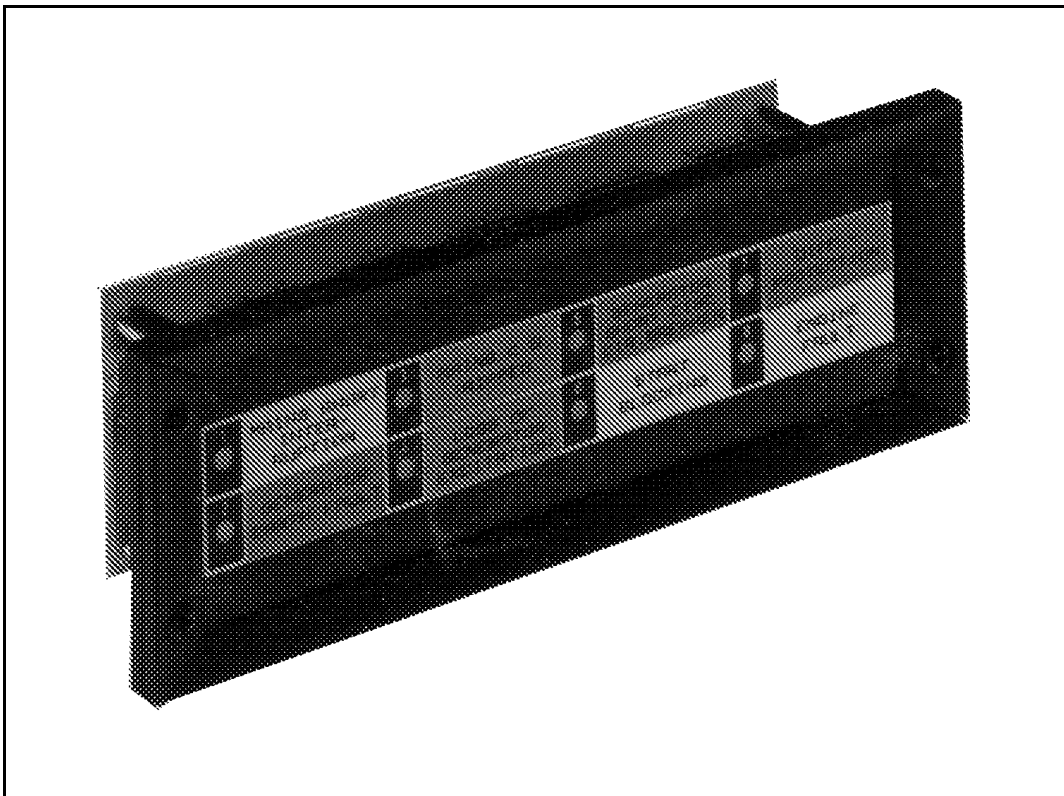




**EP2-8** - Extension Module for the Automatic Controller NP2



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# 1 General

The Woodward Automatic Controller NP2-1 and NP2-2 can be extended by installing EP2-8 extension modules. Up to 7 EP2-8 Extension Modules can be connected to an NP2 Automatic Function unit and each EP2-8 module has 8 monitoring circuits. When the system is fully extended, it has 56 additional monitoring circuits. All incoming signals are displayed. At the same time, the NP2 triggers a contact to the audible alarm.

