SmartHeater Modbus Protocol - RS485 / LAN

E·G·O
High-tech since 1931.

Release 1.6
from 24.09.2015

Interface characteristics:
RS485: Modbus RTU - Slave, 19200 Baud, Parity Even, Stopbit = 1 (19200,8,E,1)
LAN: Modbus TCP/IP - Slave, DHCP
Modbus Address = 247

Start Address (dec)	End Address (dec)	Start Address (hex)	End Address (hec)	Size	R/W	Function Codes	Name	Type	Units	Min Value	Max Value	Default Value (Example value)	Description	Info for customers 1 = Standard 2 = Enhanced 3 = Expert 4 = Internal 5 = Future
8192	8192	0x2000	0x2000	1	RO	0x03	ManufacturerID	uint16	N/A	-	-	0x14ef	Fixed value to identify every E.G.O. device	1
8193	8193	0x2001	0x2001	1	RO	0x03	ProductID	uint16	N/A	-	-		Indicates the E.G.O. product ID example: 29.**60335**. 001	1
8194	8194	0x2002	0x2002	1	RO	0x03, 0x06*, 0x10*	ProductVersion	uint16	N/A	-	-		Indicates the E.G.O. variant ID example: 29. 60335.**001**	1
8195	8195	0x2003	0x2003	1	RO	0x03	FirmwareVersion	uint16	N/A	-	-	(0x64 = 100 =1.00)	Firmware-Revision	1
8196	8211	0x2004	0x2013	16	RO	0x03, 0x06*, 0x10*	VendorName	string (32)	N/A	-	-	Example: E.G.O.	Contains the vendor name as a string, see chapter 5 for details. When the name is shorter than 32 byte it should be padded with trailing NUL bytes or whitespace.	1
8212	8227	0x2014	0x2023	16	RO	0x03, 0x06*, 0x10*	ProductName	string (32)	N/A	-	-	Example: Smart Heater SM1000	Contains the vendor name as a string, see chapter 5 for details. When the name is shorter than 32 byte it should be padded with trailing NUL bytes or whitespace.	1
8228	8243	0x2024	0x2033	16	RO	0x03, 0x06*, 0x10*	SerialNumber	string (32)	N/A	-	-	Example: 30380912332211	Contains the serial number of the device a string. When the serial is shorter than 32 byte it should be padded with trailing NUL bytes or whitespace.	1
8244	8245	0x2034	0x2035	2	RO	0x03, 0x06*, 0x10*	ProductionDate	uint32	N/A	-	-	Example: 0x20140515	Contains the date of when device was assembled. This field is BCD-encoded and thus can be interpreted as a string with a fixed length.	1
4096	4096	0x1000	0x1000	1	RO	0x03	Relais[1].ActualPower	uint16	W	100	1500	500	This register contains the nominal power of the heater connected to this relais.	1
4097	4098	0x1001	0x1002	2	RO	0x03	Relais[1].OperatingSeconds	uint32	seconds	-	-		Counter of operating seconds of the relais.	2
4099	4100	0x1003	0x1004	2	RO	0x03	Relais[1].SwitchingCycles	uint32	N/A	-	-		This counts the switching cycles. Used during development only.	2
4101	4101	0x1005	0x1005	1	R/W	0x03, 0x06	Relais[1].MinOnTime	uint16	s	10	60	10	This field defines the minimum time the relais remains switched on.	2
4102	4102	0x1006	0x1006	1	R/W	0x03, 0x06	Relais[1].MinOffTime	uint16	s	110	180	110	This field defines the minimum time the relais remains switched off.	2
														2
4128	4128	0x1020	0x1020	1	RO	0x03	Relais[2].ActualPower	uint16	W	100	1500	1000	This register contains the nominal power of the heater connected to this relais.	1
4129	4130	0x1021	0x1022	2	RO	0x03	Relais[2].OperatingSeconds	uint32	seconds	-	-		Counter of operating seconds of the relais.	2
4131	4132	0x1023	0x1024	2	RO	0x03	Relais[2].SwitchingCycles	uint32	N/A	-	-		This counts the switching cycles. Used during development only.	2
4133	4133	0x1025	0x1025	1	R/W	0x03, 0x06	Relais[2].MinOnTime	uint16	s	10	60	10	This field defines the minimum time the relais remains switched on.	2
4134	4134	0x1026	0x1026	1	R/W	0x03, 0x06	Relais[2].MinOffTime	uint16	s	170	240	170	This field defines the minimum time the relais remains switched off.	2
														2
4160	4160	0x1040	0x1040	1	RO	0x03	Relais[3].ActualPower	uint16	W	100	2500	2000	This register contains the nominal power of the heater connected to this relais.	1
4161	4162	0x1041	0x1042	2	RO	0x03	Relais[3].OperatingSeconds	uint32	seconds	-	-		Counter of operating seconds of the relais.	2
4163	4164	0x1043	0x1044	2	RO	0x03	Relais[3].SwitchingCycles	uint32	N/A	-	-		This counts the switching cycles. Used during development only.	2
4165	4165	0x1045	0x1045	1	R/W	0x03, 0x06	Relais[3].MinOnTime	uint16	s	10	60	10	This field defines the minimum time the relais remains switched on.	2
4166	4166	0x1046	0x1046	1	R/W	0x03, 0x06	Relais[3].MinOffTime	uint16	s	230	300	230	This field defines the minimum time the relais remains switched off.	2

