Programmable operation terminal for MODBUS
OPA2-MOD

Features

- LCD display with backlight four keys
- Internal temperature sensor
- With –H model, internal humidity sensor
- 1 external temperature input
- 2 digital inputs, which can be configured for window/door contacts or motion detectors.
- Up to 5 zones may be handled by one operation terminal
- Detailed configuration possible
- RS485 2-wire MODBUS standard in accordance to EIA/TIA 485
- Slave type of communication
- Galvanic isolated bus connection
- Flush mounted on standard EU/UK/CH installation box

Application

The operation terminal controls typically a single room control unit. The device measures room temperature and humidity (for –H type) through integrated sensors. Two additional digital inputs may be configured for window contact, key switches or motion detectors. The operation mode may then be controlled based on these inputs. An external temperature may be measured through the additional temperature input. This may be useful for underfloor heating, sensor averaging for large rooms, outdoor temperatures etc.
The operation terminal communicates through a galvanically isolated RS485 interface via the MODBUS protocol in slave mode.

Ordering

Model	Item#	Display	RT	DI	rH	Description
OPA2-MOD	40-50 0014	yes	1	2	-	Modbus communication module with one internal temperature sensor and one external temperature input plus two binary inputs.
OPA2-MOD-H	40-50 0053	yes	1	2	1	As above with internal humidity sensor 3% accuracy.

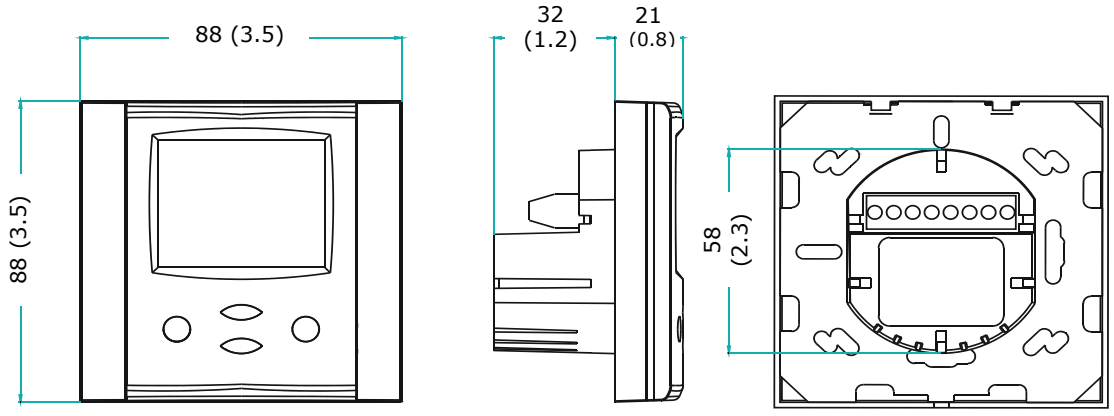
Supported Modbus commands:

- 03 (0x03): Read multiple registers
- 06 (0x06): Write single register
- 16 (0x10): Write multiple registers

Commands 03 and 16 can handle up to 32 registers. The Modbus slave transmits the values as signed 16 bit integers with one digit below the decimal point. This results in the following range: -9999.9 to 9999.9

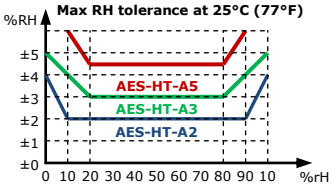
In an event of an out-of-range command addressing or an unsupported command, the Modbus slave responds with an exception message according to the Modbus specification.

Dimensions [mm](in)



