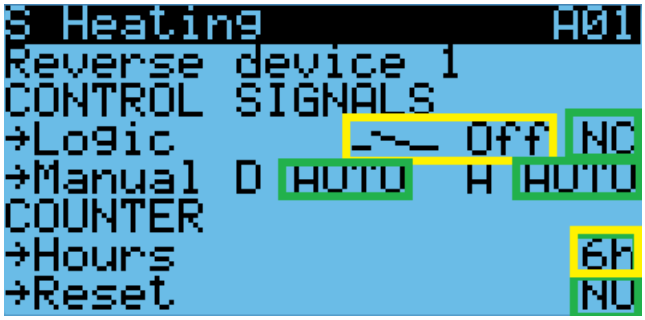
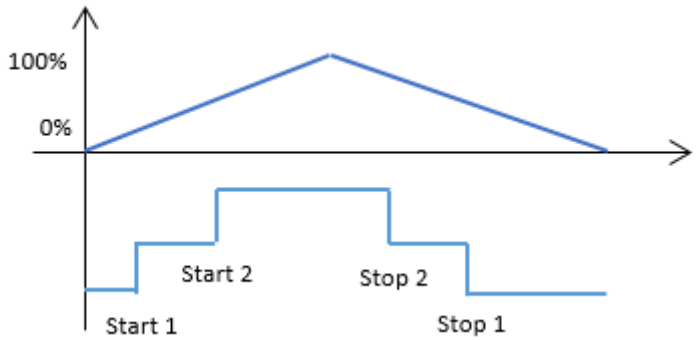
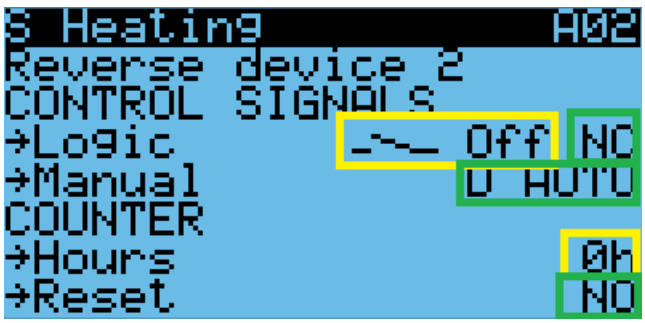
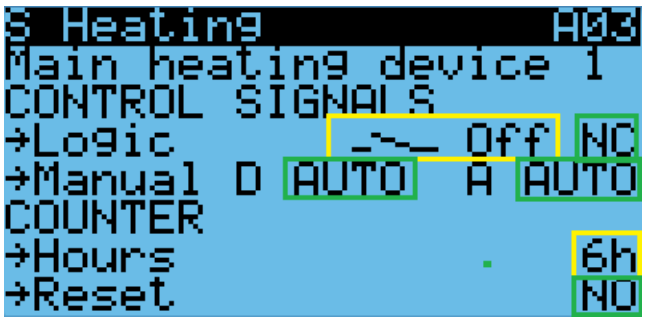
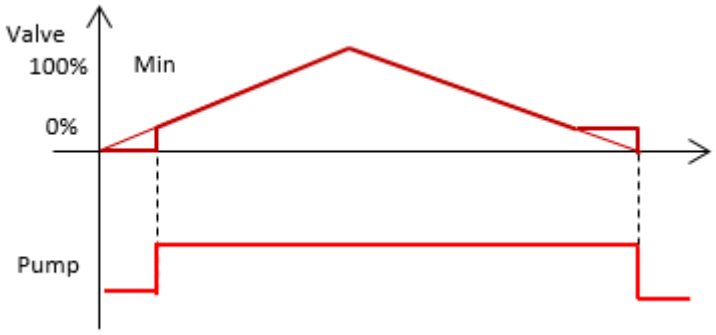
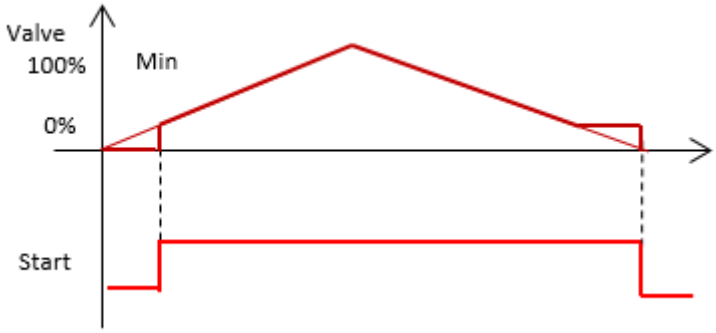
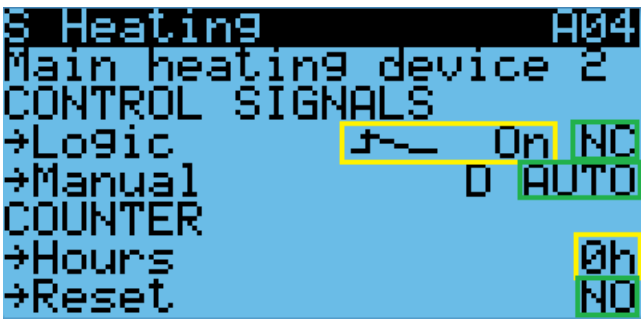
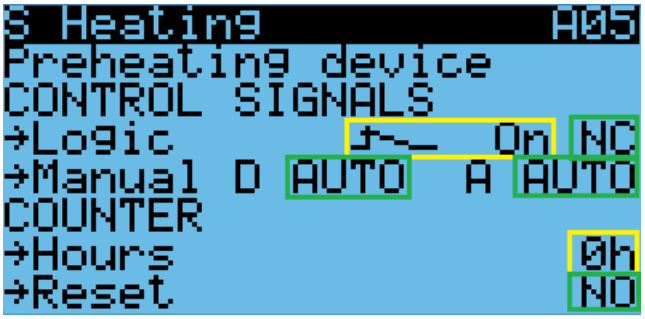
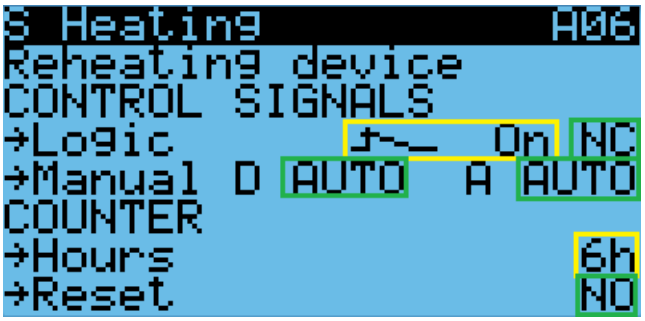
VENTUS uPC3 CONTROLLER SCREENS DESCRIPTION

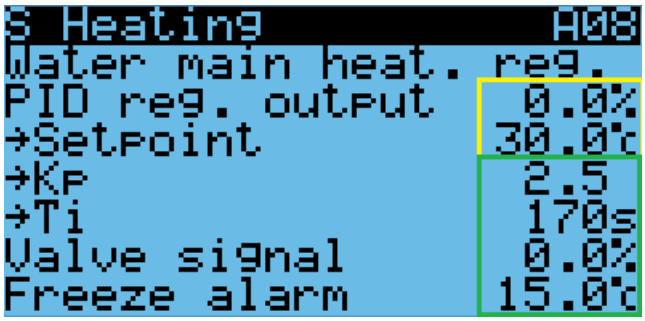
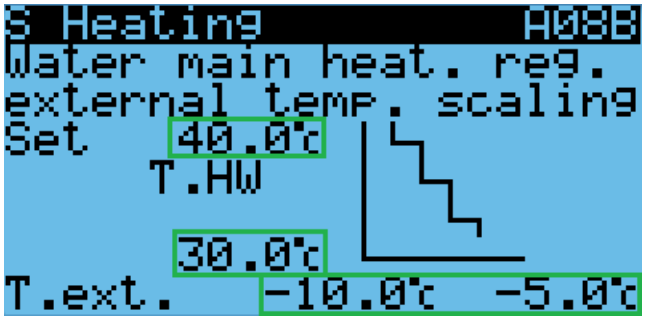
VENTUS uPC3 Screen Description Ver. 1.0.5

uPC3 SCREENS DESCRIPTION

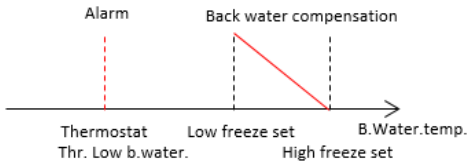
No	Screen view	Description
A01		• **„Logic”** – type of the logic used in the first stage of the reverse heater (NO / NC) • **„Manual D”** – manual setting of the 0/1 value to the digital output responsible for the permission to work of the first stage of reverse heater • **„Manual A”** – manual setting of 0-100% value to the analog output responsible for the level of control of the first stage of the reverse heater • **„Hours”** – operation time counter for the first stage of the reverse heater • **„Reset”** – resetting the operation time counter for the first stage of the reverse heater
	Regulation – DX heater 	
A02		• **„Logic”** – type of the logic used in the second stage of the reverse heater (NO / NC) • **„Manual D”** – manual setting of the 0/1 value to the digital output responsible for the permission to work of the second stage of reverse heater • **„Hours”** – operation time counter for the second stage of the reverse heater • **„Reset”** – resetting the operation time counter for the second stage of the reverse heater

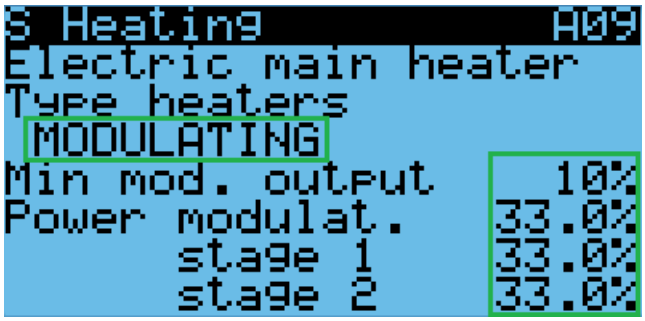
A03		• **„Logic”** – type of the logic used in the first stage of the main heater (NO / NC) • **„Manual D”** – manual setting of the 0/1 value to the digital output responsible for the permission to work of the first stage of main heater • **„Manual A”** – manual setting of 0-100% value to the analog output responsible for the level of control of the first stage of the main heater • **„Hours”** – operation time counter for the first stage of the main heater • **„Reset”** – resetting the operation time counter for the first stage of the main heater
Regulation – water heater 		
Regulation – gas heater 		
A04		• **„Logic”** – type of the logic used in the second stage of the main heater (NO / NC) • **„Manual D”** – manual setting of the 0/1 value to the digital output responsible for the permission to work of the second stage of main heater • **„Hours”** – time counter for the second stage of the main heater • **„Reset”** – resetting the operation time counter for the second stage of the main heater

A05		• **„Logic”** – type of the logic used in the preheater (NO / NC) • **„Manual D”** – manual setting of the 0/1 value to the digital output responsible for the permission to work of the preheater • **„Manual A”** – manual setting of 0-100% value to the analog output responsible for the level of control of the preheater • **„Hours”** – operation time counter for the preheater • **„Reset”** – resetting the operation time counter for the preheater
A06		• **„Logic”** – type of the logic used in the reheater (NO / NC) • **„Manual D”** – manual setting of the 0/1 value to the digital output responsible for the permission to work of the reheater • **„Manual A”** – manual setting of 0-100% value to the analog output responsible for the level of control of the reheater • **„Hours”** – operation time counter for the reheater • **„Reset”** – resetting the operation time counter for the reheater
A07		• **„Cool / Heat”** – the current control level of the PID regulator of the reverse device • **„Kp”** – main heater PID gain factor • **„Ti”** – main heater PID doubling time • **„Power minimum”** – minimum control level of the regulator from which the main heater starts • **„Power maximum”** – maximum control level of the regulator with which the main heater can operate

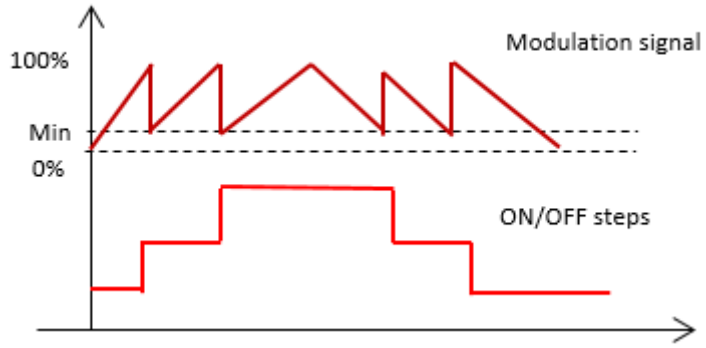
A08		• **„PID regulator output”** – the current control level of the PID regulator of the anti-freeze protection of the water heater • **„Setpoint”** – temperature setting of the return medium from the water heater (sensor B5) for anti-freeze protection • **„Kp”** – anti-freeze protection of the water heater PID gain factor • **„Ti”** – anti-freeze protection of the water heater PID doubling time • **„Valve setpoint”** – the control voltage of the water heater valve actuator, which corresponds to the zero adjustment level (e.g. for 2-10V controlled actuators, set 20% so that 0% of the controller output signal corresponds to 2V of the control voltage) • **„Freeze alarm”** – temperature of the return medium from the water heater, below which the alarm (A249) is activated **[PID regulator of the heating medium protection is available for water heaters equipped with a strap sensor - in the case of its absence it is replaced by a mechanical thermostat "frost"]**
A08B		• **„Heater temperature setpoint”** – range of the temperature of the return water from the heater (sensor B5), which we want to maintain depending on the current outside temperature • **„Temperature external”** – external temperature range (sensor B3), depending on which we want to maintain the selected temperature range of the return water from the heater (after the external temperature drops below its lower threshold, the return water temperature will still be maintained at its set upper threshold - the situation will be similar when the upper threshold of external temperature is exceeded)

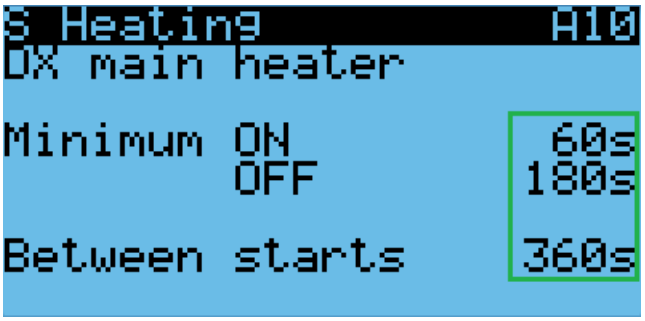
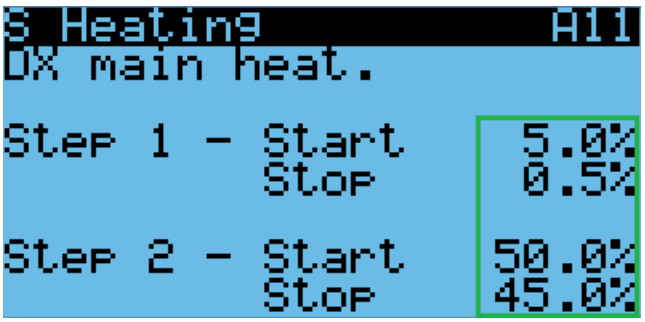
Heater valve operation compensation from the return water temperature

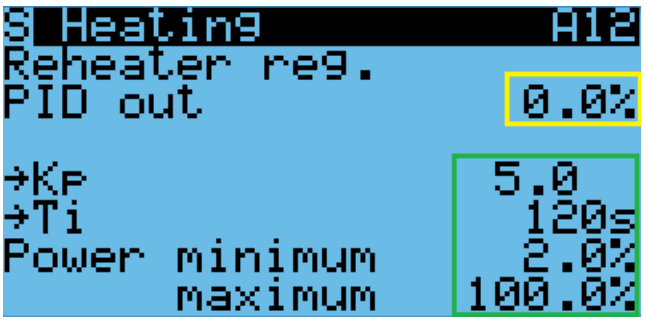
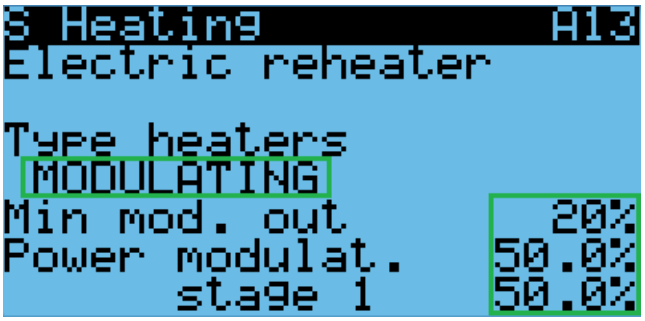


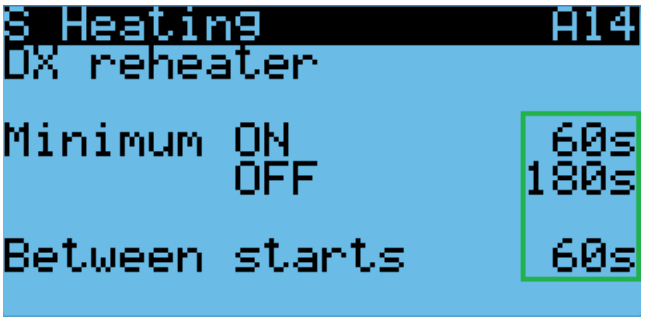
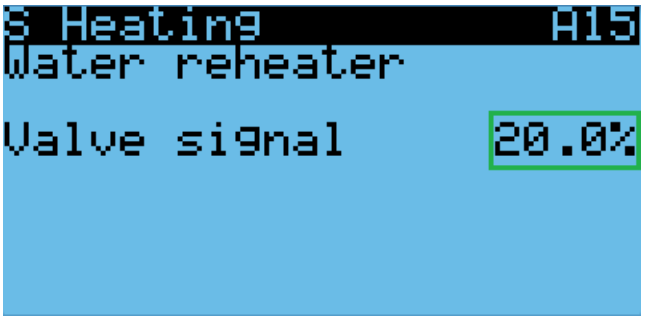
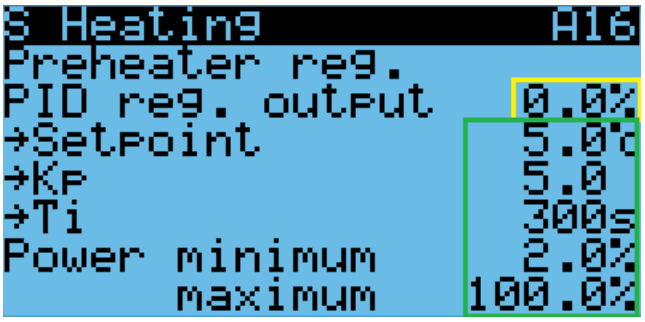
A09		• **„Type heaters”** – control type of the main electric heater - the start permission for the stage smoothly controlled by PWM is the signal from the pressure switch and thermostat, for the first stage (ON / OFF) - the signal from the first relay, for the second stage (ON / OFF) - the signal from the second relay • **„Minimum modulating output”** – the minimum control level of the regulator from which the main heater starts • **„Power modulated**” – the share of the power of the stage smoothly controlled by PWM in the total power of the main heater • **„Stage 1”** – the share of the power of the first stage (ON / OFF) in the total power of the main heater • **„Stage 2”** – the share of the power of the second stage (ON / OFF) in the total power of the main heater **[if one of the heater stages is not present in the AHU, set it to 0% - the 100% should be separated according to the power of the present stages]** **[for the AHU with a modulated heater stage only, a start signal is available in the controller, but its connection is not obligatory - its role is taken over by the activation signal from the pressure switch and thermostat]**

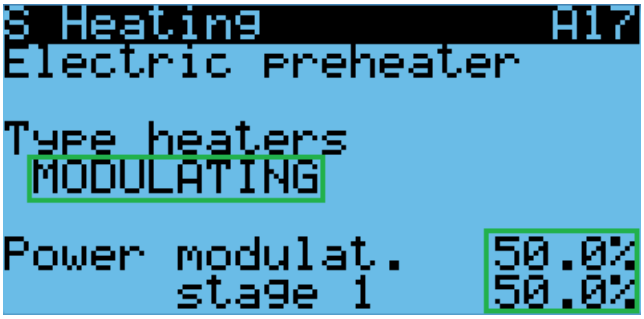
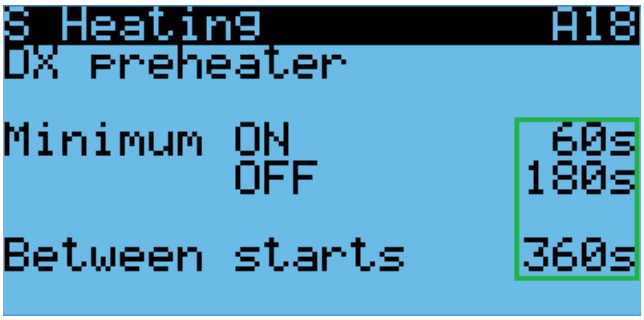
Regulation – electric heater

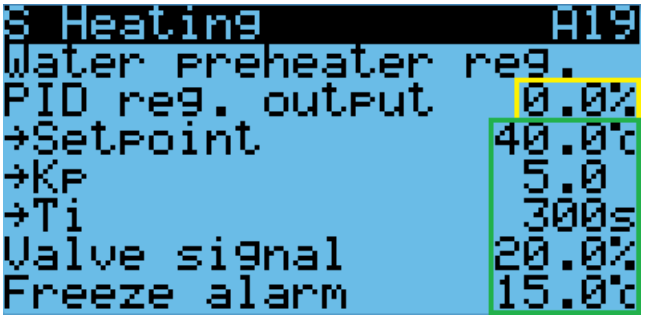
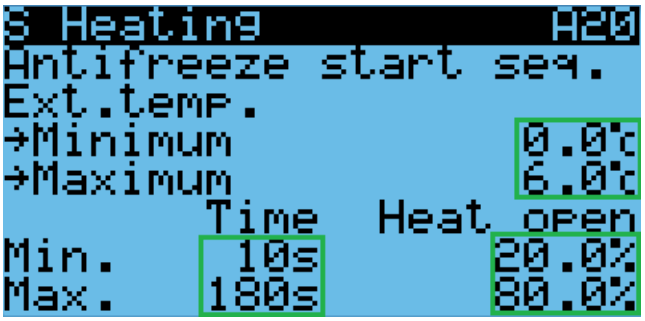


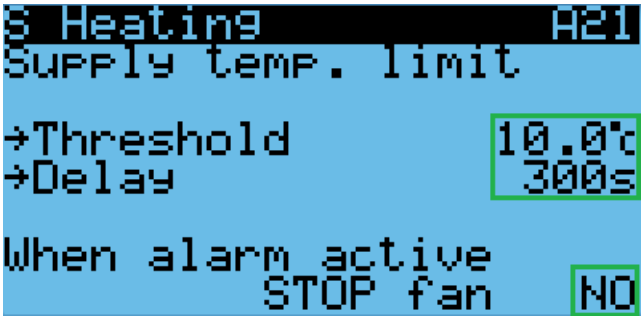
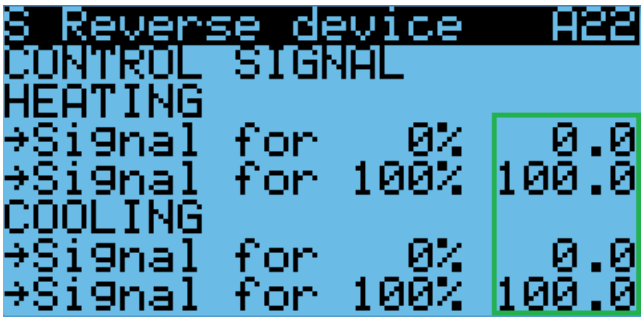
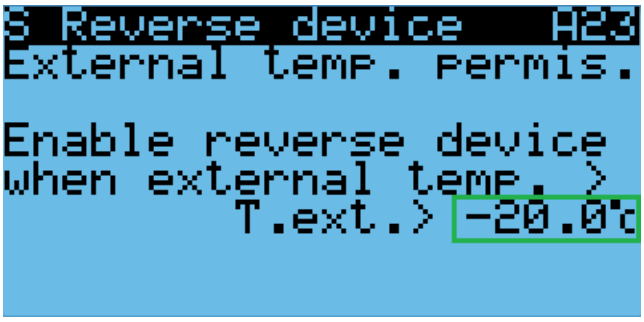
A10		• **„Minimum ON"** – the minimum time the main DX heater is to remain on after it is turned on • **„Minimum OFF"** – the minimum time the main DX heater is to remain off after it has been turned of • **„Between starts"** – the minimum time between activations of the main DX heater
A11		• **„Step 1 - Start"** – minimum control level of the regulator from which the first stage of the DX heater starts, if it was turned off • **„Step 1 - Stop"** – control level of the regulator, which turns off the first stage of the DX heater, if it was turned on • **„Step 2 - Start"** – minimum control level of the regulator from which the second stage of the DX heater starts, if it was turned off • **„Step 2 - Stop"** – control level of the regulator, which turns off the second stage of the DX heater, if it was turned on

