

The Robur T10 DDC Modbus Interface, f/w 4.018

Abstract

This document provides information specific to Robur DDC Modbus interface, related to DDC firmware release 4.018.

DDC f/w 4.018 Modbus interface is backward compatible with previous DDC firmware supporting Modbus protocol.

The DDC supports two Modbus registers mappings, named v1.0 and v2.0. This document refers to the v2.0 mapping. The v1.0 mapping is intended only for backward compatibility (DDC f/w 2.005) and its use is deprecated.

DDC Modbus Communication

The Robur DDC implements the Modbus RTU communication standard, as a Modbus slave agent. It can be accessed through a standard RS232 port or as an alternative a RS-485 port, which can be configured to work according to one of the following settings:

- 19.200 8N1 (default)
- 19.200 8E1
- 19.200 8N2 (only for RS-232)
- 9.600 8N1
- 9.600 8E1
- 9.600 8N2 (only for RS-232)

If the DDC is set for RS-232 Modbus communication, the Modbus master device must be connected on the RS-232 port on the front panel (DB9) or alternatively on the back with the RJ-45 connector.

Please use a serial null modem cable to connect to DDC with DB9. Refer to Robur S.p.A. for cabling using RJ-45.

If the DDC is set for RS-485 Modbus communication, the Modbus master device must be connected to the RS-485 connector on the back. Refer to DDC manual for details.

Using the DDC user interface it's possible to set the Modbus slave address. Default is 1.

DDC Modbus Map

The Robur DDC Modbus map uses all the four areas described in the standard:

- Coils (R/W bit oriented I/O, address range 0xxxx)
- Discrete Input (R/O bit oriented Input, address range 1xxxx)
- Input Registers (R/O Word oriented Input, address range 3xxxx)
- Holding Registers (R/W Word oriented I/O, address range 4xxxx)

The following Modbus function codes are supported:

- (01) Read Coil Status
- (02) Read Discrete Input
- (03) Read Holding Register
- (04) Read Input Register
- (05) Write Single Coil
- (06) Write Single Register

- (15) Write Multiple Coil
- (16) Write Multiple Register
- (23) Read/Write Multiple Register

The DDC supports Modbus broadcast messages.

Several fields are mapped to both a R/O and a R/W area.

The following part describes the DDC Modbus map and provides information about using the functions provided by the DDC through the Modbus Interface.

Modbus addresses are listed using two different notations: the first column shows addresses using the “Type Prefix” Modbus notation, while the second column shows addresses using the “Real” Modbus address notation.

In the “Type Prefix” Modbus address notation:

- the first digit is a type prefix, so it's not actually part of the address;
- the addresses themselves start from 1;

E.g. the first holding register address will be shown as "40001", with "4" being the prefix for ‘holding register type’, while the first input register address will be “30001”, with “3” being the prefix for ‘input register type’.

In the “Real” Modbus address notation, the address shown is exactly the same being sent in the actual Modbus communication, so:

- there's no prefix;
- the addresses start from 0;

Please note that “Real” Modbus addresses are given in hexadecimal form; e.g. both the first holding register address and the first input register address will be shown as “0x0000”.

The Modbus function code will specify the register type.

Italic addresses mark out new registers.

COIL

(Read/Write, unless otherwise noted)

"Type prefix" address (dec)	"Real" address (hex)	Type	Category	Description
00001	0x0000	Bit	Remote Assistance Base Global Service Command	Remote Global Start / Stop Cooling Service or 2 pipes Cool/Heat Service START (1) / STOP (0) <i>-not mapped if DDC is not master or cooling service not configured</i> <i>-Read-only if R.A. control not enabled.</i> <i>-should not be used (but functioning) if not enabled by Working Mode (reg. 10508)</i>
00002	0x0001	Bit		Remote Global Start / Stop Heating Service START (1) / STOP (0) <i>-not mapped for 2 pipes cool/heat plant</i> <i>-not mapped if DDC is not master or heating service not configured</i> <i>-Read-only if R.A. control not enabled.</i> <i>-should not be used (but functioning) if not enabled by Working Mode (reg. 10528)</i>
00003	0x0002	Bit		Remote Cool / Heat Mode HEAT (1) / COOL (0) <i>-not mapped if DDC is not master or not 2 pipes</i> <i>-Read-only if R.A. control not enabled or "Plant Enable setup" enables "aRYW" (reg. 41742 = 2)</i>
00004	0x0003	Bit	Generic command	GAHP-W priority button HEAT (1) / COOL (0) <i>-not mapped if 2 pipes cool/heat plant or if no GAHP-W in plant</i> <i>-read-only if no control enabled (no RA nor BMS) on at least one plant</i>
00005	0x0004	Bit	Building Management System Base Service Command	BMS Start / Stop Cooling Service or 2 pipes Cool / Heat Service START (1) / STOP (0) <i>-not mapped if DDC is not master or cooling service not configured</i> <i>-read-only if BMS control not enabled</i>
00006	0x0005	Bit		BMS Start / Stop Heating Service START (1) / STOP (0) <i>-not mapped for 2 pipes cool/heat plant</i> <i>-not mapped if DDC is not master or heating service not configured</i> <i>-Read-only if BMS control not enabled.</i>
00007	0x0006	Bit		BMS Cool / Heat Mode HEAT (1) / COOL (0) <i>-not mapped if DDC is not master or not 2 pipes</i> <i>-Read-only if R.A. control not enabled or "Plant Enable setup" enables "aRYW" (reg. 41742 = 2)</i>
00008	0x0007		Reserved	FREE (Not mapped)
00009	0x0008			FREE (Not mapped)
00010	0x0009	Bit	Remote Assistance DHW Service Command	Remote Start / Stop Base Domestic Hot Water Service START (1) / STOP (0) <i>-not mapped if DDC is not master or base DHW service not configured.</i> <i>-read-only if R.A. control not enabled</i>
00011	0x000A	Bit		Remote Start / Stop Separable Domestic Hot Water Service START (1) / STOP (0) <i>-not mapped if DDC is not master or separable DHW service not configured</i> <i>-read-only if R.A. control not enabled</i>
00012	0x000B		Reserved	FREE (Not mapped)
00013	0x000C			FREE (Not mapped)
00014	0x000D	Bit	Building Management System DHW Service Command	BMS Start / Stop Base Domestic Hot Water Service START (1) / STOP (0) <i>-not mapped if DDC is not master or base DHW service not configured</i> <i>-read-only if BMS control not enabled</i>
00015	0x000E	Bit		BMS Start / Stop Separable Domestic Hot Water Service START (1) / STOP (0) <i>-not mapped if DDC is not master or separable DHW service not configured</i> <i>-read-only if BMS control not enabled</i>

00016	0x000F	Bit	External digital Service Request (RB100 like)	External digital request Cooling service or 2 pipes cool/heat service operating in cooling mode <i>-not mapped if DDC is not master or cooling service not configured</i> <i>-Read-only if neither R.A. control nor BMS control are enabled</i> <i>-Read-only if external request is not enabled.</i>
00017	0x0010	Bit		External digital request Heating service or 2 pipes cool/heat service operating in heating mode <i>-not mapped if DDC is not master or heating service not configured.</i> <i>-Read-only if neither R.A. control nor BMS control are enabled</i> <i>-Read-only if external request is not enabled.</i>
00018	0x0011	Bit		External digital request Base domestic hot water service <i>-not mapped if DDC is not master or base DHW service not configured.</i> <i>-read-only if neither R.A. control nor BMS control are enabled</i> <i>-read-only if external request is not enabled</i>
00019	0x0012	Bit		External digital request Separable domestic hot water service <i>-not mapped if DDC is not master or separable DHW service not configured.</i> <i>-read-only if neither R.A. control nor BMS control are enabled</i> <i>-read-only if external request is not enabled</i>
00020	0x0013	Bit	External analog Service Request (need setpoint register setting) (RB100 like)	External analog request Cooling service or 2 pipes cool/heat service operating in cooling mode <i>-not mapped if DDC is not master or cooling service not configured.</i> <i>-read-only if neither R.A. control nor BMS control are enabled</i> <i>-read-only if external request is not enabled</i>
00021	0x0014	Bit		External analog request Heating service or 2 pipes cool/heat service operating in heating mode <i>-not mapped if DDC is not master or heating service not configured.</i> <i>-read-only if neither R.A. control nor BMS control are enabled</i> <i>-read-only if external request is not enabled</i>
00022	0x0015	Bit		External analog request Base domestic hot water service <i>-not mapped if DDC is not master or base DHW service not configured.</i> <i>-read-only if neither R.A. control nor BMS control are enabled</i> <i>-read-only if external request is not enabled</i>
00023	0x0016	Bit		External analog request Separable domestic hot water service <i>-not mapped if DDC is not master or separable DHW service not configured.</i> <i>-read-only if neither R.A. control nor BMS control are enabled</i> <i>-read-only if external request is not enabled</i>
00024	0x0017	Bit	Remote Assistance Partial Service Command (only for Multi-DDC Plants)	Remote Partial Start / Stop Cooling Service or 2 pipes Cool/Heat Service START (1) / STOP (0) <i>-not mapped if cooling service not configured</i> <i>-mapped both for master and slave DDC</i> <i>-Read-only if R.A. control not enabled.</i> <i>-don't care if Plant is not Multi-DDC or not enabled by Working Mode (reg. 10509)</i>
00025	0x0018	Bit		Remote Partial Start / Stop Heating Service START (1) / STOP (0) <i>-not mapped for 2 pipes cool/heat plant</i> <i>-not mapped if heating service not configured</i> <i>-mapped both for master and slave DDC</i> <i>-Read-only if R.A. control not enabled.</i> <i>-don't care if Plant is not Multi-DDC or not enabled by Working Mode (reg. 10529)</i>
00026	0x0019		Reserved	FREE (Not mapped)
00027	0x001A			FREE (Not mapped)
00028	0x001B			FREE (Not mapped)
00029	0x001C			FREE (Not mapped)

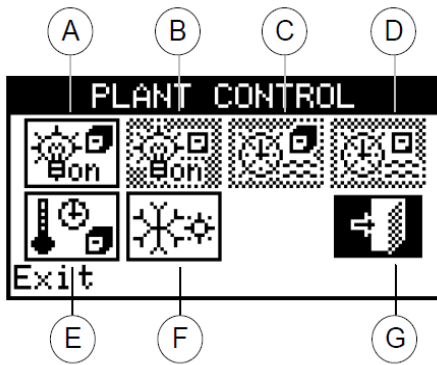
00030	0x001D	Bit	Remote Assistance Global user enable Water Timer	Remote Global user enable Water Timer Cooling Service or 2 pipes Cool/Heat Service ENABLE (1) / DISABLE (0) <i>-not mapped if DDC is not master or cooling service not configured</i> <i>-Read-only if R.A. control not enabled.</i> <i>-don't care if not enabled by Working Mode (reg. 10510)</i>
00031	0x001E	Bit		Remote Global user enable Water Timer Heating Service ENABLE (1) / DISABLE (0) <i>-not mapped for 2 pipes cool/heat plant</i> <i>-not mapped if DDC is not master or heating service not configured</i> <i>-Read-only if R.A. control not enabled.</i> <i>-don't care if not enabled by Working Mode (reg. 10530)</i>
00032	0x001F		Reserved	FREE (Not mapped)
00033	0x0020			FREE (Not mapped)
00034	0x0021			FREE (Not mapped)
00035	0x0022			FREE (Not mapped)
00036	0x0023	Bit	Remote Assistance Partial user enable Water Timer ((only for Multi-DDC Plants)	Remote Partial user enable Water Timer Cooling Service or 2 pipes Cool/Heat Service ENABLE (1) / DISABLE (0) <i>-not mapped if cooling service not configured</i> <i>-mapped both for master and slave DDC</i> <i>-Read-only if R.A. control not enabled.</i> <i>-don't care if Plant is not Multi-DDC or not enabled by Working Mode (reg. 10511)</i>
00037	0x0024	Bit		Remote Partial user enable Water Timer Heating Service ENABLE (1) / DISABLE (0) <i>-not mapped for 2 pipes cool/heat plant</i> <i>-not mapped if heating service not configured</i> <i>-mapped both for master and slave DDC</i> <i>-Read-only if R.A. control not enabled.</i> <i>-don't care if Plant is not Multi-DDC or not enabled by Working Mode (reg. 10531)</i>
00038	0x0025		Reserved	FREE (Not mapped)
00039	0x0026			FREE (Not mapped)
00040	0x0027			FREE (Not mapped)
00041	0x0028			FREE (Not mapped)
00042	0x0029	Bit	Remote Assistance user enable Chrono thermostat	Remote user enable Chrono thermostat Cooling Service or 2 pipes Cool/Heat Service ENABLE (1) / DISABLE (0) (in weather compensation working mode, disable force always to T3) <i>-not mapped if DDC is not master or cooling service not configured</i> <i>-Read-only if R.A. control not enabled.</i> <i>-don't care if not enabled by Working Mode (reg. 10512 or 10514)</i>
00043	0x002A	Bit		Remote user enable Chrono thermostat Heating Service ENABLE (1) / DISABLE (0) (in weather compensation working mode, disable force always to T3) <i>-not mapped for 2 pipes cool/heat plant</i> <i>-not mapped if DDC is not master or heating service not configured</i> <i>-Read-only if R.A. control not enabled.</i> <i>-don't care if not enabled by Working Mode (reg. 10532 or 10534)</i>
00044	0x002B		Reserved	FREE (Not mapped)
00045	0x002C			FREE (Not mapped)
00046	0x002D			FREE (Not mapped)
00047	0x002E			FREE (Not mapped)
00048	0x002F	Bit	Service Setup Configuration enable Internal Request	Service Setup Configuration enable Internal Request Cooling Service or 2 pipes Cool/Heat Service <i>-not mapped if DDC is not master or cooling service not configured</i> <i>-Read-only if R.A. control not enabled.</i>
00049	0x0030	Bit		Service Setup Configuration enable Internal Request Heating Service <i>-not mapped for 2 pipes cool/heat plant</i> <i>-not mapped if DDC is not master or heating service not configured</i> <i>-Read-only if R.A. control not enabled.</i>
00050	0x0031		Reserved	FREE (Not mapped)
00051	0x0032			FREE (Not mapped)
00052	0x0033			FREE (Not mapped)
00053	0x0034			FREE (Not mapped)

00054	0x0035	Bit	Service Setup Configuration enable External Request (RB100/200)	Service Setup Configuration enable External Request Cooling Service or 2 pipes Cool/Heat Service -not mapped if DDC is not master or cooling service not configured -Read-only if R.A. control not enabled.
00055	0x0036	Bit		Service Setup Configuration enable External Request Heating Service -not mapped for 2 pipes cool/heat plant -not mapped if DDC is not master or heating service not configured -Read-only if R.A. control not enabled.
00056	0x0037		Reserved	FREE (Not mapped)
00057	0x0038			FREE (Not mapped)
00058	0x0039			FREE (Not mapped)
00059	0x003A			FREE (Not mapped)
00060 - 00200	0x0039 - 0x00C7		FREE	FREE (Not mapped)
00201	0x00C8	Bit	Plant Settings	Independent circulator Cooling or 2 piped cool / heat plant Independent (1) / Common (0) -not mapped id DDC is not master or cooling plant not configured -read-only if Cooling plant parameters access not enabled
00202	0x00C9	Bit		Independent circulator Heating plant Independent (1) / Common (0) -not mapped for 2 pipes cool/heat plant -not mapped if DDC is not master or heating plant not configured -read-only if Heating plant parameters access not enabled
00203 - 01000	0x00CA - 0x03E7			FREE (Not mapped)
01001	0x03E8	Bit	Cooling module 00 settings	Set Excluded excluded (1) / not excluded (0) - write refused if Cool plant parameters access not enabled; - exclude also heat module on GAHP-W
01002 - 01020	0x03E9 - 0x03FB		Reserved	FREE (Not mapped)
01021 - 01040	0x03FC - 0x040F		Cooling module 01 settings	As above
01041 - 01060	0x0410 - 0x0423		Cooling module 02 settings	As above
01061 - 01080	0x0424 - 0x0437		Cooling module 03 settings	As above
01081 - 01100	0x0438 - 0x044B		Cooling module 04 settings	As above
01101 - 01120	0x044C - 0x045F		Cooling module 05 settings	As above
01121 - 01140	0x0460 - 0x0473		Cooling module 06 settings	As above
01141 - 01160	0x0474 - 0x0487		Cooling module 07 settings	As above
01161 - 01180	0x0488 - 0x049B		Cooling module 08 settings	As above
01181 - 01200	0x049C - 0x04AF		Cooling module 09 settings	As above
01201 - 01220	0x04B0 - 0x04C3		Cooling module 10 settings	As above

01221 - 01240	0x04C4 - 0x04D7		Cooling module 11 settings	As above
01241 - 01260	0x04D8 - 0x04EB		Cooling module 12 settings	As above
01261 - 01280	0x04EC - 0x04FF		Cooling module 13 settings	As above
01281 - 01300	0x0500 - 0x0513		Cooling module 14 settings	As above
01301 - 01320	0x0514 - 0x0527		Cooling module 15 settings	As above
01321	0x0528	Bit	Heating module 00 settings	Set Excluded excluded (1) / not excluded (0) - write refused if Heat plant parameters access not enabled; - exclude also cool module on GAHP-W
01322 - 01340	0x0529 - 0x053B		Reserved	FREE (Not mapped)
01341 - 01360	0x053C - 0x054F		Heating module 01 settings	As above
01361 - 01380	0x0550 - 0x0563		Heating module 02 settings	As above
01381 - 01400	0x0564 - 0x0577		Heating module 03 settings	As above
01401 - 01420	0x0578 - 0x058B		Heating module 04 settings	As above
01421 - 01440	0x058C - 0x059F		Heating module 05 settings	As above
01441 - 01460	0x05A0 - 0x05B3		Heating module 06 settings	As above
01461 - 01480	0x05B4 - 0x05C7		Heating module 07 settings	As above
01481 - 01500	0x05C8 - 0x05DB		Heating module 08 settings	As above
01501 - 01520	0x05DC - 0x05EF		Heating module 09 settings	As above
01521 - 01540	0x05F0 - 0x0603		Heating module 10 settings	As above
01541 - 01560	0x0604 - 0x0617		Heating module 11 settings	As above
01561 - 01580	0x0618 - 0x062B		Heating module 12 settings	As above
01581 - 01600	0x062C - 0x063F		Heating module 13 settings	As above
01601 - 01620	0x0640 - 0x0653		Heating module 14 settings	As above
01621 - 01640	0x0654 - 0x0667		Heating module 15 settings	As above

01641 - 10000	0x0668 - 0x270F		FREE	FREE (Not mapped)
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Remote assistance Commands (i.e. Plant Control using Modbus protocol) notes



- A) Remote Assistance Global Service Command (all services: cool, heat, base DHW, sep DHW)
- B) Remote Assistance Partial Service Command (only for Multi-DDC plants; only cool and heat services)
- C) Remote Assistance Global user enable Water Timer (only cool and heat services)
- D) Remote Assistance Partial user enable Water Timer (only for Multi-DDC plants; only cool and heat services)
- E) Remote Assistance user enable Chrono thermostat (only cool and heat services)
- F) Remote Assistance Cool / Heat Mode

Please pay specific attention to Coil Registers whose value is “don’t care” in certain setups, i.e. can be read and written but ignored by DDC.

External requests (RB100 like) notes

- RB100 like external requests act in parallel with actual RB100 requests;
- An analog request overrides matching digital request;
- After 5 minutes without Modbus communication, all these coils reset to zero.

Service Setup Configuration enable

Disabling both Internal and External request causes Service request always Off.

Cooling / Heating Module settings access rules:

- Reading:
 - read value is "0" if Plant / Service / Unit is not configured
 - read value is "0" if Plant / Service is configured but DDC is not master
- Writing:
 - write refused if Plant / Service / Unit is not configured
 - write refused if Plant / Service is configured but DDC is not master.

