eco^manager-*touch* controller: Modbus TCP register data

SOLARFOCUS **eco**manager-*touch*

e.g. LOXONE Smart Home

1 Contents of the manual

This manual describes the **Modbus TCP register data** of the SOLARFOCUS **eco**manager-*touch* controller, e.g. for communication with a LOXONE controller.

Usage example:

- Exporting parameters from the **eco**manager-*touch* controller, for display in LOXONE.
- Importing required value parameters into the **eco**manager-*touch* from LOXONE.

Installation and configuration of this function must be performed by the customer, i.e. they are not included in the commissioning and service activities for your SOLARFOCUS (heating) system.

2 Requirements

Requirements for using the TCP-Modbus functionality:

- **eco**manager-*touch* controller with 7" display.
- Required software version of the **eco**manager-*touch* controller:

Product	Software version
thermi^nator II touch boiler	from V 19.072
pellet^elegance, octo^plus, pellet^top touch boiler	from V 19.050
eco^manager-*touch* central control	from V 19.050
vamp^air heat pump	from V 19.050

3 The Modbus-TCP interface

- The connection is implemented via port 502 (standard port for Modbus-TCP).
- The UnitIdentifier (UnitID) for the connection to the slave is 1.
- To establish a connection with the panel, all that needs to be known is the IP address of the control. The connection can be established via the master (Loxone-Config[1] or similar). The precondition for this is that the display and the master are located on the same network

[1] Help on the Loxone-Config or similar programs is available on the provider's website or in the operating manual for the mini server, etc.

4 Settings in the **eco**manager-*touch* controller

Enabling the Modbus TCP interface

The interface must be enabled on the *Modbus TCP* screen as a one-off action.

Modbus TCP screen

- Enable the Modbus TCP *1* parameter.
  - The colour green with the *Interface enabled* parameter indicates that the interface is available.

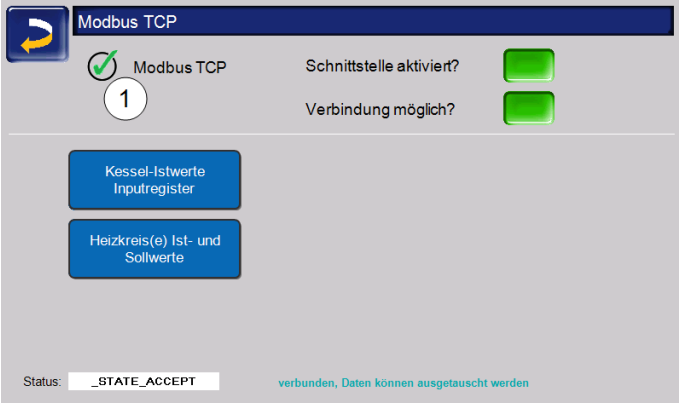

Fig. 4-1

To access the *Modbus-TCP* screen, select
- *Selection menu* screen
- *Customer menu* screen
- *Qualified personnel* screen (*Wrench* symbol)

5 Input – Register data (actual values)

The input register data represents the actual values, i.e. this data can only be read by the master. The input register can be read using the **Functioncode 0x04**.

