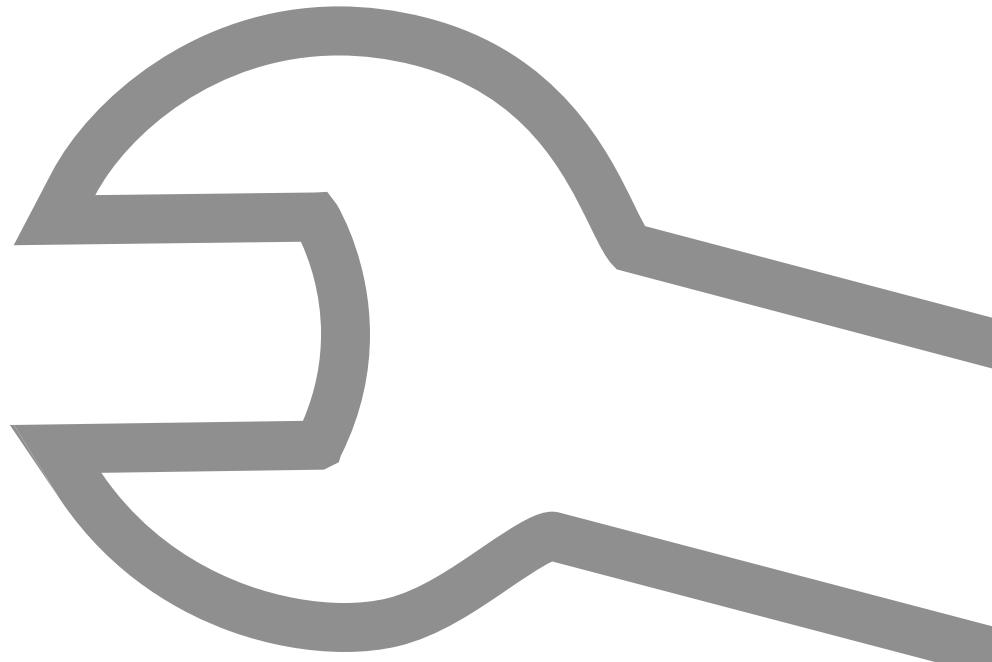


# Elektrical diagrams



*Comfortable  
heating. With wood!*

# HDG Log wood boilers



# Electrical connections

The provisions described in 2006/95/EC (Low-voltage Directive) must be followed for the electrical connections to the system.

No electrical installations, such as power sockets, distribution boxes, lights or light switches may be located in the fuel storage. Any lights must be suitable for use in areas at risk of explosion. The VDE regulations for rooms with a risk of dust explosion must be followed.

Electricity supply / voltage	AC 1 x 230 V / AC 3 x 230 V / AC 3 x 400 V

Table 1/1 - Electricity supply

## ELECTRICAL CABLES

### MAINS SUPPLY CABLE

The mains supply must be installed using YSLY-JZ cables. The cable diameter must be calculated. The maximum fuse protection is 16 A.

### BUS CONNECTION

The bus connection cable must be installed using LiYY 5 x 0.5 mm<sup>2</sup>. The maximum connection length from the central module to the connection on the extension module which is furthest away is 1000 m.

### PUMP / MIXER CABLES

YSLY-JZ cables must be used for all pumps (3 x 1 mm<sup>2</sup>) and mixers (4 x 1 mm<sup>2</sup>). The cable diameter must be calculated according to the type of installation and cable length, but must be a minimum of 1 mm<sup>2</sup>.

## MODULE OUTPUTS

### CENTRAL MODULE AND EXTENSION MODULES

The outputs on the central module or on the extension modules are designed for continuous nominal power of 435 W. Please ensure this is observed, for example for the circulation pumps being used. Furthermore, the starting current must not exceed a maximum level of 9.5 A, as otherwise the modules may be irreparably damaged.



We recommend using Wilo brand circulation pumps, as they were used for testing the modules and satisfy the requirements listed above.

## INSTALLING EXTENSION MODULE EM4 IN THE BOILER

### HDG EURO 30/40/50

The HDG Control can be combined with a variety of extension modules when used for the boiler HDG Euro 30/40/50:

- EM4: Weather-compensated heating control (system-dependent). Mounted directly on the rear of the boiler HDG Euro 30/40/50 above the central module.
- EM8: Weather-compensated heating control (system-dependent). Mounted in the surface-mounted housing outside the boiler HDG Euro 30/40/50.
- EM8+4: Weather-compensated heating control (system-dependent). Mounted in the surface-mounted housing outside the boiler HDG Euro 30/40/50.

When the extension module EM4 is used, it is mounted directly on the rear of the HDG Euro 30/40/50 above the central module.

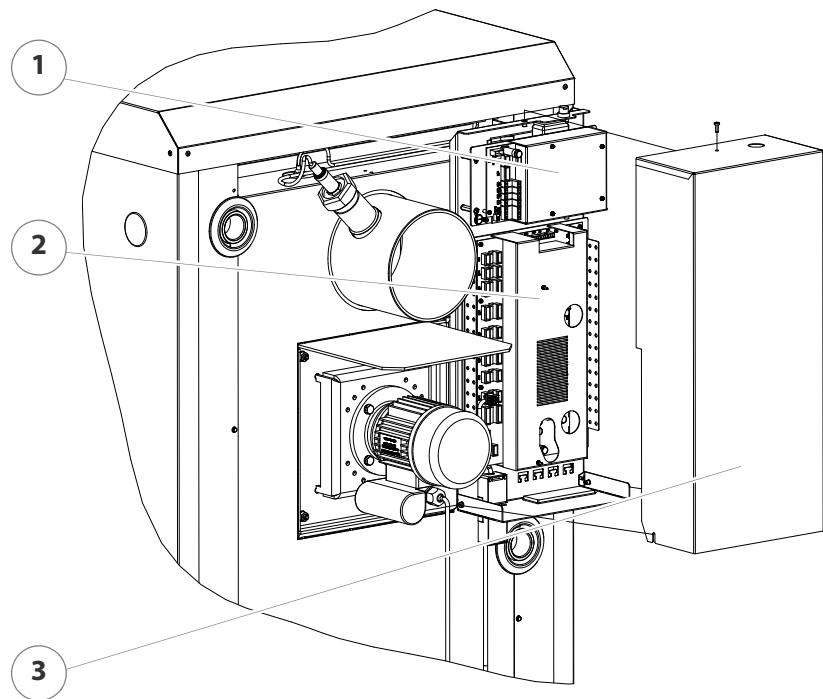


Abbildung 1/1 - Extension module EM4

- 1 Extension module EM4
- 2 Central module
- 3 Central module cover

All other extension modules must be mounted and installed in separate surface-mounted modules.

## HDG F20-50

The HDG Control can be combined with a variety of extension modules when used for the boiler HDG F20-50:

- EM4: Weather-compensated heating control (system-dependent). Mounted directly on the top of the boiler HDG F20-50 next to the central module.
- EM8: Weather-compensated heating control (system-dependent). Mounted in the surface-mounted housing outside the boiler HDG F20-50.
- EM8+4: Weather-compensated heating control (system-dependent). Mounted in the surface-mounted housing outside the boiler HDG F20-50.

When the extension module EM4 is used, it is mounted directly on the top of the HDG F20-50 next to the central module.

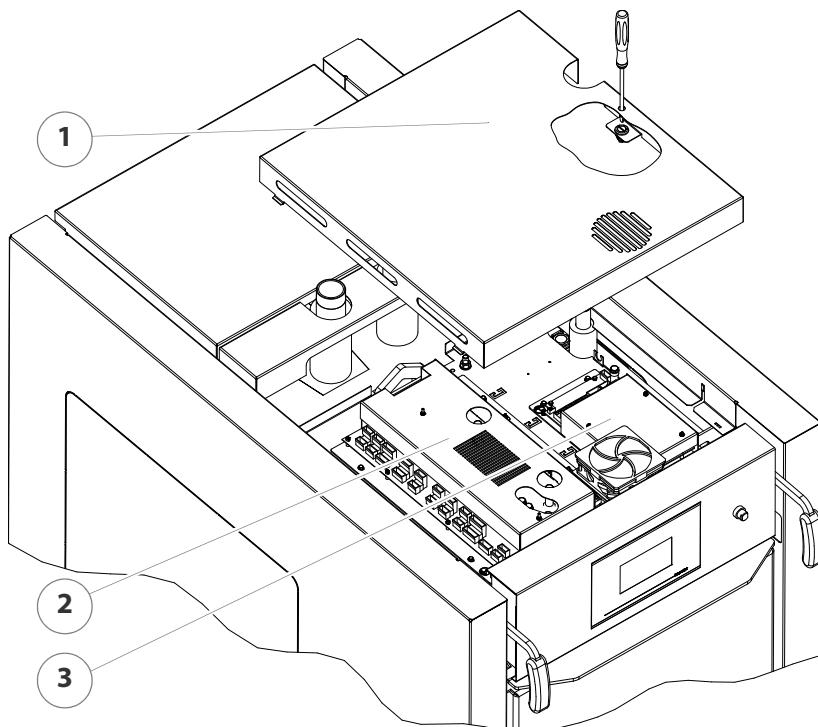


Abbildung 1/2 - Extension module EM4

- 1 Central module cover
- 2 Central module
- 3 Extension module EM4

All other extension modules must be mounted and installed in separate surface-mounted modules.

HDG H20/25/30

The HDG Control can be combined with a variety of extension modules when used for the boiler HDG H20/25/30:

- EM4: Weather-compensated heating control (system-dependent). Mounted directly on the top of the boiler HDG H20/25/30 next to the central module.
- EM8: Weather-compensated heating control (system-dependent). Mounted in the surface-mounted housing outside the boiler HDG H20/25/30.
- EM8+4: Weather-compensated heating control (system-dependent). Mounted in the surface-mounted housing outside the boiler HDG H20/25/30.

When the extension module EM4 is used, it is mounted directly on the top of the HDG H20/25/30 next to the central module.

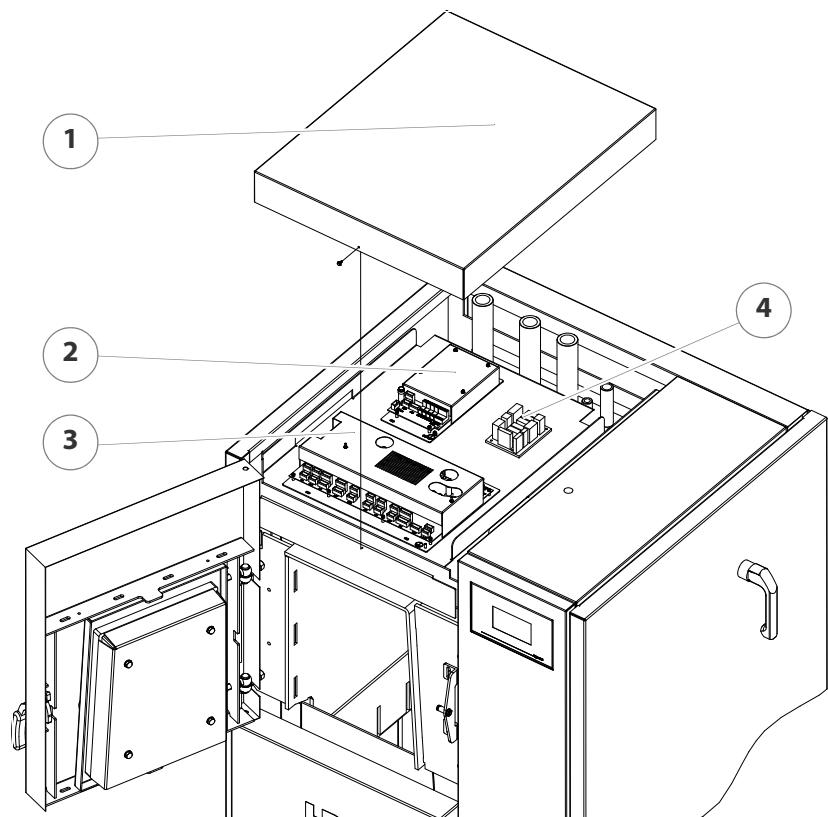


Figure 1/3 - Extension module EM4

- 1 Central module cover
- 2 Extension module EM4
- 3 Central module
- 4 Extension module for oil/gas burner

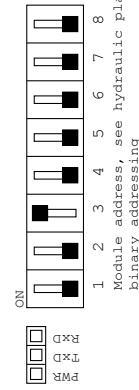
All other extension modules must be mounted and installed in separate surface-mounted modules.



