SIEMENS

ACVATIX™

# Intelligent Valve

## Modbus Registers

**EVG4U10E.. / EVF4U20E.. / EXG4U10E.. / EXF4U20E..**

Valid for the following product versions:

- Model info: ASE4E10E; HW=2.2.0
- Firmware revision: 09.54.14.03; APP=1.19.7671; SVS300.6SBC=15.00; ISC1.00
- Application software version: AAS-20:SU=SiUn; APT=HvacFnct34; APTV=2.108; APS=1

# About this document

## Revision history

| Version | Date | Changes | Sections | Pages |
|---|---|---|---|---|
| A | 28.09.2021 | New document | | |
| B | 25.04.2022 | Registers for cooling added | Configuration<br>• Hydronic balancing settings<br>• Design power and power limitation<br>• Valve settings (limitations) | 9…12 |
| | | Control functions | Modbus Register Description | 6…14 |

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| MODBUS® | The Modbus Organization, Hopkinton, MA, USA |

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## Communication

### Technical Data

| **Modbus RTU communication** | | | |
|---|---|---|---|
| Modbus RTU | | RS-485, galvanically isolated | |
| Address range | | 1…247 / 255 (= “unassigned”) | |
| | Default | 10 | |
| Transmission formats | | 1-8-N-2; 1-8-N-1; 1-8-E-1; 1-8-O-1 | |
| | Default | 1-8-N-1 | |
| Baud rates | | 9600; 19200; 38400; 57600; 76800; 115200 | |
| | Default | 19200 | |
| Bus termination | | 120 Ω<br>Selectable via ABT Go / Modbus RTU | |
| | Default | OFF | |
| Parity | | None; Even; Odd | |
| StopBit | | [1]; [2] | |
| Master Alive Timeout | | 60 s (fixed) | |
| Supported function codes | | 03 (0x03) | Read Holding Register |
| | | 04 (0x04) | Read Input Register |
| | | 06 (0x06) | Write Single Register |
| | | 16 (0x10) | Write Multiple Registers |

| Cable types | |
|---|---|
| Modbus | Modbus 2- or 3-wire, twisted, shielded, if > 3 m |

| Cable length | |
|---|---|
| Modbus | Max. 1000 m (3300 ft) |
| **NOTICE** | **The baud rate must be adapted to match the cable length.** |

### Register implementation

All data is arranged in a table and addressed by 0..n-1 (Address). No distinction is made between data types (Discrete Inputs, Coils, Input Registers and Holding Registers). As a consequence, all data can be accessed with the 2 commands for Holding Registers. The commands for Discrete Inputs and Input Registers can be used as an alternative.

Values in all registers are unsigned integer datatypes representing one value.

**Example**: Address 11 – Primary flow temperature

- Read value = 10
- Actual value = (Value x Scaling factor) + Offset x Unit
  ⇒ = (483 x 0.01) + -10 x ℃ = (4.83 - 10) ℃ = -5.17 ℃

Exceptions are registers for cooling volume (Addr. 190/191) and heating volume (Addr. 192/193), as well as for cooling energy (Addr. 194/195) and heating energy (196/197). The values exceed 65’535 and are stored in 2 consecutive registers; they have to be interpreted as last significant word first. These register pairs have to be written at once with the function “Write Multiple Registers”. They cannot be written together with other registers.

## Configuration Workflows

### Configuration over bus

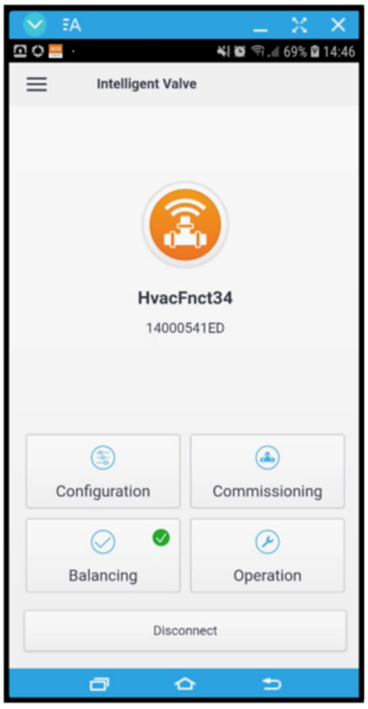
The devices can be configured over bus if the pre-commissioning settings allow for a connection between the Modbus master / programming tool and peripheral devices (i.e. non-conflicting addresses and matching baud rate / transmission format).

