DAIKIN APPLIED EUROPE S.p.A.

BAS integration guide

Modbus protocol

Doc. Name:
D-EIGOC00208-22_05EN-ADK
Product name:
ADK

Control software name:
DSTREAM

Table of contents

1. Introduction

This document contains information to incorporate a Microtech 4 Unit Controller into a building automation system (BAS) via Modbus communication protocols.

Microtech 4 is suitable for network integration. Data points accessible from a Modbus network are made available to a BAS provided that the proper communication module is installed / activated.

Modbus terms are not defined. Refer to the standard Modbus specifications for definitions and details about the protocol.

2. About this document

2.1 Notice

2.2 Before starting

Application range

This document refers to the following components:

Microtech III	Controller
Microtech 4	Controller
POL902.00/STD	Modbus MSTP module

Users

Users of this document are intended to be:

- Modbus systems integrators
- Service Technicians
- Plant Engineers
- Sales staff

Conventions

Microtech III e Microtech 4 further in this document and when proper will be referred to as “Microtech”

Abbreviation

BSP **B**oard **S**upport **P**ackage (operating system)

References

- Siemens Building Technologies - CB1J3960en - **Modbus** communication, slave mode
- Siemens Building Technologies - CB1Q3934en - Climatix™ **Modbus** communication modules POL902.00
- The Modbus Organization - www.modbus.org

3. Safety information

Only personnel qualified in accordance with IEC (International Electrotechnical Commission) recommendations may be permitted access to electrical components. It is particularly recommended that all sources of electricity to the unit be shut off before any work is begun. Shut off main power supply at the main circuit breaker or isolator.

IMPORTANT: This equipment uses and emits electromagnetic signals. Tests have shown that the equipment conforms to all applicable codes with respect to electromagnetic compatibility.

	***RISK OF ELECTROCUTION: Even when the main circuit breaker or isolator is switched off, certain circuits may still be energized, since they may be connected to a separate power source.***
	***RISK OF BURNS: Electrical currents cause components to get hot either temporarily or permanently. Handle power cable, electrical cables and conduits, terminal box covers and motor frames with great care.***

Field of application

Use Modbus communication module only for control and monitoring functions in ventilation, air conditioning and refrigeration plants.

Intended use

Trouble-free and safe product operation of the above products presupposes transport, storage, mounting, installation, and commissioning as intended as well as careful operation.

Electrical installation

Fuses, switches, wiring and grounding must comply with local safety regulations for electrical installations.

Wiring

When wiring, strictly separate AC 230 V mains voltage from AC 24 V safety extralow voltage (SELV) to protect against electrical shock!

Commissioning and maintenance

Only qualified staff trained accordingly may prepare for use, commission, and maintain Modbus communication modules.

Maintenance of Modbus communication modules generally only means regular cleaning. We recommend removing dust and dirt from system components installed in the control panels during standard service.

Faults

Only authorized staff may diagnose and correct faults and recommission the plant. This applies to working within the panel as well (e.g. testing or changing fuses).

Storage and transport

Refer to the environmental conditions specified in the respective data sheets for storage and transport. If in doubt, contact your supplier.

Disposal

Devices contain electrical and electronic components; do not dispose of them in household garbage. Observe all local and applicable laws.

4. Commission this unit in a Modbus network

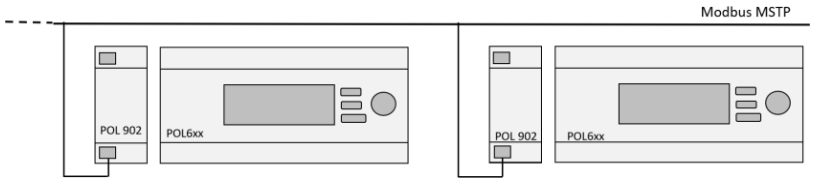
4.1 General information

Microtech 4 controller can be integrated in a Modbus network provided one of the followings:

a) it is equipped with the proper communication module
b) the onboard communication has been made available (software option).

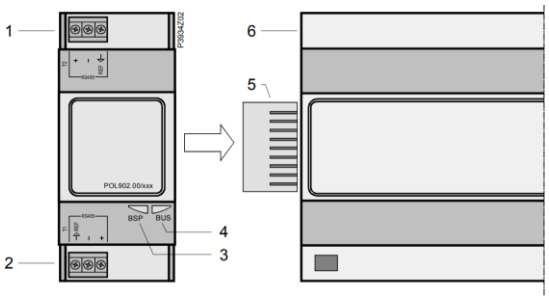
Modbus MSTP (POL902)

Communication module to configure Microtech controllers in Modbus network is the POL902:



4.2 Modbus module (POL902)

Module description



Part	Description
1	Modbus RS485 interface T1 (slave, channel 0).
2	Modbus RS485 interface T2 (slave, channel 1).
3	Status display "BSP" (Board Support Package).
4	Status display "BUS" (bus connections o.k. / bus traffic).
5	Plug connection "Communication extension bus".
6	Microtech III controller.

BSP Led

Color	Flashing frequency	Meaning
Green	Steady on	BSP operating and communication with controller working.
Yellow	Steady on	BSP operating, but no communication with controller.
Red	Steady on	Hardware fault.
Red/Yellow	Flashing at 1 Hz (1 second on/ 1 second off)	Upgrade mode running.
Red	Flashing at 2 Hz (0,5 second on/ 0,5 second off)	BSP error (software error).

BUS Led

Color	Flashing frequency	Meaning
Green	Steady on	Communication active.
Yellow	Steady on	Initializing
Red	Steady on	Communication interrupted.

Module connection

Step	Action
1	Power off the controller
2	Connect POL902 module to the controller via plug connection (part 5).
4	Power on the controller

Configuration procedure

Step	Action
1	Check that BUS led status is steady on green coloured.
2	Navigate the unit's keypad/display to the main menu page and set the "service" password
3	Navigate the unit's keypad/display following the path below: **Main menu→Commissioning→Modbus**
4	Set parameters in the table below as needed according to the local network

Configuration parameters

Parameter	Default value
Address T1	1
Parity T1	None
2 Stop bits T1	Yes
Baud rate T1	19200
Rspnce Dly T1	5 ms
Port T2	Passive
Address T2	1
Parity T2	None
2 Stop bits T2	Yes
Baud rate T2	19200
Rspnce Dly T2	5 ms

5. DStream integration list

5.1 Coil Status

Address	Description	Values/Units	Remarks
0x0001	Alarm acknowledge input	0-1	Off*On
0x0020	Electrostatic filter alarm type	0-1	Warning*Fault