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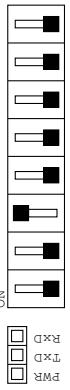
A

Shown module address = 4



1\* = Configuration see hydraulic plan

ON



\*only for EM8+EM4  
Bus-cable for  
X9 EM8

B

C

D

E

F

A

B

C

D

E

F

A

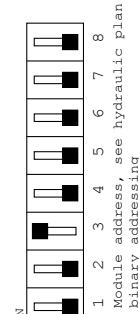
B

C

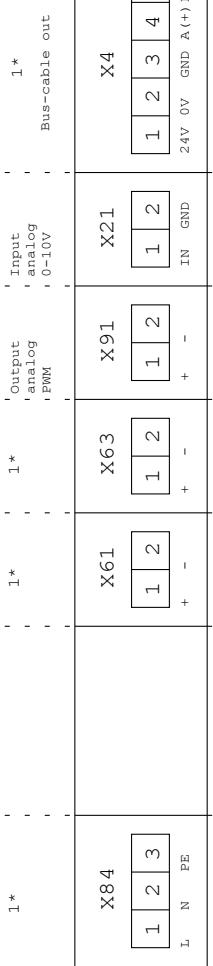
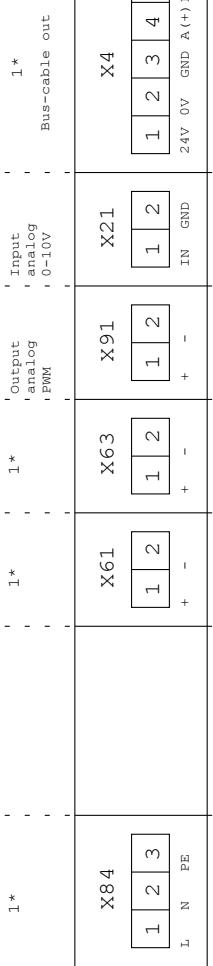
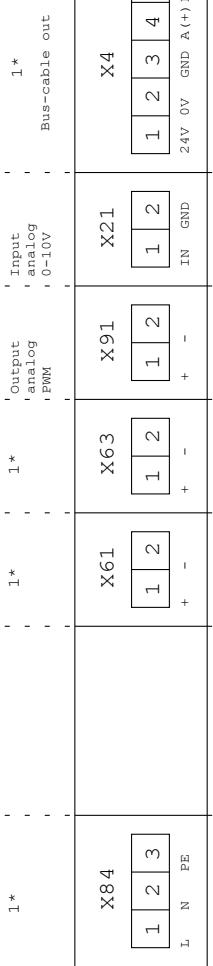
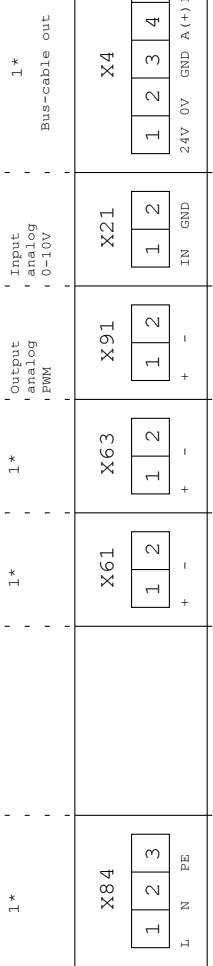
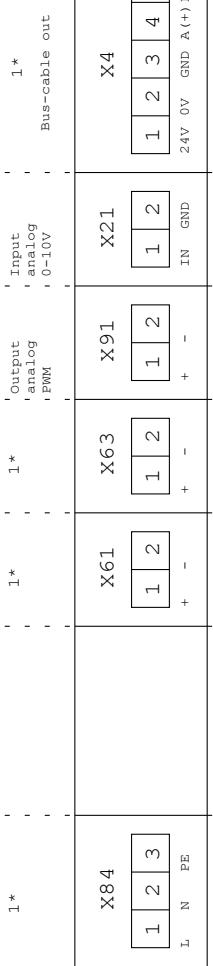
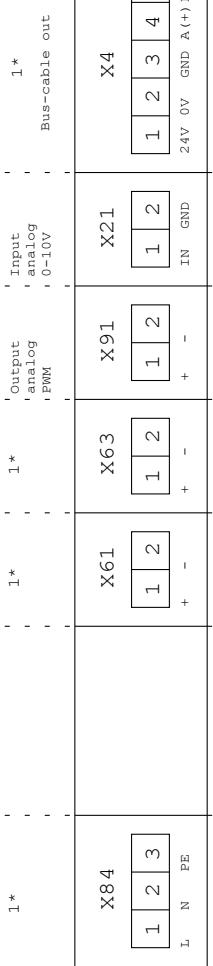
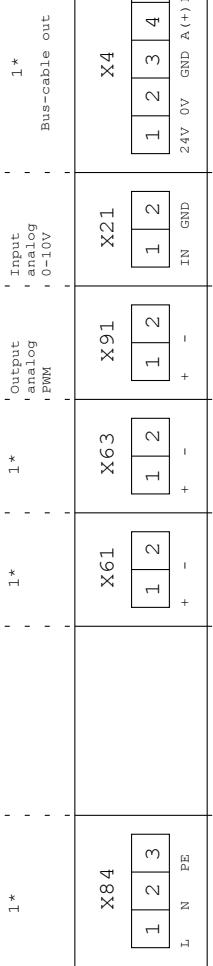
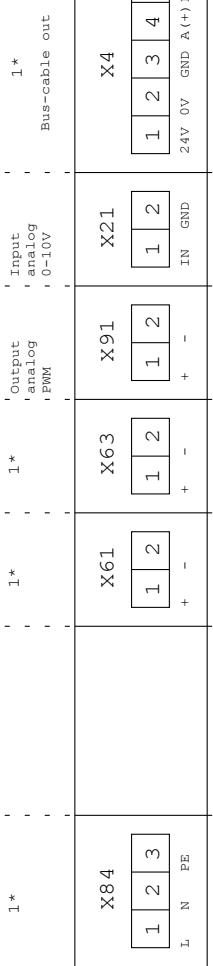
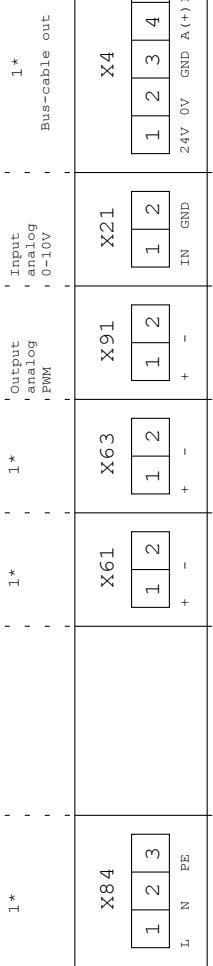
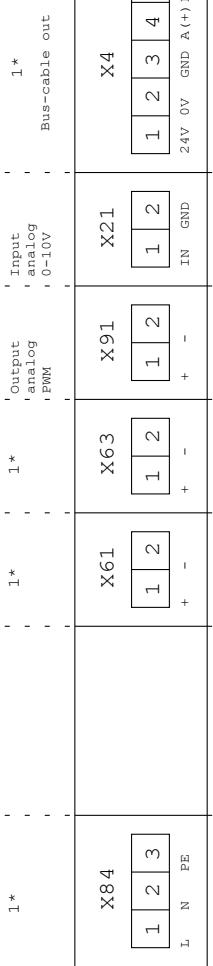
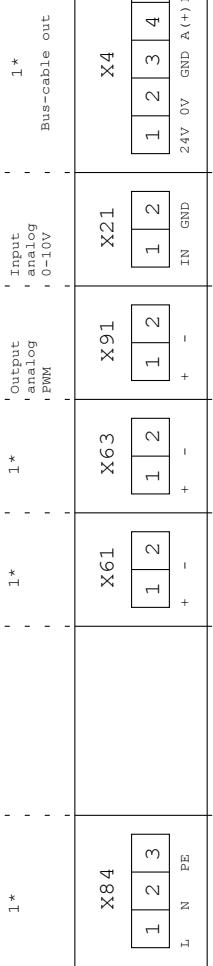
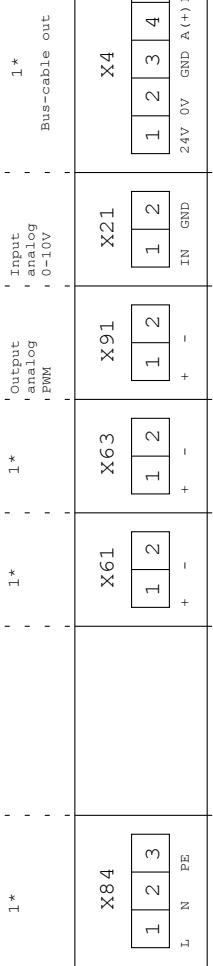
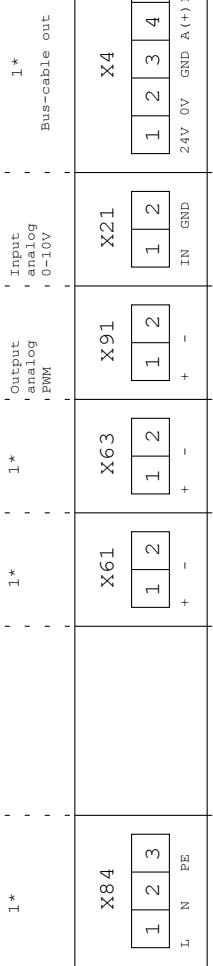
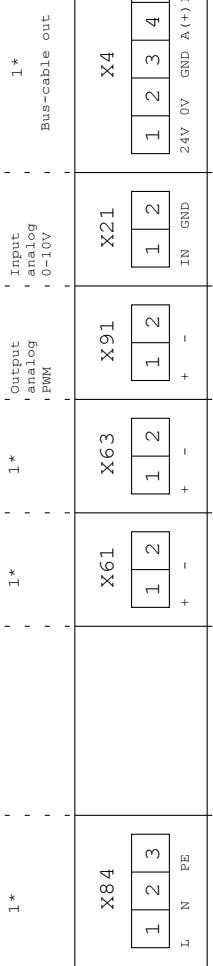
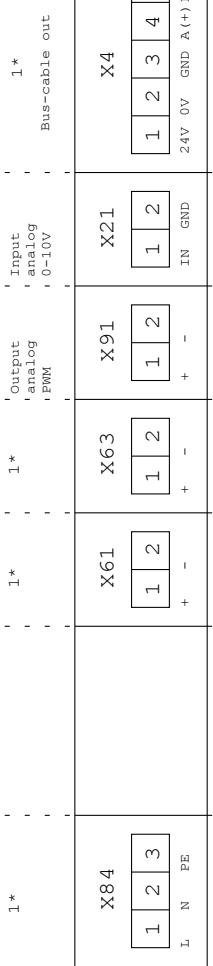
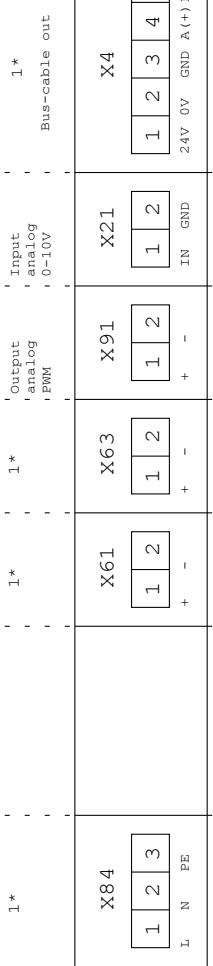