DISCRETE INPUTS AREA
(Read Only)

"Type prefix" address (dec)	"Real" address (hex)	Type	Category	Description
10001	0x0000	Bit	Command access type (Remote assistance)	Is Writable Remote Global Start / Stop Cooling Service or 2 pipes Cool / Heat Service TRUE (1) / FALSE (0)
10002	0x0001	Bit		Is Writable Remote Global Start / Stop Heating Service TRUE (1) / FALSE (0)
10003	0x0002	Bit		Is Writable Remote Cool / Heat Mode TRUE (1) / FALSE (0)
10004	0x0003	Bit		Is Mapped Remote Global Start / Stop Cooling Service or 2 pipes Cool / Heat Service TRUE (1) / FALSE (0)
10005	0x0004	Bit		Is Mapped Remote Global Start / Stop Heating Service TRUE (1) / FALSE (0)
10006	0x0005	Bit		Is Mapped Remote Cool / Heat Mode TRUE (1) / FALSE (0)
10007	0x0006	Bit	Command access type (generic)	Is Writable GAHP-W priority TRUE (1) / FALSE (0)
10008	0x0007	Bit		Is Mapped GAHP-W priority TRUE (1) / FALSE (0)
10009	0x0008	Bit	Command access type (BMS)	Is Writable BMS Start / Stop Cooling Service or 2 pipes Cool / Heat Service TRUE (1) / FALSE (0)
10010	0x0009	Bit		Is Writable BMS Start / Stop Heating Service TRUE (1) / FALSE (0)
10011	0x000A	Bit		Is Writable BMS Cool / Heat Mode TRUE (1) / FALSE (0)
10012	0x000B	Bit		Is Mapped BMS Start / Stop Cooling Service or 2 pipes Cool / Heat Service TRUE (1) / FALSE (0)
10013	0x000C	Bit		Is Mapped BMS Start / Stop Heating Service TRUE (1) / FALSE (0)
10014	0x000D	Bit		Is Mapped BMS Cool / Heat Mode TRUE (1) / FALSE (0)
10015 - 10018	0x000E-0x0011			FREE (Not mapped)
10019	0x0012	Bit	Command access type (Remote assistance)	Is Writable Remote Start / Stop Base Domestic Hot Water Service TRUE (1) / FALSE (0)
10020	0x0013	Bit		Is Mapped Remote Start / Stop Base Domestic Hot Water Service TRUE (1) / FALSE (0)
10021	0x0014	Bit		Is Writable Remote Start / Stop Separable Domestic Hot Water Service TRUE (1) / FALSE (0)
10022	0x0015	Bit		Is Mapped Remote Start / Stop Separable Domestic Hot Water Service TRUE (1) / FALSE (0)
10023 - 10026	0x0016-0x0019			FREE (Not mapped)
10027	0x001A	Bit	Command access type (BMS)	Is Writable BMS Start / Stop Base Domestic Hot Water Service
10028	0x001B	Bit		Is Mapped BMS Start / Stop Base Domestic Hot Water Service
10029	0x001C	Bit		Is Writable BMS Start / Stop Separable Domestic Hot Water Service
10030	0x001D	Bit		Is Mapped BMS Start / Stop Separable Domestic Hot Water Service
10031	0x001E	Bit	External digital request access type	Is Writable External digital request Cooling service or 2 pipes cool / heat service in cooling mode

10032	0x001F	Bit		Is Writable External digital request Heating service or 2 pipes cool / heat service in heating mode
10033	0x0020	Bit		Is Writable External digital request Base domestic hot water service
10034	0x0021	Bit		Is Writable External digital request Separable domestic hot water service
10035	0x0022	Bit		Is Mapped External digital request Cooling service or 2 pipes cool / heat service in cooling mode
10036	0x0023	Bit		Is Mapped External digital request Heating service or 2 pipes cool/heat service in heating mode
10037	0x0024	Bit		Is Mapped External digital request Base domestic hot water service
10038	0x0025	Bit		Is Mapped External digital request Separable domestic hot water service
10039	0x0026	Bit	External analog request access type	Is Writable External analog request Cooling service or 2 pipes cool/heat service in cooling mode
10040	0x0027	Bit		Is Writable External analog request Heating service or 2 pipes cool/heat service in heating mode
10041	0x0028	Bit		Is Writable External analog request Base domestic hot water service
10042	0x0029	Bit		Is Writable External analog request Separable domestic hot water service
10043	0x002A	Bit		Is Mapped External analog request Cooling service or 2 pipes cool/heat service in cooling mode
10044	0x002B	Bit		Is Mapped External analog request Heating service or 2 pipes cool/heat service in heating mode
10045	0x002C	Bit		Is Mapped External analog request Base domestic hot water service
10046	0x002D	Bit		Is Mapped External analog request Separable domestic hot water service
10047	0x002E		Command access type (Remote assistance)	Is Writable Remote Partial Start / Stop Cooling Service or 2 pipes Cool/Heat Service
10048	0x002F			Is Writable Remote Partial Start / Stop Heating Service
10049 - 10052	0x0030- 0x0033		Reserved	FREE (Not mapped)
10053	0x0034		Command access type (Remote assistance)	Is Mapped Remote Partial Start / Stop Cooling Service or 2 pipes Cool/Heat Service
10054	0x0035			Is Mapped Remote Partial Start / Stop Heating Service
10055 - 10058	0x0036- 0x0039		Reserved	FREE (Not mapped)
10059	0x003A		Command access type (Remote assistance)	Is Writable Remote Global user enable Water Timer Cooling Service or 2 pipes Cool/Heat Service
10060	0x003B			Is Writable Remote Global user enable Water Timer Heating Service
10061 - 10064	0x003C- 0x003F		Reserved	FREE (Not mapped)
10065	0x0040		Command access type (Remote assistance)	Is Mapped Remote Global user enable Water Timer Cooling Service or 2 pipes Cool/Heat Service
10066	0x0041			Is Mapped Remote Global Start / Stop Heating Service
10067 - 10070	0x0042- 0x0045		Reserved	FREE (Not mapped)
10071	0x0046		Command access type (Remote assistance)	Is Writable Remote Partial user enable Water Timer Cooling Service or 2 pipes Cool/Heat Service
10072	0x0047			Is Writable Remote Partial user enable Water Timer Heating Service
10073 - 10076	0x0048- 0x004B		Reserved	FREE (Not mapped)
10077	0x004C		Command access type (Remote assistance)	Is Mapped Remote Partial user enable Water Timer Cooling Service or 2 pipes Cool/Heat Service
10078	0x004D			Is Mapped Remote Partial user enable Water Timer Heating Service
10079 - 10082	0x004E- 0x0051		Reserved	FREE (Not mapped)
10083	0x0052		Command access type (Remote assistance)	Is Writable Remote user enable Chrono thermostat Cooling Service or 2 pipes Cool/Heat Service
10084	0x0053			Is Writable Remote user enable Chrono thermostat Heating Service

10085 - 10088	0x0054-0x0057		Reserved	FREE (Not mapped)
10089	0x0058		Command access type (Remote assistance)	Is Mapped Remote user enable Chrono thermostat Cooling Service or 2 pipes Cool/Heat Service
10090	0x0059			Is Mapped Remote user enable Chrono thermostat Heating Service
10091 - 10094	0x005A-0x005D		Reserved	FREE (Not mapped)
10095	0x005E		Service Setup Configuration access type	Is Writable Enable Internal Request Cooling Service or 2 pipes Cool/Heat Service
10096	0x005F			Is Writable Enable Internal Request Heating Service
10097 - 10100	0x0060-0x0063		Reserved	FREE (Not mapped)
10101	0x0064		Service Setup Configuration access type	Is Mapped Enable Internal Request Cooling Service or 2 pipes Cool/Heat Service
10102	0x0065			Is Mapped Enable Internal Request Heating Service
10103 - 10106	0x0066-0x0069		Reserved	FREE (Not mapped)
10107	0x006A		Service Setup Configuration access type	Is Writable Enable External Request Cooling Service or 2 pipes Cool/Heat Service
10108	0x006B			Is Writable Enable External Request Heating Service
10109 - 10112	0x006C-0x006F		Reserved	FREE (Not mapped)
10113	0x0070		Service Setup Configuration access type	Is Mapped Enable External Request Cooling Service or 2 pipes Cool/Heat Service
10114	0x0071			Is Mapped Enable External Request Heating Service
10115 - 10118	0x0072-0x0075		Reserved	FREE (Not mapped)
10119	0x0076		Plant Settings access type	Is Writable Independent circulator Cooling or 2 piped cool / heat plant
10120	0x0077			Is Writable Independent circulator Heating plant
10121	0x0078			Is Mapped Independent circulator Cooling or 2 piped cool / heat plant
10122	0x0079			Is Mapped Independent circulator Heating plant
10123 - 10500	0x007A-0x01F3			FREE (Not mapped)
10501	0x01F4	Bit	DDC Service Status	On / Off Cooling Service or 2 Pipes Cool/Heat Service ON (1) / OFF (0) <i>-Not mapped if cooling service not configured</i>
10502	0x01F5	Bit		On / Off Heating Service ON (1) / OFF (0) <i>-Not mapped for 2 pipes cool/heat plant</i> <i>-Not mapped if heating service not configured</i>
10503	0x01F6	Bit		Cool / Heat Mode HEAT (1) / COOL (0) <i>-Mapped only for 2 pipes Cool/Heat Plant</i> <i>-Not mapped for DDC MONitor working mode</i>
10504	0x01F7	Bit		On / Off Base Domestic Hot Water Service ON (1) / OFF (0) <i>-not mapped if DHW service (base part) not configured.</i>
10505	0x01F8	Bit		On / Off Separable Domestic Hot Water Service ON (1) / OFF (0) <i>-not mapped if DHW service (separable part) not configured.</i>
10506	0x01F9		Reserved	FREE (Not mapped)
10507	0x01FA		Reserved	FREE (Not mapped)
10508	0x01FB	Bit	DDC Service Working Mode Installation Enable Status	Is Enabled Global Start / Stop Cooling Service or 2 pipes Cool/Heat Service <i>-Not mapped if cooling service not configured</i>
10509	0x01FC	Bit		Is Enabled Partial Start / Stop Cooling Service or 2 pipes Cool/Heat Service <i>-Not mapped if cooling service not configured</i>

10510	0x01FD	Bit		Is Enabled Global Water Timer Cooling Service or 2 pipes Cool/Heat Service <i>-Not mapped if cooling service not configured</i>
10511	0x01FE	Bit		Is Enabled Partial Water Timer Cooling Service or 2 pipes Cool/Heat Service <i>-Not mapped if cooling service not configured</i>
10512	0x01FF	Bit		Is Enabled Chrono thermostat Cooling Service or 2 pipes Cool/Heat Service <i>-Not mapped if cooling service not configured</i>
10513	0x0200	Bit		Is Enabled External temperature thermostat Cooling Service or 2 pipes Cool/Heat Service <i>-Not mapped if cooling service not configured</i>
10514	0x0201	Bit		Is Enabled Weather Compensation Cooling Service or 2 pipes Cool/Heat Service <i>-Not mapped if cooling service not configured</i>
10515	0x0202	Bit		Is Enabled RY-RW Cooling Service or 2 pipes Cool/Heat Service <i>-Not mapped if cooling service not configured</i>
10516	0x0203	Bit		Is Enabled Monitor Mode Cooling Service or 2 pipes Cool/Heat Service <i>-Not mapped if cooling service not configured</i>
10517 - 10527	0x0204- 0x020E		Reserved	FREE (Not mapped)
10528	0x020F	Bit		Is Enabled Global Start / Stop Heating Service <i>-Not mapped for 2 pipes cool/heat plant</i> <i>-Not mapped if heating service not configured</i>
10529	0x0210	Bit		Is Enabled Partial Start / Stop Heating Service <i>-Not mapped for 2 pipes cool/heat plant</i> <i>-Not mapped if heating service not configured</i>
10530	0x0211	Bit		Is Enabled Global Water Timer Heating Service <i>-Not mapped for 2 pipes cool/heat plant</i> <i>-Not mapped if heating service not configured</i>
10531	0x0212	Bit		Is Enabled Partial Water Timer Heating Service <i>-Not mapped for 2 pipes cool/heat plant</i> <i>-Not mapped if heating service not configured</i>
10532	0x0213	Bit		Is Enabled Chrono thermostat Heating Service <i>-Not mapped for 2 pipes cool/heat plant</i> <i>-Not mapped if heating service not configured</i>
10533	0x0214	Bit		Is Enabled External temperature thermostat Heating Service <i>-Not mapped for 2 pipes cool/heat plant</i> <i>-Not mapped if heating service not configured</i>
10534	0x0215	Bit		Is Enabled Weather Compensation Heating Service <i>-Not mapped for 2 pipes cool/heat plant</i> <i>-Not mapped if heating service not configured</i>
10535	0x0216	Bit		Is Enabled RY-RW Heating Service <i>-Not mapped for 2 pipes cool/heat plant</i> <i>-Not mapped if heating service not configured</i>
10536	0x0217	Bit		Is Enabled Monitor Mode Heating Service <i>-Not mapped for 2 pipes cool/heat plant</i> <i>-Not mapped if heating service not configured</i>
10537 - 10547	0x0218- 0x0222		Reserved	FREE (Not mapped)
10548	0x0223		DDC Circuit Settings	Is manifold inlet probe installed (cooling circuit) <i>-not mapped if cooling circuit not configured or DDC is not master</i>
10549	0x0224	Bit		Is manifold outlet probe installed (cooling circuit) <i>-not mapped if cooling circuit not configured or DDC is not master</i>
10550	0x0225	Bit		Is manifold inlet probe installed (heating circuit) <i>-not mapped if heating circuit not configured or DDC is not master</i>
10551	0x0226	Bit		Is manifold outlet probe installed (heating circuit) <i>-not mapped if heating circuit not configured or DDC is not master</i>
10552	0x0227	Bit		Is manifold inlet probe installed (separable heating circuit) <i>-not mapped if separable heating circuit not configured or DDC is not master</i>

10553	0x0228	Bit		Is manifold outlet probe installed (separable heating circuit) -not mapped if separable heating circuit not configured or DDC is not master
10554 - 10647	0x0229- 0x0286		Reserved	FREE (Not mapped)
10648 - 11000	0x0287- 0x03E7		Free	FREE (Not mapped)
11001	0x03E8	Bit	Cooling Module 00 Status	Not Configured (Module 00) TRUE (1) / FALSE (0)
11002	0x03E9	Bit		User Excluded (Module 00) TRUE (1) / FALSE (0)
11003	0x03EA	Bit		Offline (Module 00) TRUE (1) / FALSE (0)
11004	0x03EB	Bit		ON/OFF (Module 00) ON (1) / OFF (0)
11005	0x03EC	Bit		Performing Defrosting (Module 00) TRUE (1) / FALSE (0)
11006	0x03ED	Bit		Off Due to Limit Temperature (Module 00) TRUE (1) / FALSE (0)
11007	0x03EE	Bit		Water Flow Switch (Module 00) FLOW (1) / NO FLOW (0)
11008	0x03EF	Bit		Alarm (W/E) (Module 00) TRUE (1) / FALSE (0)
11009	0x03F0	Bit		Warning Alarm (Module 00) TRUE (1) / FALSE (0)
11010	0x03F1	Bit		Error Alarm (Module 00) TRUE (1) / FALSE (0)
11011	0x03F2	Bit		DHW request (Module 00) ON (1) / OFF (0) Only for S61 f/w 3.016 and later. Previous set to 0.
11012	0x03F3	Bit		Flame status (Module 00) ON (1) / OFF (0) Only for S61 f/w 3.016 and later. Previous set to 0.
11013	0x03F4	Bit		ON in Silent Mode (Module 00) TRUE (1) / FALSE (0)
11014 - 11064	0x03F5 - 0x0427			FREE (Not mapped)
11065 - 11128	0x0428 - 0x0467		Cooling Module 01 Status	As above
11129 - 11192	0x0468 - 0x04A7		Cooling Module 02 Status	As above
11193 - 11256	0x04A8- 0x04E7		Cooling Module 03 Status	As above
11257 - 11320	0x04E8- 0x0527		Cooling Module 04 Status	As above
11321 - 11384	0x0528 - 0x0567		Cooling Module 05 Status	As above
11385 - 11448	0x0568 - 0x05A7		Cooling Module 06 Status	As above
11449 - 11512	0x05A8- 0x05E7		Cooling Module 07 Status	As above
11513 - 11576	0x05E8- 0x0627		Cooling Module 08 Status	As above
11577 - 11640	0x0628 - 0x0667		Cooling Module 09 Status	As above
11641 - 11704	0x0668 - 0x06A7		Cooling Module 10 Status	As above
11705 - 11768	0x06A8- 0x06E7		Cooling Module 11 Status	As above
11769 - 11832	0x06E8- 0x0727		Cooling Module 12 Status	As above
11833 - 11896	0x0728 - 0x0767		Cooling Module 13 Status	As above

11897 - 11960	0x0768 - 0x07A7		Cooling Module 14 Status	<i>As above</i>
11961 - 12024	0x07A8 - 0x07E7		Cooling Module 15 Status	<i>As above</i>
12025	0x07E8	Bit	Heating Module 00 Status	Not Configured (Module 00) TRUE (1) / FALSE (0)
12026	0x07E9	Bit		User Excluded (Module 00) TRUE (1) / FALSE (0)
12027	0x07EA	Bit		Offline (Module 00) TRUE (1) / FALSE (0)
12028	0x07EB	Bit		ON/OFF (Module 00) ON (1) / OFF (0)
12029	0x07EC	Bit		Performing Defrosting (Module 00) TRUE (1) / FALSE (0)
12030	0x07ED	Bit		Off Due to Limit Temperature (Module 00) TRUE (1) / FALSE (0)
12031	0x07EE	Bit		Water Flow Switch (Module 00) FLOW (1) / NO FLOW (0)
12032	0x07EF	Bit		Alarm (W/E) (Module 00) TRUE (1) / FALSE (0)
12033	0x07F0	Bit		Warning Alarm (Module 00) TRUE (1) / FALSE (0)
12034	0x07F1	Bit		Error Alarm (Module 00) TRUE (1) / FALSE (0)
12035	0x07F2	Bit		DHW request (Module 00) ON (1) / OFF (0) Only for S61 f/w 3.016 and later. Previous set to 0.
12036	0x07F3	Bit		Flame status (Module 00) ON (1) / OFF (0) Only for S61 f/w 3.016 and later. Previous set to 0.
12037	0x07F4	Bit		ON in Silent Mode (Module 00) TRUE (1) / FALSE (0)
12038 - 12088	0x07F5 - 0x0827			FREE (Not mapped)
12089 - 12152	0x0828 - 0x0867		Heating Module 01 Status	<i>As above</i>
12153 - 12216	0x0868 - 0x08A7		Heating Module 02 Status	<i>As above</i>
12217 - 12280	0x08A8 - 0x08E7		Heating Module 03 Status	<i>As above</i>
12281 - 12344	0x08E8 - 0x0927		Heating Module 04 Status	<i>As above</i>
12345 - 12408	0x0928 - 0x0967		Heating Module 05 Status	<i>As above</i>
12409 - 12472	0x0968 - 0x09A7		Heating Module 06 Status	<i>As above</i>
12473 - 12536	0x09A8 - 0x09E7		Heating Module 07 Status	<i>As above</i>
12537 - 12600	0x09E8 - 0x0A27		Heating Module 08 Status	<i>As above</i>
12601 - 12664	0x0A28 - 0x0A67		Heating Module 09 Status	<i>As above</i>
12665 - 12728	0x0A68 - 0x0AA7		Heating Module 10 Status	<i>As above</i>
12729 - 12792	0x0AA8 - 0x0AE7		Heating Module 11 Status	<i>As above</i>
12793 - 12856	0x0AE8 - 0x0B27		Heating Module 12 Status	<i>As above</i>
12857 - 12920	0x0B28 - 0x0B67		Heating Module 13 Status	<i>As above</i>
12921 - 12984	0x0B68 - 0x0BA7		Heating Module 14 Status	<i>As above</i>
12985 - 13048	0x0BA8 - 0x0BE7		Heating Module 15 Status	<i>As above</i>
13049 - 20000	0x0BE8 - 0x0270F			FREE (Not mapped)

Module Status Flags notes

- ON/OFF discrete input tells whether the module is working or stopped.
It's equal to the DDC On/Off request, except for Defrosting and "Off Due to Limit Temperature". In this cases On/Off status is off (0).
Note that when W12 or W29 are active, On/Off status is on (1).
- Defrosting flag only applies to GAHP-A and GAHP-AR unit types modules; always set to FALSE for other unit types modules.
- "Off Due to Limit Temperature" is masked if DDC do not turn ON the module.
- At most one of ON/OFF, Defrosting and "Off Due to Limit Temperature" flags is set to TRUE at a given time.
- If Offline flag is TRUE (Unit has no electrical supply or is not communicating with the DDC), then ON/OFF, Defrosting, "Off Due to Limit Temperature" and Flowswitch flags are set to FALSE, although their actual status is "unknown"; Alarm flag is set to TRUE, since Offline status is an alarm condition itself.
- The Alarm flag set means unit has at least one (W)arning or (E)rror alarm condition.
- The Warning alarm flag set means unit has at least one Warning alarm condition.
- The Error alarm flag set means unit has at least one Error alarm condition.
- DHW request status means that the module operates for Domestic Hot Water production.
- Flame status = 1 if flame is on.
- ON in silent mode = 1 if unit is working in quiet mode (only for brushless fan units).

INPUT REGISTERS (Read Only)

Note that Alarms and Working data registers refers to Machine Groups (plants) rather than Services.

Main groups are: Base Cooling Plant, Base Heating Plant, Separable Heating Plant.

Water timer refers to Services.

"Type prefix" address (dec)	"Real" address (hex)	Type	category	Description
30001	0x0000	Bit-map	DDC configuration	DDC ID See "DDC ID notes"
30002	0x0001	Unsigned Word		DDC Serial Number (Most Significant Word)
30003	0x0002	Unsigned Word		DDC Serial Number (Least Significant Word)
30004	0x0003	Unsigned Word		DDC Firmware Release Major i.e. digits on the left of dot
30005	0x0004	Unsigned Word		DDC Firmware Release Minor i.e. digits on the right of dot
30006	0x0005	Unsigned Word		DDC Is Cooling Plant or 2 Pipes C/H Plant Master DDC TRUE(1) / FALSE(0) / NO_VALUE (0xFFFF) if NO_VALUE means Cooling Plant or 2 Pipes C/H Plant is not configured
30007	0x0006	Unsigned Word		DDC Is Heating Plant or 2 Pipes C/H Plant Master DDC TRUE(1) / FALSE(0) / NO_VALUE (0xFFFF) if NO_VALUE means Heating Plant or 2 Pipes C/H Plant is not configured
30008	0x0007	Unsigned Word		Number of registers of the "Module Working Data" category (not including timestamps, working time, ignition number) (constant value) Useful to read out all module working data, regardless of DDC f/w version.
30009	0x0008	Unsigned Word		Number of cooling modules configured on this DDC [1..16] / NO_VALUE (0xFFFF) if j then module slots 0..(j - 1) will contain data if NO_VALUE means no cooling modules are configured
30010	0x0009	Unsigned Word		Number of heating modules configured on this DDC [1..16] / NO_VALUE (0xFFFF) if j then module slots 0..(j - 1) will contain data if NO_VALUE means no heating modules are configured
30011	0x000A	Unsigned Word		Cooling Plant or 2 Pipes C/H Plant ID [0..15] / NO_VALUE (0xFFFF) if NO_VALUE means Cooling Plant or 2 Pipes C/H Plant is not configured
30012	0x000B	Unsigned Word		Heating Plant or 2 Pipes C/H Plant ID [0..15] / NO_VALUE (0xFFFF) if NO_VALUE means Heating Plant or 2 Pipes C/H Plant is not configured
30013	0x000C	boolean		2 Pipes Cooling/Heating Plant configured on this DDC TRUE (1) / FALSE (0)
30014	0x000D	boolean		GAHP-W units configured on this DDC TRUE (1) / FALSE (0)
30015	0x000E	Unsigned Word		Number of registers of the "Module Working Data Part 2" category. Useful to read out all module working data, regardless of DDC f/w version.
30016 - 30100	0x000F - 0x0063			FREE (Not mapped)