- Full configuration over bus: If the address is unique per segment when powered up, the device can be accessed by the Modbus master (or programming tool) and the address and other parameters can then be set to the definitive values.
- Partial configuration over bus: If the address is not unique per segment when powered up, each device must get a non-conflicting address before connecting it to the bus. After addressing all devices, the remaining configuration can be done over the bus using the default settings for baud rate (19200) and transmission mode for the Modbus master.
- Overwriting the bus configuration over bus uses a timeout. If “1 = Load” is not written into Reg. “Command” (address 2) within 30 seconds, all values are discarded.

### Configuration with ABT Go

The devices can be configured with ABT Go Version  4.1 or higher.

- Full configuration with ABT Go: If the address is invalid (255) or not unique, the full configuration with ABT Go is recommended. For access, either the USB connection or the Device Access Point can be used. The address and other parameters can then be set to the definitive values at runtime without restart. To configure, go to “Commissioning > Modbus settings”.
- Overwriting the bus configuration with ABT Go uses a timeout. If “1 = Load” is not written into Reg. “Command” (address 2) within 30 seconds, all values are discarded.




### Example

The table below shows bus configuration registers before and after changing them over bus. Please note register 2.

| Reg. | Name | Pre-commissioning | New value (ex.) |
|---|---|---|---|
| 100 | Termination | [0] = Off | [0] = Off |
| 101 | Address | 46 | 12 |
| 102 | Baud rate | [2] = 19200 | [1] = 9600 |
| 104 | StopBit | 1 = 1 → 1-8-E-1 | 2 = 2 → 1-8-N-2 |
| 105 | Parity | [2] = Even → 1-8-E-1 | [1] = None → 1-8-N-2 |
| 2 | Command | [0] = None | [6] = Apply Modbus Configuration |

## Modbus Register Description

| Control functions | |
|---|---|
| DCV | Dynamic control valve |
| FTC | Flow temperature controller |
| DCV (CO) | Dynamic control valve (Changeover) |

### Operation

| Address | Register | R/W | Scaling / Unit | Options | | Notes | Control function | | | BACnet Object |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | DCV | FTC | DCV (CO) | |
| 0 | Relative setpoint Modbus | R/W | 0.01 % | Min. | 0 | 0…100.00 % | x | x | x | SpRelMdbs |
| | | | | Max. | 10’000 | | | | | |
| 1 | Valve override mode | R/W | - | [1] None<br>[2] Fully Open<br>[3] Fully Close<br>[4] Minimum Volume Flow<br>[5] Nominal Volume Flow<br>[6] Maximum Volume Flow<br>[7] Design Power<br>[8] Maximum Power<br>[9] Keep Position | | - | x | x | x | VovrMod |
| 2 | Command | W | - | [1] None<br>[2] Adaption - not used<br>[3] Self-Test (Application)<br>[4] Re-init<br>[5] Reset - not used<br>[6] Apply Modbus Configuration<br>[7] Discard Modbus Configuration<br>[8] Fail-safe run | | [6]: The Modbus stack is re-initialized with values from registers 101, 102, 103.<br><br>[7]: Registers 101, 102, 103 are reset to current configuration. | x | x | x | - |
| 3 | Actuator type | R | - | [1] Not connected<br>[2] DAC/VAC<br>[3] VAV / ePICV<br>[4] Fire/Smoke Damper Actuator<br>[5] Intelligent Valve<br>[6] 6-port ePICV<br>[7] 6-port Valve | | - | x | x | x | Fixed value – no object needed |
| 4 | Valve position feedback | R | 0.01 % | Min. | 0 | 0…100.00 % | x | x | x | VlvPosFb |
| | | | | Max. | 10’000 | | | | | |
| 5 | Relative setpoint | R | 0.01 % | Min. | 0 | 0…100.00 % | x | x | x | SpRel |
| | | | | Max. | 10’000 | | | | | |
| 6 | Present volume flow | R | 0.01 $m^3/h$ | Min. | 0 | 0…500 $m^3/h$ | x | x | x | PrVfl |
| | | | | Max. | 50’000 | | | | | |
| 7 | Present setpoint volume flow | R | 0.01 $m^3/h$ | Min. | 0 | 0…288 $m^3/h$ | x | x | x | PrSpVfl |
| | | | | Max. | 28’800 | | | | | |