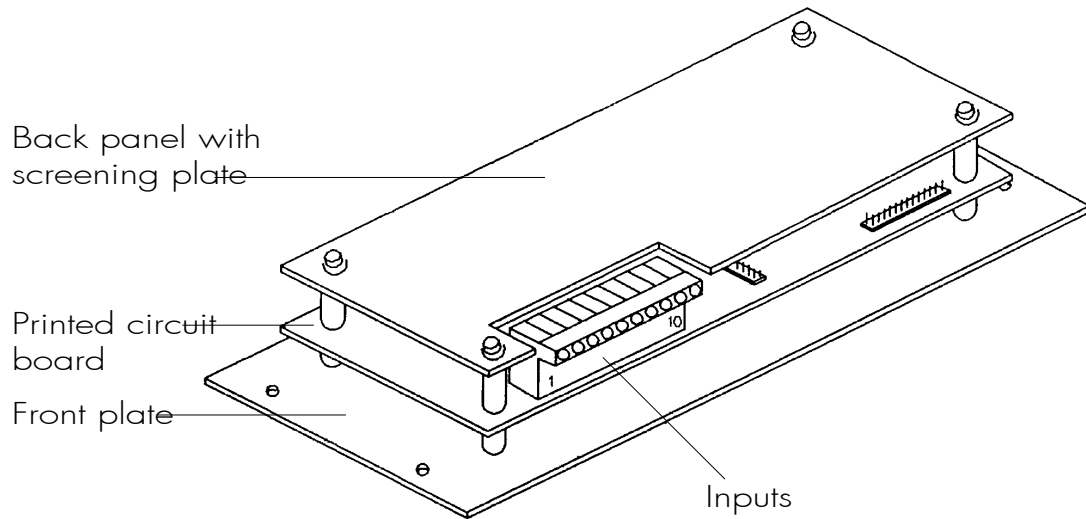


Fig. 1: EP2-8 Extension Module

## 2 Mechanical Design and Startup

### 2.1 Mechanical Design

The *EP2-8* Extension Module comprises front panel, back panel with screening plate and a printed circuit board (see Figure 1). The front cover is fitted with 8 LED's to display incoming faults, and space is provided for fault description labels. The rear cover has explanations for the code strips on the PCB (printed circuit board).

### 2.2 Coding

#### Signal coding

At the top of the PCB there are 5 code strips (Figure 2) where the processing codes for each of the 8 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 coding

**Special function: Indication**

In normal operation a fault is displayed by a flashing LED as with the NP2. In addition, the NP2 triggers a contact to the audible alarm. After operating the NP2 button "Horn", the LED stops flashing and remains permanently lit. However, if a plug is inserted at positions "alarm" and "with recooling" the LED lights up without flashing when a signal is received. In addition, the contact does not trigger the audible alarm.

**Position coding:**

Because 7 EP2-8 Extension Modules can be connected to the NP2 Automatic Controller, the position of each module must be given for identification purposes. This is performed by a coding plug which is inserted in the code strip in the middle of the PCB (See Fig. 2).

## 2.4 Terminal Assignment

••••••••	plug at position 1
••••••••	= first <i>EP2-8</i> module
1 2 3 4 5 6 7 8	
••••••••	plug at position 2
••••••••	= second <i>EP2-8</i> module
1 2 3 4 5 6 7 8	
etc.	

Terminals 1 to 8 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 *EP2-8*-module.

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

Table 2: Position coding

## 2.3 Connecting the *EP2-8* Module

A ribbon cable connects the *NP2* Automatic Controller to the Extension modules. The plug is inserted in socket on the *EP2-8* board (see Figure 2).

Earthing of the inner side of the module rear cover. A socket is provided to receive an AMP plug. This interconnects the modules and provides a connection to earth.

