



Manual

HVAC / AHU

IMPERIA 51

English

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Table of Contents

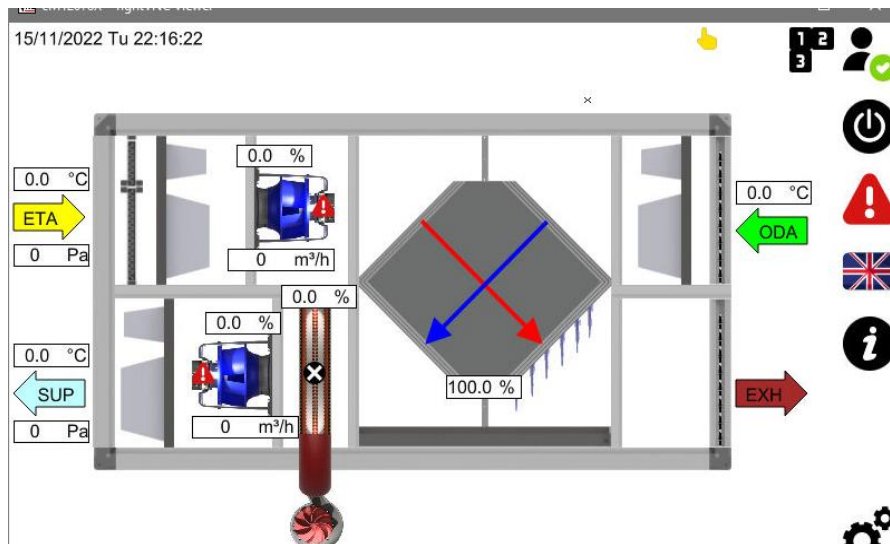
1	Display	3
1.1	Touchscreen.....	3
1.	User/Password	5
1.	Operation, input of values.....	6
1.	Operating mode, scheduler, calendar, date/time	7
1.	Operating Mode.....	7
1.2	scheduler	8
1.	Exception calendar	9
1.	Fan control.....	9
1.	Control strategy	9
1.2.1	Actual values/ setpoints	11
1.2.2	Parameters	12
2	Temperatur control.....	13
2.1	Actual values / setpoints.....	13
2.2	Parameters	14
2.2.1	Control strategy	15
2.2.2	Limit supply air	15
2.2.3	Night purge.....	15
2.2.4	Winter- / Summer compensation	16
2.2.5	Standby	16
3	Alarm / Warnings	17
3.1	Troubleshooting	17
3.1.1	Alarmlist.....	17
3.1.2	Alarmarchive	18
5.0	Room unit Leonis.....	19

1 Display

1.1 Touchscreen



Img. 1 - Infoscreen



Img. 2 - Overview



Language

Switch the language by tapping this icon



User

User level selection, password change, user rights management.



OpMode

Operating pages for operating mode specification and setpoint input
Black/white = device off
Black/Green = Device On



Alarm

Alarmliste, Alarmarchiv, **Alarmmail**

Black = no alarms

Yellow = Warning

Red = Critical fault leading to the shutdown of the unit or parts of the unit



Home

Return to overview



Trend

Online trend curves and trend configuration (only if the trend function has been ordered)



Configuration

Configuration of control and communication parameters



Air flow

Air volume / duct pressure

Datum
Uhrzeit

Date/Time

Setting the date and time



Manual

Manual mode active



Temperature

Operating pages temperature



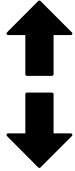
Humidity

Operating Pages Humidity



Air quality

Air quality control pages



Up / Down

Switch between the individual pages within a menu.

