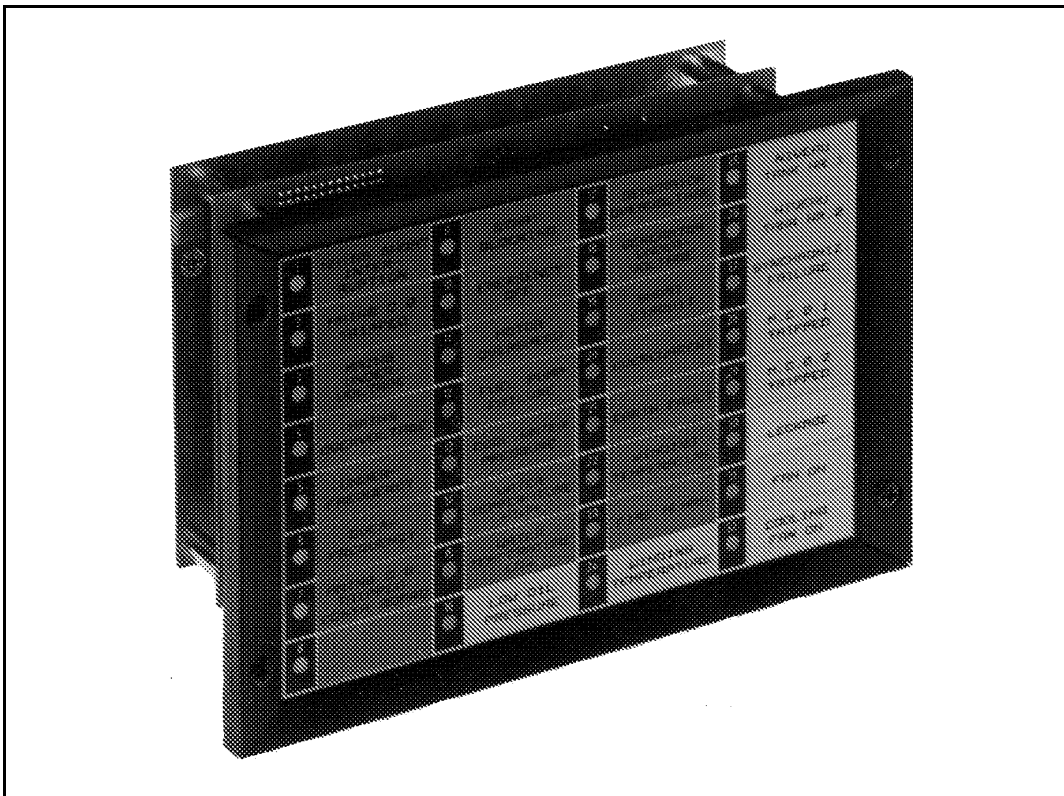




EP2-32 - Extension Module for the Automatic Controller NP2



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1 General

The Woodward Automatic Controllers NP2-1 and NP2-2 can be extended by installing EP extension modules. Up to 2 Extension Modules EP2-32 can be connected to an NP Automatic Function unit. When the system is fully extended, it has 64 additional monitoring circuits. All incoming signals are displayed. At the same time, the NP triggers a contact to the audible alarm.