5.2 Input States

Address	Description	Values/Units	Remarks
1x0001	Alarm class Danger alarm (A) status	0-1	Normal*Alarm
1x0002	Alarm class Critical alarm (A) status	0-1	Normal*Alarm
1x0003	Alarm class Low alarm (B) status	0-1	Normal*Alarm
1x0004	Alarm class Warning alarm (C) status	0-1	Normal*Alarm
1x0011	Emergency stop status	0-1	Alarm*OK
1x0012	Standby mode status	0-1	On*Off
1x0027	Supply fan alarm	0-1	OK*Alarm
1x0030	Return fan alarm	0-1	OK*Alarm
1x0038	Cooling pump alarm	0-1	OK*Alarm
1x0040	Recovery alarm	0-1	OK*Alarm
1x0045	Heating pump alarm	0-1	OK*Alarm
1x0047	Frost switch alarm	0-1	OK*Alarm
1x0048	Electrical heating / Post electrical heating alarm	0-1	OK*Alarm
1x0063	Humidifier pump alarm	0-1	OK*Alarm
1x0072	Return filter alarm [Professional/Light]	0-1	OK*Alarm
1x0073	Fire alarm	0-1	OK*Alarm
1x0074	Supply temperature fire alarm	0-1	OK*Alarm
1x0075	Return temperature fire alarm	0-1	OK*Alarm
1x0080	Outside air temperature	0-1	OK*Alarm
1x0081	Supply air temperature	0-1	OK*Alarm
1x0085	Return air temperature	0-1	OK*Alarm
1x0086	Exhaust air temperature	0-1	OK*Alarm
1x0087	Pre heating/ pre-cooling/ pre coil temperature	0-1	OK*Alarm
1x0092	Outside air humidity	0-1	OK*Alarm
1x0094	Room humidity	0-1	OK*Alarm
1x0097	Supply air pressure	0-1	OK*Alarm
1x0098	Return air pressure	0-1	OK*Alarm
1x0100	Air quality (Nodes)	0-1	OK*Alarm
1x0102	Room unit 1	0-1	OK*Alarm
1x0106	Supply filter 1 fault	0-1	OK*Alarm
1x0107	Supply filter 2 fault	0-1	OK*Alarm
1x0108	Supply filter 3 fault	0-1	OK*Alarm
1x0109	Supply filter 4 fault	0-1	OK*Alarm
1x0110	Supply filter 1 warning	0-1	OK*Alarm
1x0111	Supply filter 2 warning	0-1	OK*Alarm
1x0112	Supply filter 3 warning	0-1	OK*Alarm
1x0113	Supply filter 4 warning	0-1	OK*Alarm
1x0114	Return filter 1 fault	0-1	OK*Alarm
1x0115	Return filter 2 fault	0-1	OK*Alarm
1x0116	Return filter 1 warning	0-1	OK*Alarm
1x0117	Return filter 2 warning	0-1	OK*Alarm
1x0118	Electrical preheating alarm	0-1	OK*Alarm
1x0119	Room pressure (Differential transducer X8)	0-1	OK*Alarm

1x0120	Electrostatic filter alarm	0-1	Ok *Alarm
1x0121	R32 Leakage 1 alarm	0-1	Ok *Alarm
1x0122	R32 Leakage 2 alarm	0-1	Ok *Alarm
1x0123	R32 Leakage 3 alarm	0-1	Ok *Alarm
1x0124	R32 Leakage 4 alarm	0-1	Ok *Alarm
1x0125	Supply Fan 2 alarm	0-1	Ok *Alarm
1x0126	Return Fan 2 alarm	0-1	Ok *Alarm
1x0127	Low flow threshold alarm	0-1	Ok *Alarm
1x0128	Optional temp probe 1 (X8)	0-1	Ok *Alarm
1x0129	Optional temp probe 2 (X9)	0-1	Ok *Alarm
1x0130	Optional temp probe 3 (X10)	0-1	Ok *Alarm
1x0131	Optional temp probe 4 (X11)	0-1	Ok *Alarm
1x0132	All supply temp probes alarm	0-1	Ok *Alarm
1x0133	All return temp probes alarm	0-1	Ok *Alarm
1x0134	All outside temp probes alarm	0-1	Ok *Alarm
1x0135	All exhaust temp probes alarm	0-1	Ok *Alarm
1x0136	All pre-heating/Pre cooling/pre coil temp probes alarm	0-1	Ok *Alarm
1x0137	All room temp probes alarm	0-1	Ok *Alarm
1x0138	MT4 air quality sensor (X8)	0-1	Ok *Alarm
1x0139	MT4 humidity sensor (Room/Outside/Supply) (X8)	0-1	Ok *Alarm
1x0140	Supply limit humidity	0-1	Ok *Alarm
1x0141	VOC sensor (Nodes)	0-1	Ok *Alarm
1x0142	VOC sensor (X8)	0-1	Ok *Alarm
1x0143	Fresh air damper feedback alarm	0-1	Ok *Alarm
1x0144	Exhaust air damper feedback alarm	0-1	Ok *Alarm
1x0145	Supply shutoff damper feedback alarm	0-1	Ok *Alarm
1x0146	Return shutoff damper feedback alarm	0-1	Ok *Alarm
1x0147	Bypass damper feedback alarm	0-1	Ok *Alarm
1x0148	Mixing damper feedback alarm	0-1	Ok *Alarm
1x0149	Fresh air damper deviation alarm	0-1	Ok *Alarm
1x0150	Exhaust air damper deviation alarm	0-1	Ok *Alarm
1x0151	Supply shutoff damper deviation alarm	0-1	Ok *Alarm
1x0152	Return shutoff damper deviation alarm	0-1	Ok *Alarm
1x0153	Bypass damper deviation alarm	0-1	Ok *Alarm
1x0154	Mixing damper deviation alarm	0-1	Ok *Alarm
1x0155	Supply humidity	0-1	Ok *Alarm
1x0156	Supply optional transducer pressure	0-1	Ok *Alarm
1x0157	Return optional transducer pressure	0-1	Ok *Alarm
1x0158	Supply fan Setpoint deviation alarm	0-1	Ok *Alarm
1x0159	Return fan Setpoint deviation alarm	0-1	Ok *Alarm
1x0160	Temperature setpoint deviation alarm	0-1	Ok *Alarm
1x0161	Humidification setpoint deviation alarm	0-1	Ok *Alarm
1x0162	Dehumidification setpoint deviation alarm	0-1	Ok *Alarm
1x0163	Optional sensor / input (X1)	0-1	Ok *Alarm
1x0164	Optional sensor / input (X2)	0-1	Ok *Alarm
1x0165	Optional sensor / input (X3)	0-1	Ok *Alarm
1x0166	Optional sensor / input (X4)	0-1	Ok *Alarm
1x0167	Optional sensor / input (X5)	0-1	Ok *Alarm
1x0168	Optional sensor / input (X6)	0-1	Ok *Alarm
1x0169	Optional sensor / input (X7)	0-1	Ok *Alarm
1x0170	Plenum Differential pressure	0-1	Ok *Alarm
1x0171	ERQ 1 alarm	0-1	Ok *Alarm
1x0172	ERQ 2 alarm	0-1	Ok *Alarm
1x0173	ERQ 3 alarm	0-1	Ok *Alarm