			Heating circuit (1 to 8)					
No.	Adr.	Quantity Reg.	Designation	Type	unit	Scal.	Comment	from version
1	1100	1	Flow temperature	int16	°C	1/10	Flow temperature as three-digit value → e.g. value obtained 490 ≙ 49°C	
1	1101	1	Room temperature	int16	°C	1/10	Room temperature as three-digit value → e.g. value obtained 240 ≙ 24°C This value is regarded as an input register when a room temperature sensor from Solarfocus is being used → otherwise the "Actual external room temperature" holding register will be used to export or specify the actual value	
1	1102	1	Humidity	int16	%	1/10	Room humidity in % The room humidity is regarded as an input register when the room control unit with humidity sensor (article no. 26610) is in use → otherwise the "External room humidity" holding register can be used to specify and read a value	
1	1103	1	Limiting thermostat open/closed	uint16	-	-	0…open 1…closed = o.k.	
1	1105	1	Heating circuit pump on/off	uint16	-	-	0…Off 1…On	
1	1106	1	Mixing valve setting	uint16	%	-	Mixing valve setting in % → 0 – 100%	
1	1107	1	Heating circuit status	uint16	-	-	**Enumeration (all except therminator)** 0 .....Heating circuit switched off 1 .....Reduced mode 2 .....Heating mode 3 .....Holiday mode 4 .....Screed program 5 .....Frost protection mode 6 .....Chimney sweep 7 .....Heating circuit not released 8 .....Heat dissipation 9 .....Ambient switch-off temperature heating mode reached 10 ...Room set temperature heating mode reached 11 ...DHW tank priority is active 12 ...Continuous heating 13 ...Continuous reduction mode 14 ...Outside sensor interruption 15 ...Energy source temperature has dropped below minimum 16 ...Flow sensor defective 17 ...Energy source temperature has dropped below minimum, frost protection mode 18 ...Pump test run is active 19 ...Party mode 20 ...Limiting thermostat open 21 ...Pump lag 22 ...Defrost 23 ...Cooling mode 24 ...Cooling has priority 25 ...Heating has priority 26 ...Pool has priority 27 ...Ambient switch-off temperature reduced mode reached 28 ...Room set temperature reduced mode reached 29 ...Min. return temperature – vampair control 30 ...Ambient switch-off temperature cooling reached 31 ...wait for heat pump cooling mode **Enumeration therminator (offset +200)** 200 .. Heating circuit switched off 201 .. Continuous heating 202 .. DHW tank priority is active 203 .. Continuous reduction mode 204 .. Outside sensor interruption or short circuit 205 .. Energy source temperature has dropped below minimum 206 .. Reduced mode 207 .. Heating mode 208 .. Holiday mode 209 .. Screed program 210 .. Frost protection mode 211 .. Chimney sweep 212 .. Heating circuit not released 213 .. Heat dissipation 214 .. Ambient switch-off temperature heating mode reached 215 .. Room set temperature heating mode reached 217 .. Energy source temperature has dropped below minimum, frost protection mode 218 .. Limiting thermostat open 219 .. Pump test run is active 220 .. Buffer temperature top has dropped below min. 221 .. Buffer temperature top has dropped below min., frost protection mode 222 .. Ambient switch-off temperature reduced mode reached 223 .. Reduced mode, reduced priority of the DHW tank active 224 .. Room set temperature reduced mode reached 225 .. Mixer test run is active 226 .. Party mode 227 .. Room set temperature party mode reached 228 .. Ambient switch-off temperature party mode reached	
2	1150	1	Flow temperature	int16	°C	1/10	See heating circuit 1	
2	1151	1	Room temperature	int16	°C	1/10	See heating circuit 1	
2	1152	1	Humidity	int16	%	-	See heating circuit 1	
2	1153	1	Limiting thermostat open/closed	uint16	-	-	See heating circuit 1	
2	1155	1	Heating circuit pump on/off	uint16	-	-	See heating circuit 1	
2	1156	1	Mixing valve setting	uint16	%	-	See heating circuit 1	
2	1157	1	Heating circuit status	uint16	-	-	See heating circuit 1	
3	1200	1	Flow temperature	int16	°C	1/10	See heating circuit 1	
3	1201	1	Room temperature	int16	°C	1/10	See heating circuit 1	
3	1202	1	Humidity	int16	%	-	See heating circuit 1	
3	1203	1	Limiting thermostat open/closed	uint16	-	-	See heating circuit 1	
3	1205	1	Heating circuit pump on/off	uint16	-	-	See heating circuit 1	
3	1206	1	Mixing valve setting	uint16	%	-	See heating circuit 1	
3	1207	1	Heating circuit status	uint16	-	-	See heating circuit 1	
4	1250	1	Flow temperature	int16	°C	1/10	See heating circuit 1	
4	1251	1	Room temperature	int16	°C	1/10	See heating circuit 1	
4	1252	1	Humidity	int16	%	-	See heating circuit 1	
4	1253	1	Limiting thermostat open/closed	uint16	-	-	See heating circuit 1	
4	1255	1	Heating circuit pump on/off	uint16	-	-	See heating circuit 1	
4	1256	1	Mixing valve setting	uint16	%	-	See heating circuit 1	
4	1257	1	Heating circuit status	uint16	-	-	See heating circuit 1	
5	1300	1	Flow temperature	int16	°C	1/10	See heating circuit 1	V20.110
5	1301	1	Room temperature	int16	°C	1/10	See heating circuit 1	V20.110
5	1302	1	Humidity	int16	%	-	See heating circuit 1	V20.110
5	1303	1	Limiting thermostat open/closed	uint16	-	-	See heating circuit 1	V20.110
5	1305	1	Heating circuit pump on/off	uint16	-	-	See heating circuit 1	V20.110
5	1306	1	Mixing valve setting	uint16	%	-	See heating circuit 1	V20.110
5	1307	1	Heating circuit status	uint16	-	-	See heating circuit 1	V20.110

6	1350	1	Flow temperature	int16	°C	1/10	See heating circuit 1	V20.110
6	1351	1	Room temperature	int16	°C	1/10	See heating circuit 1	V20.110
6	1352	1	Humidity	int16	%	-	See heating circuit 1	V20.110
6	1353	1	Limiting thermostat open/closed	uint16	-	-	See heating circuit 1	V20.110
6	1355	1	Heating circuit pump on/off	uint16	-	-	See heating circuit 1	V20.110
6	1356	1	Mixing valve setting	uint16	%	-	See heating circuit 1	V20.110
6	1357	1	Heating circuit status	uint16	-	-	See heating circuit 1	V20.110
7	1400	1	Flow temperature	int16	°C	1/10	See heating circuit 1	V20.110
7	1401	1	Room temperature	int16	°C	1/10	See heating circuit 1	V20.110
7	1402	1	Humidity	int16	%	-	See heating circuit 1	V20.110
7	1403	1	Limiting thermostat open/closed	uint16	-	-	See heating circuit 1	V20.110
7	1405	1	Heating circuit pump on/off	uint16	-	-	See heating circuit 1	V20.110
7	1406	1	Mixing valve setting	uint16	%	-	See heating circuit 1	V20.110
7	1407	1	Heating circuit status	uint16	-	-	See heating circuit 1	V20.110
8	1450	1	Flow temperature	int16	°C	1/10	See heating circuit 1	V20.110
8	1451	1	Room temperature	int16	°C	1/10	See heating circuit 1	V20.110
8	1452	1	Humidity	int16	%	-	See heating circuit 1	V20.110
8	1453	1	Limiting thermostat open/closed	uint16	-	-	See heating circuit 1	V20.110
8	1455	1	Heating circuit pump on/off	uint16	-	-	See heating circuit 1	V20.110
8	1456	1	Mixing valve setting	uint16	%	-	See heating circuit 1	V20.110
8	1457	1	Heating circuit status	uint16	-	-	See heating circuit 1	V20.110

