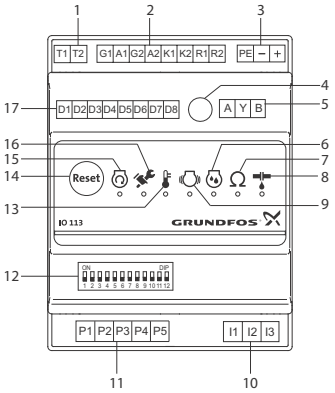

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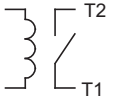
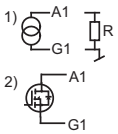
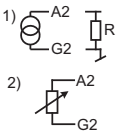
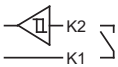
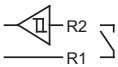
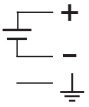
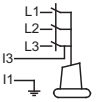
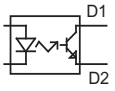
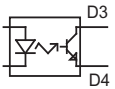
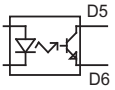
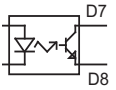
Fig. 24 IO 113 module

Pos.	Terminal	Description	Data	Function	Diagram
1	T1	Terminal for alarm relay	Max. 250 VAC	All alarms trip the alarm relay. The alarm relay is closed during normal operation. In case of alarm or if IO 113 is not connected to the power supply, the relay opens and breaks the connection between T1 and T2.	
	T2	Terminal for alarm relay	Max. 250 VAC		
2	G1	GND for analog output 1	1) 0 V 2) 0 V	Analog output 1 has two functions set via DIP switch 8. 1. 4-20 mA for content of water in the oil. Load resistance: max. 250 Ω. 2. Pulse output for content of water in the oil and stator insulation resistance.	
	A1	Terminal for analog output 1	1) 15 VDC 2) 24 VDC, max. 100 mA		
	G2	GND for analog output 2	1) 0 V 2) 0 V	Analog output 2 has two indications set via DIP switch 7. 1. 4-20 mA for stator winding temperature. Load resistance: max. 250 Ω. **Note**: There is no 4-20 mA signal if the pump is installed with PTC sensor. 2. Pt1000 emulator for stator winding temperature.	
	A2	Terminal for analog output 2	1) 15 VDC 2) 24 VDC, rated 1 mA		
	K1	GND connection	0 V	Feedback from motor contactor whether the pump is running or not. Short-circuit the input when the pump is running. The signal is used by IO 113 for filtering measuring signals and for analysis during fault indication.	
	K2	Terminal for conductor for contactor status	Digital input		
	R1	GND connection	0 V	For resetting of alarms. Short-circuit the input when alarms are reset.	
	R2	Terminal for resetting	Digital input		

Pos.	Terminal	Description	Data	Function	Diagram
3	PE	Earth	Earth	Supply voltage to IO 113	
	-	GND for supply voltage	0 VDC 24 VAC + 10 %/- 10 %		
	+	Positive for supply voltage	24 VAC + 10 %/- 10 % 24 VDC + 10 %/- 10 %		
5	A	RS-485 A	Bus input	RS-485 communication connection (9600 baud)	A Y B
	Y	RS-485 GND	0 V		
	B	RS-485 B	Bus input		
10	I1	Earth	Earth	The insulation resistance between stator windings and earth is measured. The measurement is only correct when the motor is stopped. Measurement voltage: 10 VDC.	
	I2	Not connected	-		
	I3	Terminal for measurement of stator insulation resistance	CAT II 600 V		
11	P1	Terminal for sensors in the pump	Sensor input	Thermal switch or PTC sensor according to DIN 44081 and 44082. P1 to P5 are used for the connection of sensors in the pump. All sensors in contact with phase voltage must be double insulated according to UL/ IEC/EN 61010-1.	
	P2	Terminal for supply voltage to sensors in the pump	15 V		
	P3	Terminal for sensors in the pump	Sensor input		
	P4	Terminal for supply voltage to sensors in the pump	15 V		
	P5	Terminal for sensors in the pump	Sensor input		

Pos.	Terminal	Description	Data	Function	Diagram
17	D1	Terminal for alarm in case of too high stator temperature	Digital output 24 VDC Min. impedance 10 kΩ Max. rated current 2.4 mA	Alarm for temperature too high in the stator windings. The output is closed during normal operation. If an alarm occurs, the connection is broken between D1 and D2.	
	D2	GND for alarm in case of too high stator temperature	0 V		
	D3	Terminal for alarm in case of moisture in the pump	Digital output 24 VDC Min. impedance 10 kΩ Max. rated current 2.4 mA	Alarm for moisture in the motor part of the pump. The output is closed during normal operation. If an alarm occurs, the connection is broken between D3 and D4.	
	D4	GND for alarm in case of moisture in the pump	0 V		
	D5	Output for alarm in case of insulation fault	Digital output 24 VDC Min. impedance 10 kΩ Max. rated current 2.4 mA	Alarm for too low insulation value between stator windings and earth. The output is closed during normal operation. If an alarm occurs, the connection is broken between D5 and D6.	
	D6	GND for alarm in case of insulation fault	0 V		
	D7	Terminal for warning	Digital output 24 VDC Min. impedance 10 kΩ Max. rated current 2.4 mA	**Warning**: The output is closed during normal operation. If a warning occurs, the connection is broken between D7 and D8. The following warnings can occur: – communication warning – configuration warning – too much water in the oil – stator insulation resistance below warning limit.	
	D8	GND for warning	0 V		

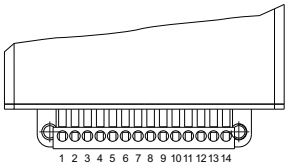


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Fig. 13 Connection pins

Pin	Type	Description
1	4-20 mA	Vibration sensor
2	4-20 mA	Spare input
3	13.5 VDC	Supply output for 4-20 mA sensors
4	4-20 mA	Water-in-oil/water-in-air sensor
5	GND	Common ground for sensors
6	P5	Communication signal for IO 113
7	PE	Protective earth
8	P4	Supply input for sensor board from IO 113
9	N/A	-
10	Pt1000	Stator temperature
11	Speed	Reserved
12	Pt100/ Pt1000	Main bearing temperature
13	Pt100/ Pt1000	Support bearing temperature
14	Pt100/ Pt1000	Stator temperature