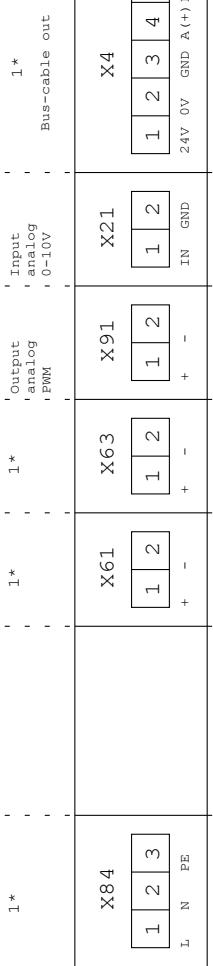
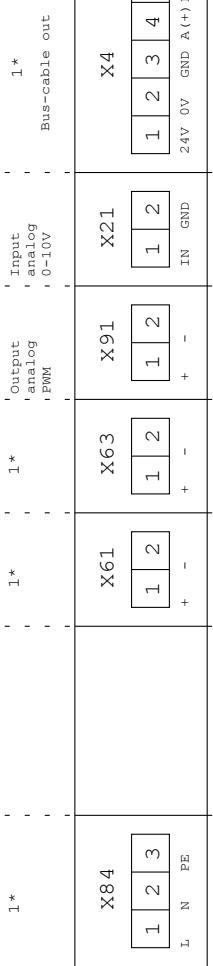
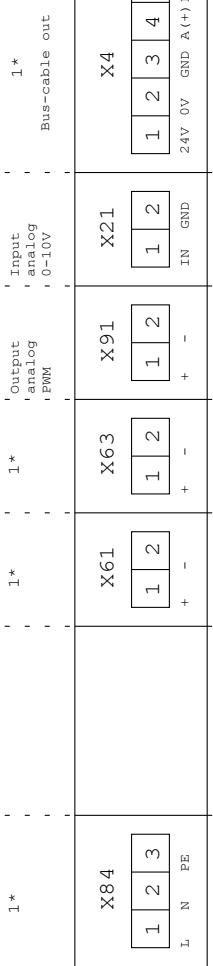
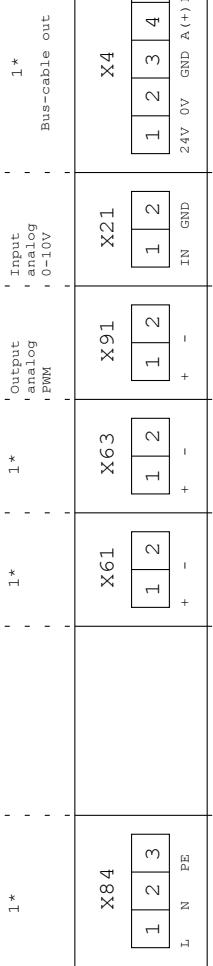
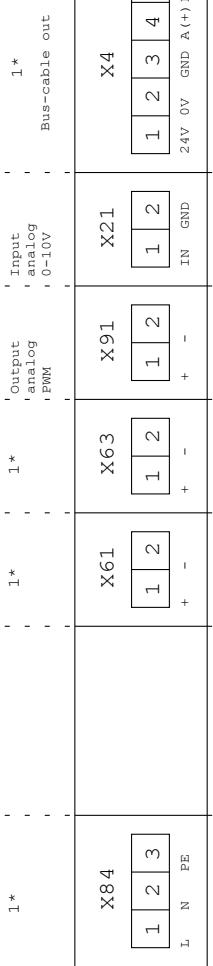
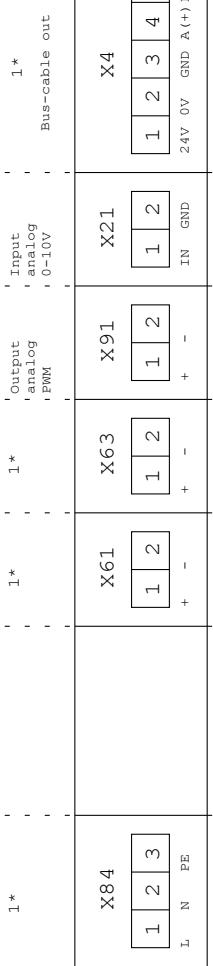
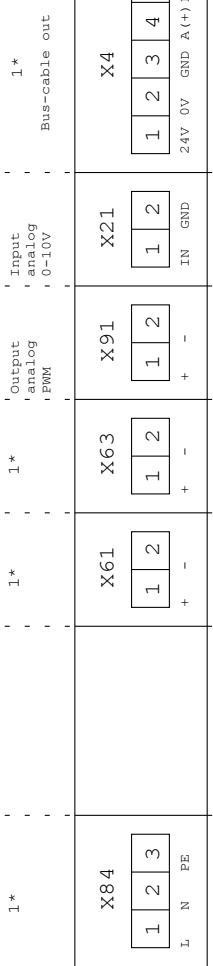
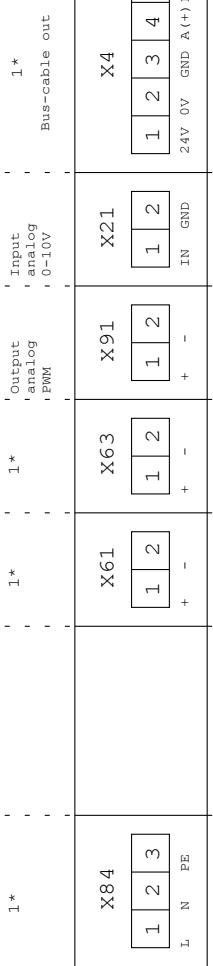
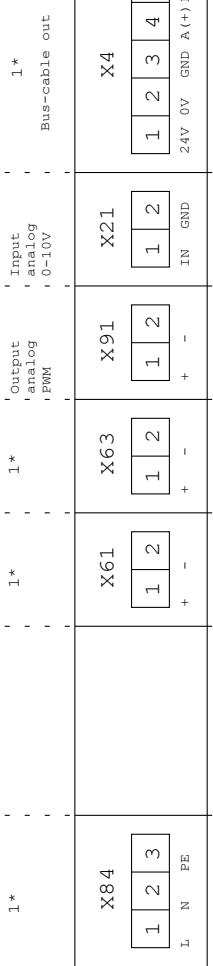
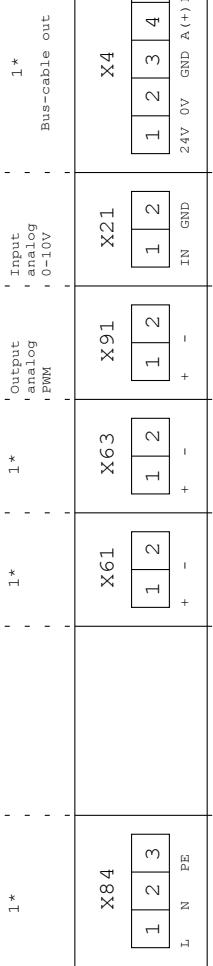
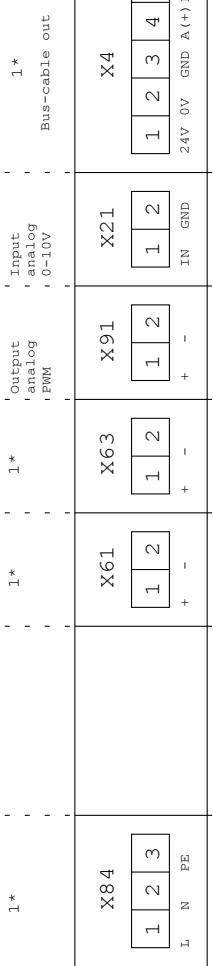
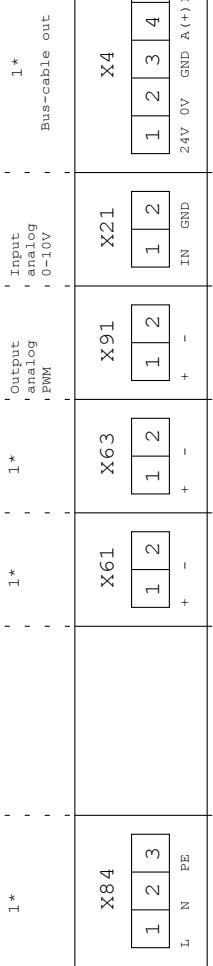
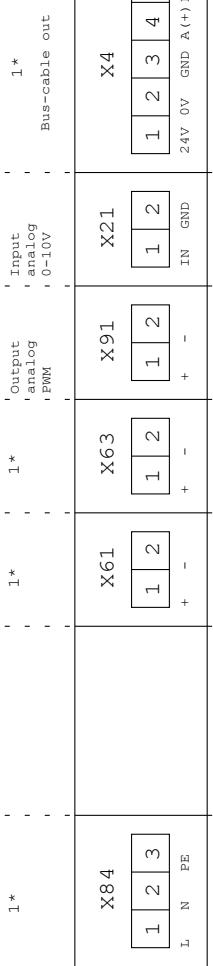
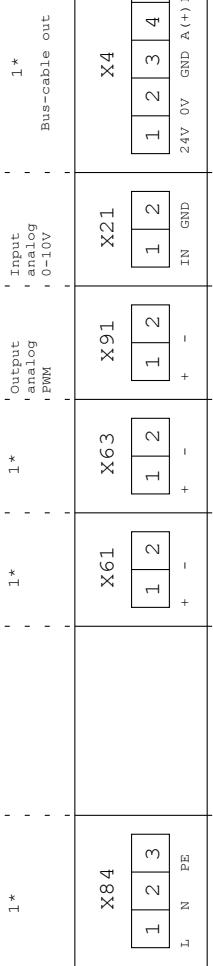
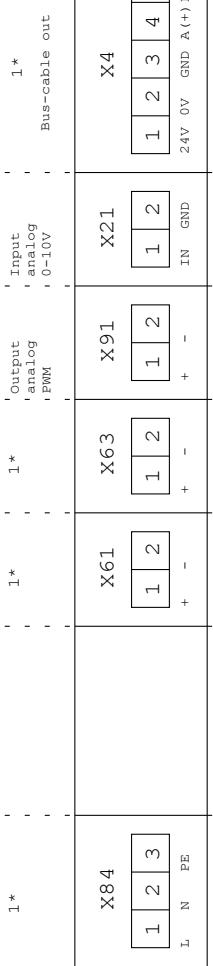
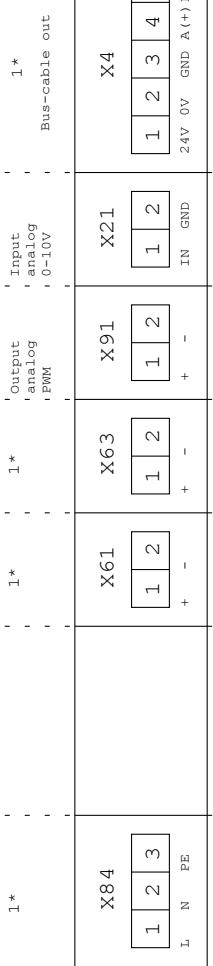
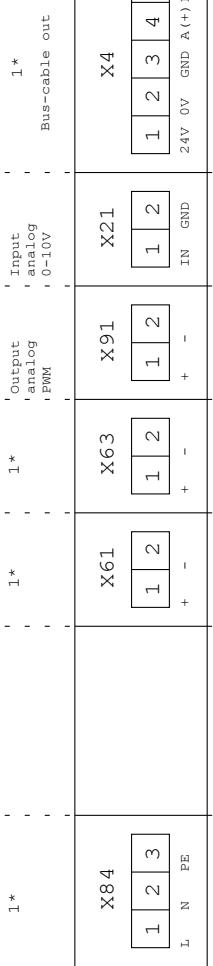
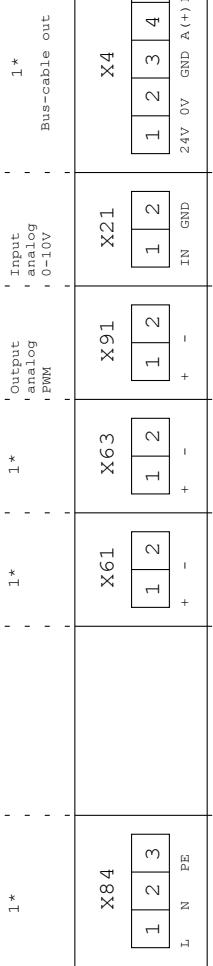
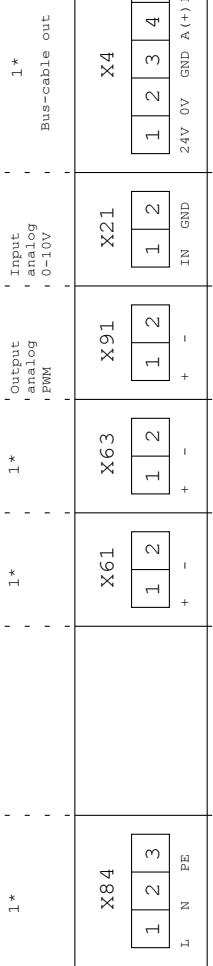
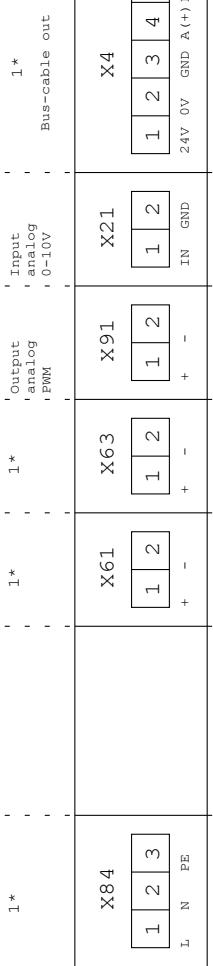
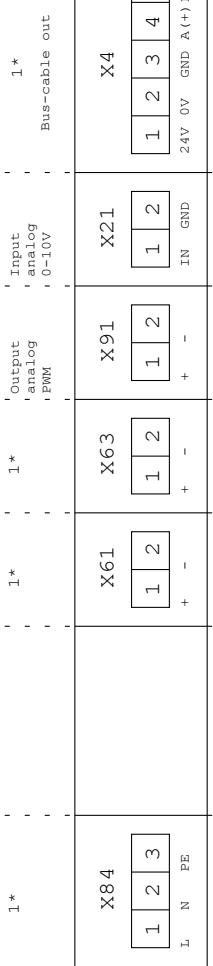
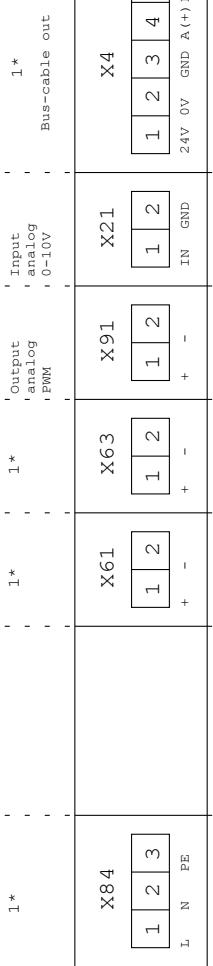
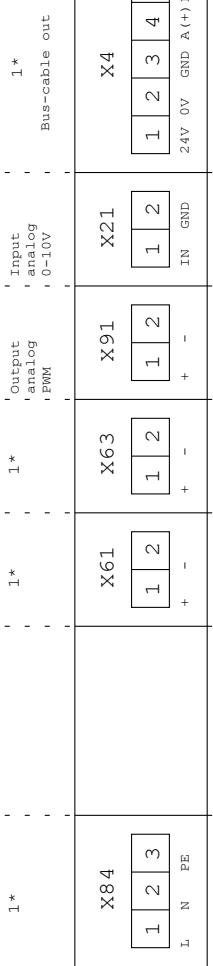