Technical specifications

Power Supply	Power Requirements	24 VAC ±10%, 50/60 Hz, 24VDC ±10% SELV to HD 384, Class II, 48VA max
	Power Consumption	Max. 1 VA
	Terminal Connectors	For wire 0.34…2.5 mm2 (AWG 24…12)
Sensors	Internal temperature sensor Range Accuracy	NTC 0…50 °C (32…122 °F) ±0.5 K
	Humidity Sensor AES-HT-Ax: Range Measuring Accuracy Hysteresis Repeatability Stability	Capacity sensor 0…100 % RH See Figure to the right ± 1% ± 0.1% < 0.5% / year
Signal inputs	Temperature Input(RT) Range Accuracy	For NTC sensors with 10kΩ bei 25°C(77°F) -40…140 °C (-40…284 °F) -40…0 °C (-40…32 °F): 0.5 K 0…50 °C (32…122 °F): 0.2 K 50…100 °C (122…212 °F): 0.5 K > 100 °C (> 212 °F): 1 K
	Digital Inputs Range	DI1 and DI2 Potential free, open = 1, closed = 0
Network	Hardware interface Max. nodes per network Max. nodes per segment	RS485 in accordance with EIA/TIA 485 128 64 (Vector devices only)
	Conductors Impedance Nominal capacitance	Shielded Twisted Pair (TSP) cable 100 - 130 ohm 100 pF/m 16pF/ft or lower
	Galvanic Isolation	The communication circuitry is isolated
	Line termination	A line termination resistance (120 ohm) shall be connected between the terminals (+) and (-) of the furthermost node of the network
	Network topology	Daisy chain according EIA/TIA 485 specifications
	Recommended maximum length per chain	1200 m (4000 ft)
Environment	Operation: Climatic Conditions Temperature Humidity Mechanical Conditions	To IEC 721-3-3 class 3 K5 0…50 °C (32…122 °F) <95 % r.H. non-condensing class 2M2
	Transport & Storage: Climatic Conditions Temperature Humidity Mechanical Conditions	To IEC 721-3-2 and IEC 721-3-1 class 3 K3 and class 1 K3 -25…70 °C (-13…158 °F) <95 % r.H. non-condensing class 2M2
Standards EU	CE conformity EMC Directive Low Voltage Directive	 2004/108/EC 2006/95/EC
	Product standards Automatic electrical controls for household and similar use	 EN 60 730 –1
	Electromagnetic compatibility for industrial and domestic sector	Emissions: EN 60 730-1 Immunity: EN 60 730-1
	Degree of Protection	IP30 to EN 60 529 if mounted correctly
	Pollution Class	II (EN 60 730-1)
	Safety Class: Local regulations must be observed!	III (IEC 60536)
	Overvoltage Category	II (EN 60 730-1)
General	Material Front part, back part Mounting plate	 Fire proof ABS plastic (UL94 class V-0) Galvanized steel
	Dimensions (H x W x D)	Front part: 88 x 88 x 21 mm (3.5” x 3.5” x 0.8”) Back part: ø 58 x 32 mm (ø 2.3” x 1.3”)
	Weight (including package)	240g (8.47 oz)



Security Advise

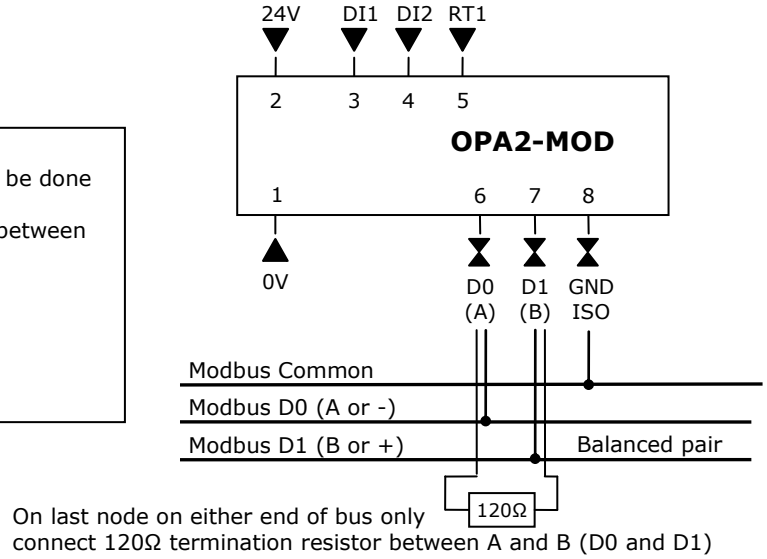
This device is intended to be used for comfort applications. Where a device failure endangers human life and/or property, it is the responsibility of the owner, designer and installer to add additional safety devices to prevent or detect a system failure caused by such a device failure. The manufacturer of this device cannot be held liable for any damage caused by such a failure.

Failure to follow specifications and local regulations may endanger life, cause equipment damage and void warranty.

Connection diagram

Note:
Power GND ≠ Modbus common!

Line polarization:
The device needs line polarization. This should be done at the master device only.
Each a 680 ohm resistor should be connected between D0 and RS485 COM and D1 and RS485 5V.