| Address | Register | R/W | Scaling / Unit | Options | | | Notes | Control function | | | BACnet Object |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | DCV | FTC | DCV (CO) | |
| 8 | Present power | R | 0.1 kW | Min. | 0 | | 0…6553.5 kW | x | x | x | PrPwr |
| | | | | Max. | 65’536 | | | | | | |
| 9 | Present setpoint power | R | 0.1 kW | Min. | 0 | | 0…6553.5 kW | x | x | x | PrSpPwr |
| | | | | Max. | 65’536 | | | | | | |
| 10 | Present differential pressure of valve | R | 0.1 kPa | Min. | 0 | | 0…700 kPa needed | x | x | x | PrDiffPVlv |
| | | | | Max. | 7000 | | | | | | |
| 11 | Primary flow temperature | R | 0.01 ℃ | Min. | 0 | Offset 10 ℃ | -10…150 ℃ | x | x | x | TFlPrim |
| | | | | Max. | 16’000 | | | | | | |
| 12 | Primary return temperature | R | 0.01 ℃ | Min. | 0 | Offset 10 ℃ | -10…150 ℃ | x | x | x | TRtPrim |
| | | | | Max. | 16’000 | | | | | | |
| 13 | Flow temperature setpoint Modbus | R/W | 0.01 ℃ | Min. | 0 | No offset | 0…120 ℃ | - | x | - | SpTFlMdbs |
| | | | | Max. | 12’000 | | | | | | |
| 14 | Flow temperature setpoint | R | 0.01 ℃ | Min. | 0 | No offset | 0…120 ℃ | - | x | - | SpTFl |
| | | | | Max. | 12’000 | | | | | | |
| 15 | Flow temperature | R | 0.01 ℃ | Min. | 0 | Offset 10 ℃ | -10…150 ℃ | - | x | - | TFl |
| | | | | Max. | 16’000 | | | | | | |
| 16 | Present setpoint source | R | - | [1] Relative setpoint terminal<br>[2] Relative setpoint Modbus<br>[3] Relative setpoint remote<br>[4] Heat circuit outside temp. comp.<br>[5] Flow temp. setpoint terminal<br>[6] Flow temp. setpoint Modbus<br>[7] Flow temp. setpoint remote<br>[8] Diff. pressure setpoint remote | | | - | x | x | x | PrSpSrc |
| 17 | Control state | R | - | [1] Position<br>[2] Volume flow<br>[3] Power<br>[4] Maximum power limit<br>[5] Minimum volume flow limit<br>[6] Maximum volume flow limit<br>[7] Min. return temp. limitation<br>[8] Max .return temp. limitation<br>[9] Flow/return temp. diff. limitation<br>[10] Valve override | | | - | x | x | x | CtlSta |
| 18 | Heating/cooling state | R | - | [1] Neither<br>[2] Heating<br>[3] Cooling | | | - | x | x | x | HCSta |

| Address | Register | R/W | Scaling / Unit | Options | Notes | Control function | | | BACnet Object |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | DCV | FTC | DCV (CO) | |
| 19 | Main fault | R | - | [1] No fault<br>[2] Primary flow temperature, sensor fault<br>[3] Primary return temperature, sensor fault<br>[4] Flow temperature, sensor fault<br>[5] Return temperature, sensor fault<br>[6] Volume flow, sensor fault<br>[7] Valve actuator fault<br>[8] Valve actuator, position feedback fault<br>[9] Valve actuator, no position feedback<br>[10] Relative setpoint, fault<br>[11] Flow temperature, setpoint fault<br>[12] Primary differential pressure, sensor fault<br>[13] Volume flow, wrong flow direction<br>[14] Volume flow, air bubbles in hydraulics<br>[15] Volume flow, cannot reach maximum value<br>[16] Valve differential pressure above maximum value<br>[17] Volume flow sensor, communication error<br>[18] Outside air temperature, sensor fault<br>[19] Volume flow, cannot reach setpoint | - | x | x | x | MnFlt |