30101	0x0064	Bit-map	DDC working data: Base cooling plant	Timestamp 1 – See “Time stamps Notes”
30102	0x0065	Bit-map		Timestamp 2 – See “Time stamps Notes”
30103	0x0066	Signed Word		Outlet Water Temperature (Base Cooling Plant) (=ABSENT_ANALOG if base cooling plant not configured or DDC is not master)
30104	0x0067	Signed Word		Inlet Water Temperature (Base Cooling Plant) (=ABSENT_ANALOG if base cooling plant not configured or DDC is not master)
30105	0x0068	Signed Word		External Ambient Temperature (Mean of all unit’s external temperature probes or DDC external probe temperature [if installed]) (=ABSENT_ANALOG if base cooling plant not configured or DDC is not master)
30106	0x0069	Signed Word		Internal Ambient Temperature (DDC Probe) (=ABSENT_ANALOG if base cooling plant not configured or Chrono not configured)
30107	0x006A	Enum		Cool/Heat transient mode (0 = all functional; 1 = modules are being turned off; 2 = modules are being cool/heat-switched; NO_VALUE if not 2 pipes or DDC is not master or DDC in monitor mode)
30108 - 30250	0x006B - 0x00F9			FREE (Not mapped)
30251	0x00FA	Bit-map	DDC working data: Base heating plant	Timestamp 1
30252	0x00FB	Bit-map		Timestamp 2
30253	0x00FC	Signed Word		Outlet Water Temperature (Base Heating Plant) (=ABSENT_ANALOG if base heating plant not configured or DDC is not master) (Equal to base cooling plant in 2 pipes cool/heat plant, except for splitted manifolds configuration)
30254	0x00FD	Signed Word		Inlet Water Temperature (Base Heating Plant) (=ABSENT_ANALOG if base heating plant not configured or DDC is not master) (Equal to base cooling plant in 2 pipes cool/heat plant, except for splitted manifolds configuration)
30255	0x00FE	Signed Word		External Ambient Temperature (Mean of all unit’s external temperature probes or DDC external probe temperature [if installed]) (same value as base cooling plant)
30256	0x00FF	Signed Word		Internal Ambient Temperature (DDC Probe, same value as base cooling plant)
30257	0x0100	Enum		Cool/Heat transient mode (same as base cooling plant)
30258	0x0101	Enum		Separable Heating Plant Inclusion state (0 = is Undefined; 1= is Included; 2 = is Separate; 3 = is being Included; 4 = is being Separated) (=NO_VALUE if heating plant not configured or DDC is not master or DDC in monitor mode)
30259 - 30400	0x0102 - 0x018F			FREE (Not mapped)
30401	0x0190	Signed Word	DDC Settings: Water regulation Base cooling plant (or 2 pipes base Cool/heat plant in cooling mode)	Default Water Setpoint Temperature [°C/10] (not mapped if DDC is not master or cooling plant not configured)
30402	0x0191	Unsigned Word		(=0) (not mapped if DDC is not master or cooling plant not configured)
30403	0x0192	Signed Word		Water Differential Temperature [°C/10] (not mapped if DDC is not master or cooling plant not configured)
30404	0x0193	Signed Word		Currently Active Water Setpoint Temp. [°C/10] (not mapped if DDC is not master or cooling plant not configured)

30405	0x0194	Signed Word	DDC Settings: General Water Timer Cooling Service <i>(not mapped if service not configured or DDC not cooling master)</i>	MON - Time Period 1 Setpoint Temperature [°C/10]
30406	0x0195	Unsigned Word		MON - Time Period 1 ON Time [h * 60 + m]
30407	0x0196	Unsigned Word		MON - Time Period 1 OFF Time [h * 60 + m]
30408	0x0197	boolean		MON - Time Period 1 Enabled TRUE (1) / FALSE (0)
30409 - 30412	0x0198 - 0x019B			MON - Time Period 2 <i>As above</i>
30413 - 30416	0x019C- 0x019F			MON - Time Period 3 <i>As above</i>
30417 - 30420	0x01A0- 0x01A3			MON - Time Period 4 <i>As above</i>
30421	0x01A4	Signed Word		TUE - Time Period 1 Setpoint Temperature [°C/10]
30422	0x01A5	Unsigned Word		TUE - Time Period 1 ON Time [h * 60 + m]
30423	0x01A6	Unsigned Word		TUE - Time Period 1 OFF Time [h * 60 + m]
30424	0x01A7	boolean		TUE - Time Period 1 Enabled TRUE (1) / FALSE (0)
30425 - 30428	0x01A8 - 0x01AB			TUE - Time Period 2 <i>As above</i>
30429 - 30432	0x01AC- 0x01AF			TUE - Time Period 3 <i>As above</i>
30433 - 30436	0x01B0- 0x01B3			TUE - Time Period 4 <i>As above</i>
30437	0x01B4	Signed Word		WED - Time Period 1 Setpoint Temperature [°C/10]
30438	0x01B5	Unsigned Word		WED - Time Period 1 ON Time [h * 60 + m]
30439	0x01B6	Unsigned Word		WED - Time Period 1 OFF Time [h * 60 + m]
30440	0x01B7	boolean		WED - Time Period 1 Enabled TRUE (1) / FALSE (0)
30441 - 30444	0x01B8 - 0x01BB			WED - Time Period 2 <i>As above</i>
30445 - 30448	0x01BC- 0x01BF			WED - Time Period 3 <i>As above</i>
30449 - 30452	0x01C0- 0x01C3			WED - Time Period 4 <i>As above</i>
30453	0x01C4	Signed Word		THU - Time Period 1 Setpoint Temperature [°C/10]
30454	0x01C5	Unsigned Word		THU - Time Period 1 ON Time [h * 60 + m]
30455	0x01C6	Unsigned Word		THU - Time Period 1 OFF Time [h * 60 + m]
30456	0x01C7	boolean		THU - Time Period 1 Enabled TRUE (1) / FALSE (0)
30457 - 30460	0x01C8- 0x01CB			THU - Time Period 2 <i>As above</i>
30461 - 30464	0x01CC- 0x01CF			THU - Time Period 3 <i>As above</i>
30465 - 30468	0x01D0- 0x01D3			THU - Time Period 4 <i>As above</i>

30469	0x01D4	Signed Word		FRI - Time Period 1 Setpoint Temperature [°C/10]
30470	0x01D5	Unsigned Word		FRI - Time Period 1 ON Time [h * 60 + m]
30471	0x01D6	Unsigned Word		FRI - Time Period 1 OFF Time [h * 60 + m]
30472	0x01D7	boolean		FRI - Time Period 1 Enabled TRUE (1) / FALSE (0)
30473 - 30476	0x01D8- 0x01DB			FRI - Time Period 2 <i>As above</i>
30477 - 30480	0x01DC- 0x01DF			FRI - Time Period 3 <i>As above</i>
30481 - 30484	0x01E0- 0x01E3			FRI - Time Period 4 <i>As above</i>
30485	0x01E4	Signed Word		SAT - Time Period 1 Setpoint Temperature [°C/10]
30486	0x01E5	Unsigned Word		SAT - Time Period 1 ON Time [h * 60 + m]
30487	0x01E6	Unsigned Word		SAT - Time Period 1 OFF Time [h * 60 + m]
30488	0x01E7	boolean		SAT - Time Period 1 Enabled TRUE (1) / FALSE (0)
30489 - 30492	0x01E8- 0x01EB			SAT - Time Period 2 <i>As above</i>
30493 - 30496	0x01EC- 0x01EF			SAT - Time Period 3 <i>As above</i>
30497 - 30500	0x01F0- 0x01F3			SAT - Time Period 4 <i>As above</i>
30501	0x01F4	Signed Word		SUN - Time Period 1 Setpoint Temperature [°C/10]
30502	0x01F5	Unsigned Word		SUN - Time Period 1 ON Time [h * 60 + m]
30503	0x01F6	Unsigned Word		SUN - Time Period 1 OFF Time [h * 60 + m]
30504	0x01F7	boolean		SUN - Time Period 1 Enabled TRUE (1) / FALSE (0)
30505 - 30508	0x01F8- 0x01FB			SUN - Time Period 2 <i>As above</i>
30509 - 30512	0x01FC- 0x01FF			SUN - Time Period 3 <i>As above</i>
30513 - 30516	0x0200- 0x0203			SUN - Time Period 4 <i>As above</i>
30517 - 30676	0x0204- 0x02A3			FREE (Not mapped)
30677	0x02A4	Signed Word	DDC Settings: Water regulation Base heating plant (or 2 pipes base Cool/heat plant in heating mode)	Default Water Setpoint Temperature [°C/10] <i>(not mapped if DDC is not master or base heating plant not configured)</i>
30678	0x02A5	Unsigned Word		(=0) <i>(not mapped if DDC is not master or base heating plant not configured)</i>
30679	0x02A6	Signed Word		Water Differential Temperature [°C/10] <i>(not mapped if DDC is not master or base heating plant not configured)</i>
30680	0x02A7	Signed Word		Currently Active Water Setpoint Temp. [°C/10] <i>(not mapped if DDC is not master or base heating plant not configured)</i>

30681	0x02A8	Signed Word	DDC Settings: General Water Timer Heating Service <i>(not mapped if base heating service not configured or DDC not heating master)</i>	MON - Time Period 1 Setpoint Temperature [°C/10]
30682	0x02A9	Unsigned Word		MON - Time Period 1 ON Time [h * 60 + m]
30683	0x02AA	Unsigned Word		MON - Time Period 1 OFF Time [h * 60 + m]
30684	0x02AB	boolean		MON - Time Period 1 Enabled TRUE (1) / FALSE (0)
30685 - 30688	0x02AC- 0x02AF			MON - Time Period 2 <i>As above</i>
30689 - 30692	0x02B0- 0x02B3			MON - Time Period 3 <i>As above</i>
30693 - 30696	0x02B4- 0x02B7			MON - Time Period 4 <i>As above</i>
30697	0x02B8	Signed Word		TUE - Time Period 1 Setpoint Temperature [°C/10]
30698	0x02B9	Unsigned Word		TUE - Time Period 1 ON Time [h * 60 + m]
30699	0x02BA	Unsigned Word		TUE - Time Period 1 OFF Time [h * 60 + m]
30700	0x02BB	boolean		TUE - Time Period 1 Enabled TRUE (1) / FALSE (0)
30701 - 30704	0x02BC- 0x02BF			TUE - Time Period 2 <i>As above</i>
30705 - 30708	0x02C0- 0x02C3			TUE - Time Period 3 <i>As above</i>
30709 - 30712	0x02C4- 0x02C7			TUE - Time Period 4 <i>As above</i>
30713	0x02C8	Signed Word		WED - Time Period 1 Setpoint Temperature [°C/10]
30714	0x02C9	Unsigned Word		WED - Time Period 1 ON Time [h * 60 + m]
30715	0x02CA	Unsigned Word		WED - Time Period 1 OFF Time [h * 60 + m]
30716	0x02CB	boolean		WED - Time Period 1 Enabled TRUE (1) / FALSE (0)
30717 - 30720	0x02CC- 0x02CF	Signed Word		WED - Time Period 2 <i>As above</i>
30721 - 30724	0x02D0- 0x02D3	Unsigned Word		WED - Time Period 3 <i>As above</i>
30725 - 30728	0x02D4- 0x02D7	Unsigned Word		WED - Time Period 4 <i>As above</i>
30729	0x02D8	Signed Word		THU - Time Period 1 Setpoint Temperature [°C/10]
30730	0x02D9	Unsigned Word		THU - Time Period 1 ON Time [h * 60 + m]
30731	0x02DA	Unsigned Word		THU - Time Period 1 OFF Time [h * 60 + m]
30732	0x02DB	boolean		THU - Time Period 1 Enabled TRUE (1) / FALSE (0)
30733 - 30736	0x02DC- 0x02DF			THU - Time Period 2 <i>As above</i>
30737 - 30740	0x02E0- 0x02E3			THU - Time Period 3 <i>As above</i>
30741 - 30744	0x02E4- 0x02E7			THU - Time Period 4 <i>As above</i>

30745	0x02E8	Signed Word		FRI - Time Period 1 Setpoint Temperature [°C/10]
30746	0x02E9	Unsigned Word		FRI - Time Period 1 ON Time [h * 60 + m]
30747	0x02EA	Unsigned Word		FRI - Time Period 1 OFF Time [h * 60 + m]
30748	0x02EB	boolean		FRI - Time Period 1 Enabled TRUE (1) / FALSE (0)
30749 - 30752	0x02EC- 0x02EF			FRI - Time Period 2 <i>As above</i>
30753 - 30756	0x02F0- 0x02F3			FRI - Time Period 3 <i>As above</i>
30757 - 30760	0x02F4- 0x02F7			FRI - Time Period 4 <i>As above</i>
30761	0x02F8	Signed Word		SAT - Time Period 1 Setpoint Temperature [°C/10]
30762	0x02F9	Unsigned Word		SAT - Time Period 1 ON Time [h * 60 + m]
30763	0x02FA	Unsigned Word		SAT - Time Period 1 OFF Time [h * 60 + m]
30764	0x02FB	boolean		SAT - Time Period 1 Enabled TRUE (1) / FALSE (0)
30765 - 30768	0x02FC- 0x02FF			SAT - Time Period 2 <i>As above</i>
30769 - 30772	0x0300- 0x0303			SAT - Time Period 3 <i>As above</i>
30773 - 30776	0x0304- 0x0307			SAT - Time Period 4 <i>As above</i>
30777	0x0308	Signed Word		SUN - Time Period 1 Setpoint Temperature [°C/10]
30778	0x0309	Unsigned Word		SUN - Time Period 1 ON Time [h * 60 + m]
30779	0x030A	Unsigned Word		SUN - Time Period 1 OFF Time [h * 60 + m]
30780	0x030B	boolean		SUN - Time Period 1 Enabled TRUE (1) / FALSE (0)
30781 - 30784	0x030C- 0x030F			SUN - Time Period 2 <i>As above</i>
30785 - 30788	0x0310- 0x0313			SUN - Time Period 3 <i>As above</i>
30789 - 30792	0x0314- 0x0317			SUN - Time Period 4 <i>As above</i>
30793	0x0318	Signed Word	DDC Settings: General Water Timer Base domestic hot water Service <i>(not mapped if base DHW service not configured or DDC not heating master)</i>	MON - Time Period 1 Setpoint Temperature [°C/10]
30794	0x0319	Unsigned Word		MON - Time Period 1 ON Time [h * 60 + m]
30795	0x031A	Unsigned Word		MON - Time Period 1 OFF Time [h * 60 + m]
30796	0x031B	boolean		MON - Time Period 1 Enabled TRUE (1) / FALSE (0)
30797 - 30800	0x031C- 0x031F			MON - Time Period 2 <i>As above</i>
30801 - 30804	0x0320- 0x0323			MON - Time Period 3 <i>As above</i>
30805 - 30808	0x0324- 0x0327			MON - Time Period 4 <i>As above</i>

30809	0x0328	Signed Word		TUE - Time Period 1 Setpoint Temperature [°C/10]
30810	0x0329	Unsigned Word		TUE - Time Period 1 ON Time [h * 60 + m]
30811	0x032A	Unsigned Word		TUE - Time Period 1 OFF Time [h * 60 + m]
30812	0x032B	boolean		TUE - Time Period 1 Enabled TRUE (1) / FALSE (0)
30813 - 30816	0x032C- 0x032F			TUE - Time Period 2 <i>As above</i>
30817 - 30820	0x0330- 0x0333			TUE - Time Period 3 <i>As above</i>
30821 - 30824	0x0334- 0x0337			TUE - Time Period 4 <i>As above</i>
30825	0x0338	Signed Word		WED - Time Period 1 Setpoint Temperature [°C/10]
30826	0x0339	Unsigned Word		WED - Time Period 1 ON Time [h * 60 + m]
30827	0x033A	Unsigned Word		WED - Time Period 1 OFF Time [h * 60 + m]
30828	0x033B	boolean		WED - Time Period 1 Enabled TRUE (1) / FALSE (0)
30829 - 30832	0x033C- 0x033F			WED - Time Period 2 <i>As above</i>
30833 - 30836	0x0340- 0x0343			WED - Time Period 3 <i>As above</i>
30837 - 30840	0x0344- 0x0347			WED - Time Period 4 <i>As above</i>
30841	0x0348	Signed Word		THU - Time Period 1 Setpoint Temperature [°C/10]
30842	0x0349	Unsigned Word		THU - Time Period 1 ON Time [h * 60 + m]
30843	0x034A	Unsigned Word		THU - Time Period 1 OFF Time [h * 60 + m]
30844	0x034B	boolean		THU - Time Period 1 Enabled TRUE (1) / FALSE (0)
30845 - 30848	0x034C- 0x034F			THU - Time Period 2 <i>As above</i>
30849 - 30852	0x0350- 0x0353			THU - Time Period 3 <i>As above</i>
30853 - 30856	0x0354- 0x0357			THU - Time Period 4 <i>As above</i>
30857	0x0358	Signed Word		FRI - Time Period 1 Setpoint Temperature [°C/10]
30858	0x0359	Unsigned Word		FRI - Time Period 1 ON Time [h * 60 + m]
30859	0x035A	Unsigned Word		FRI - Time Period 1 OFF Time [h * 60 + m]
30860	0x035B	boolean		FRI - Time Period 1 Enabled TRUE (1) / FALSE (0)
30861 - 30864	0x035C- 0x035F			FRI - Time Period 2 <i>As above</i>
30865 - 30868	0x0360- 0x0363			FRI - Time Period 3 <i>As above</i>
30869 - 30872	0x0364- 0x0367			FRI - Time Period 4 <i>As above</i>
30873	0x0368	Signed Word		SAT - Time Period 1 Setpoint Temperature [°C/10]
30874	0x0369	Unsigned Word		SAT - Time Period 1 ON Time [h * 60 + m]
30875	0x036A	Unsigned Word		SAT - Time Period 1 OFF Time [h * 60 + m]
30876	0x036B	boolean		SAT - Time Period 1 Enabled TRUE (1) / FALSE (0)
30877 - 30880	0x036C- 0x036F			SAT - Time Period 2 <i>As above</i>
30881 - 30884	0x0370- 0x0373			SAT - Time Period 3 <i>As above</i>
30885 - 30888	0x0374- 0x0377			SAT - Time Period 4 <i>As above</i>

30889	0x0378	Signed Word		SUN - Time Period 1 Setpoint Temperature [°C/10]
30890	0x0379	Unsigned Word		SUN - Time Period 1 ON Time [h * 60 + m]
30891	0x037A	Unsigned Word		SUN - Time Period 1 OFF Time [h * 60 + m]
30892	0x037B	boolean		SUN - Time Period 1 Enabled TRUE (1) / FALSE (0)
30893 - 30896	0x037C - 0x037F			SUN - Time Period 2 <i>As above</i>
30897 - 30900	0x0380 - 0x0383			SUN - Time Period 3 <i>As above</i>
30901 - 30904	0x0384 - 0x0387			SUN - Time Period 4 <i>As above</i>
30905 - 30952	0x0388 - 0x03B7			FREE (Not mapped)
				DDC Alarms: Cooling Plant or 2 Pipes Cool/Heat Plant Cooling Side Single Client Area
30953	0x03B8	unsigned Word		General Alarm No Alarm (0) / Info (1) / Warning (2) / Error (3)
30954	0x03B9	unsigned Word		DDC Network ID
30955	0x03BA	unsigned Word		Alarm 1 String Code
30956	0x03BB	Bitmap		Alarm 1 Error Code
30957	0x03BC	unsigned Word		Alarm 2 String Code
30958	0x03BD	Bitmap		Alarm 2 Error Code
30959	0x03BE	unsigned Word		Alarm 3 String Code
30960	0x03BF	Bitmap		Alarm 3 Error Code
30961	0x03C0	unsigned Word		Alarm 4 String Code
30962	0x03C1	Bitmap		Alarm 4 Error Code
30963	0x03C2	unsigned Word		Alarm 5 String Code
30964	0x03C3	Bitmap		Alarm 5 Error Code
				DDC Alarms: Heating Plant or 2 Pipes Cool/Heat Plant Heating Side Single Client Area
30965	0x03C4	unsigned Word		General Alarm No Alarm (0) / Info (1) / Warning (2) / Error (3)
30966	0x03C5	unsigned Word		DDC Network ID
30967	0x03C6	unsigned Word		Alarm 1 String Code
30968	0x03C7	bitmap		Alarm 1 Error Code
30969	0x03C8	unsigned Word		Alarm 2 String Code
30970	0x03C9	bitmap		Alarm 2 Error Code
30971	0x03CA	unsigned Word		Alarm 3 String Code
30972	0x03CB	bitmap		Alarm 3 Error Code
30973	0x03CC	unsigned Word		Alarm 4 String Code
30974	0x03CD	bitmap		Alarm 4 Error Code
30975	0x03CE	unsigned Word		Alarm 5 String Code
30976	0x03CF	bitmap		Alarm 5 Error Code

			DDC Alarms: Cooling Plant or 2 Pipes Cool/Heat Plant Cooling Side Multi Client Area	
30977	0x03D0	unsigned Word		General Alarm No Alarm (0) / Info (1) / Warning (2) / Error (3)
30978	0x03D1	unsigned Word		DDC Network ID
30979	0x03D2	unsigned Word		Alarm 1 String Code
30980	0x03D3	Bitmap		Alarm 1 Error Code
30981	0x03D4	unsigned Word		Alarm 2 String Code
30982	0x03D5	Bitmap		Alarm 2 Error Code
30983	0x03D6	unsigned Word		Alarm 3 String Code
30984	0x03D7	Bitmap		Alarm 3 Error Code
30985	0x03D8	unsigned Word		Alarm 4 String Code
30986	0x03D9	Bitmap		Alarm 4 Error Code
30987	0x03DA	unsigned Word		Alarm 5 String Code
30988	0x03DB	Bitmap		Alarm 5 Error Code
			DDC Alarms: Heating Plant or 2 Pipes Cool/Heat Plant Heating Side Multi Client Area	
30989	0x03DC	unsigned Word		General Alarm No Alarm (0) / Info (1) / Warning (2) / Error (3)
30990	0x03DD	unsigned Word		DDC Network ID
30991	0x03DE	unsigned Word		Alarm 1 String Code
30992	0x03DF	bitmap		Alarm 1 Error Code
30993	0x03E0	unsigned Word		Alarm 2 String Code
30994	0x03E1	bitmap		Alarm 2 Error Code
30995	0x03E2	unsigned Word		Alarm 3 String Code
30996	0x03E3	bitmap		Alarm 3 Error Code
30997	0x03E4	unsigned Word		Alarm 4 String Code
30998	0x03E5	bitmap		Alarm 4 Error Code
30999	0x03E6	unsigned Word		Alarm 5 String Code
31000	0x03E7	bitmap		Alarm 5 Error Code
31001	0x03E8	unsigned word	Cooling Module 00 Configuration	Unit Network ID
31002	0x03E9	unsigned word		Module Type Major
31003	0x03EA	unsigned word		Module Type Minor
31004	0x03EB	unsigned word		Unit Type (see "Configuration data notes")
31005	0x03EC	unsigned word		Firmware Release Major
31006	0x03ED	unsigned word		Firmware Release Minor
31007	0x03EE	unsigned word		Module Serial Number (Most Significant Word)
31008	0x03EF	unsigned word		Module Serial Number (Least Significant Word)
31009	0x03F0	unsigned word		Electronics Serial Number (Most Significant Word)
31010	0x03F1	unsigned word		Electronics Serial Number (Least Significant Word)
31011	0x03F2	boolean		<i>meaningless (= 0)</i>
31012	0x03F3	unsigned word		category (1..7)