Switch between the device view and each zone (if configured)



Back

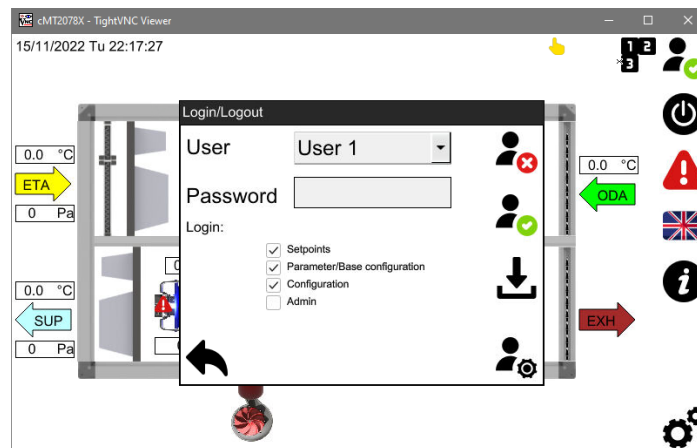
Go to previous page, exit menu



Acknowledge

Acknowledge alarm, alarm archive

1. User/Password



Img. 1 – Sign in

For operation, the selection of a user and the entry of a password is necessary; without a valid user/password or at access level 0 (-), only the device view is displayed; it is possible to change the language. The input is made via the user icon . After entering the password, it must be confirmed with the key . In addition to the user icon, the current login level is also displayed.

To log out, press the button . An automatic logout occurs if the touch screen has not been touched for a predefined time (default 30 minutes). The logout time can be changed in the user settings. 

User	Standard Password	Level	Description
Logged out	-	-	Display of device/zones
User	3000	1	Setpoint input, viewing and resetting alarms
Par	4000	2	Operating pages (additional parameter input)
Service	*****	3	Level reserved for service technician
Admin	*****	4	Level reserved for the manufacturer

Tabelle 1 – Benutzer/Passwort

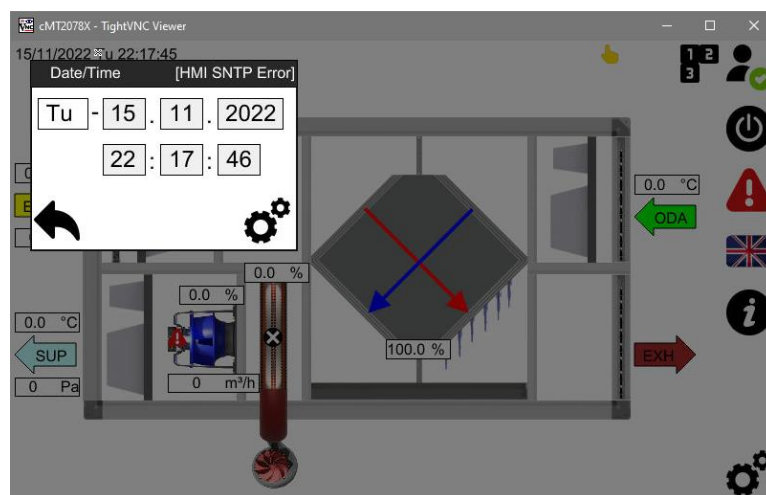
1. Operation, input of values

To operate the display, simply tap on the corresponding symbols, tabs, texts and setpoints. Display values are highlighted in white, adjustable values in grey.

Selection fields are marked with an arrow on the right edge (e.g. operating mode) . When tapping the triangle, the possible settings from which you can select appear in a drop-down menu.

In the lower part of the display you will find the individual menu items, which are represented by symbols. The submenus are divided by tabs, which can be found at the top of the display. The tab with the three dots provides additional submenus when tapped.

The date and time can be set by tapping the date/time displays in the upper left corner of the device view. The switch between summer/winter time is automatic, but can be changed by tapping the setting symbol.

