

Overview of the ES 2020 Platform Print

## Low power side

- L1 / L2 - 4 x analog output  
+ 1 x 10K NTC sensor  
Aout1 / Aout2 / Aout3 / Aout4 0-10V / T1

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- L3 - a3 x 10K NTC sensor.  
+ 30 to +130°C **T2 / T3 / T4**  
NTC input can be changed to  
Digital input in software

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- L4 / L5 - 3 x digital input / **D1 D2 D3**  
1 x analog input / Ai1  
1 x 10K NTC sensor T5

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- L6 - 3 x 10K NTC sensor.  
+ 30 to +130°C **T6 / T7 / T8**  
NTC input can be changed to  
Digital input in software

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- L7 - 5 x analog input / **Ai2**  
**Ai3 / Ai4 / Ai5 / Ai6**  
Connector L7 - 7 = +5V DC  
output for humidity sensor

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- L8 - Power 24V - 0.5A / 12VA // The  
load 0,5A total for connected  
accessories.

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- L10 - Control Signal 2 x Ventilators  
and 2 x NPN Outputs

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- L11 MOD-BUS 1**
- L12 2 x NPN output / NPN2 - NPN3

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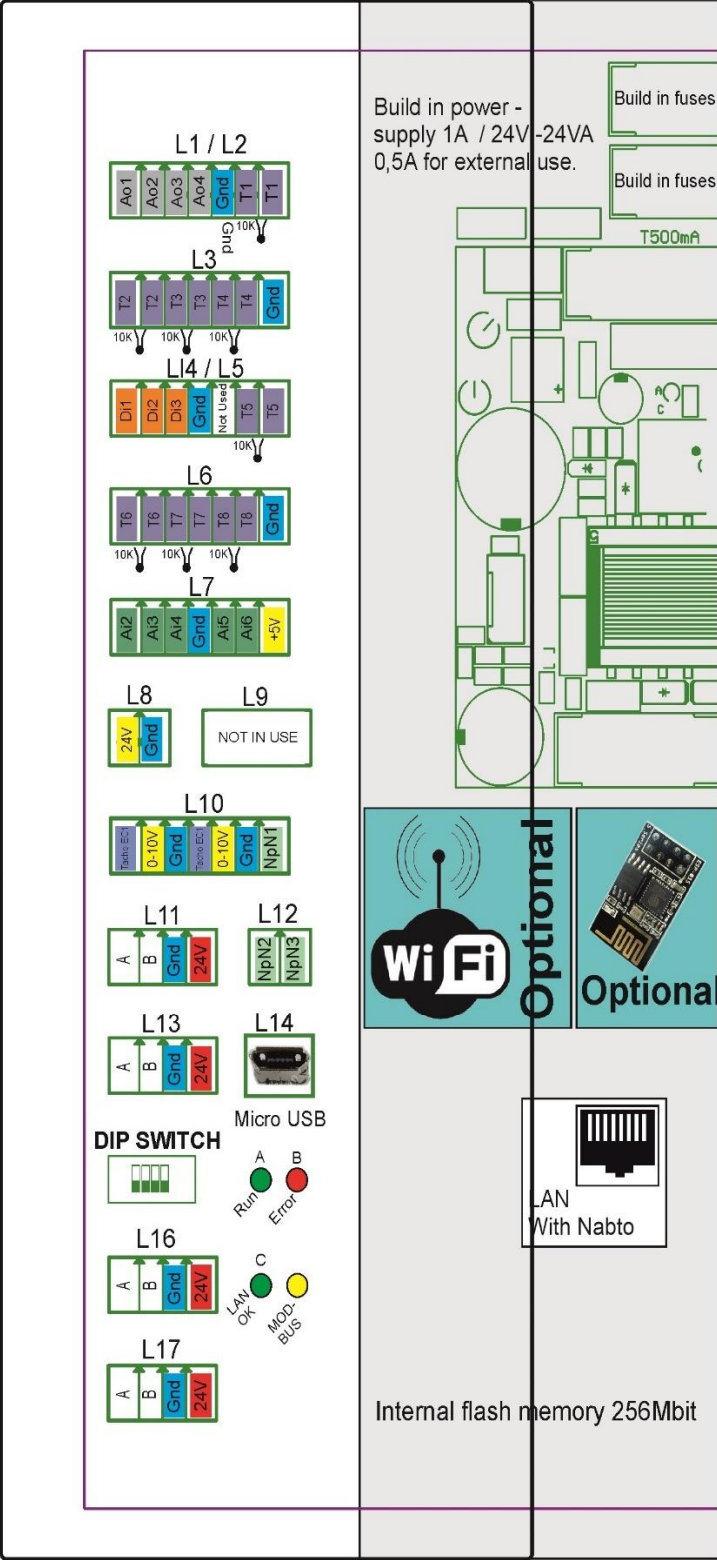
- L13 MOD-BUS 2**
- L14 Mini USB / connects PC

