STIEBEL ELTRON Modbus TCP/IP Software Extension for Internet Service Gateway User Guide

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Contents

General information

These instructions are intended for qualified contractors.

Note
Read these instructions carefully before using the appliance and retain them for future reference.
Pass on the instructions to a new user if required.

Other symbols in this documentation

Note
General information is identified by the adjacent symbol.

- Read these texts carefully.

Symbol: Meaning

Material losses (appliance damage, consequential losses and environmental pollution)

- This symbol indicates that you have to do something. The action you need to take is described step by step.

Relevant appliances

- ISG web, part number 229336
- ISG plus, part number 233493

Brand conformity

Note
This software can only be operated in conjunction with devices and software from the same manufacturer.

- Never use this software in conjunction with third party software or devices.

Relevant documents

Operating and installation instructions Internet Service Gateway ISG web

Operating and installation instructions for the connected integral ventilation unit or the heat pump

Conditions of use for the ISG web

Contract conditions for the purchase of chargeable software extensions with additional functions for the ISG web

Safety

Intended use

Material losses
Incorrect use can result in damage to the connected integral ventilation unit or heat pump.

Observation of these instructions and of instructions for any accessories used is also part of the correct use of this appliance.

System requirements

- ISG web with the Basic service package
- Compatible device, see “Compatibility overview”
- Building management system with Modbus TCP/IP Master
- IP network connection to the ISG and to the building management system

General safety instructions

We guarantee trouble-free function and operational reliability only
if the original accessories intended for the appliance are used.

Instructions, standards and regulations

Note
Observe all applicable national and regional regulations and instructions.

Product description

This product is a software interface for the ISG for building automation. The ISG is a gateway for controlling integral ventilation units and heat pumps. Components required for operating the connected integral ventilation unit or the connected heat pump (e.g. sensors) cannot be replaced by Modbus components.

The following functions are available with the Modbus software:

- Selecting operating modes
- Selecting set temperatures
- Switching fan levels
- Selecting set DHW temperature
- Calling up current values and system data

Settings

The ISG uses the following 16-bit register:

“Read input register”

- Objects are read-only
- Calling up registers via function code 04 (“Read input registers”)
  Example: To read register 30501, address 501 is brought up with function code 04.

“Read/write holding register”

- Objects are read-writable
- Calling up registers via function code 03 (“Read holding registers”)
- Write via function code 06 (“Write single register”) or function code 16 (“Write multiple registers”)

The substitute value “32768 (0x8000H)” is issued for unavailable objects.

Some status objects are bit-coded (B0 – Bx). The respective corresponding status information is documented under “Coding” (e.g. compressor running yes/no).

A distinction is drawn here between the following types of data:

Data type	Value range	Multiplier for reading	Multiplier for writing	Signed	Step size 1	Step size 5
2	3276.8 to 3276.7	0.1	10	Yes	0.1	0.5
6	0 to 65535	1	1	No	1	1
7	-327.68 to 327.67	0.01	100	Yes	0.01	0.05
8	0 to 255	1	1	5	1	5

- Transferred value x multiplier = data value
- Example – writing: To write a temperature of 20.3 °C, write value 203 (factor 10) to the register.
- Example – reading: The value 203 called up means 20.3 °C (203 x 0.1 = 20.3)

IP configuration

Note
Refer to the ISG operating and installation instructions.

You can perform the IP configuration in the SERVICEWELT via the “Profile” tab:

ISG: 192.168.0.126 (standard IP address)
TCP port: 502
Slave ID: 1 (permanent)

Note
The ISG retains its standard IP address when directly connected to your computer. If connected via a router, the DHCP server automatically assigns a different IP address to the ISG.

Compatibility overview

Note
In parameter configuration, first select the appliance type so that the respective corresponding parameters can be configured.

- Follow the operating and installation instructions for the ISG when connecting the heat pump or the integral ventilation unit to the ISG.

Note
Generally, all listed appliances are supported.