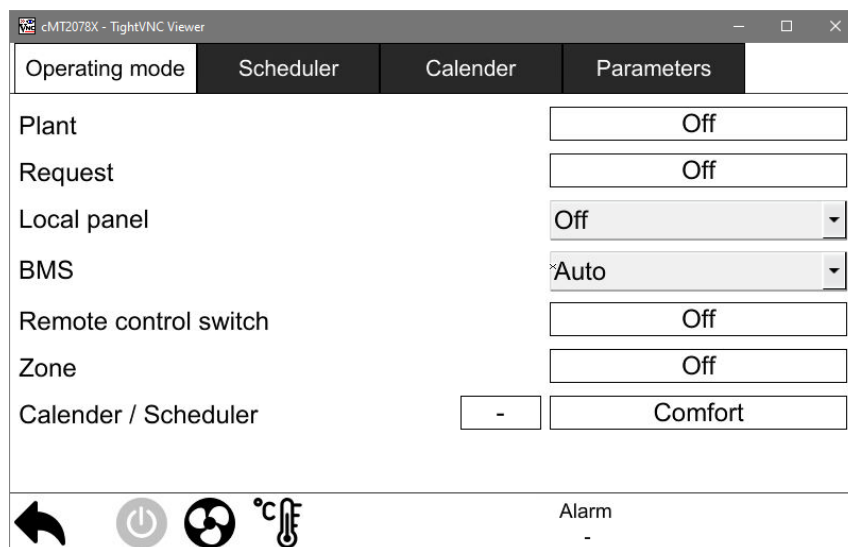


Img 2 - Date/Time

1. Operating mode, scheduler, calendar, date/time

Tapping the *Operation* button  calls up the operating pages.

1. Operating Mode



Img. 3 – Operating Mode Menu

Operating Mode	Description	Remark
Off	Unit Off	
Standby	Standby function	Only with room sensor
Night purge	Cooling outside operating hours with cool outside air	
Eco	Eco operating mode – Configurable setpoint level for temperature/humidity/air quality/fan control	
Comfort	Comfort operating mode – Configurable setpoint level for temperature/humidity/air quality/fan control	
Auto	Use the next lower operating level	

Operating Modes

The page shows the current operating mode and the operating mode of the different sources. Each of these sources has a different priority, with their order from top to bottom also reflecting their priority. If an operating mode is set to *Auto*, the operating mode with the next lower priority is used.

The operating mode of the panel has the highest priority; This selection window turns the device on and off permanently. In normal operation, this is set to *Auto* to enable operation via the desired source.

The operating mode of the control system is determined by a higher-level system (communication via Modbus RTU, Modbus TCP/IP, BACnet ...).

The operating mode of the remote switch is determined by a physically present remote switch. (S+S analog switch or Leonis Display with Touch buttons)

When zone control is active, the zones operating mode is determined by the configured zones; if a zone turns on, then the device also turns on. Conversely, when selecting the operating mode operator panel/control system/remote switch, the zones are forced (operator panel zone, control system zone, remote switch zone = auto).

The operating mode of the scheduler is determined by the integrated timer. If BACnet is used as a connection to a control system, the BACnet timer can be used (see Configuration).

The standby mode is displayed when the standby function is configured and as soon as it is active; the standby function is used for support operation for heating/cooling, humidification/dehumidification and air quality and is only possible when using a room sensor.

1.2 Scheduler

Operating mode		Scheduler		Calender	Parameters
Mo	Tu	1	00:30	Eco	Copy to Mo Tu We Th Fr Sa Su Cal Copy
We	Th	2	03:30	Comfort	
Fr	Sa	3	-	Off	
Su	Cal	4	-	Off	
		5	-	Off	
		6	-	Off	

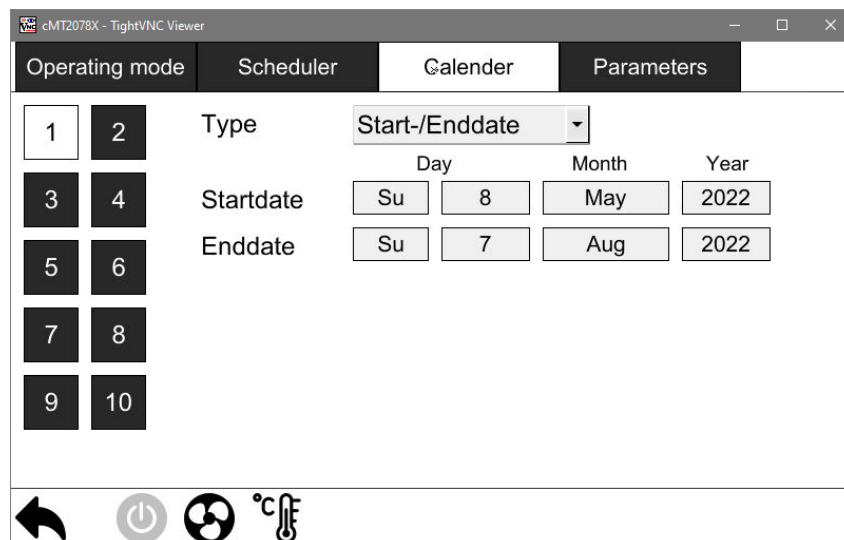
Img 4 – scheduler

The scheduler offers a separate program for each day of the week including a separate program for the exception days programmed in the calendar. Each day of the week has 6 switching points

A switch point is entered by selecting a day of the week from the drop-down menu on the left. Then enter the time in one line at which the switching point should trigger and then select which operating state is desired at this time. If "Calendar" is selected as the day of the week, the switching times on the days entered in the exception calendar apply.