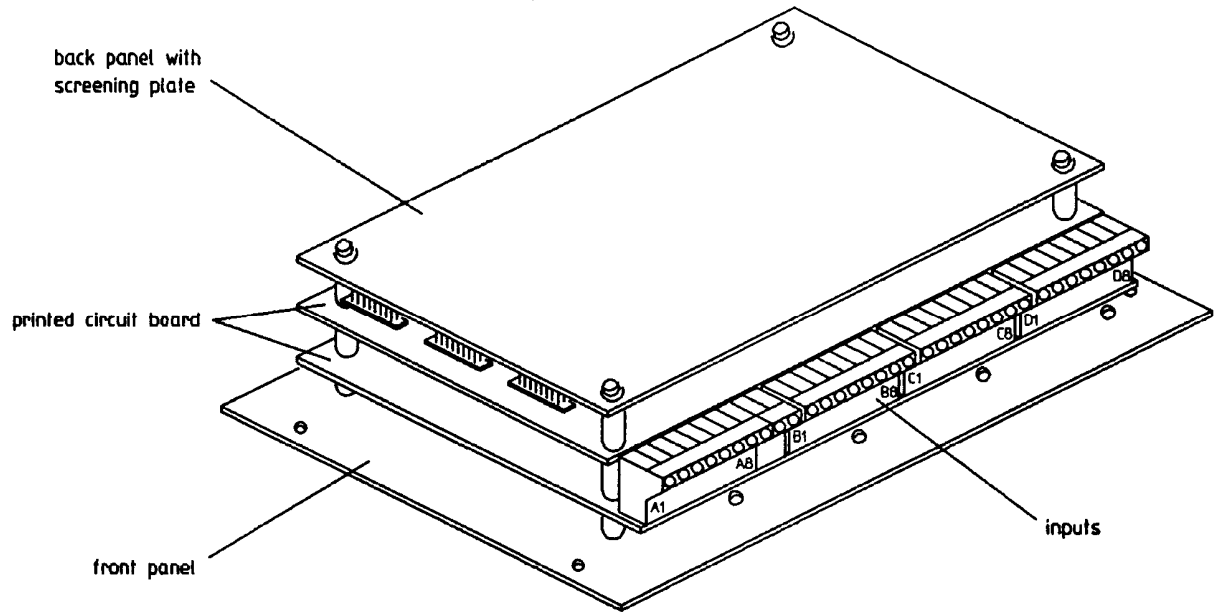


Fig. 1: EP2-32 Extension Module

2 Mechanical Design and Startup

2.1 Mechanical Design

The EP2-32 Extension Module comprises front panel, back panel with screening plate and two printed circuit boards (see Figure 1). The frontpanel is fitted with 32 LED's to display incoming faults, and space is provided for fault description labels. The backpanel has explanations for the code strips on the PCB (printed circuit board).

2.2 Coding

Signal coding

On the top of the PCB there are code strips (Figure 2) where the processing codes for each of the 32 signals are stored. Without code plugs, the following are selected.

- open circuit
- direct supervision
- shut down
- direct stop
- no delay

(For explanation see Table 1)

When a code plug is inserted, each signal is selected as follows:

- closed circuit
- signal after "Supervision ON"
- alarm
- with recooling
- signal delayed

Signal no.	•••••••• •••••••• 1 2 3 4 5 6 7 8	•••••••• ••••••~•••• 1 2 3 4 5 6 7 8	•••••••• •••••••• 1 2 3 4 5 6 7 8	•••••••• •••••••• 1 2 3 4 5 6 7 8	•••••••• ••••••~•••• 1 2 3 4 5 6 7 8
without plug	normal open circuit	direct supervision	shut down	direct stop	no delay
with plug	normal closed circuit	signal after supervision ON	alarm	with recooling	signal delayed

Explanations:

Normal open circuit: The monitoring circuit is activated by a negative current applied to the input terminal (NO contact)

Normal closed circuit: The monitoring circuit is activated when the negative current is disconnected from the input terminal (NC contact).

Direct supervision: The monitoring circuit is activated without delay.

Signal after „supervision on“: The monitoring circuit is activated after motor start and after expiration of the set time. Example: delay until oil attains nominal pressure.

Shut down: The gen. set is shut down according to the coded shut-down function.

Alarm: Visual indication and audible alarm.

Direct stop: Shut down function. The generator C.B. release is switched off and the set is immediately shut down.

With recooling: Shut-down function. The generator C.B. release is switched off without delay, the set continuous to run at no load for the preset time to cool down. This is followed by the shut-down sequence.

No delay: When a signal is received, the encoded function is immediately executed.

Signal delay: An incoming signal is only processed after expiration of the preset delay time. Transients and impulses are suppressed and do not evoke tripping.

Alarm and recooling encoded together: Only direct indication of an incoming signal.

Table 1: signal encoding

Special function: Indication

In normal operation a fault is displayed by a flashing LED as with the NP. In addition, the NP triggers a contact to the audible alarm. After operating the NP button "Horn", the LED stops flashing and remains permanently lit. However, if a plug is inserted at positions "alarm" and "with re-cooling" the LED lights up without flashing when a signal is received. In addition, the contact does not trigger the audible alarm.

Position encoding:

Because 2 EP2-32 Extension Modules can be connected to the NP Automatic controller, the position of each module must be given for identification purposes. This is performed by a coding plug:

- without encoding plug: signal 1-32
- with encoding plug: signal 33-64

2.3 Connecting the EP Module

A ribbon cable connects the NP Automatic Function unit to the Extension modules. The plug is inserted in socket X1 on the *EP2-32* board (see Figure 2). Earthing of the inner side of the module backpanel (screening plate). A socket is provided to receive an AMP plug. This interconnects the modules and provides a connection to earth.