31013 - 31020	0x03F4 - 0x03FB			FREE (Not mapped)
31021	0x03FC	Bitmap	Cooling Module 00 Working Data	Timestamp 1
31022	0x03FD	Bitmap		Timestamp 2
31023	0x03FE	signed word		Outlet Temperature
31024	0x03FF	signed word		Inlet Temperature
31025	0x0400	signed word		External Ambient Temperature
31026	0x0401	signed word		Generator/Rectifier Temperature
31027	0x0402	signed word		Condenser Temperature
31028	0x0403	signed word		Aux 1 Temperature
31029	0x0404	signed word		Aux 2 Temperature
31030	0x0405	signed word		Electronics Supply Voltage
31031	0x0406	signed word		Solution Pump RPM
31032	0x0407	signed word		Brushless Fan Drive Voltage
31033	0x0408	signed word		Absorber Temperature
31034	0x0409	signed word		Evaporator Temperature
31035	0x040A	unsigned word		Working Time (Most Significant Word) DEPRECATED – refer to 'working data part 2'
31036	0x040B	unsigned word		Working Time (Least Significant Word) DEPRECATED – refer to 'working data part 2'
31037	0x040C	unsigned word		Ignitions Number (Most Significant Word) DEPRECATED – refer to 'working data part 2'
31038	0x040D	unsigned word		Ignitions Number (Least Significant Word) DEPRECATED – refer to 'working data part 2'
31039	0x040E	signed word		<i>meaningless (= ABSENT_ANALOG)</i>
31040	0x040F	signed word	(modulating units only)	Blower speed RPM
31041	0x0410	signed word	(modulating units only)	Water flow rate [l/h]
31042	0x0411	signed word	(modulating units only)	Modulating circulator voltage
31043	0x0412	signed word	(modulating units only)	Analog input voltage
31044	0x0413	signed word	(modulating units only)	Power feedback percentage
31045	0x0414	signed word	(modulating units only)	Air-Gas Mix Temperature
31046	0x0415	signed word		<i>meaningless (= ABSENT_ANALOG)</i>
31047	0x0416	signed word		RESERVED
31048	0x0417	signed word	(modulating units only)	Fins Generator Temperature

31049	0x0418	signed word		RESERVED
31050	0x0419	signed word		RESERVED
31051	0x041A	signed word		RESERVED
31052	0x041B	signed word		RESERVED
31053	0x041C	signed word		RESERVED
31054	0x041D	signed word		RESERVED
31055	0x041E	signed word		<i>meaningless (= ABSENT_ANALOG)</i>
31056	0x041F	signed word		<i>meaningless (= ABSENT_ANALOG)</i>
31057	0x0420	signed word		<i>meaningless (= ABSENT_ANALOG)</i>
31058	0x0421	signed word		<i>meaningless (= ABSENT_ANALOG)</i>
31059 - 31060	0x0420 - 0x0423			FREE (not mapped)
31061	0x0424	unsigned word	Cooling Module 00 Alarms (Single Client area)	General Alarm Bits 1..0: No Alarm(00) / Info(01) / Warning(10) / Error(11) Bit 2: Included(0) / User Excluded(1)
31062	0x0425	unsigned word		Unit Network ID
31063	0x0426	unsigned word		Alarm 1 String Code
31064	0x0427	bitmap		Alarm 1 Error Code
31065	0x0428	unsigned word		Alarm 2 String Code
31066	0x0429	bitmap		Alarm 2 Error Code
31067	0x042A	unsigned word		Alarm 3 String Code
31068	0x042B	bitmap		Alarm 3 Error Code
31069	0x042C	unsigned word		Alarm 4 String Code
31070	0x042D	bitmap		Alarm 4 Error Code
31071	0x042E	unsigned word		Alarm 5 String Code
31072	0x042F	bitmap		Alarm 5 Error Code
31073	0x0430	unsigned word	Cooling Module 00 Alarms (Multi Client area)	General Alarm Bits 1..0: No Alarm(00) / Info(01) / Warning(10) / Error(11) Bit 2: Included(0) / User Excluded(1)
31074	0x0431	unsigned word		Unit Network ID
31075	0x0432	unsigned word		Alarm 1 String Code
31076	0x0433	bitmap		Alarm 1 Error Code
31077	0x0434	unsigned word		Alarm 2 String Code
31078	0x0435	bitmap		Alarm 2 Error Code
31079	0x0436	unsigned word		Alarm 3 String Code
31080	0x0437	bitmap		Alarm 3 Error Code
31081	0x0438	unsigned word		Alarm 4 String Code
31082	0x0439	bitmap		Alarm 4 Error Code
31083	0x043A	unsigned word		Alarm 5 String Code
31084	0x043B	bitmap		Alarm 5 Error Code
31085	0x043C	unsigned word	Cooling Module 00 Working Data Part 2	Working Time (Most Significant Word)
31086	0x043D	unsigned word		Working Time (Least Significant Word)

31087	0x043E	unsigned word		Ignitions Number (Most Significant Word)
31088	0x043F	unsigned word		Ignitions Number (Least Significant Word)
31089	0x0440	unsigned word		Defrosting Number (Most Significant Word) (only for GAHP-AR)
31090	0x0441	unsigned word		Defrosting Number (Least Significant Word) (only for GAHP-AR)
31091	0x0442	unsigned word		Cool/Heat Switching Number (Most Significant Word) (only for GAHP-AR)
31092	0x0443	unsigned word		Cool/Heat Switching Number (Least Significant Word) (only for GAHP-AR)
31093	0x0444	unsigned word		Solution Pump On Time with low Ambient Temperature (Most Significant Word) (not for GAHP-W)
31094	0x0445	unsigned word		Solution Pump On Time with low Ambient Temperature (Least Significant Word) (not for GAHP-W)
31095	0x0446	unsigned word		(=NO_VALUE)
31096	0x0447	unsigned word		(=NO_VALUE)
31097	0x0448	unsigned word		Solution Pump On Time with high Ambient Temperature (Most Significant Word) (Only for ACF)
31098	0x0449	unsigned word		Solution Pump On Time with high Ambient Temperature (Least Significant Word) (Only for ACF)
31099	0x044A	unsigned word		Offlimit Time With Flame Off (Most Significant Word)
31100	0x044B	unsigned word		Offlimit Time With Flame Off (Least Significant Word)
31101	0x044C	unsigned word		Offlimit With Flame Off Activations Number (Most Significant Word)
31102	0x044D	unsigned word		Offlimit With Flame Off Activations Number (Least Significant Word)
31103	0x044E	unsigned word		Defrosting Time (Most Significant Word) (only for GAHP-AR)
31104	0x044F	unsigned word		Defrosting Time (Least Significant Word) (only for GAHP-AR)
31105	0x0450	unsigned word		(=NO_VALUE)
31106	0x0451	unsigned word		(=NO_VALUE)
31107	0x0452	unsigned word		(=NO_VALUE)
31108	0x0453	unsigned word		(=NO_VALUE)
31109	0x0454	unsigned word		Working Hours since last maintenance (Most Significant Word)
31110	0x0455	unsigned word		Working Hours since last maintenance (Least Significant Word)
31111	0x0456	unsigned word		Calendar Days since last maintenance (Most Significant Word)
31112	0x0457	unsigned word		Calendar Days since last maintenance (Least Significant Word)
31113	0x0458	bitmap		Last maintenance date (Most Significant Word)
31114	0x0459	bitmap		Last maintenance date (Least Significant Word)
31115 – 31140	0x045A-0x0473		Reserved	FREE (Not mapped)
31141	0x0474	unsigned word	Cooling Module 00 Settings	Working Hours maintenance interval (Most Significant Word)
31142	0x0475	unsigned word		Working Hours maintenance interval (Least Significant Word)
31143	0x0476	unsigned word		Calendar Days maintenance interval (Most Significant Word)
31144	0x0477	unsigned word		Calendar Days maintenance interval (Least Significant Word)

31145 - 31250	0x0478-0x04E1			FREE (Not mapped)
31251 - 31500	0x04E2 - 0x05DB		Cooling Module 01 Configuration, Working Data, Alarms, Settings	<i>As above</i>
31501 - 31750	0x05DC-0x06D5		Cooling Module 02 Configuration, Working Data, Alarms, Settings	<i>As above</i>
31751 - 32000	0x06D6-0x07CF		Cooling Module 03 Configuration, Working Data, Alarms, Settings	<i>As above</i>
32001 - 32250	0x07D0-0x08C9		Cooling Module 04 Configuration, Working Data, Alarms, Settings	<i>As above</i>
32251 - 32500	0x08CA-0x09C3		Cooling Module 05 Configuration, Working Data, Alarms, Settings	<i>As above</i>
32501 - 32750	0x09C4-0x0ABD		Cooling Module 06 Configuration, Working Data, Alarms, Settings	<i>As above</i>
32751 - 33000	0x0ABE-0x0BB7		Cooling Module 07 Configuration, Working Data, Alarms, Settings	<i>As above</i>
33001 - 33250	0x0BB8-0x0CB1		Cooling Module 08 Configuration, Working Data, Alarms, Settings	<i>As above</i>
33251 - 33500	0x0CB2-0x0DAB		Cooling Module 09 Configuration, Working Data, Alarms, Settings	<i>As above</i>
33501 - 33750	0x0DAC-0x0EA5		Cooling Module 10 Configuration, Working Data, Alarms, Settings	<i>As above</i>
33751 - 34000	0x0EA6-0x0F9F		Cooling Module 11 Configuration, Working Data, Alarms, Settings	<i>As above</i>
34001 - 34250	0x0FA0-0x1099		Cooling Module 12 Configuration, Working Data, Alarms, Settings	<i>As above</i>
34251 - 34500	0x109A - 0x1193		Cooling Module 13 Configuration, Working Data, Alarms, Settings	<i>As above</i>
34501 - 34750	0x1194 - 0x128D		Cooling Module 14 Configuration, Working Data, Alarms, Settings	<i>As above</i>
34751 - 35000	0x128E-0x1387		Cooling Module 15 Configuration, Working Data, Alarms, Settings	<i>As above</i>

35001	0x1388	unsigned word	Heating Module 00 Configuration	Unit Network ID
35002	0x1389	unsigned word		Module Type Major
35003	0x138A	unsigned word		Module Type Minor
35004	0x138B	Enum		Unit Type (see "Configuration data notes")
35005	0x138C	unsigned word		Firmware Release Major
35006	0x138D	unsigned word		Firmware Release Minor
35007	0x138E	unsigned word		Module Serial Number (Most Significant Word)
35008	0x138F	unsigned word		Module Serial Number (Least Significant Word)
35009	0x1390	unsigned word		Electronics Serial Number (Most Significant Word)
35010	0x1391	unsigned word		Electronics Serial Number (Least Significant Word)
35011	0x1392	boolean		Module belongs to separable heating plant (if = 1)
35012	0x1393	unsigned word		category (1..7)
35013 - 35020	0x1394 - 0x139B			FREE (Not mapped)

35021	0x139C	bitmap	Heating Module 00 Working Data	Timestamp 1
35022	0x139D	bitmap		Timestamp 2
35023	0x139E	signed word		Outlet Temperature
35024	0x139F	signed word		Inlet Temperature
35025	0x13A0	signed word		External Ambient Temperature
35026	0x13A1	signed word		Generator/Rectifier Temperature
35027	0x13A2	signed word		Condenser Temperature
35028	0x13A3	signed word		Aux 1 Temperature
35029	0x13A4	signed word		Aux 2 Temperature
35030	0x13A5	signed word		Electronics Supply Voltage
35031	0x13A6	signed word		Solution Pump RPM
35032	0x13A7	signed word		Brushless Fan Drive Voltage
35033	0x13A8	signed word		Absorber Temperature
35034	0x13A9	signed word		Evaporator Temperature
35035	0x13AA	unsigned word		Working Time (Most Significant Word) DEPRECATED – refer to 'working data part 2'
35036	0x13AB	unsigned word		Working Time (Least Significant Word) DEPRECATED – refer to 'working data part 2'
35037	0x13AC	unsigned word		Ignitions Number (Most Significant Word) DEPRECATED – refer to 'working data part 2'
35038	0x13AD	unsigned word		Ignitions Number (Least Significant Word) DEPRECATED – refer to 'working data part 2'
35039	0x13AE	signed word	(AY-C units only)	Primary Out Temp (only for AY-Condensing)
35040	0x13AF	signed word	(modulating units only)	Blower speed RPM
35041	0x13B0	signed word	(modulating units only)	Water flow rate [l/h]
35042	0x13B1	signed word	(modulating units only)	Modulating circulator voltage
35043	0x13B2	signed word	(modulating units only)	Analog input voltage
35044	0x13B3	signed word	(modulating units only)	Power feedback percentage
35045	0x13B4	signed word	(modulating units only)	Air-Gas Mix Temperature
35046	0x13B5	signed word	(modulating units only)	Flue Temperature
35047	0x13B6	signed word		RESERVED
35048	0x13B7	signed word	(modulating units only)	Fins Generator Temperature
35049	0x13B8	signed word		RESERVED
35050	0x13B9	signed word		RESERVED
35051	0x13BA	signed word		RESERVED
35052	0x13BB	signed word		RESERVED
35053	0x13BC	signed word		RESERVED
35054	0x13BD	signed word		RESERVED

35055	0x13BE	signed word	(only for GAHP-W Heat-Only)	Outlet Temperature (cooling module)
35056	0x13BF	signed word	(only for GAHP-W Heat-Only)	Inlet Temperature (cooling module)
35057	0x13C0	signed word		RESERVED
35058	0x13C1	signed word		RESERVED
35059 - 35060	0x13C2-0x13C3			FREE (not mapped)
35061	0x13C4	unsigned word	Heating Module 00 Alarms (Single Client area)	General Alarm Bits 1..0: No Alarm(00) / Info(01) / Warning(10) / Error(11) Bit 2: Included(0) / User Excluded(1)
35062	0x13C5	unsigned word		Unit Network ID
35063	0x13C6	unsigned word		Alarm 1 String Code
35064	0x13C7	bitmap		Alarm 1 Error Code
35065	0x13C8	unsigned word		Alarm 2 String Code
35066	0x13C9	bitmap		Alarm 2 Error Code
35067	0x13CA	unsigned word		Alarm 3 String Code
35068	0x13CB	bitmap		Alarm 3 Error Code
35069	0x13CC	unsigned word		Alarm 4 String Code
35070	0x13CD	bitmap		Alarm 4 Error Code
35071	0x13CE	unsigned word		Alarm 5 String Code
35072	0x13CF	bitmap		Alarm 5 Error Code
35073	0x13D0	unsigned word	Heating Module 00 Alarms (Multi Client area)	General Alarm Bits 1..0: No Alarm(00) / Info(01) / Warning(10) / Error(11) Bit 2: Included(0) / User Excluded(1)
35074	0x13D1	unsigned word		Unit Network ID
35075	0x13D2	unsigned word		Alarm 1 String Code
35076	0x13D3	bitmap		Alarm 1 Error Code
35077	0x13D4	unsigned word		Alarm 2 String Code
35078	0x13D5	bitmap		Alarm 2 Error Code
35079	0x13D6	unsigned word		Alarm 3 String Code
35080	0x13D7	bitmap		Alarm 3 Error Code
35081	0x13D8	unsigned word		Alarm 4 String Code
35082	0x13D9	bitmap		Alarm 4 Error Code
35083	0x13DA	unsigned word		Alarm 5 String Code
35084	0x13DB	bitmap		Alarm 5 Error Code
35085	0x13DC	unsigned word	Heating Module 00 Working Data Part 2	Working Time (Most Significant Word)
35086	0x13DD	unsigned word		Working Time (Least Significant Word)
35087	0x13DE	unsigned word		Ignitions Number (Most Significant Word)
35088	0x13DF	unsigned word		Ignitions Number (Least Significant Word)
35089	0x13E0	unsigned word		Defrosting Number (Most Significant Word) (only for GAHP-A or GAHP-AR)
35090	0x13E1	unsigned word		Defrosting Number (Least Significant Word) (only for GAHP-A or GAHP-AR)
35091	0x13E2	unsigned word		Cool/Heat Switching Number (Most Significant Word) (only for GAHP-AR)

35092	0x13E3	unsigned word		Cool/Heat Switching Number (Least Significant Word) (only for GAHP-AR)
35093	0x13E4	unsigned word		Solution Pump On Time with low Ambient Temperature (Most Significant Word) (not for GAHP-W and AY)
35094	0x13E5	unsigned word		Solution Pump On Time with low Ambient Temperature (Least Significant Word) (not for GAHP-W and AY)
35095	0x13E6	unsigned word		Solution Pump On Time with low Inlet Temperature (Most Significant Word)
35096	0x13E7	unsigned word		Solution Pump On Time with low Inlet Temperature (Least Significant Word)
35097	0x13E8	unsigned word		(=NO_VALUE)
35098	0x13E9	unsigned word		(=NO_VALUE)
35099	0x13EA	unsigned word		Offlimit Time With Flame Off (Most Significant Word)
35100	0x13EB	unsigned word		Offlimit Time With Flame Off (Least Significant Word)
35101	0x13EC	unsigned word		Offlimit With Flame Off Activations Number (Most Significant Word)
35102	0x13ED	unsigned word		Offlimit With Flame Off Activations Number (Least Significant Word)
35103	0x13EE	unsigned word		Defrosting Time (Most Significant Word) (only for GAHP-A or GAHP-AR)
35104	0x13EF	unsigned word		Defrosting Time (Least Significant Word) (only for GAHP-A or GAHP-AR)
35105	0x13F0	unsigned word		Space Heating Working Time (Most Significant Word)
35106	0x13F1	unsigned word		Space Heating Working Time (Least Significant Word)
35107	0x13F2	unsigned word		DHW Working Time (Most Significant Word)
35108	0x13F3	unsigned word		DHW Working Time (Least Significant Word)
35109	0x13F4	unsigned word		Working Hours since last maintenance (Most Significant Word)
35110	0x13F5	unsigned word		Working Hours since last maintenance (Least Significant Word)
35111	0x13F6	unsigned word		Calendar Days since last maintenance (Most Significant Word)
35112	0x13F7	unsigned word		Calendar Days since last maintenance (Least Significant Word)
35113	0x13F8	bitmap		Last maintenance date (Most Significant Word)
35114	0x13F9	bitmap		Last maintenance date (Least Significant Word)
35115 – 35140	0x13FA-0x1413		Reserved	FREE (Not mapped)
35141	0x1414	unsigned word	Heating Module 00 Settings	Working Hours maintenance interval (Most Significant Word)
35142	0x1415	unsigned word		Working Hours maintenance interval (Least Significant Word)
35143	0x1416	unsigned word		Calendar Days maintenance interval (Most Significant Word)
35144	0x1417	unsigned word		Calendar Days maintenance interval (Least Significant Word)
35145 - 35250	0x1418 - 0x1481			FREE (Not mapped)
35251 - 35500	0x1482 - 0x157B		Heating Module 01 Configuration, Working Data, Alarms, Settings	<i>As above</i>
35501 - 35750	0x157C-0x1675		Heating Module 02 Configuration, Working Data, Alarms, Settings	<i>As above</i>
35751 - 36000	0x1676 - 0x176F		Heating Module 03 Configuration, Working Data, Alarms, Settings	<i>As above</i>

36001 - 36250	0x1770 - 0x1869		Heating Module 04 Configuration, Working Data, Alarms, Settings	<i>As above</i>
36251 - 36500	0x186A - 0x1963		Heating Module 05 Configuration, Working Data, Alarms, Settings	<i>As above</i>
36501 - 36750	0x1964 - 0x1A5D		Heating Module 06 Configuration, Working Data, Alarms, Settings	<i>As above</i>
36751 - 37000	0x1A5E - 0x1B57		Heating Module 07 Configuration, Working Data, Alarms, Settings	<i>As above</i>
37001 - 37250	0x1B58 - 0x1C51		Heating Module 08 Configuration, Working Data, Alarms, Settings	<i>As above</i>
37251 - 37500	0x1C52 - 0x1D4B		Heating Module 09 Configuration, Working Data, Alarms, Settings	<i>As above</i>
37501 - 37750	0x1D4C - 0x1E45		Heating Module 10 Configuration, Working Data, Alarms, Settings	<i>As above</i>
37751 - 38000	0x1E46 - 0x1F3F		Heating Module 11 Configuration, Working Data, Alarms, Settings	<i>As above</i>
38001 - 38250	0x1F40 - 0x2039		Heating Module 12 Configuration, Working Data, Alarms, Settings	<i>As above</i>
38251 - 38500	0x203A - 0x2133		Heating Module 13 Configuration, Working Data, Alarms, Settings	<i>As above</i>
38501 - 38750	0x2134 - 0x222D		Heating Module 14 Configuration, Working Data, Alarms, Settings	<i>As above</i>
38751 - 39000	0x222E - 0x2327		Heating Module 15 Configuration, Working Data, Alarms, Settings	<i>As above</i>
39001	0x2328	Bit-map	DDC working data: Separable heating plant	Timestamp 1
39002	0x2329			Timestamp 2
39003	0x232A	signed word		Outlet Water Temperature (Separable Heating Plant) (=ABSENT_ANALOG if separable heating plant not configured or DDC is not master or separable units are included)
39004	0x232B	signed word		Inlet Water Temperature (Separable Heating Plant) (=ABSENT_ANALOG if separable heating plant not configured or DDC is not master or separable units are included)
39005 - 39020	0x232C - 0x233B			FREE (Not mapped)

39021	0x233C	Unsigned Word	DDC Settings: Water regulation Separable heating plant <i>(not mapped if separable heating plant not configured or if DDC is not heating master)</i>	Always read as '0'
39022	0x233D	Signed Word		Water Differential Temperature [°C/10]
39023	0x233E	Signed Word		Currently Active Water Setpoint Temp. [°C/10]
39024	0x233F	Signed Word	DDC Settings: General Water Timer Separable domestic hot water Service <i>(not mapped if separable DHW service not configured or if DDC is not heating master)</i>	MON - Time Period 1 Setpoint Temperature [°C/10]
39025	0x2340	Unsigned Word		MON - Time Period 1 ON Time [h * 60 + m]
39026	0x2341	Unsigned Word		MON - Time Period 1 OFF Time [h * 60 + m]
39027	0x2342	boolean		MON - Time Period 1 Enabled TRUE (1) / FALSE (0)
39028 – 39031	0x2343- 0x2346			MON - Time Period 2 <i>As above</i>
39032 – 39035	0x2347- 0x234A			MON - Time Period 3 <i>As above</i>
39036 - 39039	0x234B- 0x234E			MON - Time Period 4 <i>As above</i>
39040	0x234F	Signed Word		TUE - Time Period 1 Setpoint Temperature [°C/10]
39041	0x2350	Unsigned Word		TUE - Time Period 1 ON Time [h * 60 + m]
39042	0x2351	Unsigned Word		TUE - Time Period 1 OFF Time [h * 60 + m]
39043	0x2352	boolean		TUE - Time Period 1 Enabled TRUE (1) / FALSE (0)
39044 – 39047	0x2353- 0x2356			TUE - Time Period 2 <i>As above</i>
39048 – 39051	0x2357- 0x235A			TUE - Time Period 3 <i>As above</i>
39052 - 39055	0x235B- 0x235E			TUE - Time Period 4 <i>As above</i>
39056	0x235F	Signed Word		WED - Time Period 1 Setpoint Temperature [°C/10]
39057	0x2360	Unsigned Word		WED - Time Period 1 ON Time [h * 60 + m]
39058	0x2361	Unsigned Word		WED - Time Period 1 OFF Time [h * 60 + m]
39059	0x2362	boolean		WED - Time Period 1 Enabled TRUE (1) / FALSE (0)
39060 – 39063	0x2363- 0x2366			WED - Time Period 2 <i>As above</i>
39064 – 39067	0x2367- 0x236A			WED - Time Period 3 <i>As above</i>
39068 - 39071	0x236B- 0x236E			WED - Time Period 4 <i>As above</i>
39072	0x236F	Signed Word		THU - Time Period 1 Setpoint Temperature [°C/10]
39073	0x2370	Unsigned Word		THU - Time Period 1 ON Time [h * 60 + m]
39074	0x2371	Unsigned Word		THU - Time Period 1 OFF Time [h * 60 + m]
39075	0x2372	boolean		THU - Time Period 1 Enabled TRUE (1) / FALSE (0)
39076 – 39079	0x2373- 0x2376			THU - Time Period 2 <i>As above</i>
39080 - 39083	0x2377- 0x237A			THU - Time Period 3 <i>As above</i>
39084 - 39087	0x237B- 0x237E			THU - Time Period 4 <i>As above</i>