			Buffer tank (1 to 4)					
No.	Adr.	Quantity Reg.	Designation	Type	unit	Scal.	Comment	
1	1900	1	Buffer cylinder temperature top	int16	°C	1/10	Buffer cylinder temperature top as three-digit value → e.g. value obtained 560 ≙ 56°C	
1	1901	1	Buffer cylinder temperature bottom	int16	°C	1/10	Buffer cylinder temperature bottom as three-digit value → e.g. value obtained 450 ≙ 45°C	
1	1902	1	Buffer cylinder temperature X35 for therminator only	int16	°C	1/10	Buffer cylinder temperature X35 as three-digit value → e.g. value obtained 450 ≙ 45°C -999 if X35 is not connected or is not assigned to this buffer tank	
1	1903	1	Buffer tank – charging pump	int16	-	-	0…not charging 1…charging	
1	1904	1	Buffer tank status	uint16	-	-	**Enumeration (all except therminator)** 0…Status not present 1…Standby 2… Buffer tank charging 3…Frost protection mode 4…Chimney sweep 5…Heat dissipation 6…Pump test run is active 7…DHW tank charging **Enumeration therminator (offset +200)** 200… Buffer tank not released 201… Standby 202… Buffer tank charging 203… Frost protection mode 204… Chimney sweep 205… Heat dissipation 206… Buffer cylinder charging pump test run is active 207… Return booster pump test run is active 208… Buffer tank requires energy	
1	1905	1	Buffer tank – release type	uint16	-	-	Enumeration 0…Always off 1…Always on 2…Time switching	
2	1920	1	Buffer cylinder temperature top	int16	°C	1/10	See buffer tank 1	
2	1921	1	Buffer cylinder temperature bottom	int16	°C	1/10	See buffer tank 1	
2	1922	1	Buffer cylinder temperature X35 for therminator only	int16	°C	1/10	See buffer tank 1	
2	1923	1	Buffer tank – charging pump	int16	-	-	See buffer tank 1	
2	1924	1	Buffer tank status	uint16	-	-	See buffer tank 1	
2	1925	1	Buffer tank – release type	uint16	-	-	See buffer tank 1	
3	1940	1	Buffer cylinder temperature top	int16	°C	1/10	See buffer tank 1	
3	1941	1	Buffer cylinder temperature bottom	int16	°C	1/10	See buffer tank 1	
3	1942	1	Buffer cylinder temperature X35 for therminator only	int16	°C	1/10	See buffer tank 1	
3	1943	1	Buffer tank – charging pump	int16	-	-	See buffer tank 1	
3	1944	1	Buffer tank status	uint16	-	-	See buffer tank 1	
3	1945	1	Buffer tank – release type	uint16	-	-	See buffer tank 1	
4	1960	1	Buffer cylinder temperature top	int16	°C	1/10	See buffer tank 1	
4	1961	1	Buffer cylinder temperature bottom	int16	°C	1/10	See buffer tank 1	
4	1962	1	Buffer cylinder temperature X35 for therminator only	int16	°C	1/10	See buffer tank 1	
4	1963	1	Buffer tank – charging pump	int16	-	-	See buffer tank 1	
4	1964	1	Buffer tank status	uint16	-	-	See buffer tank 1	
4	1965	1	Buffer tank – release type	uint16	-	-	See buffer tank 1	

			Solar					
No.	Adr.	Quantity Reg.	Designation	Type	unit	Scal.	Comment	
	2100	1	Collector temperature 1	int16	°C	1/10	Collector temperature 1 as three-digit value → e.g. value obtained 550 ≙ 55°C	
	2101	1	Collector temperature 2	int16	°C	1/10	Collector temperature 2 as three-digit value → e.g. value obtained 550 ≙ 55°C	
	2102	1	Collector flow temperature	int16	°C	1/10	as three-digit value → e.g. value obtained 450 ≙ 45°C	
	2103	1	Collector return flow temperature	int16	°C	1/10	as three-digit value → e.g. value obtained 340 ≙ 34°C	
	2104	1	HM flow	int16	l	-	Current heat meter flow in litres	
	2105	1	Current power	int16	kW	1/10	Power in kW as three-digit value → e.g. value obtained = 230 ≙ 23 kW	
	2106	2	HM yield	int32	Wh	-	Yield in Wh → 2 x 16-bit register	
	2108	2	Daily yield	int32	Wh	-	Daily yield in Wh → 2 x 16-bit register	
	2110	1	Tank sensor 1	int16	°C	1/10	Tank temperature 1 as three-digit value → e.g. value obtained 550 ≙ 55°C	
	2111	1	Tank sensor 2	int16	°C	1/10	Tank temperature 2 as three-digit value → e.g. value obtained 440 ≙ 44°C	
	2112	1	Tank sensor 3	int16	°C	1/10	Tank temperature 3 as three-digit value → e.g. value obtained 440 ≙ 44°C	

	2113	1	Solar – Status bar	uint16	-		**Enumeration (all except therminator)** 0…Solar circuit in operation 1…Collector sensor short circuit 2…Solar circuit switched off 3…Tank sensor short circuit 4…Tank sensor interruption 5…Check circulation 6…Excess collector temperature 7…Waiting time 8…Measuring-rinse pulse 9…Collector temperature too low 10… Maximum tank temperature bottom reached 11…Measuring time 12…No release 13…Pump lag 14…Frost protection mode 15…Heat dissipation 16…Tank cooling 17…Pump test run is active 18…Solar output test	**Enumeration therminator (offset +200)** 201… Collector sensor short circuit 202… 203…Tank sensor short circuit! 204…Tank sensor interruption! 205…Check circulation! 206…Excess collector temperature! 207…Waiting time 208…Measuring-rinse pulse 209…Collector temperature too low! 210… Maximum tank temperature bottom reached 211…Measuring time 212…No release 213…Pump lag 214… Frost protection mode 215… Heat dissipation 216…Tank cooling 217… Fuse defective! 218… Both fuses defective! 219…Solar circuit in operation 220…Solar circuit is switched off 221…Pump test run is active 222…Solar output test

DHW tank (1 to 4)