- Not every object type is available with every appliance.
- The substitute value “32768 (0x8000H)” is issued for unavailable objects.

You can find an overview of compatible heat pumps / integral ventilation units on our website.

https://www.stiebel-eltron.de/de/home/service/smart-home/kompatibilitaetslisten.html

Incompatibility

- The ISG must not be operated together with a DCo-active GSM on the same CAN bus. This can result in errors in communication with the WPM.
- The Modbus TCP/IP software interface cannot be combined with other ISG software interfaces (Exception: Read-only access is possible at the same time as using the EMI energy management software extension).

Troubleshooting

Checking the software version

- Check whether the Modbus software is installed on the ISG.
- When a WPM is connected, you will find the corresponding menu in the SERVICEWELT under: DIAGNOSIS → SYSTEM → ISG.
- When an integral ventilation unit is connected, you will find the corresponding menu in the SERVICEWELT under: DIAGNOSIS → BUS SUBSCRIBER → ISG.
- If the “Modbus TCP/IP” interface is not listed, you need to update to the latest ISG firmware.
- Contact STIEBEL ELTRON service department.
- Visit our homepage for more information.

Checking the data transfer:

- Using a standard data object (e.g. outside temperature), check the data transfer via Modbus. Compare the transferred value with the value shown in the controller display

Note
ISG addresses are 1 based.
Allowance must be made for an offset of around 1, depending on the configuration.

Acknowledging faults:

- Faults in the heating system are indicated by the fault status (Modbus addresses: 2504, 2002).
- For safety reasons, faults can only be acknowledged via the SERVICEWELT user interface.

If you encounter problems with the product and cannot remedy the cause, contact an IT contractor.

Modbus system values for heat pumps with WPM

Note
Generally, all listed appliances are supported.

- Not every object type is available with every appliance.
- The substitute value “32768 (0x8000H)” is issued for unavailable objects.
- ISG addresses are 1 based.

Note

Values in the “Min. value” and “Max. value” columns will vary according to the connected heat pump, and may deviate from the indicated values.

Block 1: System values (Read input register)

Modbus address	Object designation	WP Msys- tem	WPM 3	WPM 3i	Comments	Min. value	Max. value	Data type	Unit	Write/ read (w/r)
501	ACTUAL TEMPERATURE FE7	x	x	x				2	°C	r
502	SET TEMPERATURE FE7	x	x	x				2	°C	r
503	ACTUAL TEMPERATURE FEK		x	x				2	°C	r
504	SET TEMPERATURE FEK		x	x				2	°C	r
505	RELATIVE HUMIDITY		x	x				2	%	r
506	DEW POINT TEMPERATURE		x	x		-40	30	2	°C	r
507	OUTSIDE TEMPERATURE	x	x	x		-60	80	2	°C	r
508	ACTUAL TEMPERATURE HK 1	x	x	x		0	40	2	°C	r
509	SET TEMPERATURE HK 1			x		0	65	2	°C	r
510	SET TEMPERATURE HK 1	x	x			0	40	2	°C	r
511	ACTUAL TEMPERATURE HK 2	x	x	x		0	90	2	°C	r

512	SET TEMPERATURE HK 2	x	x	x		0	65	2	°C	r
513	ACTUAL FLOW TEMPERATURE WP	x	x	x	MFG, if available			2	°C	r
514	ACTUAL FLOW TEMPERATURE NHZ	x	x	x	MFG, if available			2	°C	r
515	ACTUAL FLOW TEMPERATURE	x	x	x				2	°C	r
516	ACTUAL RETURN TEMPERATURE	x	x	x		0	90	2	°C	r
517	SET FIXED TEMPERATURE	x	x	x		20	50	2	°C	r
518	ACTUAL BUFFER TEMPERATURE	x	x	x		0	90	2	°C	r
519	SET BUFFER TEMPERATURE	x	x	x				2	°C	r
520	HEATING PRESSURE	x	x	x	MFG, if available			7	bar	r
521	FLOW RATE	x	x	x	MFG, if available			2	l/min	r
522	ACTUAL TEMPERATURE	x	x	x	DHW	10	65	2	°C	r
523	SET TEMPERATURE	x	x	x	DHW	10	65	2	°C	r
524	ACTUAL TEMPERATURE FAN	x	x	x	Cooling			2	K	r