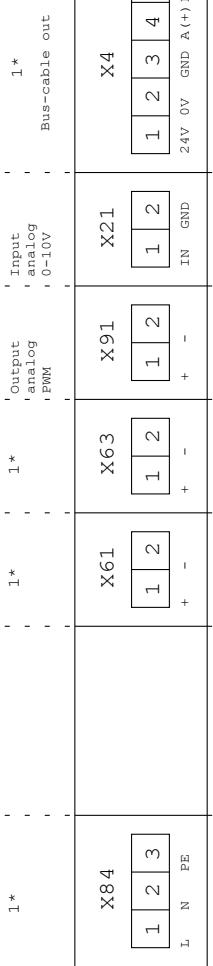
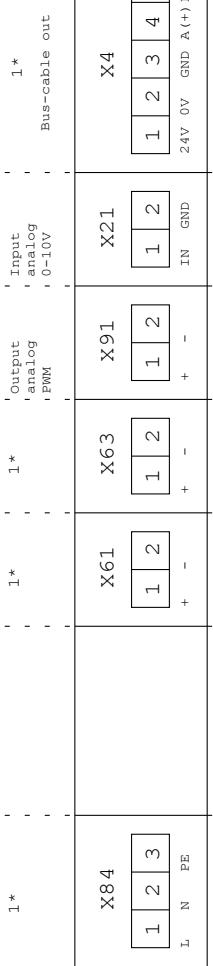
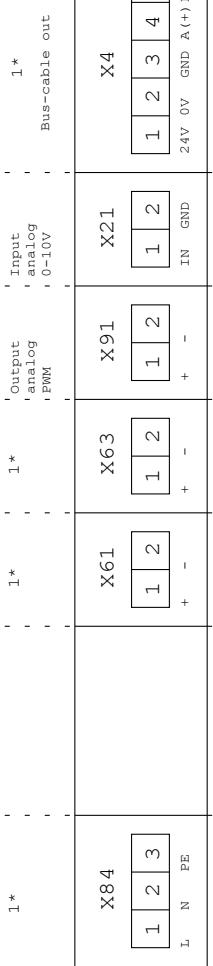
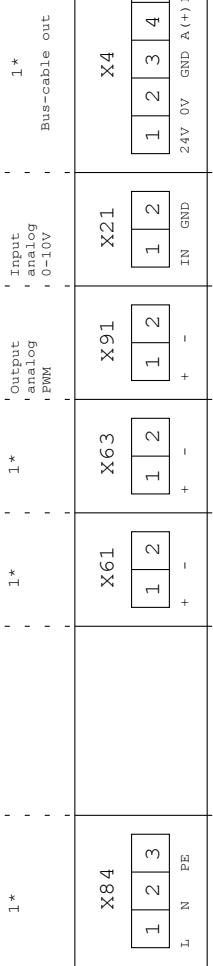
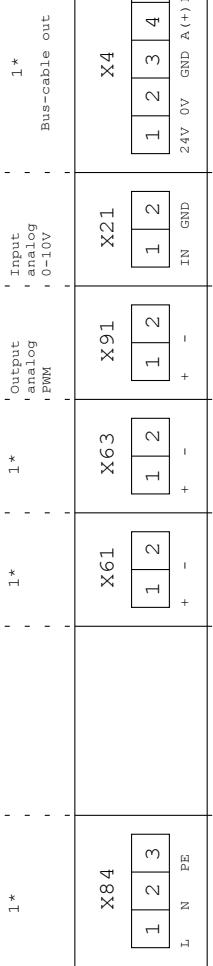
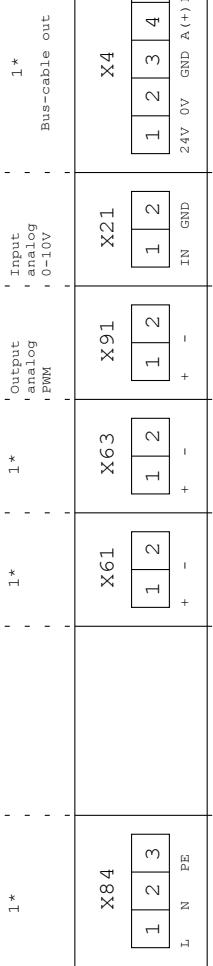
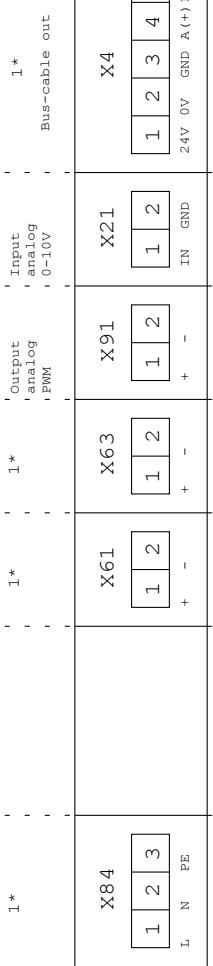
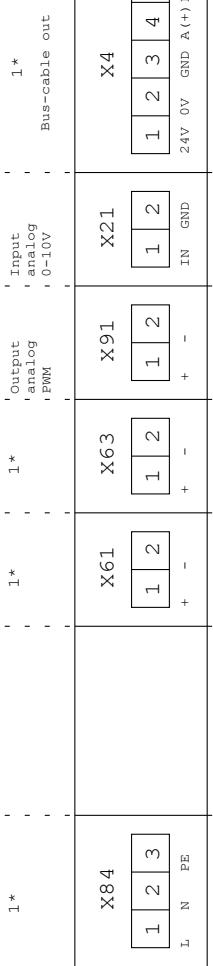
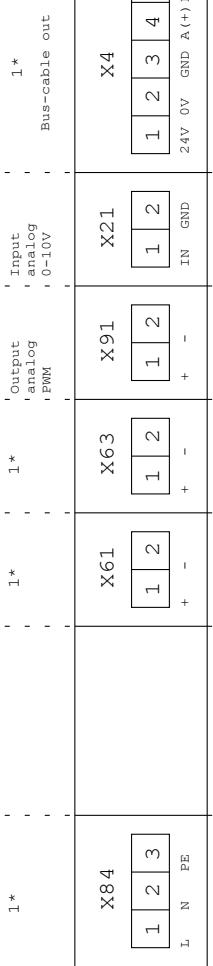
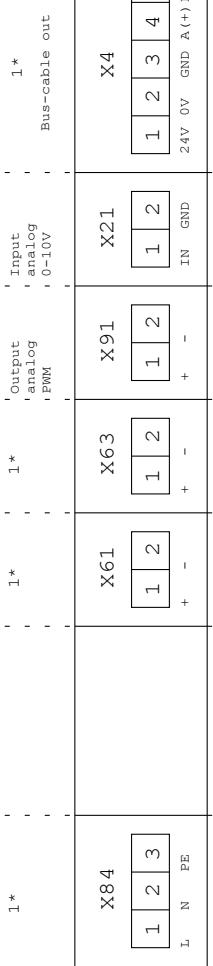
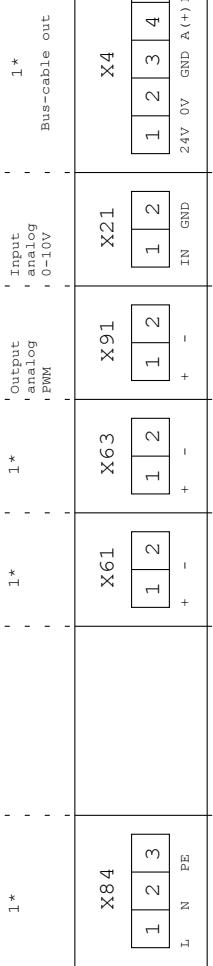
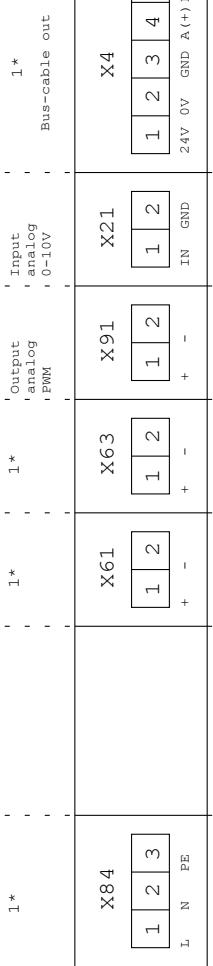
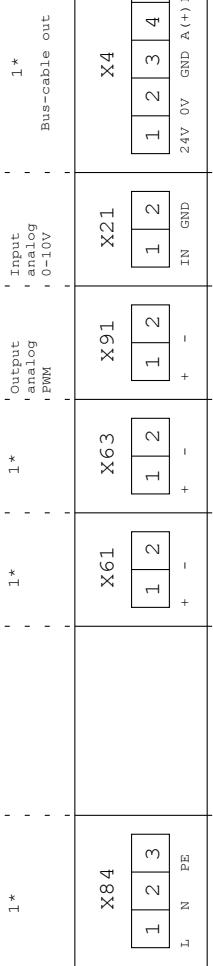
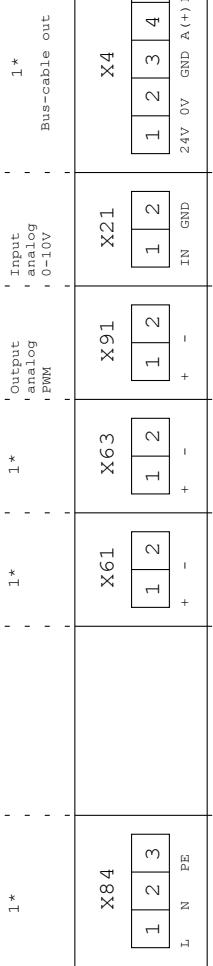
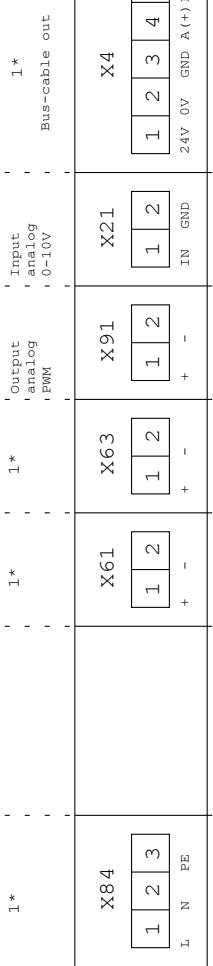
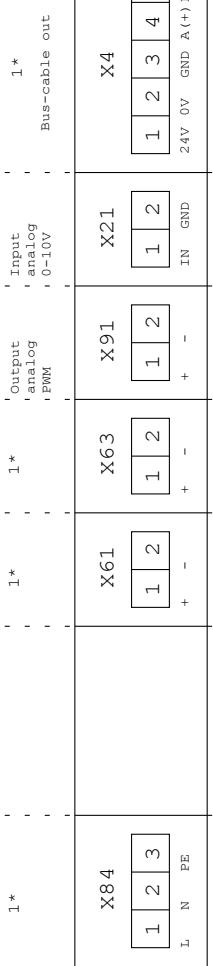
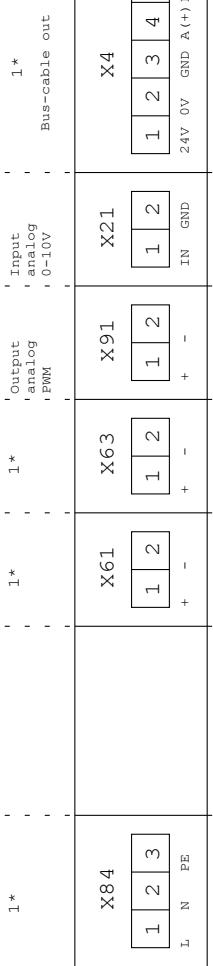
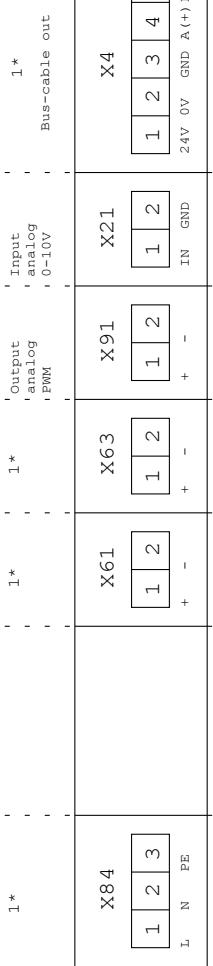
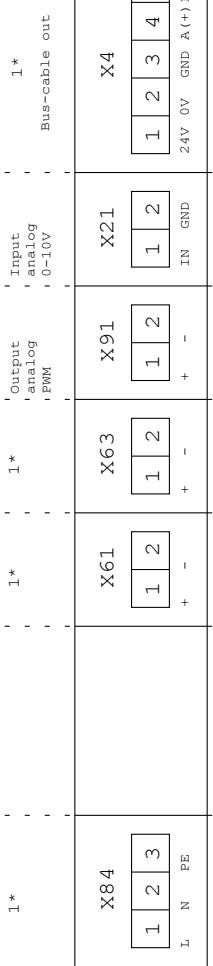
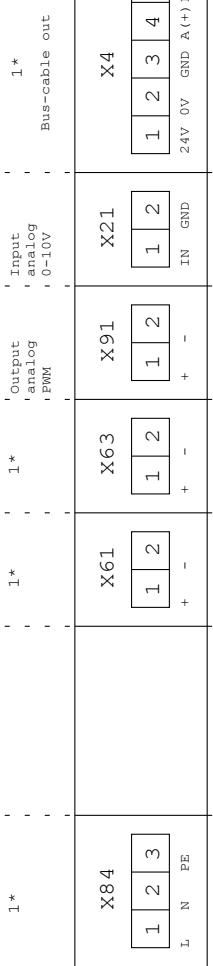
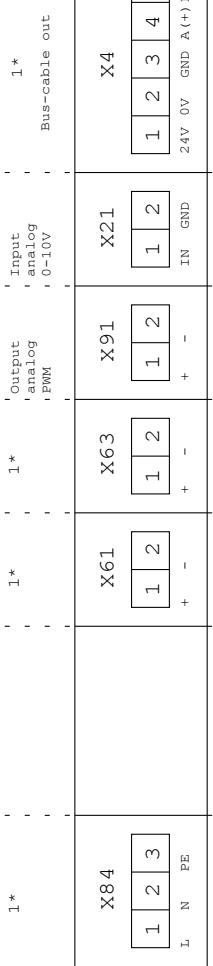
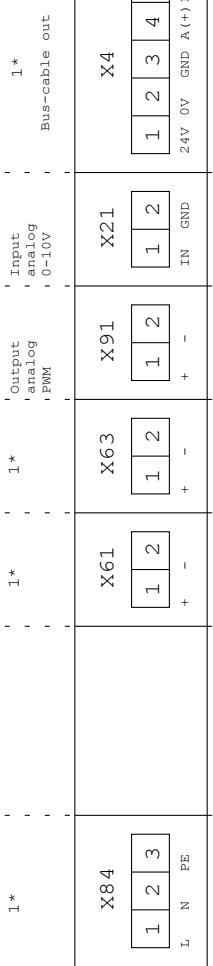
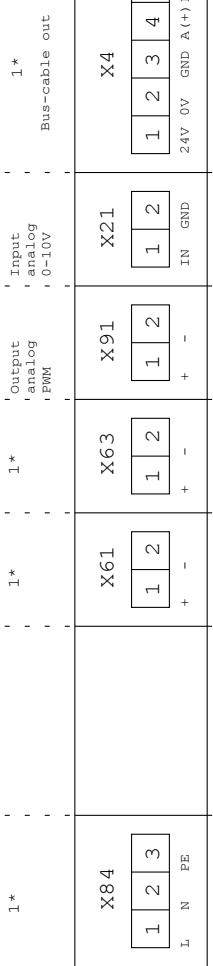
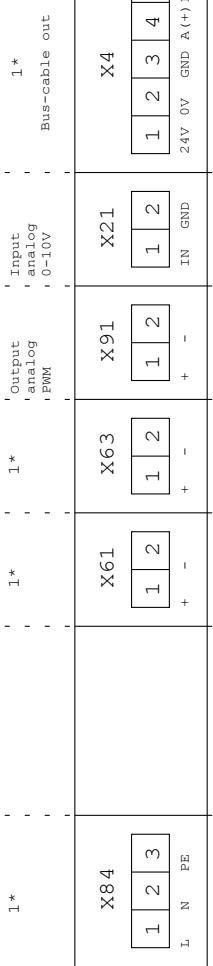