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- L16 MOD-BUS 3**


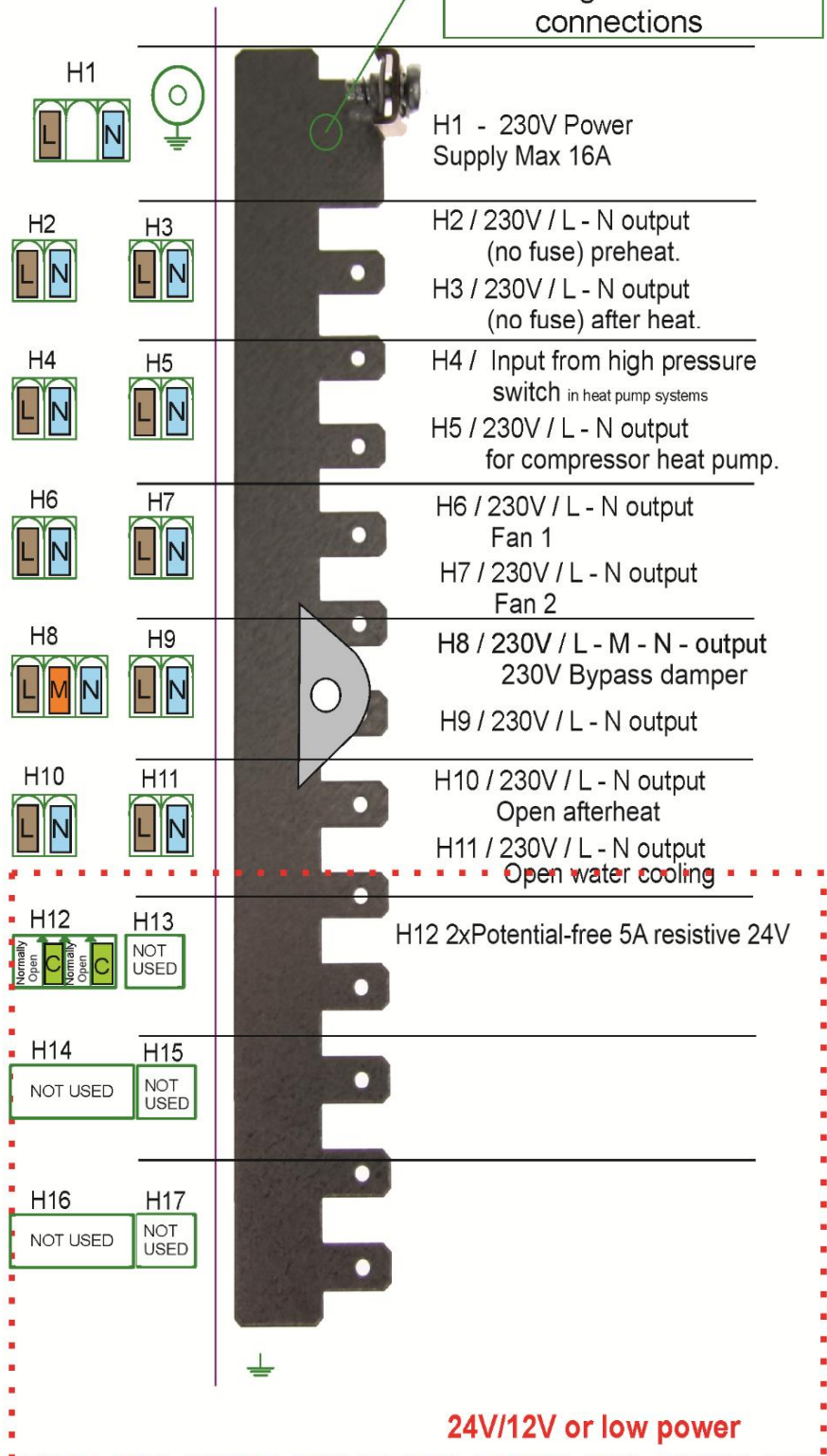
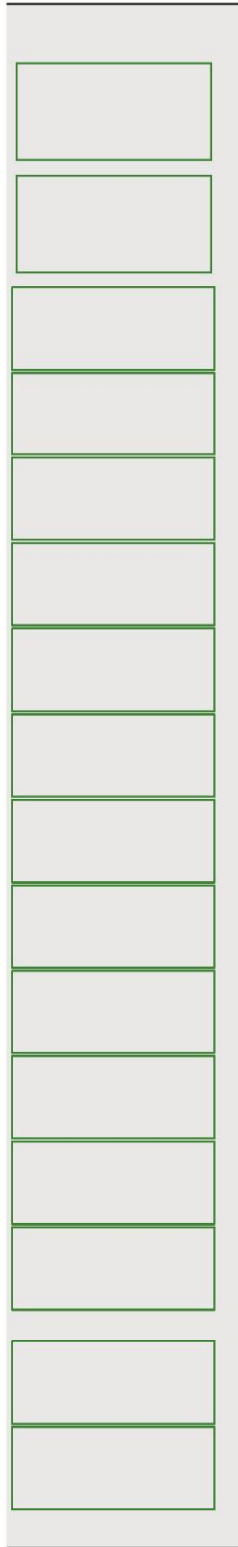
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- L17 MOD-BUS 4**