On last node on either end of bus only connect 120Ω termination resistor between A and B (D0 and D1)

Terminal description:

1	**0V**	Power supply:	0V; common for power supply
2	**24V**	Power supply:	24V AC or 24V DC
3	**DI1**	Passive input:	Binary input, keep open or switch to 0V
4	**DI2**	Passive input:	Binary input, keep open or switch to 0V
5	**RT1**	Passive input:	NTC 10kΩ @ 25°C (77°F) or open contact
6	**D0(A)**	RS485 A:	Modbus A or -
7	**D1(B)**	RS485 B:	Modbus B or +
8	**GND ISO**	RS485 Com	Modbus Reference

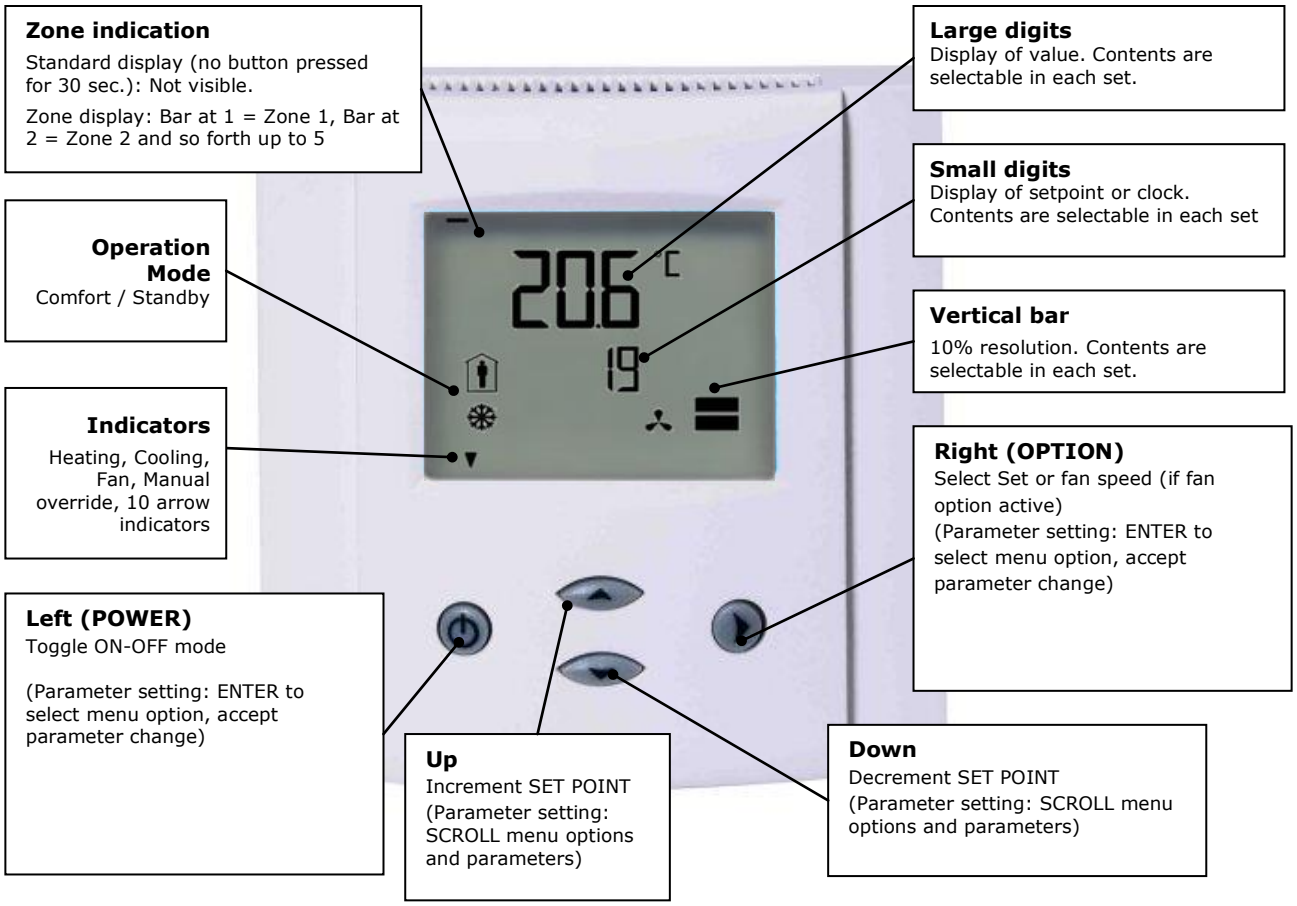
Mounting location

- On an easy accessible interior wall, approx. 1.5 m (4.5') above the floor in an area of average temperature.
- Avoid exposure to direct sunlight or other heat sources, e.g. the area above radiators and heat emitting electrical equipment.
- Avoid locations behind doors, outside walls and below or above air discharge grills and diffusers.
- Location of mounting is less critical if external temperature sensors are used

Installation

1. Connect the wires to the terminals of the power case according to wiring diagram
2. Install the mounting plate to the flush mounting box. Make sure that the nipple with the front holding screw is facing to the ground. Verify that the mounting screw heads do not stand out more than 5 mm (0.2") off the surface of the mounting plate.
3. Slide the two latches located on the top of the front part into the hooks at the upper side of the mounting plate.
4. Carefully lower the front part until the interconnector reaches the mounting-plate. Continue pressing in a gentle way until the front part is fully connected. While inserting the connectors, a slight resistance can be felt. This is normal. Do not use excessive force!
5. With a Philips-type screw driver of size #2, carefully tighten the front holding screw to secure the front part to the mounting plate. This screw is located on the front lower side of the unit. There is no need to tighten the screw too much.

Display and operation



Operation mode		Control symbols	