525	SET TEMPERATURE FAN	x	x	x	Cooling	7	25	2	K	r
526	ACTUAL TEMPERATURE AREA	x	x	x	Cooling			2	K	r
527	SET TEMPERATURE AREA	x	x	x	Cooling			2	K	r
528	COLLECTOR TEMPERATURE		x		Solar thermal	0	90	2	°C	r
529	CYLINDER TEMPERATURE		x		Solar thermal	0	90	2	°C	r
530	RUNTIME		x		Solar thermal			6	h	r
531	ACTUAL TEMPERATURE	x	x		External heat source	10	90	2	°C	r
532	SET TEMPERATURE	x	x		External heat source			2	K	r
533	APPLICATION LIMIT HZG	x	x	x	Lower heating limit	-40	40	2	°C	r
534	APPLICATION LIMIT WW	x	x	x	Lower DHW limit	-40	40	2	°C	r
535	RUNTIME	x	x		External heat source			6	h	r
536	SOURCE TEMPERATURE	x	x	x				2	°C	r
537	MIN SOURCE TEMPERATURE	x	x	x		-10	10	2	°C	r
538	SOURCE PRESSURE	x	x	x				7	bar	r

539	HOT GAS TEMP ERATURE			x				2	°C	r
540	HIGH PRESSUR E			x				2	bar	r
541	LOW PRESSURE			x				2	bar	r
542	RETURN TEMPE RATURE	x	x		Heat pump 1			2	°C	r
543	FLOW TEMPERATURE	x	x		Heat pump 1			2	°C	r
544	HOT GAS TEMP ERATURE	x	x		Heat pump 1			2	°C	r
545	LOW PRESSURE	x	x		Heat pump 1			7	bar	r
546	MEAN PRESSU RE	x	x		Heat pump 1			7	bar	r
547	HIGH PRESSUR E	x	x		Heat pump 1			7	bar	r
548	WP WATER FLO W RATE	x	x		Heat pump 1			2	l/min	r
549	RETURN TEMPE RATURE	x	x		Heat pump 2			2	°C	r
550	FLOW TEMPERATURE	x	x		Heat pump 2			2	°C	r
551	HOT GAS TEMP ERATURE	x	x		Heat pump 2			2	°C	r
552	LOW PRESSURE	x	x		Heat pump 2			7	bar	r

553	MEAN PRESSURE	x	x		Heat pump 2			7	bar	r
554	HIGH PRESSURE	x	x		Heat pump 2			7	bar	r
555	WP WATER FLOW RATE	x	x		Heat pump 2			2	l/min	r
556	RETURN TEMPERATURE	x	x		Heat pump 3			2	°C	r
557	FLOW TEMPERATURE	x	x		Heat pump 3			2	°C	r
558	HOT GAS TEMPERATURE	x	x		Heat pump 3			2	°C	r
559	LOW PRESSURE	x	x		Heat pump 3			7	bar	r
560	MEAN PRESSURE	x	x		Heat pump 3			7	bar	r
561	HIGH PRESSURE	x	x		Heat pump 3			7	bar	r
562	WP WATER FLOW RATE	x	x		Heat pump 3			2	l/min	r
563	RETURN TEMPERATURE	x	x		Heat pump 4			2	°C	r
564	FLOW TEMPERATURE	x	x		Heat pump 4			2	°C	r
565	HOT GAS TEMPERATURE	x	x		Heat pump 4			2	°C	r
566	LOW PRESSURE	x	x		Heat pump 4			7	bar	r