The "Copy" button can be used to copy the setting of any day of the week to several days of the week ; to do this, select the source day of the week on the left, the target days of the week on the right and then press the "Copy" button.

1. Exception calendar

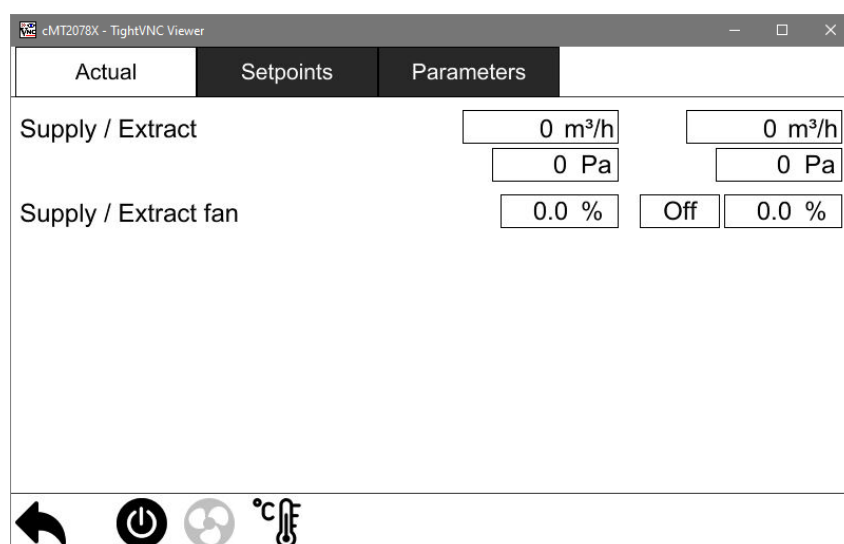


Img 5 – Exception calendar

The exception calendar can be used to program individual days or periods on which the *timer* program of the calendar is used. This makes it possible to program the operation of the device outside normal operating hours or the standstill due to holidays in advance. To enter an exception period, you must first specify the type of period. You can choose between "Date" (a specific date must be entered), "Start/End Date" (a start and an end date must be entered), and "Week".

1. Fan control

Depending on the configuration, the volume flow, the channel pressure, the speed or the switching stage is displayed in the "actual" tab and set in the "setpoints" tab



1. Control strategy

The control strategy is set in advance at the factory and can be changed by a service technician if necessary. (This menu is only available by logging in)

