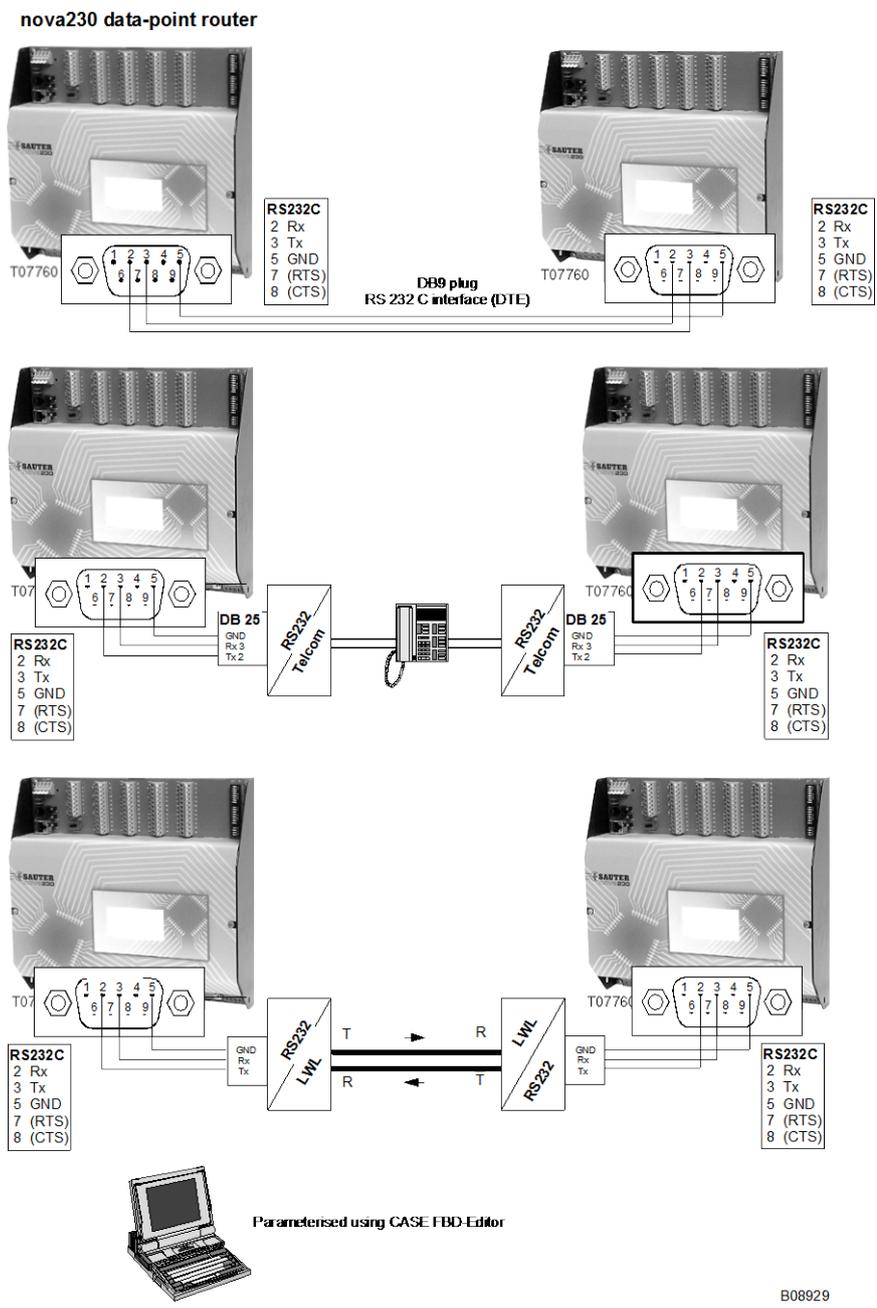
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Appendix C

Printer interface (EYL230F030): project engineering

The nova230 AS with printer interface enables a serial line printer (matrix printer, ink-jet printer etc.) to be connected at the AS level (without management level). The serial interface to the printer is set using the Hyper Terminal (from Win95 onwards), and parameterising is done via novaNet using the CASE FBD software. The nova230 with printer interface is defined in the CASE-FBD 'AutomationStation' with nova230Printer(ILext). Normal parameterising – with all regulating, control, time and HDB functions as per the extent of the available hardware (of nova210) – can then be carried out. On the nova230, there are 192 software addresses that can be used as print-relevant addresses.

This is set by enabling printing in the input/output firmware modules (software addresses) under Parameters – Property Sheet – Address to printer (EYL230F030) Yes/No. The input/output firmware modules (software addresses) which contain a print-out release are: AI_Soft, AIA_Soft, BI_Soft, DI_Soft and DIA_Soft.

On the print-out, the AS texts that were defined in the AS appear at pre-defined positions. The language settings (ASCII special characters) are enabled by defining accordingly using the Control Panel (or, in CASE-FBD, 'AutomationStation' | Special). Addresses for printing from other ASs can be fed to a corresponding software address in the novaNet network (via e.g. the 'common' of the nova230 printer interface) and then processed further as printer addresses.

Connections for printer

nova230 - Printer

Colour oder Schwarz/Weiss Zeilenprinter

DB 25
GND
Rx 3
Tx 2

RS232C
2 Rx
3 Tx
5 GND
7 (RTS)
8 (CTS)

Parametrierung über novaNet: mit CASE FBD-Editor
Schnittstellenspezifikation: mit Hyper Terminal

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Appendix D

Compact AS, EYL 230 from variant F040 Engineering In the case of an AS with an interface for a non-Sauter bus, 60 machine fine addresses are used for the AS functionality, so max. 192 transfers (software addresses) remain for non-Sauter bus communication. Please note that, when you use software addresses for the auto- mation function, the number of transfer addresses falls accordingly (max. 192 transfer addresses – X soft addresses for AS functions).

Parameterising is done by the project technician using a parame- terising program. He makes a list of the non-Sauter system's data points with their properties (function code, source address etc.). Depending on the protocol, you must decide to which memory address (AS number, MFA and data word) and with which card code the translated value in the nova system is to be transferred. These transfer data (data-point list) are then transferred into the serial EEPROM using a download function via the RS232 inter- face. The requisite parameterising program can be downloaded from the Sauter intranet.

List of all available protocols

Type	Description	Engineering
EYL230F040	Compact AS, Modbus RTU	Para-program
EYL230F045	Compact AS, Modbus RTU	Para-program
EYL230F060	Compact AS, Grundfos	Standard*
EYL230F065	Compact AS, Grundfos	Standard*
EYL230F090	Compact AS, Wilo	Para-program
EYL230F095	Compact AS, Wilo	Para-program
EYL230F110	Compact AS, LON	Para-program
EYL230F115	Compact AS, LON	Para-program
EYL230F120	Compact AS, Siemens 3964R/RK512	Para-program
EYL230F125	Compact AS, Siemens 3964R/RK512	Para-program
EYL230F130	Compact AS, Danfoss VLT6000	Para-program
EYL230F140	Compact AS, Danfoss VLT2800	Para-program

* Standard EEPROM with pre-set data structure

When parameterising the automation part using CASE-FBD, choose the 'nova230 (ILext)' at 'AutomationStation'.

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