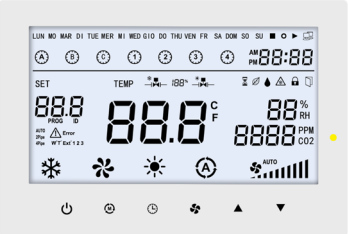
LCF02 QTouch AP AO5DO

Fancoil controller (SI)

thermokon®
HOME OF SENSOR TECHNOLOGY

Datasheet

Subject to technical alteration
Issue date: 11.02.2026 • A146



» APPLICATION

Fan coil controller for room temperature control with intuitive operation via real glass display and optional CO2 sensor with TLF function. For 3-speed or EC fans in 2- or 4-pipe operation.

» SECURITY ADVICE – CAUTION

Only approved for the intended use described in the application, unauthorized conversion or modification prohibited!

Must not be used in conjunction with devices that directly or indirectly serve human, health or life safety purposes or whose operation could pose a risk to people, animals or property.

The state of the art, applicable laws, standards and regulations at the time of installation must be applied.

Installation and assembly only by authorized electricians.

Only connect devices with a power connection if the connecting cable is disconnected!

WARNING! Danger to life due to live components!
CAUTION! Risk of electric shock! There may be live parts inside the housing. Particularly with appliances in mains voltage mode (normally between 90 and 265 V), touching live parts can result in personal injury.

» NOTES ON DISPOSAL

The crossed-out wheelie bin symbol indicates that the product or removable batteries must not be disposed of with household or commercial waste. Within the EU, you are legally obliged to dispose of the product separately and appropriately in accordance with the national laws of your country. Alternatively, please contact your supplier or Thermokon Sensortechnik GmbH. Further information can be found at: www.thermokon.com

» MOUNTING ADVISE ROOM SENSORS

The Accuracy of the room sensors are influenced by the technical specifications as well as the positioning and the installation type.

During Assembly:

- Seal mounting box (if present).
- Installation type, air draught, heat source, radiation heat or direct sunlight can affect the measurement.
- Building material specific properties of the installation place *(brick-, concrete-, cavity wall, …)* can affect the measurement.

Assembly not recommendet in…

- Air draught (e.g.: close to windows / doors / fans …)
- Near heating sources,
- Direct sunlight
- Niches / between furniture / …

» TECHNICAL DATA

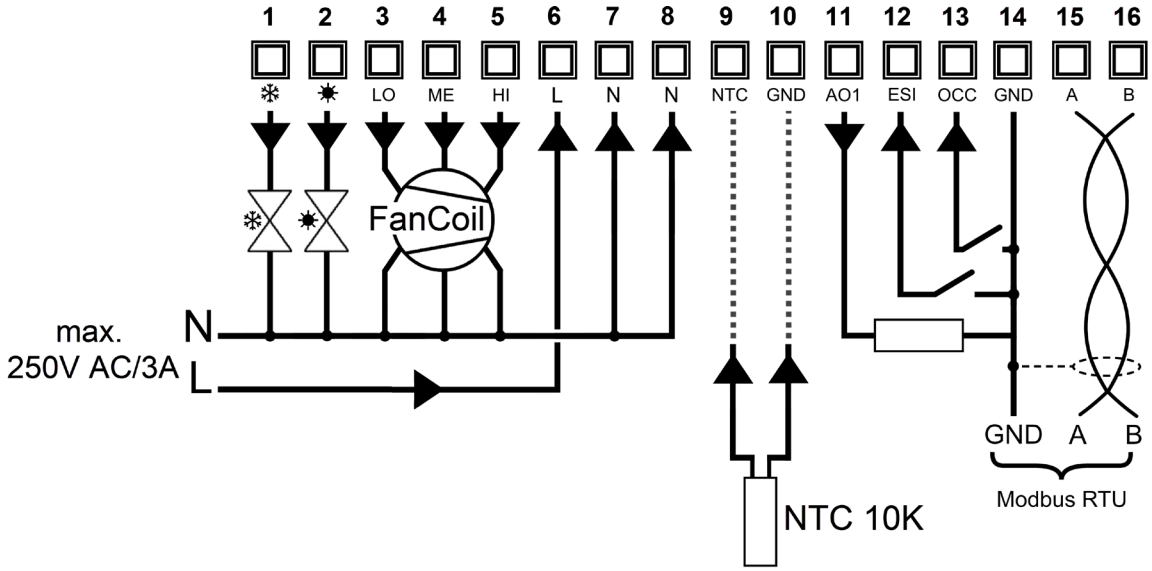
Measuring values	Temperature & humidity, CO2 (optional)		
Output switch contact	**terminal 1 | 2** (for heating and cooling, 2-point control or PWM) 2 normally open contacts, max. 250 V ~ / 3 A	**terminal 3 | 4 | 5 – LO | ME |HI** (for fan) 3x normally open contact, max. 250 V ~ / 3 A	
Output voltage	**terminal 11** 0..10 V, min load 10kΩ		
Network technology	RS485 Modbus, RTU, half-duplex, baud rate 4.800, 9.600, 19.200 or 38.400 parity: non (2 stopbits), even or odd (1 stopbit), RS485 bus load: ¼ unit load according to RS485 standard **Fail-safe Biasing required.** Follow the instructions in the Modbus standard (§3.4.6.)*		
Power supply	230 V ~ / 3A		
Power consumption	3 W		
Measuring range temp.	+1..+50 °C		
Accuracy temperature	±1 K (typ. at 21 °C)		
Measuring range humidity	0..100% rH without condensation		
Accuracy humidity	±2% between 10..90% rH (typ. at 21 °C)		
Measuring range CO2	0..5000 ppm		
Accuracy CO2	±50 ppm +3 % of the measuring value (typ. at 21 °C, 50% rH, 1015 hPa)		
Inputs	**terminal 9** input for external sensor NTC10K	**terminal 12 – ESI** input digital for floating contact, window contact, dew point sensor	**terminal 13 - OCC** input digital for floating contact, occupancy sensor, key card switch
Control functions	set point adjustment +1..+50 °C, (default +16..+30 °C)		
Display	LCD 102x56 mm, white or black background lighting, LED for TLF threshold indicator (CO2)		
Enclosure	ABS, pure white or black		
Protection	IP20 according to EN 60529		
Cable entry	rear entry		
Connection electrical	terminal block max. 1,5 mm²		
Ambient condition	-10..+50 °C, max. 95% rH non-condensing		
Mounting	Surface installation (above standard EU box (Ø=60 mm) is recommended)		