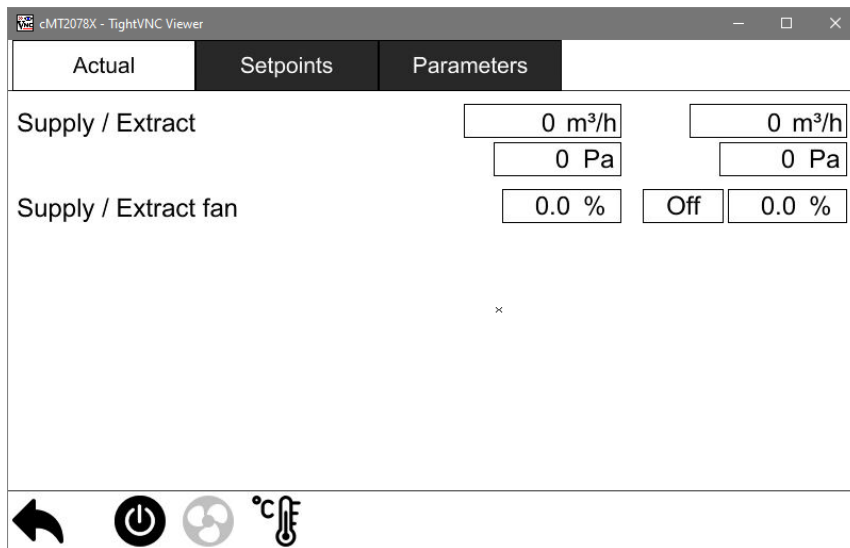
cMT2078X - TightVNC Viewer

AHU	Control	In-/Outputs
Supply fan	Speed	17680 m³/h
Extract fan	-	12330 m³/h
Heat recovery / Sequence	Speed	Yes
Mixing damper / Sequence	-	No Last
Heating damper	Flow rate	-
Heating coil / Sequence	Pressure	Yes Yes
Cooling coil / Sequence	Slave	Yes Yes
Changeover heating/cooling coil	Zone flow set	Yes
E-Heating coil / Sequence	Zone MP-Bus	- No
Heating coil 2 / Sequence	Custom	- No

Control type	Setpoints	Remark
Speed	Speed setpoints	The fan rotates constantly at the speed set as the setpoint.
Flow	Volume setpoints	The fan speed is adjusted on the basis of the set volume flow setpoint, which is determined by a measuring device. A constant air volume is ensured even with dirty filters.
Duct pressure	Duct pressure setpoints	The fan speed is adjusted on the basis of the set pressure setpoint, self-regulating flaps in the duct network take over the determination of the air volume.
Master	Master regulates duct pressure	No offset remote switch No air quality/humidity control duct pressure adjustable from user level Par3
Slave	Slave regulates flow	Offset Master/Slave
Stage	Stage setpoints	
Zones	Volume setpoints as the sum of the zone flaps	
Custom	custom solution	

OpMode fan control

1.2.1 Actual values/ setpoints



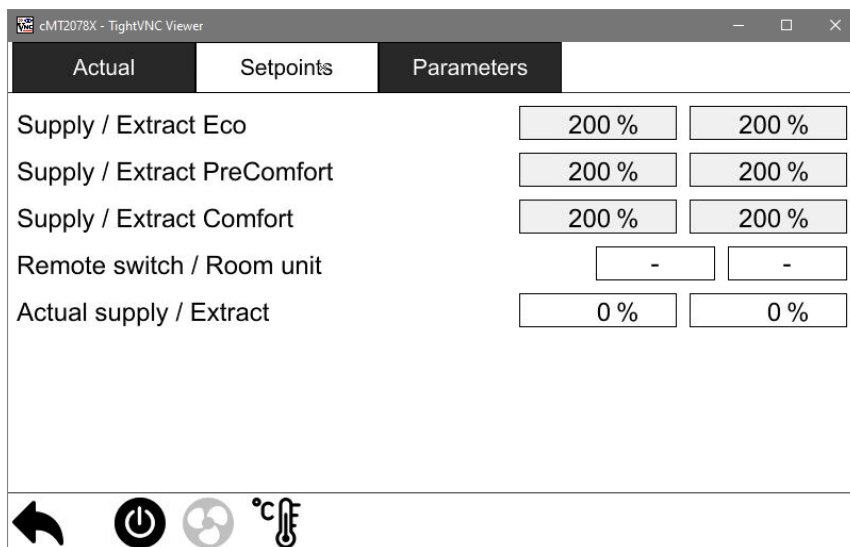
The screenshot shows the 'Actual' tab of the cMT2078X control interface. It displays the following data:

Parameter	Value 1	Value 2
Supply / Extract	0 m³/h	0 m³/h
	0 Pa	0 Pa
Supply / Extract fan	0.0 %	Off
		0.0 %

At the bottom, there are four icons: a back arrow, a power button, a fan symbol, and a temperature gauge.

Img 6 - Fan actual values

The values displayed in the “Actual” tab reflect the currently measured actual values. Depending on the set control mode or depending on the installed sensors, the values indicate the air volume, the duct pressure, the speed or the current switching stage.