## Configuration - Network settings

| Address | Register | R/W | Options | | Notes | Control function | | | BACnet Object |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Default | | DCV | FTC | DCV (CO) | |
| 100 | Bus termination | R/W | [0] Inactive<br>[1] Active | [0] Inactive | To apply the configuration after a change, Address 2 must be set to [5] “Apply Modbus Configuration”.<br><br>To reset the register to the current setting, Address 2 must be set to [6] “Discard Modbus Configuration”. | x | x | x | - |
| 101 | Modbus address | R/W | 1…247 / 255 | [10] | | x | x | x | |
| 102 | Baud rate | R/W | [5] 9600<br>[6] 19200<br>[7] 38400<br>[8] 57600<br>[9] 76800<br>[10] 115200 | [6] 19200 | | x | x | x | |
| 104 | StopBit | R/W | [1] 1<br>[2] 2 | [1] 1 | | x | x | x | |
| 105 | Parity | R/W | [1] None<br>[2] Even<br>[3] Odd | [2] Even | | x | x | x | |

## Configuration - Valve settings

| Address | Register | R/W | Scaling / Unit | Options | | Control function | | | BACnet Object |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Default | DCV | FTC | DCV (CO) | |
| 110 | Valve mounting position | R/W | - | [0] Flow<br>[1] Return | [1] Return | x | x | x | VlvMountPos |
| 111 | Valve design | R/W | - | [1] 2-Port<br>[2] 3-Port | [1] 2-Port | x | x | x | VlvDsgn |
| 112 | Nominal pipe size | R | 1 mm | - | - | x | x | x | NomPipeSize |
| 113 | Control mode | R/W | - | [1] Position<br>[2] Volume Flow<br>[3] Output | [2] Volume Flow | x | x | x | CtlMod |
| 114 | Compensation mode | R/W | - | [1] Linear<br>[2] Equal Percentage<br>[3] Heat Exchanger Characteristic | [1] Linear | x | x | x | CmpMod |
| 115 | Compensation volume flow coefficient | R/W | 0.1 | Min. 10<br>Max 40 | - | x | x | x | CmpVflCoef |
| 116 | Compensation heat exchanger coefficient | R/W | 0.1 | Min. 1<br>Max. 10 | - | x | x | x | CmpHxCoef |

## Configuration - Hydronic balancing settings

| Address | Register | R/W | Scaling / Unit | Options | | Notes | Control function | | | BACnet Object |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | DCV | FTC | DCV (CO) | |
| 120 | Nominal volume flow for valve | R | 0.01 $m^3/h$ | Min. 0<br>Max. 28’800 | | - | x | x | x | VflNomVlv |
| 121 | Relative maximum volume flow | R/W | 0.01 % | Min. 3000<br>Max. 10’000 | | - | x | x | x | VflMaxRel |
| 122 | Maximum volume flow | R | 0.01 $m^3/h$ | Min. 0<br>Max. 28’800 | | Values depending on line size! | x | x | x | VflMax |
| 123 | Enable minimum volume flow | R/W | - | [0] Disabled<br>[1] Enabled | | - | x | x | x | EnVflMin |
| 124 | Relative minimum volume flow | R/W | 0.01 % | Min. 250<br>Max. 2000 | | - | x | x | x | VflMinRel |
| 125 | Minimum volume flow | R | 0.01 $m^3/h$ | Min. 0<br>Max. 28’800 | | Values depending on line size! | x | x | x | VflMin |

| Address | Register | R/W | Scaling / Unit | Options | | Notes | Control function | | | BACnet Object |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | DCV | FTC | DCV (CO) | |
| 126 | Type of liquid | R/W | - | [0] Water<br>[1] Ethylene glycol | | - | x | x | - | LqdTyp |
| 127 | Concentration of Liquid | R/W | 0.01 % | Min. | 2000 | - | x | x | - | LqdCnctr |
| | | | | Max. | 5000 | | | | | |
| 128 | Relative maxi-mum volume flow cooling | R/W | 0.01 % | Min. | 3000 | - | - | - | x | VflMaxRelC |
| | | | | Max. | 10’000 | | | | | |
| 129 | Maximum volume flow cooling | R | 0.01 $m^3/h$ | Min. | 0 | Values depending on line size! | - | - | x | VflMaxC |
| | | | | Max. | 28’800 | | | | | |
| 130 | Enable minimum volume flow cooling | R/W | - | [0] Disabled<br>[1] Enabled | | - | - | - | x | EnVflMinC |
| 131 | Relative minimum volume flow cooling | R/W | 0.01 % | Min. | 250 | - | - | - | x | VflMinRelC |
| | | | | Max. | 2000 | | | | | |
| 132 | Minimum volume flow cooling | R | 0.01 $m^3/h$ | Min. | 0 | Values depending on line size! | - | - | x | VflMinC |
| | | | | Max. | 28’800 | | | | | |
| 133 | Enable adapted maximum volume flow | R/W | - | [0] Disabled<br>[1] Enabled | | - | x | x | x | EnAdaVflMax |
| 134 | Enable adapted maximum volume flow cooling | R/W | - | [0] Disabled<br>[1] Enabled | | - | - | - | x | EnAdaVflMaxC |
| 135 | Present adapted maximum volume flow | R | 0.01 m3/h | Min. | 0 | - | x | x | x | PrAdaVflMax |
| | | | | Max. | 28’800 | | | | | |