***Modbus Standard** https://modbus.org/docs/Modbus_over_serial_line_V1_02.pdf

» PRODUCT TESTING AND CERTIFICATION

Declaration of conformity
The declaration of conformity of the products can be found on our website
https://www.thermokon.de/direct/en-gb/categories/lcf02-qtouch

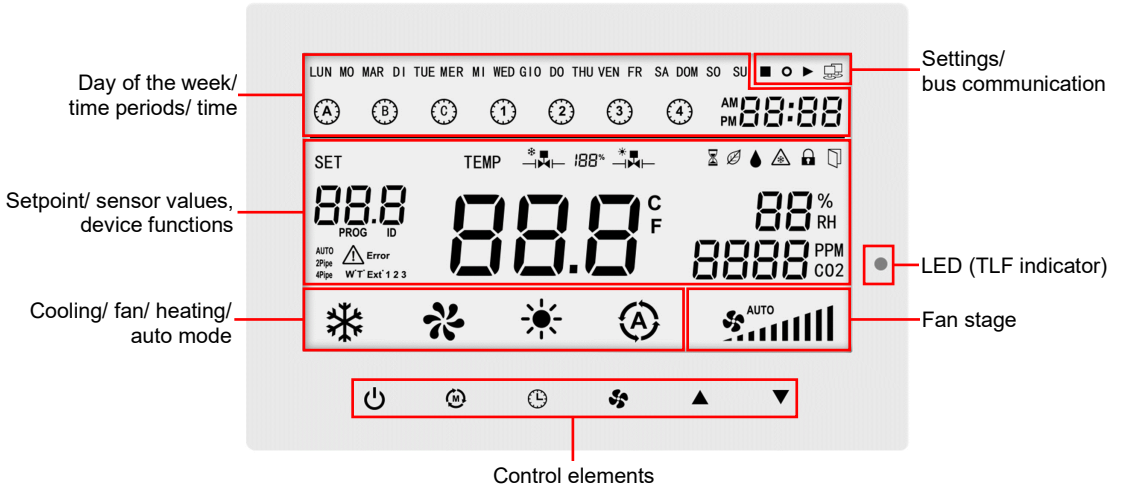
»CONNECTION PLAN

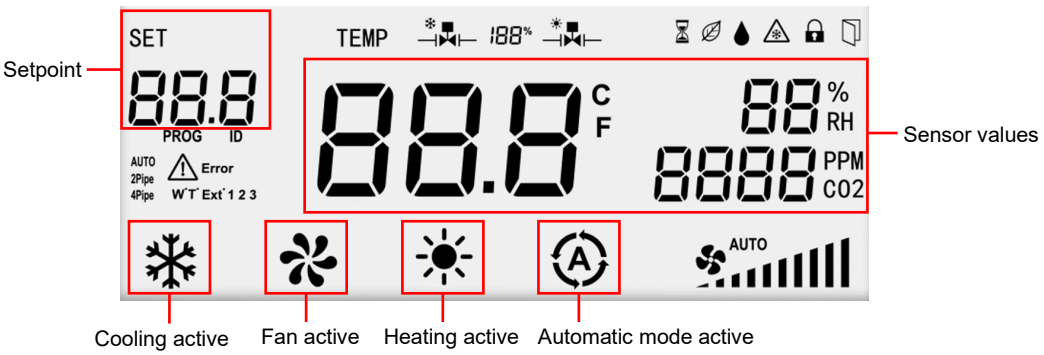


Power supply
If several devices are connected to one power supply, make sure that all "positive" operating voltage inputs (+) and all "negative" operating voltage inputs (-) of the devices are connected to each other (in-phase connection of the devices).

If the polarity of the supply voltage on one of the devices is reversed, the device may be damaged.

»DISPLAY PANEL





Additional symbols

cooling valte	Control value	Heating valve	Fan overrun	Dewpoint reached	Buttons locked
AUTO 2Pipe 4Pipe Fancoil type	Error Error message	W T Ext 1 2 3 External sensor usage	ECO mode	Frost protection „Off“	Window „open“
	Warning sign				

» DEVICE CONFIGURATION

Device information	The device software version is shown on the display during startup (top right corner).
Bus communication 	Symbol flashes (If the device does not communicate via the bus, the symbol will be disappear after 10 seconds)
Parametermenu	To enter the parameter menu (i.e. for Modbus-communication settings): - Press and hold “mode” and up-button for 4 seconds. - Enter password: **(default: 987)** o Digit selection: mode-button o Arrow keys (▲/▼): increase / decrease value - Select parameter with arrow keys
Date/time settings	- press and hold the Time/Calendar and Temperature "Down" buttons simultaneously for 5 seconds - parameterisable value starts to flash - year/month/day/hour can be set sequentially - value can be changed with the "Up" and "Down" buttons - confirmed with the time/calendar button

After parameter selection / setting, don’t press any button for 3 seconds to save the settings.

Operating status after voltage loss (register 268)	■	The device remains switched off (standby)
	O	The device restores the original operating status.
	▶	The device is switched on

The operating status is saved during a voltage loss and can be reset after voltage recovery depending on the setting.
The setpoint is not saved. The standard setpoint value (register 271) applies after voltage loss.