The screenshot shows the 'Setpoints' tab of the cMT2078X control interface. It displays the following data:

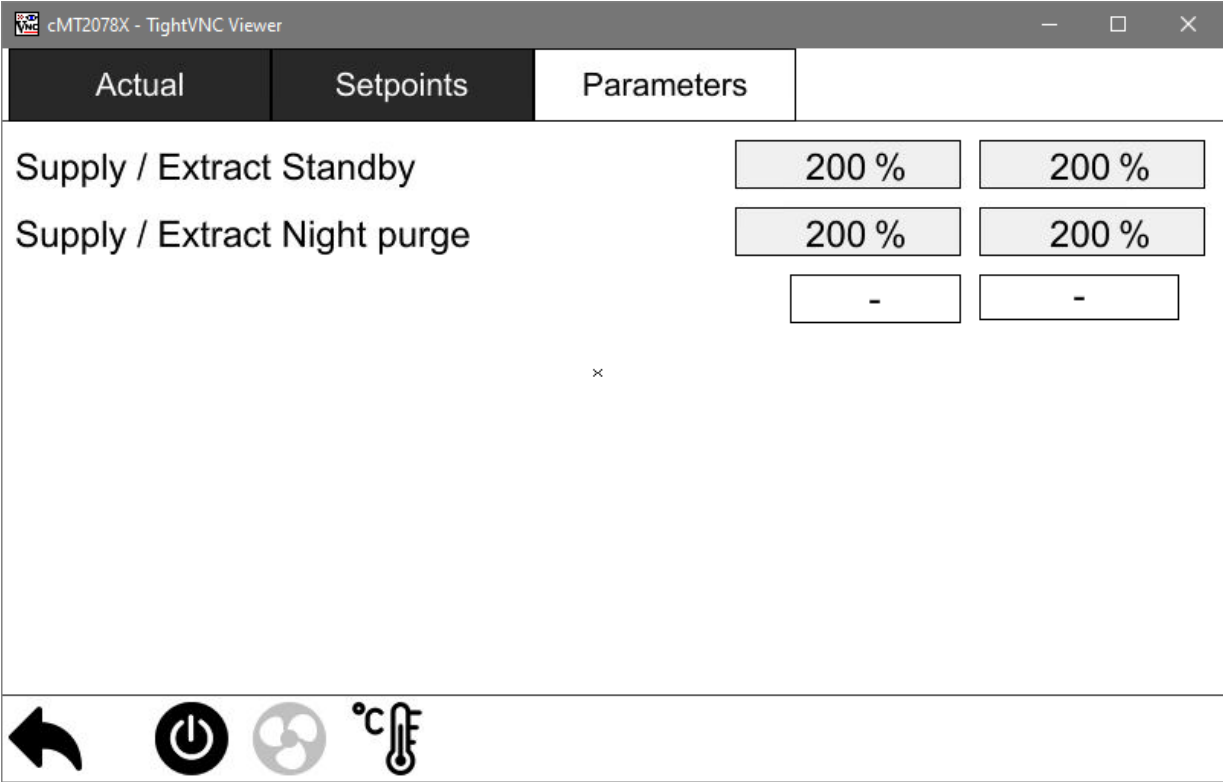
Parameter	Value 1	Value 2
Supply / Extract Eco	200 %	200 %
Supply / Extract PreComfort	200 %	200 %
Supply / Extract Comfort	200 %	200 %
Remote switch / Room unit	-	-
Actual supply / Extract	0 %	0 %

At the bottom, there are four icons: a back arrow, a power button, a fan symbol, and a temperature gauge.

Img 7 - Fan setpoints

In the "setpoints" tab, depending on the selected control mode, the air volume, the pressure or the fan speed for the different operating modes can be entered. The setting of the pressure setpoints is reserved for the service level.