No.	Adr.	Quantity Reg.	Designation	Type	unit	Scal.	Comment
1	500	1	DHW tank – temperature	int16	°C	1/10	DHW tank – temperature as three-digit value → e.g. value obtained 600 ≙ 60°C
1	501	1	DHW tank status	uint16	-	-	**Enumeration (all except therminator)** 0…DHW tank status not present 1…Standby 2…Charge 3…Frost protection 4…Chimney sweep mode 5…Legionella protection 6…Request 7…Energy source too hot 8…Blockage protection 9…One-off release active 10…Sensor short circuit 11…Sensor interruption 12…Holiday mode 13…Defrost **Enumeration therminator (offset +200)** 200… DHW tank is not released 201… Standby 202… DHW tank is charging 203… Frost protection mode 204… Chimney sweep 205… Legionella mode 206… DHW tank is requesting 207… Heat dissipation 208…Pump test run is active 209… One-time charging 210… DHW tank sensor has a sensor has a short-circuit! 211… DHW tank sensor has an interruption! 212… Holiday mode
1	502	1	DHW tank release type – actual	uint16	-	-	0…Always off 1…Always on 2…Monday – Sunday 3…By block (Monday – Friday, Saturday – Sunday) 4…By day
2	550	1	DHW tank – temperature	int16	°C	1/10	See DHW tank 1
2	551	1	DHW tank status	uint16	-	-	See DHW tank 1
2	552	1	DHW tank release type – actual	uint16	-	-	See DHW tank 1
3	600	1	DHW tank – temperature	int16	°C	1/10	See DHW tank 1
3	601	1	DHW tank status	uint16	-	-	See DHW tank 1
3	602	1	DHW tank release type – actual	uint16	-	-	See DHW tank 1
4	650	1	DHW tank – temperature	int16	°C	1/10	See DHW tank 1
4	651	1	DHW tank status	uint16	-	-	See DHW tank 1
4	652	1	DHW tank release type – actual	uint16	-	-	See DHW tank 1

Heat pump

No.	Adr.	Quantity Reg.	Designation	Type	unit	Scal.	Comment
	2300	1	Heat pump flow temperature	int16	°C	1/10	Flow temperature as three-digit value → e.g. value obtained 400 ≙ 40°C
	2301	1	Heat pump return temperature	int16	°C	1/10	Return temperature as three-digit value → e.g. value obtained 320 ≙ 32°C
	2302	1	Flow	int16	l/h	-	Flow in l/h, max. four-digit value
	2303	1	Compressor speed	int16	rpm	-	0 – 7000 rpm
	2304	1	Electricity supplier – lock active	uint16	-	-	0…Electricity supplier lock not active (normal operation) 1… Electricity supplier lock active
	2306	1	Defrost active	uint16	-	-	0…Defrosting not active 1…Defrosting active
	2307	1	Boiler loading	uint16	-	-	0…Boiler loading not active, 1…Boiler loading active
	2310	2	Total energy of thermal heating + drinking water heating	int32	Wh	1/1000	Obtained value in Wh → / 1000: kWh → 2 x 16 – bit register
	2312	2	Thermal energy for drinking water heating	int32	Wh	1/1000	Obtained value in Wh → / 1000: kWh → 2 x 16 – bit register
	2314	2	Thermal energy for heating	int32	Wh	1/1000	Obtained value in Wh → / 1000: kWh → 2 x 16 – bit register
	2316	2	Total energy of electrical heating + drinking water heating	int32	Wh	1/1000	Obtained value in Wh → / 1000: kWh → 2 x 16 – bit register

	2318	2	Electrical energy for drinking water heating	int32	Wh	1/1000	Obtained value in Wh → / 1000: kWh → 2 x 16 – bit register	
	2320	2	Electrical energy for heating	int32	Wh	1/1000	Obtained value in Wh → / 1000: kWh → 2 x 16 – bit register	
	2322	1	Electrical power currently consumed	int16	W	-	-	
	2323	1	Current thermal power for cooling	int16	W	-	-	
	2324	1	Current thermal power for heating	int16	W	-	-	
	2326	2	Thermal energy for cooling	int32	Wh	1/1000	Obtained value in Wh → / 1000: kWh → 2 x 16 – bit register	
	2328	2	Electrical energy for cooling	int32	Wh	1/1000	Obtained value in Wh → / 1000: kWh → 2 x 16 – bit register	
	2330	1	vampair status	uint16	-	-	0: Standby 1: Heating mode 2: Heating mode, DHW tank charging 3: Cooling mode 4: Manual operation 5: Electricity supplier - lock active 6: no time release, heat pump off 7: Outside temperature lock, heat pump off 8: electric auxiliary heating active 9: Foreign boiler active, heat pump off 10: Cooling request 11: manual power input 12: Heat pump switched off	V20.110
	2500	2	Power PV	int32	W	-	Produced power of PV plant	V20.050
	2502	2	Consumption	int32	W	-	Total consumption of building	V20.050
	2504	2	Consumption HP	int32	W	-	Consumption of HP	V20.050
	2506	2	Grid purchases	int32	W	-	Current consumed from the grid	V20.050
	2508	2	Feed	int32	W	-	Current delivered into the grid	V20.050
	2510	1	PV overcharging possible	Int16	-	-	0… No overcharging of the heat distribution possible 1… Heat distribution can be charged with PV surplus	V21.050
	2511	1	PV overcharging active	Int16	-	-	0… No PV surplus available 1… Heat pump has started due to PV surplus; Heat distribution overcharging active	V21.050