1x0174	ERQ 4 alarm	0-1	Ok *Alarm
1x0175	All ERQ alarm	0-1	Ok *Alarm
1x0176	Supply fan maximum flow limit alarm	0-1	Ok *Alarm
1x0177	Return fan maximum flow limit alarm	0-1	Ok *Alarm
1x0178	Supply temperature deviation alarm (If the supply temperature goes beyond the min and max supply limit)	0-1	Ok *Alarm
1x0179	Post water pump alarm	0-1	Ok *Alarm
1x0180	Pre water pump alarm	0-1	Ok *Alarm
1x0181	Heating/cooling pump alarm	0-1	Ok *Alarm
1x0182	Heating valve alarm (Modbus)	0-1	Ok *Alarm
1x0183	Cooling valve alarm (Modbus)	0-1	Ok *Alarm
1x0184	Cooling valve 2 alarm (Modbus)	0-1	Ok *Alarm
1x0185	Cooling/heating valve alarm (Modbus)	0-1	Ok *Alarm
1x0186	Pre heating valve alarm (Modbus)	0-1	Ok *Alarm
1x0187	Post heating valve alarm (Modbus)	0-1	Ok *Alarm
1x0188	Supply fan 3 alarm (Modbus)	0-1	Ok *Alarm
1x0189	Supply fan 4 alarm (Modbus)	0-1	Ok *Alarm
1x0190	Supply fan 5 alarm (Modbus)	0-1	Ok *Alarm
1x0191	Supply fan 6 alarm (Modbus)	0-1	Ok *Alarm
1x0192	Supply fan 7 alarm (Modbus)	0-1	Ok *Alarm
1x0193	Supply fan 8 alarm (Modbus)	0-1	Ok *Alarm
1x0194	*Supply fan 9 alarm (Reserved)*	0-1	Ok *Alarm
1x0195	*Supply fan 10 alarm (Reserved)*	0-1	Ok *Alarm
1x0196	Return fan 3 alarm (Modbus)	0-1	Ok *Alarm
1x0197	Return fan 4 alarm (Modbus)	0-1	Ok *Alarm
1x0198	Return fan 5 alarm (Modbus)	0-1	Ok *Alarm
1x0199	Return fan 6 alarm (Modbus)	0-1	Ok *Alarm
1x0200	Return fan 7 alarm (Modbus)	0-1	Ok *Alarm
1x0201	Return fan 8 alarm (Modbus)	0-1	Ok *Alarm
1x0202	*Return fan 9 alarm (Reserved)*	*0-1*	*Ok *Alarm*
1x0203	*Return fan 10 alarm (Reserved)*	*0-1*	*Ok *Alarm*
1x0204	UV lamp feedback	0-1	Ok *Alarm
1x0205	Fresh air damper 2 feedback alarm	0-1	Ok *Alarm
1x0206	Exhaust air damper 2 feedback alarm	0-1	Ok *Alarm
1x0207	Supply shutoff damper 2 feedback alarm	0-1	Ok *Alarm
1x0208	Return shutoff damper 2 feedback alarm	0-1	Ok *Alarm
1x0209	Bypass damper 2 feedback alarm	0-1	Ok *Alarm
1x0210	Mixing damper 2 feedback alarm	0-1	Ok *Alarm
1x0211	Fresh air damper 2deviation alarm	0-1	Ok *Alarm
1x0212	Exhaust air damper 2 deviation alarm	0-1	Ok *Alarm
1x0213	Supply shutoff damper 2 deviation alarm	0-1	Ok *Alarm
1x0214	Return shutoff damper 2 deviation alarm	0-1	Ok *Alarm
1x0215	Bypass damper 2 deviation alarm	0-1	Ok *Alarm
1x0216	Mixing damper 2 deviation alarm	0-1	Ok *Alarm
1x0217	Peer to peer (P2P) alarm	0-1	Ok *Alarm

5.3 Input Register

Address	Description	Values/Units	Remarks
	Unsigned Word		
3x0001	**General status (Word 1)**	0-65535	0-1 for each bit or counted binary to a decimal number
Bit0	- Alarm class danger (A)		
Bit1	- Alarm class critical (A)		
Bit2	- Alarm class low (B)		
Bit3	- Alarm class warning (C)		
Bit4			
Bit5			
Bit6	- Winter/Summer state		
Bit7			
Bit8			
Bit9			
Bit10			
Bit11	- Actual control mode temp, room		
Bit12	- Actual control mode temp, return		
Bit13	- Actual control mode temp, supply		
Bit14	- Actual control mode humidity, room		
Bit15			
3x0005	**Digital inputs (Word 1)**	0-65535	0-1 for each bit or counted binary to a decimal number
Bit0	- Emergency stop		
Bit1			
Bit2			
Bit3			
Bit4			
Bit5			
Bit6			
Bit7			
Bit8			
Bit9			
Bit10			
Bit11			
Bit12			
Bit13			
Bit14			
Bit15			
3x0009	**Digital outputs (Word 1)**	0-65535	0-1 for each bit or counted binary to a decimal number
Bit0	- Supply damper		
Bit1			
Bit2			
Bit3			
Bit4	- Supply fan, running		
Bit5			
Bit6			
Bit7			
Bit8			
Bit9	- Return fan, running		
Bit10			
Bit11			
Bit12			
Bit13			

Address	Description	Values/Units	Remarks
Bit14 Bit15			
3x0010 Bit0 Bit1 Bit2 Bit3 Bit4 Bit5 Bit6 Bit7 Bit8 Bit9 Bit10 Bit11 Bit12 Bit13 Bit14 Bit15	**Digital outputs (Word 2)** - Cooling pump - Heating pump	0-65535	0-1 for each bit or counted binary to a decimal number
3x0012 Bit0 Bit1 Bit2 Bit3 Bit4 Bit5 Bit6 Bit7 Bit8 Bit9 Bit10 Bit11 Bit12 Bit13 Bit14 Bit15	**Digital outputs (Word 4)** - AHU Alarm (output high and low)	0-65535	0-1 for each bit or counted binary to a decimal number
3x0013 Bit0 Bit1 Bit2 Bit3 Bit4 Bit5 Bit6 Bit7 Bit8	**Alarms (Word 1)** - Supply fan - Return fan	0-65535	0-1 for each bit or counted binary to a decimal number
Bit9 Bit10 Bit11 Bit12 Bit13			

Address	Description	Values/Units	Remarks
Bit14 Bit15			
Present value, Unsigned Word			
3x0017	Actual operating mode	0-5	0 = Off 1 = On 2 = Ventilation 3 = Economy 4 = Boost 5 = Standby
3x0021	Actual time scheduler state	0-4	Off*On*Ventilation*Economy*Boost
3x0025	Fresh air damper command	0-1	Close*Open
3x0027	Fire damper command	0-1	Close*Open
3x0028	Supply fan command	1-2	Off*On
3x0029	Supply fan output signal	0 - 100%	
3x0030	Return fan command	1-2	Off*On
3x0031	Return fan output signal	0 - 100%	
3x0032	Fresh air damper output signal	0 - 100%	
3x0033	Cooling coil output signal	0 - 100%	
3x0034	Cooling pump command	0-1	Off*On
3x0036	Recovery output signal	0 - 100%	
3x0037	Recovery command	0-1	Off*On
3x0038	Mixing damper output signal	0 - 100%	
3x0040	Heating coil output signal	0 - 100%	
3x0041	Heating pump command	0-1	Off*On
3x0042	Electrical heating output signal / Post heating	0 - 100%	
3x0043	Electrical heating command	0-2	Off*Step1*Step2
3x0044	Pre-heating electrical command	0-2	Off*Step1*Step2
3x0047	ERQ 1 state	0-2	Off*On*Defrost
3x0048	ERQ 2 state	0-2	Off*On*Defrost
3x0049	ERQ 3 state	0-2	Off*On*Defrost
3x0050	ERQ 4 state	0-2	Off*On*Defrost
3x0051	ERQ global load output signal	0 - 100%	
3x0052	Humidifier output signal	0 - 100%	
3x0053	Humidifier command	0-1	Off*On
3x0054	ERQ 1 actual load	0 - 100%	
3x0055	ERQ 2 actual load	0 - 100%	
3x0057	ERQ 3 actual load	0 - 100%	
3x0058	ERQ 4 actual load	0 - 100%	
3x0060	Alarm output	0-1	Normal*Alarm
3x0067	Actual temperature compensation fan	0 - 100%	
3x0071	Present unit status	0-16	0 = NA 1 = Fire 2 = Emergency 3 = Fault 4 = Manual 5 = NA 6 = Alarm 7 = Panel switch 8 = Local switch 9 = NA 10 = BMS 11 = Schedular 12 = Occupancy 13 = NA 14 = NA 15 = NA