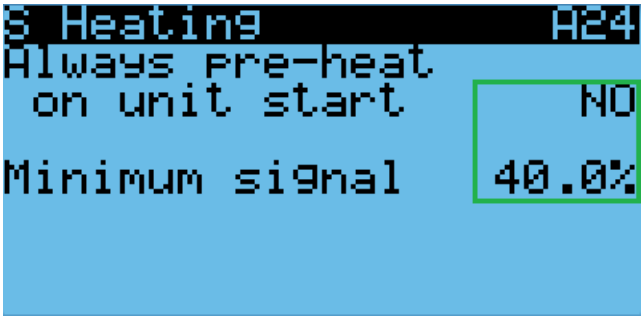
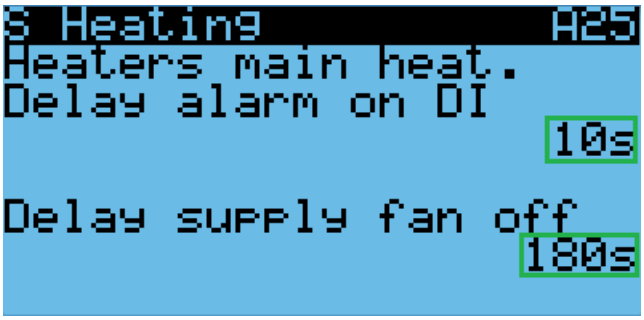
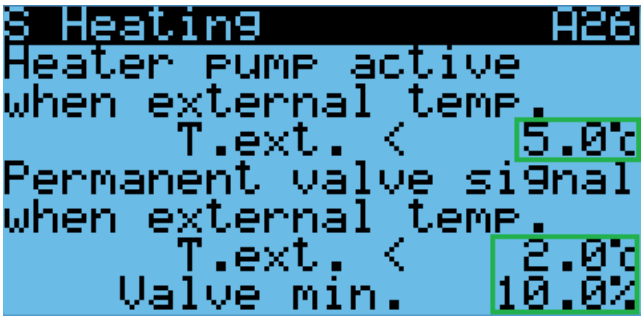
A12		• **„PID regulator output”** – current control level of the PID regulator of the reheater • **„Kp”** – reheater PID gain factor • **„Ti”** – reheater PID doubling time • **„Power minimum”** – the minimum control level of the regulator, which starts the reheater • **„Power maximum”** – the maximum control level of the regulator with which the reheater can work
A13		• **„Type heaters”** – control type of the electric reheater - the start permission for the stage smoothly controlled by PWM is the signal from the pressure switch and thermostat, for the first stage (ON / OFF) - the signal from the first relay • **„Minimum modulating output”** – the minimum control level of the regulator from which the reheater starts • **„Power modulated”** – the share of the power of the stage smoothly controlled by PWM in the total power of the reheater • **„Stage 1”** – the share of the power of the first stage (ON / OFF) in the total power of the reheater **[if one of the heater stages is not present in the AHU, set it to 0% - the 100% should be separated according to the power of the present stages]** **[for the AHU with a modulated heater stage only, a start signal is available in the controller, but its connection is not obligatory - its role is taken over by the activation signal from the pressure switch and thermostat]**

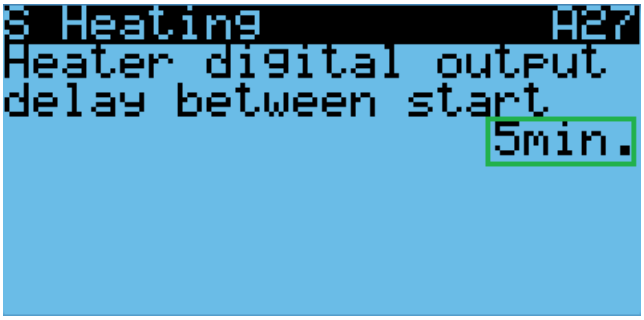
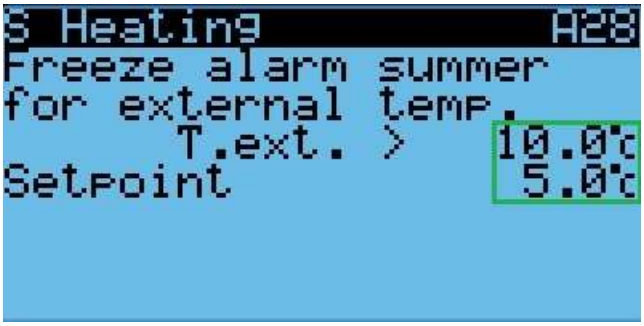
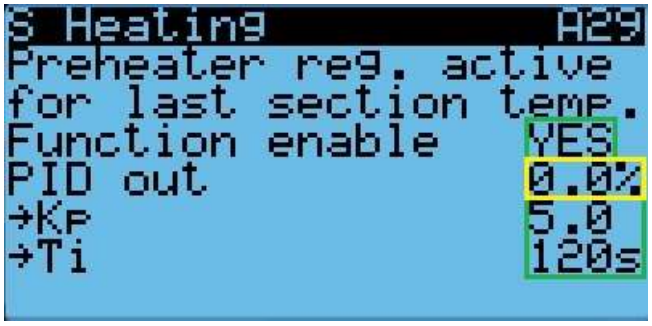
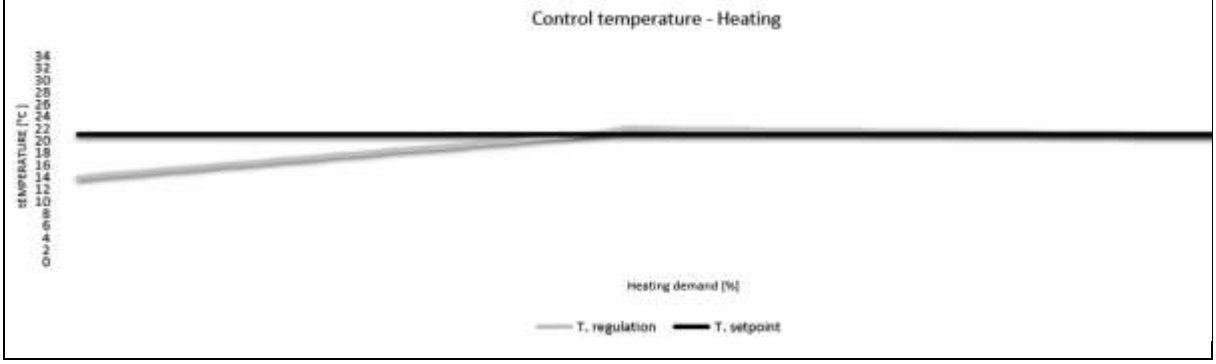
A14		• **„Minimum ON”** – minimum time the DX reheater is to remain on after it has been turned on • **„Minimum OFF”** – minimum time the DX reheater is to remain off after it has been turned off • **„Between starts”** – the minimum time between activations of the DX reheater
A15		• **„Valve signal”** – the voltage level for controlling the valve actuator of the water reheater , which corresponds to the zero adjustment level (e.g. for 2-10V controlled actuators, set 20% so that 0% of the regulator's output signal corresponds to 2V of the control voltage)
A16		• **„PID regulator output”** – current control level of the PID regulator of the preheater • **„Setpoint”** – temperature setting after the preheater (sensor B2 / B6) • **„Kp”** – preheater PID gain factor • **„Ti”** – preheater PID doubling time • **„Power minimum”** – the minimum control level of the regulator, which starts the pre heater • **„Power maximum”** – the maximum control level of the regulator with which the preheater can work

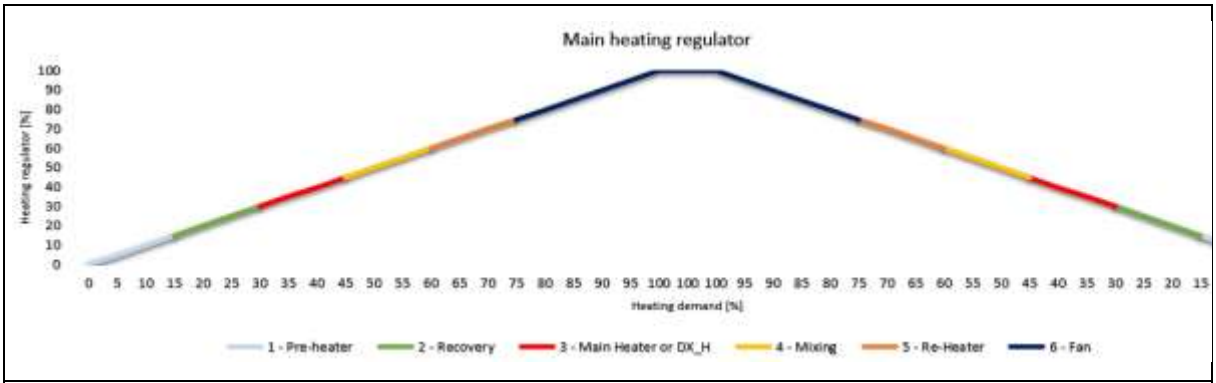
A17		• **„Type heaters”** – control type of the electric preheater - the start permission for the stage smoothly controlled by PWM is the signal from the pressure switch and thermostat, for the first stage (ON / OFF) - the signal from the first relay • **„Power modulated”** – the share of the power of the stage smoothly controlled by PWM in the total power of the electric preheater • **„Stage 1”** – the share of the power of the first stage (ON / OFF) in the total power of the electric preheater **[if one of the heater stages is not present in the AHU, set it to 0% - the 100% should be separated according to the power of the present stages]** **[for the AHU with a modulated heater stage only, a start signal is available in the controller, but its connection is not obligatory - its role is taken over by the activation signal from the pressure switch and thermostat]**
A18		• **„Minimum ON”** – minimum time the DX preheater is to remain on after it has been turned on • **„Minimum OFF”** – minimum time the DX preheater is to remain off after it has been turned off • **„Between starts”** – the minimum time between activations of the DX preheater

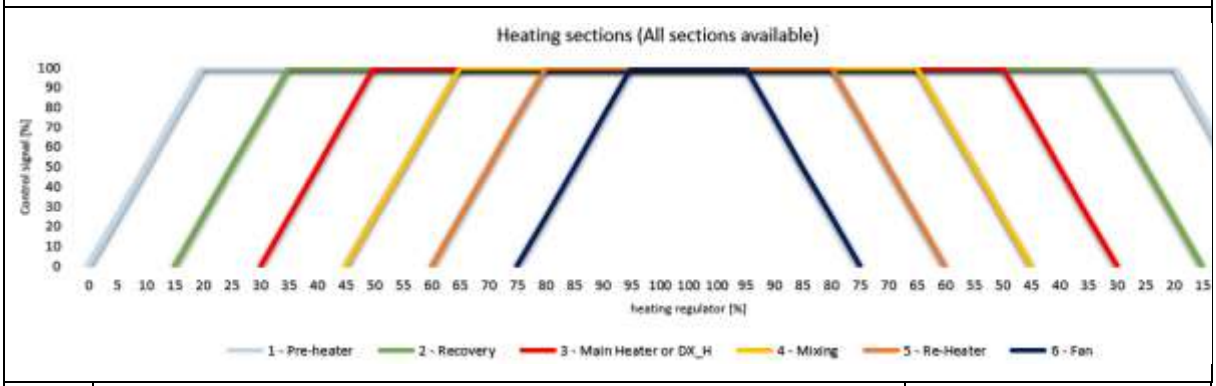
A19		• **„PID regulator output”** – current control level of the PID regulator of the water preheater • **„Setpoint”** – temperature setting of the water pre-heater return medium (sensor B5) • **„Kp”** – water preheater PID gain factor • **„Ti”** – water preheater PID doubling time • **„Valve signal”** – the voltage level for controlling the valve actuator of the water preheater , which corresponds to the zero adjustment level (e.g. for 2-10V controlled actuators, set 20% so that 0% of the regulator's output signal corresponds to 2V of the control voltage) • **„Freeze alarm”** – water preheater return temperature below which the alarm (A249) is activated
A20		• **„Minimum”** – external temperature (sensor B3) for which (once and only for AHU with a water heater - fulfilling any function) at AHU start the anti-freeze sequence with parameters set as "Time maximum" and "Heat open maximum" (below this temperature, the sequence will also be carried out with these parameters) • **„Maximum”** – external temperature for which the sequence with the parameters set as "Time minimum" and "Heat open minimum" is carried out at the start of AHU (the sequence will not be performed above this temperature) • **„Time minimum”** – the minimum execution time of the sequence • **„Time maximum”** – the maximum execution time of the sequence • **„Heat open minimum”** – the minimum control level of the regulator from which the heater starts during the sequence • **„Heat open maximum”** – the maximum control level of the regulator with which the heater can operate during the sequence

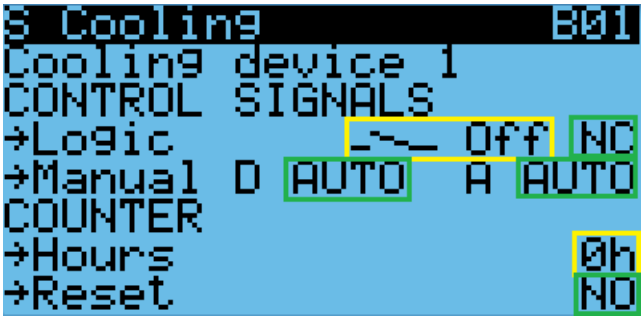
A21		• **„Threshold”** – air supply temperature (sensor B1), below which the alarm is activated (A225) • **„Delay”** – the time during which the air supply temperature must be too low to trigger the alarm • **„When alarm active STOP fan”** – stopping the fans in the event of an alarm
A22		• **„HEATING – Signal for 0%”** – voltage level, controlling the reverse heating function for 0% control of the regulator (scaled in %, where 0-100% => 0-10V) • **„HEATING – Signal for 100%”** – voltage level, controlling the reverse heating function for 100% control of the regulator • **„COOLING – Signal for 0%”** – voltage level, controlling the reverse cooling function for 0% control of the regulator • **„COOLING – Signal for 100%”** – voltage level, controlling the reverse cooling function for 100% control of the regulator
A23		• **„Enable reverse device when external temperature”** – external temperature (sensor B3) above which reverse operation is possible

A24		• **„Always pre-heat on unit start”** – starting (for AHU with water heater) anti-freeze sequence (screen A20) at each AHU start, regardless of the outside temperature • **„Minimum signal”** – the minimum value of the PID controller of the heater with which the heater can operate during the anti-freeze sequence for the active function of permanently switching on the pre-heating **[permanent preheating is desirable in cases where the measurement of the outside temperature may not reflect the actual conditions - e.g. in a suspended AHU, where the B3 sensor is located inside the building]**
A25		• **„Delay alarm on DI”** – the time during which the activation of the digital input responsible for the alarm of the main electric heater must occur in order to trigger the alarm (A246 - for electric heaters with dedicated controls, the alarm source is the pressure switch and thermostat connected in series) • **„Delay supply fan off”** – delay time to switch off the supply fans after switching off the AHU to cool the electric heater (blow-by)
A26		• **„Temperature external”** – external temperature (sensor B3) below which the water heater pump is activated continuously • **„Temperature external”** – the external temperature below which the water heater valve is continuously actuated • **„Valve minimum”** – the controlling value of the opening of the water heater valve in case of its activation due to low external temperature

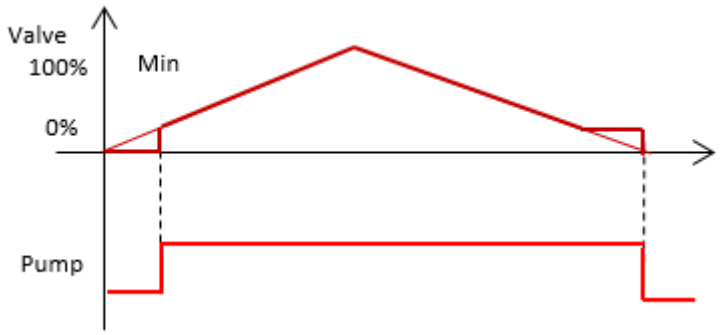
A27		• **„Heater digital output delay between start”** – the minimum time between successive activations of the relay output responsible for the permit to operate the gas heater
A28		• **„Temperature external”** – external temperature (sensor B3) above which protection of the water heater is active in summer mode • **„Setpoint”** – return water temperature from the water heater (sensor B5) to be maintained with protection in summer mode active
A29		• **„Function enable”** – function allowing to use the preheater also as the last heating section • **„PID out”** – current control level of the PID regulator of the preheater being used as the last heating section • **„Kp”** – preheater being used as the last heating section PID gain factor • **„Ti”** – preheater being used as the last heating section PID doubling time
		



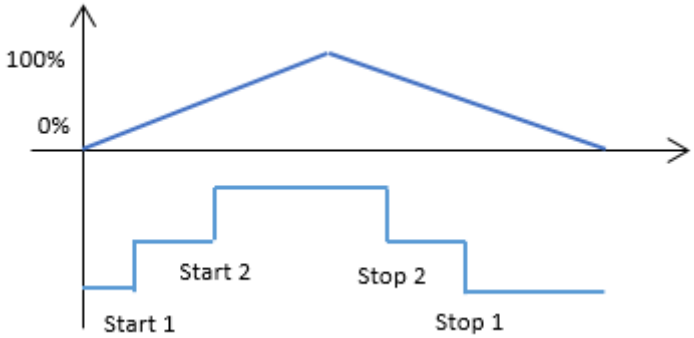


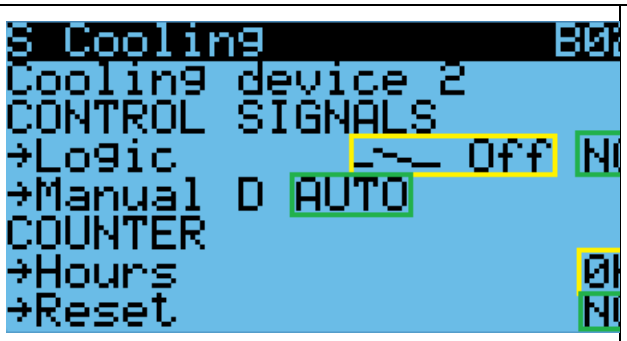
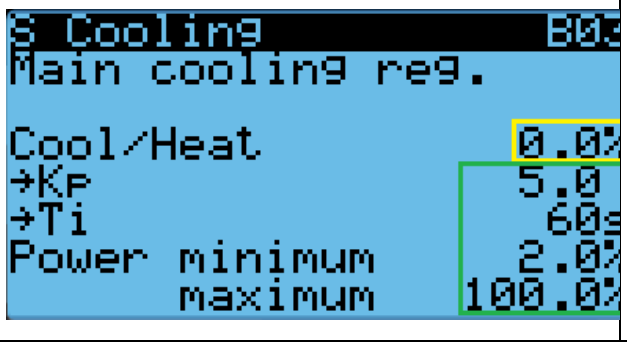
B01		• **„Logic”** – type of the logic used in the first stage of the cooler (NO / NC) • **„Manual D”** – manual setting of the 0/1 value to the digital output responsible for the permission to work of the first stage of the cooler • **„Manual A”** – manual setting of 0-100% value to the analog output responsible for the level of control of the first stage of the cooler • **„Hours”** – operation time counter for the first stage of the cooler • **„Reset”** – resetting the operation time counter for the first stage of the cooler

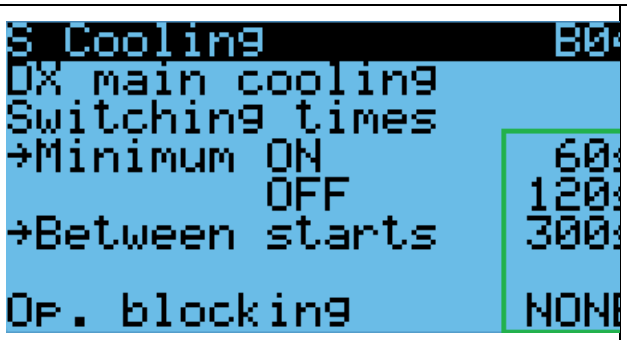
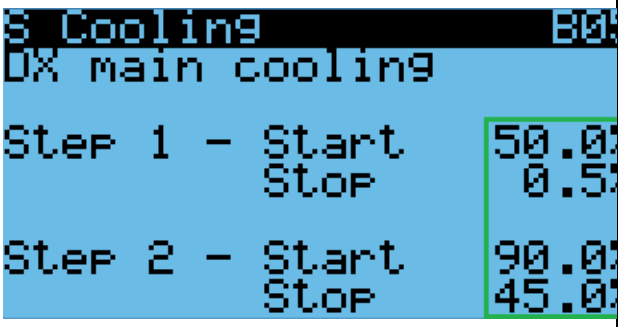
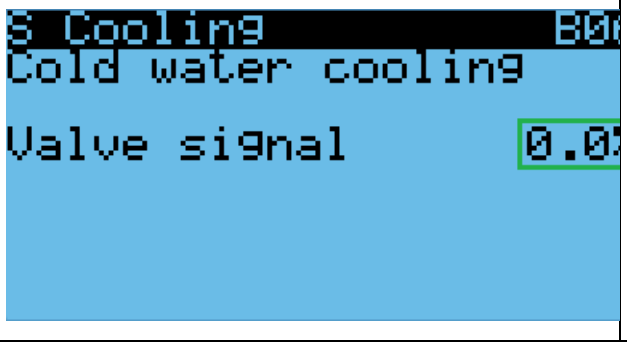
Regulation – water cooler

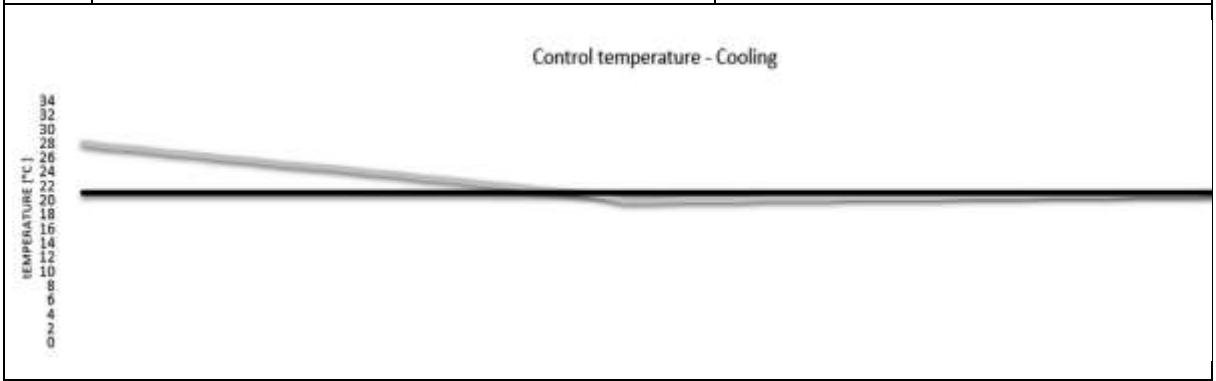


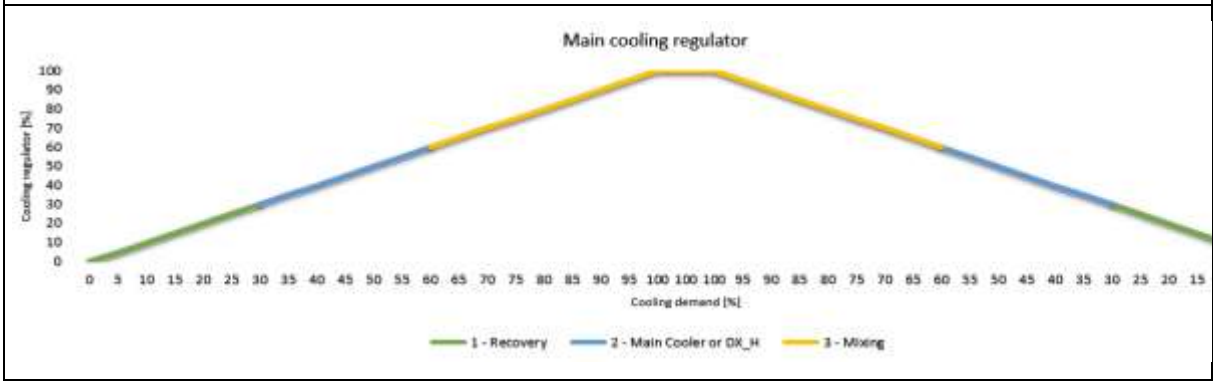
Regulation – DX cooler

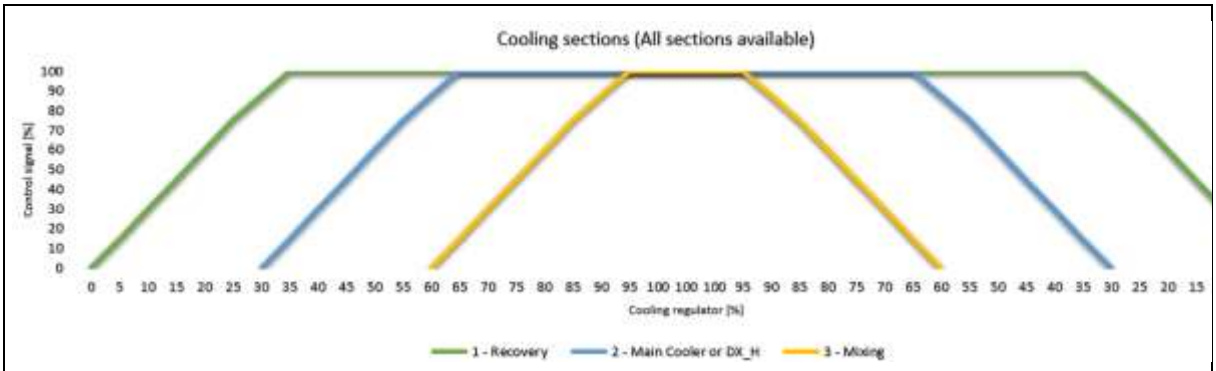


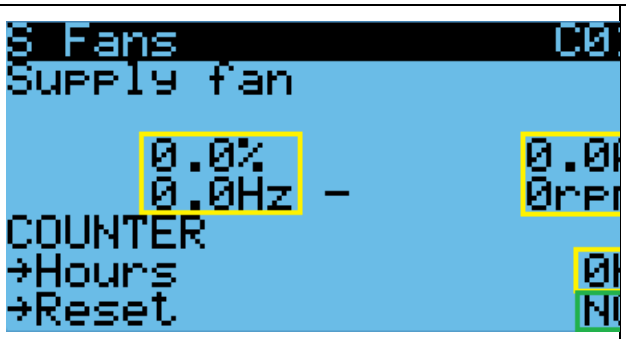
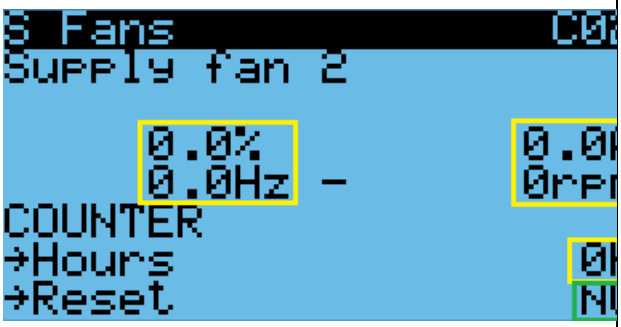
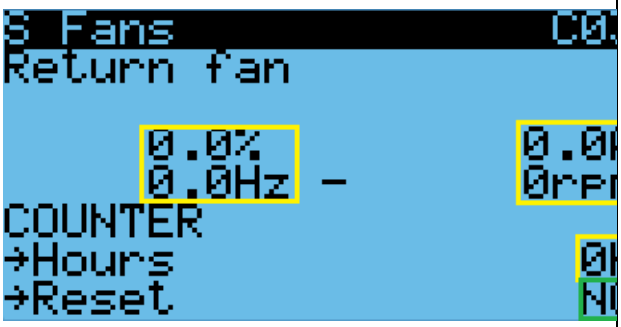
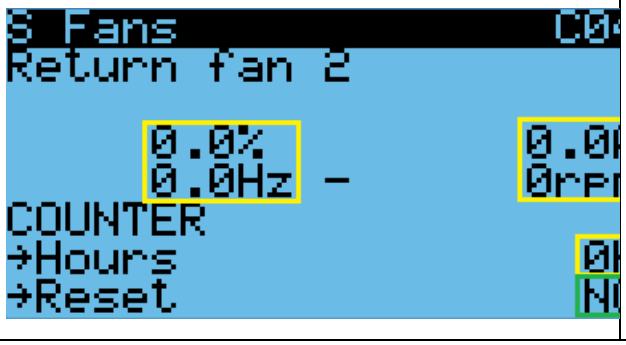
B02		• **„Logic"** – type of the logic used in the second stage of the main heater (NO / NC) • **„Manual D"** – manual setting of the 0/1 value to the digital output responsible for the permission to work of the second stage of main heater • **„Hours"** – operation time counter for the second stage of the main heater • **„Reset"** – resetting the operation time counter for the second stage of the main heater
B03		• **„Cool / Heat"** – current control level of the PID regulator of reverse unit • **„Kp"** – cooler PID gain factor • **„Ti"** – cooler PID doubling time • **„Power minimum"** – the minimum control level of the regulator, which starts the cooler • **„Power maximum"** – the maximum control level of the regulator with which the cooler can work