4610	4611	0x1202	0x1203	2	RO	0x03	RestartCounter	uint32	N/A	-	-	-	This is mainly used during development and counts the restarts of the smart heater's internal controller.	2
4612	4612	0x1204	0x1204	1	RO	0x03	RelaisCount	uint16	N/A	1	3	3	Contains the number of relais available in this product.	2
4613	4613	0x1205	0x1205	1	RO	0x03	ActualTemperaturPCB	int16	°C	0	85		This is the actual temperature of the heater's control PCB. If the PCB temperature exceed this max. value the heater switches off. 10K below this temperature the heater swichtes on.	1
4617	4617	0x1209	0x1209	1	R/W	0x03, 0x06, 0x10	TemperatureMinValue	uint16	°C	0 / 40	85	0	Below this temperature the heater will warm the boiler even if no solar power is available. This can be used by the consumer to ensure a minimum water temperature in the boiler. 0 = Off, otherwise value has to be at least 10K below the actual setting of the Potentiometer	2
4618	4618	0x120A	0x120A	1	R/W	0x03, 0x06, 0x10	TemperatureMaxValue	uint16	°C	60	80	80	The maximum specified allowed water temperature which will not exceeded by the smart heater even if the potentiometer is in the maximum position.	2
4619	4619	0x120B	0x120B	1	R/W	0x03, 0x06, 0x10	TemperatureNominalValue	uint16	°C	0 [0 / 40]	80	0	This is the desired water temperature of the consumer. The special value zero means that the optional hardware potentiometer should be used by the regulator. The value of this potentiometer is available in register "UserTemperaturNominalValue". The maximum value must not be highe than "UserTemperaturNominalValue"	1