1.2.2 Parameters



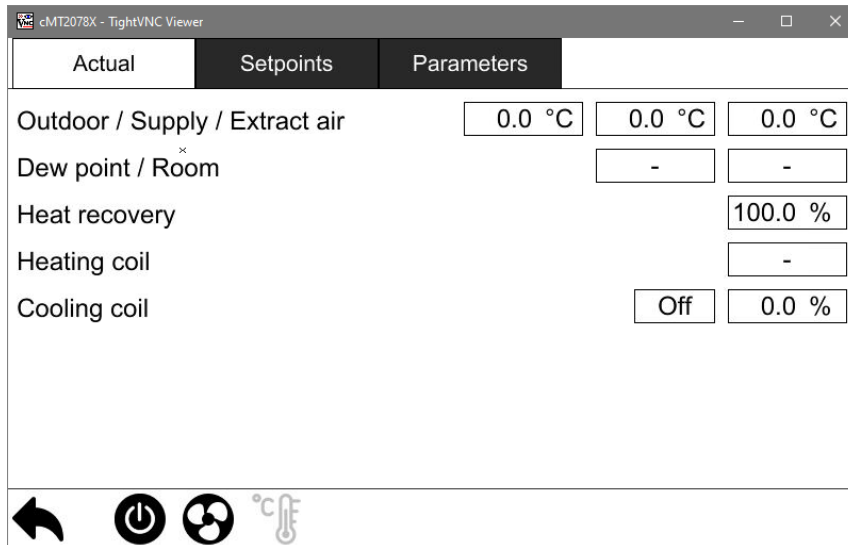
Img 8 – Fan parameters

In the *Parameters* tab page , the volume difference between master and slave can be adjusted; Access from access level *Par*.

2 Temperatur control

Tapping the *Temperature* button brings up the temperature control pages.

2.1 Actual values / setpoints



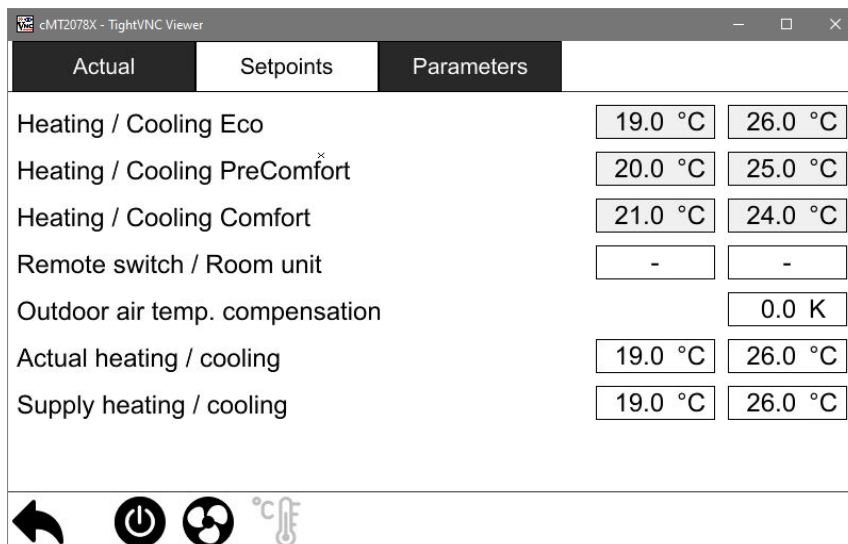
The screenshot shows a software interface titled "cMT2078X - TightVNC Viewer". It has three tabs: "Actual", "Setpoints", and "Parameters". The "Actual" tab is selected. The interface displays the following data:

Parameter	Value 1	Value 2	Value 3
Outdoor / Supply / Extract air	0.0 °C	0.0 °C	0.0 °C
Dew point / Room	-	-	
Heat recovery			100.0 %
Heating coil			-
Cooling coil	Off	0.0 %	

At the bottom, there is a navigation bar with four icons: a back arrow, a power button, a fan, and a thermometer.

Img 9 – Temperature actual values

The values displayed in the Actual tab reflect the currently measured actual values. Depending on the configuration (number of tabs) the values are displayed on one or more pages.



The screenshot shows the same software interface as before, but with the "Setpoints" tab selected. The interface displays the following data:

Parameter	Value 1	Value 2	Value 3
Heating / Cooling Eco	19.0 °C	26.0 °C	
Heating / Cooling PreComfort	20.0 °C	25.0 °C	
Heating / Cooling Comfort	21.0 °C	24.0 °C	
Remote switch / Room unit	-	-	
Outdoor air temp. compensation			0.0 K
Actual heating / cooling	19.0 °C	26.0 °C	
Supply heating / cooling	19.0 °C	26.0 °C	

The navigation bar at the bottom remains the same with the back arrow, power button, fan, and thermometer icons.