			16 =Ready 17= P2P
3x0234	Supply fan 1 command (Duty standby)	0-1	Off*On
3x0235	Supply fan 2 command (Duty standby)	0-1	Off*On
3x0236	Supply Damper command (Duty standby)	0-1	Damper2*Damper1
3x0237	Return fan 1 command (Duty standby)	0-1	Off*On
3x0238	Return fan 2 command (Duty standby)	0-1	Off*On
3x0239	Return Damper command (Duty standby)	0-1	Damper2*Damper1
3x0252	Pre-heating output	0 - 100%	
3x0253	Plenum damper output	0 - 100%	
3x0268	Post heating water pump command	0-1	Off*On
3x0269	Pre heating /Pre cooling/Pre coil water pump command	0-1	Off*On
3x0270	Chiller setpoint reset	0 - 100%	
3x0271	Control source	0-2	Local*BMS*iTM
3x0272	Pre heating /Pre cooling/Pre coil water output	0 - 100%	
3x0273	Pre heating electric output	0 - 100%	
3x0274	Post heating water output	0 - 100%	
3x0275	Electrical / Post heating electrical output	0 - 100%	
3x0277	Supply fan 1 output signal	0 - 100%	Only applicable for Modbus Array
3x0278	Supply fan 2 output signal	0 - 100%	Only applicable for Modbus Array
3x0279	Supply fan 3 output signal	0 - 100%	Only applicable for Modbus Array
3x0280	Supply fan 4 output signal	0 - 100%	Only applicable for Modbus Array
3x0281	Supply fan 5 output signal	0 - 100%	Only applicable for Modbus Array
3x0282	Supply fan 6 output signal	0 - 100%	Only applicable for Modbus Array
3x0283	Supply fan 7 output signal	0 - 100%	Only applicable for Modbus Array
3x0284	Supply fan 8 output signal	0 - 100%	Only applicable for Modbus Array
3x0285	*Supply fan 9* output signal *(Reserved)*	0 - 100%	
3x0286	*Supply fan 10* output signal *(Reserved)*	0 - 100%	
3x0287	Return fan 1 output signal	0 - 100%	Only applicable for Modbus Array
3x0288	Return fan 2 output signal	0 - 100%	Only applicable for Modbus Array
3x0289	Return fan 3 output signal	0 - 100%	Only applicable for Modbus Array
3x0290	Return fan 4 output signal	0 - 100%	Only applicable for Modbus Array
3x0291	Return fan 5 output signal	0 - 100%	Only applicable for Modbus Array
3x0292	Return fan 6 output signal	0 - 100%	Only applicable for Modbus Array
3x0293	Return fan 7 output signal	0 - 100%	Only applicable for Modbus Array
3x0294	Return fan 8 output signal	0 - 100%	Only applicable for Modbus Array
3x0295	*Return fan 9* output signal *(Reserved)*	0 - 100%	
3x0296	*Return fan 10* output signal *(Reserved)*	0 - 100%	
3x0297	Supply fan 1 damper output signal	0 - 100%	Only applicable for Modbus Array
3x0298	Supply fan 2 damper output signal	0 - 100%	Only applicable for Modbus Array
3x0299	Supply fan 3 damper output signal	0 - 100%	Only applicable for Modbus Array
3x0300	Supply fan 4 damper output signal	0 - 100%	Only applicable for Modbus Array
3x0301	Supply fan 5 damper output signal	0 - 100%	Only applicable for Modbus Array
3x0302	Supply fan 6 damper output signal	0 - 100%	Only applicable for Modbus Array
3x0303	Supply fan 7 damper output signal	0 - 100%	Only applicable for Modbus Array
3x0304	Supply fan 8 damper output signal	0 - 100%	Only applicable for Modbus Array
3x0305	*Supply fan 9 damper output signal (Reserved)*	*0 - 100%*	
3x0306	*Supply fan 10 damper output signal (Reserved)*	*0 - 100%*	
3x0307	Return fan 1 damper output signal	0 - 100%	Only applicable for Modbus Array
3x0308	Return fan 2 damper output signal	0 - 100%	Only applicable for Modbus Array
3x0309	Return fan 3 damper output signal	0 - 100%	Only applicable for Modbus Array
3x0310	Return fan 4 damper output signal	0 - 100%	Only applicable for Modbus Array
3x0311	Return fan 5 damper output signal	0 - 100%	Only applicable for Modbus Array

3x0312	Return fan 6 damper output signal	0 - 100%	Only applicable for Modbus Array
3x0313	Return fan 7 damper output signal	0 - 100%	Only applicable for Modbus Array
3x0314	Return fan 8 damper output signal	0 - 100%	Only applicable for Modbus Array
3x0315	*Return fan 9 damper output signal (Reserved)*	*0 - 100%*	
3x0316	*Return fan 10 damper output signal (Reserved)*	*0 - 100%*	
3x0323	UV lamp on/off command	0-1	Off*On
Present value, Signed Word			
3x0072	Outside air temperature	°C	(factor 10)
3x0073	Supply air temperature	°C	(factor 10)
3x0075	Room temperature	°C	(factor 10)
3x0076	Return air temperature	°C	(factor 10)
3x0077	Exhaust Temperature	°C	(factor 10)
3x0078	Pre-Heating/Pre cooling/Pre coil sensor temperature	°C	(factor 10)
3x0084	Outside humidity relative	%r.H	
3x0085	Outside humidity absolute	g/kg	(factor 10)
3x0086	Outside enthalpy	kJ/kg	(factor 10)
3x0090	Room humidity relative	%r.H	
3x0091	Room humidity absolute	g/kg	(factor 10)
3x0092	Room enthalpy	kJ/kg	(factor 10)
3x0095	Supply air flow	m^3/h	(factor 10)
3x0096	Return air flow	m^3/h	(factor 10)
3x0097	Supply air pressure	Pa	
3x0098	Return air pressure	Pa	