567	MEAN PRESSURE	x	x		Heat pump 4			7	bar	r
568	HIGH PRESSURE	x	x		Heat pump 4			7	bar	r
569	WP WATER FLOW RATE	x	x		Heat pump 4			2	l/min	r
570	RETURN TEMPERATURE	x	x		Heat pump 5			2	°C	r
571	FLOW TEMPERATURE	x	x		Heat pump 5			2	°C	r
572	HOT GAS TEMPERATURE	x	x		Heat pump 5			2	°C	r
573	LOW PRESSURE	x	x		Heat pump 5			7	bar	r
574	MEAN PRESSURE	x	x		Heat pump 5			7	bar	r
575	HIGH PRESSURE	x	x		Heat pump 5			7	bar	r
576	WP WATER FLOW RATE	x	x		Heat pump 5			2	l/min	r
577	RETURN TEMPERATURE	x	x		Heat pump 6			2	°C	r
578	FLOW TEMPERATURE	x	x		Heat pump 6			2	°C	r
579	HOT GAS TEMPERATURE	x	x		Heat pump 6			2	°C	r
580	LOW PRESSURE	x	x		Heat pump 6			7	bar	r

581	MEAN PRESSURE	x	x		Heat pump 6			7	bar	r
582	HIGH PRESSURE	x	x		Heat pump 6			7	bar	r
583	WP WATER FLOW RATE	x	x		Heat pump 6			2	l/min	r
584	ACTUAL TEMPERATURE	x			Room temperature, heating circuit 1			2	°C	r
585	SET TEMPERATURE	x			Room temperature, heating circuit 1			2	°C	r
586	RELATIVE HUMIDITY	x			Heating circuit 1			2	%	r
587	DEW POINT TEMPERATURE	x			Heating circuit 1			2	°C	r
588	ACTUAL TEMPERATURE	x			Room temperature, heating circuit 2			2	°C	r
589	SET TEMPERATURE	x			Room temperature, heating circuit 2			2	°C	r
590	RELATIVE HUMIDITY	x			Heating circuit 2			2	%	r
591	DEW POINT TEMPERATURE	x			Heating circuit 2	2			°C	r
592	ACTUAL TEMPERATURE	x			Room temperature, heating circuit 3	2			°C	r

593SET TEMPERATURE	x	Room temperature, heating circuit 3	2	°C	r
594RELATIVE HUMIDITY	x	Heating circuit 3	2	%	r
595DEW POINT TEMPERATURE	x	Heating circuit 3	2	°C	r
596ACTUAL TEMPERATURE	x	Room temperature, heating circuit 4	2	°C	r
597 SET TEMPERATURE	x	Room temperature, heating circuit 4	2	°C	r
598 RELATIVE HUMIDITY	x	Heating circuit 4	2	%	r
599 DEW POINT TEMPERATURE	x	Heating circuit 4	2	°C	r
600 ACTUAL TEMPERATURE	x	Room temperature, heating circuit 5	2	°C	r
601 SET TEMPERATURE	x	Room temperature, heating circuit 5	2	°C	r
602 RELATIVE HUMIDITY	x	Heating circuit 5	2	%	r
603 DEW POINT TEMPERATURE	x	Heating circuit 5	2	°C	r
604 SET TEMPERATURE	x	Room temperature, cooling circuit 1	2	°C	r

605 SET TEMPERATURE	x	Room temperature, cooling circuit 2	2	°C	r
606 SET TEMPERATURE	x	Room temperature, cooling circuit 3	2	°C	r
607 SET TEMPERATURE	x	emperature, cooling circuit 4	2	°C	r
608 SET TEMPERATURE	x	oom temperature, cooling circuit 5	2	°C	r

Documents / Resources

	STIEBEL ELTRON Modbus TCP/IP Software Extension for Internet Service Gateway [pdf] User Guide Modbus TCP IP Software Extension for Internet Service Gateway, Modbus TCP IP, Software Extension for Internet Service Gateway, Internet Service Gateway

References

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