39088	0x237F	Signed Word		FRI - Time Period 1 Setpoint Temperature [°C/10]
39089	0x2380	Unsigned Word		FRI - Time Period 1 ON Time [h * 60 + m]
39090	0x2381	Unsigned Word		FRI - Time Period 1 OFF Time [h * 60 + m]
39091	0x2382	boolean		FRI - Time Period 1 Enabled TRUE (1) / FALSE (0)
39092 – 39095	0x2383-0x2386			FRI - Time Period 2 <i>As above</i>
39096 - 39099	0x2387-0x238A			FRI - Time Period 3 <i>As above</i>
39100 - 39103	0x238B-0x238E			FRI - Time Period 4 <i>As above</i>
39104	0x238F	Signed Word		SAT - Time Period 1 Setpoint Temperature [°C/10]
39105	0x2390	Unsigned Word		SAT - Time Period 1 ON Time [h * 60 + m]
39106	0x2391	Unsigned Word		SAT - Time Period 1 OFF Time [h * 60 + m]
39107	0x2392	boolean		SAT - Time Period 1 Enabled TRUE (1) / FALSE (0)
39108 – 39111	0x2393-0x2396			SAT - Time Period 2 <i>As above</i>
39112 – 39115	0x2397-0x239A			SAT - Time Period 3 <i>As above</i>
39116 - 39119	0x239B-0x239E			SAT - Time Period 4 <i>As above</i>
39120	0x239F	Signed Word		SUN - Time Period 1 Setpoint Temperature [°C/10]
39121	0x23A0	Unsigned Word		SUN - Time Period 1 ON Time [h * 60 + m]
39122	0x23A1	Unsigned Word		SUN - Time Period 1 OFF Time [h * 60 + m]
39123	0x23A2	boolean		SUN - Time Period 1 Enabled TRUE (1) / FALSE (0)
39124 – 39127	0x23A3-0x23A6			SUN - Time Period 2 <i>As above</i>
39128 - 39131	0x23A7-0x23AA			SUN - Time Period 3 <i>As above</i>
39132 - 39135	0x23AB-0x23AE			SUN - Time Period 4 <i>As above</i>
39136 - 39150	0x23AF - 0x23BD			FREE (Not mapped)
39151	0x23BE	boolean	DDC Quiet Mode settings: cooling <i>(not mapped if cooling plant not configured or if DDC is not cooling master)</i>	Installer Enable Quiet Mode TRUE (1) / FALSE (0)
39152	0x23BF	boolean		User Enable Quiet Mode TRUE (1) / FALSE (0)
39153	0x23C0	boolean		Disable Units with quiet mode TRUE (1) / FALSE (0)
39154	0x23C1	boolean		Disable Units without quiet mode TRUE (1) / FALSE (0)
39155 - 39160	0x23C2-0x23C7			FREE (Not mapped)
39161	0x23C8	unsigned Word	DDC Quiet Mode settings: cooling timer <i>(not mapped if cooling plant not configured or if DDC is not cooling master)</i>	MON – Time Period 1 ON Time [h * 60 + m]
39162	0x23C9	unsigned Word		MON – Time Period 1 OFF Time [h * 60 + m]
39163	0x23CA	boolean		MON – Time Period 1 Enabled TRUE (1) / FALSE (0)
39164 - 39166	0x23CB-0x23CD			MON - Time Period 2 <i>As above</i>
39167 - 39169	0x23CE-0x23D0			MON - Time Period 3 <i>As above</i>
39170 - 39172	0x23D1-0x23D3			MON - Time Period 4 <i>As above</i>

39173	0x23D4	unsigned Word		TUE – Time Period 1 ON Time [h * 60 + m]
39174	0x23D5	unsigned Word		TUE – Time Period 1 OFF Time [h * 60 + m]
39175	0x23D6	boolean		TUE – Time Period 1 Enabled TRUE (1) / FALSE (0)
39176 - 39178	0x23D7- 0x23D9			TUE - Time Period 2 <i>As above</i>
39179 - 39181	0x23DA- 0x23DC			TUE - Time Period 3 <i>As above</i>
39182 - 39184	0x23DD- 0x23DF			TUE - Time Period 4 <i>As above</i>
39185	0x23E0	unsigned Word		WED – Time Period 1 ON Time [h * 60 + m]
39186	0x23E1	unsigned Word		WED – Time Period 1 OFF Time [h * 60 + m]
39187	0x23E2	boolean		WED – Time Period 1 Enabled TRUE (1) / FALSE (0)
39188 - 39190	0x23E3- 0x23E5			WED - Time Period 2 <i>As above</i>
39191 - 39193	0x23E6- 0x23E8			WED - Time Period 3 <i>As above</i>
39194 - 39196	0x23E9- 0x23EB			WED - Time Period 4 <i>As above</i>
39197	0x23EC	unsigned Word		THU – Time Period 1 ON Time [h * 60 + m]
39198	0x23ED	unsigned Word		THU – Time Period 1 OFF Time [h * 60 + m]
39199	0x23EE	boolean		THU – Time Period 1 Enabled TRUE (1) / FALSE (0)
39200 - 39202	0x23EF- 0x23F1			THU - Time Period 2 <i>As above</i>
39203 - 39205	0x23F2- 0x23F4			THU - Time Period 3 <i>As above</i>
39206 - 39208	0x23F5- 0x23F7			THU - Time Period 4 <i>As above</i>
39209	0x23F8	unsigned Word		FRI – Time Period 1 ON Time [h * 60 + m]
39210	0x23F9	unsigned Word		FRI – Time Period 1 OFF Time [h * 60 + m]
39211	0x23FA	boolean		FRI – Time Period 1 Enabled TRUE (1) / FALSE (0)
39212 - 39214	0x23FB- 0x23FD			FRI - Time Period 2 <i>As above</i>
39215 - 39217	0x23FE- 0x2400			FRI - Time Period 3 <i>As above</i>
39218 - 39220	0x2401- 0x2403			FRI - Time Period 4 <i>As above</i>
39221	0x2404	unsigned Word		SAT – Time Period 1 ON Time [h * 60 + m]
39222	0x2405	unsigned Word		SAT – Time Period 1 OFF Time [h * 60 + m]
39223	0x2406	boolean		SAT – Time Period 1 Enabled TRUE (1) / FALSE (0)
39224 - 39226	0x2407- 0x2409			SAT - Time Period 2 <i>As above</i>
39227 - 39229	0x240A- 0x240C			SAT - Time Period 3 <i>As above</i>
39230 - 39232	0x240D- 0x240F			SAT - Time Period 4 <i>As above</i>
39233	0x2410	unsigned Word		SUN – Time Period 1 ON Time [h * 60 + m]
39234	0x2411	unsigned Word		SUN – Time Period 1 OFF Time [h * 60 + m]
39235	0x2412	boolean		SUN – Time Period 1 Enabled TRUE (1) / FALSE (0)
39236 - 39238	0x2413- 0x2415			SUN - Time Period 2 <i>As above</i>
39239 - 39241	0x2416- 0x2418			SUN - Time Period 3 <i>As above</i>
39242 - 39244	0x2419- 0x241B			SUN - Time Period 4 <i>As above</i>

39245	0x241C	boolean	DDC Quiet Mode settings: heating <i>(not mapped if base heating plant not configured or if DDC is not heating master)</i>	Installer Enable Quiet Mode	TRUE (1) / FALSE (0)
39246	0x241D	boolean		User Enable Quiet Mode	TRUE (1) / FALSE (0)
39247	0x241E	boolean		Disable Units with quiet mode	TRUE (1) / FALSE (0)
39248	0x241F	boolean		Disable Units without quiet mode	TRUE (1) / FALSE (0)
39249 - 39254	0x2420-0x2425			FREE (Not mapped)	
39255	0x2426	unsigned Word	DDC Quiet Mode settings: heating timer <i>(not mapped if base heating plant not configured or if DDC is not heating master)</i>	MON – Time Period 1 ON Time	[h * 60 + m]
39256	0x2427	unsigned Word		MON – Time Period 1 OFF Time	[h * 60 + m]
39257	0x2428	boolean		MON – Time Period 1 Enabled	TRUE (1) / FALSE (0)
39258 - 39260	0x2429-0x242B			MON - Time Period 2 <i>As above</i>	
39261 - 39263	0x242C-0x242E			MON - Time Period 3 <i>As above</i>	
39264 - 39266	0x242F-0x2431			MON - Time Period 4 <i>As above</i>	
39267	0x2432	unsigned Word		TUE – Time Period 1 ON Time	[h * 60 + m]
39268	0x2433	unsigned Word		TUE – Time Period 1 OFF Time	[h * 60 + m]
39269	0x2434	boolean		TUE – Time Period 1 Enabled	TRUE (1) / FALSE (0)
39270 - 39272	0x2435-0x2437			TUE - Time Period 2 <i>As above</i>	
39273 - 39275	0x2438-0x243A			TUE - Time Period 3 <i>As above</i>	
39276 - 39278	0x243B-0x243D			TUE - Time Period 4 <i>As above</i>	
39279	0x243E	unsigned Word		WED – Time Period 1 ON Time	[h * 60 + m]
39280	0x243F	unsigned Word		WED – Time Period 1 OFF Time	[h * 60 + m]
39281	0x2440	boolean		WED – Time Period 1 Enabled	TRUE (1) / FALSE (0)
39282 - 39284	0x2441-0x2443			WED - Time Period 2 <i>As above</i>	
39285 - 39287	0x2444-0x2446			WED - Time Period 3 <i>As above</i>	
39288 - 39290	0x2447-0x2449			WED - Time Period 4 <i>As above</i>	
39291	0x244A	unsigned Word		THU – Time Period 1 ON Time	[h * 60 + m]
39292	0x244B	unsigned Word		THU – Time Period 1 OFF Time	[h * 60 + m]
39293	0x244C	boolean		THU – Time Period 1 Enabled	TRUE (1) / FALSE (0)
39294 - 39296	0x244D-0x244F			THU - Time Period 2 <i>As above</i>	
39297 - 39299	0x2450-0x2452			THU - Time Period 3 <i>As above</i>	
39300 - 39302	0x2453-0x2455			THU - Time Period 4 <i>As above</i>	

39303	0x2456	unsigned Word		FRI – Time Period 1 ON Time	[h * 60 + m]
39304	0x2457	unsigned Word		FRI – Time Period 1 OFF Time	[h * 60 + m]
39305	0x2458	boolean		FRI – Time Period 1 Enabled	TRUE (1) / FALSE (0)
39306 - 39308	0x2459-0x245B			FRI - Time Period 2	<i>As above</i>
39309 - 39311	0x245C-0x245E			FRI - Time Period 3	<i>As above</i>
39312 - 39314	0x245F-0x2461			FRI - Time Period 4	<i>As above</i>
39315	0x2462	unsigned Word		SAT – Time Period 1 ON Time	[h * 60 + m]
39316	0x2463	unsigned Word		SAT – Time Period 1 OFF Time	[h * 60 + m]
39317	0x2464	boolean		SAT – Time Period 1 Enabled	TRUE (1) / FALSE (0)
39318 - 39320	0x2465-0x2467			SAT - Time Period 2	<i>As above</i>
39321 - 39323	0x2468-0x246A			SAT - Time Period 3	<i>As above</i>
39324 - 39326	0x246B-0x246D			SAT - Time Period 4	<i>As above</i>
39327	0x246E	unsigned Word		SUN – Time Period 1 ON Time	[h * 60 + m]
39328	0x246F	unsigned Word		SUN – Time Period 1 OFF Time	[h * 60 + m]
39329	0x2470	boolean		SUN – Time Period 1 Enabled	TRUE (1) / FALSE (0)
39330 - 39332	0x2471-0x2473			SUN - Time Period 2	<i>As above</i>
39333 - 39335	0x2474-0x2476			SUN - Time Period 3	<i>As above</i>
39336 - 39338	0x2477-0x2479			SUN - Time Period 4	<i>As above</i>
39339 - 40000	0x247A - 0x270F		FREE	FREE (Not mapped)	

Special register values

NO_ANALOG = 32767 (0x7FFF) – no value available due to errors (signed word)

ABSENT_ANALOG = 32766 (0x7FFE) – value not provided (signed word)

NO_VALUE = 65535 (0xFFFF) – value not provided (unsigned word)

Register mapping rules

Input register that can be written in the matching Holding register area, are not mapped if related to a specific plant or service not configured on the DDC. (e.g. DDC Settings)

Input register that are read-only values, are always mapped, no matter if the related plant or service is configured or not. (e.g. DDC working data)

In the latter case, if the related plant/service is not configured, the read value is 32766 (0x7FFE) for signed registers and 65535 (0xFFFF) for unsigned registers.

Signed Word fields notes

- Signed Word fields are represented as 2's complement signed 16 bit word
- Excluded value 32766 (0x7FFE) i.e. ABSENT_ANALOG indicates that the specific field does not exist; excluded value 32767 (0x7FFF) i.e. NO_ANALOG indicates that the specific field value is not available because of a fault condition (for example, a faulty temperature probe).

Working data notes

- Temperature fields are expressed as Celsius Degrees Tenths. (e.g. value 10 means 1.0 °C)
- Voltage fields are expressed as Volts Tenths (e.g. value 10 means 1.0 V).
- Working time fields are expressed in seconds
- Water flow rate fields are expressed in litres per hour
- Power feedback percent fields are expressed on a 0 to 10.000 scale.
- Other fields expressed as RPM or non-dimensional.

Configured/Not Configured Cooling and Heating Modules notes

- Cooling and Heating Modules data register ranges in the INPUT REGISTERS Modbus map contain data (Configuration, Working Data, Alarms...) for the configured modules. Assuming n Cooling Modules and m Heating Modules are configured, then Cooling Module data ranges $[0..(n - 1)]$ and Heating Module data ranges $[0..(m - 1)]$ will contain data.
- Modules get assigned a data in ascending order based on their Unit Network ID.
- Empty Module data registers ranges:
 - Unsigned Word type registers will read as NO_VALUE (65535, 0xFFFF), **except otherwise mentioned.**
 - Signed Word type registers will read as ABSENT_ANALOG (32766, 0x7FFE)

Currently Active Water Setpoint Temperature notes

Unlike DDC f/w 3.000, this registers will read 0x7FFF i.e. NO_ANALOG if the related plant is OFF or in transient mode. Transient mode includes both cool/heat transient and separated/included transient.

DDC ID Notes

This register holds two information:

- The device type
- The device network ID

The following scheme describes the DDC ID register mapping:

Device type (6 bit)	Device network ID (10 bit)
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Device type is an enumerative with the following meaning:

- 0 = Device is a DDC (Direct Digital Controller)
- 1 = Device is a CCI (Comfort Control Interface)

Time stamps notes

Time stamps are available at several different addresses in the INPUT REGISTERS Modbus map. Time stamps are contiguous to Plants and Modules working data in order to simplify good correlation between the acquired working data and the acquisition time, using only one Modbus message.

Time stamps require two 16 bits words. The following scheme describes the mapping of the different time stamp fields inside the two words.

Timestamp1

Seconds (6 bit)	Minutes (6 bit)	Hours (4 msb)
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Timestamp2

Hours (lsb)	Year (6 bit) (0 →2000)	Month (4 bit)	Day (5 bit)
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Time uses the 24h format.

Alarms notes

- Both the DDC and the Units Cooling and Heating Modules can generate alarms.
- Alarms have three (currently two) increasing severity levels: Info (currently not used), Warning, Error.
- DDC’s generated alarms are reported separately in the two plants DDC alarm data register areas, depending on which plant(s) they refer to. A few DDC alarms always apply to all configured plants.
- Up to five alarm conditions can be simultaneously reported for each Cooling and Heating Module and for the DDC.
- General alarm register is mapped as described below

not used (zero filled)	Module Excluded (1 bit)	General Rank (2 bit)
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General Rank values:

- 0 : no alarm
- 1 : at least an alarm with rank = “Information” (but no “Warning” or “Error” alarms)
- 2 : at least an alarm with rank = “Warning” (but no “Error” alarms)
- 3 : at least an alarm with rank = “Error”

Module Excluded:

TRUE (1) if module is excluded.

Note that when a module is excluded, DDC will never starts it but always acquires alarm data. This value is not defined for DDC alarms and forced FALSE (0).

Use this flag if you want to avoid signalling alarms related to excluded modules, same rule used in DDC user interface.

“General Alarm” register can be used when Modbus client doesn’t need detailed information about alarms, but only need a single overall alarm information for each module.

- Network ID register shows the CAN ID of the module or the DDC CAN ID.
- Alarm String Code register uses the 10 LSBs of a 16 bits Word. String Code 0 (0x0000) means no Alarm, other codes uniquely identify a string associated to the specific Alarm Error Code.
See string table below.
- Alarm Error Code register is mapped in a 16 bits Word as described below