			Boiler				V20.110
No.	Adr.	Quantity Reg.	Designation	Type	unit	Scal.	Comment
	2400	1	Boiler temperature	int16	°C	1/10	Boiler temperature as three-digit value → e.g. value obtained 400 ≙ 40°C
	2401	1	Boiler status line	uint16	-	-	**Enumeration (all except therminator)** 0_Standby 1_Ignittion phase 2_Pellet mode 3_Required boiler temperature reached, lag 4_Lag 5_No request, lag 6_Burner switched off 7_Intermediate pellet store is empty, lag 8_Heat exchanger cleaning is active 9_Heat exchanger cleaning required, lag 10_Power failure, lag 11_Second ignition attempt, lag 12_Filling chamber temperature exceeded, lag 13_Infeed overloaded, lag 14_External boiler active, lag 15 External boiler active, standby 16_Burner switched off, lag 17_Safety chain is open 18_Safety chain is open, lag 19_Residual oxygen content too high, lag 20_Flue gas temperature too low, lag 21 Flue gas temperature too high, standby 22_Flue gas sensor is defective, standby 23 Feed temperature too high, standby 24_Lambda sensor is defective, lag 25_Boiler temperature is sufficient, standby 26_No feed motor current flow, lag 27_Boiler sensor is defective, standby 28_Boiler sensor is defective, lag 29_Lambda sensor is heated 30_Heat exchanger cleaning is waiting for a release, time 31_Heat exchanger cleaning is waiting for a release, AGT 32_ Heat exchanger cleaning function is waiting for release, BT 33 Vacuum output is waiting for next release time 34_Intermediate pellet store is being filled 35_Feed sensor short-circuit, standby 36_Burn-back slide valve opens 37_Boiler is being filled 38_Lambda sensor is being calibrated 39_Chimney sweep measurement release 40_Alarm active! 41_Boiler door is open, standby 42_Door has been open for too long, lag 44_No burner time release, lag 45_Ignition phase residual oxygen content too low, lag 46_Automatic ash extraction active! 47_Boiler door/ash container is open, standby 48_Boiler door/ash container has been opened, lag 49_Boiler active 50_Suction system is waiting for diverter 51_Burner switched off, minimum boiler runtime active 52_Chimney sweep measurement ended, lag 53_Wait until the room air flap is open 54_Power failure, standby 55_Power failure, lag 56_HE-rinse condensing module active 57_Differential pressure switch triggered, lag 58_Wait for release of differential pressure switch 59_E-rinse condensing module is waiting for release 60_Referencing electron. dust separator 61_Electron. dust separator waiting for release 62_Container filling in x minutes 63_Automatic ash extraction required, lag 64_Automatic ash extraction waiting for time release 65_Automatic ash extraction active 66_Automatic ash extraction active 67_Wood chip mode 68_System pressure too low/high, standby 69_System pressure too low/high, lag 70_Combustion chamber temperature too high, standby 71_Feeder is being emptied 72_Direct extraction safety chain open 73_Combustion chamber sensor defective, standby 74_No burner release, chimney sweep 75_Chimney sweep program requires shutdown, lag 76_Safety chain is open, time 77_Pellet mode, night-time reduction 78_Wood chip mode, night-time reduction 79_Ash container open, time 80_Ash container open 81_Ash container open, lag 82_Referencing air dampers **Enumeration therminator (offset +200)** 200_Standby 201_Ignition phase 202_Pellet mode 203_Required boiler temperature reached, lag 204_Lag 205_No request, lag 206_Burner switched off 207_Intermediate pellet store is empty, lag 208_Heat exchanger cleaning is active 209_Heat exchanger cleaning required, lag 210_Power failure, lag 212_Feed temperature too high, lag 216_Burner switched off, lag 217_Safety chain is open 218_Safety chain is open, lag 219_Residual oxygen content too high or too low, lag 220_Flue gas temperature drop, lag 221_Flue gas temperature is still greater than {RGT_Start}, standby 222_Flue gas sensor is defective, standby 223_Feed temperature too high, standby 224_Lambda sensor is defective, lag 225_Boiler temperature is sufficient, standby 226_ 227_Boiler sensor is defective, standby 228_Boiler sensor is defective, lag 229_Lambda sensor is being heated 230_Heat exchanger cleaning is waiting for a release, time 231_Heat exchanger cleaning is waiting for a release, FGT 232 Heat exchanger cleaning function is waiting for release, BT 233_Suction system is waiting for release 234_Intermediate pellet store is being filled 235_Feed sensor short-circuit, standby 236_Burn-back slide valve opens 237_Boiler is being filled 238_Lambda sensor is being calibrated 239_Chimney sweep measurement release 240_Alarm active! 241_Close door! FGT and residual oxygen monitoring inactive 242_Door has been open for too long, lag 243_No burner release, time 244_No burner time, lag 245_Lambda sensor must be calibrated, lag 246_Boiler cleaning 300_Burner switched off, intermediate store is filling 301_Log wood burning finished 302_wait _s until feed is emptied! 303_Ignite log wood manually 304_Automatic log wood ignition 305_Log wood 306_Partial load of log wood, do not open door! 307_Log wood, then pellets 308_Log wood combustion stopped, do not open door! 309_Door is open! 310_Start phase 311_Wood chip operation 312_Feed blockage detected 313_No feed motor current flow 314_Direct extraction blockage detected 315_No extraction motor current flow 316_Automatic log wood function is waiting for the next time release 317_Alarm! All outputs switched off! 318_Door is open! A boiler start is not possible! 319_Door is open! Close the door at the latest in _s! 320_Operating fault, lag 321_Position run of diverter for suction heads 322_Boiler output test 323_Suction head suction clearance active 324_Shaker, manual 325_Shaker is active 326_Change of rotational direction 327_No current flow M1 detected 328_No current flow M1 detected 329_Feed blockage detected 330_No feed current flow detected 331_No current flow M2 detected 332_No current flow M2 detected 333_External boiler active, lag 334_External boiler active, standby 335_Login: Administrator 336_Login: Service technicians 337_Login: Qualified personnel 338_Chimney sweep measurement ended, lag 339_Wait until the room air flap is open 340_No burner release, outside temperature + forecast 341_No burner release, outside temperature 342_Buffer cylinder temperature adequate, standby 343_Differential pressure switch triggered, lag 344_HE-rinse condensing module active
	2402	2	Operating minutes at the time of maintenance	Int32	Min.	-	Operating minutes at the time of maintenance
	2404	1	Message number	int16	-	-	Number of the active message See operation manual CAUTION therminator (offset +200)
	2405	1	Door contact → open/closed	int16	-	-	0… Door closed 1…Door open
	2406	1	Boiler cleaning	int16	%	-	0 – 100% → boiler cleaning is recommended by 100% at the latest