	Comfort (occupied)		Heating (Reverse) Active
	Standby (unoccupied):		Cooling (Direct) Active
OFF	Energy Hold Off		Schedule Set
			Override Cascade Control
		*	Fan Active

Display in idle mode
- Active if enabled and when no key has been pressed for a set time.(default 30 seconds)
- Contents may be chosen.

Zone display
- Active when changing set points. Large digits show input value. Small digits show set point. Vertical bars show output value. These are the default settings. All values and allowable set point ranges may be chosen.

Symbols
- Select which symbol to show. Active symbols in OFF mode are selected by bitmap.

Power failure
- All parameters and set points are memorized and do not need to be re-entered.

Error messages

Err1: A communication timeout occurred. The operation terminal did communicate successfully for the time period defined with CP18 (1022). Verify wiring or operation of Modbus master device.
To disable this error: set CP18 (1022) to 0.
Err2: The selected sensor is damaged or missing.
NA: The selected sensor is not enabled
No: The change of setpoint or operation mode is disabled or the remote disable function is active.

Configuration parameters

The OPA2-MOD can be fine-tuned with a simple parameter setup routine. The parameters can be changed on the unit without the need of additional equipment.

Access to parameters

The parameters can be changed as follows:

1. Press UP/DOWN buttons simultaneously for three seconds. The version is now shown in the large digits, the subversion is shown below. Press the OPTION button to start login.
2. CODE is shown on the upperdigits.
3. Select 009 using UP/DOWN buttons.
4. Press OPTION after selecting the correct code. Now the Software Version and Revision is displayed. Acknowledge it by pressing the OPTION button again.
5. Select the parameters by pressing the UP/DOWN buttons. Press the OPTION button to adjust the value with the UP/DOWN buttons. Press OPTION again to save the modified value.
6. Press the POWER to leave the menu.