String table:

```
01|Faulty Lockout Reset|
02|Limit Thermostat|
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03|Flue Lim./Press. Sw.|
 04|Antifreeze|
 05|Flue Thermostat|
 06|Missing Heater Board|
 07|Low Air Cooling|
 08|High EXT Temp.|
 09|Low EXT Temp.|
 10|High REC/GEN Temp.|
 11|Lockout but Flame ON|
 12|Low REC/GEN Temp.|
 13|Cool ON, Heat W Flow|
 14|Heat ON, Chil W Flow|
 15|Unit ON, No Flame|
 16|Low Chiller Wat Flow|
 17|Solution Pump OFF|
 18|Flame Lockout|
 19|Chil OUT T Probe Err|
 20|Chil. IN T Probe Error|
 21|CND T Probe Error|
 22|EXT T Probe Error|
 23|REC/GEN T Probe Err.|
 24|EVAP T Probe Error|
 25|ABS T Probe Error|
 26|Heat. IN Temp. High|
 27|Heat. IN Temp. Low|
 28|Heat. Differ. T High|
 29|Missing Aux Board|
 30|Absorb. Temp. High|
 31|C Antifreez Pump ON|
 32|Defrosting ON|
 33|Cool ON, Heat W Flow|
 34|Low Heater Wat Flow|
 35|Low Heater Wat Flow|
 36|Heat OUT T Probe Err|
 37|Heat ON, Chil W Flow|
 38|Cool ON, Heat W Flow|
 39|Heat. IN T Probe Error|
 40|Heat. OUT Temp. High|
 41|Heat. Antifreeze ON|
 42|Invalid Parameters|
 43|Incompl. Params Set|
 44|Invalid Page0 Params|
 45|Invalid Page1 Params|
 46|RY and RW Both ON|
 47|24V Pwr Supply fuse|
 48|Wrong Module Types|
 49|Faulty Board (ROM)|
 50|Faulty Board (pRAM)|
 51|Faulty Board (xRAM)|
 52|Faulty Board (Regs)|
 53|New Unit-CCI Binding|
 54|Off-line|
 55|All Modules Off-Line|
 56|High Cool. Wat. Temp|
 57|Low Heat. Wat. Temp|
 58|Both RY and RW ON| (DDC only)
 59|AMB T Probe Error| (DDC only)
 60|Unit Config Mismatch|
 61|Master DDC Off-Line| (DDC only)
 62|Slave DDC Off-Line| (DDC only)
 63|Alarms Log Erased|
 64|CCI Power On|
 65|Alarms Log restarted|
 66|> Max CCI Ign Resets|
 67|C/H Vlv Opp. End Pos|
 68|C/H Valve Mid Posit.|
 69|2 C/H Vlv Pos Detecd|
 70|Low Water Flow|
 71|Faulty Board (FW)|
 72|Unknown Alarm Code|
 73|Sep. Modules Offline| (DDC only)
 74|C/H Valve mismatch| (DDC only)
 75|C/H Valve off-line| (DDC only)
 76|C/H Valve Timeout| (DDC only)
 77|C/H Valve Err. Pos.| (DDC only)
 78|C/H Valve Unknwn Err| (DDC only)

79 DHW Valve mismatch	(DDC only)
80 DHW Valve off-line	(DDC only)
81 DHW Valve Timeout	(DDC only)
82 DHW Valve Err. Pos.	(DDC only)
83 Flowmeter Fault	
84 Low Primary Wat Flow	
85 Prim OUT T Probe Err	
86 Combus. Blower Fault	
87 Prim Heat OUT T High	
88 Water T. Probe Error	(CCI only)
89 MIX T Probe Error	
90 0-10 V Input Error	(CCI only)
91 Missing EXT T Probe	(DDC only)
92 FLUE T Probe Error	
93 Low Internal Temp.	
94 DDC ID Conflict	(DDC only)
95 Condens. Probe Alarm	
96 OUT T Probe Error	
97 IN T Probe Error	
98 GAHPs Water T Limit	(Custom non standard CCI only)
99 3rd Party Unit Error	(DDC only)
100 OFF: Base Mfd Prb Err	(DDC only)
101 OFF: Sep Mfd Prb Err	(DDC only)
102 C(H) IN T Prbe Offln	(DDC only)
103 C(H) OUT T Prbe Offln	(DDC only)
104 Heat IN T Probe Offln	(DDC only)
105 Heat OUT T Prbe Offln	(DDC only)
106 Splt IN T Prbe Offln	(DDC only)
107 Splt OUT T Prbe Offln	(DDC only)
108 GAHP IN T Probe Offln	(DDC only)
109 C(H) IN T Prbe Mismal	(DDC only)
110 C(H) OUT T Prbe Mismal	(DDC only)
111 Heat IN T Prbe Mismal	(DDC only)
112 Heat OUT T Prbe Mismal	(DDC only)
113 Splt IN T Prbe Mismal	(DDC only)
114 Splt OUT T Prbe Mismal	(DDC only)
115 GAHP IN T Prbe Mismal	(DDC only)
116 C(H) IN T Probe Err	(DDC only)
117 C(H) OUT T Probe Err	(DDC only)
118 Heat IN T Probe Err	(DDC only)
119 Heat OUT T Probe Err	(DDC only)
120 Splt IN T Probe Err	(DDC only)
121 Splt OUT T Probe Err	(DDC only)
122 GAHP IN T Probe Err	(DDC only)
123 C(H) Pri WPump Offln	(DDC only)
124 Heat Pri WPump Offln	(DDC only)
125 Splt Pri WPump Offln	(DDC only)
126 C(H) Pri WPump Mismal	(DDC only)
127 Heat Pri WPump Mismal	(DDC only)
128 Splt Pri WPump Mismal	(DDC only)
129 Base Mfd Prb Not Cfg	(DDC only)
130 Splt Mfd Prb Not Cfg	(DDC only)
131 Base WPmp Not Config	(DDC only)
132 Splt WPmp Not Config	(DDC only)
133 C(H) Sec WPump Offln	(DDC only)
134 Heat Sec WPump Offln	(DDC only)
135 C(H) Sec WPump Mismal	(DDC only)
136 Heat Sec WPump Mismal	(DDC only)
137 GENF T Probe Error	
138 Wrong GENF Prb Posit	
139 Wrong Pump Sens Conn	
140 Limit Temper. (base)	
141 Limit Temper. (spl)	
142 High FLUE/GENF Temp.	
143 Heating Limit Temper	
144 Cooling Limit Temper	
145 Source Limit Temper.	
146 SW Wdog Restart	
147	
148 Defr. Valve Fault	
149 Oil Pump priming	
150 Maintenance Due	

Note that 'CCI only' string codes are not used on this device (DDC).

Alarm Error Code:

Source (2 bit)	Rank (2 bit)	Dup (1 bit)	Code (11 bit)
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Source: 00 = Cooling Module
 01 = Heating Module
 10 = All (Both Modules)
 11 = Electronics

Rank: 01 = I (Info)
 10 = W (Warning)
 11 = E (Error)

Dup: 0 = Alarm not duplicated on the cooling Unit's Module
 1 = Alarm duplicated on the cooling Unit's Module
 Some alarms are related to both Modules of a single Unit and in this case the Modbus client will read the same alarm twice. If the Modbus client want to check this condition (e.g. to avoid a double signalling), it must use the Dup flag. Dup flag is meaningful only for heating modules.

Code: Actual Alarm Error Code

- All Alarm String Code and Alarm Error Code fields read as 0 (0x0000) for unconfigured Plants, Cooling and Heating Modules.
- Two similar alarm data register areas are provided for each Plant, Cooling and heating Module; first area is called "Single Client Area", second area is called "Multi Client Area". Although they provide the same information, access rules (or methods) are slightly different:
 - Rules for the Single Client Area are:
 - An alarm condition (Alarm String Code and Alarm Error Code) signaled into one of the five Alarm slots is never moved to a different slot; this avoids that a Modbus Client can think that the alarm condition terminated before it realizes that the same condition is now reported in a different slot.
 - When an alarm condition actually terminates, value 0 (0x0000, No Alarm) is written in the Alarm String Code field and the Alarm slot is locked, even if a new pending alarm condition exists and no other free Alarm slot exists. Ensuring that the Modbus Client reads value 0 also ensures that it detects the termination of the previous alarm condition. Once the Modbus Client has read the Alarm String Code field once, the Alarm Slot is unlocked and becomes available for new pending alarm conditions to be signaled.

Although this method minimizes the Modbus Client processing (detecting the termination of an alarm condition is based on reading value 0 for the Alarm String Code), it has the disadvantage that it does not support multiple Client Entities accessing the interface.

- Rules for the Multi Client Area are:
 - An alarm condition (Alarm String Code and Alarm Error Code) signaled into one of the five Alarm slots is never moved to a different slot; this avoids that a Modbus Client can think that the alarm condition terminated before it

realizes that the same condition is now reported in a different slot; this rule is the same as the first rule of the other method.

- When an alarm condition actually terminates, a different alarm condition can immediately replace the previous one in the same slot; this means that the Modbus Client needs to detect any Alarm String Code value or Alarm Error Code value change and react to it by:
 1. Reporting that the previous alarm condition terminated
 2. Reporting the new alarm condition.

Although this method requires more processing to the Modbus Client than the previous one, it has the advantage that multiple Client Entities could access the Interface and still correctly acquire alarm data.

General Water Timer notes

General water timer input registers reads currently active settings.

Quiet mode Timer notes

Quiet mode timer input registers reads currently active settings.

Configuration data notes

“Unit type” register is an enumerative with the following meaning:

00 = ACF,
01 = AY,
02 = AYP2,
03 = AYP4,
04 = GAHP-W,
05 = Prontoclima-C,
06 = Prontoclima-CR,
07 = GAHP-A,
08 = GAHP-AR,
09 = ACF-HR,
10 = GAHP-W Modulating (E3 / PRO),
11 = GAHP-AR Modulating,
12 = GAHP-A Modulating (E3 / PRO),
13 = AY Condensing,
14 = Third party unit (non Robur),
15 = GAHP-W Modulating HeatOnly.

HOLDING REGISTERS (R/W)

"Type prefix" address (dec)	"Real" address (hex)	Type	category	Description	Read only	Write only
40001	0x0000	Unsigned Word	Event Logger Counters	Record Counter	R.O.	
40002	0x0001	Unsigned Word		Lost Event Counter	R.O.	
40003 - 40010	0x0002 – 0x0009			FREE (Not mapped)		
40011	0x000A	bitmap	Event Logger Records Window	Event Record 00 word 0	R.O.	
40012	0x000B	bitmap		Event Record 00 word 1	R.O.	
40013	0x000C	bitmap		Event Record 00 word 2	R.O.	
40014	0x000D	bitmap		Event Record 00 word 3	R.O.	
40015	0x000E	bitmap		Event Record 00 word 4	R.O.	
...		
40131	0x0082	bitmap		Event Record 24 word 0	R.O.	
40132	0x0083	bitmap		Event Record 24 word 0	R.O.	
40133	0x0084	bitmap		Event Record 24 word 1	R.O.	
40134	0x0085	bitmap		Event Record 24 word 2	R.O.	
40135	0x0086	bitmap		Event Record 24 word 3	R.O.	
40136 - 40200	0x0087 – 0x00C7			FREE (Not mapped)		
40201	0x00C8	unsigned word	Event Logger Commands	Record Counter Reset		L.W.O.
40202	0x00C9	unsigned word		Read Events Acknowledge		L.W.O.
40203	0x00CA	unsigned word		Lost Events Acknowledge		L.W.O.
40204 - 40220	0x00CB– 0x00DB			FREE (Not mapped)		
40221	0x00DC	Unsigned Word	Alarm Semaphores	Instant semaphore (Cooling Plant)	R.O.	
40222	0x00DD	Unsigned Word		Persistent semaphore (Cooling Plant)	R.O.	
40223	0x00DE	Unsigned Word		Instant semaphore (Heating Plant)	R.O.	
40224	0x00DF	Unsigned Word		Persistent semaphore (Heating Plant)	R.O.	
40225 - 40230	0x00E0– 0x00E5			FREE (Not Mapped)		
40231	0x00E6	Unsigned Word		Persistent semaphore Acknowledge (Cooling Plant)		L.W.O.
40232	0x00E7	Unsigned Word		Persistent semaphore Acknowledge (Heating Plant)		L.W.O.
40233 - 40238	0x00E8– 0x00ED			FREE (Not Mapped)		
40239	0x00EE		Real Time Clock SET	Write RTC (Timestamp 1)		
40240	0x00EF			Write RTC (Timestamp 2) (Writing here commits new value)		

40241	0x00F0	Unsigned Word	Alarms Reset Commands	Alarm Reset Unit ID (Cooling Plant)		
40242	0x00F1	Unsigned Word		Alarm Reset Request (Cooling Plant)		L.W.O.
40243	0x00F2	Unsigned Word		Alarm Reset Status (Cooling Plant)	R.O.	
40244	0x00F3	Unsigned Word		Alarm Reset Unit ID (Heating Plant)		
40245	0x00F4	Unsigned Word		Alarm Reset Request (Heating Plant)		L.W.O.
40246	0x00F5	Unsigned Word		Alarm Reset Status (Heating Plant)	R.O.	
40247	0x00F6	Unsigned Word	Ignition Box Reset Commands	Reset Ignition Box: Unit ID (Cooling Plant)		
40248	0x00F7	Unsigned Word		Reset Ignition Box: Request (Cooling Plant) (write 0x55AA to reset)		L.W.O.
40249	0x00F8	Unsigned Word		Reset Ignition Box: Status (Cooling Plant)	R.O.	
40250	0x00F9	Unsigned Word		Reset Ignition Box: Unit ID (Heating Plant)		
40251	0x00FA	Unsigned Word		Reset Ignition Box: Request (Heating Plant) (write 0x55AA to reset)		L.W.O.
40252	0x00FB	Unsigned Word		Reset Ignition Box: Status (Heating Plant)	R.O.	
40253 - 40256	0x00FC – 0x00FF			FREE (Not mapped)		
40257	0x0100	Unsigned Word	Maintenance Counters Reset Commands (Set Last Maintenance Date)	Reset Maintenance Counters: Unit ID (Cooling Plant)		
40258	0x0101	Unsigned Word		Reset Maintenance Counters: Request (Cooling Plant) (write password value provided by Robur)		L.W.O.
40259	0x0102	Unsigned Word		Reset Maintenance Counters: Status (Cooling Plant)	R.O.	
40260	0x0103	Unsigned Word		Reset Maintenance Counters: Unit ID (Heating Plant)		
40261	0x0104	Unsigned Word		Reset Maintenance Counters: Request (Heating Plant) (write password value provided by Robur)		L.W.O.
40262	0x0105	Unsigned Word		Reset Maintenance Counters: Status (Heating Plant)	R.O.	
40263 - 40290	0x0106 – 0x0121			FREE (Not mapped)		
40291	0x0122	Signed Word	External analog request – Setpoints related to external analog coils	External analog request setpoint Cooling service or 2 pipes cool/heat service operating in cooling mode <i>-not mapped if DDC is not master or cooling service not configured. -readonly if neither R.A. control nor BMS control are enabled -readonly if external request is not enabled</i>		
40292	0x0123	Signed Word		External analog request setpoint Heating service or 2 pipes cool/heat service in heating <i>-not mapped if DDC is not master or heating service not configured. -readonly if neither R.A. control nor BMS control are enabled -readonly if external request is not enabled</i>		
40293	0x0124	Signed Word		External analog request setpoint Base domestic hot water service <i>-not mapped if DDC is not master or base DHW service not configured. -readonly if neither R.A. control nor BMS control are enabled -readonly if external request is not enabled</i>		

40294	0x0125	Signed Word		External analog request setpoint Separable domestic hot water service <i>-not mapped if DDC is not master or separable DHW service not configured. -readonly if neither R.A. control nor BMS control are enabled -readonly if external request is not enabled</i>		
40295 - 40300	0x0126 – 0x012B			FREE (Not mapped)		
40301	0x012C	Signed Word	DDC Settings: Water regulation Base cooling plant (or 2 pipes base Cool/heat plant in cooling mode)	Default Water Setpoint Temperature [°C/10] <i>(not mapped if DDC is not master or cooling plant not configured or parameters access not enabled)</i>		
40302	0x012D	Unsigned Word		(=0) <i>(not mapped if DDC is not master or cooling plant not configured or parameters access not enabled)</i> Write value dismissed.		
40303	0x012E	Signed Word		Water Differential Temperature [°C/10] <i>(not mapped if DDC is not master or cooling plant not configured or parameters access not enabled)</i>		
40304	0x012F	Signed Word		Currently Active Water Setpoint Temp. [°C/10] <i>(not mapped if DDC is not master or cooling plant not configured or parameters access not enabled)</i>	R.O.	
40305	0x0130	Signed Word	DDC Settings: General Water Timer Cooling Service <i>(not mapped if service not configured or DDC not cooling master or parameters access not enabled)</i>	MON - Time Period 1 Setpoint Temperature [°C/10]		
40306	0x0131	Unsigned Word		MON - Time Period 1 ON Time [h * 60 + m]		
40307	0x0132	Unsigned Word		MON - Time Period 1 OFF Time [h * 60 + m]		
40308	0x0133	boolean		MON - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40309 - 40312	0x0134 – 0x0137			MON - Time Period 2 <i>As above</i>		
40313 - 40316	0x0138 – 0x013B			MON - Time Period 3 <i>As above</i>		
40317 - 40320	0x013C – 0x013F			MON - Time Period 4 <i>As above</i>		
40321	0x0140	Signed Word		TUE - Time Period 1 Setpoint Temperature [°C/10]		
40322	0x0141	Unsigned Word		TUE - Time Period 1 ON Time [h * 60 + m]		
40323	0x0142	Unsigned Word		TUE - Time Period 1 OFF Time [h * 60 + m]		
40324	0x0143	boolean		TUE - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40325 - 40328	0x0144 – 0x0147			TUE - Time Period 2 <i>As above</i>		
40329 - 40332	0x0148 – 0x014B			TUE - Time Period 3 <i>As above</i>		
40333 - 40336	0x014C – 0x014F			TUE - Time Period 4 <i>As above</i>		

40337	0x0150	Signed Word		WED - Time Period 1 Setpoint Temperature [°C/10]		
40338	0x0151	Unsigned Word		WED - Time Period 1 ON Time [h * 60 + m]		
40339	0x0152	Unsigned Word		WED - Time Period 1 OFF Time [h * 60 + m]		
40340	0x0153	boolean		WED - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40341 - 40344	0x0154 - 0x0157	Signed Word		WED - Time Period 2 <i>As above</i>		
40345 - 40348	0x0158 - 0x015B	Unsigned Word		WED - Time Period 3 <i>As above</i>		
40349 - 40352	0x015C - 0x015F	Unsigned Word		WED - Time Period 4 <i>As above</i>		
40353	0x0160	Signed Word		THU - Time Period 1 Setpoint Temperature [°C/10]		
40354	0x0161	Unsigned Word		THU - Time Period 1 ON Time [h * 60 + m]		
40355	0x0162	Unsigned Word		THU - Time Period 1 OFF Time [h * 60 + m]		
40356	0x0163	boolean		THU - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40357 - 40360	0x0164 - 0x0167			THU - Time Period 2 <i>As above</i>		
40361 - 40364	0x0168 - 0x016B			THU - Time Period 3 <i>As above</i>		
40365 - 40368	0x016C - 0x016F			THU - Time Period 4 <i>As above</i>		
40369	0x0170	Signed Word		FRI - Time Period 1 Setpoint Temperature [°C/10]		
40370	0x0171	Unsigned Word		FRI - Time Period 1 ON Time [h * 60 + m]		
40371	0x0172	Unsigned Word		FRI - Time Period 1 OFF Time [h * 60 + m]		
40372	0x0173	boolean		FRI - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40373 - 40376	0x0174 - 0x0177			FRI - Time Period 2 <i>As above</i>		
40377 - 40380	0x0178 - 0x017B			FRI - Time Period 3 <i>As above</i>		
40381 - 40384	0x017C - 0x017F			FRI - Time Period 4 <i>As above</i>		
40385	0x0180	Signed Word		SAT - Time Period 1 Setpoint Temperature [°C/10]		
40386	0x0181	Unsigned Word		SAT - Time Period 1 ON Time [h * 60 + m]		
40387	0x0182	Unsigned Word		SAT - Time Period 1 OFF Time [h * 60 + m]		
40388	0x0183	boolean		SAT - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40389 - 40392	0x0184 - 0x0187			SAT - Time Period 2 <i>As above</i>		
40393 - 40396	0x0188 - 0x018B			SAT - Time Period 3 <i>As above</i>		
40397 - 40400	0x018C - 0x018F			SAT - Time Period 4 <i>As above</i>		
40401	0x0190	Signed Word		SUN - Time Period 1 Setpoint Temperature [°C/10]		
40402	0x0191	Unsigned Word		SUN - Time Period 1 ON Time [h * 60 + m]		
40403	0x0192	Unsigned Word		SUN - Time Period 1 OFF Time [h * 60 + m]		
40404	0x0193	boolean		SUN - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40405 - 40408	0x0194 - 0x0197			SUN - Time Period 2 <i>As above</i>		
40409 - 40412	0x0198 - 0x019B			SUN - Time Period 3 <i>As above</i>		
40413 - 40416	0x019C - 0x019F			SUN - Time Period 4 <i>As above</i>		

40417	0x01A0	boolean	Commands : General Water Timer Cooling Service	General Water Timer Copy		L.W.O.
40418	0x01A1	boolean		General Water Timer Commit		L.W.O.
40419 - 40576	40419 – 40576			FREE (Not mapped)		
40577	0x0240	Signed Word	DDC Settings: Water regulation Base heating plant (or 2 pipes base Cool/heat plant in heating mode)	Default Water Setpoint Temperature [°C/10] <i>(not mapped if DDC is not master or heating plant not configured or parameters access not enabled)</i>		
40578	0x0241	Unsigned Word		(=0) <i>(not mapped if DDC is not master or heating plant not configured or parameters access not enabled)</i> Write value dismissed.		
40579	0x0242	Signed Word		Water Differential Temperature [°C/10] <i>(not mapped if DDC is not master or heating plant not configured or parameters access not enabled)</i>		
40580	0x0243	Signed Word		Currently Active Water Setpoint Temp. [°C/10] <i>(not mapped if DDC is not master or heating plant not configured or parameters access not enabled)</i>	R.O.	
40581	0x0244	Signed Word	DDC Settings: General Water Timer Heating Service <i>(not mapped if service not configured or DDC not heating master or parameters access not enabled)</i>	MON - Time Period 1 Setpoint Temperature [°C/10]		
40582	0x0245	Unsigned Word		MON - Time Period 1 ON Time [h * 60 + m]		
40583	0x0246	Unsigned Word		MON - Time Period 1 OFF Time [h * 60 + m]		
40584	0x0247	boolean		MON - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40585 - 40588	0x0248 – 0x024B			MON - Time Period 2 <i>As above</i>		
40589 - 40592	0x024C – 0x024F			MON - Time Period 3 <i>As above</i>		
40593 - 40596	0x0250 – 0x0253			MON - Time Period 4 <i>As above</i>		
40597	0x0254	Signed Word		TUE - Time Period 1 Setpoint Temperature [°C/10]		
40598	0x0255	Unsigned Word		TUE - Time Period 1 ON Time [h * 60 + m]		
40599	0x0256	Unsigned Word		TUE - Time Period 1 OFF Time [h * 60 + m]		
40600	0x0257	boolean		TUE - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40601 - 40604	0x0258 – 0x025B			TUE - Time Period 2 <i>As above</i>		
40605 - 40608	0x025C – 0x025F			TUE - Time Period 3 <i>As above</i>		
40609 - 40612	0x0260 – 0x0263			TUE - Time Period 4 <i>As above</i>		

40613	0x0264	Signed Word		WED - Time Period 1 Setpoint Temperature [°C/10]		
40614	0x0265	Unsigned Word		WED - Time Period 1 ON Time [h * 60 + m]		
40615	0x0266	Unsigned Word		WED - Time Period 1 OFF Time [h * 60 + m]		
40616	0x0267	boolean		WED - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40617 - 40620	0x0268 - 0x026B	Signed Word		WED - Time Period 2 <i>As above</i>		
40621 - 40624	0x026C - 0x026F	Unsigned Word		WED - Time Period 3 <i>As above</i>		
40625 - 40628	0x0270 - 0x0273	Unsigned Word		WED - Time Period 4 <i>As above</i>		
40629	0x0274	Signed Word		THU - Time Period 1 Setpoint Temperature [°C/10]		
40630	0x0275	Unsigned Word		THU - Time Period 1 ON Time [h * 60 + m]		
40631	0x0276	Unsigned Word		THU - Time Period 1 OFF Time [h * 60 + m]		
40632	0x0277	boolean		THU - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40633 - 40636	0x0278 - 0x027B			THU - Time Period 2 <i>As above</i>		
40637 - 40640	0x027C - 0x027F			THU - Time Period 3 <i>As above</i>		
40641 - 40644	0x0280 - 0x0283			THU - Time Period 4 <i>As above</i>		
40645	0x0284	Signed Word		FRI - Time Period 1 Setpoint Temperature [°C/10]		
40646	0x0285	Unsigned Word		FRI - Time Period 1 ON Time [h * 60 + m]		
40647	0x0286	Unsigned Word		FRI - Time Period 1 OFF Time [h * 60 + m]		