2407	1	Ash box fill level	int16	%	-	0 – 100% → the ash container should be emptied by 100% at the latest	
2408	1	outside temperature	int16	°C	1/10	The outside temperature as a three-digit value → e.g. value obtained 270 ≙ 27°C A value of 1300 (130°C) means the sensor is not connected. If a value of 2700 (270°C) is read, the sensor has a short circuit.	
2409	1	therminator boiler operating mode	int16	-	-	therminator enumeration 0… Log wood 1…Automatic log wood 2… Log wood + pellets 3… Automatic log wood + pellets 4…Pellets 5…Wood chips	
2410	1	octoplus tank temperature bottom	int16	°C	1/10	Shows the tank temperature bottom of the octoplus boiler type, as a three-digit value E.g. value obtained 350 corresponds to 35°C. Value 1300 (130°C) means that the sensor is not connected. Value 2700 (270°C) means that the sensor has a short circuit.	V20.110
2411	1	octoplus tank temperature top	int16	°C	1/10	Shows the tank temperature top of the octoplus boiler type E.g. value obtained 550 corresponds to 55°C. Value 1300 (130°C) means that the sensor is not connected. Value 2700 (270°C) means that the sensor has a short circuit.	V20.110
2412	1	therminator log wood	uint16	-		0: Fire up log wood / add more not necessary/possible 1: Log wood can be fired up / added	
2414	2	Pellet consumption since last storage room filling	uint32	kg	1/10	Shows consumption since last filling in 0.0 kg. Value 100 from register = 10.0kg **Caution:** The consumption values are determined on the basis of the pellet feed quantity and can therefore deviate from the actual consumption, depending on flowability, calorific value, etc.!	V23.010
2416	2	Total pellet consumption since update to V21.050 or later	uint32	kg	1/10	Show the consumption since the update to V21.050 or later. The values are shown on the display in the *integrated heat quantity recording* menu. Value 100 from register = 10.0kg	V23.010
2418	2	Total heat produced since update to V21.050 or later	uint32	kWh	1/10	Total amount of heat since update to V21.050 or later; value 100 from register = 10.0 kWh	V23.010
2420	1	Chimney sweep near the end	Int16			0… Chimney sweep measurement active / chimney sweep function not activated 1… Chimney sweep measurement will end shortly	From V22.090 register 2412, from V23080 register 2420

Fresh water module (1 to 4)

FW Nr.	Adr.	Designation	Type	min.	max.	unit	Scal.	Comment	from version
1	700	Status line	uint16	0	4	-	-	0: Flow sensor not connected 1: Pump switched off 2: Pump switched on 3: Manual mode active 4: Manual mode deactivated	V23.020
1	701	Hot water flow temperature	int16			°C	1/10	Hot water flow temperature fresh water module 1 Value 500 = 50.0°C	V23.040
1	702	Hot Water flow rate	int16			l/min	1/10	Current flow rate when tapping fresh water module 1	V23.040
1	703	Hot water required temperature	int16			°C	1/10	Required DHW temperature fresh water module 1	V23.040
1	704	Valve position FWM cascade	uint16					0: Valve closed Fresh water module 1 1: Valve open	V23.040
2	725	Status line	uint16	0	4	-	-	See register 700	V23.020
2	726	Hot water flow temperature	Int16			°C	1/10	Hot water flow temperature fresh water module 2 Value 500 = 50.0°C	V23.040
2	727	Hot Water flow rate	Int16			l/min	1/10	Current flow rate when tapping fresh water module 2	V23.040
2	728	Hot water required temperature	Int16			°C		Required DHW temperature fresh water module 2	V23.040
2	729	Valve position FWM cascade	uint16					0: Valve closed Fresh water module 2 1: Valve open	V23.040
3	750	Status line	uint16	0	4	-	-	See register 700	V23.020
3	751	Hot water flow temperature	int16			°C	1/10	Hot water flow temperature fresh water module 3 Value 500 = 50.0°C	V23.040
3	752	Hot Water flow rate	int16			l/min	1/10	Current flow rate when tapping fresh water module 3	V23.040
3	753	Hot water required temperature	int16			°C	1/10	Required DHW temperature fresh water module 3	V23.040
3	754	Valve position FWM cascade	uint16					0: Valve closed Fresh water module 3 1: Valve open	V23.040
4	775	Status line	uint16	0	4	-	-	See register 700	V23.020

4	776	Hot water flow temperature	int16			°C	1/10	Hot water flow temperature fresh water module 4 Value 500 = 50.0°C	V23.040
4	777	Hot Water flow rate	int16			l/min	1/10	Current flow rate when tapping fresh water module 4	V23.040
4	778	Hot water required temperature	int16			°C	1/10	Required DHW temperature fresh water module 4	V23.040
4	779	Valve position FWM cascade	uint16					0: Valve closed Fresh water module 4 1: Valve open	V23.040
	800	Status line cascade FWM	uint16	0	4	-	-	0: Standby 1: Cascade active 2: Manual mode active 3: Manual mode deactivated 4: Manual operation	V23.040
	801	FWM Cascade Total flow				l/min	1/10		V23.040
	802	FWM Cascade Required temperature	int16			°C	1/10		V23.040
	850	Circulation module hot water flow temperature	int16			°C	1/10	Hot water flow temperature circulation module Value 500 = 50.0°C	V23.040
	851	Recirculation module Hot Water flow rate	int16			l/min	1/10	Hot water flow circulation module	V23.040

6 Holding – Register data (required values)

The holding register can be **read using Functioncode 0x03** or written using **Functioncode 16 (0x10 hex)**.