Address	Description	Values/Units	Remarks
3x0101	Air quality setpoint	ppm	
3x0104	Actual heating setpoint, Main (depending on actual control mode)	°C	(factor 10)
3x0105	Actual cooling setpoint, Main depending on actual control mode)	°C	(factor 10)
3x0108	Actual humidity setpoint, Main (depending on actual control mode)	%r.H.	(factor 10)
3x0109	Actual dehumidity setpoint, Main (depending on actual control mode)	%r.H	(factor 10)
3x0112	Actual Supply fan setpoint	%, Pa, m^3/h	Units depends on configuration
3x0113	Actual Return fan setpoint	%, Pa, m^3/h	Units depends on configuration
3x0213	Room pressure (Differential transducer)	Pa	POL pin X8
3x0215	Supply fan 1 time (Duty standby)	h	(only with duty standby functionality)
3x0216	Supply fan 2 time (Duty standby)	h	(only with duty standby functionality)
3x0217	Return fan 1 time (Duty standby)	h	(only with duty standby functionality)
3x0218	Return fan 2 time (Duty standby)	h	(only with duty standby functionality)
3x0219	Optional temp probe 1 (X8)	°C	(factor 10)
3x0220	Optional temp probe 2 (X9)	°C	(factor 10)
3x0221	Optional temp probe 3 (X10)	°C	(factor 10)
3x0222	Optional temp probe 4 (X11)	°C	(factor 10)
3x0223	MT4 air quality sensor (X8)	ppm	ppm
3x0224	Air quality (Nodes)	ppm	ppm
3x0225	MT4 humidity sensor (X8)	%r.H	(Option to use it for Room, Outside or Supply humidity)
3x0226	Supply humidity limit	%r.H	
3x0227	Supply absolute humidity	g/kg	
3x0228	Actual supply temperature	°C	(factor 10) (only functional if optional temperature probes are in use, as it shows the final calculated temperature depending on the functionality used for optional probes)
3x0229	Actual return temperature	°C	(factor 10)
3x0230	Actual outside temperature	°C	(factor 10)
3x0231	Actual pre-heating/Pre cooling/pre coil temperature	°C	(factor 10)
3x0232	Actual exhaust temperature	°C	(factor 10)
3x0233	Actual room temperature	°C	(factor 10)
3x0240	VOC	ppb	
3x0241	VOC (X8)	ppb	
3x0242	Fresh air damper feedback	%	
3x0243	Exhaust air damper feedback	%	
3x0244	Supply shutoff damper feedback	%	
3x0245	Return shutoff damper feedback	%	
3x0246	Bypass damper feedback	%	
3x0247	Mixing damper feedback	%	
3x0248	Supply humidity relative	%r.H	
3x0249	Supply optional transducer (Duct pressure)	pa	
3x0250	Return optional transducer (Duct pressure)	pa	
3x0251	Supply enthalpy	kJ/kg	(factor 10)

3x0254	Optional sensor / input (X1)	%r.H, pa, ppm, ppb,°C	Unit depends on configuration
3x0255	Optional sensor / input (X2)	%r.H, pa, ppm, ppb,°C	Unit depends on configuration
3x0256	Optional sensor / input (X3)	%r.H, pa, ppm, ppb,°C	Unit depends on configuration
3x0257	Optional sensor / input (X4)	%r.H, pa, ppm, ppb,°C	Unit depends on configuration
3x0258	Optional sensor / input (X5)	%r.H, pa, ppm, ppb,°C	Unit depends on configuration
3x0259	Optional sensor / input (X6)	%r.H, pa, ppm, ppb,°C	Unit depends on configuration
3x0260	Optional sensor / input (X7)	%r.H, pa, ppm, ppb,°C	Unit depends on configuration
3x0261	Plenum differential pressure	pa	
3x0262	Supply filter 1 differential pressure	pa	
3x0263	Supply filter 2 differential pressure	pa	
3x0264	Supply filter 3 differential pressure	pa	
3x0265	Supply filter 4 differential pressure	pa	
3x0266	Return filter 1 differential pressure	pa	
3x0267	Return filter 2 differential pressure	pa	
3x0276	Custom Probe (X8)	%r.H, pa, ppm, ppb	Unit depends on configuration
3x0317	Actual temperature setpoint	°C	(factor 10)
3x0318	Room/Return dew point	°C	(factor 10)
3x0319	Outside dew point	°C	(factor 10)
3x0320	Supply dew point	°C	(factor 10)
3x0321	Coil temperature	°C	(factor 10)
3x0322	Coil humidity relative	%r.H	
3x0500	Supply fan 1 RPM	RPM	Unsigned
3x0501	Supply fan 1 Power	W	Unsigned
3x0515	Supply fan 1 alarm word 1	Bit value	Refer to Table. A
3x0516	Supply fan 1 alarm word 2	Bit value	Refer to Table. A
3x0520	Supply fan 2 RPM	RPM	Unsigned
3x0521	Supply fan 2 Power	W	Unsigned
3x0535	Supply fan 2 alarm word 1	Bit value	Refer to Table. A
3x0536	Supply fan 2 alarm word 2	Bit value	Refer to Table. A
3x0540	Supply fan 3 RPM	RPM	Unsigned
3x0541	Supply fan 3 Power	W	Unsigned
3x0555	Supply fan 3 alarm word 1	Bit value	Refer to Table. A
3x0556	Supply fan 3 alarm word 2	Bit value	Refer to Table. A
3x0560	Supply fan 4 RPM	RPM	Unsigned
3x0561	Supply fan 4 Power	W	Unsigned
3x0575	Supply fan 4 alarm word 1	Bit value	Refer to Table. A
3x0576	Supply fan 4 alarm word 2	Bit value	Refer to Table. A
3x0580	Supply fan 5 RPM	RPM	Unsigned
3x0581	Supply fan 5 Power	W	Unsigned
3x0595	Supply fan 5 alarm word 1	Bit value	Refer to Table. A
3x0596	Supply fan 5 alarm word 2	Bit value	Refer to Table. A
3x0600	Supply fan 6 RPM	RPM	Unsigned
3x0601	Supply fan 6 Power	W	Unsigned
3x0615	Supply fan 6 alarm word 1	Bit value	Refer to Table. A
3x0616	Supply fan 6 alarm word 2	Bit value	Refer to Table. A
3x0620	Supply fan 7 RPM	RPM	Unsigned
3x0621	Supply fan 7 Power	W	Unsigned
3x0635	Supply fan 7 alarm word 1	Bit value	Refer to Table. A
3x0636	Supply fan 7 alarm word 2	Bit value	Refer to Table. A
3x0640	Supply fan 8 RPM	RPM	Unsigned
3x0641	Supply fan 8 Power	W	Unsigned
3x0655	Supply fan 8 alarm word 1	Bit value	Refer to Table. A
3x0656	Supply fan 8 alarm word 2	Bit value	Refer to Table. A