40648	0x0287	boolean		FRI - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40649 - 40652	0x0288 - 0x028B			FRI - Time Period 2 <i>As above</i>		
40653 - 40656	0x028C - 0x028F			FRI - Time Period 3 <i>As above</i>		
40657 - 40660	0x0290 - 0x0293			FRI - Time Period 4 <i>As above</i>		
40661	0x0294	Signed Word		SAT - Time Period 1 Setpoint Temperature [°C/10]		
40662	0x0295	Unsigned Word		SAT - Time Period 1 ON Time [h * 60 + m]		
40663	0x0296	Unsigned Word		SAT - Time Period 1 OFF Time [h * 60 + m]		
40664	0x0297	boolean		SAT - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40665 - 40668	0x0298 - 0x029B			SAT - Time Period 2 <i>As above</i>		
40669 - 40672	0x029C - 0x029F			SAT - Time Period 3 <i>As above</i>		
40673 - 40676	0x02A0 - 0x02A3			SAT - Time Period 4 <i>As above</i>		
40677	0x02A4	Signed Word		SUN - Time Period 1 Setpoint Temperature [°C/10]		
40678	0x02A5	Unsigned Word		SUN - Time Period 1 ON Time [h * 60 + m]		
40679	0x02A6	Unsigned Word		SUN - Time Period 1 OFF Time [h * 60 + m]		
40680	0x02A7	boolean		SUN - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40681 - 40684	0x02A8 - 0x02AB			SUN - Time Period 2 <i>As above</i>		
40685 - 40688	0x02AC - 0x02AF			SUN - Time Period 3 <i>As above</i>		
40689 - 40692	0x02B0 - 0x02B3			SUN - Time Period 4 <i>As above</i>		

40693	0x02B4	boolean	Commands : General Water Timer Heating Service	General Water Timer Copy		L.W.O.
40694	0x02B5	boolean		General Water Timer Commit		L.W.O.
40695	0x02B6	Signed Word	DDC Settings: General Water Timer Base domestic hot water Service <i>(not mapped if service not configured or DDC not heating master or parameters access not enabled)</i>	MON - Time Period 1 Setpoint Temperature [°C/10]		
40696	0x02B7	Unsigned Word		MON - Time Period 1 ON Time [h * 60 + m]		
40697	0x02B8	Unsigned Word		MON - Time Period 1 OFF Time [h * 60 + m]		
40698	0x02B9	boolean		MON - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40699 - 40702	0x02BA - 0x02BD			MON - Time Period 2 <i>As above</i>		
40703 - 40706	0x02BE - 0x02C1			MON - Time Period 3 <i>As above</i>		
40707 - 40710	0x02C2 - 0x02C5			MON - Time Period 4 <i>As above</i>		
40711	0x02C6	Signed Word		TUE - Time Period 1 Setpoint Temperature [°C/10]		
40712	0x02C7	Unsigned Word		TUE - Time Period 1 ON Time [h * 60 + m]		
40713	0x02C8	Unsigned Word		TUE - Time Period 1 OFF Time [h * 60 + m]		
40714	0x02C9	boolean		TUE - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40715 - 40718	0x02CA - 0x02CD			TUE - Time Period 2 <i>As above</i>		
40719 - 40722	0x02CE - 0x02D1			TUE - Time Period 3 <i>As above</i>		
40723 - 40726	0x02D2 - 0x02D5			TUE - Time Period 4 <i>As above</i>		
40727	0x02D6	Signed Word		WED - Time Period 1 Setpoint Temperature [°C/10]		
40728	0x02D7	Unsigned Word		WED - Time Period 1 ON Time [h * 60 + m]		
40729	0x02D8	Unsigned Word		WED - Time Period 1 OFF Time [h * 60 + m]		
40730	0x02D9	boolean		WED - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40731 - 40734	0x02DA - 0x02DD	Signed Word		WED - Time Period 2 <i>As above</i>		
40735 - 40738	0x02DE - 0x02E1	Unsigned Word		WED - Time Period 3 <i>As above</i>		
40739 - 40742	0x02E2 - 0x02E5	Unsigned Word		WED - Time Period 4 <i>As above</i>		
40743	0x02E6	Signed Word		THU - Time Period 1 Setpoint Temperature [°C/10]		
40744	0x02E7	Unsigned Word		THU - Time Period 1 ON Time [h * 60 + m]		
40745	0x02E8	Unsigned Word		THU - Time Period 1 OFF Time [h * 60 + m]		
40746	0x02E9	boolean		THU - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40747 - 40750	0x02EA - 0x02ED			THU - Time Period 2 <i>As above</i>		
40751 - 40754	0x02EE - 0x02F1			THU - Time Period 3 <i>As above</i>		
40755 - 40758	0x02F2 - 0x02F5			THU - Time Period 4 <i>As above</i>		

40759	0x02F6	Signed Word		FRI - Time Period 1 Setpoint Temperature [°C/10]		
40760	0x02F7	Unsigned Word		FRI - Time Period 1 ON Time [h * 60 + m]		
40761	0x02F8	Unsigned Word		FRI - Time Period 1 OFF Time [h * 60 + m]		
40762	0x02F9	boolean		FRI - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40763 - 40766	0x02FA - 0x02FD			FRI - Time Period 2 <i>As above</i>		
40767 - 40770	0x02FE - 0x0301			FRI - Time Period 3 <i>As above</i>		
40771 - 40774	0x0302 - 0x0305			FRI - Time Period 4 <i>As above</i>		
40775	0x0306	Signed Word		SAT - Time Period 1 Setpoint Temperature [°C/10]		
40776	0x0307	Unsigned Word		SAT - Time Period 1 ON Time [h * 60 + m]		
40777	0x0308	Unsigned Word		SAT - Time Period 1 OFF Time [h * 60 + m]		
40778	0x0309	boolean		SAT - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40779 - 40782	0x030A - 0x030D			SAT - Time Period 2 <i>As above</i>		
40783 - 40786	0x030E - 0x0311			SAT - Time Period 3 <i>As above</i>		
40787 - 40790	0x0312 - 0x0315			SAT - Time Period 4 <i>As above</i>		
40791	0x0316	Signed Word		SUN - Time Period 1 Setpoint Temperature [°C/10]		
40792	0x0317	Unsigned Word		SUN - Time Period 1 ON Time [h * 60 + m]		
40793	0x0318	Unsigned Word		SUN - Time Period 1 OFF Time [h * 60 + m]		
40794	0x0319	boolean		SUN - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40795 - 40798	0x031A - 0x031D			SUN - Time Period 2 <i>As above</i>		
40799 - 40802	0x031E - 0x0321			SUN - Time Period 3 <i>As above</i>		
40803 - 40806	0x0322 - 0x0325			SUN - Time Period 4 <i>As above</i>		
40807	0x0326	boolean	Commands : General Water Timer Base domestic hot water Service	General Water Timer Copy		L.W.O.
40808	0x0327	boolean		General Water Timer Commit		L.W.O.
40809 - 40852	0x0328 - 0x0353			FREE (Not mapped)		
40853	0x0354	bitmap	WAP historical alarm	Timestamp 1		R.O.
40854	0x0355	bitmap		Timestamp 2		R.O.
40855	0x0356	unsigned Word		Unit ID (479 means PDC related alarm)		R.O.
40856	0x0357	Bitmap		Alarm code		R.O.
40857	0x0358	Unsigned word		String code		R.O.
40858	0x0359	Unsigned word		On/Off/Instant (0/1/2)		R.O.
40859	0x035A	Unsigned word		Absolute index (1..4096) (absolute position in alarm queue)		R.O.
40860	0x035B	Unsigned word		Alarm number (related to most recent alarm)		R.O.
40861	0x035C	Unsigned word		Number of alarms (total number of alarms in queue)		R.O.
40862	0x035D	unsigned word		alarm index		
40863 - 40870	0x035E - 0x0365			FREE (Not mapped)		

40871	0x0366	Unsigned Word	DDC Settings: Water regulation Separable domestic hot water Service	FREE (Not mapped)		
40872	0x0367			Always read as '0'; write value dismissed. (not mapped if DDC is not master or separable heat plant not configured or parameters access not enabled)		
40873	0x0368	Signed Word		Water Differential Temperature [°C/10] (not mapped if DDC is not master or separable heat plant not configured or parameters access not enabled)		
40874	0x0369	Signed Word		Currently Active Water Setpoint Temp. [°C/10] (not mapped if DDC is not master or separable heat plant not configured or parameters access not enabled)	R.O.	
40875	0x036A	Signed Word	DDC Settings: General Water Timer Separable domestic hot water Service (not mapped if service not configured or DDC not heating master or parameters access not enabled)	MON - Time Period 1 Setpoint Temperature [°C/10]		
40876	0x036B	Unsigned Word		MON - Time Period 1 ON Time [h * 60 + m]		
40877	0x036C	Unsigned Word		MON - Time Period 1 OFF Time [h * 60 + m]		
40878	0x036D	boolean		MON - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40879 – 40882	0x036E – 0x0371			MON - Time Period 2 As above		
40883 – 40886	0x0372 – 0x0375			MON - Time Period 3 As above		
40887 – 40890	0x0376 – 0x0379			MON - Time Period 4 As above		
40891	0x037A	Signed Word		TUE - Time Period 1 Setpoint Temperature [°C/10]		
40892	0x037B	Unsigned Word		TUE - Time Period 1 ON Time [h * 60 + m]		
40893	0x037C	Unsigned Word		TUE - Time Period 1 OFF Time [h * 60 + m]		
40894	0x037D	boolean		TUE - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40895 – 40898	0x037E – 0x0381			TUE - Time Period 2 As above		
40899 – 40902	0x0382 – 0x0385			TUE - Time Period 3 As above		
40903 - 40906	0x0386 - 0x0389			TUE - Time Period 4 As above		
40907	0x038A	Signed Word		WED - Time Period 1 Setpoint Temperature [°C/10]		
40908	0x038B	Unsigned Word		WED - Time Period 1 ON Time [h * 60 + m]		
40909	0x038C	Unsigned Word		WED - Time Period 1 OFF Time [h * 60 + m]		
40910	0x038D	boolean		WED - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40911 – 40914	0x038E – 0x0391	Signed Word		WED - Time Period 2 As above		
40915 - 40918	0x0392 – 0x0395	Unsigned Word		WED - Time Period 3 As above		
40919 - 40922	0x0396 - 0x0399	Unsigned Word		WED - Time Period 4 As above		
40923	0x039A	Signed Word		THU - Time Period 1 Setpoint Temperature [°C/10]		
40924	0x039B	Unsigned Word		THU - Time Period 1 ON Time [h * 60 + m]		
40925	0x039C	Unsigned Word		THU - Time Period 1 OFF Time [h * 60 + m]		
40926	0x039D	boolean		THU - Time Period 1 Enabled TRUE(1) / FALSE(0)		

40927 - 40930	0x039E - 0x03A1			THU - Time Period 2 <i>As above</i>		
40931 - 40934	0x03A2 - 0x03A5			THU - Time Period 3 <i>As above</i>		
40935 - 40938	0x03A6 - 0x03A9			THU - Time Period 4 <i>As above</i>		
40939	0x03AA	Signed Word		FRI - Time Period 1 Setpoint Temperature [°C/10]		
40940	0x03AB	Unsigned Word		FRI - Time Period 1 ON Time [h * 60 + m]		
40941	0x03AC	Unsigned Word		FRI - Time Period 1 OFF Time [h * 60 + m]		
40942	0x03AD	boolean		FRI - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40943 - 40946	0x03AE - 0x03A1			FRI - Time Period 2 <i>As above</i>		
40947 - 40950	0x03B2 - 0x03B5			FRI - Time Period 3 <i>As above</i>		
40951 - 40954	0x03B6 - 0x03B9			FRI - Time Period 4 <i>As above</i>		
40955	0x03BA	Signed Word		SAT - Time Period 1 Setpoint Temperature [°C/10]		
40956	0x03BB	Unsigned Word		SAT - Time Period 1 ON Time [h * 60 + m]		
40957	0x03BC	Unsigned Word		SAT - Time Period 1 OFF Time [h * 60 + m]		
40958	0x03BD	boolean		SAT - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40959 - 40962	0x03BE - 0x03C1			SAT - Time Period 2 <i>As above</i>		
40963 - 40966	0x03C2 - 0x03C5			SAT - Time Period 3 <i>As above</i>		
40967 - 40970	0x03C6 - 0x03C9			SAT - Time Period 4 <i>As above</i>		
40971	0x03CA	Signed Word		SUN - Time Period 1 Setpoint Temperature [°C/10]		
40972	0x03CB	Unsigned Word		SUN - Time Period 1 ON Time [h * 60 + m]		
40973	0x03CC	Unsigned Word		SUN - Time Period 1 OFF Time [h * 60 + m]		
40974	0x03CD	boolean		SUN - Time Period 1 Enabled TRUE(1) / FALSE(0)		
40975 - 40978	0x03CE - 0x03D1			SUN - Time Period 2 <i>As above</i>		
40979 - 40982	0x03D2 - 0x03D5			SUN - Time Period 3 <i>As above</i>		
40983 - 40986	0x03D6 - 0x03D9			SUN - Time Period 4 <i>As above</i>		
40987	0x03D9	boolean	Commands : General Water Timer Separable domestic hot water Service	General Water Timer Copy		L.W.O.
40988	0x03DA	boolean		General Water Timer Commit		L.W.O.
40989 - 41000	0x03DB - 0x03E7			FREE (Not mapped)		
41001	0x03E8	boolean	DDC Quiet Mode settings: cooling <i>(not mapped if cooling</i> <i>plant not configured or if</i> <i>DDC is not cooling master</i> <i>or parameters access not</i> <i>enabled)</i>	Installer Enable Quiet Mode TRUE (1) / FALSE (0)		
41002	0x03E9	boolean		User Enable Quiet Mode TRUE (1) / FALSE (0)		
41003	0x03EA	boolean		Disable Units with quiet mode TRUE (1) / FALSE (0)		
41004	0x03EB	boolean		Disable Units without quiet mode TRUE (1) / FALSE (0)		
41005 - 41010	0x03EC - 0x03F1			FREE (Not mapped)		

41011	0x03F2	unsigned Word	DDC Quiet Mode settings: cooling timer <i>(not mapped if cooling plant not configured or if DDC is not cooling master or parameters access not enabled)</i>	MON – Time Period 1 ON Time [h * 60 + m]		
41012	0x03F3	unsigned Word		MON – Time Period 1 OFF Time [h * 60 + m]		
41013	0x03F4	boolean		MON – Time Period 1 Enabled TRUE (1) / FALSE (0)		
41014-41016	0x03F5-0x03F7			MON - Time Period 2 <i>As above</i>		
41017-41019	0x03F8-0x03FA			MON - Time Period 3 <i>As above</i>		
41020 - 41022	0x03FB-0x03FD			MON - Time Period 4 <i>As above</i>		
41023	0x03FE	unsigned Word		TUE – Time Period 1 ON Time [h * 60 + m]		
41024	0x03FF	unsigned Word		TUE – Time Period 1 OFF Time [h * 60 + m]		
41025	0x0400	boolean		TUE – Time Period 1 Enabled TRUE (1) / FALSE (0)		
41026-41028	0x0401-0x0403			TUE - Time Period 2 <i>As above</i>		
41029-41031	0x0404-0x0406			TUE - Time Period 3 <i>As above</i>		
41032-41034	0x0407-0x0409			TUE - Time Period 4 <i>As above</i>		
41035	0x040A	unsigned Word		WED – Time Period 1 ON Time [h * 60 + m]		
41036	0x040B	unsigned Word		WED – Time Period 1 OFF Time [h * 60 + m]		
41037	0x040C	boolean		WED – Time Period 1 Enabled TRUE (1) / FALSE (0)		
41038-41040	0x040D-0x040F			WED - Time Period 2 <i>As above</i>		
41041-41043	0x0410-0x0412			WED - Time Period 3 <i>As above</i>		
41044-41046	0x0413-0x0415			WED - Time Period 4 <i>As above</i>		
41047	0x0416	unsigned Word		THU – Time Period 1 ON Time [h * 60 + m]		
41048	0x0417	unsigned Word		THU – Time Period 1 OFF Time [h * 60 + m]		
41049	0x0418	boolean		THU – Time Period 1 Enabled TRUE (1) / FALSE (0)		
41050-41052	0x0419-0x041B			THU - Time Period 2 <i>As above</i>		
41053-41055	0x041C-0x041E			THU - Time Period 3 <i>As above</i>		
41056-41058	0x041F-0x0421			THU - Time Period 4 <i>As above</i>		
41059	0x0422	unsigned Word		FRI – Time Period 1 ON Time [h * 60 + m]		
41060	0x0423	unsigned Word		FRI – Time Period 1 OFF Time [h * 60 + m]		
41061	0x0424	boolean		FRI – Time Period 1 Enabled TRUE (1) / FALSE (0)		
41062-41064	0x0425-0x0427			FRI - Time Period 2 <i>As above</i>		
41065-41067	0x0428-0x042A			FRI - Time Period 3 <i>As above</i>		
41068-41070	0x042B-0x042D			FRI - Time Period 4 <i>As above</i>		
41071	0x042E	unsigned Word		SAT – Time Period 1 ON Time [h * 60 + m]		
41072	0x042F	unsigned Word		SAT – Time Period 1 OFF Time [h * 60 + m]		

41073	0x0430	boolean		SAT – Time Period 1 Enabled TRUE (1) / FALSE (0)		
41074-41076	0x0431-0x0433			SAT - Time Period 2 <i>As above</i>		
41077-41079	0x0434-0x0436			SAT - Time Period 3 <i>As above</i>		
41080-41082	0x0437-0x0439			SAT - Time Period 4 <i>As above</i>		
41083	0x043A	unsigned Word		SUN – Time Period 1 ON Time [h * 60 + m]		
41084	0x043B	unsigned Word		SUN – Time Period 1 OFF Time [h * 60 + m]		
41085	0x043C	boolean		SUN – Time Period 1 Enabled TRUE (1) / FALSE (0)		
41086-41088	0x043D-0x043F			SUN - Time Period 2 <i>As above</i>		
41089-41091	0x0440-0x0442			SUN - Time Period 3 <i>As above</i>		
41092-41094	0x0443-0x0445			SUN - Time Period 4 <i>As above</i>		
41095	0x0446	boolean	Commands : Quiet mode cooling Timer	Quiet mode Timer Copy		L.W.O.
41096	0x0447	boolean		Quiet mode Timer Commit		L.W.O.
41097 - 41099	0x0448-0x044A			FREE (Not mapped)		
41100	0x044B	boolean	DDC Quiet Mode settings: heating <i>(not mapped if base heating plant not configured or if DDC is not heating master)</i>	Installer Enable Quiet Mode TRUE (1) / FALSE (0)		
41101	0x044C	boolean		User Enable Quiet Mode TRUE (1) / FALSE (0)		
41102	0x044D	boolean		Disable Units with quiet mode TRUE (1) / FALSE (0)		
41103	0x044E	boolean		Disable Units without quiet mode TRUE (1) / FALSE (0)		
41104 - 41109	0x044F - 0x0454			FREE (Not mapped)		
41110	0x0455	unsigned Word	DDC Quiet Mode settings: heating timer <i>(not mapped if base heating plant not configured or if DDC is not heating master)</i>	MON – Time Period 1 ON Time [h * 60 + m]		
41111	0x0456	unsigned Word		MON – Time Period 1 OFF Time [h * 60 + m]		
41112	0x0457	boolean		MON – Time Period 1 Enabled TRUE (1) / FALSE (0)		
41113 - 41115	0x0458 - 0x045A			MON - Time Period 2 <i>As above</i>		
41116 - 41118	0x045B - 0x045D			MON - Time Period 3 <i>As above</i>		
41119 - 41121	0x045E - 0x0460			MON - Time Period 4 <i>As above</i>		
41122	0x0461	unsigned Word		TUE – Time Period 1 ON Time [h * 60 + m]		
41123	0x0462	unsigned Word		TUE – Time Period 1 OFF Time [h * 60 + m]		
41124	0x0463	boolean		TUE – Time Period 1 Enabled TRUE (1) / FALSE (0)		
41125 - 41127	0x0464 - 0x0466			TUE - Time Period 2 <i>As above</i>		
41128 - 41130	0x0467 - 0x0469			TUE - Time Period 3 <i>As above</i>		
41131 - 41133	0x046A - 0x046C			TUE - Time Period 4 <i>As above</i>		
41134	0x046D	unsigned Word		WED – Time Period 1 ON Time [h * 60 + m]		

41135	0x046E	unsigned Word		WED – Time Period 1 OFF Time [h * 60 + m]		
41136	0x046F	boolean		WED – Time Period 1 Enabled TRUE (1) / FALSE (0)		
41137 - 41139	0x0470 - 0x0472			WED - Time Period 2 <i>As above</i>		
41140 - 41142	0x0473 - 0x0475			WED - Time Period 3 <i>As above</i>		
41143 - 41145	0x0476 - 0x0478			WED - Time Period 4 <i>As above</i>		
41146	0x0479	unsigned Word		THU – Time Period 1 ON Time [h * 60 + m]		
41147	0x047A	unsigned Word		THU – Time Period 1 OFF Time [h * 60 + m]		
41148	0x047B	boolean		THU – Time Period 1 Enabled TRUE (1) / FALSE (0)		
41149 - 41151	0x047C - 0x047E			THU - Time Period 2 <i>As above</i>		
41152 - 41154	0x047F - 0x0481			THU - Time Period 3 <i>As above</i>		
41155 - 41157	0x0482 - 0x0484			THU - Time Period 4 <i>As above</i>		
41158	0x0485	unsigned Word		FRI – Time Period 1 ON Time [h * 60 + m]		
41159	0x0486	unsigned Word		FRI – Time Period 1 OFF Time [h * 60 + m]		
41160	0x0487	boolean		FRI – Time Period 1 Enabled TRUE (1) / FALSE (0)		
41161 - 41163	0x0488 - 0x048A			FRI - Time Period 2 <i>As above</i>		
41164 - 41166	0x048B - 0x048D			FRI - Time Period 3 <i>As above</i>		
41167 - 41169	0x048E - 0x0490			FRI - Time Period 4 <i>As above</i>		
41170	0x0491	unsigned Word		SAT – Time Period 1 ON Time [h * 60 + m]		
41171	0x0492	unsigned Word		SAT – Time Period 1 OFF Time [h * 60 + m]		
41172	0x0493	boolean		SAT – Time Period 1 Enabled TRUE (1) / FALSE (0)		
41173 - 41175	0x0494 - 0x0496			SAT - Time Period 2 <i>As above</i>		
41176 - 41178	0x0497 - 0x0499			SAT - Time Period 3 <i>As above</i>		
41179 - 41181	0x049A - 0x049C			SAT - Time Period 4 <i>As above</i>		
41182	0x049D	unsigned Word		SUN – Time Period 1 ON Time [h * 60 + m]		
41183	0x049E	unsigned Word		SUN – Time Period 1 OFF Time [h * 60 + m]		
41184	0x049F	boolean		SUN – Time Period 1 Enabled TRUE (1) / FALSE (0)		
41185 - 41187	0x04A0 - 0x04A2			SUN - Time Period 2 <i>As above</i>		
41188 - 41190	0x04A3 - 0x04A5			SUN - Time Period 3 <i>As above</i>		
41191 - 41193	0x04A6 - 0x04A8			SUN - Time Period 4 <i>As above</i>		
41194	0x04A9	boolean	Commands : Quiet mode heating Timer	Quiet mode Timer Copy		L.W.O.
41195	0x04AA	boolean		Quiet mode Timer Commit		L.W.O.
41196 - 41198	0x04AB - 0x04AD			FREE (Not mapped)		
41199	0x04AE	boolean	DDC Settings: Weather Compensation - Cooling Service see access rules note (*)	User Enable Cooling Weather Compensation TRUE(1) / FALSE(0) - write ignored if Operating Mode without Weather compensation. - FALSE (0) if Operating Mode without Weather compensation.		

41200	0x04AF	signed word		TF1 (setpoint at Text = 25°C) [°C/10] (range: 50...350)		
41201	0x04B0	signed word		TF2 (setpoint at Text = 35°C) [°C/10] (range: 50...350)		
41202	0x04B1	signed word		Offset [°C/10] (range: -50...+50)		
41203	0x04B2	signed word		Min Inlet Setpoint (cooling plant) [°C/10] (range: -300...+400; max limited to MaxInlet Setpoint) (may affect default setpoint setting)		
41204	0x04B3	signed word		Min Outlet Setpoint (cooling plant) [°C/10] (range: -300...+400; max limited to MaxOutlet Setpoint) (may affect default setpoint setting)		
41205	0x04B4	signed word		Max Inlet Setpoint (cooling plant) [°C/10] (range: -300...+400; min limited to MinInlet Setpoint) (may affect default setpoint setting)		
41206	0x04B5	signed word		Max Outlet Setpoint (cooling plant) [°C/10] (range: -300...+400; min limited to MinOutlet Setpoint) (may affect default setpoint setting)		
41207	0x04B6	boolean		Water thermostatisation mode (cooling plant) Outlet (0) / Inlet (1)		
41208	0x04B7	signed word		Chrono Setpoint T1		
41209	0x04B8	signed word		Chrono Setpoint T2		
41210	0x04B9	signed word		Chrono Setpoint T3		
41211 - 41218	0x04BA - 0x04C1			FREE (Not mapped)		
41219	0x04C2	boolean	DDC Settings: Weather Compensation - Heating Service see access rules note (*)	User Enable Space Heating Weather Compensation TRUE(1) / FALSE(0) - write ignored if Operating Mode without Weather compensation. - FALSE (0) if Operating Mode without Weather compensation.		
41220	0x04C3			not used - read value always "0"; write ignored.		
41221	0x04C4	unsigned word		Slope (range: 10...400)		
41222	0x04C5	signed word		Offset [°C/10] (range: -50...+50)		
41223	0x04C6	signed word		Min Inlet Setpoint (Base heating plant) [°C/10] (range: 50...950; max limited to MaxInlet Setpoint) (may affect default setpoint setting)		
41224	0x04C7	signed word		Min Outlet Setpoint (Base heating plant) [°C/10] (range: 50...950; max limited to MaxOutlet Setpoint) (may affect default setpoint setting)		
41225	0x04C8	signed word		Max Inlet Setpoint (Base heating plant) [°C/10] (range: 50...950; min limited to MinInlet Setpoint) (may affect default setpoint setting)		
41226	0x04C9	signed word		Max Outlet Setpoint (Base heating plant) [°C/10] (range: 50...950; min limited to MinOutlet Setpoint) (may affect default setpoint setting)		
41227	0x04CA	boolean		Water thermostatisation mode (Base Heating plant) Outlet (0) / Inlet (1)		
41228	0x04CB	signed word		Chrono Setpoint T1		
41229	0x04CC	signed word		Chrono Setpoint T2		
41230	0x04CD	signed word		Chrono Setpoint T3		
41231 - 41238	0x04CE - 0x04D5			FREE (Not mapped)		