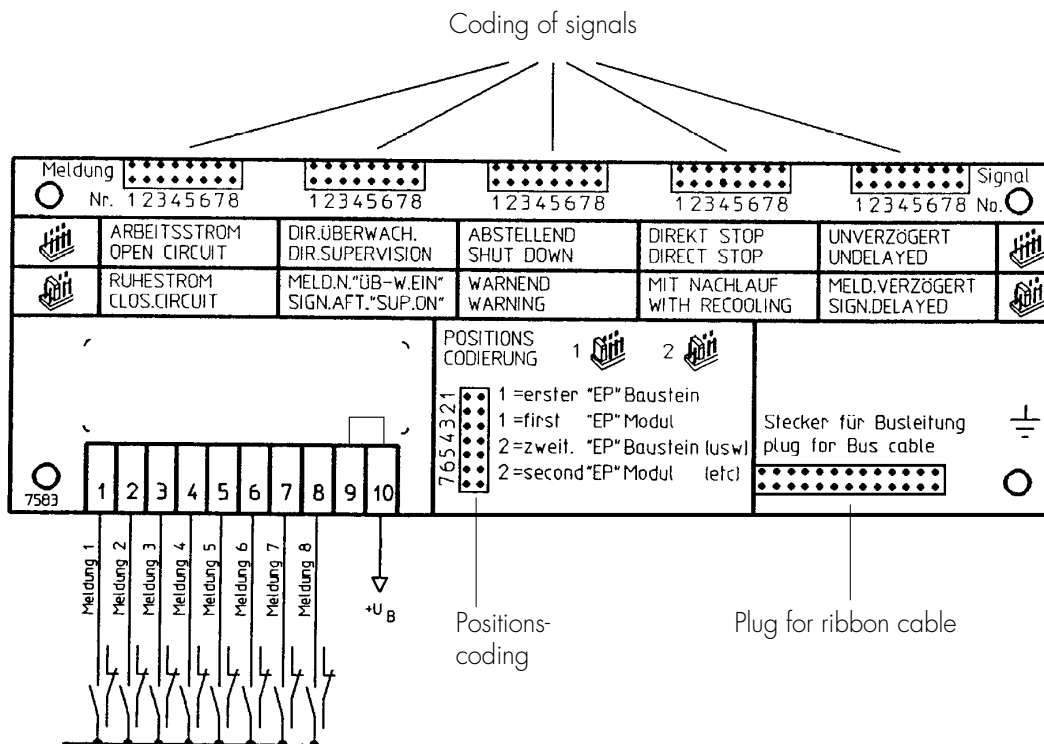


Fig. 2: Code strips and input terminals on the *EP2-8* module PCB



## 4 Technical data

### General data

Maintenance:	no maintenance
Duty:	continuous
Mounting position:	optional (close to the NP2)

### Input circuits

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

### Processing time

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

Mechanical strength:	Tests in accordance with Germanische Lloyd i. e. with following vibration stress: f = 2 - 13.2 Hz, amplitude: $\pm 1$ mm f = 13.2 - 100 Hz, acceleration: 0.7g
GL-Approbation:	99 821 HH
URS:	92.001.272

### Ambient conditions

Min./max. ambient temperatures:	- 40°C to + 75°C
• storage:	
• 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:	Polycarbonat/sheet steel
Width x height x depth:	214 mm x 72 mm x 55 mm
Switchboard cut-out (W x H):	68 mm x 187 mm
Housing attachment:	by screws
Weight:	approx. 250 g
Protection: front cover:	IP 54
rear cover:	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 are given, modules are supplied with standard coding.

### Extension Module Type EP2-8

#### Minimum Information

Coding  standard  details below  
 Labels  yes  no

### Coding details

#### Position coding

For which slot is this EP2-8 extension module intended?

1. EP2-8  2. EP2-8  3. EP2-8  4. EP2-8  5. EP2-8  6. EP2-8  7. EP2-8

#### Signal encoding

Signal number	1	2	3	4	5	6	7	8
Open circuit	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Closed circuit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
direct supervision	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Signal after „Supervision ON“	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shut down	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Direct Stop	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
With recooling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No delay	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Signal delayed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Indication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### Label:

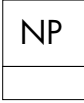
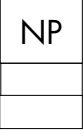
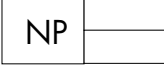
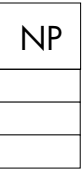
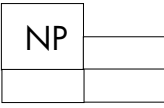

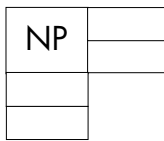
Please enter the required inscription. Please remember that the size of inscription on the label is 35 x 15 mm. The numbers indicate the number of the signal.

1		3		5		7	
2		4		6		8	

German  English  French  Spain  .....

## Mounting layouts of NP2 and extension module EP2-8

Please cross the required layout.

<p><i>NP</i> + 1 extension module</p>  <p>1a) <input type="checkbox"/></p>	<p><i>NP</i> + 2 extension modules</p>   <p>2a) <input type="checkbox"/> 2b) <input type="checkbox"/></p>		
<p><i>NP</i> + 3 extension modules</p>   <p>3a) <input type="checkbox"/> 3b) <input type="checkbox"/></p>	<p><i>NP</i> + 4 extension modules</p>   <p>4a) <input type="checkbox"/> 4b) <input type="checkbox"/></p>		
<p>Other layouts</p>   <p>Special requirements</p>			
<p>In case of clarification:</p>			
<p>P/O date:</p>	<p>Company:</p>	<p>Contact:</p>	<p>Telephone:</p>

The LAYOUT of the NP2 and extension modules EP2-8 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).



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