		Heating circuit (1 to 8)							
No.	Adr.	Designation	Type	min.	max	unit	Scal.	Comment	from version
1	32600	Required flow temperature heating	int16	22	max. value in heating curve	°C	* 10	**The required value * 10 must always be set to the address** e.g the temperature should be set to 45°C → i.e. the value 450 must be written to the register address NOTE: Target flow = 0 -> value is ignored – > control according to set heating curve on controller No timeout-> last known value remains until controller restart.	
1	32600	Required flow temperature cooling	int16	7	35	°C	* 10	**The required value * 10 must always be set to the address** e.g the temperature should be set to 28°C → i.e. the value 280 must be written to the register address Info on min. and max.: If a temperature > 0 and less than 7°C (register value 70) is to be written, the boiler control will set the value to 7°C. If a temperature > 35°C (register value 350) is written, this is automatically reduced to 35°C.	
1	32602	Cooling on/off	int16	-	-	-	-	0…Heating circuit is to be heated if target flow > 0 1…Heating circuit is to be cooled if target flow > 0 (see required flow temperature, cooling)	
1	32603	Heating circuit operating mode	int16	0	3	-	-	0…Continuous mode 1…Reduced mode 2…Automatic (time setting is observed) 3…Heating circuit switched off (frost guard only)	
1	32605	Required room temperature	int16	5	45	°C	* 10	**The required value * 10 must always be written to the address, e.g. required room temperature should be 23°C → 230 must be written to the address** Room effect must be activated on the display! If 0 is written, the required room temperature via Modbus will be ignored	
1	32606	Actual room temperature, external	int16	5	45	°C	* 10	**The required value * 10 must always be set to the address** **e.g. actual room temperature, external = 23°C → 230 must be written to the address** This address is used if the room temperature is to be transmitted or read to the boiler control via an external room temperature sensor	
1	32607	Room humidity of external room temperature sensor	int16	1	100	%	-	the room humidity from an external controller in % if 0 is sent, the value via Modbus is ignored	
1	32608	Heating circuit mode	Int16	0	2			Prerequisite: Room influence On/Continuous + Cooling release On 0…Heating 1…Cooling 2…Heating+Cooling	V22.090
2	32650	Required flow temperature for heating / cooling	int16	22 / 7	max. value in heating curve / 35	°C	* 10	See heating circuit 1	
2	32652	Cooling I/O	int16	-	-	-	-	See heating circuit 1	
2	32653	Heating circuit operating mode	int16	0	3	-	-	See heating circuit 1	
2	32655	Required room temperature	int16	5	45	°C	* 10	See heating circuit 1	
2	32656	Actual room temperature, external	int16	5	45	°C	* 10	See heating circuit 1	
2	32657	Room humidity of external room temperature sensor	int16	1	100	%	-	See heating circuit 1	
2	32658	Heating circuit mode	int16	0	2			See heating circuit 1	V22.090
3	32700	Required flow temperature for heating / cooling	int16	22 / 7	max. value in heating curve / 35	°C	* 10	See heating circuit 1	
3	32702	Cooling I/O	int16	-	-	-	-	See heating circuit 1	
3	32703	Heating circuit operating mode	int16	0	3	-	-	See heating circuit 1	
3	32705	Required room temperature	int16	5	45	°C	* 10	See heating circuit 1	
3	32706	Actual room temperature, external	int16	5	45	°C	* 10	See heating circuit 1	
3	32707	Room humidity of external room temperature sensor	int16	1	100	%	-	See heating circuit 1	
3	32708	Heating circuit mode	int16	0	2			See heating circuit 1	V22.090

4	32750	Required flow temperature for heating / cooling	int16	22 / 7	max. value in heating curve / 35	°C	* 10	See heating circuit 1	
4	32752	Cooling I/O	int16	-	-	-	-	See heating circuit 1	
4	32753	Heating circuit operating mode	int16	0	3	-	-	See heating circuit 1	
4	32755	Required room temperature	int16	5	45	°C	* 10	See heating circuit 1	
4	32756	Actual room temperature, external	int16	5	45	°C	* 10	See heating circuit 1	
4	32757	Room humidity of external room temperature sensor	int16	1	100	%	-	See heating circuit 1	
4	32758	Heating circuit mode	int16	0	2			See heating circuit 1	V22.090
5	32800	Required flow temperature for heating / cooling	int16	22 / 7	max. value in heating curve / 35	°C	* 10	See heating circuit 1	
5	32802	Cooling I/O	int16	-	-	-	-	See heating circuit 1	V20.110
5	32803	Heating circuit operating mode	int16	0	3	-	-	See heating circuit 1	V20.110
5	32805	Required room temperature	int16	5	45	°C	* 10	See heating circuit 1	V20.110
5	32806	Actual room temperature, external	int16	5	45	°C	* 10	See heating circuit 1	V20.110
5	32807	Room humidity of external room temperature sensor	int16	1	100	%	-	See heating circuit 1	V20.110
5	32808	Heating circuit mode	int16	0	2			See heating circuit 1	V22.090
6	32850	Required flow temperature for heating / cooling	int16	22 / 7	max. value in heating curve / 35	°C	* 10	See heating circuit 1	V20.110
6	32852	Cooling I/O	int16	-	-	-	-	See heating circuit 1	V20.110
6	32853	Heating circuit operating mode	int16	0	3	-	-	See heating circuit 1	V20.110
6	32855	Required room temperature	int16	5	45	°C	* 10	See heating circuit 1	V20.110
6	32856	Actual room temperature, external	int16	5	45	°C	* 10	See heating circuit 1	V20.110
6	32857	Room humidity of external room temperature sensor	int16	1	100	%	-	See heating circuit 1	V20.110
6	32858	Heating circuit mode	int16	0	2			See heating circuit 1	V22.090
7	32750	Required flow temperature for heating / cooling	int16	22 / 7	max. value in heating curve / 35	°C	* 10	See heating circuit 1	V20.110
7	32902	Cooling I/O	int16	-	-	-	-	See heating circuit 1	V20.110
7	32903	Heating circuit operating mode	int16	0	3	-	-	See heating circuit 1	V20.110
7	32905	Required room temperature	int16	5	45	°C	* 10	See heating circuit 1	V20.110
7	32906	Actual room temperature, external	int16	5	45	°C	* 10	See heating circuit 1	V20.110
7	32907	Room humidity of external room temperature sensor	int16	1	100	%	-	See heating circuit 1	V20.110
7	32908	Heating circuit mode	int16	0	2			See heating circuit 1	V22.090
8	32950	Required flow temperature for heating / cooling	int16	22 / 7	max. value in heating curve / 35	°C	* 10	See heating circuit 1	V20.110
8	32952	Cooling I/O	int16	-	-	-	-	See heating circuit 1	V20.110
8	32953	Heating circuit operating mode	int16	0	3	-	-	See heating circuit 1	V20.110
8	32955	Required room temperature	int16	5	45	°C	* 10	See heating circuit 1	V20.110
8	32956	Actual room temperature, external	int16	5	45	°C	* 10	See heating circuit 1	V20.110