3x0700	Return fan 1 RPM	RPM	Unsigned
3x0701	Return fan 1 Power	W	Unsigned
3x0715	Return fan 1 alarm word 1	Bit value	Refer to Table. A
3x0716	Return fan 1 alarm word 2	Bit value	Refer to Table. A
3x0720	Return fan 2 RPM	RPM	Unsigned
3x0721	Return fan 2 Power	W	Unsigned
3x0735	Return fan 2 alarm word 1	Bit value	Refer to Table. A
3x0736	Return fan 2 alarm word 2	Bit value	Refer to Table. A
3x0740	Return fan 3 RPM	RPM	Unsigned
3x0741	Return fan 3 Power	W	Unsigned
3x0755	Return fan 3 alarm word 1	Bit value	Refer to Table. A
3x0756	Return fan 3 alarm word 2	Bit value	Refer to Table. A
3x0760	Return fan 4 RPM	RPM	Unsigned
3x0761	Supply fan 4 Power	W	Unsigned
3x0775	Return fan 4 alarm word 1	Bit value	Refer to Table. A
3x0776	Return fan 4 alarm word 2	Bit value	Refer to Table. A
3x0780	Return fan 5 RPM	RPM	Unsigned
3x0781	Return fan 5 Power	W	Unsigned
3x0795	Return fan 5 alarm word 1	Bit value	Refer to Table. A
3x0796	Return fan 5 alarm word 2	Bit value	Refer to Table. A
3x0800	Return fan 6 RPM	RPM	Unsigned
3x0801	Return fan 6 Power	W	Unsigned
3x0815	Return fan 6 alarm word 1	Bit value	Refer to Table. A
3x0816	Return fan 6 alarm word 2	Bit value	Refer to Table. A
3x0820	Return fan 7 RPM	RPM	Unsigned
3x0821	Return fan 7 Power	W	Unsigned
3x0835	Return fan 7 alarm word 1	Bit value	Refer to Table. A
3x0836	Return fan 7 alarm word 2	Bit value	Refer to Table. A
3x0840	Return fan 8 RPM	RPM	Unsigned
3x0841	Return fan 8 Power	W	Unsigned
3x0855	Return fan 8 alarm word 1	Bit value	Refer to Table. A
3x0856	Return fan 8 alarm word 2	Bit value	Refer to Table. A
3x0900	Room 1 temperature (Modbus)	°C	(factor 10) (Modbus Probe)
3x0901	Room 1 air quality (CO_2)	ppm	Unsigned (Modbus Probe)
3x0902	Room 1 relative humidity	%r.H	Unsigned (Modbus Probe)
3x0903	Room 1 absolute humidity	g/kg	(factor 10) (Modbus Probe)
3x0904	Room 1 absolute humidity	kJ/kg	(factor 10) (Modbus Probe)
3x0905	Room 1 enthalpy	kJ/kg	Unsigned (Modbus Probe)
3x0906	Room 1 input temperature (optional temperature)	°C	(factor 10) (Modbus Probe)
3x0907	Room 1dew point	°C	(factor 10) (Modbus Probe)
3x0910	Room 1 average temperature (Between optional temperature & embedded sensor)	°C	(factor 10) (Modbus Probe)
3x0915	Probe 1 status	Bit value	Refer to Table. C(Modbus Probe)
3x0920	Room 2 temperature	°C	(factor 10) (Modbus Probe)
3x0921	Room 2 air quality (CO_2)	ppm	Unsigned (Modbus Probe)
3x0922	Room 2 relative humidity	%r.H	Unsigned (Modbus Probe)
3x0923	Room 2 absolute humidity	g/kg	(factor 10) (Modbus Probe)
3x0924	Room 2 absolute humidity	kJ/kg	(factor 10) (Modbus Probe)
3x0925	Room 2 enthalpy	kJ/kg	Unsigned (Modbus Probe)
3x0926	Room 2 input temperature (optional temperature)	°C	(factor 10) (Modbus Probe)
3x0927	Room 2 dew point	°C	(factor 10) (Modbus Probe)
3x0930	Room 2 average temperature (Between optional temperature & embedded sensor)	°C	(factor 10) (Modbus Probe)
3x0935	Probe 2 status	Bit value	Refer to Table. C(Modbus Probe)
3x0940	Room 3 temperature	°C	(factor 10) (Modbus Probe)
3x0941	Room 3 air quality (CO_2)	ppm	Unsigned (Modbus Probe)
3x0942	Room 3 relative humidity	%r.H	Unsigned (Modbus Probe)
3x0943	Room 3 absolute humidity	g/kg	(factor 10) (Modbus Probe)
3x0944	Room 3 absolute humidity	kJ/kg	(factor 10) (Modbus Probe)

3x0945	Room 3 enthalpy	kJ/kg	Unsigned (Modbus Probe)
3x0946	Room 3 input temperature (optional temperature)	°C	(factor 10) (Modbus Probe)
3x0947	Room 3 dew point	°C	(factor 10) (Modbus Probe)
3x0950	Room 3 average temperature (Between optional temperature & embedded sensor)	°C	(factor 10) (Modbus Probe)
3x0955	Probe 3 status	Bit value	Refer to Table. C(Modbus Probe)
3x0960	Room 4 temperature	°C	(factor 10) (Modbus Probe)
3x0961	Room 4 air quality (CO_2)	ppm	Unsigned (Modbus Probe)
3x0962	Room 4 relative humidity	%r.H	Unsigned (Modbus Probe)
3x0963	Room 4 absolute humidity	g/kg	(factor 10) (Modbus Probe)
3x0964	Room 4 absolute humidity	kJ/kg	(factor 10) (Modbus Probe)
3x0965	Room 4 enthalpy	kJ/kg	Unsigned (Modbus Probe)
3x0966	Room 4 input temperature (optional temperature)	°C	(factor 10) (Modbus Probe)
3x0967	Room 4 dew point	°C	(factor 10) (Modbus Probe)
3x0970	Room 4 average temperature (Between optional temperature & embedded sensor)	°C	(factor 10) (Modbus Probe)
3x0975	Probe 4 status	Bit value	Refer to Table. C(Modbus Probe)
3x0980	Room temperature calculated	°C	(factor 10) (Modbus Probe)
3x0981	Room air quality (CO_2) calculated	ppm	Unsigned (Modbus Probe)
3x0982	Room relative humidity calculated	%r.H	Unsigned (Modbus Probe)
3x0983	Room absolute humidity calculated	g/kg	(factor 10) (Modbus Probe)
3x0965	Room enthalpy calculated	kJ/kg	Unsigned (Modbus Probe)
3x0967	Room dew point calculated	°C	(factor 10) (Modbus Probe)
3x1000	Heating valve setpoint	%	Unsigned
3x1001	Heating relative position	%	Unsigned
3x1002	Heating fluid temperature	°C	(factor 10), Signed
3x1003	Heating absolute flow	l/h	Multiple of 10, Unsigned
3x1004	Heating maximum flow	l/h	Multiple of 10, Unsigned
3x1015	Heating valve alarm	Bit value	Refer to Table. B
3x1020	Cooling valve setpoint	%	Unsigned
3x1021	Cooling relative position	%	Unsigned
3x1022	Cooling fluid temperature	°C	(factor 10), Signed
3x1023	Cooling absolute flow	l/h	Multiple of 10, Unsigned
3x1024	Cooling maximum flow	l/h	Multiple of 10, Unsigned
3x1035	Cooling valve alarm	Bit value	Refer to Table. B
3x1040	Cooling 2 valve setpoint	%	Unsigned
3x1041	Cooling 2 relative position	%	Unsigned
3x1042	Cooling 2 fluid temperature	°C	(factor 10), Signed
3x1043	Cooling 2 absolute flow	l/h	Multiple of 10, Unsigned
3x1044	Cooling 2 maximum flow	l/h	Multiple of 10, Unsigned
3x1055	Cooling 2 valve alarm	Bit value	Refer to Table. B
3x1060	Cooling/Heating valve setpoint	%	Unsigned
3x1061	Cooling/Heating relative position	%	Unsigned
3x1062	Cooling/Heating fluid temperature	°C	(factor 10), Signed
3x1063	Cooling/Heating absolute flow	l/h	Multiple of 10, Unsigned
3x1064	Cooling/Heating maximum flow	l/h	Multiple of 10, Unsigned
3x1075	Cooling/Heating valve alarm	Bit value	Refer to Table. B
3x1080	Pre heating/Pre cooling/Pre coil valve setpoint	%	Unsigned
3x1081	Pre heating/Pre cooling/Pre coil relative position	%	Unsigned
3x1082	Pre heating/Pre cooling/Pre coil fluid temperature	°C	(factor 10), Signed
3x1083	Pre heating/Pre cooling/Pre coil absolute flow	l/h	Multiple of 10, Unsigned
3x1084	Pre heating/Pre cooling/Pre coil maximum flow	l/h	Multiple of 10, Unsigned
3x1095	Pre heating/Pre cooling/Pre coil valve alarm	Bit value	Refer to Table. B
3x1100	Post heating valve setpoint	%	Unsigned
3x1101	Post heating relative position	%	Unsigned
3x1102	Post heating fluid temperature	°C	(factor 10), Signed
3x1103	Post heating absolute flow	l/h	Multiple of 10, Unsigned
3x1104	Post heating maximum flow	l/h	Multiple of 10, Unsigned
3x1115	Post heating valve alarm	Bit value	Refer to Table. B