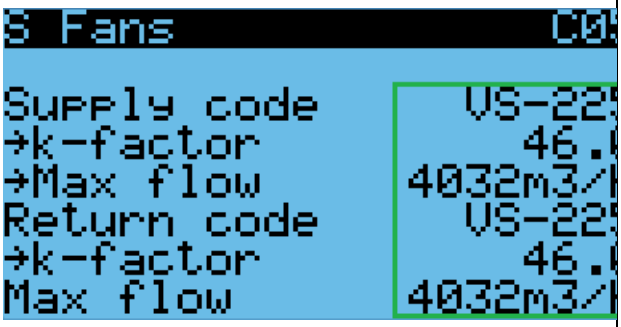
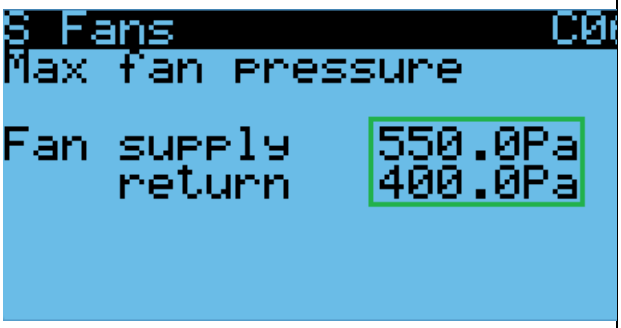
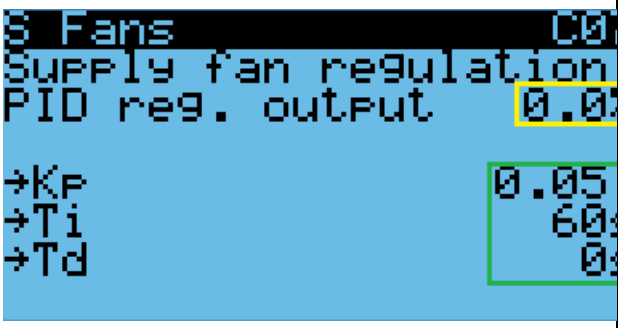
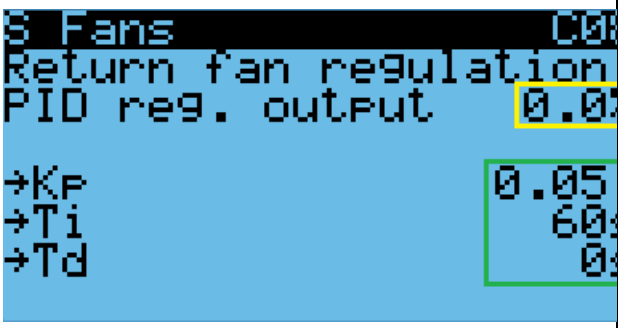
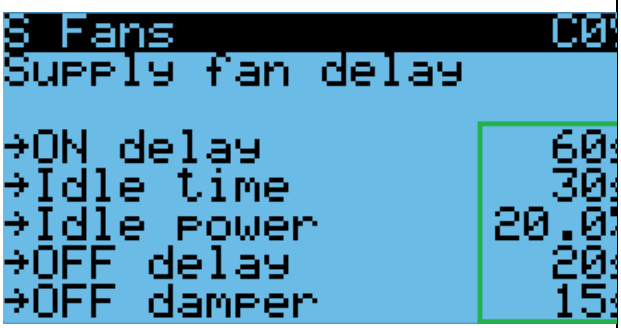
B04		• **„Minimum ON”** – minimum time the DX cooler is to remain on after it has been turned on • **„Minimum OFF”** – minimum time the DX cooler is to remain off after it has been turned off • **„Between starts”** – the minimum time between activations of the DX cooler • **„Operation blocking”** – selection of operation modes for which the DX cooler operation is blocked
B05		• **„Step 1 - Start”** – minimum control level of the regulator from which the first stage of the DX cooler starts, if it was turned off • **„Step 1 - Stop”** – control level of the regulator, which turns off the first stage of the DX cooler, if it was turned on • **„Step 2 - Start”** – minimum control level of the regulator from which the second stage of the DX cooler starts, if it was turned off • **„Step 2 - Stop”** – control level of the regulator, which turns off the second stage of the DX cooler, if it was turned on
B06		• **„Valve signal”** – the voltage level for controlling the valve actuator of the water cooler, which corresponds to the zero adjustment level (e.g. for 2-10V controlled actuators, set 20% so that 0% of the regulator's output signal corresponds to 2V of the control voltage)

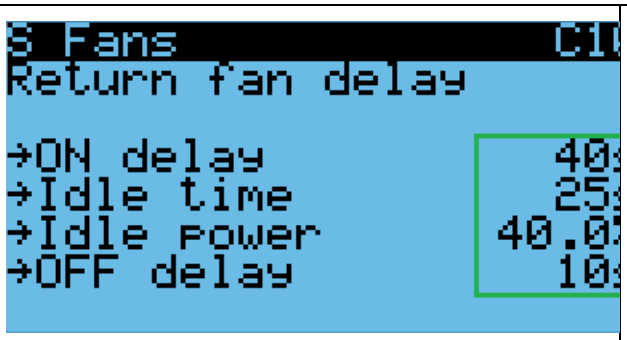
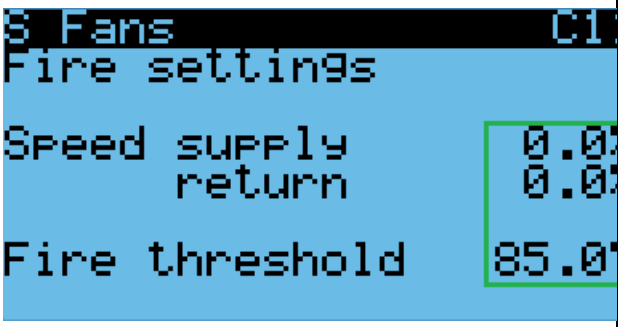
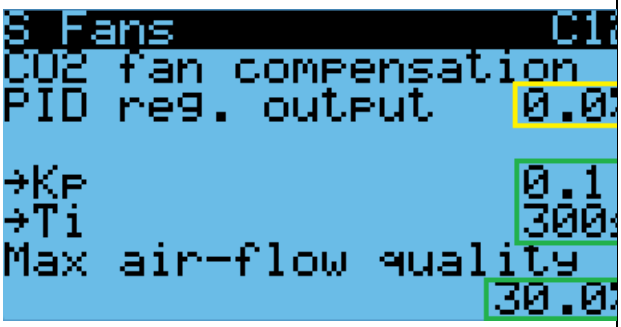
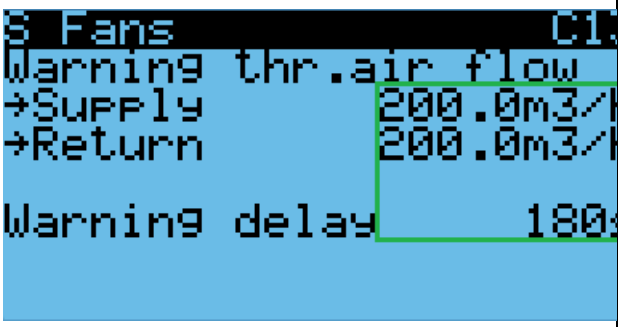
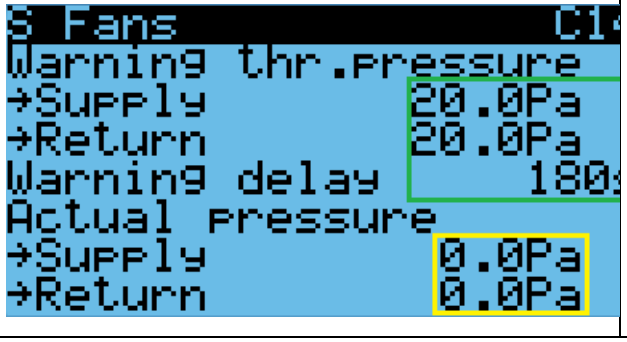


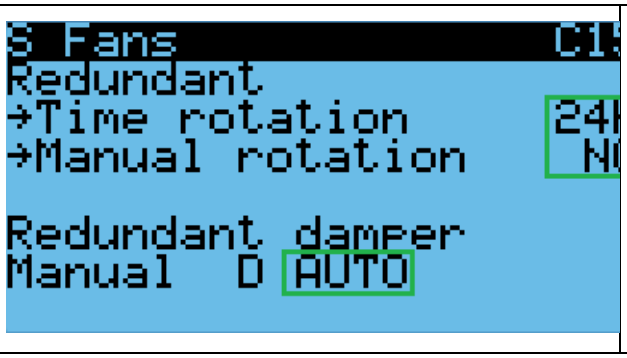
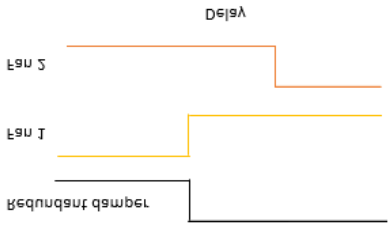
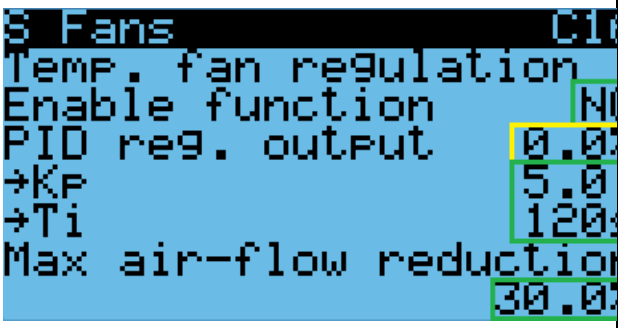
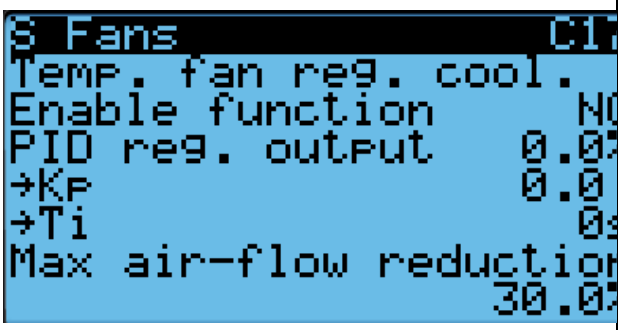


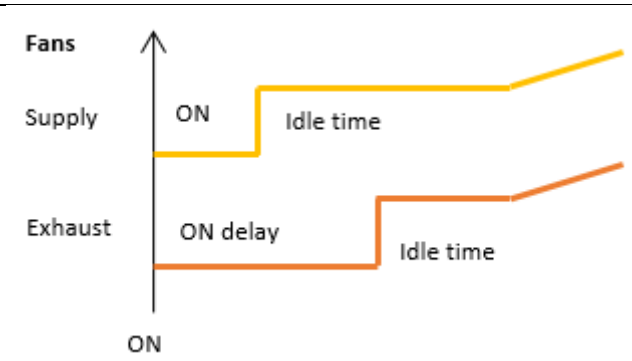


C01		• **„Supply fan”** – current operating parameters of the supply fans (control level, current, frequency, speed) • **„Hours”** – counter of supply fans operation time • **„Reset”** – resetting the supply fans operation time counter
C02		• **„Supply fan 2”** – current operating parameters of the supply redundant fan (control level, current, frequency, speed) • **„Hours”** – counter of the supply redundant fan operation time • **„Reset”** – resetting the supply redundant fan operation time counter
C03		• **„Return fan”** – current operating parameters of the return fans (control level, current, frequency, speed) • **„Hours”** – counter of return fans operation time • **„Reset”** – resetting the return fans operation time counter
C04		• **„Return fan 2”** – current operating parameters of the return redundant fan (control level, current, frequency, speed) • **„Hours”** – counter of the return redundant fan operation time • **„Reset”** – resetting the return redundant fan operation time counter

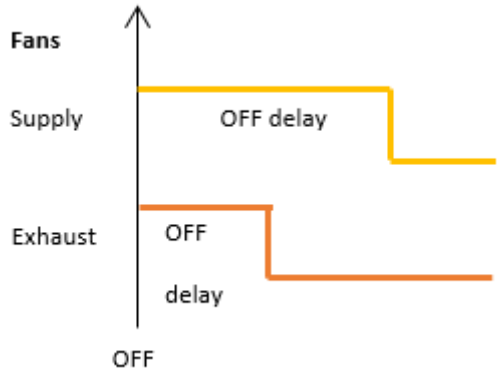
C05		• **„Supply code”** – type of the supply fan • **„k-factor”** – correction factor for the selected type of supply fan (it is possible to enter the value manually after selecting "Custom" as the value of the "Supply / Return code" parameter) • **„Max flow”** – the maximum flow in the supply air path of a given AHU, read from its technical card, being a reference for the CAV regulator • **„Return code”** – type of the return fan • **„k-factor”** – correction factor for the selected type of return fan • **„Max flow”** – the maximum flow in the return air path of a given AHU, read from its technical card, being a reference for the CAV regulator
C06		• **„Fan supply”** – the maximum supply pressure of a given AHU, read from its technical card, which is a reference for the VAV regulator • **„Fan return”** – the maximum return pressure of a given AHU, read from its technical card, which is a reference for the VAV regulator
C07		• **„PID regulator output”** – current control level of the PID regulator of the supply fans • **„Kp”** – supply fans PID gain factor • **„Ti”** – supply fans PID doubling time • **„Td”** – supply fans PID lead time
C08		• **„PID regulator output”** – current control level of the PID regulator of the return fans • **„Kp”** – return fans PID gain factor • **„Ti”** – return fans PID doubling time • **„Td”** – return fans PID lead time
C09		• **„ON delay”** – the time between starting the AHU in the selected mode and starting the supply fans in the idle mode • **„Idle time”** – the duration of the idle supply fans mode (work with limited power) • **„Idle power”** – control level of the supply fans in the idle mode • **„OFF delay”** – time between turning off the AHU and stopping the supply fans • **„OFF damper”** – time between stopping the supply or exhaust fans (depending on which ones have longer OFF delay) and closing the dampers

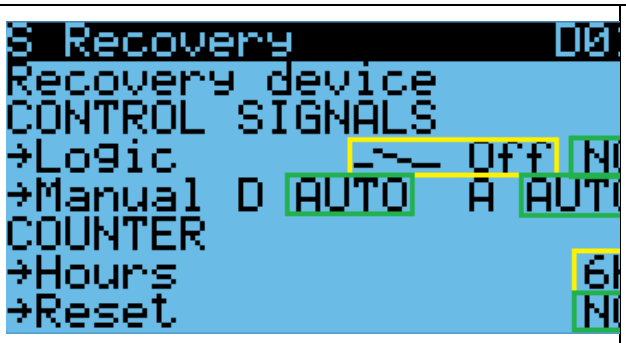
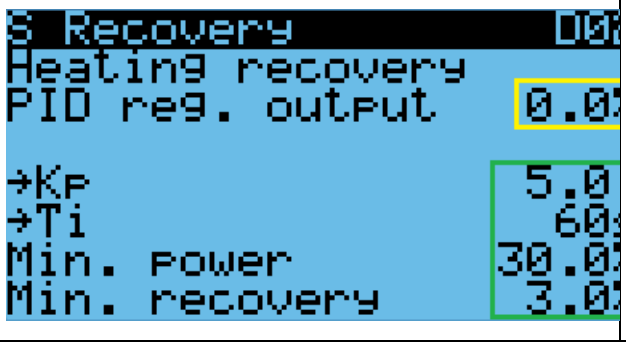
C10		• **„ON delay"** – the time between starting the AHU in the selected mode and starting the return fans in the idle mode • **„Idle time"** – the duration of the idle return fans mode (work with limited power) • **„Idle power"** – control level of the return fans in the idle mode • **„OFF delay"** – time between turning off the AHU and stopping the return fans
C11		• **„Speed supply"** – control level that is set (overriding the current control) for the supply fans in the event of activation of the fire alarm (A242 / A247) • **„Speed return"** – control level that is set (overriding the current control) for the return fans in the event of activation of the fire alarm • **„Fire threshold"** – exhaust temperature (sensor B4), above which the alarm is activated (A247)
C12		• **„PID regulator output"** – current control level of the PID regulator of the CO2 compensation • **„Kp"** – CO2 compensation PID gain factor • **„Ti"** – CO2 compensation PID doubling time • **„Max air-flow quality"** – the maximum value by which the fans can accelerate under the influence of the CO2 compensation PID (not exceeding 100%) , expressed in percentage points
C13		• **„Supply"** – supply air flow at which the alarm (A226) is activated • **„Return"** – return air flow at which the alarm (A227) is activated • **„Warning delay"** – the time for which the flow must be too low to trigger an alarm
C14		• **„Supply"** – supply pressure at which the alarm (A226) is activated • **„Return"** – return pressure at which the alarm (A227) is activated • **„Warning delay"** – the time for which the pressure must be too low to trigger an alarm • **„Supply"** – current supply pressure • **„Return"** – current return pressure

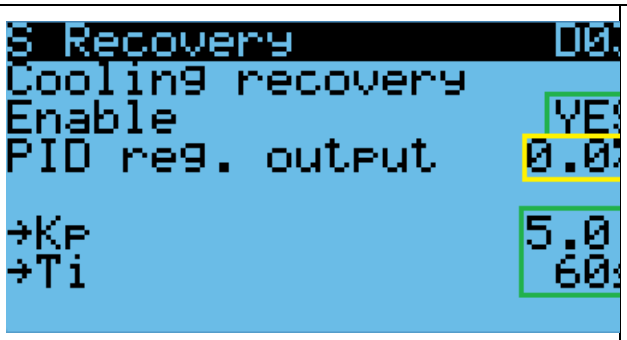
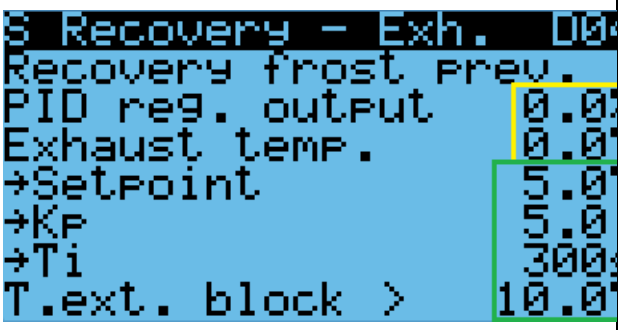
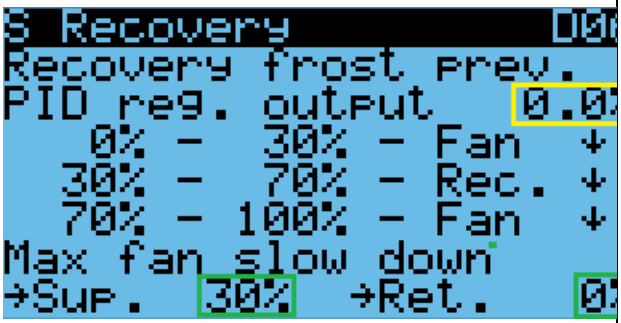
C15		• **„Time rotation”** – time between automatic switching between main and redundant fans • **„Manual rotation”** – single activation of manual switching between the main and redundant fans (after manual switching, the time is counted again, after which the next automatic switching takes place) • **„Manual D”** – manual setting of the 0/1 value to the digital output responsible for the permission to operate the redundant fans damper
Redundant fans		
C16		• **„Enable function”** – fan speed limitation in the case if the AHU does not reach the set temperature in heating mode, despite the maximum control level of all available heating devices • **„PID regulator output”** – current control level of the PID regulator of the temperature fan regulation • **„Kp”** – temperature fan regulation PID gain factor • **„Ti”** – temperature fan regulation PID doubling time • **„Max air-flow reduction”** – the maximum value by which the fans can slow down the fans under the influence of the PID controller limiting the speed of the fans (not exceeding 0%), expressed in percentage points
C17		• **„Enable function”** – fan speed limitation in the case if the AHU does not reach the set temperature in cooling mode, despite the maximum control level of all available cooling devices • **„PID regulator output”** – current control level of the PID regulator of the temperature fan regulation • **„Kp”** – temperature fan regulation PID gain factor • **„Ti”** – temperature fan regulation PID doubling time • **„Max air-flow reduction”** – the maximum value by which the fans can slow down the fans under the influence of the PID controller limiting the speed of the fans (not exceeding 0%), expressed in percentage points
Fans start sequence		

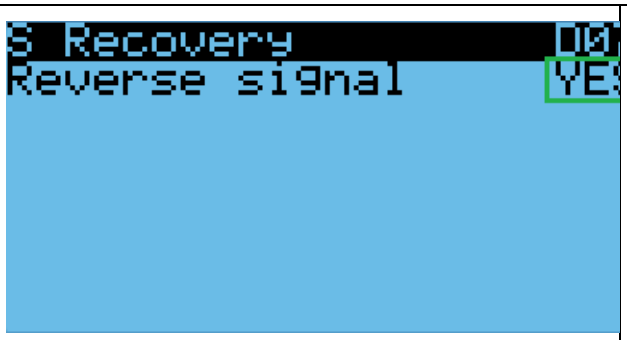
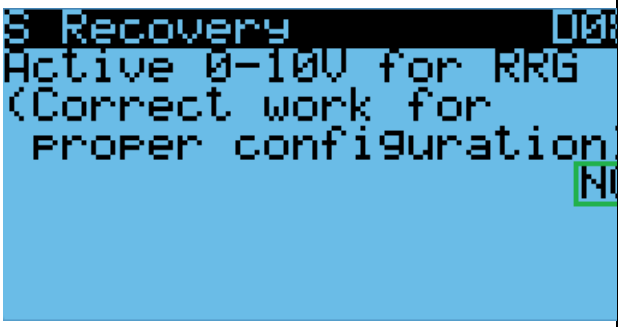
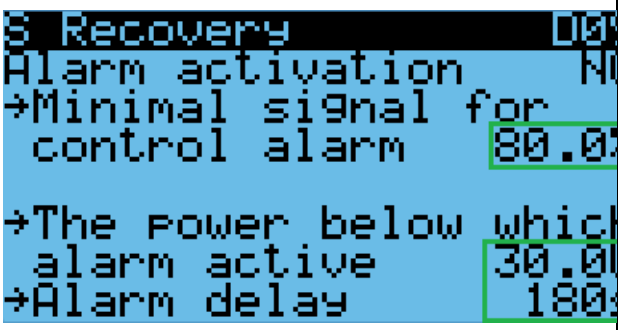
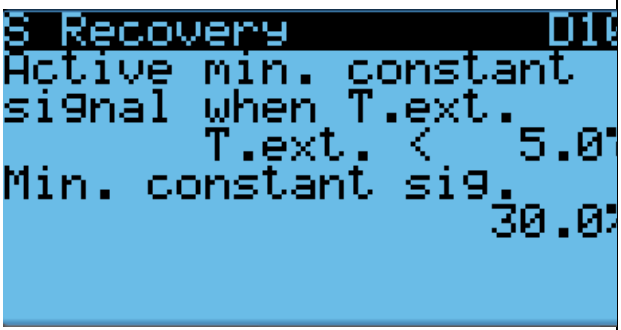