8	32957	Room humidity of external room temperature sensor	int16	1	100	%	-	See heating circuit 1	V20.110
8	32958	Heating circuit mode	int16	0	2			See heating circuit 1	V22.090
		DHW tank (1 to 8)							
1	32000	DHW tank – required temperature	int16	20	80	°C	* 10	**The required value * 10 must always be set to the address** e.g the temperature should be set to 45°C → i.e. the value 450 must be written to the register address	
1	32001	DHW tank – one-time charging	int16	-	-	-	-	0…Disable one-off charge 1…Enable one-off charge	
1	32002	DHW tank – release type	int16	0	4	-	-	0…Always off 1…Always on 2…Monday – Sunday 3…By block (Monday – Friday, Saturday – Sunday) 4…By day	
2	32050	DHW tank – required temperature	int16					See DHW tank 1	
2	32051	DHW tank – one-time charging	int16	-	-	-	-	See DHW tank 1	
2	32052	DHW tank – release type	int16	0	4	-	-	See DHW tank 1	
3	32100	DHW tank – required temperature	int16	20	80	°C	* 10	See DHW tank 1	
3	32101	DHW tank – one-time charging	int16	-	-	-	-	See DHW tank 1	
3	32102	DHW tank – release type	int16	0	4	-	-	See DHW tank 1	
4	32150	DHW tank – required temperature	int16	20	80	°C	* 10	See DHW tank 1	
4	32151	DHW tank – one-time charging	int16	-	-	-	-	See DHW tank 1	
4	32152	DHW tank – release type	int16	0	4	-	-	See DHW tank 1	
		Circulation (1 to 4)					-		
1	32003	Request circulation 1	int16			-	-	Value 0-> 1: Circulation programme is activated if the release type is not set to "Always Off".	V20.110
2	32053	Request circulation 2	int16			-	-	Value 0-> 1: Circulation programme is activated if the release type is not set to "Always Off".	V20.110
3	32103	Request circulation 3	int16			-	-	Value 0-> 1: Circulation programme is activated if the release type is not set to "Always Off".	V20.110
4	32153	Request circulation 4	int16			-	-	Value 0-> 1: Circulation programme is activated if the release type is not set to "Always Off".	V20.110
		HP							
	33404	Electricity supplier – lock	int16	-	-	-	-	0…Disable electricity supplier – lock only if electricity supplier – lock is active, otherwise the required value will be ignored 1…Enable electricity supplier – lock only if the electricity supplier – lock has not already been enabled by a blocking time or by Smart – Grid – operating mode 1)	
	33405	SG – Ready operating mode	int16	0	4	-	-	Set 0 → via Modbus disabled; inputs i5 and i9 set the operating state 1 → operating state 1: The compressor is blocked, meaning input i5 can also be used as electricity supplier lock info 2 → operating state 2: Normal operation 3 → operating state 3: Recommendation to turn on 4 → operating state 4: Turning on	
	33406	Outside temperature external	int16	> -30.0	< 130.0	°C	1/10	The outside temperature must be multiplied by 10 before it is sent to the address. The register must be updated every 30 minutes.	V20.110
	33407	Smart Meter	int16	-32767	32767	W	-	Measured power at the house infeed Value < 0 - Drawn from the power grid Value > 0 - Feeding into the power grid	V21.050
	33408	Photovoltaic	int16	0	32767	W	-	Produced power of PV - plant	V21.050
	33409	Mains supply / feed-in	int16	-32767	32767	W	-	Value < 0 - Drawn from the mains Value > 0 - Feeding Mains	V21.050
		Boiler					-		
	33406	Outside temperature external	Int16	> -30.0	< 130.0	°C	1/10	The outside temperature must be multiplied by 10 before it is sent to the address. The register must be updated every 30 minutes.	V20.110
	33410	Chimney sweep function start/stop	int16	1	2			1…Start chimney sweep function 2…End chimney sweep function	V22.090
	33411	Extend chimney sweep measurement	int16	1	1			1...Extend chimney sweep measurement by 30 minutes. (Can only be written when Input Register *Chimney Sweep is near the end* of **one**.)	V22.090
	33412	Pellet storage room filled	int16	0	1	-	-	By writing a 1 to the register, pellet consumption since the last storage room filling is set to zero.	V23.010

		Buffer tank (1to4)					-		
1	34000	Buffer temperature top X44 external	Int16	-30	130	°C	1/10	The buffer temperature must be multiplied by 10 before the address is sent.	V22.090
1	34001	Buffer temperature lower/middle X36 external	Int16	-30	130	°C	1/10	**Buffer temperature middle, if register Buffer temperature lower X35 is used externally.** The outside temperature must be multiplied by 10 before it is sent.	V22.090
1	34002	Buffer temperature Down X35 external	Int16	-30	130	°C	1/10	**Optional register for the 3rd buffer sensor (only for type maximus).** The outside temperature must be multiplied by 10 before it is sent.	V22.090
2	34050	Buffer temperature top X44 external	Int16	-30	130	°C	1/10	See buffer tank 1	V22.090
2	34051	Buffer temperature lower/middle X36 external	Int16	-30	130	°C	1/10	See buffer tank 1	V22.090
2	34052	Buffer temperature Down X35 external	Int16	-30	130	°C	1/10	See buffer tank 1	V22.090
3	34100	Buffer temperature top X44 external	Int16	-30	130	°C	1/10	See buffer tank 1	V22.090
3	34101	Buffer temperature lower/middle X36 external	Int16	-30	130	°C	1/10	See buffer tank 1	V22.090
3	34102	Buffer temperature Down X35 external	Int16	-30	130	°C	1/10	See buffer tank 1	V22.090
4	34150	Buffer temperature top X44 external	Int16	-30	130	°C	1/10	See buffer tank 1	V22.090
4	34151	Buffer temperature lower/middle X36 external	Int16	-30	130	°C	1/10	See buffer tank 1	V22.090
4	34152	Buffer temperature Down X35 external	Int16	-30	130	°C	1/10	See buffer tank 1	V22.090