## Configuration - Design power and power limitation

| Address | Register | R/W | Scaling / Unit | Options | | | Notes | Control function | | | BACnet Object |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | DCV | FTC | DCV (CO) | |
| 140 | Design primary flow temperature | R/W | 0.01 ℃ | Min. | 0 | Offset 10 ℃ | -10…120 ℃ | x | x | x | TFlPrimDsgn |
| | | | | Max. | 13’000 | | | | | | |
| 141 | Design primary return tempera-ture | R/W | 0.01 ℃ | Min. | 0 | Offset 10 ℃ | -10…120 ℃ | x | x | x | TRtPrimDsgn |
| | | | | Max. | 13’000 | | | | | | |
| 142 | Design power | R | 0.1 kW | Min. | 0 | | - | x | x | x | PwrDsgn |
| | | | | Max. | 65’535 | | | | | | |

| Address | Register | R/W | Scaling / Unit | Options | | | Notes | Control function | | | BACnet Object |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | DCV | FTC | DCV (CO) | |
| 143 | Relative maximum power | R/W | 0.01 % | Min. | 0 | | - | x | x | x | PwrMaxRel |
| | | | | Max. | 10’000 | | | | | | |
| 144 | Maximum power | R | 0.1 kW | Min. | 0 | | - | x | x | x | PwrMax |
| | | | | Max. | 65’535 | | | | | | |
| 145 | Design primary flow temperature cooling | R/W | 0.01 ℃ | Min. | 0 | Offset 10 ℃ | -10…120 ℃ | - | - | x | TFlPrimDsgnC |
| | | | | Max. | 13’000 | | | | | | |
| 146 | Design primary return temperature cooling | R/W | 0.01 ℃ | Min. | 0 | Offset 10 ℃ | -10…120 ℃ | - | - | x | TRtPrimDsgnC |
| | | | | Max. | 13’000 | | | | | | |
| 147 | Design cooling power | R | 0.1 kW | Min. | 0 | | - | - | - | x | PwrDsgnC |
| | | | | Max. | 65’535 | | | | | | |
| 148 | Relative maximum cooling power | R/W | 0.01 % | Min. | 0 | | - | - | - | x | PwrMaxRelC |
| | | | | Max. | 10’000 | | | | | | |
| 149 | Maximum power cooling | R | 0.1 kW | Min. | 0 | | - | - | - | x | PwrMaxC |
| | | | | Max. | 65’535 | | | | | | |

## Configuration - Valve settings (Flow temperature control)

| Address | Register | R/W | Scaling / Unit | Options | | Notes | Control function | | | BACnet Object |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | DCV | FTC | DCV (CO) | |
| 150 | Enable kick | R/W | - | [0] Disabled<br>[1] Enabled | | - | - | x | - | EnKick |
| 151 | Gain flow temp. control valve pos. for heating circuit | R/W | 0.01 K | Min. | 0 | - | - | x | - | GainHcrTFlVlvc |
| | | | | Max. | 5000 | | | | | |
| 152 | Tn (reset time) flow temp. control valve pos. for heating circuit | R/W | 1 s | Min. | 1 | - | - | x | - | TnHcrTFlVlvCtr |
| | | | | Max. | 600 | | | | | |