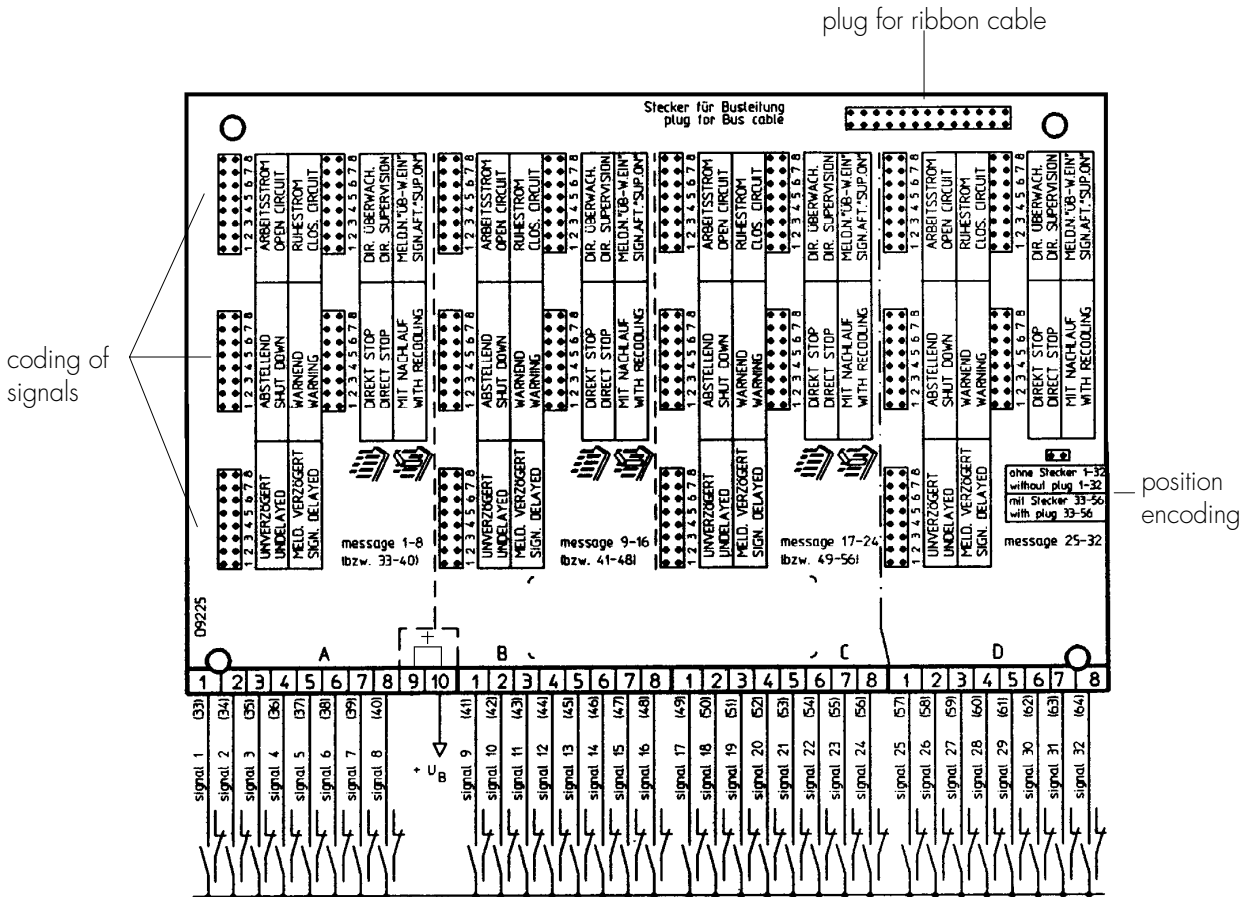


Fig. 2 Code strips and input terminals on the *EP2-32* module PCB

2.4 Terminal Assignment

Terminals A1 to D8 (=signals 1-32) are inputs for the fault signals. The connected signal contacts must be negative poled. If signals are multiplied, they must first be wired to a relay with several potential free contacts. One of the contacts can then be connected to form the signal contact to the *EP2-32*-module.

Connect the positive wire carrying the operating voltage to input 9 or 10 (see Figure 2).

3 Installing the EP2-32 Extension Module

The EP2-32 Extension Modules are intended for through-panel installation in a switchboard. They can be fixed using the enclosed screws. In order to keep the connecting lines between each extension module and the NP as short as possible, they should be mounted as close as possible to the NP Automatic Controller (for example see Information Required with Order). Dimensions are given in the dimensional drawing.