Setup parameters

Parameter	Description	Range	Default
CP 00	Communication address (must be unique in network)	1…255	1
CP 01	Baud rate: 0 = **19200** 1 = 4800 2 = 9600 3 = 19200 4 = 38400	0…4	0
CP 02	Parity mode: 0 = No Parity, **1 =Even Parity,** 2 = Odd Parity	0…1	1
CP 03	Mode of communication : 0 = **RTU,** 1 = ASCII	0…1	0
CP 04	Allow changing of communication address through broad cast command. **0 = Not allowed,** 1 = Allowed	0…1	0
CP 05	Total number of zones 0 = one zone with fan speed selection on right key **1 = one zone** – 5 = five zones	0…5	1
CP 06	Setpoint change enable 0 = disabled, **1 = enabled**	0…1	1
CP 07	Operation mode change ON/OFF enabled 0 = disabled, **1 = enabled**	0…1	1
CP 08	Operation mode change occupied / unoccupied enabled **0 = disabled,** 1 = enabled	0…1	1
CP 09	24h / 12h: **0 = 24h,** 1 = 12h (AM/PM)	0…1	0
CP 10	This setting is not used	0…1	0
CP 11	Celsius/Fahrenheit, **0 = Celsius,** 1 = Fahrenheit	0…1	0
CP 12	Timeout in seconds to idle mode	0…255	30
CP 13	Idle mode, **0 = disabled**, 1 = enabled If enabled shows a specific screen if no key is pressed for the time defined in CP12	0…1	**0**
CP 14	Maximum number of fan speeds This setting applies for CP05 = 0 (one group with fan speed).	1…3	**3**
CP 15	Humidity sensor calibration	-12,7…12.7 %	**0**
CP 16	Internal NTC sensor calibration	-12.7…12.7 °C	**0**
CP 17	External NTC sensor calibration	-12.7…12.7 °C	**0**
CP 18	Modbus communication timeout: If there is no communication within the amount of seconds specified here, "Err1" is shown on the small digits. Setting the value to "0" disables this feature.	0…1000s	**60s**
CP 19	Delay for remote disable function. The delay defines how long the contact needs to be open before the device switches into OFF mode. This is used for key card switches or window contacts connected to digital inputs. This function is controlled with registers 10300/10400.	0…255s	**10s**
CP 20	Delay for standby/comfort switchover function. The delay defines how long the contact needs to be open before the device switches into standby mode. This is used for key card switches or motion detectors connected to digital inputs. This function is controlled with registers 10300/10400.	0…9999min	**10min**

Register definitions

Terminal Setup

Address	Type	R/W	Contents
1000	8bit	R	Hardware version / type
1001	8bit	R	Software version
1002	8bit	R	Software revision
1003	8bit	R/W	Communication address (must be unique in network)(factory default is "**1**")
1004	Selection 0-4	R/W	Baud rate: 0 = **19200** 1 = 4800 2 = 9600 3 = 19200 4 = 38400
1005	Bit	R/W	Parity mode: 0 = No Parity, **1 =Even Parity,** 2 = Odd Parity
1006	Bit	R/W	Mode of communication : 0 = **RTU,** 1 = ASCII
1007	Bit	R/W	Allow changing of communication address through broad cast command. (will reset automatically after 30 seconds) **0 = Not allowed,** 1 = Allowed
1008	Selection 0-5	R/W	Total number of groups 0 = one group with fan speed selection on right key **1 = one group** 2 = two groups 3 = three groups 4 = four groups 5 = five groups
1009	Bit	R/W	Setpoint change enable 0 = disabled, **1 = enabled**
1010	Bit	R/W	Operation mode change ON/OFF enabled 0 = disabled, **1 = enabled**
1011	Bit	R/W	Operation mode change occupied / unoccupied enabled **0 = disabled,** 1 = enabled
1012	BCD	R/W	Clock with hours and minutes in BCD format
1013	Bit	R/W	24h / 12h Clock mode: **0 = 24h,** 1 = 12h (AM/PM)
1014	Bit	R/W	AM/PM flag: **0 = AM,** 1 = PM
1015	Bit	R/W	Celsius/Fahrenheit: **0 = Celsius,** 1 = Fahrenheit
1016	Byte	R/W	Timeout in seconds to idle mode. (0…255 seconds)
1017	Bit	R/W	Idle mode, **0 = disabled**, 1 = enabled If enabled shows a specific screen if no key is pressed for the time defined in 1016
1018	Byte	R/W	Maximum number of FAN speeds (1…**3**) This setting applies if number of groups is set to "one group with fan speed". (1008 = 0).
1019	Byte signed -12.7...12.7	R/W	Humidity sensor calibration
1020	Byte signed -12.7...12.7	R/W	Internal NTC sensor calibration
1021	Byte signed -12.7...12.7	R/W	External NTC sensor calibration
1022	16bit	R/W	Modbus communication timeout: If there is no communication within the amount of seconds specified here, "Err1" is shown on the small digits. Setting the value to "0" disables this feature.
1023	Byte	R/W	Delay for remote disable function. The delay defines how long the contact needs to be open before the device switches into OFF mode. This is used for key card switches or window contacts connected to digital inputs. This function is controlled with registers 10300/10400.
1024	16bit	R/W	Delay for standby/comfort switchover function. The delay defines how long the contact needs to be open before the device switches into standby mode. This is used for key card switches or motion detectors connected to digital inputs. This function is controlled with registers 10300/10400.