5.4 Holding Register

Address	Description	Values/Range	Remarks
Present value, Unsigned Word			
4x0315	Summer/Winter mode changeover	0-1	0 = Winter 1 = Summer
4x0312	Network Source	0-5	0 = Auto 1 = Off 2 = On 3 = Ventilation 4 = Economy 5 = Boost
Present value, Signed Word			
4x0020	Central temperature setpoint *	10 - 30	°C, (factor 10)
4x0021	Band temperature setpoint *	0 - 20	°C, (factor 10)
4x0022	Heating temperature setpoint *	10 - 40	°C, (factor 10)
4x0023	Cooling temperature setpoint *	10 -40	°C, (factor 10)
4x0024	Economy central temperature setpoint *	10 - 30	°C, (factor 10)
4x0025	Economy band temperature setpoint *	0 - 20	°C, (factor 10)
4x0026	Economy heating temperature setpoint *	10 - 40	°C, (factor 10)
4x0027	Economy cooling temperature setpoint *	10 - 40	°C, (factor 10)
4x0034	Min Supply Temperature Summer	0 - 30	°C, (factor 10)
4x0035	Max Supply Temperature Summer	20 - 80	°C, (factor 10)
4x0281	Min Supply Temperature Winter	0 - 30	°C, (factor 10)
4x0282	Max Supply Temperature Winter	20 - 80	°C, (factor 10)
4x0283	Pursuit band	10 - 30	°C, (factor 10)
4x0284	Pursuit setpoint	10 - 30	°C, (factor 10)
4x0285	Pursuit eco setpoint	10 - 30	°C, (factor 10)
4x0041	Humidification setpoint	0 - 100 (0 - "*Dehum. Setpoint*")	%r.H. *(Hum. High Limit = "Dehum. Setpoint" if Dehumidification control is enabled)*
4x0042	Dehumidification setpoint	0 - 100 (*"Hum. Setpoint"* - 100)	%r.H. *(Dehum. Low Limit = "Hum. Setpoint" if Humidification control is enabled)*
4x0317	Supply Limit humidification Setpoint	0 - 100	%r.H.
4x0337	Humidification setpoint in absolute	0 - 100 (0 - "*Dehum. Setpoint*")	g/kg, (factor 10) *(Hum. High Limit = "Dehum. Setpoint" if Dehumidification control is enabled)* Only applicable if the humidification setpoint is selected in Absolute humidity
4x0338	Dehumidification setpoint in absolute	0 - 100 (*"Hum. Setpoint"* - 100)	g/kg, (factor 10) *(Dehum. Low Limit = "Hum. Setpoint" if Humidification control is enabled)* Only applicable if the Dehumidification setpoint is selected in Absolute humidity.

4x0339	Supply Limit humidification Setpoint in absolute	0 - 100	g/kg, (factor 10) Only applicable if the humidification setpoint is selected in Absolute humidity
4x0340	Pre heating setpoint	0-30	°C, (factor 10)
4x0341	Pre cooling setpoint	0-60	°C, (factor 10)
4x0342	Pursuit Boost setpoint	-5- 50	°C, (factor 10)
Present value, Unsigned Word			
4x0050	Supply fan setpoint Or supply fan setpoint in summer mode (only if separate winter/summer is enabled)	0 - *"High Limit"* (High Limit = 100% = 10000 Pa = 160000 m^3/h)	%, Pa, m^3/h *(depending on configuration)* *If unit is in flow mode (m3/h) actual/HMI setpoint is multiplier of BMS setpoint by 10* *e.g. 200 m^3/h (BMS) = 2000 m^3/h(actual)*
4x0051	Supply fan economy setpoint Or supply fan economy setpoint in summer mode (only if separate winter/summer is enabled)	0 - *"High Limit"* (High Limit = 100% = 10000 Pa = 160000 m^3/h)	%, Pa, m^3/h *(depending on configuration)* *If unit is in flow mode (m3/h) actual/HMI setpoint is multiplier of BMS setpoint by 10* *e.g. 200 m^3/h (BMS) = 2000 m^3/h(actual)*
4x0053	Supply fan max force setpoint	0 - (*"High Limit – Supply fan setpoint")*	%, Pa, m^3/h. *(Supply fan max force setpointis given by the difference between "High Limit" and "Supply fan setpoint")*
4x0054	Return fan setpoint / Room Pressure Or return fan setpoint / Room Pressure in summer mode (only if separate winter/summer is enabled)	0 - *"High Limit"* (High Limit = 100% = 10000 Pa = 160000 m^3/h)	%, Pa, m^3/h *(depending on configuration)* *If unit is in flow mode (m3/h) actual/HMI setpoint is multiplier of BMS setpoint by 10* *e.g. 200 m^3/h (BMS) = 2000 m^3/h(actual)* *In case return fan control is based on room transducer, the setpoint is Room pressure*
4x0055	Return fan economy setpoint / Room Pressure Or return fan economy setpoint / Room Pressure in summer mode (only if separate winter/summer is enabled)	0 - *"High Limit"* (High Limit = 100% = 10000 Pa = 160000 m^3/h)	%, Pa, m^3/h *(depending on configuration)* *If unit is in flow mode (m3/h) actual/HMI setpoint is multiplier of BMS setpoint by 10* *e.g. 200 m^3/h (BMS) = 2000 m^3/h(actual)*
4x0057	Return fan max force setpoint	0 - (*"High Limit – Return fan setpoint")*	%, Pa, m^3/h *(Return fan max force setpointis given by the*

			difference between "High Limit" and "Return fan setpoint")
4x0320	Sintra Boost Supply fan setpoint		m^3/h
4x0321	Sintra Boost Return fan setpoint		m^3/h
4x0322	Plenum setpoint in ON mode		Pa
4x0323	Plenum setpoint in Boost mode		Pa
4x0324	Sintra Mode	0-1	0 = Off 1 = On 2 = Boost
4x0325	Supply fan maximum flow limit	Low Limit = Supply fan setpoint High Limit =160000 m^3/h	m^3/h (only if unit is configured as pressure control and flow reading)
4x0326	Return fan maximum flow limit	Low Limit = Return fan setpoint High Limit =160000 m^3/h	m^3/h (only if unit is configured as pressure control and flow reading)
4x0327	Fresh air damper maximum signal	0 - 100	% (Only for non-modulating)
4x0328	Exhaust air damper maximum signal	0 - 100	% (Only for non-modulating)
4x0329	Supply shutoff damper maximum signal	0 - 100	%
4x0330	Return shutoff damper maximum signal	0 - 100	%
4x0331	Boost central temperature setpoint *	10 - 30	°C, (factor 10)
4x0332	Boost band temperature setpoint *	0 - 20	°C, (factor 10)
4x0333	Boost cooling temperature setpoint *	10 - 40	°C, (factor 10)
4x0334	Boost heating temperature setpoint *	10 - 40	°C, (factor 10)
4x0335	Supply fan boost setpoint Or supply fan boost setpoint in summer mode (only if separate winter/summer is enabled)	0 - *"High Limit"* (High Limit = 100% = 10000 Pa = 160000 m^3/h)	%, Pa, m^3/h *(depending on configuration)* *If unit is in flow mode (m3/h) actual/HMI setpoint is multiplier of BMS setpoint by 10* *e.g. 200 m^3/h (BMS) = 2000 m^3/h(actual)*
4x0336	Return fan boost setpoint Or return fan boost setpoint in summer mode (only if separate winter/summer is enabled)	0 - *"High Limit"* (High Limit = 100% = 10000 Pa = 160000 m^3/h)	%, Pa, m^3/h *(depending on configuration)* *If unit is in flow mode (m3/h) actual/HMI setpoint is multiplier of BMS setpoint by 10* *e. 200 m^3/h (BMS) = 2000 m^3/h(actual)*
4x0343	Supply fan peer-to-peer(P2P) communication alarm setpoint	0 - *"High Limit"* (High Limit = 100%	%, Pa, m^3/h *(depending on configuration)*