41239	0x04D6	signed word	DDC Settings: Regulation parameters Cooling plant Category #1 see access rules note (*)	Single unit power [kW] (range: 1..1680) - writable only for non-Robur units (cat. #4 to #7) else write ignored;		
41240	0x04D7	unsigned word		Unit priority (range: 0...6)		

41241	0x04D8	unsigned word		Locking time [minutes] (range: 0...120)		
41242	0x04D9	unsigned word		Minimum run time [minutes] (range: 0...120)		
41243	0x04DA	unsigned word		Number of stages (range: 1...10)		
41244	0x04DB	unsigned word		Release Integral [°C * min] (range: 0...500)		
41245	0x04DC	unsigned word		Reset Integral [°C * min] (range: 0...500)		
41246	0x04DD	unsigned word		Circ stop delay [sec] (range: 0...660) - apply and writable only for non-Robur units (cat. #4 to #7) else write ignored;		
41247	0x04DE	signed word		not used - read value always "0"; write ignored.		
41248	0x04DF	signed word		not used - read value always "0"; write ignored.		
41249 - 41258	0x04E0 - 0x04E9			FREE (Not mapped)		
41259 - 41278	0x04EA - 0x04FD		Cooling plant Category #2	As above		
41279 - 41298	0x04FE - 0x0511		Cooling plant Category #3	As above		
41299 - 41318	0x0512 - 0x0525		Cooling plant Category #4	As above		
41319 - 41338	0x0526 - 0x0539		Cooling plant Category #5	As above		
41339 - 41358	0x053A - 0x054D		Cooling plant Category #6	As above		
41359 - 41378	0x054E - 0x0561		Cooling plant Category #7	As above		
41379	0x0562	signed word	DDC Settings: Regulation parameters Base heating plant Category #1 see access rules note (*)	Single unit power [kW] (range: 1..1680) - writable only for non-Robur units (cat. #4 to #7) else write ignored; - force same value on separable heating plant		
41380	0x0563	unsigned word		Unit priority (range: 0...6; 0...4 for non GAHP cat. #3 to #7) - readonly for GAHP (category 0..1 heating); write ignored		
41381	0x0564	unsigned word		Locking time [minutes] (range: 0...120)		
41382	0x0565	unsigned word		Minimum run time [minutes] (range: 0...120)		
41383	0x0566	unsigned word		Number of stages (range: 1...10)		
41384	0x0567	unsigned word		Release Integral [°C * min] (range: 0...500)		
41385	0x0568	unsigned word		Reset Integral [°C * min] (range: 0...500)		
41386	0x0569	unsigned word		Circ stop delay [sec] (range: 0...660) - apply and writable only for non-Robur units (cat. #4 to #7) else write ignored;		
41387	0x056A	signed word		Outlet temperature limit [°C] (range: 50...950) - writable only for base heating cat. #1, #2 else write ignored;		
41388	0x056B	signed word		Inlet temperature limit [°C] (range: 50...950) - writable only for base heating cat. #1, #2; else write ignored;		
41389 - 41398	0x056C - 0x0575			FREE (Not mapped)		
41399 - 41418	0x0576 - 0x0589		Base heating plant Category #2	As above		

41419 - 41438	0x058A - 0x059D		Base heating plant Category #3	As above		
41439 - 41458	0x059E - 0x05B1		Base heating plant Category #4	As above		
41459 - 41478	0x05B2 - 0x05C5		Base heating plant Category #5	As above		
41479 - 41498	0x05C6 - 0x05D9		Base heating plant Category #6	As above		
41499 - 41518	0x05DA - 0x05ED		Base heating plant Category #7	As above		
41519	0x05EE	signed word	DDC Settings: Regulation parameters Separable heating plant Category #1 see access rules note (*)	Single unit power [kW] (range: 1..1680) - writable only for non-Robur units (cat. #4 to #7) else write ignored; - force same value on base heating plant		
41520	0x05EF	unsigned word		Unit priority (range: 0...6; 0...4 for non GAHP cat. #3 to #7) - readonly for GAHP (category 0..1 heating); write ignored		
41521	0x05F0	unsigned word		Locking time [minutes] (range: 0...120)		
41522	0x05F1	unsigned word		Minimum run time [minutes] (range: 0...120)		
41523	0x05F2	unsigned word		Number of stages (range: 1...10)		
41524	0x05F3	unsigned word		Release Integral [°C * min] (range: 0...500)		
41525	0x05F4	unsigned word		Reset Integral [°C * min] (range: 0...500)		
41526	0x05F5	unsigned word		Circ stop delay [sec] (range: 0...660) - apply and writable only for non-Robur units (cat. #4 to #7) else write ignored;		
41527	0x05F6	signed word		not used - read value always "0"; write ignored.		
41528	0x05F7	signed word		not used - read value always "0"; write ignored.		
41529 - 41538	0x05F8 - 0x0601			FREE (Not mapped)		
41539 - 41558	0x0602 - 0x0615		Separable heating plant Category #2	As above		
41559 - 41578	0x0616 - 0x0629		Separable heating plant Category #3	As above		
41579 - 41598	0x062A - 0x063D		Separable heating plant Category #4	As above		
41599 - 41618	0x063E - 0x0651		Separable heating plant Category #5	As above		
41619 - 41638	0x0652 - 0x0665		Separable heating plant Category #6	As above		
41639 - 41658	0x0666 - 0x0679		Separable heating plant Category #7	As above		
41659	0x067A	boolean	DDC Settings: Regulation parameters Commands see access rules note (*)	Set default cooling plant integrals (write "1" to set default)		L.W.O.
41660	0x067B	boolean		Set default base heating plant integrals (write "1" to set default)		L.W.O.
41661	0x067C	boolean		Set default separable heating plant integrals (write "1" to set default)		L.W.O.

41662	0x067D	boolean	DDC Settings: Max power limitation Cooling service see access rules note (*)	Installer Enable Max Power Limitation TRUE(1) / FALSE(0)		
41663	0x067E	signed word		External temperature @ 100% power [°C/10] (range: -250 ... +400; min limited to temp @ 0%)		
41664	0x067F	signed word		External temperature @ 0% power [°C/10] (range: -250 ... +400; max limited to temp @ 100%)		
41665	0x0680	unsigned word		Power limitation delay [min] (range: 0...600)		
41666	0x0681	boolean		not used - read value always "0"; write ignored.		
41667	0x0682	signed word		not used - read value always "0"; write ignored.		
41668 - 41671	0x0683 - 0x0686			FREE (Not mapped)		
41672	0x0687	boolean	DDC Settings: Max power limitation Heating service see access rules note (*)	Installer Enable Max Power Limitation TRUE(1) / FALSE(0) - mutex with "Installer Enable Boiler Locking" register		
41673	0x0688	signed word		External temperature @ 100% power [°C/10] (range: -250 ... +400; max limited to temp @ 0%)		
41674	0x0689	signed word		External temperature @ 0% power [°C/10] (range: -250 ... +400; min limited to temp @ 100%)		
41675	0x068A	unsigned word		Power limitation delay [min] (range: 0...600)		
41676	0x068B	boolean		Installer Enable Boiler Locking TRUE(1) / FALSE(0) - mutex with "Installer Enable Max Power Limitation" register		
41677	0x068C	signed word		Boiler locking Ext. Temperature threshold [°C/10] (range: -250...+400)		
41678 - 41681	0x068D - 0x0690			FREE (Not mapped)		
41682	0x0691	unsigned word	DDC Circuit Settings Cooling Circuit see access rules note (*)	Initial Power Percentage [%] (range: 0...100)		
41683	0x0692	unsigned word		Keep power from last Off time [min] (range: 0...60)		
41684	0x0693	boolean		Use Default Rated Power TRUE(1) / FALSE(0)		
41685	0x0694	unsigned word		Rated Power [kW] (range: 1..1680)		
41686	0x0695			RESERVED		
41687 - 41701	0x0696 - 0x06A4			FREE (Not mapped)		
41702	0x06A5	unsigned word	DDC Circuit Settings Heating Circuit see access rules note (*)	Initial Power Percentage [%] (range: 0...100)		
41703	0x06A6	unsigned word		Keep power from last Off time [min] (range: 0...60)		
41704	0x06A7	boolean		Use Default Rated Power TRUE(1) / FALSE(0)		
41705	0x06A8	unsigned word		Rated Power [kW] (range: 1..1680)		
41706	0x06A9	Enum		Aux Boilers Function Complement (0) / Complement & Substitution (1)		
41707 - 41721	0x06AA - 0x06B8			FREE (Not mapped)		
41722	0x06B9	unsigned word	DDC Circuit Settings Separable Heating Circuit see access rules note (*)	Initial Power Percentage [%] (range: 0...100)		
41723	0x06BA	unsigned word		Keep power from last Off time [min] (range: 0...60)		
41724	0x06BB	boolean		Use Default Rated Power TRUE(1) / FALSE(0)		

41725	0x06BC	unsigned word		Rated Power [kW] (range: 1..1680)		
41726	0x06BD			RESERVED		
41727 - 41741	0x06BE - 0x06CC			FREE (Not mapped)		
41742	0x06CD	Enum	DDC Settings: Working Mode Cooling service or 2 pipes Cool/Heat service see access rules note (*) Both Master and Slave	Working Mode (0 = MAN; 1 = RYWm; 2 = RYWa; 3 = TES; 4 = Tam; 5 = ProntoClima (Weather comp); 6 = Monitor; 7 = Sniffer; 8 = Custom) N.B. Sniffer mode (7) not writable nor changeable.		
41743 - 41751	0x06CE - 0x06D6			FREE (Not mapped)		
41752	0x06D7	Enum	DDC Settings: Working Mode Heating service see access rules note (*) Both Master and Slave	Working Mode (0 = MAN; 1 = RYWm; 2 = RYWa; 3 = TES; 4 = Tam; 5 = ProntoClima (Weather comp); 6 = Monitor; 7 = Sniffer; 8 = Custom) N.B. Sniffer mode (7) not writable nor changeable.		
41753- 41800	0x06D8 - 0x0707			FREE (Not mapped)		
41801 - 50000	0x0708 - 0x270F			FREE (Not mapped)		

Special register values

ABSENT_ANALOG = 32766

Read only and write only registers

Read only (R.O.) register return “illegal data address” in case of write request;

Write only (W.O.) registers return “illegal data address” in case of read request;

Logically write only (L.W.O.) registers return 0xFFFF in case of read request.

Events Logger notes

- The internal DDC Events (alarms) Logger, storing up to 4096 event records, can be accessed through the Modbus Interface.
- The Record Counter field contains the number of unread event records, i.e. records that have not been read through the Modbus Interface since they were generated.
- The Record Counter can be reset by writing value 1 (0x0001) to the Record Counter Reset register. If reset, the Record Counter will contain the total number of the event records currently stored in the DDC Event Logger; this is useful if the Modbus Client wants to access all the Event Logger.
- Event Records can be accessed through the Event Logger Records Window registers. Up to 25 event records a time can be read, then the actual number of records read must be acknowledged by writing such number to the Read Events Acknowledge register. Writing to such register causes the DDC to update the value in the Record Counter Register and to update the content of the Event Logger Records Window registers. Event Record are ordered based on Timestamp (Event Record 00 contains an older event than Event Record 01, and so on).
- The Lost Event Counter register contains the number of lost events, i.e. the number of events that have not been read through the Modbus Interface AND have been overwritten by newer events. The Modbus Client resets this counter by writing the same value to the Lost Events Acknowledge register.
- An Event Record occupies five 16 bits Words, formatted as in the following:

Event Record Word 0 (Timestamp1)					
Seconds (6 bit)		Minutes (6 bit)		Hours (4 msb)	
Event Record Word 1 (Timestamp2)					
Hours (lsb)	Year (6 bit) (0 →2000)		Month (4 bit)	Day (5 bit)	
Event Record Word 2					
B (1 bit)	Event Code (11 bit)		W/E(1 bit)	DDC(1 bit)	Cool(1bit)
Event Record Word 3					
'0' (4 bit)	Event String Code (10 bit)			ON/OFF/INST(2 bit)	
Event Record Word 4					
'0' (7 bit)			Unit Network ID (9 bit)		

Words 0 and 1 contain the event timestamp.

Word 2:

B: 1 → the event is related to the unit's on board electronics
0 → the event is strictly related to the cooling or/and heating module of a unit, or is generated by the DDC.

Event Code: The Alarm Code.

W/E: 1 → the event is a Warning
0 → the event is an Error

DDC: 1 → the event is generated by the DDC
0 → the event is not generated by the DDC

NOTE: DDC can generate two types of events:

- Events related to the Cooling or/and Heating modules of a specific Unit
- Events related to the Cooling or/and Heating Plant, but not to a specific Unit's modules

Cool: 1 → the event is related to the Cooling Plant (either to a specific Unit's cooling module or not)
0 → the event is not related to the Cooling Plant

Heat: 1 → the event is related to the Heating Plant (either to a specific Unit's cooling module or not)
0 → the event is not related to the Heating Plant

NOTE: at least one of Cool and Heat bits is set; both may be set.

Word 3:

Event String Code: Unique String Code associated to the specific event. Refer to alarm string code table described in INPUT REGISTER section.

ON/OFF/INSTANT (2 bits): 00 → ON (Event is Alarm occurrence)
01 → OFF (Event is Alarm termination)
10 → INSTANT (Event has no duration, e.g. "Power On" event)
11 → not used

Word 4:

Unit Network ID: Network ID → Unit whose Cooling or/and Heating Modules generated the event
Excluded value 479 (0x01DF) → the event is generated by the DDC and is not related to a specific Unit.

Alarm Semaphores notes

The Alarm Semaphores purpose is that of providing a quick Cooling/Heating Plant oriented alarm overview (unit alarms or DDC alarms).

The Instant Semaphores provide the current Plant Alarm status:

Instant Semaphore: 0 → No Alarm
1 → Warning Level Alarms
2 → Error Level Alarms

The Persistent Semaphores signal whether Plant alarm conditions occurred since last time they were read and acknowledged. Coding of Persistent Semaphores values is the same as with the Instant Semaphores.

In order to acknowledge and reset the Persistent Semaphores, value 1 (0x0001) has to be written to the corresponding Persistent Semaphore Acknowledge register.

Real Time Clock SET

Same format as Input Registers Timestamp.

Alarms Reset Commands notes

Some types of Unit alarms can be reset (cleared) through the Modbus Interface.

In order to clear alarms:

- Poll the Alarm Reset Status register till read value is not 0 (0x0000, this value means that system is processing a pending request)
- Write the Network ID of the relevant Unit to the Alarm Reset Unit ID register.
- Write value 1 (0x0001) to the Alarm Reset Request register
- Poll the Alarm Reset Status register till read value is not 0 (0x0000); status value will be one of the following:
 - 1 → Request not supported (rejected)
 - 2 → Request executed (OK)
 - 3 → Request was aborted due to an internal error (request may be retried)
 - 4 → Request was rejected due to a previous pending request (request may be retried)

NOTE: Flame lockout cannot be cleared with this command

Ignition Box Reset Commands notes

In order to clear Flame lockout error:

- Poll the Ignition Box Reset Status register till read value is not 0 (0x0000, this value means that system is processing a pending request)
- Write the Network ID of the relevant Unit to the Ignition Box Reset Unit ID register.
- Write value 21930 (0x55AA) to the Ignition Box Reset Request register
- Poll the Ignition Box Reset Status register till read value is not 0 (0x0000); status value will be one of the following:
 - 1 → Request not supported (rejected)
 - 2 → Request executed (OK)

- 3 → Request was aborted due to an internal error, e.g. Machine UI in use or Faulty rearm circuitry or Rearm temporarily locked (request may be retried)
- 4 → Request was rejected due to a previous pending request (request may be retried)
- 5 → No Flame Lockout condition.

Maintenance Counters Reset Commands notes

In order to reset maintenance counters:

- Poll the Maintenance Counters Reset Status register till read value is not 0 (0x0000, this value means that system is processing a pending request)
- Write the Network ID of the relevant Unit to the Alarm Reset Unit ID register.
- Write value provided by Robur S.p.A. to the Maintenance Counters Reset Request register.
- Poll the Maintenance Counters Reset Status register till read value is not 0 (0x0000); status value will be one of the following:
 - 1 → Request not supported, i.e. Unit ID not configured on this DDC. (Command rejected)
 - 2 → Request executed (OK)
 - 3 → Request not issued (Status value after DDC startup, before issuing command first time)
 - 4 → Request was aborted due wrong password (request may be retried)

External analog request notes

- These registers are not mapped if related to a non configured plant or service.
- External request setpoint values defaults to NO_ANALOG (0x7FFF) (not valid data)
- External request setpoint values remain unchanged in case of Modbus heartbeat timeout.
- All setpoint register values are clipped according to limits set on the DDC.
- All setpoint values represented as 2's complement, one decimal digit fixed point

“General Water Timer” and “Quiet mode Timer” programming notes

The Timer allows the user to program up to four (non overlapping) ON time periods per day of the week; for General Water Timer each period has a specific water setpoint temperature.

It is possible to program the Timer through the Modbus Interface. Programming occurs in a DDC working buffer, which is then committed to the internal copy actually used by the DDC for the plants operation:

- The existing Timer program can optionally be read into the working buffer by writing value 1 (0x0001) to the Timer Copy register
- The different fields of the Timer can be written; the Time Period Enabled field must be written after the other Time period fields. Writing the Time Period Enabled field to value 1 (0x0001) turns the Time Period ON; a sanity check of the time period fields is performed which may result in the Time Period Enabled not being set to value 1 (e.g. Time Period ON Time > Time Period OFF Time, or time period overlapped with other time periods of the same week day); also, writing fields out of range will result in saturating them to max or min value of the allowed range.
- Finally, the working buffer can be committed, by writing value 1 to the Timer Commit register. When doing this, the new Timer program becomes active.
- Note that for General Water Timer, the Timer must be enabled in the DDC panel, otherwise the Modbus settings will not be used by the system.

Setpoint

All setpoint register values are expressed as Celsius Degrees Tenths. (e.g. value 10 means 1.0 °C).

If a setpoint register is written with an out-of-range value, it will be clipped to the closest limit.

Min and max values can be read/written in registers 41223...41226.

Holding register access policies

By selecting “Plant parameters” checkbox in the Bus Access Setup screen on the DDC, it is possible to grant/deny access (both read and write) to the following Setting registers:

- Water setpoint
- Water differential temperature
- Currently active setpoint
- General Water timer settings
- Quiet mode timer settings

The rest of the holding registers are not affected by this limitation, except for registers subject to *Access rule note (*)* described below.

Access rules note (*)

Applies to Weather compensation settings, regulation parameters settings, Max power limitation settings and Circuit Settings.

Applies also to Working Mode Settings both for Master and Slave DDC.

- Reading:
 - read value is "0" if service is not configured or DDC is not master;
- Writing:
 - write refused if service is not configured or DDC is not master;
 - write refused if parameters access not enabled;
 - boolean registers: write ignored if not 0 or 1.

Revision history

Modbus interface f/w 4.018 (12/07/2019)

- Fix documentation bug in Holding Registers – DDC Settings – Water Regulation Separable DHW: old addresses should be increased by 1.

Modbus interface f/w 4.018 (31/10/2018)

- Added new alarm string code.

Modbus interface f/w 4.018 (10/10/2018)

- Coil:
 - Added “Remote Assistance Base DHW Service Command”;
 - Added “Remote Assistance Separable DHW Service Command”;
 - Added “Remote Assistance Partial Service Command”;
 - Added “Remote Assistance Global user enable Water Timer”;
 - Added “Remote Assistance Partial user enable Water Timer”;
 - Added “Remote Assistance user enable Chrono thermostat”;
 - Added “Service Setup Configuration enable Internal Request”;
 - Added “Service Setup Configuration enable External Request”;
 - Added “Plant Settings” (Independent Circulator).
- Discrete Input:
 - Added “Is Mapped” and “Is Writable” info for new coils;
 - Added DDC Service Working Mode Installation Enable Status;
 - Added DDC Circuit Settings (Manifold probes info);
- Input Registers:
 - Added Diagnostic counters;
 - Added Maintenance counters and settings;
- Holding registers:
 - Added Set RTC;
 - Added Reset Ignition Box;
 - Added Reset Maintenance Counters;
 - Added Set Chrono Setpoint T1, T2, T3;
 - Added Initial Power Percentage;
 - Added Keep Power from last Off time settings;
 - Added Rated Power Settings;
 - Added Aux Boilers function settings;
 - Added Working Mode setting.

Modbus interface f/w 4.016 (17/10/2014)

- Fix address errors in “DDC settings: water regulation Separable DHW service” and “DDC settings: General water timer Separable DHW service” sections, both for Input registers and holding registers.

Modbus interface f/w 4.016 (02/07/2014)

- Coil:
 - Added “Set Excluded” setting for each module;
- Discrete Input:
 - Added “ON in Silent Mode” status for each module;
- Input Registers:
 - Added “category” info in module configuration;
 - Added DDC Quiet Mode settings and timers;

- String table updated;
- fix bug in Separable water timer registers address;
- Holding registers:
 - Added DDC Quiet Mode settings and timers;
 - Added Weather Compensation settings, Min/Max setpoints and thermostatisation mode;
 - Added Regulation parameters settings;
 - Added Max Power Limitation settings;
 - fix bug in Separable water timer registers address.