Operation state, symbols & alarms

Address	Type	R/W	Contents
100	8bit	R/W	"Something changed" flag. Contains the zone ID value whenever a setpoint gets changed in that zone or the number 10 if operation mode or state of digital inputs changed. Needs to be reset by the master through a write command.
2000	bit	R/W	Operation state ON / OFF 0 = OFF **1 = ON**
2001	bit	R/W	Operation state occupied / unoccupied 0 = Unoccupied **1 = Occupied**
2002	bit	R/W	Maximum number of fan speeds (1…**3**)
2003	8bit	R/W	Actual fan speed
2004	bit	R/W	Show fan symbol(**0**)
2005	bit	R/W	Show alarm symbol (**0**)
2006	bit	R/W	Show alarm string (**0**)
2007	bit	R/W	Show heating symbol (**0**)
2008	bit	R/W	Show cooling symbol (**0**)
2009	bit	R/W	Show comfort operation mode symbol (**0**)
2010	bit	R/W	Show standby operation mode symbol (**0**)
2011	16 bit	R/W	Show arrow 0-10 LSb = Arrow 1 on the left (**0**)
2012	8bit (ASCII)	R/W	text string alarm letter 1: -
2013	8bit (ASCII)	R/W	text string alarm letter 2: **A**
2014	8bit (ASCII)	R/W	text string alarm letter 3: **L**
2015	8bit (ASCII)	R/W	text string alarm letter 4: **A**
2016	bit	R/W	A flag to define where the alarm text shall be displayed 0 = nowhere 1 = large digits **2 = small digits**
2017	bit	R/W	Show time symbol (**0**)
2018	bit	R/W	Show manual override symbol (**0**)

Display in OFF mode

Address	Type	R/W	Contents
3000	Selection	R/W	Contents of large digits: **0 = empty** 1 = text string OFF 2 = value zone 1 (5001) 3 = setpoint zone 1(5004 or 5005 depending on operation mode) 4 = value zone 2 (6001) 5 = setpoint zone 2(6004 or 6005 depending on operation mode) 6 = value zone 3 (7001) 7 = setpoint zone 3(7004 or 7005 depending on operation mode) 8 = value zone 4 (8001) 9 = setpoint zone 4(8004 or 8005 depending on operation mode) 10 = value zone 5 (9001) 11 = setpoint zone 5(9004 or 9005 depending on operation mode) 12 = Clock 13 = Alarm text 14 = Internal temperature 15 = External temperature 16 = Relative humidity 17 = Digital input 1 18 = Digital input 2
3001	Selection	R/W	Contents of small digits: 0 = empty **1 = text string OFF** 2 = value zone 1 (5001) 3 = setpoint zone 1(5004 or 5005 depending on operation mode) 4 = value zone 2 (6001) 5 = setpoint zone 2(6004 or 6005 depending on operation mode) 6 = value zone 3 (7001) 7 = setpoint zone 3(7004 or 7005 depending on operation mode) 8 = value zone 4 (8001) 9 = setpoint zone 4(8004 or 8005 depending on operation mode) 10 = value zone 5 (9001) 11 = setpoint zone 5(9004 or 9005 depending on operation mode) 12 = Clock 13 = Alarm text 14 = Internal temperature 15 = External temperature 16 = Relative humidity 17 = Digital input 1 18 = Digital input 2
3002	Selection	R/W	Contents of vertical bar: **0 = empty** 1 = bar of zone 1 2 = bar of zone 2 3 = bar of zone 3 4 = bar of zone 4 5 = bar of zone 5
3003	Selection	R/W	Show state of following symbols in OFF mode: bit select for symbols: Default bit 0 = Fan symbol **0** bit 1 = Alarm symbol **1** bit 2 = Heating/cooling **1** bit 3 = Comfort/Standby **0** bit 4 = Arrows **1**
3004	8bit (ASCII)	R/W	Text string OFF letter 1:
3005	8bit (ASCII)	R/W	Text string OFF letter 2: O
3006	8bit (ASCII)	R/W	Text string OFF letter 3: F
3007	8bit (ASCII)	R/W	Text string OFF letter 4: F

Display in idle mode

If enabled with address 1017(CP13), this screen is shown if no key is pressed for the time defined in 1016(CP12). Pressing the RIGHT or UP/DOWN key while in this screen will move to the Group 1 display.