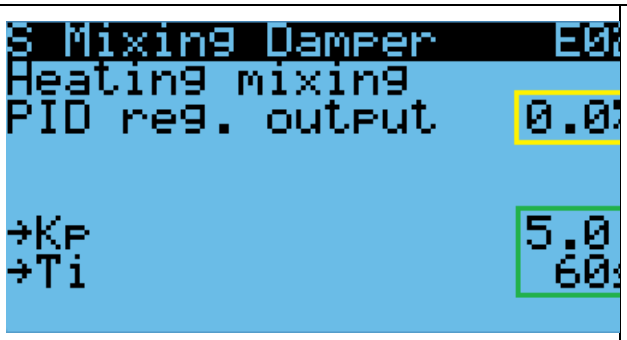
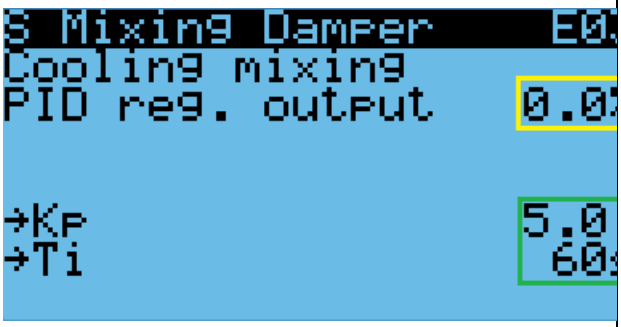
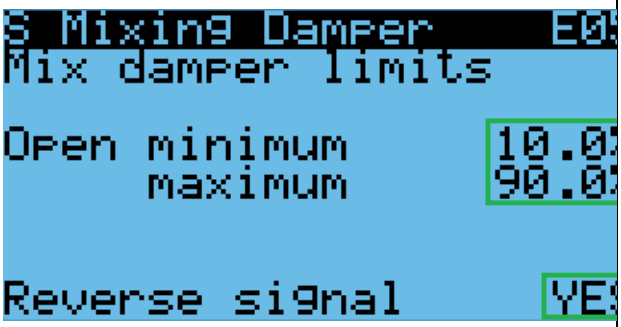
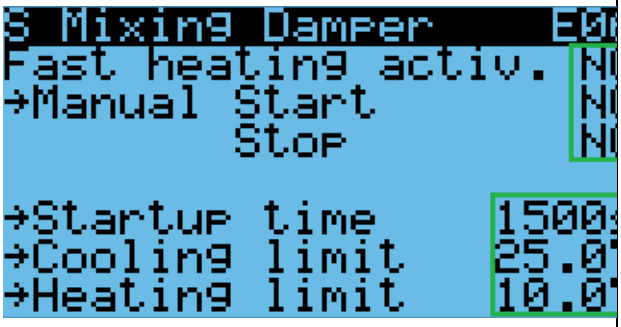
Fans stop sequence

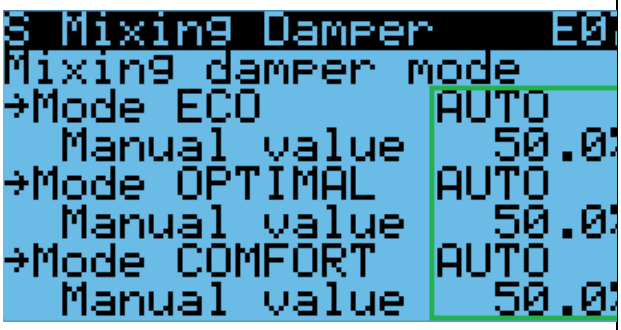
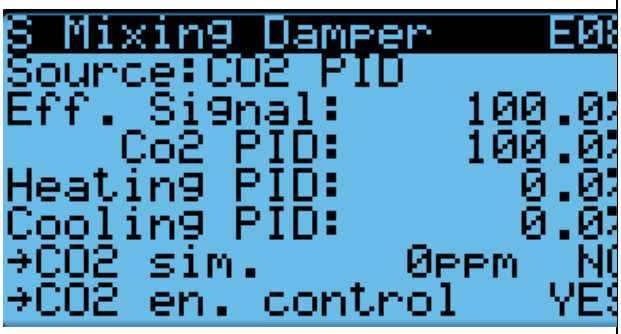
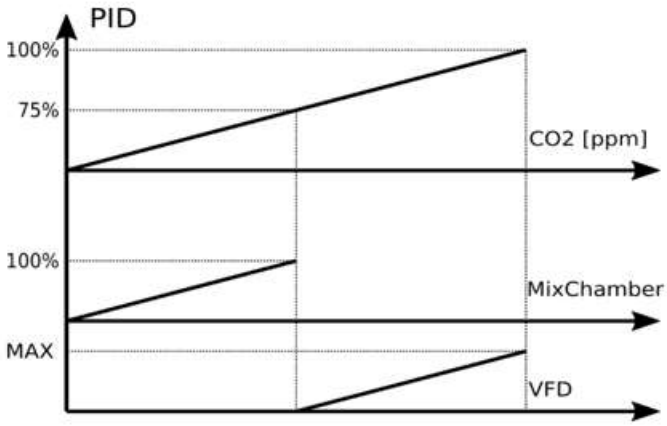


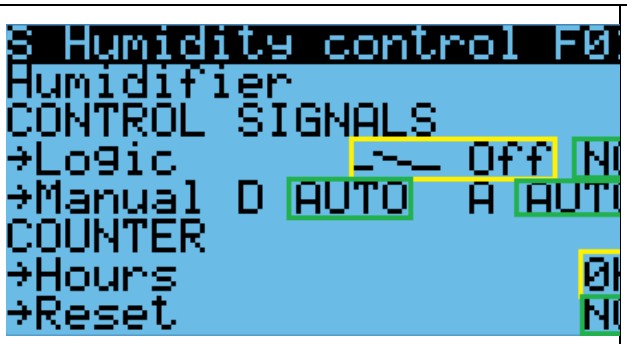
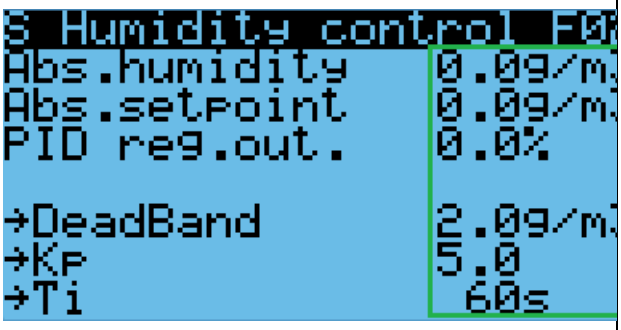
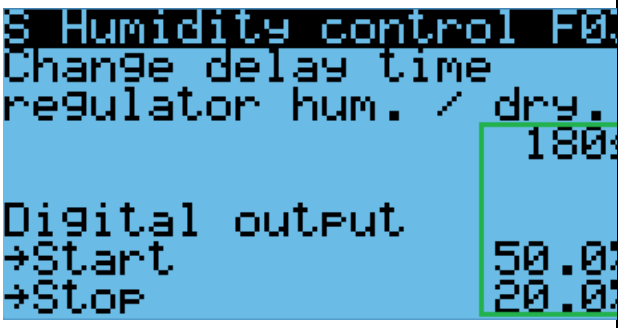
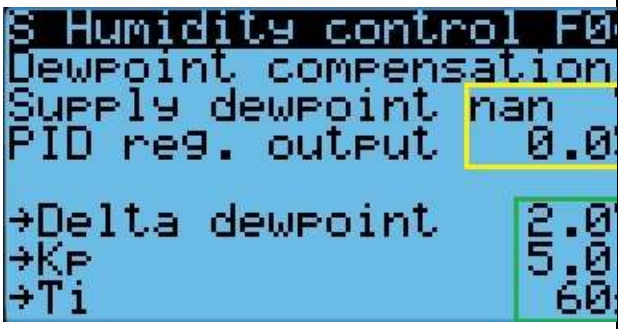
D01		• **„Logic”** – type of the logic used in the recovery(NO / NC) • **„Manual D”** – manual setting of the 0/1 value to the digital output responsible for the permission to work of the recovery • **„Manual A”** – manual setting of 0-100% value to the analog output responsible for the level of control of the recovery • **„Hours”** – counter of recovery operation time • **„Reset”** – resetting the recovery operation time counter
D02		• **„PID regulator output”** – current control level of the PID regulator of the heating recovery • **„Kp”** – heating recovery PID gain factor • **„Ti”** – heating recovery PID doubling time • **„Minimum power”** – the minimum control level of the regulator, which starts the heating recovery • **„Minimum recovery”** – the minimum constant control level of the recovery

D03		• **„Enable”** – activation of the cooling recovery function • **„PID regulator output”** – current control level of the PID regulator of the cooling recovery • **„Kp”** – cooling recovery PID gain factor • **„Ti”** – cooling recovery PID doubling time
D04		• **„PID regulator output”** – current control level of the PID regulator of the recovery frost prevention • **„Exhaust temperature”** – current temperature after heat recovery in the exhaust (sensor B4) • **„Setpoint”** – temperature setpoint after the heat recovery on the exhaust, which will be maintained by the PID regulator of the recovery frost protection in case of its decrease • **„Kp”** – recovery frost prevention PID gain factor • **„Ti”** – recovery frost prevention PID doubling time • **„Temperature external blocking”** – external temperature (sensor B3), above which the recovery frost protection is inactive
D05		• **„PID regulator output”** – current control level of the PID regulator of the recovery frost prevention • **„Exhaust temperature”** – current temperature after heat recovery in the exhaust (sensor B4) • **„Exhaust dewpoint”** – temperature after the heat recovery on the exhaust, which will be maintained by the PID regulator of the recovery frost protection in case of its decrease • **„Kp”** – recovery frost prevention PID gain factor • **„Ti”** – recovery frost prevention PID doubling time • **„Temperature external blocking”** – external temperature (sensor B3), above which the recovery frost protection is inactive
D06		• **„PID regulator output”** – current control level of the PID regulator of the recovery frost prevention • **„Supply”** – the value of control level of the supply fans by which they can maximally slow down in the event of the PID regulator value of recovery frost protection being in the range of 70-100% (for the value of the regulator in the range of 0-30%, the supply fans will slow down by a maximum of half of this setting, and in the range of 30-70% the recovery control will be reduced to a maximum of 0%) • **„Return”** – the value of exhaust fans control level by which they can maximally slow down in the event of the PID controller value of the recovery frost protection being in the range of 70-100%

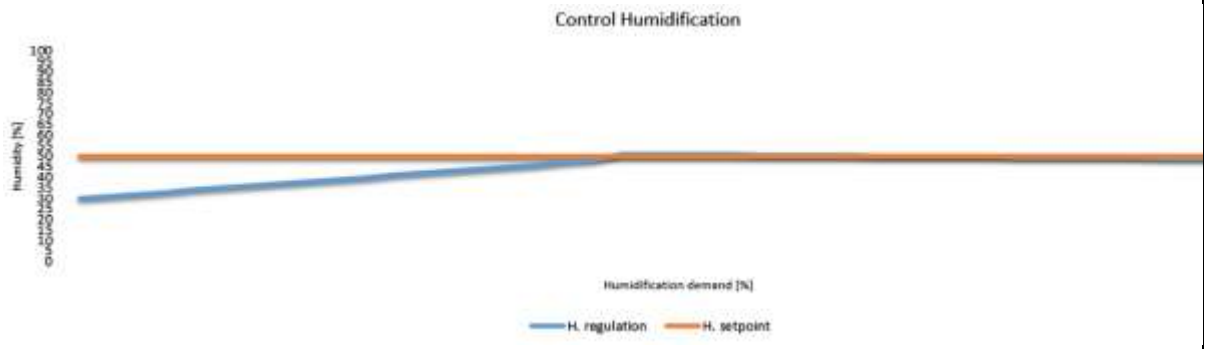
D07		• **„Reverse signal”** – conversion of the recovery control signal from 0-10V to 10-0V
D08		• **„Active 0-10V for RRG”** – activation of the 0-10V output ensuring the control of the rotary heat exchanger (in addition to the standard control by the Modbus RTU protocol)
D09		• **„Alarm activation”** – activation of the break / fall detection function of the rotary exchanger belt • **„Minimal signal for control alarm”** – minimum value of the recovery control at which a broken belt is detected • **„The power below which alarm active”** – the value of the power consumed by the rotary exchanger drive, below which the alarm will be triggered (A751) • **„Alarm delay”** – the time during which the power consumption must be too low to trigger an alarm
D10		• **„Active minimum constant signal when temperature external”** – external temperature (B3 sensor), below which the recovery will be constantly operating • **„Minimum constant signal”** – minimum constant signal, with which the recovery will be operating below chosen external temperature
E01		• **„Manual D”** – manual setting of the 0/1 value to the digital output responsible for the permission to work of the mixing damper • **„Manual A”** – manual setting of 0-100% value to the analog output responsible for the level of control of the mixing damper

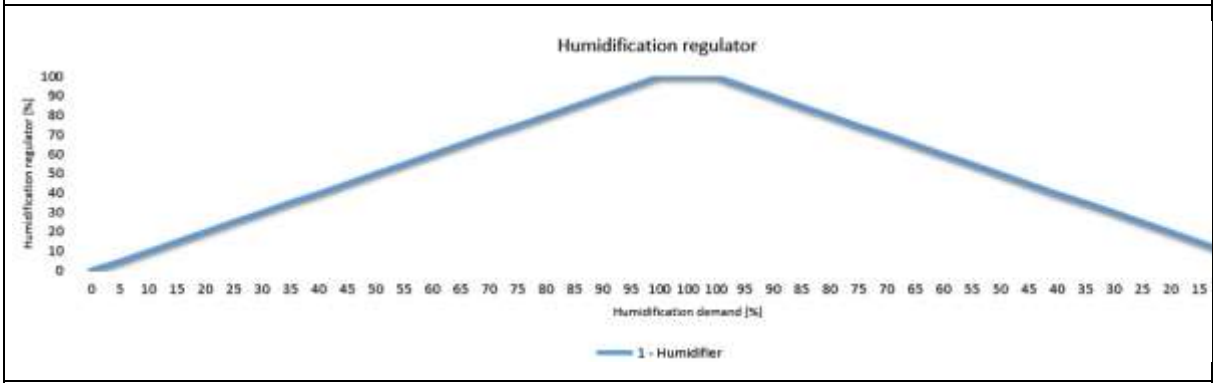
E02		• **„PID regulator output”** – current control level of the PID regulator of the heating recovery realized by mixing chamber • **„Kp”** – heating recovery realized by mixing chamber PID gain factor • **„Ti”** – heating recovery realized by mixing chamber PID doubling time
E03		• **„PID regulator output”** – current control level of the PID regulator of the cooling recovery realized by mixing chamber • **„Kp”** – cooling recovery realized by mixing chamber PID gain factor • **„Ti”** – cooling recovery realized by mixing chamber PID doubling time
E04		• **„PID regulator output”** – current control level of the PID regulator of the mixing chamber CO2 compensation • **„Kp”** – mixing chamber CO2 compensation PID gain factor • **„Ti”** – mixing chamber CO2 compensation PID doubling time
E05		• **„Open minimum”** – minimum control level of the regulator from which the mixing damper opens • **„Open maximum”** – maximum control level of the regulator with which the mixing damper can open • **„Reverse signal” -** mixing damper control signal conversion from 0-10V to 10-0V
E06		• **„Fast heating active”** – AHU operation with a heater / cooler (if it is not blocked by low external temperature) in combination with 100% recirculation after the AHU is started until the set temperature is reached for the first time (after that, it returns to operation with fresh air regulation) • **„Manual start”** – manual forcing of activation of the fast heating / cooling mode • **„Manual stop”** – manual forcing of stopping the quick heating / cooling mode • **„Startup time”** – the minimum time for work of the quick heating / cooling function after its activation

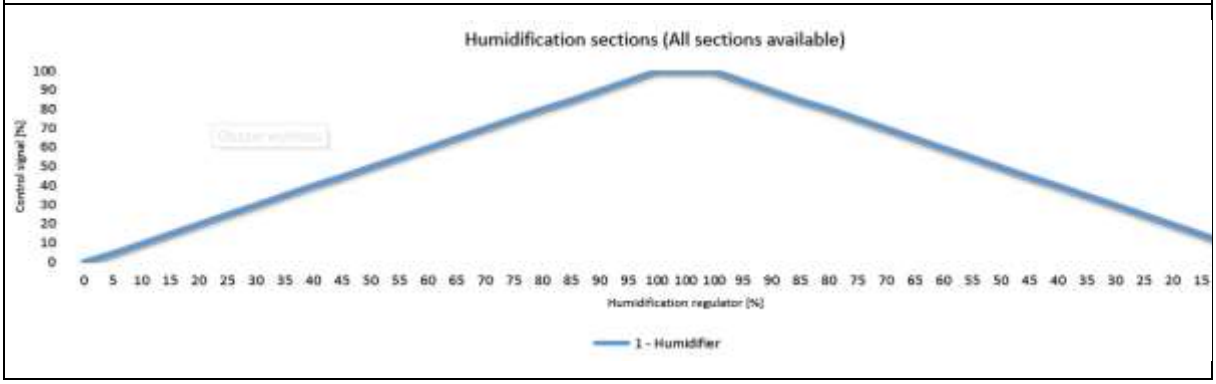
		• **„Cooling limit”** – external temperature above which the quick cooling function is activated when the AHU is started (sensor B3) • **„Heating limit”** – external temperature below which the fast heating function is activated when the AHU is started
E07		• **„Mode ECO”** – selection of the working mode of the mixing chamber (automatic / manual) for the Economy mode • **„Manual value”** – value of manual control of the mixing damper for the Economy mode • **„Mode Optimal”** – selection of the working mode of the mixing chamber (automatic / manual) for the Optimal mode • **„Manual value”** – value of manual control of the mixing damper for the Optimal mode • **„Mode comfort”** – selection of the working mode of the mixing chamber (automatic / manual) for the Comfort mode • **„Manual value”** – value of manual control of the mixing damper for the Comfort mode
E08		• **„Source”** – selection of the source signal on the basis of which the control signal value of the mixing chamber will be determined • **„Effective signal”** – current mixing chamber control signal value, taking into account the value of the source signal and opening / closing limits • **„CO2 PID”** – CO2 regulator value, which is the basis for adjusting the mixing chamber • **„Heating PID”** – heating regulator value, which is the basis for adjusting the mixing chamber • **„Cooling PID”** – cooling regulator value, which is the basis for adjusting the mixing chamber • **„CO2 simulation”** – selection of CO2 reading mode between automatic (resulting from the actual signal read by the transducer) or manual (expressed in ppm) • **„CO2 enable control”** – activation of AHU control from CO2
CO2 regulation 		

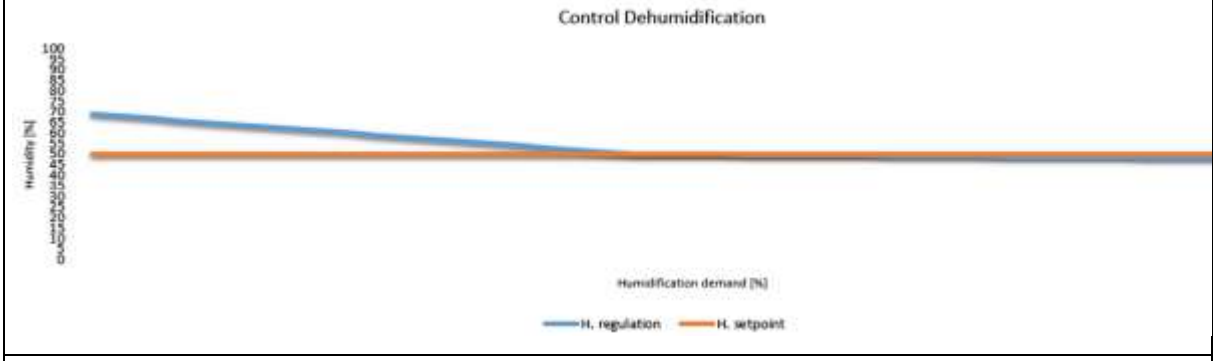
F01		• **„Logic”** – type of the logic used in the humidifier (NO / NC) • **„Manual D”** – manual setting of the 0/1 value to the digital output responsible for the permission to work of the humidifier • **„Manual A”** – manual setting of 0-100% value to the analog output responsible for the level of control of the humidifier • **„Hours”** – operation time counter for the humidifier • **„Reset”** – resetting the operation time counter for the humidifier
F02		• **„Absolute humidity”** – humidity level read by the transducer • **„Absolute setpoint”** – humidity level setpoint • **„PID regulator output”** – current control level of the PID regulator of the humidity • **„DeadBand”** – humidity value within the range of which its change will not change the input signal of the controller (hysteresis) • **„Kp”** – humidity PID gain factor • **„Ti”** – humidity PID doubling time
F03		• **„Change delay time regulator humidity / drying”** – the minimum time that must elapse after the humidification sequence has been turned off before the dehumidification process can be started - or vice versa (the same type of sequence can be restarted after it has been turned off before this time expires) • **„Start”** – minimum control level of the humidity PID, after which the digital output of the humidifier is triggered (works in parallel with the 0-10V control) • **„Stop”** – minimum control level of the humidity PID, after which the digital output of the humidifier is no longer controlled
F04		• **„Supply dewpoint”** – temperature after the recovery on the supply air (sensor B6), which will be maintained by the PID controller of dewpoint compensation in the event of its decrease (the supply humidity transducer is mainly used in AHUs equipped with a humidifier) • **„PID regulator output”** – current control level of the PID regulator of the dewpoint compensation • **„Delta dewpoint”** – permissible deviation of the temperature after recovery in the supply air relative to the temperature after recovery in the exhaust air (sensor B4), below which the PID controller of dew point compensation is inactive • **„Kp”** – dewpoint compensation PID gain factor • **„Ti”** – dewpoint compensation PID doubling time

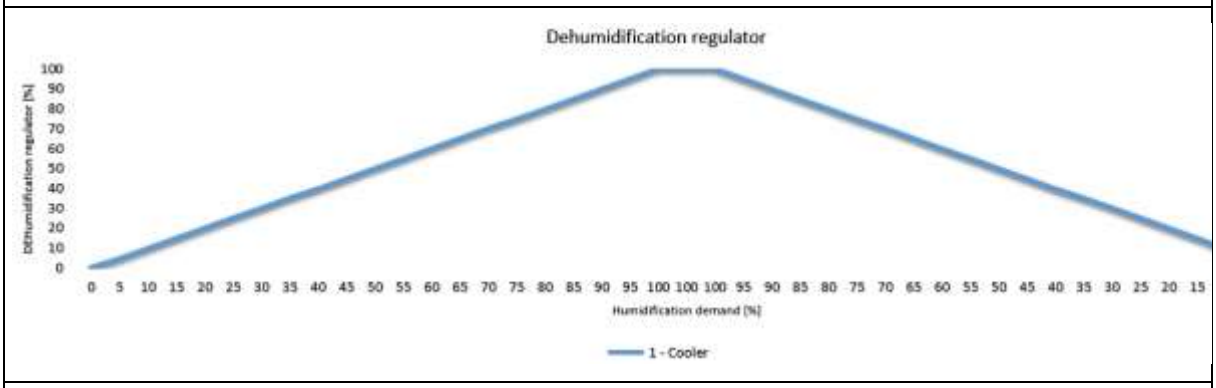
F05		• **„Supply enable" –** activation of the supply air transducer humidity and temperature simulation • **„Supply humidity value" –** the value of the simulated supply humidity • **„Supply temperature value" –** the value of the simulated supply temperature • **„Return enable" –** activation of the return air transducer humidity and temperature simulation • **„Return humidity value" –** the value of the simulated return humidity • **„Return temperature value" –** the value of the simulated return temperature •