No.	Parameter	Description	default
1	**Modbus Adress**	ID.1- ID.247	1
2	**Baud rate**	1 = 4800bps | 2 = 9600 | 3 = 19200 | 4 = 38400	2
3	**Parity**	0 = none | 1 = odd | 2 = even	0
4	**Stop Bits**	1 = 1 Stopbit | 2 = 2 Stopbits (8 data bits)	2
5	**Temperature Offset** *(register 262)* internal sensor	-5,0 K..+5,0 K	0
6	**Temperatur Offset** *(register 263)* external sensor	-5,0 K..+5,0 K	0
7	**Screensaver mode**	0 = display button on / off 1 = room temperature and button on / off 2 = display clock, room temperature and button on / off 3 = display clock, room temperature / button on / off and set point 4 = display all status	0
8	**7 day 4 periods (programmable)**	0 = deactivated 1 = activated	0
9	**Password** *(Register 265)*	0..999	987
10	**Factory reset**	- Set parameter to 1 - Press mode key - Device is factory reset. *(Device stays in Parameter menu for Modbus configuration)*	0

°F/°C selective
Temp display range is 32 °F..99 °F, respectively 0 °C..50 °C (factory default is °C). By simultaneously pressing the keys "▲" and "▼" the display of the unit system can be switched directly on the LCD.

Key lock selection (Register address 0x010D)
Its possible to set a key lock function. If a locked key is pressed, the lock symbol will appear for 2s and blink 2x but no further action is taken.

» CONTROLLER OUTPUT SIGNAL

The Fancoil controller is designed for fan coil units with 2- or 4-pipe systems for heating and cooling.

		4-pipe (default)	2-pipe
Terminal 2	❄	Cooling	Heating & Cooling
Terminal 3	☀	Heating	

PI-controller 0..10 V
The manipulated variable is output as a proportional control signal. The type of valve used is set via the configuration registers.

6WV
With register address 304, a 6-way valve can also be selected as valve type. You can choose from 2..10 V / 2..10 V INV (Belimo), 0..10 V DN15 / DN15 INV, DN20 / DN20 INV (Sauter).

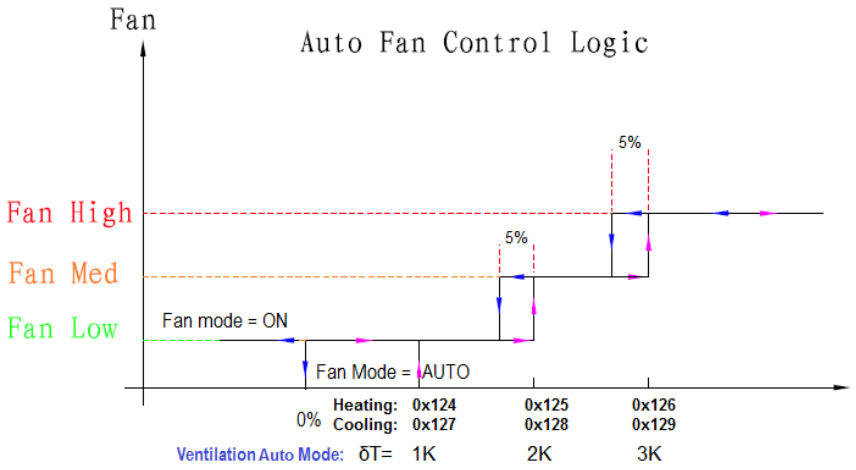
EC-Fan
Register address 360 can be used to configure the control of an EC fan via the analog output, among other things.

» FUNKTIONAL DESCRIPTION

Operating mode	M	Cooling > Auto > ventilation > heating …	With 2-pipe configuration, the unavailable modes (depending on the change-over status) are skipped. **Only available modes can be selected!**
Power button	⏻	Standby > ECO > ON …	Operating mode switchover on the device. Standby mode = display off, frost protection active. (Temperature threshold register 298 - Standard 7 °C). (terminal 13 – OCC switchable)
ECO-Mode	🍃	ECO setpoint (registers 275 and 276 (0x0113, 0x0114), Setpoint adjustment on the device by the user is not possible, Display leaf symbol + ECO lettering (terminal 12 – ESI switchable)	
Fan stage		Fan stage 1 > ..2 > ..3 > ..Auto …	Auto (fan speed dependent on controller variable) Number of fan speeds configurable
Setpoint adjustment	▲ ▼	Default: +16..+30 °C (+60..+86 °F) (register 272 – 273)	

Temperature sensor input - temperature limitation and external temperature sensor
The temperature sensor input terminal 9 (address 0x0152) can be used as a change over sensor (addresses 0x012B and 0x012C) or as an external temperature sensor.

It can also be used to limit the heating temperature (address 0x010A) and cooling temperature (address 0x010B). This is the case with underfloor heating systems where the external sensor is embedded in the floor. If the floor temperature exceeds a certain limit, the heating valve must be closed to prevent damage to the floor or the pipes embedded in the floor.



Room occupancy (OCC)
If the digital input (OCC) reports "Room unoccupied", the "Eco Mode" setpoint is activated. The "Eco Mode" leaf symbol appears in the display and the ECO lettering in the setpoint display. When switching to "Occupied" mode, the sheet symbol disappears again.

Window contact (ESI)
If the input is configured as a window contact or dew point sensor, it is checked every 3 seconds. If "Window open" or "Dew point reached", the respective symbol appears and the valve is closed.

Sensor alarm (register address 0x0009)
If an error is detected in the internal temperature sensor (e.g. short circuit or cable break), the switch-on time of a PWM cycle is reduced by 50% and the active output is set to 50% actuating value.

The display flashes the error code: "E1" The thermostat enables manual control of the fan and valve output using the "▲" or "▼" buttons. Each time the "▲" or "▼" buttons are pressed, the output voltage is reduced or increased by 1 V = 10% and the PWM by 10%. The percentage is shown on the display.