Address	Type	R/W	Contents
4000	Selection	R/W	Contents of large digits: 0 = empty 1 = text string OFF **2 = value zone 1 (5001)** 3 = setpoint zone 1(5004 or 5005 depending on operation mode) 4 = value zone 2 (6001) 5 = setpoint zone 2(6004 or 6005 depending on operation mode) 6 = value zone 3 (7001) 7 = setpoint zone 3(7004 or 7005 depending on operation mode) 8 = value zone 4 (8001) 9 = setpoint zone 4(8004 or 8005 depending on operation mode) 10 = value zone 5 (9001) 11 = setpoint zone 5(9004 or 9005 depending on operation mode) 12 = Clock 13 = Alarm text 14 = Internal temperature 15 = External temperature 16 = Relative humidity 17 = Digital input 1 18 = Digital input 2
4001	Selection	R/W	Contents of small digits: 0 = empty 1 = text string OFF 2 = value zone 1 (5001) **3 = setpoint zone 1(5004 or 5005 depending on operation mode)** 4 = value zone 2 (6001) 5 = setpoint zone 2(6004 or 6005 depending on operation mode) 6 = value zone 3 (7001) 7 = setpoint zone 3(7004 or 7005 depending on operation mode) 8 = value zone 4 (8001) 9 = setpoint zone 4(8004 or 8005 depending on operation mode) 10 = value zone 5 (9001) 11 = setpoint zone 5(9004 or 9005 depending on operation mode) 12 = Clock 13 = Alarm text 14 = Internal temperature 15 = External temperature 16 = Relative humidity 17 = Digital input 1 18 = Digital input 2
4002	Selection	R/W	Contents of vertical bar: 0 = empty **1 = bar of zone 1** 2 = bar of zone 2 3 = bar of zone 3 4 = bar of zone 4 5 = bar of zone 5
4003	8bit (ASCII)	R/W	text string ON letter 1:
4004	8bit (ASCII)	R/W	text string ON letter 2: O
4005	8bit (ASCII)	R/W	text string ON letter 3: N
4006	8bit (ASCII)	R/W	text string ON letter 4:

Display zone 1

Address	Type	R/W	Contents
5000	Selection	R/W	Contents of large digits: 0 = empty 1 = text string group 1 **2 = value** 3 = setpoint (Comfort/Standby depending on operation mode) 4 = Alarm text 5 = internal NTC 6 = external NTC 7 = humidity value 8 = digital input 1. 9 = digital input 2.
5001	16 bit signed	R/W	Value of large digits
5002	Selection	R/W	Unit of digits 0 = no unit 1 = % **2 = °C** 3 = Pa
5003	Selection	R/W	Contents of small digits: 0 = empty 1 = text string group 1 2 = value **3 = setpoint (Comfort/standby depending on operation mode)** 4 = Alarm text 5 = internal NTC 6 = external NTC 7 = humidity value 8 = digital input 1. 9 = digital input 2.
5004	16 bit signed	R/W	Comfort setpoint 20.0
5005	16 bit signed	R/W	Standby setpoint 20.0
5006	16 bit signed	R/W	Setpoint step 0.1; **0.5;** 1.0; 2.0; 5.0
5007	16 bit signed	R/W	Low setpoint limit 16.0
5008	16 bit signed	R/W	High setpoint limit 30.0
5009	8 bit	R/W	Vertical bar 0-10 0
5010	8bit (ASCII)	R/W	Text string letter 1
5011	8bit (ASCII)	R/W	Text string letter 2 L
5012	8bit (ASCII)	R/W	Text string letter 3 P
5013	8bit (ASCII)	R/W	Text string letter 4 1

Display zone 2 – 5

As above with following register addresses:
Group 2 = 6000 – 6013
Group 3 = 7000 – 7013
Group 4 = 8000 – 8013
Group 5 = 9000 – 9013