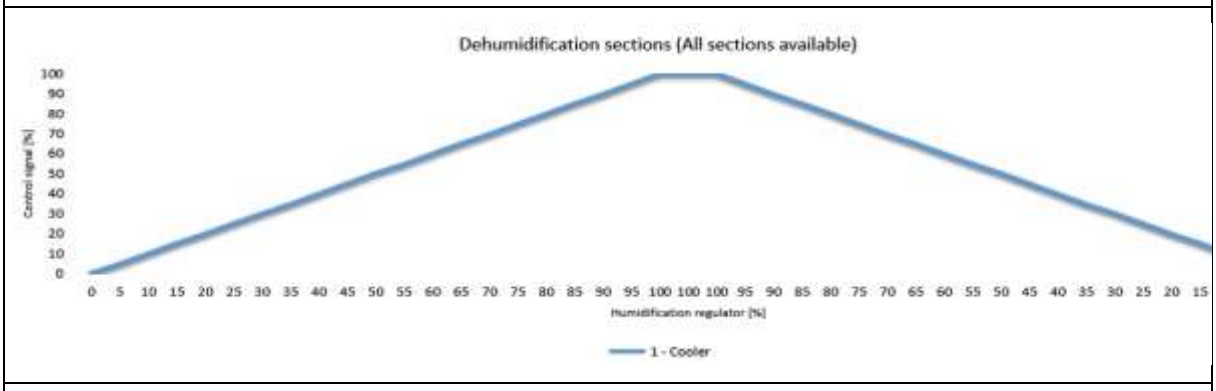




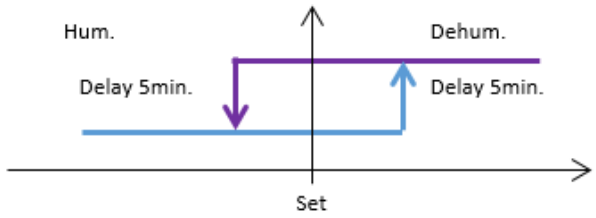




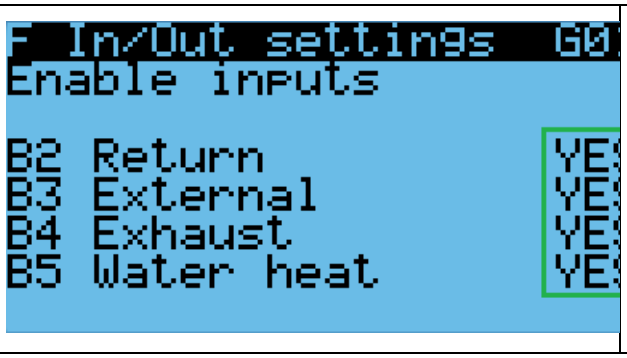




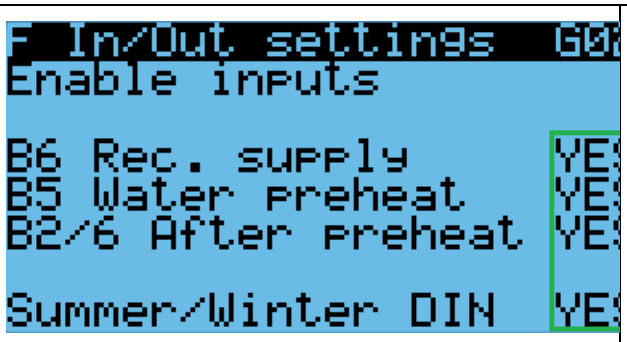
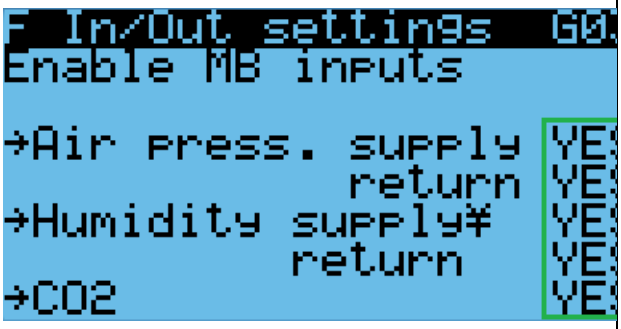
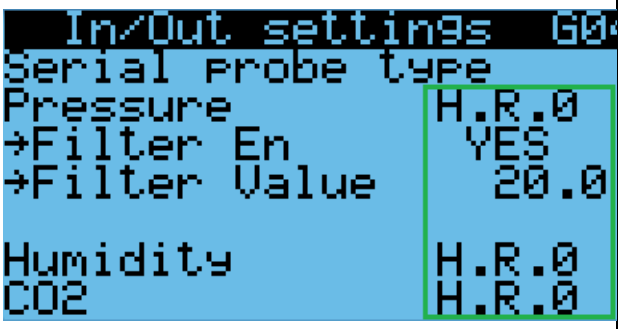
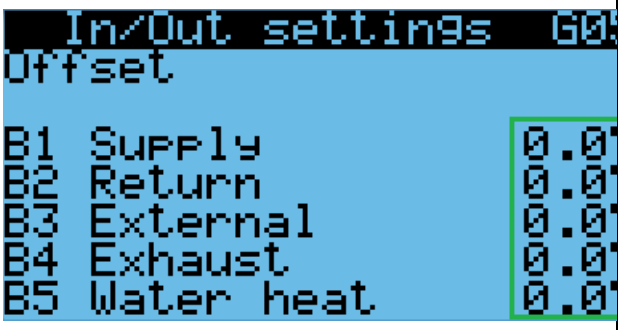
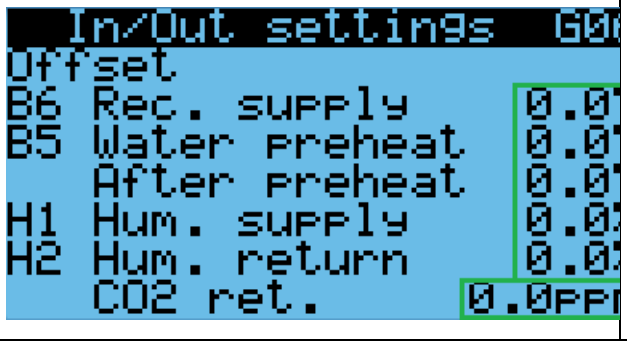
Humidity control hysteresis

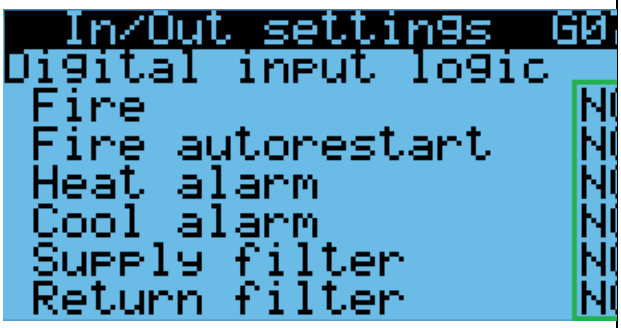
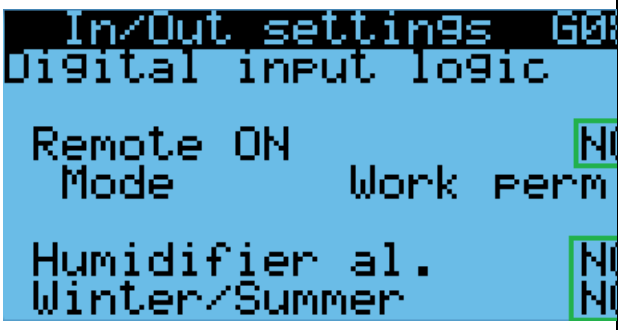
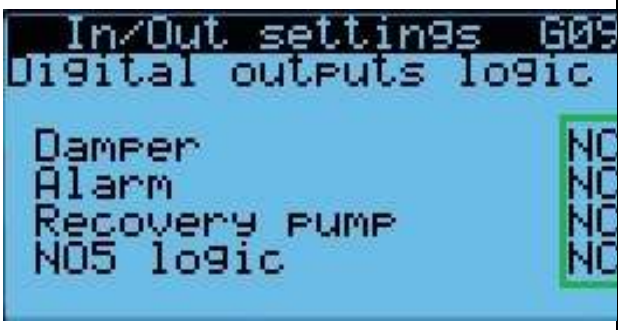
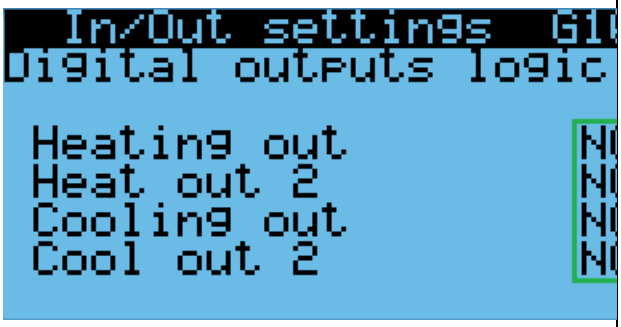
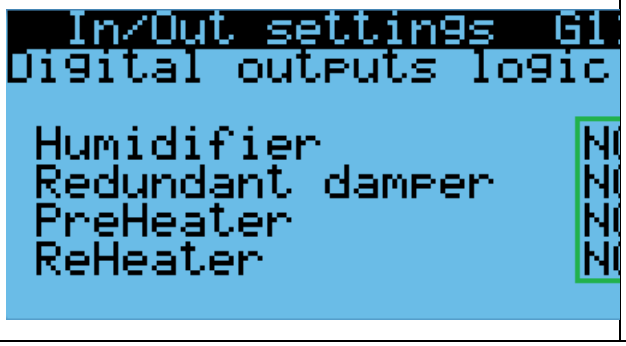


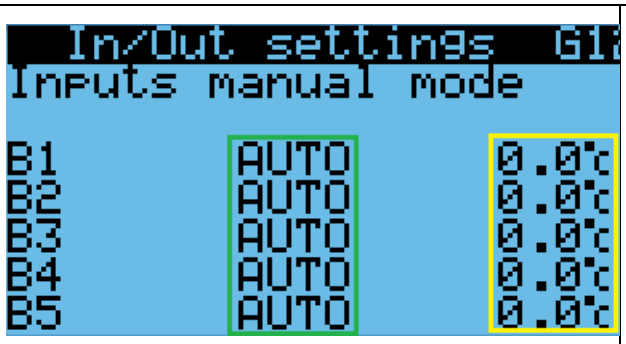
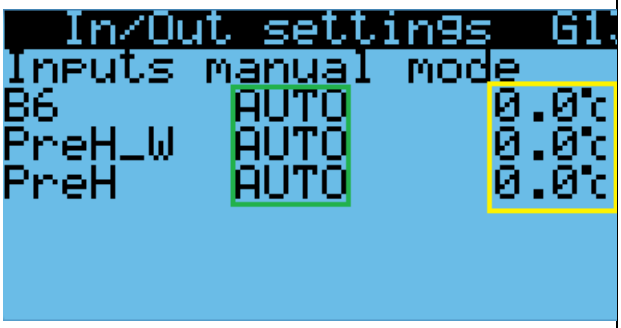
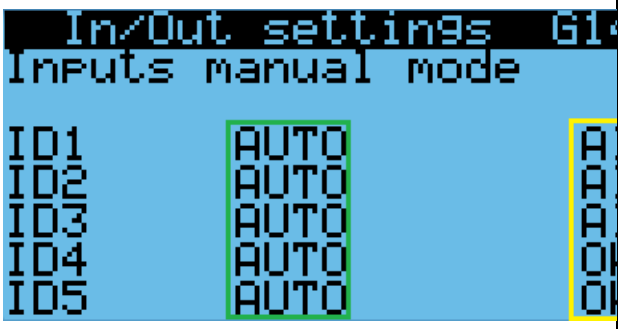
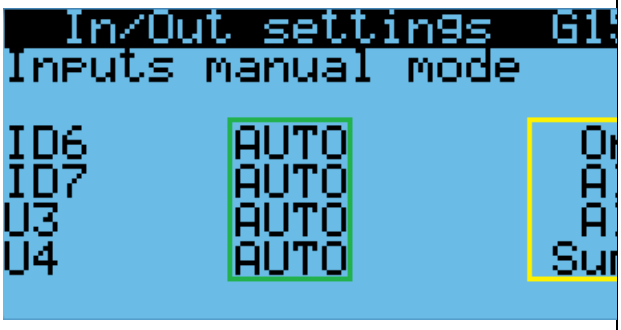
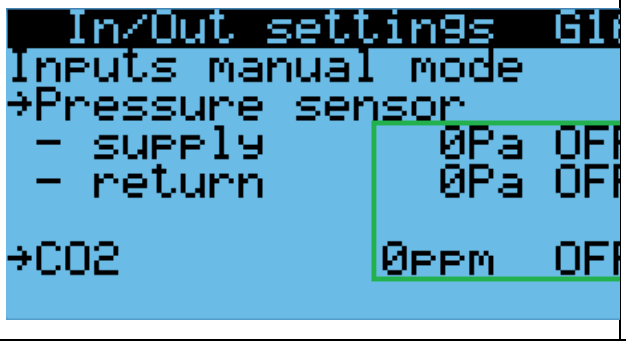
G01

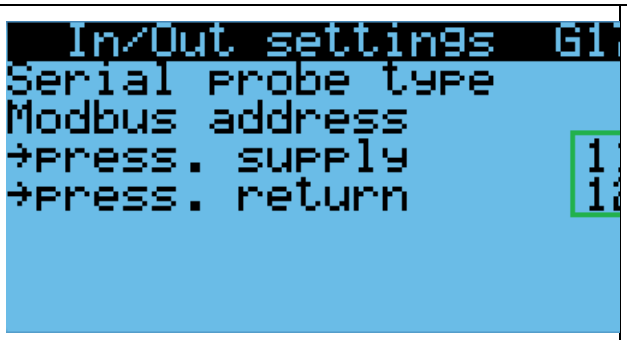
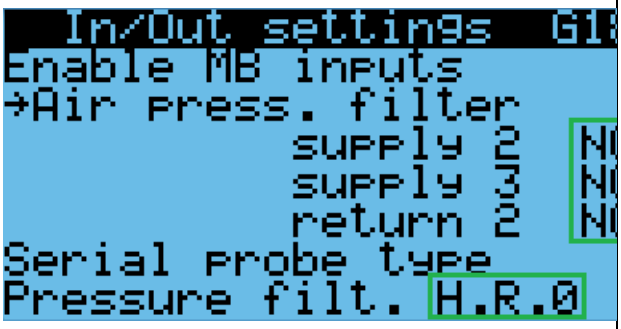
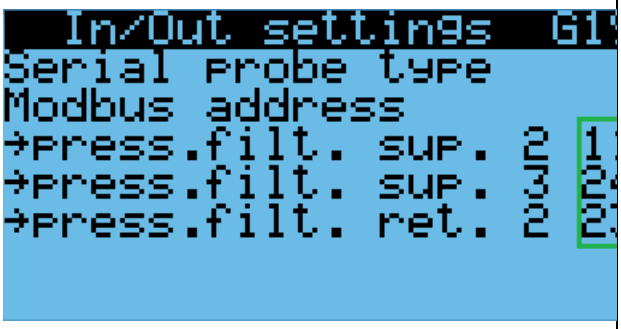
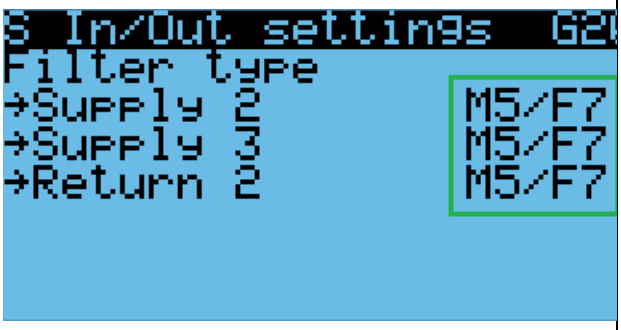
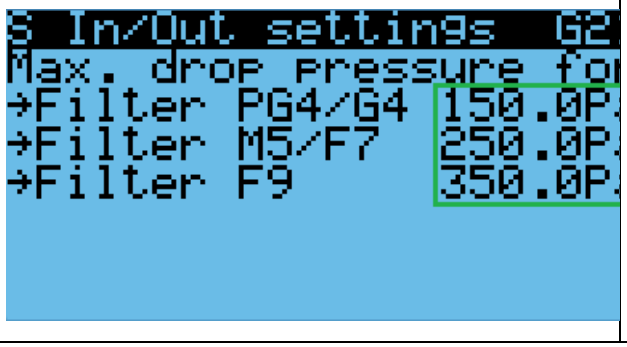


- **„B2 Return”** – return air temperature sensor activation
- **„B3 External”** – external air temperature sensor activation
- **„B4 Exhaust”** – exhaust air temperature sensor activation
- **„B5 Water heat”** – return heater medium contact temperature sensor activation

G02		• **„B6 Recovery supply”** – recovery supply air temperature sensor activation • **„B5 Water preheat”** – return preheater medium contact temperature sensor activation • **„B2/6”** – after preheater air temperature sensor activation • **„Summer / Winter DIN”** – activation of the digital input responsible for the external signal of forcing the AHU operation mode
G03		• **„Air pressure supply”** – activation of the supply air pressure duct transducer • **„Air pressure return”** – activation of the return air pressure duct transducer • **„Humidity supply”** – activation of the air supply duct humidity transducer • **„Humidity return”** – activation of the air return duct humidity transducer • **„CO2”** – activation of the duct CO2 level transmitter
G04		• **„Pressure”** – type of duct pressure transmitters for supply and exhaust • **„Filter enable”** – averaging of successive readings from pressure transducers • **„Filter value”** – maximum value of pressure change during successive readings for the averaging function • **„Humidity”** – type of duct humidity transmitters for supply and exhaust • **„CO2”** – type of the duct CO2 level transmitter
G05		• **„B1 Supply”** – supply temperature sensor correction • **„B2 Return”** – return temperature sensor correction • **„B3 External”** – external temperature sensor correction • **„B4 Exhaust”** – exhaust temperature sensor correction • **„B5 Water heat”** – return heater medium contact temperature sensor correction
G06		• **„B6 Recovery supply”** – recovery temperature sensor offset • **„B5 water preheat”** – water preheater backwater temperature sensor offset • **„After preheat”** – offset for sensor after preheater (B5) • **„H1 Humidity supply”** – supply humidity sensor correction • **„H2 humidity return”** – return humidity sensor correction • **„CO2 Return”** – return CO2 sensor correction

G07		• **„Fire”** – logic of the fire alarm digital input • **„Fire autorestart”** – fire alarm autoreset function activation • **„Heat alarm”** – logic of the heater alarm digital input • **„Cool alarm”** – logic of the cooler alarm digital input • **„Supply filter”** – logic of the supply filter pressure switch digital input (for uPC3 or EC-PC, depending od configuration – unused for active Control Circuit) • **„Return filter”** – logic of the return filter pressure switch digital input
G08		• **„Remote ON”** – remote mode change digital input logic • **„Mode”** – mode activated by a digital input responsible for remote enforcement of the AHU operating mode (Eco / Opt / Komf / external work permit) • **„Humidifier alarm”** – humidifier digital alarm input logic • **„Winter / Summer”** – logic of the digital input responsible for the external signal of forcing the AHU operation mode
G09		• **„Damper”** – logic of the digital output activating dampers • **„Alarm”** – global alarm digital output logic (for AHU stopping alarm type) • **„Recovery pump”** – logic of the digital output activating the glycol recovery pump • **“NO5 logic”** – logic of the digital output changing the cooling / heating mode
G10		• **„Heating out”** – logic of digital output activating the first stage of the heater • **„Heating out 2”** – logic of digital output activating the second stage of the heater • **„Cooling out”** – logic of digital output activating the first stage of the cooler • **„Cooling out 2”** – logic of digital output activating the second stage of the cooler
G11		• **„Humidifier”** – logic of the digital output that allows the operation of the humidifier • **„Redundant damper”** – logic of digital output activating dampers of redundant fans • **„PreHeater”** – logic of the digital output activating the first stage of the preheater • **„ReHeater”** – logic of the digital output activating the first stage of the reheater

G12		• **„B1”** – selection of the B1 analog input mode between automatic (resulting from the actual signal supplied to the input) or manual (expressed in %) • **„B2”** – selection of the B2 analog input mode between automatic or manual • **„B3”** – selection of the B3 analog input mode between automatic or manual • **„B4”** – selection of the B4 analog input mode between automatic or manual • **„B5”** – selection of the B5 analog input mode between automatic or manual
G13		• **„B6”** – selection of the B6 analog input mode between automatic (resulting from the actual signal supplied to the input) or manual (expressed in %) • **„PreH_W”** – selection of the analog input mode of the water pre-heater (sensor B5) between automatic or manual • **„PreH”** – selection of the analog input mode after the preliminary heater (sensor B2 / B6) between automatic or manual
G14		• **„ID1”** – selection of the ID1 digital input mode between automatic (resulting from the actual signal supplied to the input) or manual (expressed in %) • **„ID2”** – selection of the ID2 digital input mode between automatic or manual • **„ID3”** – selection of the ID3 digital input mode between automatic or manual • **„ID4”** – selection of the ID4 digital input mode between automatic or manual • **„ID5”** – selection of the ID5 digital input mode between automatic or manual
G15		• **„ID6”** – selection of the ID6 digital input mode between automatic (resulting from the actual signal supplied to the input) or manual (expressed in %) • **„ID7”** – selection of the ID7 digital input mode between automatic or manual • **„U3”** – selection of the U3 digital input mode between automatic or manual • **„U4”** – selection of the U4 digital input mode between automatic or manual
G16		• **„Supply”** – selection of the supply air pressure transducer operating mode between automatic (resulting from the actual signal read by the converter) or manual (expressed in Pa) • **„Return”** – selection of the supply air pressure transducer operating mode between automatic or manual • **„CO2”** – selection of the operating mode of the CO2 duct transducer between automatic or manual (expressed in ppm)

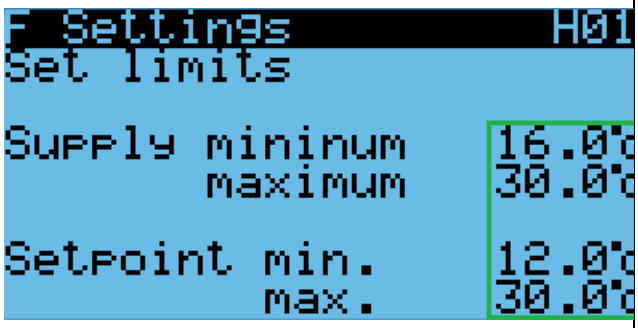
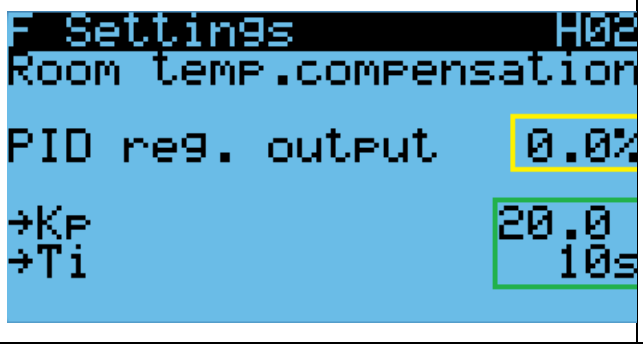
G17		• **„Pressure supply”** – address of the duct air supply pressure transducer in the Modbus • **„Pressure return”** – address of the duct air return pressure transducer in the Modbus
G18		• **„Supply 2”** – activation of the second pressure transducer for the supply air filter • **„Supply 3”** – activation of the third pressure transducer for the supply air filter • **„Return 2”** – activation of the 2nd pressure transducer for the return air filter • **„Serial probe type – pressure filter”** – type of additional pressure transducers selected for filters
G19		• **„Pressure filter supply 2”** – address of the second pressure transducer for the supply air filter • **„Pressure filter supply 3”** – address of the third pressure transducer for the supply air filter • **„Pressure filter return 2”** – address of the second pressure transducer for the return air filter
G20		• **„Filter type - Supply 2”** – filter type for second transducer for supply filter • **„Filter type - Supply 3”** – filter type for third transducer for supply filter • **„Filter type - Return 2”** – filter type for second transducer for return filter
G21		• **„Filter PG4/G4”** – permissible pressure drop for PG4/G4 filters type, above which the alarm is activated (A750) • **„Filter M5/F7”** – permissible pressure drop for M5/F7 filters type, above which the alarm is activated • **„Filter F9”** – permissible pressure drop for F9 filters type, above which the alarm is activated

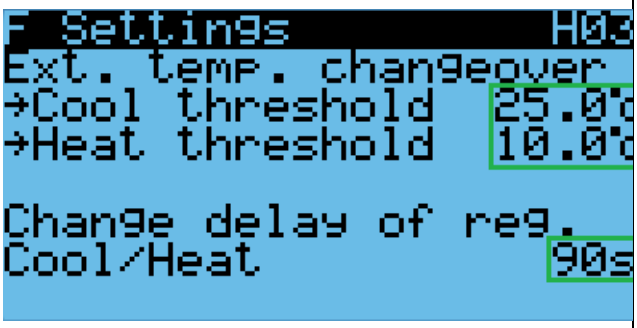
uPC3 in / out

Controller uPC3	
Supply	
G0	Supply -24V DC
G	Supply +24V DC
Digital Input	
DI1	Fire alarm
DI2	Heater alarm
DI3	Cooler alarm / DX_H alarm
DI4	Humidifier alarm / Supply filter alarm without PCB-EC
DI5	DX_H reverse / Return filter alarm without PCB-EC
DI6	Remote STOP or Work Mode
GND	-24V DC
Analog Input	
B1	Temperature supply
B2	Temperature return / Pre-Heater for Compact
B3	Temperature external
B4	Temperature exhaust
B5	Temperature water heater
B6	Temperature recovery supply / Pre-Heater for CBX
GND	-24V DC
Analog Output	
Y1	Recovery / Mixing damper / Heater / Re-Heater for DX_H
Y3	Recovery / Mixing damper / Cooler / DX_H
GND	-24V DC
Digital Output	
C1	+24V DC
NO1	Heater / Re-Heater for DX_H
NO2	Dampers
NO3	Global Alarm / Re-Heater / Pre-Heater
C2	+24V DC
NO4	Cooler / DX_H
NO5	Cooler 2 / Humidifier / Glycol / Redundant / DX_H reverse
NO6	Heater 2 / DX_H st. 2 / Humidifier
Communication	
RS-485	Modbus RTU - Master
Ethernet	WebVisu, Modbus TCP/IP
pLan	HMI Advanced - pGD1