» REGISTER DESCRIPTION

Input Register				
Adress		Access	Description	Register value ≙ Value range
0	**0x0000**	R	**Thermokon model identification**	
1	**0x0001**	R	**Firmware-Version**	z.B. 0x1A20 ≙ 1.10.2.0
2	**0x0002**	R	**Back-Box Type**	
3	**0x0003**	R	**Value of the integrated temperature sensor °C / °F**	0..500 ≙ 0..50,0°C 300..1200 ≙ +30,0..+120,0°F
4	**0x0004**	R	**Fan-State** 0b00000000 = OFF 0b00000001 = Fan stage low 0b00000010 = Fan stage medium 0b00000100 = Fan stage high 0b00001000 = Auto OFF 0b00001001 = Auto low 0b00001010 = Auto medium 0b00001100 = Auto high	
5	**0x0005**	R	**VA1 State – output valve 1 cooling**	0..1000 ≙ 0..100%
6	**0x0006**	R	**VA2 State – output valve 2 heating**	0..1000 ≙ 0..100%
7	**0x0007**		**Reserved**	
8	**0x0008**	R	**External temperature sensor °C / °F**	-200..+1000 ≙ -20,0..+100,0°C 0..2100 ≙ 0,0..+210,0°F
9	**0x0009**	R	**Failure status** 0x00= no failure 0x01= control loop temperature sensor alarm 0x02= external temperature sensor high limit alarm – (cablebreak) 0x04= external temperature sensor low limit alarm – (short circuit) 0x08= change over sensor missing alarm	
10	**0x000A**	R	**External input 1 – terminal 12** 0 = Contact open, 1= Contact closed *(i.e. window contact, dew point sensor)*	0..1
11	**0x000B**	R	**External input 2 – terminal 13** 0 = Contact open, 1= Contact closed *(i.e. OCC Sensor, keycard-switch)*	0..1

	Holding Register					
	Adress		Access	Description	Register value ≙ Value range	Default
General settings	256	0x0100	R/W	**Customer set Device location identification**	0..65535	0
	257	0x0101	R/W	**LCD temperature Unit** 0 =°C | 1=°F (converted values)	0..1	0
	258	0x0102	R/W	**Volume touch sound** 0=Off | 1..5 (Volume)	0..5	5
	259	0x0103	R/W	**Backlight intensity (operation)**	0..100 ≙ 0..100%	80
	260	0x0104	R/W	**Backlight intensity for screen saver**	0..25	20
	261	0x0105	R/W	**Backlight operating delay setting**	1..255 ≙ 1..255 Sec. (on)	15
	262	0x0106	R/W	**Internal Sensor Temperature Offset** (added to meaured value)	-50..50 ≙ -5,0..+5,0 [°C] -250..250 ≙ -25,0..+25,0 [°F]	0
	263	0x0107	R/W	**external Sensor Temperature Offset** (added to meaured value)	-50..50 ≙ -5,0..+5,0 [°C] -250..250 ≙ -25,0..+25,0 [°F]	0
	264	0x0108	R/W	**Display language** 0= german | 1= english | 3= italian	0..3	0
	265	0x0109	R/W	**Individual passwords setting** 001-999 | default=987 | 000 = no password	000..999	987
	266	0x010A	R/W	**External temperature (limiter) sensor high limit** (338=3, for limiter)	-200..1000 ≙ -20,0..+100,0 [°C] 0..2100 ≙ 0,0..+210,0 [°F]	400 / 110
	267	0x010B	R/W	**External temperature (limiter) sensor low limit** (338=3, for limiter)	-200..1000 ≙ -20,0..+100,0 [°C] 0..2100 ≙ 0,0..+210,0 [°F]	0 / 320
	268	0x010C	R/W	**Power failure** 0= keep off after power-on-reset 1= return to last state after power failure 2= switch on after power-on-reset	0..2	1
	269	0x010D	R/W	**Key-lock** Once a locked key is pressed the LOCK symbol shall be displayed and blink twice. 0x00=unlocked 0x01=lock on/off 0x02=lock mode 0x08=lock fan speed 0x10=lock temp settings + / - 0x1F=lock all keystrokes		0
	270	0x010E	R/W	**Display settings** 0b00000001= show setpoint (if no setpoint is shown, keys are locked) 0b00000010= show room temperature 0b00000100 = show valve symbol 0b00001000 = show PI-loop percentage 0bxxx10000 = show room temperature from register **0x205 (touch only)**		15

	Holding Register					
	Adress		Access	Description	Register value ≙ value range	default
Set-point settings	271	0x010F	R/W	**Default Setpoint after Power On Reset**	0..500 ≙ 0,0..+50,0 [°C] 300..1200 ≙ +30,0..+120,0 [°F]	210 / 700
	272	0x0110	R/W	**Setpoint temperature lower limit**	0..500 ≙ 0,0..+50,0 [°C] 300..1200 ≙ +30,0..+120,0 [°F]	160 / 600
	273	0x0111	R/W	**Setpoint temperature upper limit**	0..500 ≙ 0,0..+50,0 [°C] 300..1200 ≙ +30,0..+120,0 [°F]	300 / 860
	274	0x0112	R/W	**Setpoint increment/decrement value**	1..100 ≙ 0,1..10,0 [°C] 1..500 ≙ 0,1..50,0 [°F]	5 / 10
	275	0x0113	R/W	**ECO mode temperature setpoint cooling**	250..450 ≙ +25,0..45,0 [°C] 750..1100 ≙ +75,0..110,0 [°F]	300 / 860
	276	0x0114	R/W	**ECO mode temperature setpoint heating**	120..240 ≙ +12,0..24,0 [°C] 50..750 ≙ +5,0..75,0 [°F]	190 / 660