Input configuration

Address	Type	R/W	Contents
10000	bit	R/W	Enable internal temperature sensor 0 = Sensor disabled **1 = Sensor enabled**
10001	bit	R	Error state of internal temperature sensor 0 = OK 1 = Error
10002	16 bit signed	R	Measured value of internal temperature sensor
10003	16 bit signed	R/W	Internal temperature sensor calibration (-12,7…**0**…12,7 °C/°F)
10100	bit	R/W	Enable internal humidity sensor(for –H type only) **0 = Sensor disabled** 1 = Sensor enabled
10101	bit	R	Error state of internal humidity sensor (for –H type only) 0 = OK 1 = Error
10102	16 bit signed	R	Measured value of internal humidity sensor (for –H type only)
10103	16 bit signed	R/W	Internal humidity sensor calibration (-12,7…**0**…12,7 %)
10200	selection	R/W	Enable external temperature input **0 = Input disabled** 1 = Input enabled
10201	bit	R/W	Error state of external temperature input 0 = ok 1 = error
10202	16 bit signed	R	Measured value of external temperature input
10203	16 bit signed	R/W	External temperature input calibration (-12,7…**0**…12,7 °C/°F)
10300	bit	R/W	Digital input "1" function assignment: **0: No function assigned** 1: Remote disable: Key card or Window contact 2: Comfort/Standby changeover: Key card or motion detector
10301	bit	R	Digital input 1 value
10302	byte	R/W	Digital input 1 open character 01
10303	byte	R/W	Digital input 1 open character 02 O
10304	byte	R/W	Digital input 1 open character 03 F
10305	byte	R/W	Digital input 1 open character 04 F
10306	byte	R/W	Digital input 1 closed character 01
10307	byte	R/W	Digital input 1 closed character 02 O
10308	byte	R/W	Digital input 1 closed character 03 N
10309	byte	R/W	Digital input 1 closed character 04
10400	bit	R/W	Digital input "2" function assignment: **0: No function assigned** 1: Remote disable: Key card or Window contact 2: Comfort/Standby changeover: Key card or motion detector
10401	bit	R	Digital input 2 value
10402	byte	R/W	Digital input 2 open character 01
10403	byte	R/W	Digital input 2 open character 02 O
10404	byte	R/W	Digital input 2 open character 03 F
10405	byte	R/W	Digital input 2 open character 04 F
10406	byte	R/W	Digital input 2 closed character 01
10407	byte	R/W	Digital input 2 closed character 02 O
10408	byte	R/W	Digital input 2 closed character 03 N
10409	byte	R/W	Digital input 2 closed character 04

➔ Use Remote disable for key cards or window contacts. If the digital input is opened the device will switch to OFF mode after the delay defined with address 1023 (CP19) has expired. Closing the contact will switch the device back on immediately. The delay is defined in seconds.

➔ Use comfort/standby changeover with key card switches and occupancy sensors. The device will be in occupied mode as long as the digital input is connected to signal ground. Once the input is opened it will switch to unoccupied mode after the delay defined with address 1024 (CP20) has expired. The delay is defined in minutes.

Fan strings

Address	Type	R/W	Contents	
11000	byte	R/W	FAN string 1 character 1	(“A”)
11001	byte	R/W	FAN string 1 character 2	(“u”)
11002	byte	R/W	FAN string 1 character 3	(“t”)
11003	byte	R/W	FAN string 1 character 4	(“o”)
11004	byte	R/W	FAN string 2 character 1	(“F”)
11005	byte	R/W	FAN string 2 character 2	(“A”)
11006	byte	R/W	FAN string 2 character 3	(“N”)
11007	byte	R/W	FAN string 2 character 4	(“1”)
11008	byte	R/W	FAN string 3 character 1	(“F”)
11009	byte	R/W	FAN string 3 character 2	(“A”)
11010	byte	R/W	FAN string 3 character 3	(“N”)
11011	byte	R/W	FAN string 3 character 4	(“2”)
11012	byte	R/W	FAN string 4 character 1	(“F”)
11013	byte	R/W	FAN string 4 character 2	(“A”)
11014	byte	R/W	FAN string 4 character 3	(“N”)
11015	byte	R/W	FAN string 4 character 4	(“3”)

Reduced ASCII table for display of characters

ASCII	Item
32	(space)
45	-
48	0
49	1
50	2
51	3
52	4
53	5
54	6
55	7
56	8
57	9

ASCII	Item
65	A
66	B
67	C
69	E
70	F
72	H
73	I
76	L
78	N
79	O
80	P
83	S
85	U
95	_

ASCII	Item
98	b
99	c
100	d
103	g
104	h
108	l
110	n
111	o
112	p
113	q
114	r
116	t
117	u
121	y