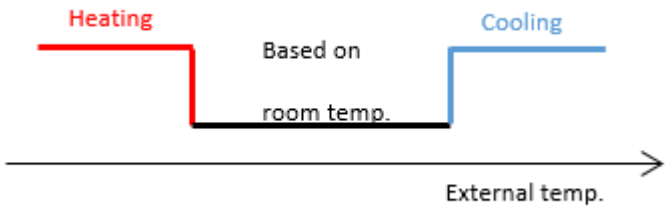
Module I/O for Compact - Control Circuit / Mainboard	
Supply	
G0	Supply -24V DC
G	Supply +24V DC
Analog Output	
Y1	Recovery
Y2	Mixing dampers
Y3	Re-Heater / Humidifier
Y4	Re-Heater / Pre-Heater
I2C	
	Pressure fan supply
	Pressure fan return
	Pressure filter supply
	Pressure filter return
	Tempeature and humidity return
Communication	
RS-485	Modbus RTU - Slave

Module I/O for CBX - PCB-EC	
Supply	
G0	Supply -24V DC
G	Supply +24V DC
Analog Output	
AO1	Mixing damper / Recovery / Humidifier
AO2	Recovery / Mixing dampers / Re-Heater / Pre-Heater
Digital Input	
DI1	Filter supply alarm
DI2	Filter return alarm
Analog Input	
AIN1	-
Communication	
RS-485	Modbus RTU - Slave

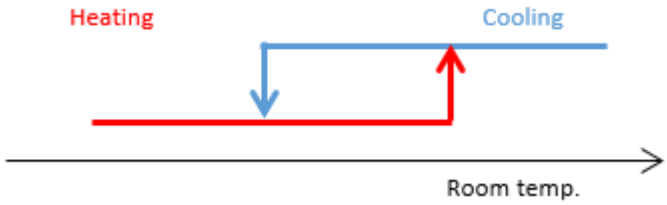
H01		• **„Supply minimum”** – minimum supply temperature (B2 sensor), which is the reference for the supply air temperature compensation controller for room / exhaust temperature control (minimum supply temperature that can be set by the controller automatically) • **„Supply maximum”** – maximum supply temperature (B2 sensor), which is the reference for the supply air temperature compensation controller for room / exhaust temperature control (maximum supply temperature that can be set by the controller automatically) • **„Setpoint minimum”** – minimum lead temperature possible to set • **„Setpoint maximum”** - maximum lead temperature possible to set
H02		• **„PID regulator output”** – current control level of the PID regulator of the room temperature compensation • **„Kp”** – room temperature compensation PID gain factor • **„Ti”** – room temperature compensation PID doubling time

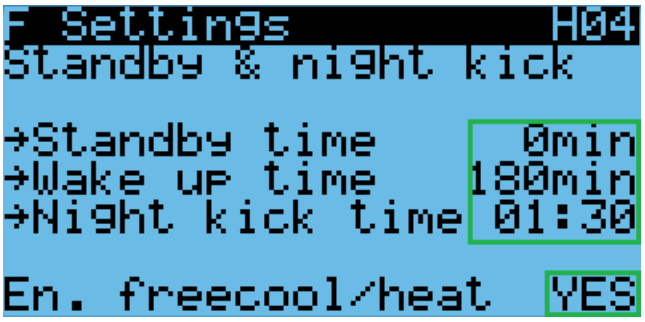
H03		• **„Cool threshold”** – temperature above which AHU operation is possible only in cooling mode (between the heating and cooling threshold it is possible to operate in both heating and cooling mode) • **„Heat threshold”** – temperature below which AHU operation is possible only in heating mode • **„Change delay of regulation Cool / Heat”** – the minimum time that must elapse after switching off the heating sequence, before starting cooling - or vice versa (restarting the same sequence is possible after switching it off before this time has elapsed)

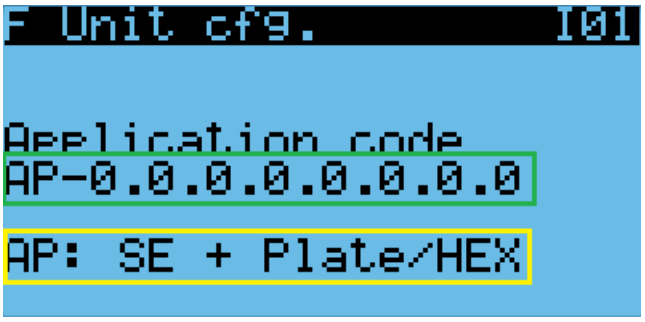
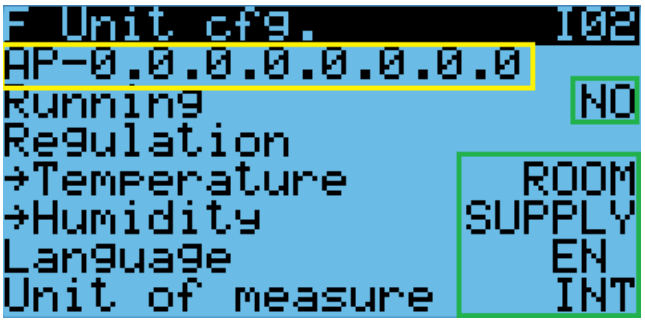
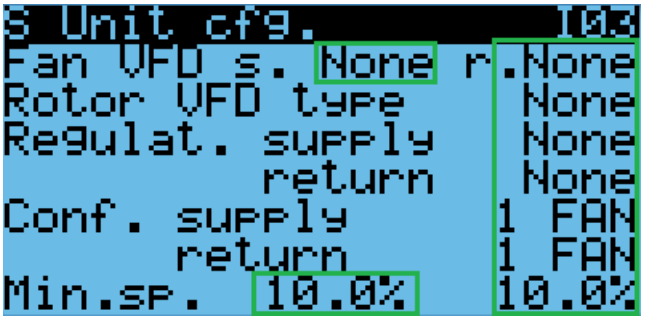
Heating / Cooling forcing thresholds

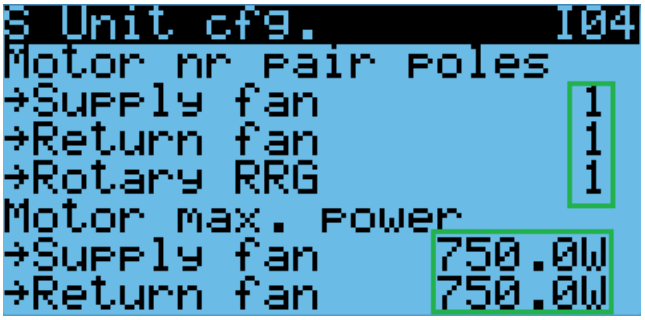
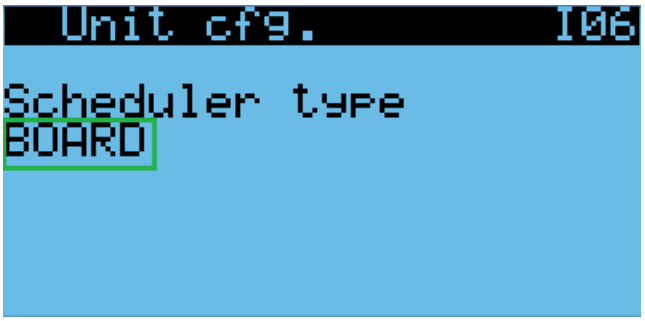
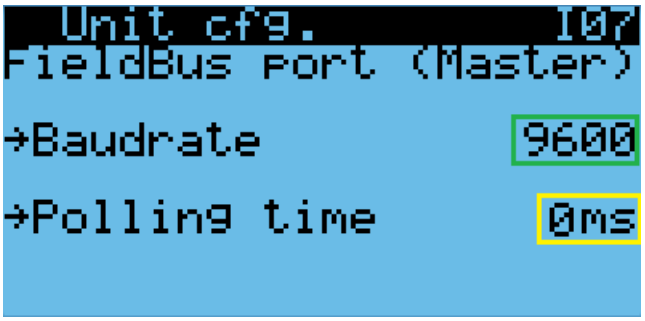


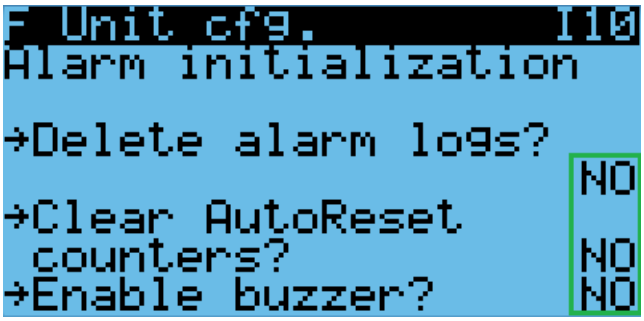
Temperature control hysteresis

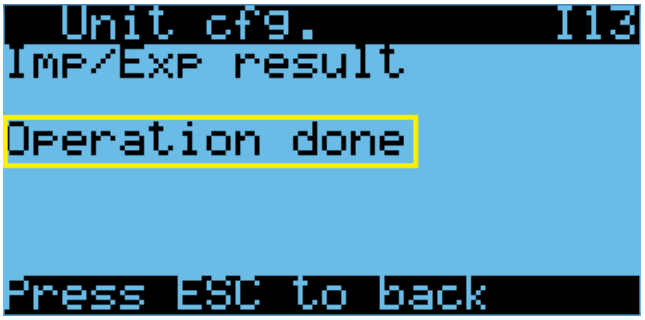
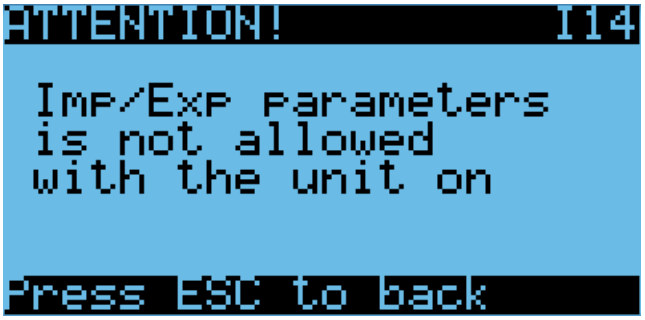
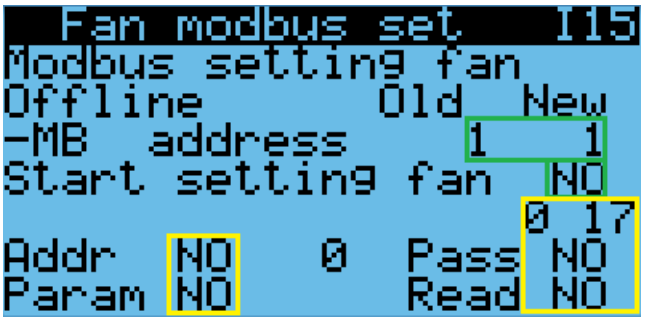
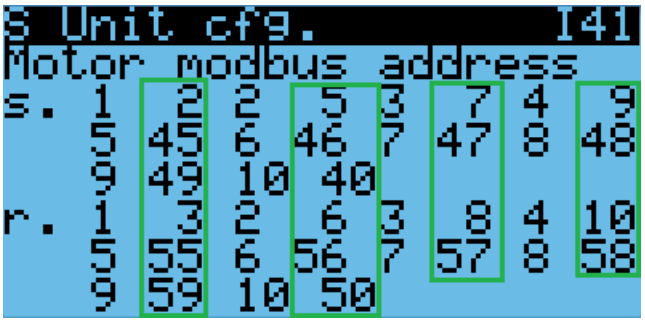


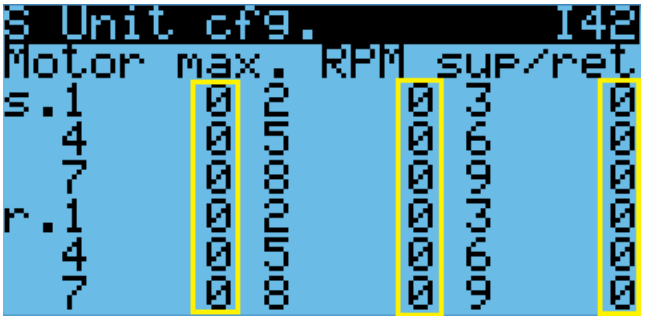
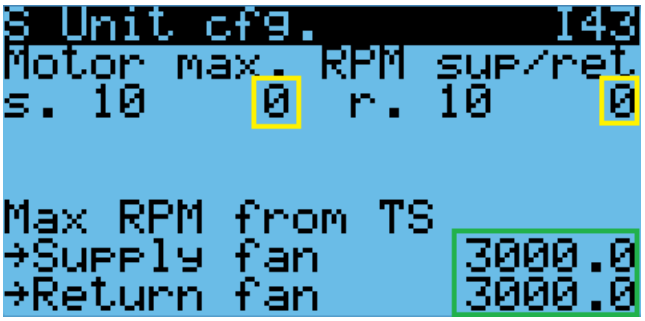
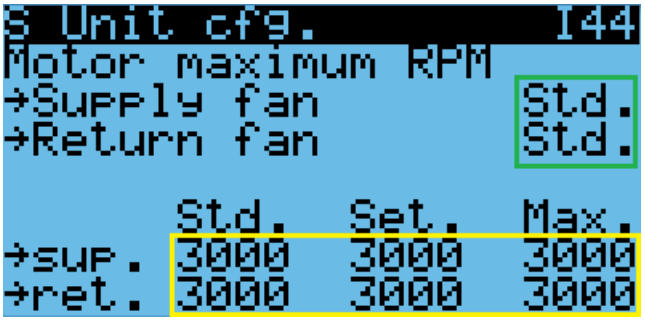
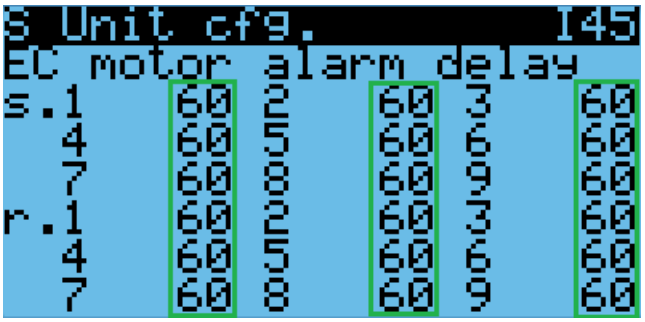
H04		• **„StandBy Time”** – the minimum time for which the AHU is awakened in StandBy mode - even if the setpoint is reached in a shorter time, the AHU will turn off only after set time ends (value = 0 disables the automatic waking of the AHU) • **„Wake up time”** – time, defining the interval between automatic AHU awakenings in StandBy mode, where each of the wake-ups lasts until the set point is reached, then the AHU is turned off • **„Night kick time”** – the time at which the AHU should wake up every day (in StandBy mode) and work until the set point is reached, then turn off • **„Enable freecool / heat”** – activation of the freecooling / freeheating option, which, under favorable external conditions, is the first stage of cooling / heating (use

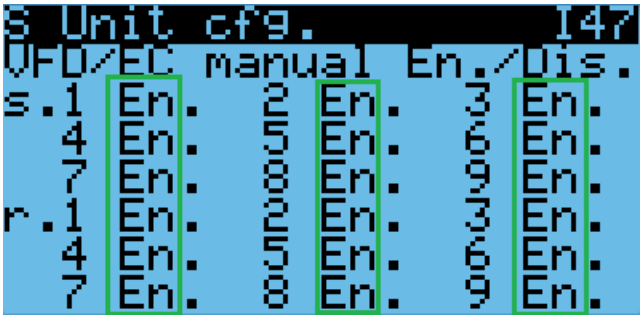
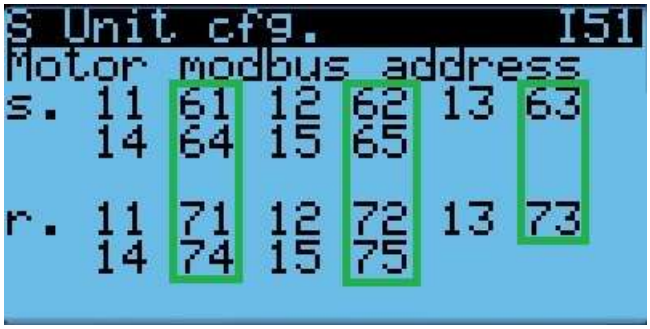
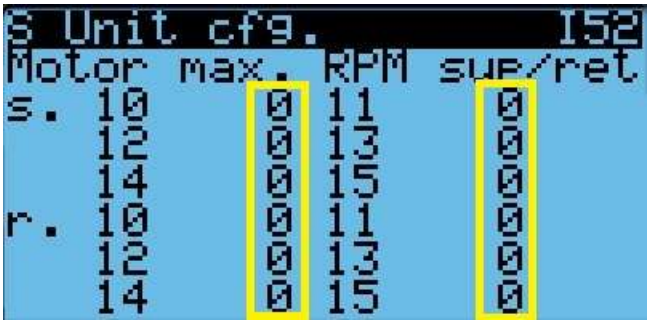
		of the appropriate external temperature to achieve the setpoint) **[it is not possible to activate only cyclical wake-ups or only night activations - increasing the StandBy time above 0 activates both of these functionalities]**
I01		• **„Application code”** – code specifying the AHU type and the functions it contains (it is read from the AHU technical card)
I02		• **„Application code”** – code specifying the AHU type and the functions it contains (it is read from the AHU technical card) • **„Running**” – choice between switching the unit to work or switching it off • **„Temperature”** – lead temperature sensor, used to determine the operating set points • **„Humidity”** – lead humidity sensor, used to determine the operating set points • **„Language”** – HMI Advanced menu language • **„Unit of measure”** – system of measurement units displayed in the menu
I03		• **„Fan VFD supply”** – supply fans drive type • **„Fan VFD return”** – return fans drive type • **„Rotor VFD type”** – RRG drive type • **„Regulation supply”** – supply fans regulation type • **„Regulation return”** – return fans regulation type • **„Configuration supply”** – number of fans / definition of the presence of a redundant fan in the supply line • **„Configuration return”** – number of fans / definition of the presence of a redundant fan in the return line • **„Minimum setpoint”** – the smallest achievable fan control (if the Set module is set to a value lower than this, the fans will still work with the setting from screen I03)

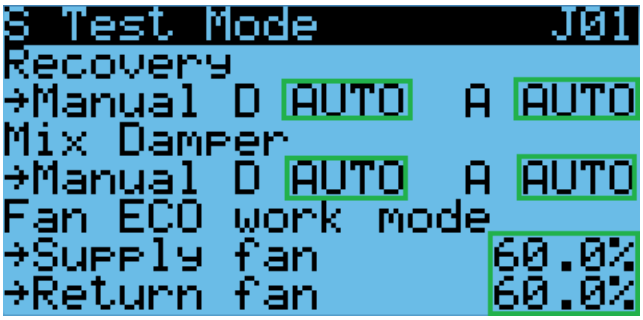
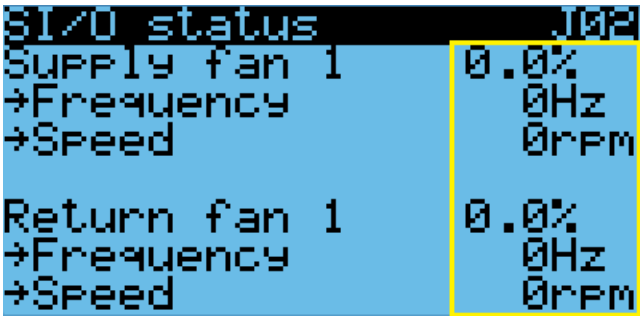
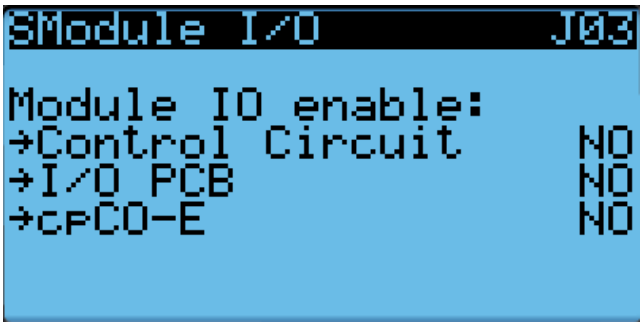
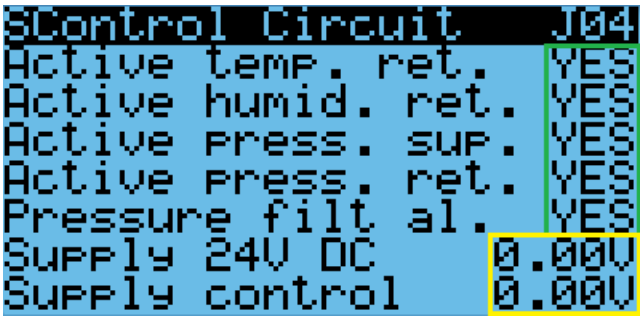
I04		• **„Supply fan”** – poles number of the supply fans motors (this setting is used to properly display the frequency value on information screens - its value can be read from the motor rating plate) • **„Return fan”** – poles number of the return fans motors • **„Rotary RRG”** – poles number of the RRG motor • **„Supply fan”** – maximum rated power of the air supply motors (setting the maximum power is used to properly calculate the current consumption of the motor in the visualization application) • **„Return fan”** – maximum rated power of the air return motors
I05		• **„HMI Basic”** – address and activation of the HMI Basic • **„Time synchronization”** – HMI Basic time synchronization with the AHU controller • **„Humidity sensor”** – activation of the HMI Basic humidity sensor • **„Allow reset alarm”** – activation of AHU alarms reset from HMI Basic • **„HMI Basic 2”** – address and stop bit of the HMI Basic 2
I06		• **„Scheduler type”** – selection of the source of the work schedule implemented by the AHU between HMI Basic, the controller and no schedule
I07		• **„Baudrate”** – baudrate of the Modbus RTU protocol used by the controller (the correct value is 9600) • **„Polling time”** – Modbus RTU response time

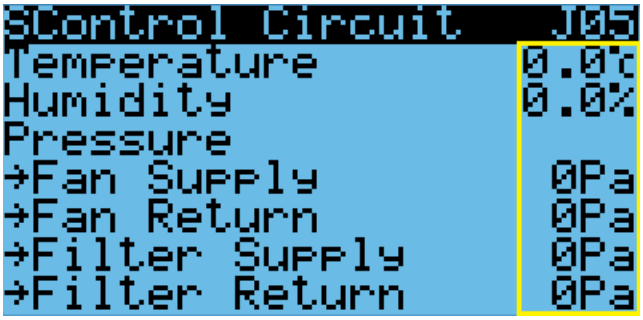
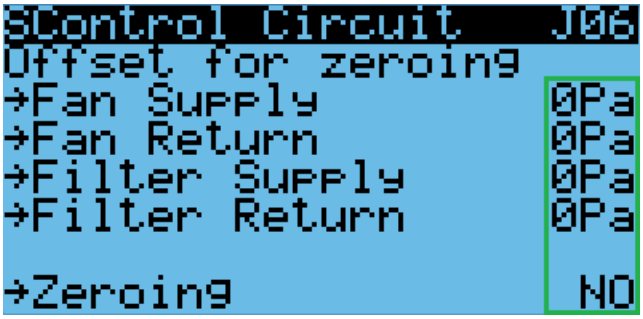
I08		• **„Address”** – controller address used for communication using an external protocol • **„Baudrate”** – baudrate of the external driver protocol • **„pLan port”** – the type of protocol used by the controller pLan port (RJ11 socket) **[depending on the selected HMI, the value of the parameter relating to the pLan port should be set to HMI Advanced, HMI Touch or pGDx]**
I09		• **„User”** – password to access the controller menu at the User level • **„Service”** – password to access the controller menu at the Service level • **„Manufacturer”** – password to access the controller menu at the Manufacturer level
I10		• **„Delete alarm logs”** – deletion of records from the history of alarms that occurred in the past • **„Clear AutoReset counters”** – resetting the counters used by some alarms to determine the number of their occurrences subject to automatic reset • **„Enable buzzer”** – function of activating sound information when alarms occur.
I11		• **„Import / export”** – choice between import and export driver settings • **„Memory type”** – memory with which the import / export function will be performed • **„File name”** – target name of the exported / imported settings file • **„Confirm”** – approving the start of the import / export operation
I12		• an information screen showing how to reset the driver application to its default settings