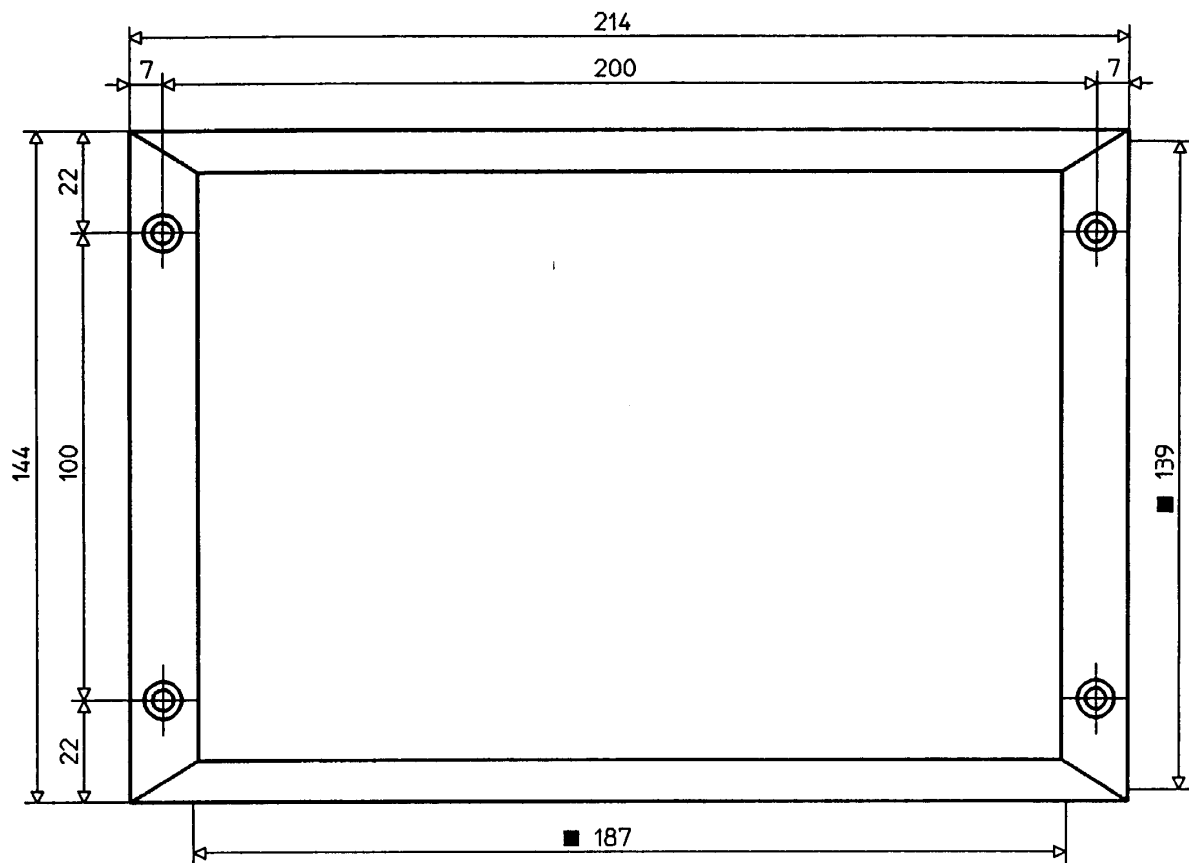


Fig. 3 Dimensional drawing EP2-32
(all dimensions in mm)

Depth (behind panel): 75 mm

■ Cut-out on switchboard (W x H): 187 mm x 68 mm

4 Technical data

General data

Maintenance:	no maintenance
Duty:	continuous
Mounting position:	optional (close to the NP)

Input circuits

Supply voltage:	9 - 32 V/DC
Auxiliary voltage:	12/24 V/DC
Power consumption:	1.3 VA plus 0.4 monitoring circuit

Possible coding

Setting of EP2-32 module functions
using coding plug:

- | | |
|----------------------|---------------------------------|
| • open circuit | • closed circuit |
| • direct supervision | • signal after „supervision ON“ |
| • shut down | • alarm |
| • direct stop | • with recooling |
| • no delay | • signal delay |
| • special function | : indication only |

Processing time

Time (depending on number of extension modules):	40 - 100 ms
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Tests

Mechanical strength:	Test in operation in accordance with Germanische Lloyd, i. e. with following vibration stress: f = 2 - 3 Hz, amplitude: ± 1 mm f > 32 Hz, acceleration: 0,7 g
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Ambient conditions

Min./max. ambient temperatures:	
• storage:	- 40°C to + 75°C
• operation:	- 25°C to + 70°C
Humidity resistance:	Class F to DIN 40040, tested to DIN IEC 68 part 2-3 (56 days, 40°C and 93 % R.H.)