## Configuration - Valve settings (Limitations)

| Address | Register | R/W | Scaling / Unit | Options | | Notes | Control function | | | BACnet Object |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | DCV | FTC | DCV (CO) | |
| 158 | Enable return temperature limitation cooling | R/W | - | [0] Disabled<br>[1] Enabled | | - | - | - | x | EnTRtLmC |
| 159 | Enable flow/return temperature difference limitation cooling | R/W | - | [0] Disabled<br>[1] Enabled | | - | - | - | x | EnTDiffFlRtLmC |
| 160 | Enable return temperature limitation | R/W | - | [0] Disabled<br>[1] Enabled | | - | x | x | x | EnTRtLm |
| 161 | Return temperature setpoint for heating | R/W | 0.01 ℃ | Min. | 0 | - | x | x | x | SpHTRt |
| | | | | Max. | 10’000 | | | | | |
| 162 | Return temperature setpoint for cooling | R/W | 0.01 ℃ | Min. | 0 | - | x | x | x | SpCTRt |
| | | | | Max. | 10’000 | | | | | |
| 163 | Return temperature limitation gain | R/W | 0.01 %/℃ | Min. | 0 | - | x | x | x | GainTRtCtr |
| | | | | Max. | 1000 | | | | | |
| 164 | Return temperature limitation reset time | R/W | 1 s | Min. | 1 | - | x | x | x | TnTRtCtr |
| | | | | Max. | 600 | | | | | |
| 165 | Enable flow/return temperature difference limitation | R/W | - | [0] Disabled<br>[1] Enabled | | - | x | x | x | EnTDiffFlRtLm |
| 166 | Setpoint flow/return temperature difference limitation | R/W | 0.01 K | Min. | 0 | - | x | x | x | SpTDiffFlRtLm |
| | | | | Max. | 4000 | | | | | |
| 167 | Setpoint flow/return temperature difference limitation cooling | R/W | 0.01 K | Min. | 0 | - | - | - | x | SpTDiffFlRtLmC |
| | | | | Max. | 4000 | | | | | |
| 168 | Flow/return temperature difference control – Gain | R/W | 0.01 %/K | Min. | 0 | - | x | x | x | GainTDiffFlRtCtr |
| | | | | Max. | 1000 | | | | | |
| 169 | Flow/return temperature difference – Reset time (Tn) | R/W | 1 s | Min. | 1 | - | x | x | x | TnTDiffFlRtCtr |
| | | | | Max. | 600 | | | | | |

## Configuration - Backup mode

| Address | Register | R/W | Scaling / Unit | Options | | | Control function | | | BACnet Object |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Default | DCV | FTC | DCV (CO) | |
| 170 | Backup mode | R/W | - | [1] None<br>[2] Last Setpoint<br>[3] Predefined Setpoint | | - | x | x | x | BckpMod |
| 171 | Backup mode activation delay | R/W | 1 s | Min. | 0 | 900 | x | x | x | BckpModDly |
| | | | | Max. | 36’000 | | | | | |

| Address | Register | R/W | Scaling / Unit | Options | | | Control function | | | BACnet Object |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Default | DCV | FTC | DCV (CO) | |
| 172 | Backup mode value for position | R/W | 0.01 % | Min. | 0 | - | x | x | x | BckpModValPos |
| | | | | Max. | 10'000 | | | | | |
| 173 | Backup mode value for volume flow | R/W | 0.01 % | Min. | 0 | - | x | x | x | BckpModValVfl |
| | | | | Max. | 10'000 | | | | | |
| 174 | Backup mode value for power | R/W | 0.01 % | Min. | 0 | - | x | x | x | BckpModValPwr |
| | | | | Max. | 10'000 | | | | | |
| 175 | Backup mode value for flow temperature | R/W | 0.01 °C | Min. | 0 | - | - | x | - | BckpModValTFl |
| | | | | Max. | 12'000 | | | | | |