4864	4864	0x1300	0x1300	1	R/W	0x03, 0x06, 0x10	PowerNominalValue	int16	W	-1	-	-1	This is the desired power value which the heater should use to heat the boiler. The special value -1 means, that the heater should use the HomeTotalPower value and use as much power as possible. When writing this value the heater will match the desired value itself to the available relais and constraints (minimum switch on times etc.). Therefore this register is threat on a best-effort basis.	1
4865	4866	0x1301	0x1302	2	R/W	0x03, 0x06, 0x10	HomeTotalPower	int32	W	-	-	-	This register is written by the smart meter and contains the total power consumption/generation of the home/flat. When the value is negative then the home is feeding power back to the utilities, thus the heater should consume energy to heat up the boiler. When the value is positive then the home consumes energy from the utilities and the heater should stop heating.	1
5120	5121	0x1400	0x1401	2	RO	0x03	TotalOperatingSeconds	uint32	seconds	0	-		Total operating seconds of the smart heater.	1
5122	5123	0x1402	0x1403	2	RO	0x03	ErrorCounter	uint32	N/A	0	-		Error counter, see description for details	2
5124	5124	0x1404	0x1404	1	RO	0x03	ActualTemperaturBoiler	int16	°C	0	100		This is the actual water temperature in the boiler.	1
5125	5125	0x1405	0x1405	1	RO	0x03	ActualTemperaturExternalSensor1	int16	°C	0	100		This is the actual temperature of an (optional) first external temperature sensor. Special values: 0x8000 – no sensor can be attached to this heater model 0x8001 – no sensor attached 0x8002 – sensor present but malfunctioning	1
5126	5126	0x1406	0x1406	1	RO	0x03	ActualTemperaturExternalSensor2	int16	°C	0	100		This is the actual temperature of an (optional) second temperature sensor. Special values: 0x8000 – no sensor can be attached to this heater model 0x8001 – no sensor attached 0x8002 – sensor present but malfunctioning	1
5127	5127	0x1407	0x1407	1	RO	0x03	UserTemperaturNominalValue	int16	°C	0	80	60	This value corresponds to the position of an (optional) potentiometer where the consumer can select a desired boiler temperature.	1
5128	5128	0x1408	0x1408	1	RO	0x03	RelaisStatus	uint16	N/A	0x0000	0xffff	-	This bitfield reflects the switching state of the heater's internal relais: 0x0000: all relais are switched off 0x0001: only relais 1 is switched on 0x0002: only relais 2 is switched on 0x0004: only relais 3 is switched on 0x0005: relais 1 + 3 is switched on	1
5129	5130	0x1409	0x140A	2	RO	0x03	Relais[1].OperatingSeconds	uint32	hours	0	-	-	Total operating hours of the relais 1. This is the same register as mapped on address 0x1001-0x1002.	2
5131	5132	0x140B	0x140C	2	RO	0x03	Relais[2].OperatingSeconds	uint32	hours	0	-	-	Total operating hours of the relais 2. This is the same register as mapped on address 0x1021-0x1022.	2
5133	5134	0x140D	0x140E	2	RO	0x03	Relais[3].OperatingSeconds	uint32	hours	0	-	-	Total operating hours of the relais 3. This is the same register as mapped on address 0x1041-0x1042.	2
5800	5803	0x16A8	0x16AB	4	R/W	0x10	IP Address	u8[8]	-	-	-	-	Read and write the IP address of the smart heater. Only available on the Lan version. Transmit as Hex-String: E.g. 192.168.254.200 = 0xC0A8FEC8 Transmit: [0x43,0x30,0x41,0x38,0x46,0x45,0x43,0x38]	5
5804	5807	0x16AC	0x16AF	4	R/W	0x10	Gateway Address	u8[8]	-	-	-	-	Read and write the Gateway address of the smart heater. Only available on the Lan version. E.g. 192.168.254.200 = 0xC0A8FEC8 Transmit: [0x43,0x30,0x41,0x38,0x46,0x45,0x43,0x38]	5
5808	5811	0x16B0	0x16B3	4	R/W	0x10	DNS Address	u8[8]	-	-	-	-	Read and write the DNS address of the smart heater. Only available on the Lan version. E.g. 192.168.254.200 = 0xC0A8FEC8 Transmit: [0x43,0x30,0x41,0x38,0x46,0x45,0x43,0x38]	5