	Holding Register					
	Adress		Access	Description	Register value ≙ Value range	default.
PI-controller	277	0x0115	R	**Controller mode Comfort:** 0b0000 0000= Controller off (frost protection active*, LCD off)* 0b0000 0001= Controller auto mode *(heating & cooling)* 0b0000 0010= Controller heating mode only 0b0000 0011= Controller cooling mode only 0b0000 0100= ventilating *(PI-loop controls fan stages only, valves closed)* **Regler-Modus ECO:** 0b0001 0000= Controller off *(Frost protection active)* 0b0001 0001= Controller auto mode *(heating&cooling)* 0b0001 0010= Controller heating mode only 0b0001 0011= Controller cooling mode only 0b0001 0100= ventilating *(PI-loop controls fan stages only, valves closed)*		1
	278	0x0116	R/W	**Fancoil Typ: 2- or 4-pipe** 0b00000000=2-pipe: cooling + heating with change over 0b00000001=4-pipe: cooling + heating / (or if 6WV used) 0b000000xx=symbol not shown 0b000001xx=symbol shown		1
	279	0x0117	R/W	**Fan stages and operation modes** 0b00000000 = none *(fan key is locked, the fan symbol will be faded on the LCD)* 0bxxxx0001 = 1 fan stage 0bxxxx0010 = 2 fan stages 0bxxxx0011 = 3 fan stages 0b0001xxxx = During heating mode fan is disabled 0b0010xxxx = During cooling/ventilation mode fan is disabled 0b0011xxxx = during heating/ cooling mode fan is disabled		3
	280	0x0118	R/W	**Start fan at highest stage for (_) seconds**	0..60 ≙ 0..60 Sek.	0
	281	0x0119	R/W	**Fan OFF-Delay** 0= fan never stops 1..255 ≙ 1..255 Min after valve closing fan stops for .. minutes.		15
	282	0x011A	R/W	**PWM** 0 = for 2 point controller (i.e. for **electrical heater**) 1…255 ≙ 1…255 minutes **PWM-cycle time**		15
	283	0x011B	R/W	**Deadband**	1..100 ≙ 0,1..10,0 [°C]	10
	284	0x011C	R/W	**Heating Proportional Band Xp_heat**	1..100 ≙ 0,1..10,0 [°C]	20
	285	0x011D	R/W	**Heating Integration Time Tn_heat**	0..255 ≙ 0..255 Minuten	30
	286	0x011E	R/W	**Cooling Proportional Band Xp_cool**	1..100 ≙ 0,1..10,0 [°C]	20
	287	0x011F	R/W	**Cooling Integration Time Tn_cool**	0..255 ≙ 0..255 Minuten	30
	288	0x0120	R/W	**Minimal limit of the control variable heat**	0..100 ≙ 0..100 %	0
	289	0x0121	R/W	**Maximal limit of the control variable heat**	0..100 ≙ 0..100 %	100
	290	0x0122	R/W	**Minimal limit of the control variable cool**	0..100 ≙ 0..100 %	0
	291	0x0123	R/W	**Maximal limit of the control variable cool**	0..100 ≙ 0..100 %	100
	292	0x0124	R/W	**Fan stage 1 ON threshold control variable heat**	0..100 ≙ 0..100 %	5
	293	0x0125	R/W	**Fan stage 2 ON threshold control variable heat**	0..100 ≙ 0..100 %	35
	294	0x0126	R/W	**Fan stage 3 ON threshold control variable heat**	0..100 ≙ 0..100 %	70
	295	0x0127	R/W	**Fan stage 1 ON threshold control variable cool**	0..100 ≙ 0..100 %	5
	296	0x0128	R/W	**Fan stage 2 ON threshold control variable cool**	0..100 ≙ 0..100 %	35
	297	0x0129	R/W	**Fan stage 3 ON threshold control variable cool**	0..100 ≙ 0..100 %	70
	298	0x012A	R/W	**Frost protection temperature threshold**	50..150 ≙ +5,0..+15,0 °C 400..600 ≙ +40,0..+60,0 °F	70/ 450
	299	0x012B	R/W	**Change-Over Temperature Threshold for Heating**	0..500 ≙ 0..+50,0 °C 300..1200 ≙ +30,0..+120,0 °F	300/ 860
PI-controller	300	0x012C	R/W	**Change-Over Temperature Threshold for Cooling** *(In case temperature is in between both thresholds the last state will be maintained)*	0..500 ≙ 0..+50,0 °C 300..1200 ≙ +30,0..+120,0 °F	190/ 660
	301-303			**Reserved**		
	304	0x0130	R/W	**Valve type selection, heating + cooling** 0 = 2-p.-3-p.-controller / ON-OFF | ON ≙ Valve open, OFF ≙ Valve closed 1 = PI-controller PWM | 0..100 ≙ 0-100%PWM 2 = 2-p.-3-p.-controller / OFF-ON | OFF ≙ Valve open, ON ≙ Valve closed 3 = PI-controller inverted PWM | 0%= 100%PWM .. 100% = 0% PWM 4= proportional (0V = 0% ..10V = 100%) 5= invers proportional (0V = 100% ..10V = 0%) 6= proportional Belimo 6 way 7= proportional Sauter 6 way with Ø15mm 8= proportional Sauter 6 way with Ø20mm 9= proportional Belimo 6 way, counter direction 10= proportional Sauter 6 way with Ø15mm, counter direction 11= proportional Sauter 6 way with Ø20mm, counter direction 12= no valve		4