## Configuration - Flow/Energy counters

| Address | Register | R/W | Scaling | Options | | Notes | Control function | | | BACnet Object |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | DCV | FTC | DCV (CO) | |
| 180 | Operating hours device | R | 2 h | Min. | 0 | 65'535 * 2 hours = 5461 days = 15 years | x | x | x | OphDev |
| | | | | Max. | 65535 | | | | | |
| 190 | Total heating volume flow<br>• Low data | R | 0.01 $m^3$ | Min. | 0 | Shows volume between 0.01 $m^3$ = 10 l … 655.35 $m^3$ | x | x | x | TotHVfl |
| | | | | Max. | 65535 | | | | | |
| 191 | Total heating volume flow<br>• High data | R | 6.55360E+02 $m^3$ | Min. | 0 | Shows volume between 655.35 $m^3$ … 42'949'017 $m^3$ | x | x | x | TotHVfl |
| | | | | Max. | 65535 | | | | | |
| 192 | Total cooling volume flow<br>• Low data | R | 0.01 $m^3$ | Min. | 0 | Shows volume between 0.01 $m^3$ = 10 l … 655.35 $m^3$ | x | x | x | TotCVfl |
| | | | | Max. | 65535 | | | | | |
| 193 | Total cooling volume flow<br>• High data | R | 6.55360E+02 $m^3$ | Min. | 0 | Shows volume between 655.35 $m^3$ … 42'949'017 $m^3$ | x | x | x | TotCVfl |
| | | | | Max. | 65535 | | | | | |
| 194 | Total heating energy<br>• Low data | R | 0.1 kWh | Min. | 0 | Shows energy between 0.1 kWh = 100 Wh … 6553.5 kWh | x | x | x | TotHEngy |
| | | | | Max. | 65535 | | | | | |
| 195 | Total heating energy<br>• High data | R | 6.55360E+03 kWh | Min. | 0 | Shows volume between 6553.5 kWh … 429'949'017 kWh | x | x | x | TotHEngy |
| | | | | Max. | 65535 | | | | | |
| 196 | Total cooling energy<br>• Low data | R | 0.1 kWh | Min. | 0 | Shows energy between 0.1 kWh = 100 Wh … 6553.5 kWh | x | x | x | TotCEngy |
| | | | | Max. | 65535 | | | | | |
| 197 | Total cooling energy<br>• High data | R | 6.55360E+03 kWh | Min. | 0 | Shows volume between 6553.5 kWh … 429'949'017 kWh | x | x | x | TotCEngy |
| | | | | Max. | 65535 | | | | | |

## Configuration - Device information

| Address | Register | R/W | Scaling | Options | | | Notes / Example | | Control function | | DCV (CO) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | DCV | FTC | |
| 200 | Index | R | - | Unused | | | - | | x | x | x |
| 201 | Production date<br>● Lower value (DDMM) | R | - | Value returned as hex string (4 digits per register, DDMM) | | | e.g. “15.12.” → 0F 0C | | x | x | x |
| 202 | Production date<br>● Higher value (YYYY) | R | - | Value returned as hex string (4 digits per register YYYY) – leading 20! | | | e.g. “2019” → 14 13 | | x | x | x |
| 203 | Series number<br>● Hword | R | - | Value returned as hex string (4 digits per register, upper word = Hword) | | | 1234 | → 20015998343680 | x | x | x |
| 204 | Series number<br>● Lword | R | - | Value returned as hex string (4 digits per register, lower word = Lword) | | | 5678 | | x | x | x |
| 205 | Series number<br>● Lword | R | - | Value returned as hex string (4 digits per register, lower word = Lword) | | | 9a00 | | x | x | x |
| 206 | ASN<br>● char 1+2 | R | - | Value returned as string (2 letters per register) | | | “AS” | → ASE4U10E | x | x | x |
| 207 | ASN<br>● char 3+4 | R | | Value returned as string (2 letters per register) | | | “E4” | | x | x | x |
| 208 | ASN<br>● char 5+6 | R | | Value returned as string (2 letters per register) | | | “U1” | | x | x | x |
| 209 | ASN<br>● char 7+8 | R | | Value returned as string (2 letters per register) | | | “0E” | | x | x | x |
| 210 | ASN<br>● char 9+10 | R | | Unused | | | - | | x | x | x |
| 211 | ASN<br>● char 11+12 | R | | Unused | | | - | | x | x | x |
| 212 | ASN<br>● char 13+14 | R | | Unused | | | - | | x | x | x |
| 213 | HW Version | R | 0.01 | Min. | 0 | Value returned as Int without “.”<br>Actual value: JJNN | “2.1” → 0201 | | x | x | x |
| | | | | Max. | 65’535 | | | | | | |
| 214 | FW Version<br>Major, Minor | R | 0.01 | Min. | 0 | Value returned as Int without “.”<br>Actual value: JJNN | “12.18” → 1218 | | x | x | x |
| | | | | Max. | 65’535 | | | | | | |
| 215 | FW Version<br>Build | R | 1 | Min. | 0 | Value returned as Int without “.”<br>Actual value: BBBBB | “12345”<br>(max. value = 999’999!) | | x | x | x |
| | | | | Max. | 65’535 | | | | | | |
| 216 | Application Version | R | 0.001 | Min. | 0 | Value returned as Int without “.”<br>Actual value: JNNN | “2.024” → 2024 | | x | x | x |
| | | | | Max. | 65’535 | | | | | | |

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