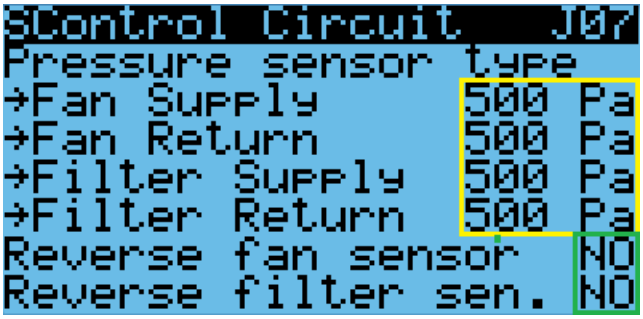
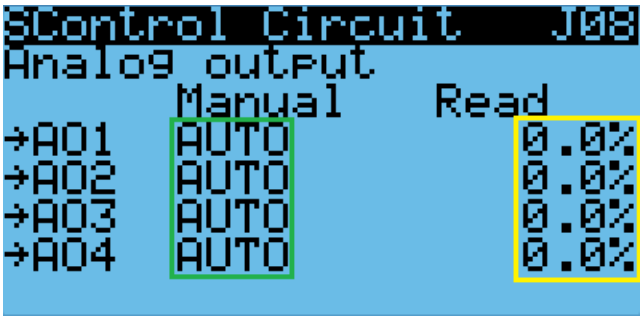
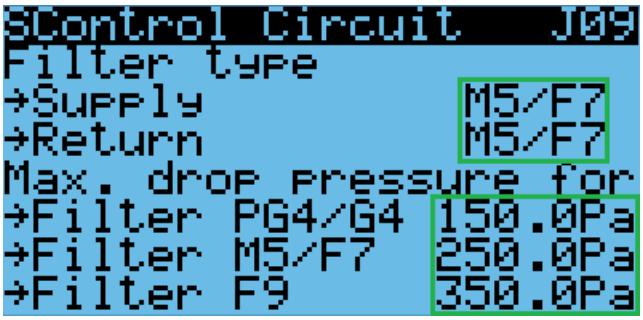
I13		• **„Import / export result”** – result of the import / export operation
I14		• screen informing that the import / export operation is impossible with the AHU running
I15		• **„MB address old”** – current address of the EC motor to be changed • **„MB address new”** – the destination address of the EC motor to work with • **„Start setting fan”** – confirmation of the start of the EC motor programming process • **„Address”** – connection to the motor at the selected address / change of address • **„Parameters”** – change of motor parameters • **„Password”** – use a password to change / save parameters • **„Readings”** – reading of newly programmed parameters
I41		• **„Motor Modbus address supply”** – address of individual air supply motors in the Modbus • **„Motor Modbus address return”** – address of individual air return motors in the Modbus

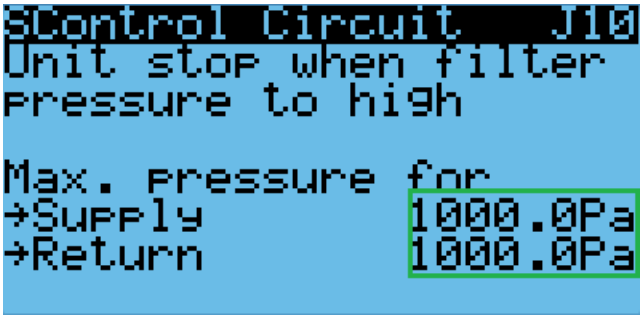
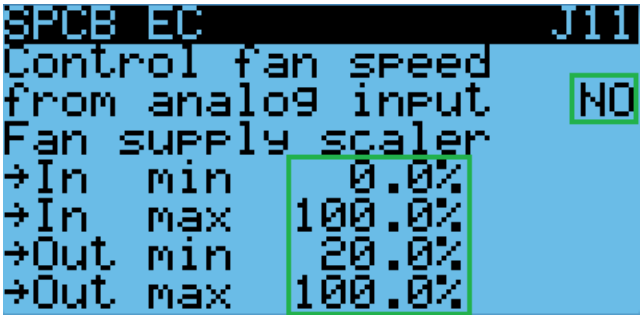
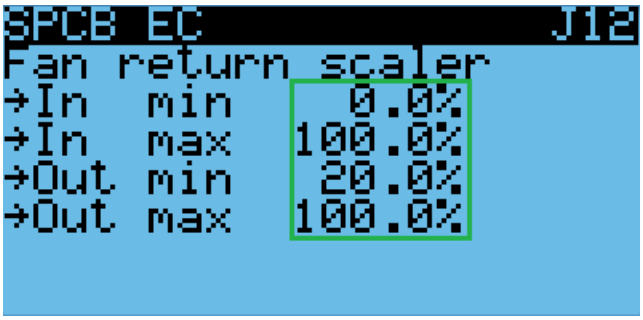
I42		• **„Motor maximum RPM supply”** – maximum speed of individual air supply EC motors set in their controllers, being the reference for regulation by the AHU controller • **„Motor maximum RPM return”** – maximum speed of individual air return EC motors set in their controllers, being the reference for regulation by the AHU controller
I43		• **„Motor maximum RPM supply”** – maximum speed of individual air supply EC motors set in their controllers, being the reference for regulation by the AHU controller • **„Motor maximum RPM return”** – maximum speed of individual air return EC motors set in their controllers, being the reference for regulation by the AHU controller • **„Maximum RPM from Technical Specification – Supply fan”** – maximum speed of supply EC motors, read from their technical card • **„Maximum RPM from Technical Specification – Return fan”** – maximum speed of return EC motors, read from their technical card
I44		• **„Supply fan”** – factor for air supply EC motors, enabling their speed to be increased above the maximum speed set in the AHU assembly process (standard = speed set in the assembly process, set = standard taking into account the factor set, maximum = maximum allowable speed of the motor resulting from its type) • **„Return fan”** – factor for air return EC motors, enabling their speed to be increased above the maximum speed set in the AHU assembly process
I45		• **„EC motor alarm delay - supply”** – delay in activation of selected alarms (lack of communication, IGBT, overload) for given supply EC motors in relation to the moment of their cause • **„EC motor alarm delay - return”** – delay in activation of selected alarms (lack of communication, IGBT, overload) for given return EC motors in relation to the moment of their cause

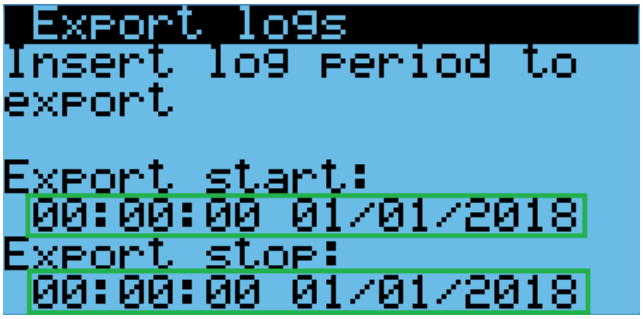
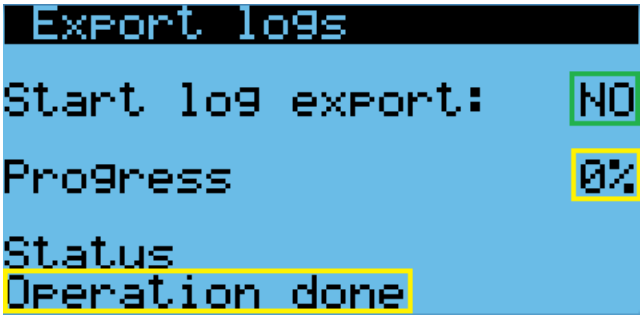
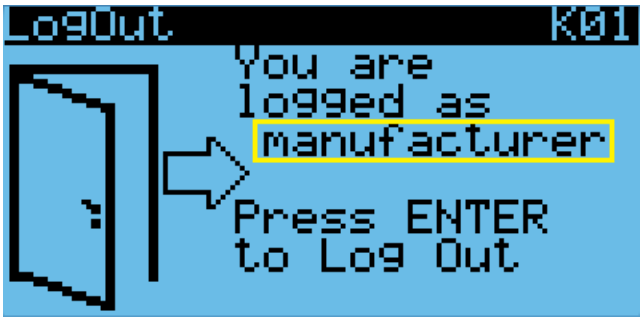
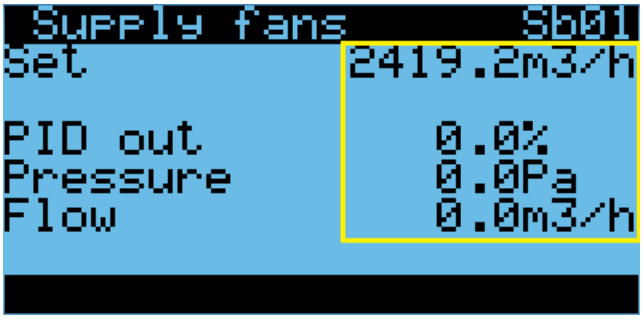
I46		• **„EC motor alarm delay - supply”** – delay in activation of selected alarms (lack of communication, IGBT, overload) for given supply EC motors in relation to the moment of their cause • **„EC motor alarm delay - return”** – delay in activation of selected alarms (lack of communication, IGBT, overload) for given return EC motors in relation to the moment of their cause
I47		• **„VFD / EC manual enable / disable - supply”** – activation or deactivation of selected supply EC motors in the AHU • **„VFD / EC manual enable / disable - return”** – activation or deactivation of selected return EC motors in the AHU
I48		• **„VFD / EC manual enable / disable - supply”** – activation or deactivation of selected supply EC motors in the AHU • **„VFD / EC manual enable / disable - return”** – activation or deactivation of selected return EC motors in the AHU
I51		• **„Motor Modbus address supply”** – address of individual air supply motors in the Modbus • **„Motor Modbus address return”** – address of individual air return motors in the Modbus
I52		• **„Motor maximum RPM supply”** – maximum speed of individual air supply EC motors set in their controllers, being the reference for regulation by the AHU controller • **„Motor maximum RPM return”** – maximum speed of individual air return EC motors set in their controllers, being the reference for regulation by the AHU controller

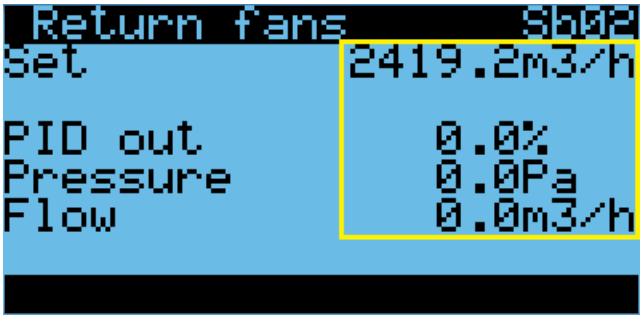
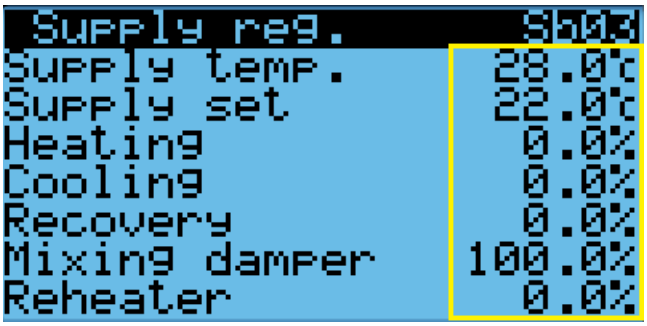
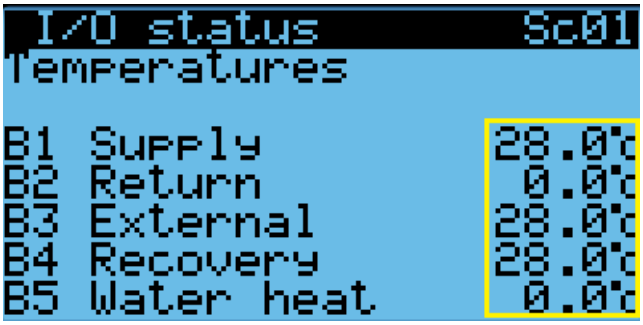
J01		• **„Recovery Manual D”** – manual setting of the 0/1 value to the digital output responsible for the permission to work of the recovery • **„Recovery Manual A”** – manual setting of 0-100% value to the analog output responsible for the level of control of the recovery • **„Mix damper manual D”** – manual setting of the 0/1 value to the digital output responsible for the permission to work of the mixing dampers • **„Mix damper manual A”** – manual setting of 0-100% value to the analog output responsible for the level of control of the mixing damper • **„Supply”** – air supply fan control setpoint in Eco mode • **„Return”** – air return fan control setpoint in Eco mode
J02		• **„Supply fan 1”** – current control level of the first air supply motor • **„Frequency”** – current frequency of the first air supply motor • **„Speed”** – current speed of the first air supply motor • **„Return fan 1”** – current control level of the first air return motor • **„Frequency”** – current frequency of the first air return motor • **„Speed”** – current speed of the first air return motor
J03		• **„Control Circuit”** – activation / deactivation of the Control Circuit module (Mainboard) • **„I/O PCB”** – activation / deactivation of the I / O PCB module (EC-PCB) • **„cpCO-E”** – cpCO-E module activation / deactivation
J04		• **„Active temperature return”** – activation / deactivation of the return air temperature sensor (B2) of the Control Circuit • **„Active humidity return”** – activation / deactivation of the return humidity sensor (B2) of the Control Circuit • **„Active pressure supply”** – activation / deactivation of the supply air pressure sensor of the Control Circuit • **„Active pressure return”** – activation / deactivation of the return air pressure sensor of the Control Circuit • **„Pressure filter active”** – activation / deactivation of the

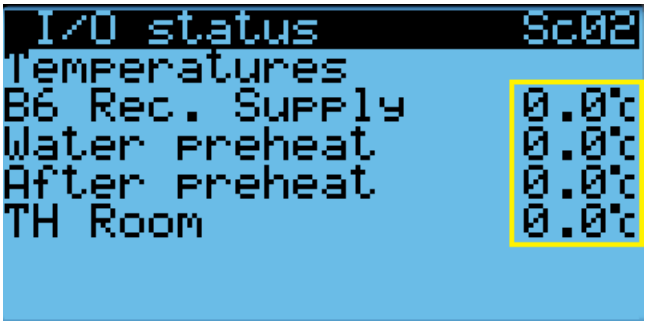
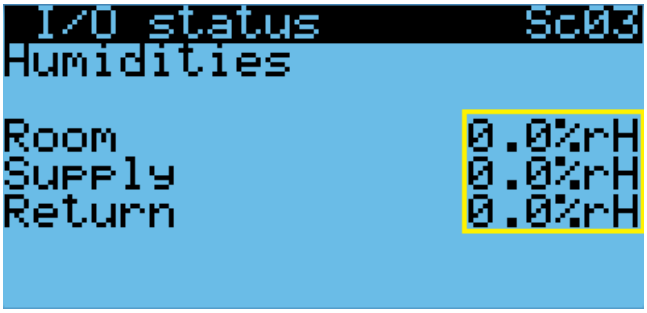
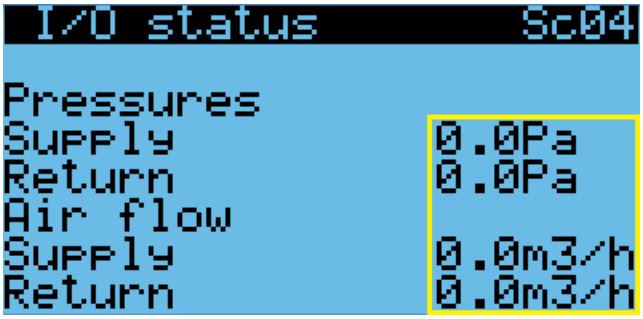
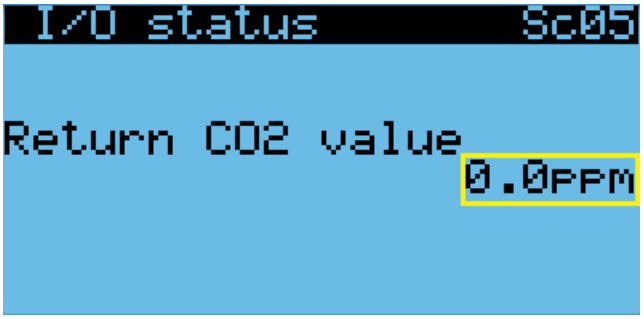
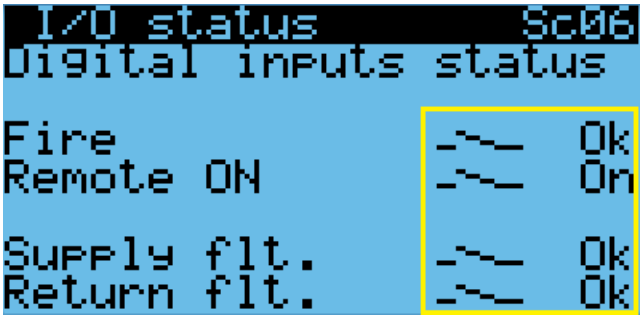
		filters air pressure sensor of the Control Circuit • **„Supply 24V DC”** – the current value of the Control Circuit supply voltage • **„Supply control”** – current value of the supply voltage of the microcontroller of the Control Circuit module
J05		• **„Temperature”** – current return air temperature (sensor B2) of the Control Circuit • **„Humidity”** – current return air humidity (sensor B2) of the Control Circuit • **„Fan supply”** – current pressure value of the Control Circuit supply air fans • **„Fan return”** – current pressure value of the Control Circuit return air fans • **„Filter supply”** – the current value of the control pressure of the Control Circuit supply air filters • **„Filter return”** – the current value of the control pressure of the Control Circuit return air filters
J06		• **„Fan supply”** – supply fans pressure offset that will be taken into account after the Control Circuit module transducers zeroing process • **„Fan return”** – exhaust fans pressure offset that will be taken into account after the Control Circuit module transducers zeroing process • **„Filter supply”** – supply filters pressure offset that will be taken into account after the Control Circuit module transducers zeroing process • **„Filter return”** – return filters pressure offset that will be taken into account after the Control Circuit module transducers zeroing process • **„Zeroing”** – approving the start of the zeroing (calibration) operation of the pressure transmitters of the Control Circuit module (the correction values are selected automatically based on the current readings of the transmitters - during the calibration process, disconnect the module's measuring hoses)

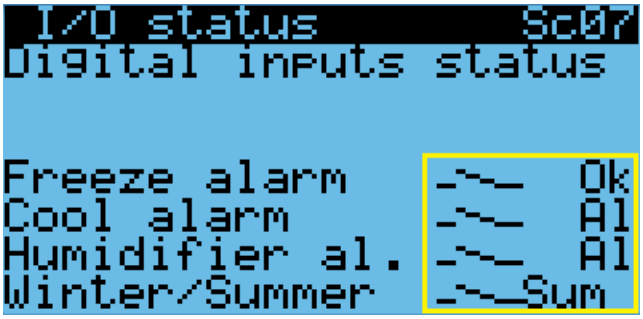
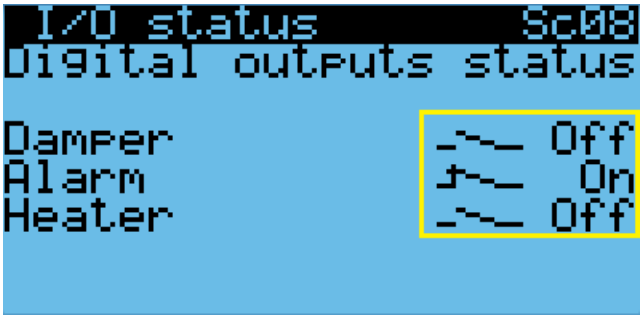
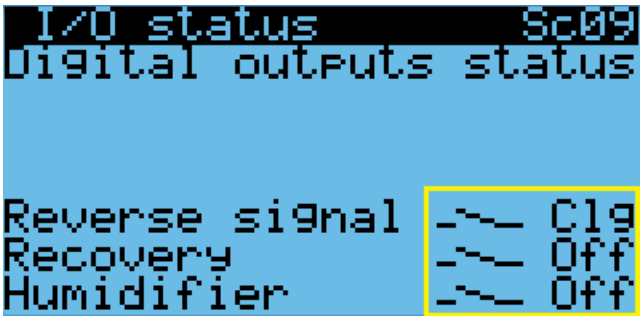
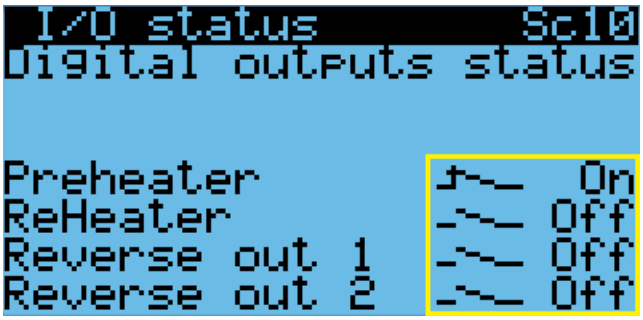
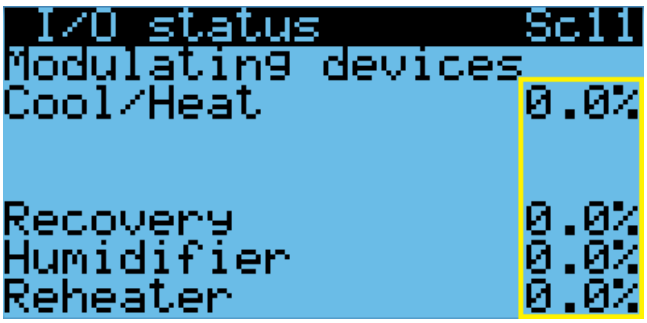
J07		• **„Fan supply”** – type of pressure transducer of the Control Circuit supply fans (500Pa and 6000Pa are available) • **„Fan return”** – type of pressure transducer of the Control Circuit return fans (500Pa and 6000Pa are available) • **„Filter supply”** – type of pressure transducer of the Control Circuit supply filters • **„Filter return”** – type of pressure transducer of the Control Circuit return filters • **„Reverse fan sensor”** – polarity reversal - change of negative (-) and positive (+) channels for measuring hoses for pressure transducers of the supply and exhaust fans of the Control Circuit module • **Reverse filter sensor”** – polarity reversal - change of negative (-) and positive (+) channels for measuring hoses for pressure transducers of the supply and exhaust filters of the Control Circuit module
J08		• **„AO1”** – selection of the AO1 analog output mode of the Control Circuit module between automatic (resulting from the actual signal supplied to the output) or manual (expressed in %) • **„AO2”** – selection of the AO2 analog output mode of the Control Circuit module between automatic or manual • **„AO3”** – selection of the AO3 analog output mode of the Control Circuit module between automatic or manual • **„AO4”** – selection of the AO4 analog output mode of the Control Circuit module between automatic or manual
J09		• **„Supply”** – type of supply filters used • **„Return**” – type of return filters used • **„Filter PG4/G4”** – permissible pressure drop for PG4/G4 filters type, above which the alarm is activated (A750) • **„Filter M5/F7”** – permissible pressure drop for M5/F7 filters type, above which the alarm is activated • **„Filter F9”** – permissible pressure drop for F9 filters type, above which the alarm is activated

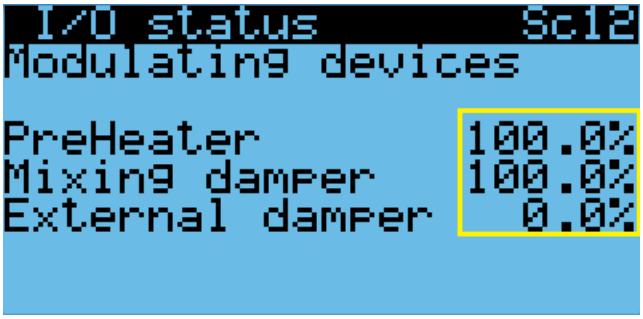
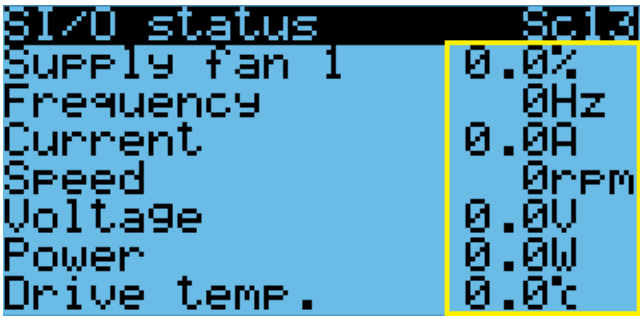
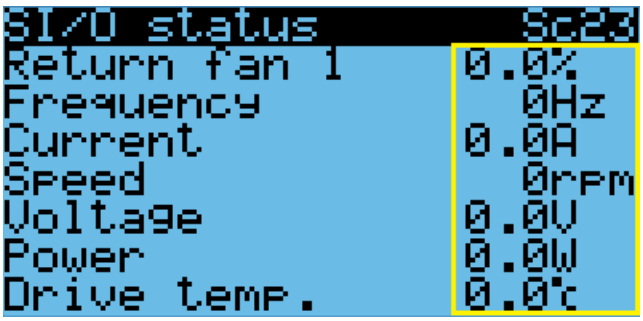
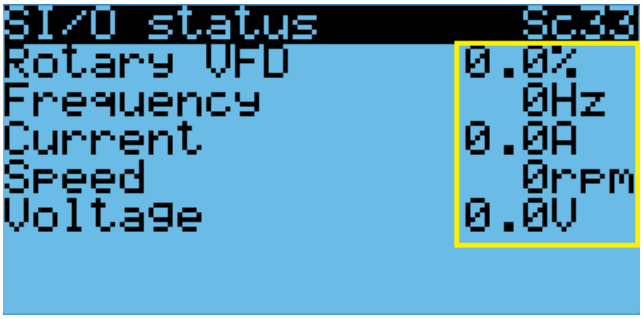
J10		• **„Supply”** – allowed pressure drop for supply air filters, above which the alarm (A750) is activated and the AHU is stopped • **„Return”** – allowed pressure drop for return air filters, above which the alarm is activated and the AHU is stopped
J11		• **„Control fan speed from analog input”** – use of the 0-10V signal provided to the analog input of the EC-PCB extension board as a master signal controlling the speed of the supply and exhaust fans • **„In min”** – 0-10V signal value supplied to the EC-PCB analog input, which causes the supply air fans to be controlled at the level defined by the parameter "Out min" • **„In max”** – 0-10V signal value supplied to the EC-PCB analog input, which causes the supply air fans to be controlled at the level defined by the parameter "Out max" • **„Out min”** – supply fan control level, caused by the signal sent to the analog input EC-PCB at the level specified in the parameter "In min" • **„Out max”** – supply fan control level, caused by the signal sent to the analog input EC-PCB at the level specified in the parameter "In max"
J12		• **„In min”** – 0-10V signal value supplied to the EC-PCB analog input, which causes the return air fans to be controlled at the level defined by the parameter "Out min" • **„In max”** – 0-10V signal value supplied to the EC-PCB analog input, which causes the return air fans to be controlled at the level defined by the parameter "Out max" • **„Out min”** – return fan control level, caused by the signal sent to the analog input EC-PCB at the level specified in the parameter "In min" • **„Out max”** – return fan control level, caused by the signal sent to the analog input EC-PCB at the level specified in the parameter "In max"