	Holding Register					
	Adress		Access	Description	Register value ≙ Value range	default
Inputs	**336**	**0x0150**	R/W	**Configuration external input 1, terminal 12** 0 = no function 1 = Occupancy sensor (Open = Occupied) 2 = Occupancy sensor (Closed =Occupied) 3 = Window contact (Closed = Window Open) 4 = Window contact (Open = Window Open) 5 = Disable heating (Open = Heating disabled) 6 = Disable heating (Closed = Heating disabled) 7 = Disable cooling (Open = Disable Cooling) 8 = Disable cooling (Closed = Disable Cooling) 9 = Dew Point Sensor (Open = Dewpoint crossed, disable cooling) 10 = Dew Point Sensor (Closed = Dewpoint crossed, disable cooling)		0
	337	**0x0151**	R/W	**Configuration external input 2, terminal 13** 0 = No function 1 = Occupancy sensor (Open = Occupied) 2= Occupancy sensor (Closed =Occupied) 3 = Window contact (Closed = Window Open) 4 = Window contact (Open = Window Open) 5 = Disable heating (Open = Heating disabled) 6 = Disable heating (Closed = Heating Disabled) 7 = Disable cooling (Open = Disable Cooling) 8 = Disable cooling (Closed = Disable Cooling) 9 = Dew Point Sensor (Open = Dewpoint crossed, disable cooling) 10 = Dew Point Sensor (Closed = Dewpoint crossed, disable cooling)		0
	338	**0x0152**	R/W	**Configuration Sensor Input** 0 = none connected 1 = Change-Over Temp sensor (NTC10K) 2 = Ext. temp sensor (NTC10K) 3 = Temperature limiter		0
	339	**0x0153**	R/W	**ESI (Energy Savings Input) – ON delay** ON delay for ESI. Delays Energy stop by n seconds.	[s]	0
	340	**0x0154**	R/W	**Occupation (OCC-input) – OFF- delay**	0…65535 ≙ 0…65535 [s]	1800

	Holding Register					
	Adress		Access	Description	Register value ≙ Value range	default
Sensor values Humidity / CO2	**350**	**0x015E**	R	**Measured value of the integrated Humidity - sensor**	0..100 ≙ 0..100 [%rH]	
	351	**0x015F**	R/W	**Humidity Offset**	-50 .. +50 ≙ -50 .. +50 [%rH]	0
	354	**0x0162**	R/W	**Ambient pressure for CO2-compensation**	970 hPa ≙ 97 kPa	100
	355	**0x0163**	R	**Measured value oft he integrated CO2-sensor**	0..5000 ≙ 0..5000 [ppm]	
	356	**0x0164**	R/W	**CO2 offset**	-1000 .. +1000 ≙ -1000 .. +1000 [ppm]	0
	357	**0x0165**	R/W	**TLF threshold value yellow**	0..5000 ≙ 0..5000 [ppm] 0 = deactivated	750
	358	**0x0166**	R/W	**TLF threshold value red**	0..5000 ≙ 0..5000 [ppm]	1250
	359	**0x0167**	R/W	**TLF LED brightness**	0..100 ≙ 0..100 [%]	80

	Holding Register					
	Adress		Access	Description	Register value ≙ Value range	default
Analog Output (AO1) terminal 11	**360**	**0x0168**	R/W	AO1 Function	0=Deactivated / External override 1=EC-fan 2=CO2 sensor value 3=CO2 controller 4=6 way valve 5=6 way valve with digital input changeover (connected with cooling valve DO) 6=Cooling valve	0
	361	**0x0169**	R/W	AO1 value	0..1000 ≙ 0..10V /Override if register 360 = 0	
	362	**0x016A**	R/W	AO1 heating voltage 0% (6 way valve)	0..1000 ≙ 0..10V	0
	363	**0x016B**	R/W	AO1 heating voltage 100% (6 way valve)	0..1000 ≙ 0..10V	1000
	364	**0x016C**	R/W	AO1 cooling voltage 0% (6 way valve)	0..1000 ≙ 0..10V	0
	365	**0x016D**	R/W	AO1 cooling voltage 100% (6 way valve)	0..1000 ≙ 0..10V	1000
	366	**0x016E**	R/W	AO1 CO2 controller minimum voltage	0..1000 ≙ 0..10V	0
	367	**0x016F**	R/W	AO1 CO2 controller maximum voltage	0..1000 ≙ 0..10V	1000
	368	**0x0170**	R/W	AO1 controller minimal value	Register 360 = 3: 0..100 ≙ 0..100% Register 360 = 2: 0..5000 ≙ 0..5000ppm	0
	369	**0x0171**	R/W	AO1 controller maximal value	Register 360 = 3: 0..100 ≙ 0..100% Register 360 = 2: 0..5000 ≙ 0..5000ppm	100 / 2000
	370	**0x0172**	R/W	AO1 Live Zero configuration	0 = Live Zero deactivated 1 = Live Zero AO 1..10V 2 = Live Zero AO 2..10V	
	380	**0x017C**	R/W	DO Changeover (register 360 = 5)	0 = DO Normal (heating: closed, cooling: open) 1 = DO Invertiert (heating: open, cooling: closed)	0