		= 10000 Pa = 160000 m^3/h)	*If unit is in flow mode (m3/h) actual/HMI setpoint is multiplier of BMS setpoint by 10* *e.g. 200 m^3/h (BMS) = 2000 m^3/h(actual)*
4x0344	Return fan peer-to-peer(P2P) communication alarm setpoint	0 - *"High Limit"* (High Limit = 100% = 10000 Pa = 160000 m^3/h)	%, Pa, m^3/h *(depending on configuration)* *If unit is in flow mode (m3/h) actual/HMI setpoint is multiplier of BMS setpoint by 10* *e.g. 200 m^3/h (BMS) = 2000 m^3/h(actual)*
4x0345	Supply fan setpoint in winter mode (only if separate winter/summer is enabled)	0 - *"High Limit"* (High Limit = 100% = 10000 Pa = 160000 m^3/h)	%, Pa, m^3/h *(depending on configuration)* *If unit is in flow mode (m3/h) actual/HMI setpoint is multiplier of BMS setpoint by 10* *e.g. 200 m^3/h (BMS) = 2000 m^3/h(actual)*
4x0346	Supply fan economy setpoint winter mode (only if separate winter/summer is enabled)	0 - *"High Limit"* (High Limit = 100% = 10000 Pa = 160000 m^3/h)	%, Pa, m^3/h *(depending on configuration)* *If unit is in flow mode (m3/h) actual/HMI setpoint is multiplier of BMS setpoint by 10* *e.g. 200 m^3/h (BMS) = 2000 m^3/h(actual)*
4x0347	Supply fan boost setpoint winter mode (only if separate winter/summer is enabled)	0 - *"High Limit"* (High Limit = 100% = 10000 Pa = 160000 m^3/h)	%, Pa, m^3/h *(depending on configuration)* *If unit is in flow mode (m3/h) actual/HMI setpoint is multiplier of BMS setpoint by 10* *e.g. 200 m^3/h (BMS) = 2000 m^3/h(actual)*
4x0348	Return fan setpoint winter mode (only if separate winter/summer is enabled)	0 - *"High Limit"* (High Limit = 100% = 10000 Pa = 160000 m^3/h)	%, Pa, m^3/h *(depending on configuration)* *If unit is in flow mode (m3/h) actual/HMI setpoint is multiplier of BMS setpoint by 10* *e.g. 200 m^3/h (BMS) = 2000 m^3/h(actual)*
4x0349	Return fan economy setpoint winter mode (only if separate winter/summer is enabled)	0 - *"High Limit"* (High Limit = 100% = 10000 Pa = 160000 m^3/h)	%, Pa, m^3/h *(depending on configuration)* *If unit is in flow mode (m3/h) actual/HMI setpoint is multiplier of BMS setpoint by 10* *e.g. 200 m^3/h (BMS) = 2000 m^3/h(actual)*
4x0350	Return fan boost setpoint winter mode (only if separate winter/summer is enabled)	0 - *"High Limit"* (High Limit = 100% = 10000 Pa = 160000 m^3/h)	%, Pa, m^3/h *(depending on configuration)* *If unit is in flow mode (m3/h) actual/HMI setpoint is multiplier of BMS setpoint by 10* *e.g. 200 m^3/h (BMS) = 2000 m^3/h(actual)*
Present value, Signed Word			
4x0059	Air quality setpoint	0 - 3000	ppm
4x0091	Min fresh air	0 - 100	%

4x0319	VOC Setpoint	0 - 3000	ppb
Present value, Unsigned Word			
4x0277	Supply fan running hours	0 – 999999 h	It represents the overall amount ofrunning hours of the supply fan**
4x0279	Return fan running hours	0 – 999999 h	It represents the overall amount ofrunning hours of the return fan**
4x0314	Damper switch delay (Duty standby)	0 – 900 s	(only with duty standby functionality)
4x0316	Fan rotation time (Duty standby)	0 – 900 h	(only with duty standby functionality)
4x0318	Fan switch delay (Duty standby)	0 – 900 h	(only with duty standby functionality)

Modbus Fan Alarm	
Registers	**Alarm**
Modbus fans alarm word 1, referred to the following registers: 3x0515 3x0535 3x0555 3x0575 3x0595 3x0615 3x0635 3x0655	All bit values below represent status indicators (0 = OK, 1 = Alarm): Bit0: Motor blocked / Fan locked Bit1: Phase loss /Line fault Bit2: DC link over voltage Bit3: DC link under voltage Bit4: Overheat / Over temperature Bit5: Over current Bit6: Hall sensor / Hall signal Bit7: Wrong direction Bit8: Speed limit exceeded Bit9: Bad fan Bit10: AC over voltage Bit11: AC under voltage Bit12: Line voltage high Bit13: Earth to ground fault Bit14: IGBT fault Bit15: Communication error
Modbus fans alarm word 2, referred to the following registers: 3x0516 3x0536 3x0556 3x0576 3x0596 3x0616 3x0636 3x0656	All bit values below represent status indicators (0 = OK, 1 = Alarm): Bit0: EPROM fails Bit1: Bit2: Bit3: Bit4: Bit5: Bit6: Bit7: Bit8: Bit9: Bit10: Bit11: Bit12: Bit13: Bit14: Bit15:

Table. A

Modbus Valve Alarm	
Registers	**Alarm**
Modbus valves alarm bit values, referred to the following registers: 3x1015 3x1035 3x1055 3x1075 3x1095 3x1115	All bit values below represent status indicators (0 = OK, 1 = Alarm): Bit0: No Modbus communication Bit1: Gear disengaged Bit2: Actuator cannot move Bit3: Reverse flow Bit4: Flow setpoint not reached Bit5: Flow with closed valve Bit6: Flow actual exceeds flow nominal Bit7: Flow measurement error Bit8: Internal activity Bit9: Flow body temperature error Bit10: Communication to sensor interrupted Bit11: Freeze warning Bit12: Glycol detected Bit13: Mechanical travel increased Bit14: Bit15: Bus watchdog triggered

Table. B

Modbus Room Probe Alarm	
Registers	**Alarm**
Modbus room probe alarm bit values, referred to the following registers: 3x915 3x935 3x955 3x975	All bit values below represent status indicators (0 = OK, 1 = Fault): Bit0: Device status Bit1: Temperature sensor status Bit2: Humidity sensor status Bit3: CO_2 sensor status Bit4: Bit5: Bit6: Bit7: Bit8: Bit9: Bit10: Bit11: Bit12: Bit13: Bit14: Input temperature sensor (optional temperature) status Bit15: Communication error

Table. C

* Different setpoint combinations are considered depending on configuration. Please refer to operating manual for more details.

** Attention! This variable contains a 32-bit value, obtained concatenating the MSB at specified address+1 and LSB at specified address, i.e. [MSB, LSB]. For example [0x278, 0x277] represents the correct value of the Supply Fan Running Hours.

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