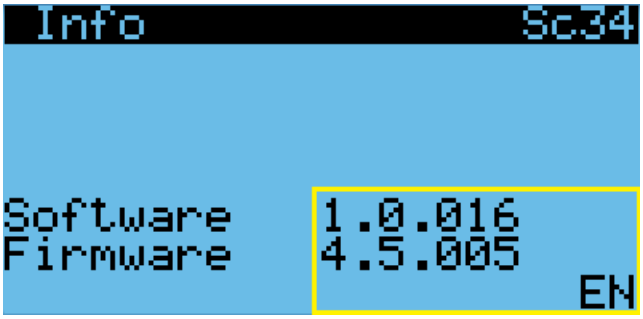
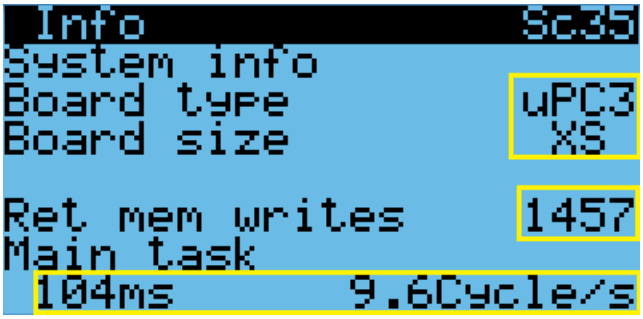
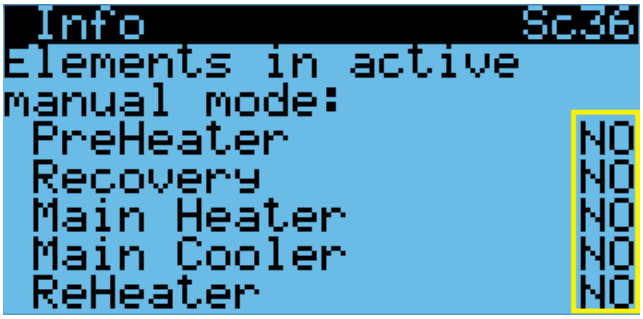
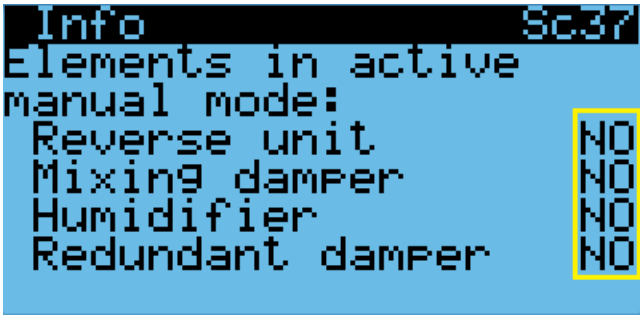
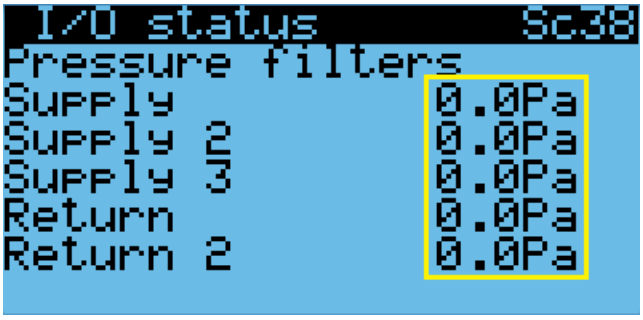
-		• **„Export target"** – memory with which the log export function will be performed • **„Select log to export"** – type of exported logs (choice between logs with lower / higher recording density) • **„Selected exported interval"** – choice between exporting logs from the entire available period of time and a narrowed period, selected on the next screen
-		• **„Export start"** – date and time of the first data in the export file • **„Export stop"** – date and time of the last data in the export file
-		• **„Start log export"** – approving the start of the log export operation • **„Progress"** – progress in the log export operation after confirming the start of the operation • **„Status"** – result of the export operation
K01		• **„You are logged as"** – information on the current access level to the controller menu (User / Service / Manufacturer)
Sb01		• **„Set"** – air supply fans operation setting • **„PID out"** – current control level of the PID controller of the supply fans • **„Pressure"** – the current pressure measured for the fans in the supply duct • **„Flow"** – air flow in the supply air duct corresponding to the current pressure

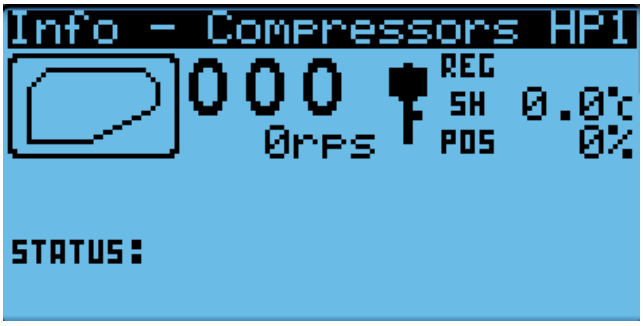
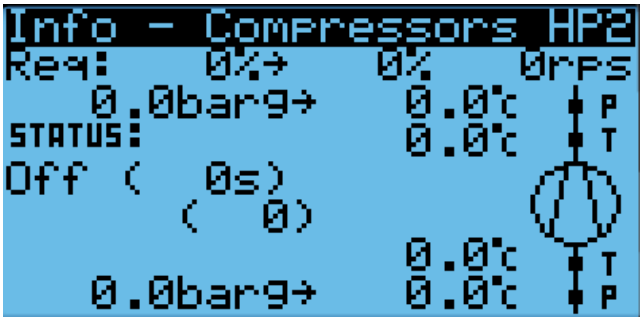
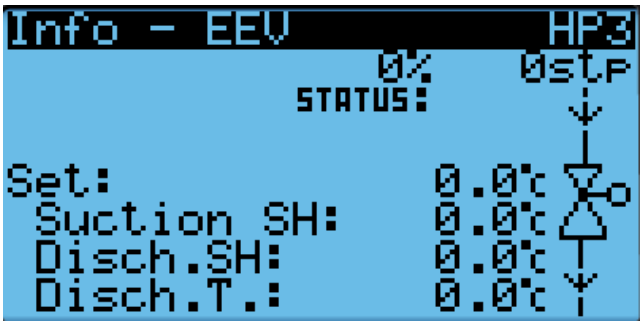
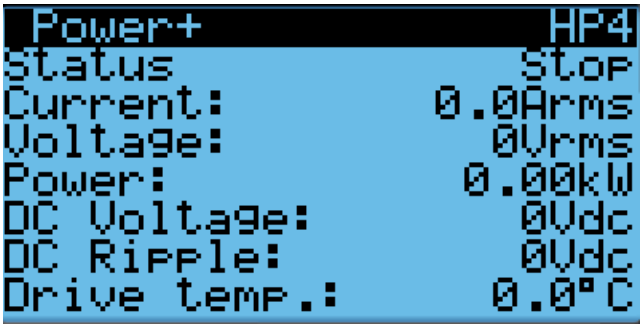
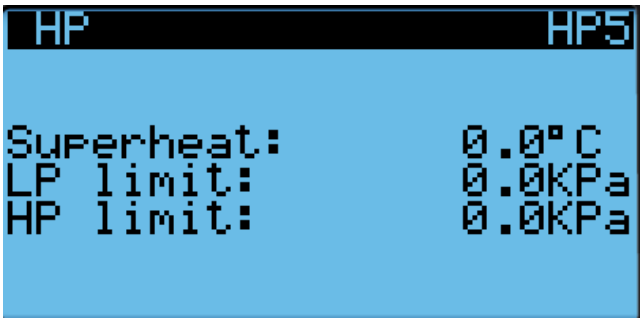
Sb02		• **„Set”** – air return fans operation setting • **„PID out”** – current control level of the PID controller of the return fans • **„Pressure**” – the current pressure measured for the fans in the return duct • **„Flow”** – air flow in the return air duct corresponding to the current pressure
Sb03		• **„Supply temperature”** – current supply temperature (sensor B1) • **„Supply setpoint”** – supply air temperature setting • **„Heating”** – current control of the PID heater / cooler of the DX system • **„Cooling”** – current control of the PID controller of the cooler • **„Recovery”** – current control of the PID controller of the recovery • **„Mixing damper”** – current control of the PID controller of the mixing damper • **„Reheater”** – current control of the PID controller of the reheater
Sb04		• **„Press ENTER for more information”** – entering advanced screens with AHU operation indications • **„X.X.XXX”** – controller software version
Sc01		• **„B1 Supply”** – current supply temperature • **„B2 Return”** – current return temperature • **„B3 External”** – current external temperature • **„B4 Recovery”** – current recovery temperature • **„B5 Water heat”** – current main heater contact backwater sensor temperature

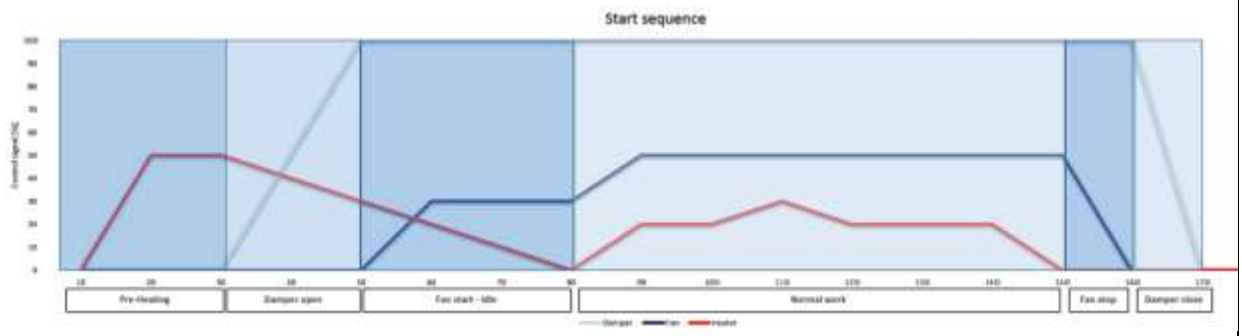
Sc02		• **„B6 Recovery supply”** – current recovery supply temperature • **„Water preheat”** – current reheater contact backwater sensor temperature • **„After preheat”** – current temperature after preheater • **„TH room”** – current room sensor temperature
Sc03		• **„Room”** – current room humidity • **„Supply”** – current supply humidity • **„Return”** – current return humidity
Sc04		• **„Pressure - supply”** – current supply pressure • **„Pressure - return”** – current return pressure • **„Air flow - supply”** – current supply airflow • **„Air flow - return”** – current return airflow
Sc05		• **„Return CO2 value”** – current return CO2 level
Sc06		• **„Fire”** – state of the fire alarm digital input • **„Remote ON”** – state of the remote work permit digital input • **„Supply filter”** – state of the supply filters pressure switch digital input • **„Return filter”** – state of the return filters pressure switch digital input

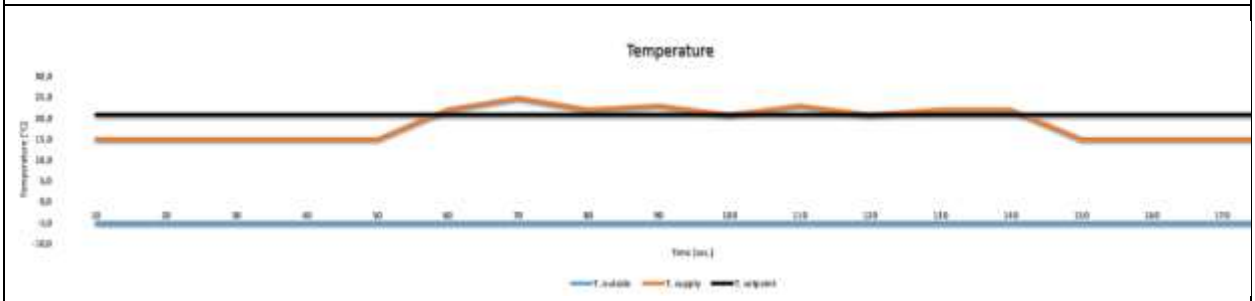
Sc07		• **„Freeze alarm”** – state of the heater alarm digital input • **„Cool alarm”** – state of the cooler alarm digital input • **„Humidifier alarm”** – state of the humidifier alarm digital input • **„Winter / summer”** – state of the winter / summer mode forcing digital input
Sc08		• **„Damper”** – state of the dampers digital output • **„Alarm”** – state of the global alarm digital output • **„Heater”** – state of the heater digital output
Sc09		• **„Reverse signal”** – state of the DX work mode digital output • **„Recovery”** – state of the recovery digital output • **„Humidifier”** – state of the humidifier digital output
Sc10		• **„Preheater”** – state of the preheater digital output • **„Reheater”** – state of the reheater digital output • **„Reverse out 1”** – state of the first DX level digital output • **„Reverse out 2”** – state of the second DX level digital output
Sc11		• **„Cool / Heat”** – state of the reverse unit analog output • **„Recovery”** – state of the recovery analog output • **„Humidifier”** – state of the humidifier analog output • **„Reheater”** – state of the reheater analog output

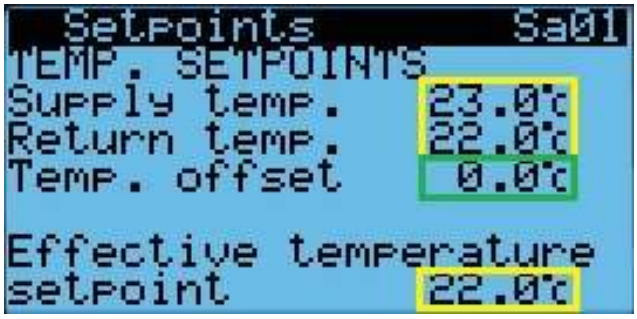
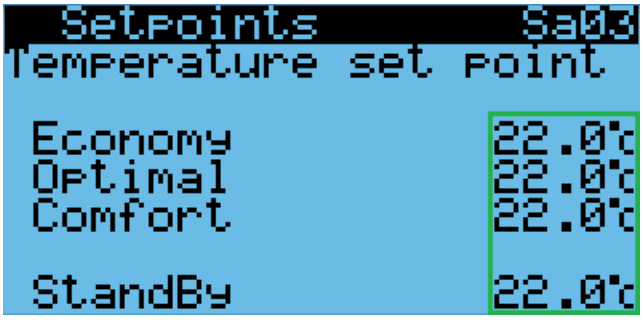
Sc12		• **„Preheater”** – state of the preheater analog output • **„Mixing damper”** – state of the mixing damper analog output • **„External damper**” - state of the external damper analog output
Sc13-Sc22		• **„Supply fan 1”** – current control level of the PID controller of the first supply fan • **„Frequency”** – first supply fan frequency • **„Current”** – first supply fan current • **„Speed”** – first supply fan speed • **„Voltage”** – first supply fan voltage • **„Power”** – first supply fan power • **„Drive temperature”** – first supply fan drive temperature **[screens Sc14 - Sc22 represent parameters for subsequent supply fans]**
Sc23-Sc32		• **„Return fan 1”** – current control level of the PID controller of the first return fan • **„Frequency”** – first return fan frequency • **„Current”** – first return fan current • **„Speed”** – first return fan speed • **„Voltage”** – first return fan voltage • **„Power”** – first return fan power • **„Drive temperature”** – first return fan drive temperature **[screens Sc24 – Sc32 represent parameters for subsequent return fans]**
Sc33		• **„Rotary VFD”** – current control level of the PID controller of the RRG drive • **„Frequency”** – RRG drive fan frequency • **„Current”** – RRG drive fan current • **„Speed”** – RRG drive fan speed • **„Voltage”** – RRG drive fan voltage

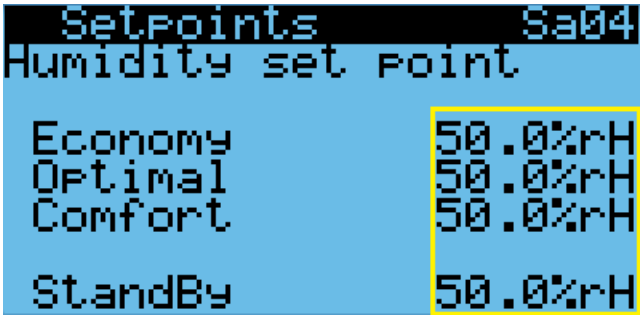
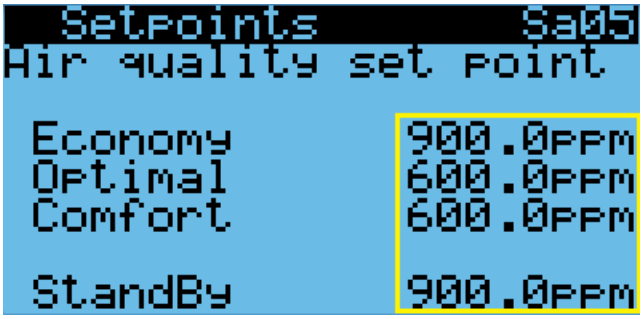
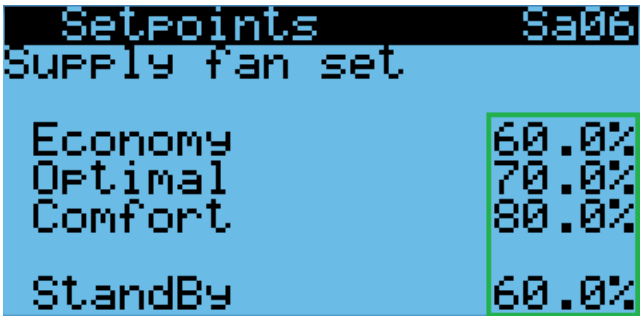
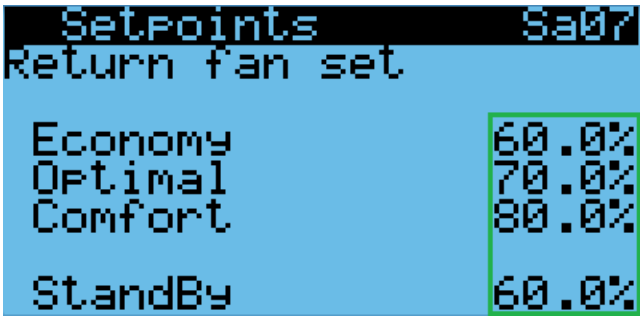
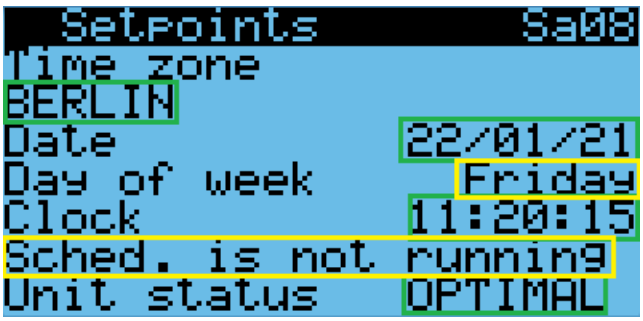
Sc34		• **„Software”** – controller software version • **„Firmware”** – controller firmware version
Sc35		• **„Board type”** – controller type • **„Board size”** – controller size • **„Retain memory writes”** – controller's non-volatile memory write cycles counter • **„Main task”** – duration of the controller operation cycle
Sc36		• **„Preheater”** – information about active manual mode of the preheater • **„Recovery”** – information about active manual mode of the recovery • **„Main heater”** – information about active manual mode of the main heater • **„Main cooler”** – information about active manual mode of the cooler • **„Reheater”** – information about active manual mode of the reheater
Sc37		• **„Reverse unit”** – information about active manual mode of the reverse unit • **„Mixing damper”** – information about active manual mode of the mixing damper • **„Humidifier”** – information about active manual mode of the humidifier • **„Redundant damper”** – information about active manual mode of the redundant dampers
Sc38		• **„Supply”** – pressure of the first supply transducer • **„Supply 2”** – pressure of the second supply transducer • **„Supply 3”** – pressure of the third supply transducer • **„Return”** – pressure of the first return transducer • **„Return 2”** – pressure of the second return transducer

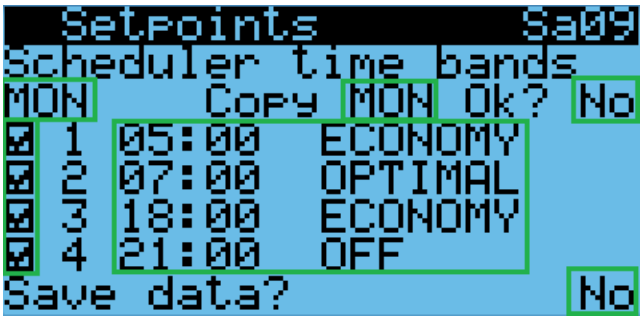
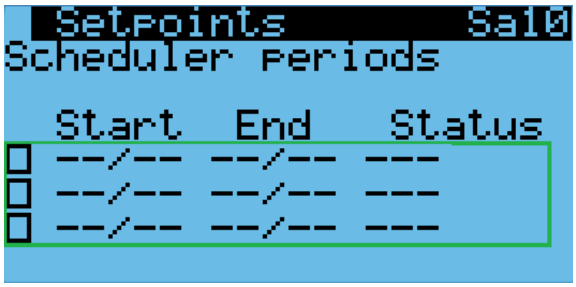
HP1		• **„rps”** – current heat pump control level • **„REG”** – expansion valve regulation status • **„SH”** – expansion valve superheat value • **„POS”** – expansion valve position • **„STATUS”** – current heat pump status
HP2		• **„Req”** – compressor request for thermoregulation • **„rps”** – compressor status (also displayed in %) • **„STATUS”** – current compressor status
HP3		• **„stp”** – valve opening steps (also displayed in %) • **„STATUS”** – valve status • **„Set”** – superheat setpoint • **„Suction SH”** – suction superheat • **„Discharge SH”** – discharge superheat • **„Discharge T”** – discharge temperature
HP4		• **„Status”** – heat pump drive status • **„Current”** – heat pump drive current • **„Voltage”** – heat pump drive voltage • **„Power”** – heat pump drive power • **„DC Voltage”** – heat pump drive DC bus voltage • **„DC Ripple”** – heat pump drive DC ripple • **„Drive temperature”** – heat pump drive temperature
HP5		• **„Superheat”** – superheat setpoint • **„LP limit”** – custom envelope limit of suction low pressure • **„HP limit”** – custom envelope limit of discharge high pressure **[custom pressure limits make it possible to match the compressor operating pressures to the pressure limit switches that are in use or other pressure restrictions]**





Sa01		• **„Supply temperature”** – supply temperature setting • **„Return temperature”** – return temperature setting • **„Temp. offset” –** adjustment of the control temperature from the HMI application • **“Effective temperature setpoint” –** target lead temperature setpoint taking into account the adjustment
Sa02		• **„Humidity”** – humidity setting • **„Air quality”** – air quality setting • **„Supply rate”** – supply fan setting • **„Return rate”** – return fan setting
Sa03		• **„Economy”** – temperature setting for Economy mode • **„Optimal”** – temperature setting for Optimal mode • **„Comfort”** – temperature setting for Comfort mode • **„Standby”** – temperature setting for Standby mode

Sa04		• **„Economy”** – humidity setting for Economy mode • **„Optimal”** – humidity setting for Optimal mode • **„Comfort”** – humidity setting for Comfort mode • **„Standby”** – humidity setting for Standby mode
Sa05		• **„Economy”** – air quality setting for Economy mode • **„Optimal”** – air quality setting for Optimal mode • **„Comfort”** – air quality setting for Comfort mode • **„Standby”** – air quality setting for Standby mode
Sa06		• **„Economy”** – supply fans speed setting for Economy mode • **„Optimal”** – supply fans speed setting for Optimal mode • **„Comfort”** – supply fans speed setting for Comfort mode • **„Standby”** – supply fans speed setting for Standby mode
Sa07		• **„Economy”** – return fans speed setting for Economy mode • **„Optimal”** – return fans speed setting for Optimal mode • **„Comfort”** – return fans speed setting for Comfort mode • **„Standby”** – return fans speed setting for Standby mode
Sa08		• **„Time zone”** – AHU time zone • **„Date”** – current data • **„Day of week”** – current weekday • **„Clock”** – current time • **„Calendar”** – schedule work activation status • **„Unit status”** – current work mode

Sa09		• **„Scheduler time bands”** – the day for which the primary schedule (with the lowest priority) is currently set • **„Copy”** – the day the settings are to be copied • **„Ok”** – confirmation of copying the settings from the selected day • **„1”** – mode and time at which it is to be activated for time slot 1 • **„2”** – mode and time at which it is to be activated for time slot 2 • **„3”** – mode and time at which it is to be activated for time slot 3 • **„4”** – mode and time at which it is to be activated for time slot 4 • **„Save data”** – confirmation of the parameters settings of the primary schedule for a given day
Sa10		• **„Scheduler periods”** – mode and range of days on which the periodic schedule with a priority higher than the basic schedule is to be activated
Sa11		• **„Scheduler special days”** – modes and days on which the special schedule with a priority higher than the primary and periodic schedule is to be activated