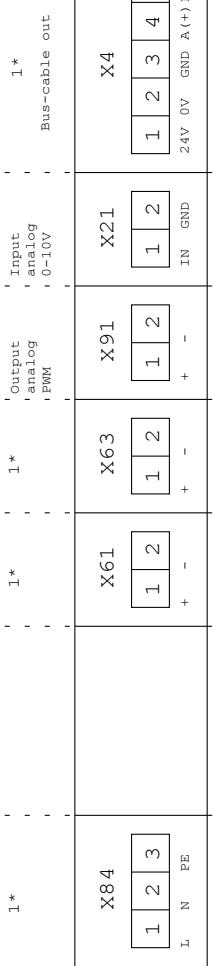
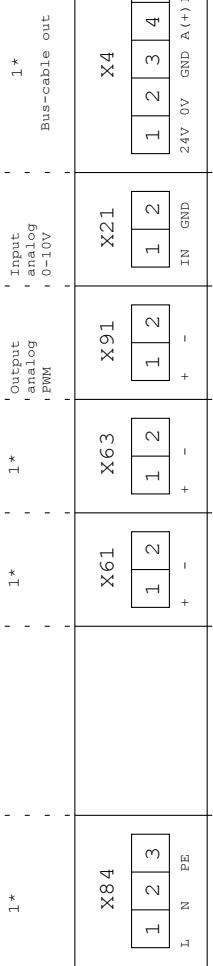
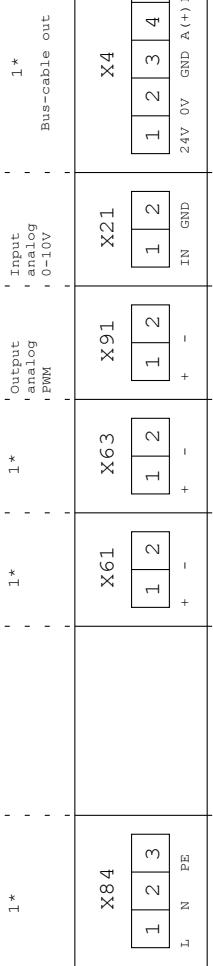
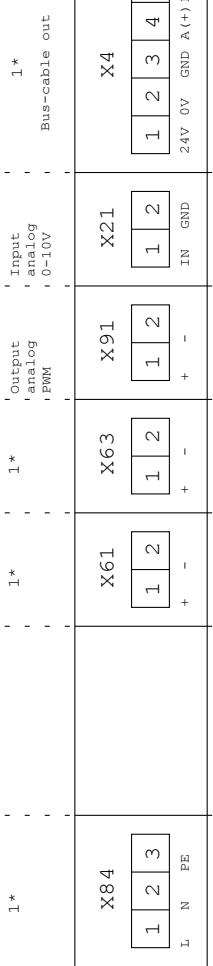
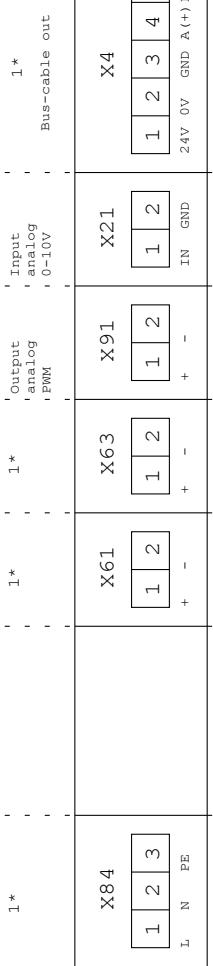
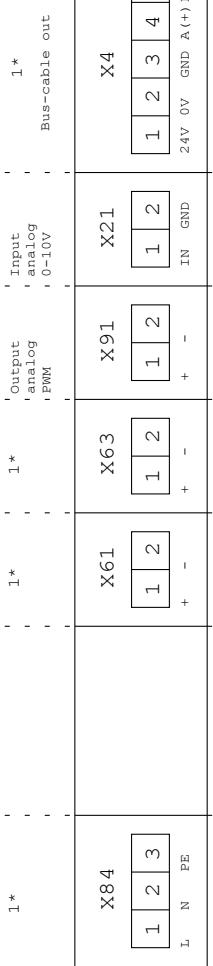
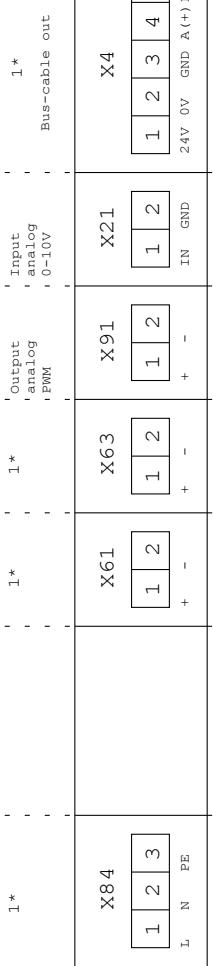
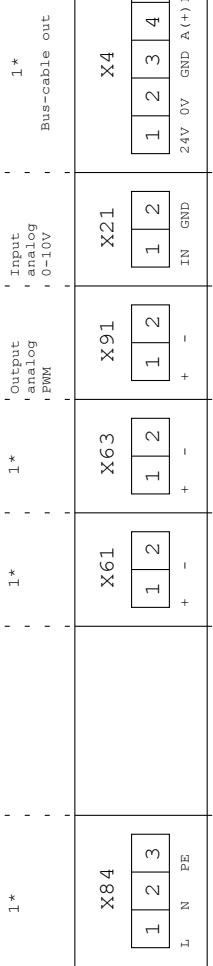
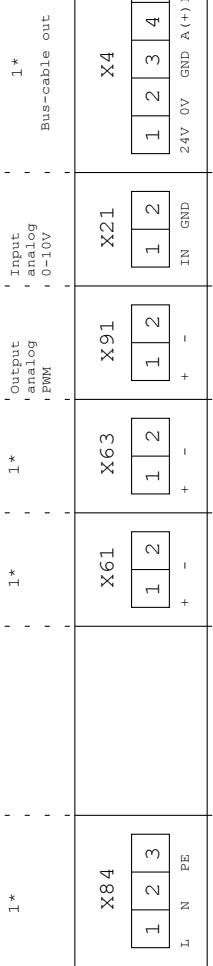
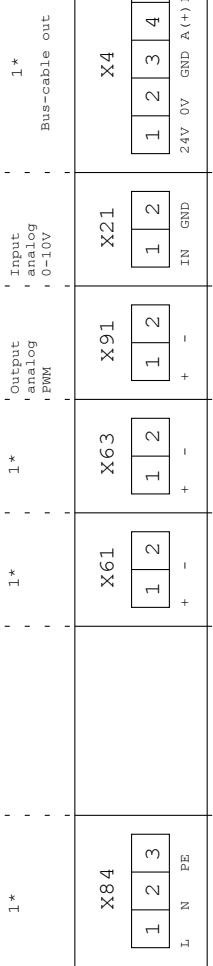
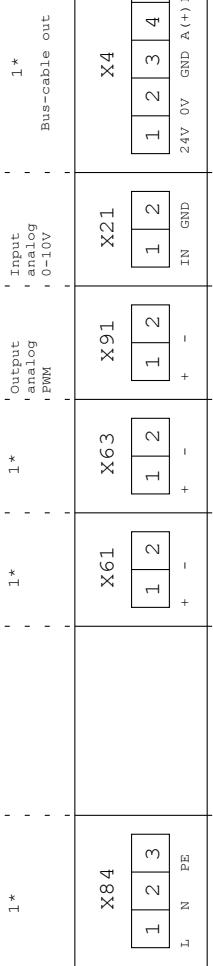
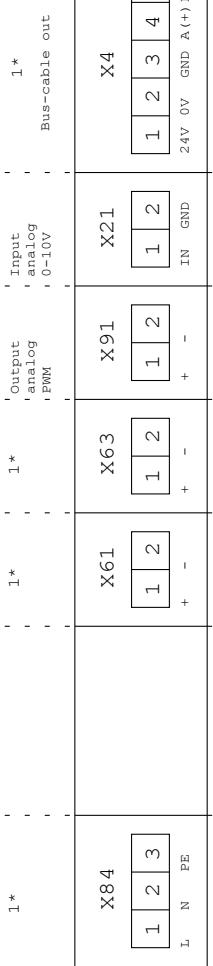
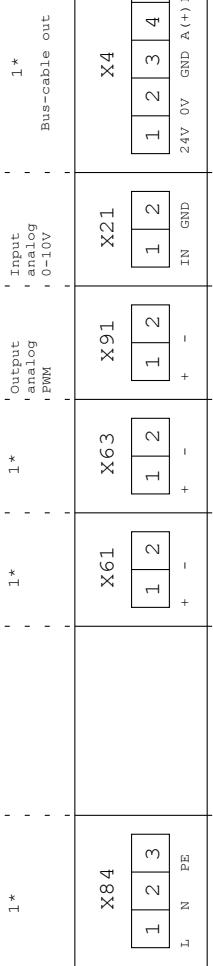
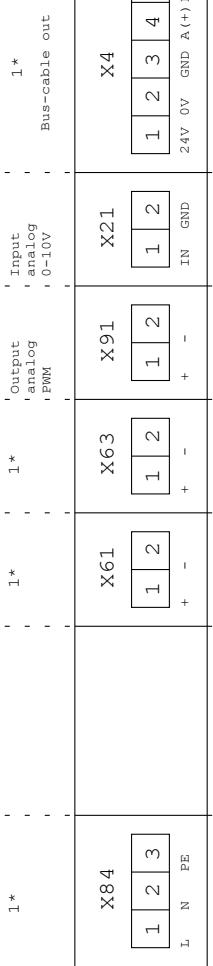
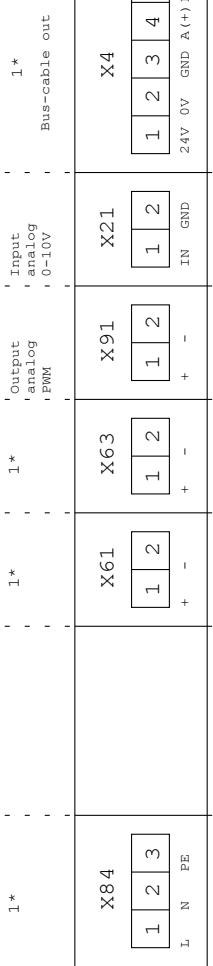
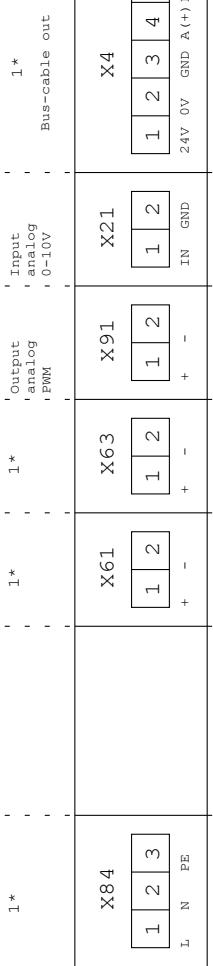
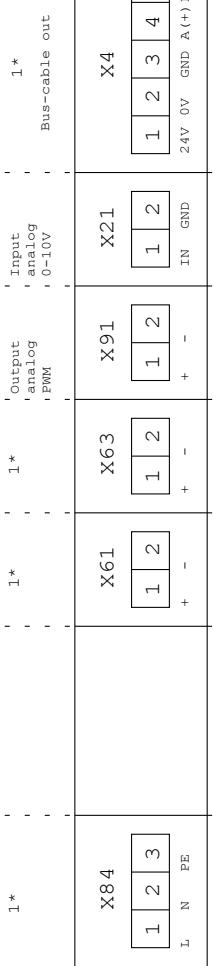
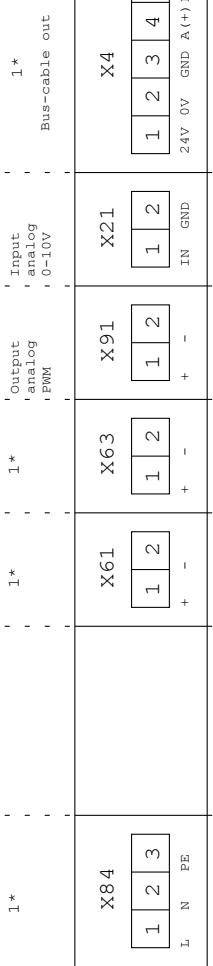
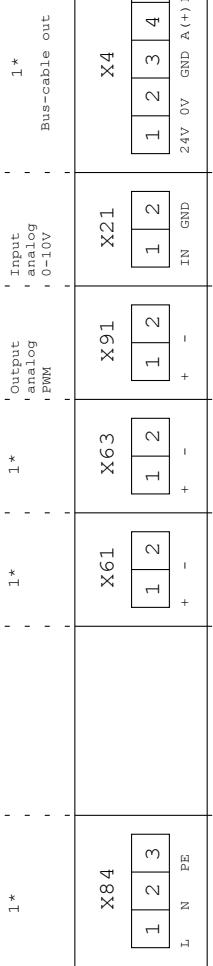
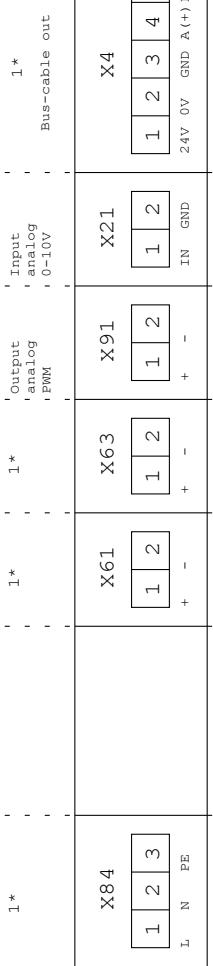
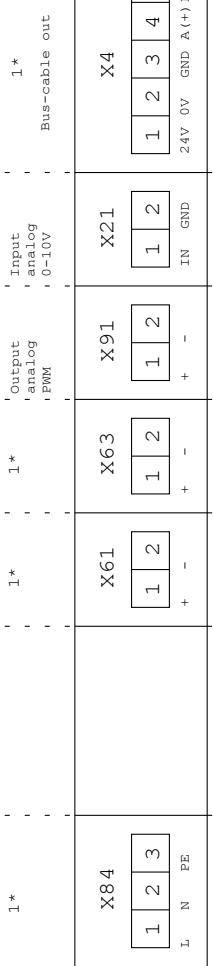
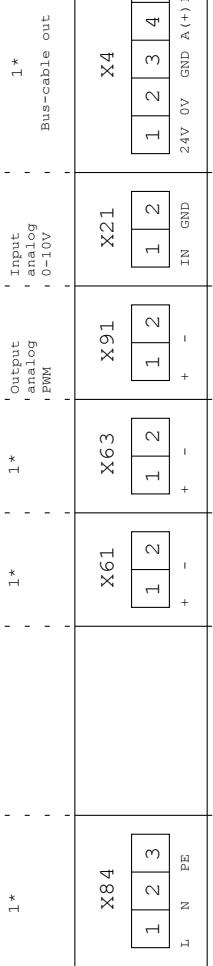
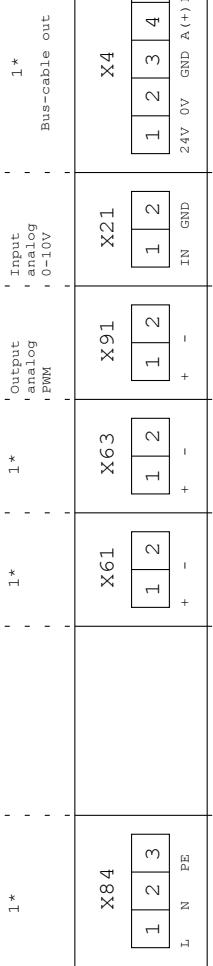
D