	Holding Register					
	Adress		Access	Description	Register value ≙ Value range	default
Timer	**400**	**0x0190**	R/W	**Clock mode configuration** 0=Don't show time in LCD | 1=12h mode | 2=24h mode	0..2	2
	401	**0x0191**	R/W	**Weekday configuration** 0=OFF | 1=ON	0..1	1
	402	**0x0192**	R/W	**Automatic Summer/winter time** 0=OFF 1=EU automatic (last Sunday in March (+1h) - last Sunday in October (-1h) 2=US automatic (2nd Sunday in March (+1h) - 1st Sunday in November (-1h) 3=AUS automatic (First Sunday in October (+1h) - 1st Sunday in April (-1h) 4=BR aurtomatic (First Sunday in November (+1h) - Third Sunday in February (-1h) 5=CHL automatic (Second Sunday in August (+1h) - Second Sunday May (-1h) 6=ISR (Friday before last Sunday in March + 1h) - Last Sunday in October (-1h) 7=MEX (First Sunday in April (+1h) - Last Sunday in October (-1) The time is switched 2.00 am -> 3.00 am and 3.00 am -> 2.00 am		1
	403	**0x0193**	R/W	**Time channel A weekdays** 0bxxxxxxx1 Bit0: Monday 0bxxxxxx1x Bit1: Tuesday 0bxxxxx1xx Bit2: Wednesday 0bxxxx1xxx Bit3: Thursday 0bxxx1xxxx Bit4: Friday 0bxx1xxxxx Bit5: Saturday 0bx1xxxxxx Bit6: Sunday		0
	404	**0x0194**	R/W	**Time channel A period 1: Start time hour**	0..23 ≙ 0 – 23h	0
	405	**0x0195**	R/W	**Time channel A period 1: Start time minute**	0..59 ≙ 0 – 59m	0
	406	**0x0196**	R/W	**Time channel A period 1: Set point**	0..500 ≙ 0..50,0°C 300..1200 ≙ +30,0..+120,0°F	210/ 700
	407	**0x0197**	R/W	**Time channel A period 1: ECO mode** 0b00000001= Comfort | 0b00010001=ECO		1
	408	**0x0198**	R/W	**Time channel A period 2: Start time hour**	0..23 ≙ 0 – 23h	0
	409	**0x0199**	R/W	**Time channel A period 2: Start time minute**	0..59 ≙ 0 – 59m	0
	410	**0x019A**	R/W	**Time channel A period 2: Set point**	0..500 ≙ 0..50,0°C 300..1200 ≙ +30,0..+120,0°F	210/ 700
	411	**0x019B**	R/W	**Time channel A period 2: ECO mode** 0b00000001=Comfort | 0b00010001=ECO		1
	412	**0x019C**	R/W	**Time channel A period 3: Start time hour**	0..23 ≙ 0 – 23h	0
	413	**0x019D**	R/W	**Time channel A period 3: Start time minute**	0..59 ≙ 0 – 59m	0
	414	**0x019E**	R/W	**Time channel A period 3: Set point**	0..500 ≙ 0..50,0°C 300..1200 ≙ +30,0..+120,0°F	210/ 700
	415	**0x019F**	R/W	**Time channel A period 3: ECO mode** 0b00000001=Comfort | 0b00010001=ECO		1
	416	**0x01A0**	R/W	**Time channel A period 4: Start time hour**	0..23 ≙ 0 – 23h	0
	417	**0x01A1**	R/W	**Time channel A period 4: Start time minute**	0..59 ≙ 0 – 59m	0
	418	**0x01A2**	R/W	**Time channel A period 4: Set point**	0..500 ≙ 0..50,0°C 300..1200 ≙ +30,0..+120,0°F	210/ 700
	419	**0x01A3**	R/W	**Time channel A period 4: ECO mode** 0b00000001=Comfort | 0b00010001=ECO		1

	Holding Register					
	Adress		Access	Description	Register value ≙ value range	default
Timer	420	0x01A4	R/W	**Time channel B weekdays** 0bxxxxxxx1 Bit0: Monday 0bxxxxxx1x Bit1: Tuesday 0bxxxxx1xx Bit2: Wednesday	0bxxxx1xxx Bit3: Thursday 0bxxx1xxxx Bit4: Friday 0bxx1xxxxx Bit5: Saturday 0bx1xxxxxx Bit6: Sunday	0
	421	0x01A5	R/W	**Time channel B period 1: Start time hour**	0..23 ≙ 0 – 23h	0
	422	0x01A6	R/W	**Time channel B period 1: Start time minute**	0..59 ≙ 0 – 59m	0
	423	0x01A7	R/W	**Time channel B period 1: Set point**	0..500 ≙ 0..50,0°C 300..1200 ≙ +30,0..+120,0°F	210/ 700
	424	0x01A8	R/W	**Time channel B period 1: ECO mode** 0b00000001=Comfort | 0b00010001=ECO		0
	425	0x01A9	R/W	**Time channel B period 2: Start time hour**	0..23 ≙ 0 – 23h	0
	426	0x01AA	R/W	**Time channel B period 2: Start time minute**	0..59 ≙ 0 – 59m	0
	427	0x01AB	R/W	**Time channel B period 2: Set point**	0..500 ≙ 0..50,0°C 300..1200 ≙ +30,0..+120,0°F	210/ 700
	428	0x01AC	R/W	**Time channel B period 2: ECO mode** 0b00000001=Comfort | 0b00010001=ECO		0
	429	0x01AD	R/W	**Time channel B period 3: Start time hour**	0..23 ≙ 0 – 23h	0
	430	0x01AE	R/W	**Time channel B period 3: Start time minute**	0..59 ≙ 0 – 59m	0
	431	0x01AF	R/W	**Time channel B period 3: Set point**	0..500 ≙ 0..50,0°C 300..1200 ≙ +30,0..+120,0°F	210/ 700
	432	0x01B0	R/W	**Time channel B period 3: ECO mode** 0b00000001=Comfort | 0b00010001=ECO		0
	433	0x01B1	R/W	**Time channel B period 4: Start time hour**	0..23 ≙ 0 – 23h	0
	434	0x01B2	R/W	**Time channel B period 4: Start time minute**	0..59 ≙ 0 – 59m	0
	435	0x01B3	R/W	**Time channel B period 4: Set point**	0..500 ≙ 0..50,0°C 300..1200 ≙ +30,0..+120,0°F	210/ 700
	436	0x01B4	R/W	**Time channel B period 4: ECO mode** 0b00000001=Comfort | 0b00010001=ECO		0
	437	0x01B5	R/W	**Time channel C weekdays** 0bxxxxxxx1 Bit0: Monday 0bxxxxxx1x Bit1: Tuesday 0bxxxxx1xx Bit2: Wednesday 0bxxxx1xxx Bit3: Thursday 0bxxx1xxxx Bit4: Friday 0bxx1xxxxx Bit5: Saturday 0bx1xxxxxx Bit6: Sunday		0
	438	0x01B6	R/W	**Time channel C period 1: Start time hour**	0..23 ≙ 0 – 23h	0
	439	0x01B7	R/W	**Time channel C period 1: Start time minute**	0..59 ≙ 0 – 59m	0
	440	0x01B8	R/W	**Time channel C period 1: Set point**	0..500 ≙ 0..50,0°C 300..1200 ≙ +30,0..+120,0°F	210/ 700
	441	0x01B9	R/W	**Time channel C period 1: ECO mode** 0b00000001=Comfort | 0b00010001=ECO		0
	442	0x01BA	R/W	**Time channel C period 2: Start time hour**	0..23 ≙ 0 – 23h	0
	443	0x01BB	R/W	**Time channel C period 2: Start time minute**	0..59 ≙ 0 – 59m	0
	444	0x01BC	R/W	**Time channel C period 2: Set point**	0..500 ≙ 0..50,0°C 300..1200 ≙ +30,0..+120,0°F	210/ 700
	445	0x01BD	R/W	**Time channel C period 2: ECO mode** 0b00000001=Comfort | 0b00010001=ECO		0
	446	0x01BE	R/W	**Time channel C period 3: Start time hour**	0..23 ≙ 0 – 23h	0
	447	0x01BF	R/W	**Time channel C period 3: Start time minute**	0..59 ≙ 0 – 59m	0
	448	0x01C0	R/W	**Time channel C period 3: Set point**	0..500 ≙ 0..50,0°C 300..1200 ≙ +30,0..+120,0°F	210/ 700
	449	0x01C1	R/W	**Time channel C period 3: ECO mode** 0b00000001=Comfort | 0b00010001=ECO		0
	450	0x01C2	R/W	**Time channel C period 4: Start time hour**	0..23 ≙ 0 – 23h	0
	451	0x01C3	R/W	**Time channel C period 4: Start time minute**	0..59 ≙ 0 – 59m	0
	452	0x01C4	R/W	**Time channel C period 4: Set point**	0..500 ≙ 0..50,0°C 300..1200 ≙ +30,0..+120,0°F	210/ 700
	453	0x01C5	R/W	**Time channel C period 4: ECO mode** 0b00000001=Comfort | 0b00010001=ECO		0