Housing, Dimensions, Weight and Mounting

Construction:	for mounting in the switchboard
Material front panel:	foil front panel
Material back panel:	Macrolon/sheet steel
Height x width x depth:	144 mm x 214 mm x 75 mm
Switchboard cut-out (h x w):	139 mm x 187 mm
Housing attachment:	by screws
Weight:	approx. 800 g
Protection: front panel:	IP 42-54
back panel:	IP 00
Frame:	two-piece; instructions for dismantling on separate sheet

Technical data subject to change without notice

5 Order form

Please use the form on this page when ordering. Use one form for each extension module.
Please cross the desired options.

If no details on coding can be given, modules are supplied with standard coding

Minimum information:

Coding standard details below

Labels yes no

Coding details:

Position coding

for which slot is this *EP2-32* extension module intended

1st EP 2nd EP

Signal coding

Signal number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
N.O. contact																
N.C. contact																
direct supervision																
Signal after „Supervision ON“																
shut down																
alarm																
direct stop																
with recooling																
no delay																
signal delayed																
indication																

Signal number	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
N.O. contact																
N.C. contact																
direct supervision																
Signal after „Supervision ON“																
shut down																
alarm																
direct stop																
with recooling																
no delay																
signal delayed																
indication																

Label:

Please enter the required inscription. Please remember that the size of inscription on on the label is 35 x 15 mm.
The numbers indicate the number of the signal.

1 (33)		9 (41)		17 (49)		25 (57)	
2 (34)		10 (42)		18 (50)		26 (58)	
3 (35)		11 (43)		19 (51)		27 (59)	
4 (36)		12 (44)		20 (52)		28 (60)	
5 (37)		13 (45)		21 (53)		29 (61)	
6 (38)		14 (46)		22 (54)		30 (62)	
7 (39)		15 (47)		23 (55)		31 (63)	
8 (40)		16 (48)		24 (56)		32 (64)	

Language: German English French Spain

Mounting layouts of NP2 and extension module EP2-32:

Please cross the required layout.

<p><i>NP</i> + 1 extension module</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: 40px; height: 40px; display: flex; flex-direction: column; align-items: center; justify-content: center;"> NP <div style="border: 1px solid black; width: 40px; height: 20px; margin-top: 5px;"></div> </div> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: 60px; height: 25px; display: flex; justify-content: space-between;"> NP <div style="border: 1px solid black; width: 20px; height: 20px;"></div> </div> </div> </div> <p style="margin-top: 20px;">1a) <input type="checkbox"/> 1b) <input type="checkbox"/></p>	<p><i>NP</i> + 2 extension modules</p> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: 40px; height: 40px; display: flex; flex-direction: column; align-items: center; justify-content: center;"> NP <div style="border: 1px solid black; width: 40px; height: 20px; margin-top: 5px;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; margin-top: 5px;"></div> </div> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: 60px; height: 25px; display: flex; justify-content: space-between;"> NP <div style="border: 1px solid black; width: 20px; height: 20px;"></div> </div> </div> </div> <p style="margin-top: 20px;">2a) <input type="checkbox"/> 2b) <input type="checkbox"/></p>		
<p>Other layouts</p> <p>Special requirements</p>			
<p>In case of clarification:</p>			
P/O date:	Company:	Contact:	Telephone:

The LAYOUT of the NP2 and extension modules EP2-32 determine the length of the supplied ribbon cable. Please cross the mounting layout required. If your layout is not listed, please use the field „Other Layouts“ (hand sketch is sufficient).



Schaltanlagen-Elektronik-Geräte GmbH & Co. KG
 Abteilung Gerätevertrieb / Electronic Devices Sales Department
 Krefelder Weg 47 · D - 47906 Kempen (Germany)
 Postfach 10 07 67 (P.O.B.) · D - 47884 Kempen (Germany)
 Tel.: +49 (0)21 52 1 45-1 · Fax.: +49 (0)21 52 1 45-3 54
 e-mail: electronics@avksegg.com



Woodward Kempen GmbH

Krefelder Weg 47 · D – 47906 Kempen (Germany)
Postfach 10 07 55 (P.O.Box) · D – 47884 Kempen (Germany)
Phone: +49 (0) 21 52 145 1

Internet

www.woodward.com

Sales

Phone: +49 (0) 21 52 145 216 or 342 · Telefax: +49 (0) 21 52 145 354
e-mail: salesEMEA_PG@woodward.com

Service

Phone: +49 (0) 21 52 145 614 · Telefax: +49 (0) 21 52 145 455
e-mail: SupportEMEA_PG@woodward.com