E

F



Module address, see hydraulic plan  
binary addressing



0		1		2		3		4		5		6		7		8
---	--	---	--	---	--	---	--	---	--	---	--	---	--	---	--	---

A

Shown module address = 5

1\* = Configuration see hydraulic plan

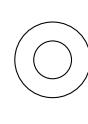


\*only for EM8+EM4  
Bus-cable for  
X9 EM4

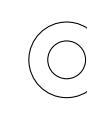
Module Address, see hydraulic plan binary addressing

B

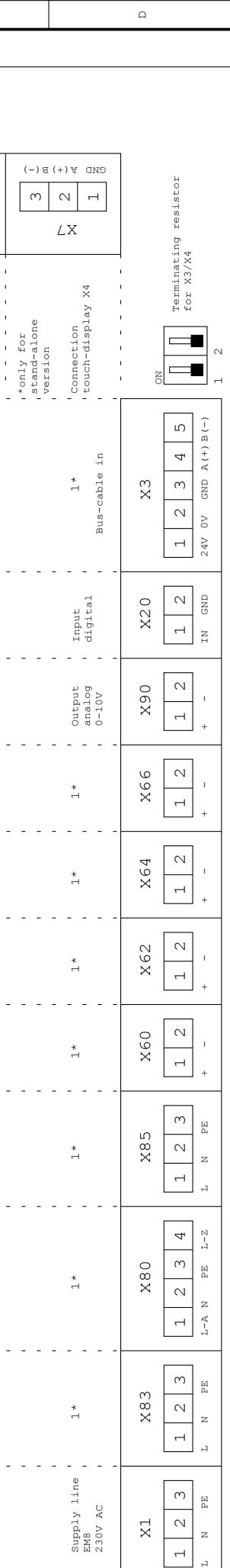
F2/T10A



F1/T10A



C



D



HDG Control EM8

Voltage supply to the next extension module

E

F

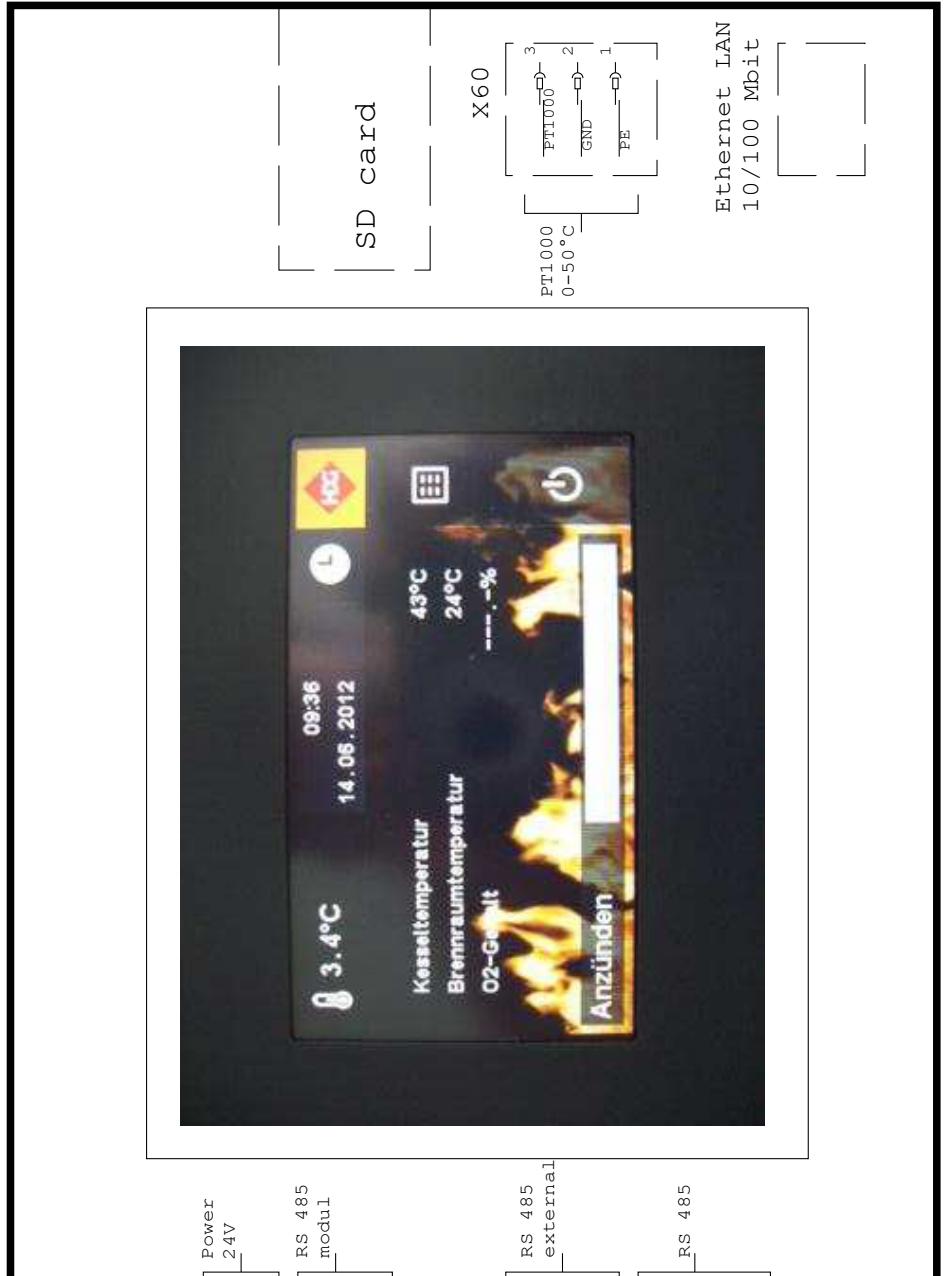
HDG-Bavaria GmbH	Date	30.06.16	Brodschelm	Stromlaufplan	Project number	Unit	=
Siemensstraße 22						Field	+
84323 Massing							
WORk							
WORk							
WORk							
0	1	2	3	4	5	6	7
							8

F

Wiring diagram No.

sheet 3 of 14

# HDG control unit



A

B

C

D

E

8

7

6

5

4

3

2

1

0

F

HDG-Bavaria GmbH		Date	30.06.16	Brodtschellm	Stromlaufplan	Project number	Unit	=
Siemensstraße 22		W.O.R.K.					Field	+
84323 Massing		W.O.R.K.					Wiring diagram No.	
0	1	2	3	4	5	6	7	8

sheet 4  
of 14

0		1	2	3	4	5	6	7	8
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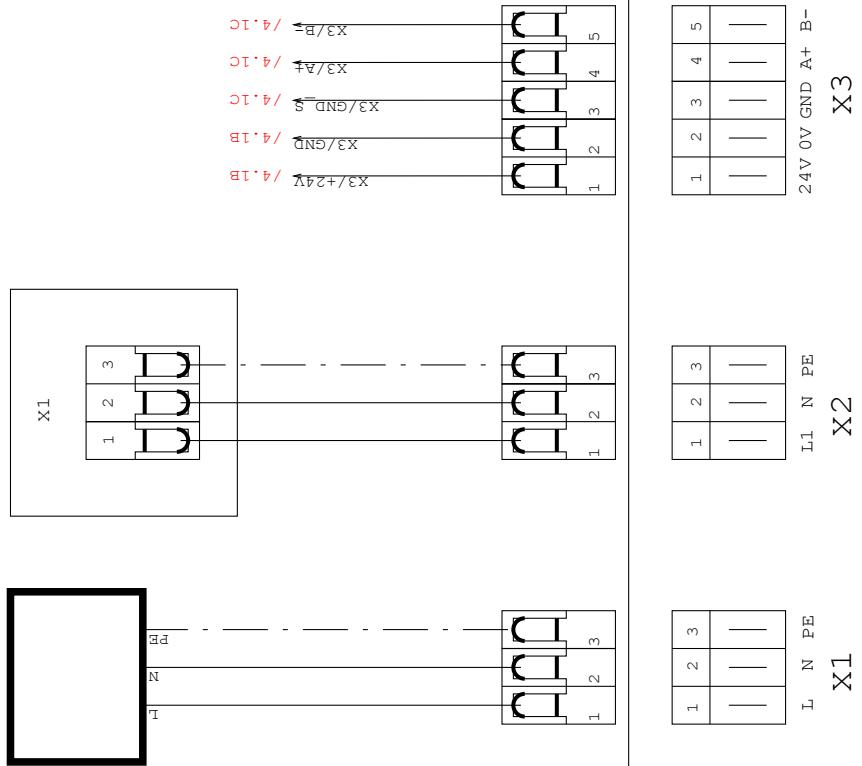
A Supply line  
B Voltage supply  
expansion module  
EM4 or EM8

C Bus-cable to  
control unit

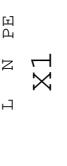
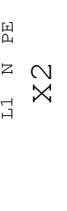
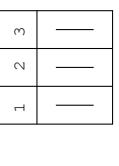
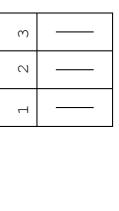
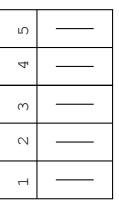
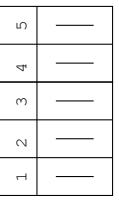
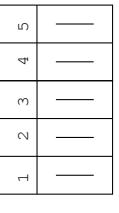
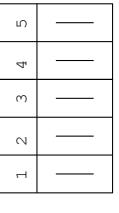
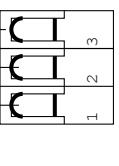
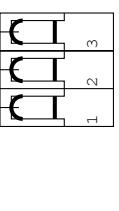
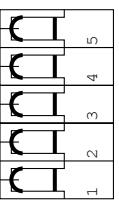
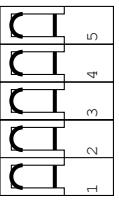
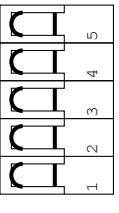
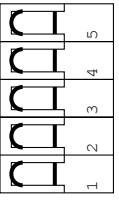
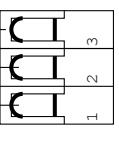
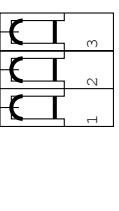
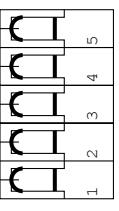
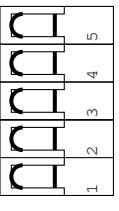
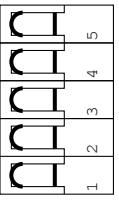
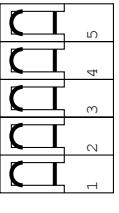
D Reserve

E Bus-cable to  
extension module

F Reserve



## HDG central module



HDG-Bavaria GmbH	Date	30.06.16	Broschüre	Stromlaufplan	Project number	Unit	=
Siemensstraße 22	WORK				Field		
84323 Massing	WORK						
	0	1	2	3	4	5	6



sheet 5  
of 14

0	1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---	---

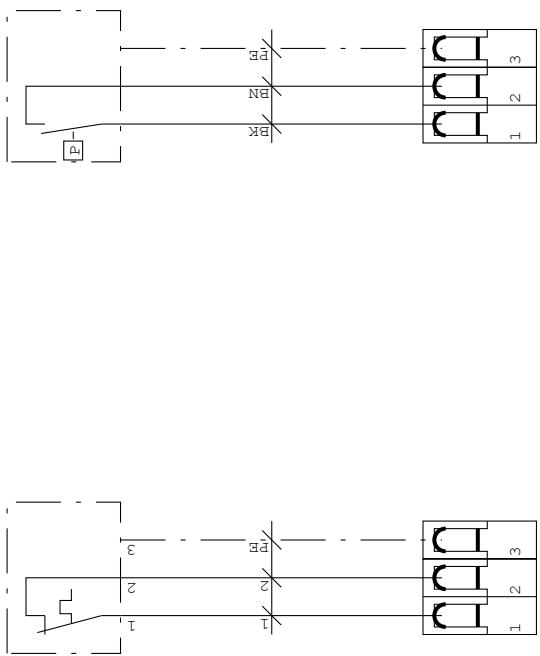
Overheat temperature

Water deficiency

Reserve with  
wire jumper

Reserve with  
wire jumper

A

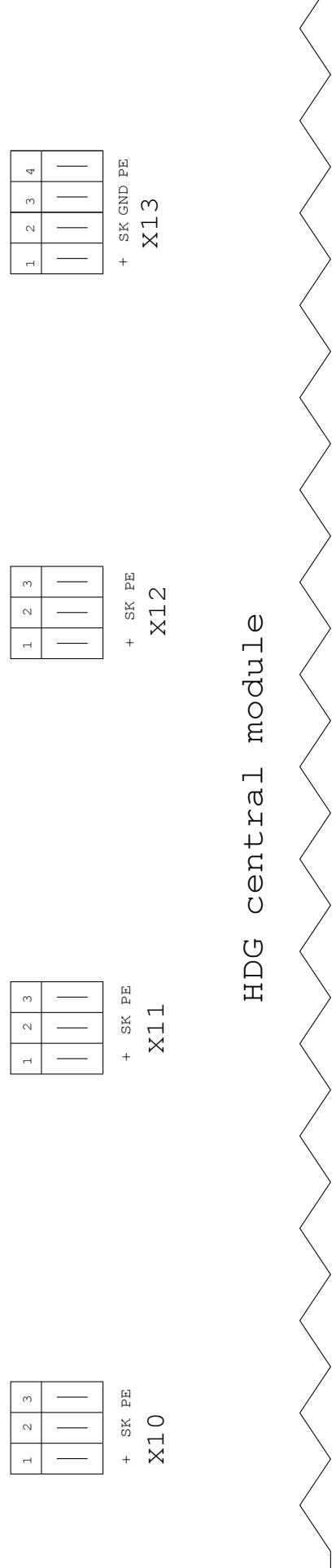


B

C

D

## HDG central module



E

F

HDG-Bavaria GmbH		Date	30.06.16	Brodschelm	Stromlaufplan	Project number	Unit	=
Siemensstraße 22	WORK						Field	+
84323 Massing	WORK							
	WORK	0	1	2	3	4	5	6
								7
								8

Wiring diagram No. sheet 6 of 14

HDG logo

0		1	2	3	4	5	6	7	8
---	--	---	---	---	---	---	---	---	---

A Flow Sensor PT1000      Reserve sensor PT1000      Flue gas Temperature Sensor NiCrNi      Lambda sensor LSU 4.9      Reserve