Error Table details

5376	5377	0x1500	0x1501	2	RO	0x03	Error[1].OperatingHour	uint32	hours	-	-	-	-	3
5378	5378	0x1502	0x1502	1	RO	0x03	Error[1].OperatingSecond	uint16	seconds	-	-	-	-	3
5379	5379	0x1503	0x1503	1	RO	0x03	Error[1].ErrorCode	uint16	N/A	-	-	-	-	3
5380	5381	0x1504	0x1505	2	RO	0x03	Error[2].OperatingHour	uint32	hours	-	-	-	-	3
5382	5382	0x1506	0x1506	1	RO	0x03	Error[2].OperatingSecond	uint16	seconds	-	-	-	-	3
5383	5383	0x1507	0x1507	1	RO	0x03	Error[2].ErrorCode	uint16	N/A	-	-	-	-	3
5384	5385	0x1508	0x1509	2	RO	0x03	Error[3].OperatingHour	uint32	hours	-	-	-	-	3
5386	5386	0x150A	0x150A	1	RO	0x03	Error[3].OperatingSecond	uint16	seconds	-	-	-	-	3

5387	5387	0x150B	0x150B	1	RO	0x03	Error[3].ErrorCode	uint16	N/A	-	-	-	-		3
5388	5389	0x150C	0x150D	2	RO	0x03	Error[4].OperatingHour	uint32	hours	-	-	-	-		3
5390	5390	0x150E	0x150E	1	RO	0x03	Error[4].OperatingSecond	uint16	seconds	-	-	-	-		3
5391	5391	0x150F	0x150F	1	RO	0x03	Error[4].ErrorCode	uint16	N/A	-	-	-	-		3
5392	5393	0x1510	0x1511	2	RO	0x03	Error[5].OperatingHour	uint32	hours	-	-	-	-		3
5393	5393	0x1511	0x1511	1	RO	0x03	Error[5].OperatingSecond	uint16	seconds	-	-	-	-		3
5394	5394	0x1512	0x1512	1	RO	0x03	Error[5].ErrorCode	uint16	N/A	-	-	-	-		3
5396	5397	0x1514	0x1515	2	RO	0x03	Error[6].OperatingHour	uint32	hours	-	-	-	-		3
5397	5397	0x1515	0x1515	1	RO	0x03	Error[6].OperatingSecond	uint16	seconds	-	-	-	-		3
5398	5398	0x1516	0x1516	1	RO	0x03	Error[6].ErrorCode	uint16	N/A	-	-	-	-		3
5400	5401	0x1518	0x1519	2	RO	0x03	Error[7].OperatingHour	uint32	hours	-	-	-	-		3
5401	5401	0x1519	0x1519	1	RO	0x03	Error[7].OperatingSecond	uint16	seconds	-	-	-	-		3
5402	5402	0x151A	0x151A	1	RO	0x03	Error[7].ErrorCode	uint16	N/A	-	-	-	-		3
5404	5405	0x151C	0x151D	2	RO	0x03	Error[8].OperatingHour	uint32	hours	-	-	-	-		3
5405	5405	0x151D	0x151D	1	RO	0x03	Error[8].OperatingSecond	uint16	seconds	-	-	-	-		3
5406	5406	0x151E	0x151E	1	RO	0x03	Error[8].ErrorCode	uint16	N/A	-	-	-	-		3
5408	5409	0x1520	0x1521	2	RO	0x03	Error[9].OperatingHour	uint32	hours	-	-	-	-		3
5409	5409	0x1521	0x1521	1	RO	0x03	Error[9].OperatingSecond	uint16	seconds	-	-	-	-		3
5410	5410	0x1522	0x1522	1	RO	0x03	Error[9].ErrorCode	uint16	N/A	-	-	-	-		3
5412	5413	0x1524	0x1525	2	RO	0x03	Error[10].OperatingHour	uint32	hours	-	-	-	-		3
5413	5413	0x1525	0x1525	1	RO	0x03	Error[10].OperatingSecond	uint16	seconds	-	-	-	-		3
5414	5414	0x1526	0x1526	1	RO	0x03	Error[10].ErrorCode	uint16	N/A	-	-	-	-		3