## Power side






















Ground connection:  
Point for collection of 12 ground connections

**24V/12V or low power**

## Describing the ES 2020 Platform Input and Output Connections

### Sensor / Actuator interfaces

Terminal	plug	Function	Contacts	IO-Type
H1		Supply	L + N	Supply voltage 230V / 16A
H2		Preheat (Electric or Solarpump e.g.)	L + N	Switch output 230V / 10A without fuse
H3		post-heating register stage 1 electrical or mixer OPEN or heating request external*	L + N	Switch output 230V / 10A without fuse
H4		Heat pump inputs	L + N	Input high pressure switch in heat pump systems
H5		post-heating register stage 2 electrical or mixer CLOSED or external cooling request *	L + N	Switch output 230V
H6		Ventilator 1 (Supply Air) – Supply	L + N	Switch output 230V for Ventilator
H7		Ventilator 2 (Exhaust Air) - Supply	L + N	Switch output 230V for Ventilator
H8		Bypassmotor Belimo	L + M + N	Switch output 230V for Bypass
H9		Exhaust air and Outside air Flap	L + N	Switch output 230V for Flaps
H10		Pump post-heating register	L + N	Switch output 230V
H11		Pump Combination register or Pumpe cooling register	L + N	Switch output 230V
H12A		Fault message output	L + N	Potential free Contact (Load max. 5A)
H12B		Signal output filter	L + N	Potential free Contact (Load max. 5A)
H14		Not in use	Not in use	Not in use
H15		Not in use	Not in use	Not in use
H16		Not in use	Not in use	Not in use
H17		Not in use	Not in use	Not in use
L1+L2		heating / cooling / combination register control signal (Electric or mixer) Temperature sensor Outside air	Ao1+Ao2+Ao3+Ao4+GN D+T1	4 x Analog Output 0-10V DC + 1 x NTC10kOhm
L3		Temperature sensors (Supply air, extract air, exhaust air)	T2+T3+T4	3 x NTC10kOhm
L4		External Off (or output) / BMZ = D1 Intensive ventilation = D2 Frost protection = D3	D1+D2+D3	3 x digital Inputs 0/1
L5		Temperature sensor VHR	T5	1 x NTC10kOhm
L6		Temperature sensors (Supply air) <sup>2</sup> + External <sup>2</sup> <sup>1</sup> + Room Sensor external)	T6+T7+T8	3 x NTC10kOhm













L7		2xCO2 + 2xRF Sensor + 1xVOC	Ai2+Ai3+Ai4 +Ai5+Ai6	5 x Analog Input
L8		Supply 24V	24V + GND	Supply 24V / 0,5A
L9		Not in use	Not in use	Not in use
L10		Control Signal & ventilators	Tacho/0-10V/GND NPN1 and NPN2	Control Signal 2 x Ventilators and 2 x NPN Outputs
L11		BMS ( building automation)	ModBus 1	RS485
L12		Control SSR	NPN2 and NPN3	2 x NPN Outputs
L13		Control panel Touch	ModBus 2	RS485
L14		Service interface	Micro USB	Micro USB for Datalogger
L15		DIP SWITCH		
L16		Ventilatoren 1 + 2 Kommunikation	ModBus 3	RS485
L17		Sensoren CO2, RF, VOC	ModBus 4	RS485
LAN		Ethernet Interface	RJ45	NABTO Webserver
<u>Remarks:</u> <sup>1)</sup> Outside temperature sensor for the changeover flap of the EWT				

Figure 1: I/O Assignments of the PCB

\*) Only the requirements are described externally in BDA and E-Plan