Reserve

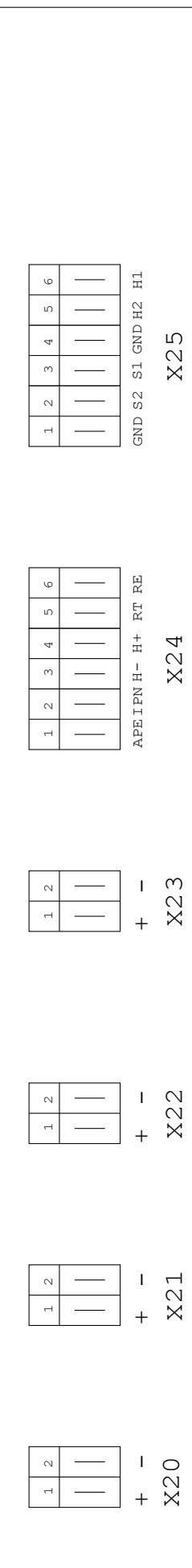
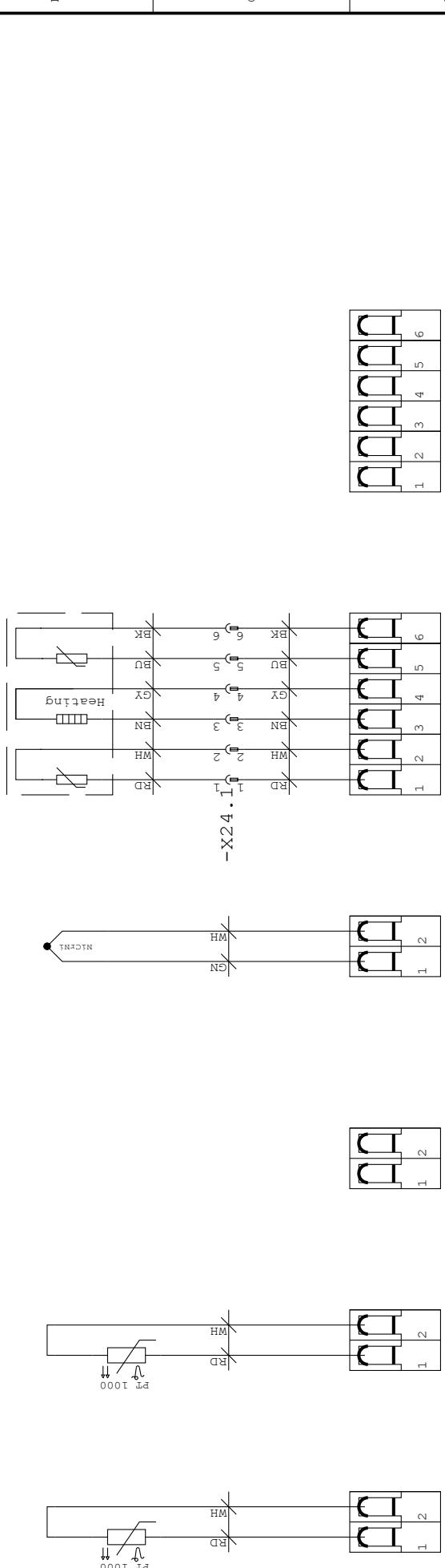
Lambda sensor LSU 4.9

Flue gas Temperature Sensor NiCrNi

Reserve

Flow Sensor PT1000

Flue gas Temperature Sensor NiCrNi



## HDG central module



HDG-Bavaria GmbH		Date	30.06.16	Brodtschelln	Stromlaufplan	Project number	Unit	=
Siemensstraße 22	WORK						Field	+
84323 Massing	WORK							
0	1	2	3	4	5	6	7	8



Siemensstraße 22  
84323 Massing

Wiring diagram No. sheet 7  
of 14

0		1		2		3		4		5		6		7		8
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Hall sensor  
flue gas fan

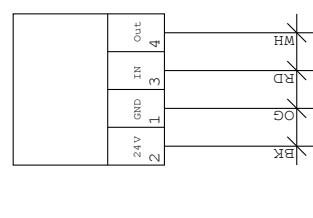
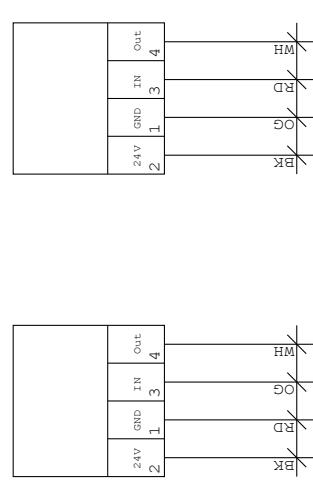
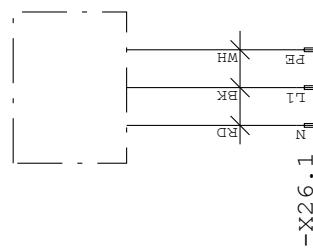
Reserve  
Reserve

Actuator  
secondary air

Actuator  
primary air  
(Input analog  
power)

Reserve

Actuator  
(Input analog  
vacuum)



B

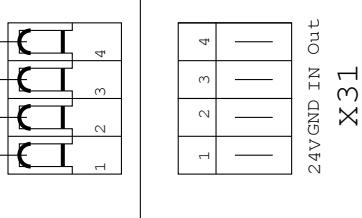
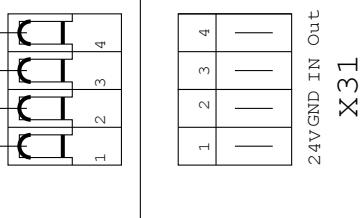
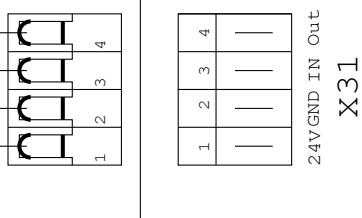
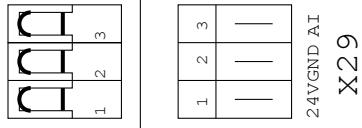
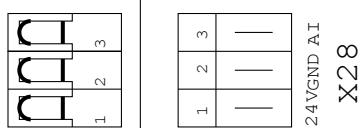
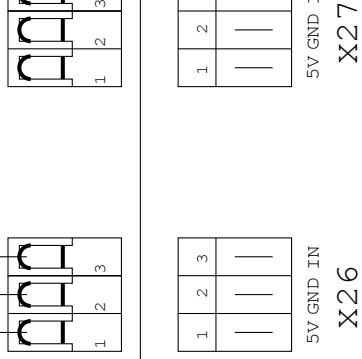
C

D

E

A

F



B

C

D

E

F

## HDG central module



HDG-Bavaria GmbH  
Siemensstraße 22  
84323 Massing



Date	30.06.16	Brodtschellen	Stromlaufplan	Project number
WORK				Unit =
WORK				Field +

Wiring diagram No.	sheet 8
WORK	of 14

0	1	2	3	4	5	6	7	8
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0		1	2	3	4	5	6	7	8
---	--	---	---	---	---	---	---	---	---

A

Reserve      Limit switch  
Heat exchanger  
cleaning

Reserve

Reserve

Differential  
pressure  
switch  
automatic  
ignition system

B

External demand      Reserve

Reserve

DDC

1 2 3

P

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

C

External demand      Reserve

DDC

P

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

D

External demand      Reserve

DDC

P

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

E

External demand      Reserve

DDC

P

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

F

External demand      Reserve

DDC

P

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

1 2 3

## HDG central module



HDG-Bavaria GmbH  
Siemensstraße 22  
84323 Massing

Date	30.06.16	Broschüre	Stromlaufplan	Project number
WORK				Field
WORK				+ sheet 9 of 14

Wiring diagram No.

0		1	2	3	4	5	6	7	8
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4\*  
Boiler sequential  
circuit

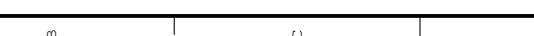
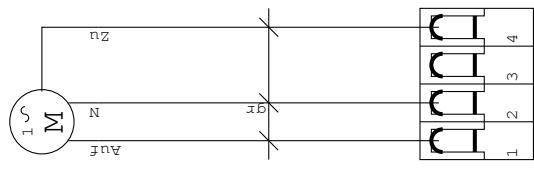
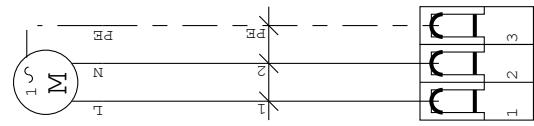
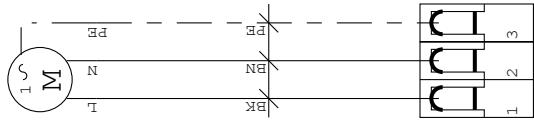
4\*  
Reserve

4\*  
Operating message

4\*  
Fault message

Fan  
central module

A



B

C

D

C

D

E

E

4\* = Kontakt potential-free  
230V 10A max.

## HDG central module

sheet 10  
of 14

Project number  
Wiring diagram No.



HDG-Bavaria GmbH  
Siemensstraße 22  
84323 Massing

F

Date	30.06.16	Brodschelln	Stromlaufplan	Unit	=
WORK				Field	+
WORK					
WORK					

0		1	2	3	4	5	6	7	8
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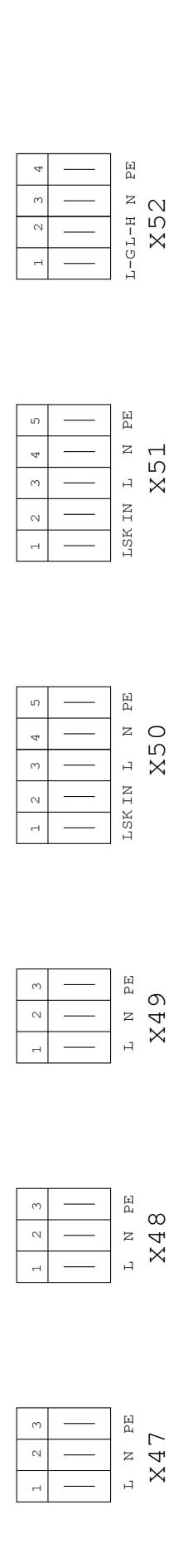
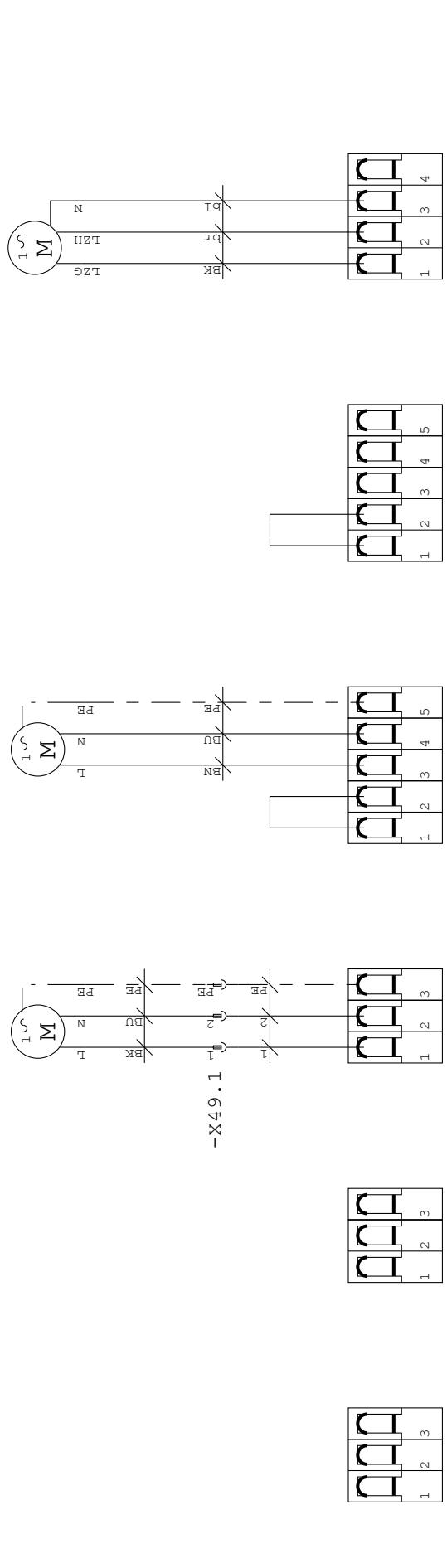
Reserve

Flue gas fan

Heat exchanger cleaning

Reserve with  
wire jumper

Ignition fan



## HDG central module



HDG-Bavaria GmbH	Date	30.06.16	Brodtschelln	Stromlaufplan	Project number	Unit	=
Siemensstraße 22	work				Field		+
84323 Massing	work				Wiring diagram No.		
0	1	2	3	4	5	6	7

F



sheet 11  
of 14

0		1	2	3	4	5	6	7	8
---	--	---	---	---	---	---	---	---	---

A

1\*

1\*

1\*

1\*

1\*

1\*

1\*

B

1\*

1\*

1\*

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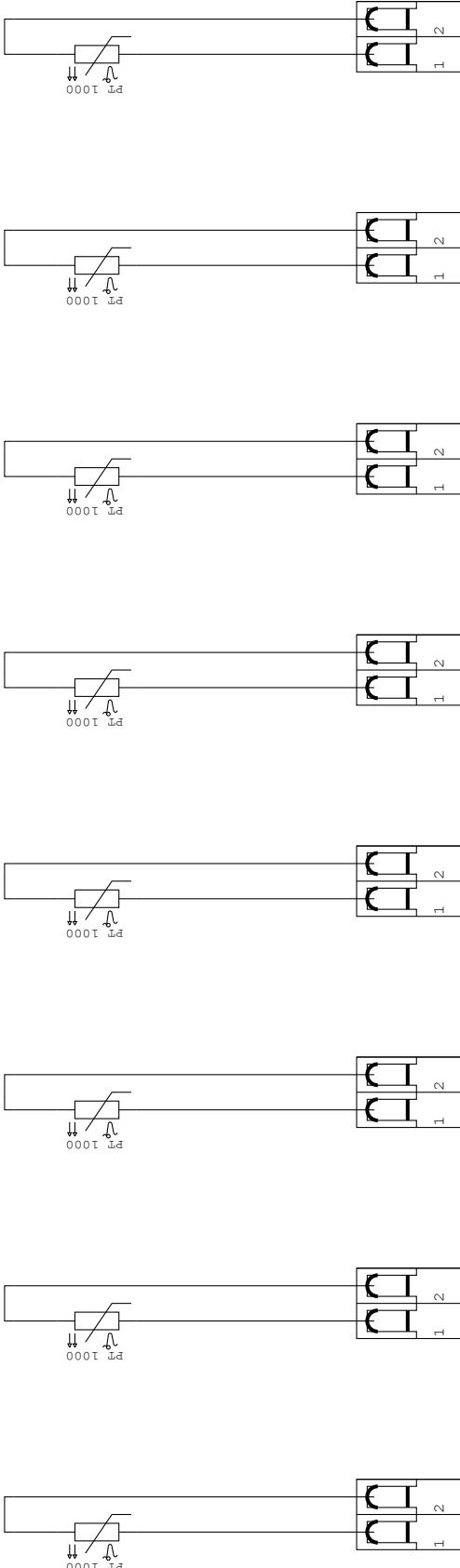
1\*