	Holding Register					
	Adress		Access	Description	Register value ≙ Value range	default
Timer	**454**	**0x01C6**	R/W	**Active Time Channel** 0bxABC1234 with binary value = 1 *for active channel*	*(i.e. 0x01000100 = A-2)*	0
	464	**0x01D0**	R/W	**Make next day(s) holiday** 0bxxx00000= None 0bxxx00001 …0bxxx11111 days of holidays (next n-days (starting next 0:00) forces the coming 1...31 days to be treated as the day specified by the 3 MSB. Does overwrite the calender. 0b000xxxxx = use ECO setting 0b001xxxxx = set day = Mo 0b010xxxxx = set day = Tu 0b011xxxxx = set day = Wed 0b100xxxxx = set day = Thu 0b101xxxxx = set day = Fr 0b110xxxxx = set day = Sat 0b111xxxxx = set day = Sun		0

	Holding Register					
	Adress		Access	Description	Register value ≙ value range	default
Realtime Clock	**496**	**0x01F0**	R/W	**system time year**	2000..2099	2019
	497	**0x01F1**	R/W	**system time month**	1..12	1
	498	**0x01F2**	R/W	**system time day**	1..31	1
	499	**0x01F3**	R/W	**system time hour**	0..23	0
	500	**0x01F4**	R/W	**system time minute**	0..59	0
	501	**0x01F5**	R/W	**system time seconds**	0..59	0

	Holding Register (operation to override FC from modbus)					
	Adress		Access	description	Register value ≙ Value range	default
Special	**512**	**0x0200**	R/W	**Active fan speed setting** 0b00000000 = OFF 0b00000001 = Stage low 0b00000010 = Stage medium 0b00000100 = Stage high	0b00001000 = Auto OFF 0b00001001 = Auto low 0b00001010 = Auto medium 0b00001100 = Auto high	0
	513	**0x0201**	R/W	**setpoint temperature**	0..500 ≙ 0..+50,0 [°C] 300..1200 ≙ +30..+120,0 [°F]	0
	514	**0x0202**	R/W	**Controller mode Comfort:** 0b0000 0000= controller off *(Frost protection active)* 0b0000 0001= controller auto mode *(heating + cooling)* 0b0000 0010= controller heating mode only 0b0000 0011= controller cooling mode only 0b0000 0100=ventilating only *(PI loop controls fan stages only, valves closed)* **Controller mode ECO:** 0b0001 0000= controller off *(Frost protection active)* 0b0001 0001= controller auto mode *(heating + cooling)* 0b0001 0010= controller heating mode only 0b0001 0011= controller cooling mode only 0b0001 0100= ventilation only *(PI loop controls fan stages only, valves closed)* **HMI mode** 0b1xxx xxxx = HMI Mode, controller OFF 0b1xxx xx01 = show symbol "ventilating" 0b1xxx xx10 = show symbol "heating" 0b1xxx xx11 = show symbol "cooling" 0b1xxx x1xx = show symbol "AUTO mode" 0b1xxx x110 = show "AUTO + heating" symbol 0b1xxx x111 = show "AUTO + cooling" symbol 0b1xxx x101 = show "AUTO + ventilating" symbol 0b1xxx 1xxx = reserved		0
	515	**0x0203**	R/W	**Active symbols** 0x00= show none 0x01= show ECO-leaf 0x02= show dew point 0x04= show frost protect 0x08= show window open	0x10= show attention symbol 0x20= show hourglas 0x40= show lock -symbol 0x80= show ECO-writing	0
	516	**0x0204**	R/W	**Control Variable Y% (HMI Mode)** If output is 2-point, output will be ON for control variable >5%	0..100	
	517	**0x0205**	R/W	**Room temperature on LCD (HMI Mode)**	0..500 ≙ 0..+50,0 [°C]	
	519	**0x0207**	R/W	**Automatic Self Calibration CO_2** 0x00 = deactivated | 0x01 = activated	0..1	0

» MOUNTING ADVICE/ DIMENSIONS (MM)

For installing or maintenance, please make sure the power is disconnected. Fix the thermostat base plate to the wall through the four screw holes with distance between axes of 60 mm. Fasten base plate and front cover. Do not press the panel in order to protect LCD.