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1\* = Configuration see hydraulic plan

## HDG central module

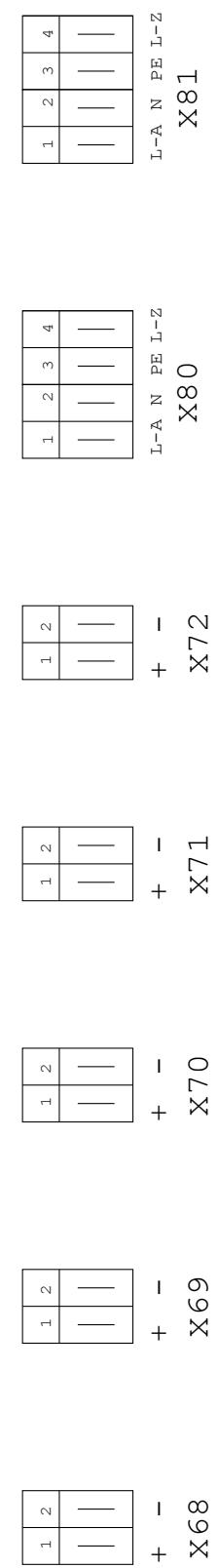
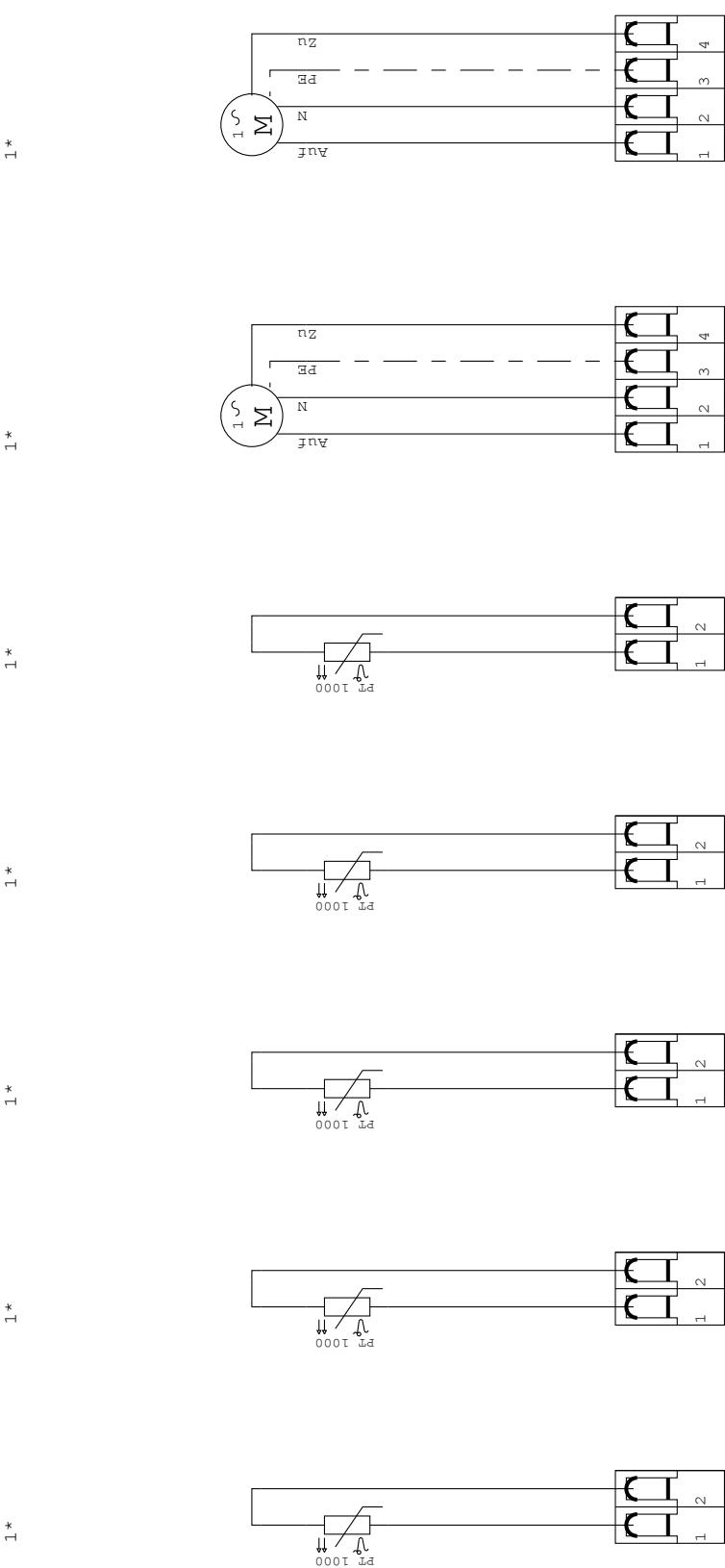
Unit	=	
Field	+/-	
sheet	12	
of	14	

Project number	
Wiring diagram No.	

Date	30.06.16	Broadschellm	Stromlaufplan
WORK			
WORK			
WORK			



HDG-Bavaria GmbH  
Siemensstraße 22  
84323 Massing



$1^*$  = Configuration see hydraulic plan

HDG central module

0		1		2		3		4		5		6		7		8
---	--	---	--	---	--	---	--	---	--	---	--	---	--	---	--	---

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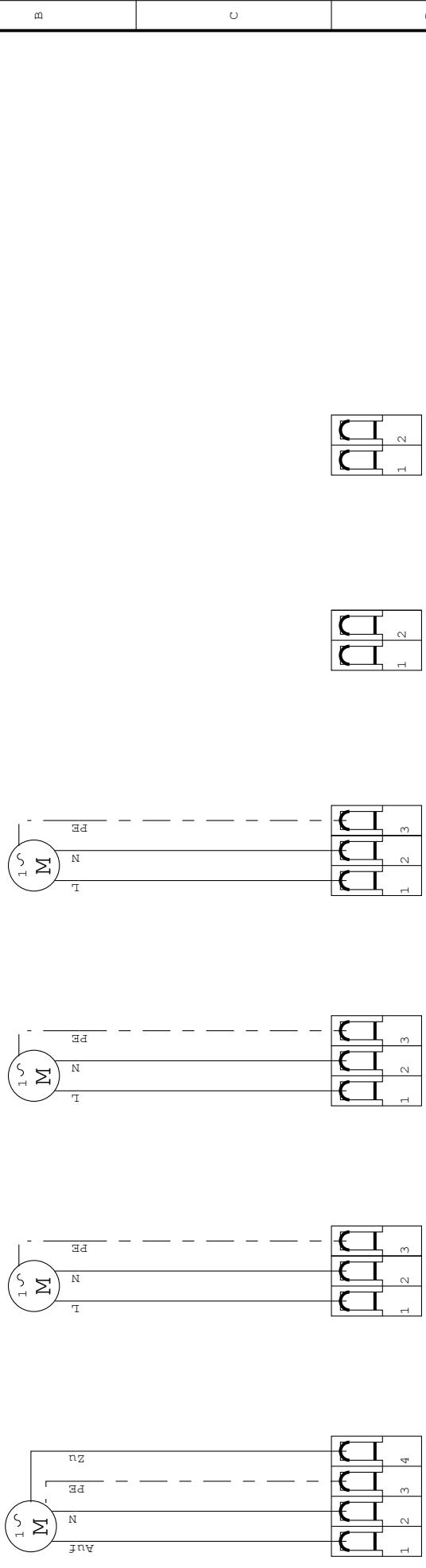
F

Output  
analogOutput  
analog 0-10V

1\*

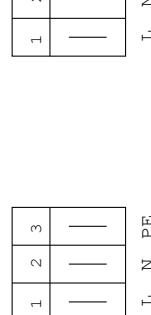
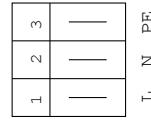
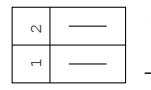
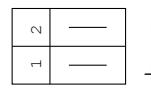
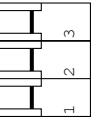
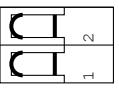
1\*

1\*



1\* = Configuration see hydraulic plan

## HDG central module



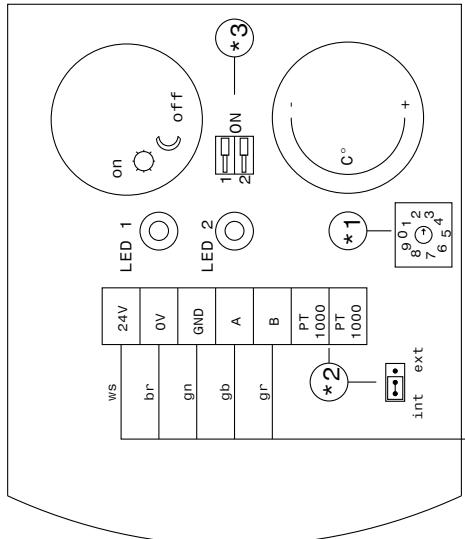
HDG-Bavaria GmbH	Date	30.06.16	Brodtschelln	Stromlaufplan	Project number	Unit	=
Siemensstraße 22	WORK				Field		+
84323 Massing	WORK						
	WORK						

Wiring diagram No. sheet 14 of 14

# Room control unit BUS for HDG Control

0      1      2      3      4      5      6      7      8

A



\*1: Selection heating circuit 1-6

\*2: Jumper "int": internal sensor is used

Jumper "ext": a external sensor is connected on the clamps PT1000

\*3: Terminating resistors ( standard setting ,ON")

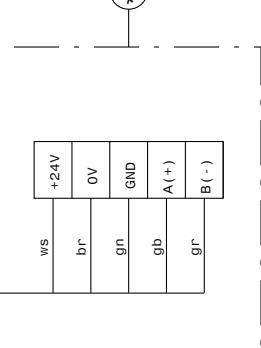
Both slide switches position ,OFF" -> Terminating resistors not activated

Both slide switches position ,ON" -> Terminating resistors activated

\*4: Cable LIYY-OB 5x0,5

\*4

D



\*5: X4 central module, EM8, EM8 + EM4 or X5-X9 switch

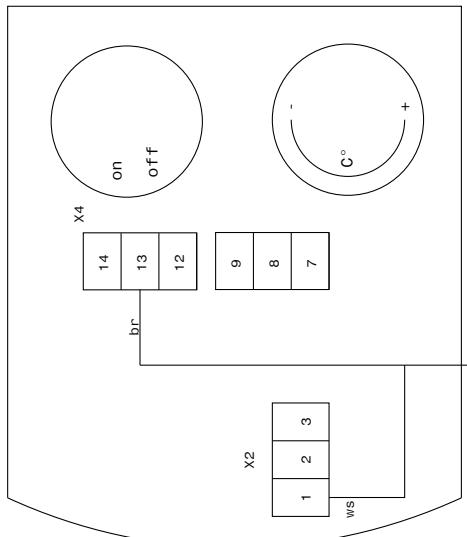
\*5

E

F

Status	rev.	Date	Name norm	DIN 81346	created for	created from	Project number		Unit	Field	=
							Drawing number				
0		1		2	3	4	5	6	7	8	1

# Room control unit LIGHT for HDG Control



\*1

\*1: Cable LIYY 2x0,5

\*2

\*2: Module and Plug number see hydraulic plan



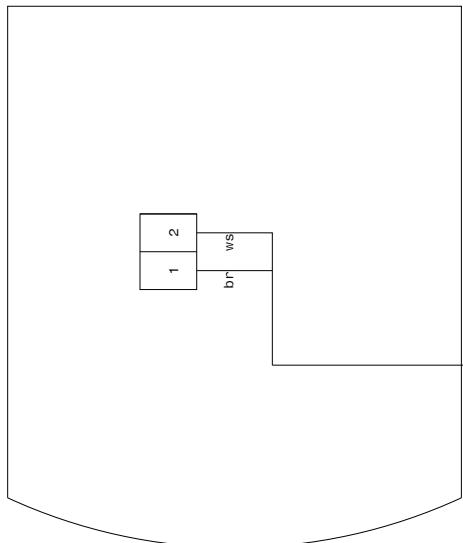
Kontrolltechnik  
Meier, Münster

Project number	Unit
	=
Field	+
Drawing number	Page

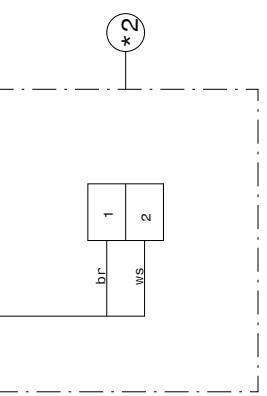
1	of
8	8

Status	rev.	Date	name	norm	DIN 81346	created for	created from	Kontrolltechnik Meier, Münster	Field	Drawing number	Page
0	0	0	1	1	2	3	4				1

# Room control sensor for HDG Control



\*1: Cable LIYY 2x0,5



\*2: Module and Plug number see hydraulic plan

0	1	2	3	4	5	6	7	8
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Zustand	Änderung	Datum	Name	Norm	DIN 81346	Ers. f.	Ers. d.	Projekt-Nummer		Anlage	
								Ort	=	Zeichnungsnummer	Page
0		1			2	3	4	5	6	7	8



**HDG Bavaria GmbH**

Heizsysteme für Holz  
Siemensstraße 22  
D-84323 Massing  
Tel. +49(0)8724/ 897-0  
[info@hdg-bavaria.com](mailto:info@hdg-bavaria.com)  
[www.hdg-bavaria.com](http://www.hdg-bavaria.com)