Img 10 - Temperatur setpoints

In the "Target" tab, the temperature setpoints for the different operating modes can be entered. Depending on the set control type (setting in the Parameters tab), the respective setpoint value applies to the room, supply air or room temperature. The set values form the base setpoint, to which the offset of the remote switch and the outside temperature compensation may be added or subtracted. The effective target value is displayed in the line "Heating/cooling currently".

2.2 Parameters

cMT2078X - TightVNC Viewer

Actual	Setpoints	Parameters
Control mode Supply		
Supply min / max	16.0 °C	35.0 °C
Limit supply < / > extract	-64.0 K	64.0 K
Calculated supply min / max	16.0 °C	35.0 °C
Standby: Heating / On < / Setpoint	-	17.0 °C 0.0 °C
Cooling / On > / Setpoint	-	29.0 °C 0.0 °C
Offset off		1.0 K
Preheating / Dew point temp.	-	-

← ⏻ ⚙️ 🌡️

cMT2078X - TightVNC Viewer

Actual	Setpoints	Parameters
Mixing damper: Eco / PreComfort		
	-	-
Comfort / Standby		
	-	-
Max. open		
		-
Heating damper 0 - 100%		
	-	-
@ Actual/Setpoint difference		

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Img. 11 - Temperature parameters

The *Parameters* page shows various special settings; Access from access level *Par*.

2.2.1 Control strategy

The temperature control strategy can be configured as required according to the following table.

Control strategy	Unit	Remark
-		No temperature control
Supply air	Supply air	Direct specification of the supply air temperature The coil regulates to supply air temperature
Cascade	Extract	Calculation of the supply air setpoints from the difference between exhaust air and setpoint The coil regulates the supply air setpoint
Extract	Extract	Direct specification of the exhaust air temperature The coil regulates the exhaust air temperature
Room-Cascade	Room	Calculation of the supply air setpoints from the difference room/setpoint coil regulates to supply air setpoint
Room	Room	Direct specification of the room air temperature The coil regulates the room air temperature

Temperature control strategy

2.2.2 Limit supply air

The limitation of the supply air temperature is absolute and relative to the extract air temperature.

Via the setting "*Supply air min. / max.*" the absolute limit is set; these limits cannot be exceeded or undercut by the relative limit.

Via the setting "*Limit supply air </> exhaust*". the maximum difference between supply and exhaust air temperature is set to avoid draught effects. A setting of -3K/+10K means that at an exhaust air temperature of 22°C, the supply air temperature is limited to a minimum of 19°C and a maximum of 32°C. The maximum values determined by this function are displayed in the line "Supply air min/max calculated".

2.2.3 Night purge

The desired exhaust air or room temperature is set via the setpoint night purge during night purge operation; during the night hours (setting timer) the room is cooled down with cool outside air. If no room sensor is available, the temperatures are tested cyclically and the device continues to run if all conditions are met.

Parameters	Condition
Outdoor air temp	At least 12°C 5K below current exhaust air or room temperature
Exhaust-air/room temperature	via setpoint night cooling
Test cycle	If no room and outdoor sensor available then every hour for 5 minutes
Uptime	If conditions are met, min. 30 minutes, max. 12 hours

Night purge

2.2.4 Winter- / Summer compensation

Winter compensation shifts the heating setpoint at low outside temperatures, e.g. to compensate for losses. Summer compensation shifts the cooling setpoint at high outside temperatures, e.g. to save cooling energy or reduce the difference between room and outside air. Both compensations are always active and act on the heating and cooling setpoint.

2.2.5 Standby

The standby function can only be used with a configured room sensor and is used for support operation, i.e. if the setting “Heating on” falls below or the setting “Cooling on” is exceeded, the device starts in the selected operating mode in order to reach the room conditions again (e.g. frost protection with at least 10°C room temperature). If the “Heating off” setting is exceeded or if it falls below the “Cooling off” setting, the appliance switches off again.

Attention: with a heating setpoint lower than standby heating, the switch-off value is no longer reached because insufficient heating is used. The same applies to cooling.

3 Alarm / Warnings

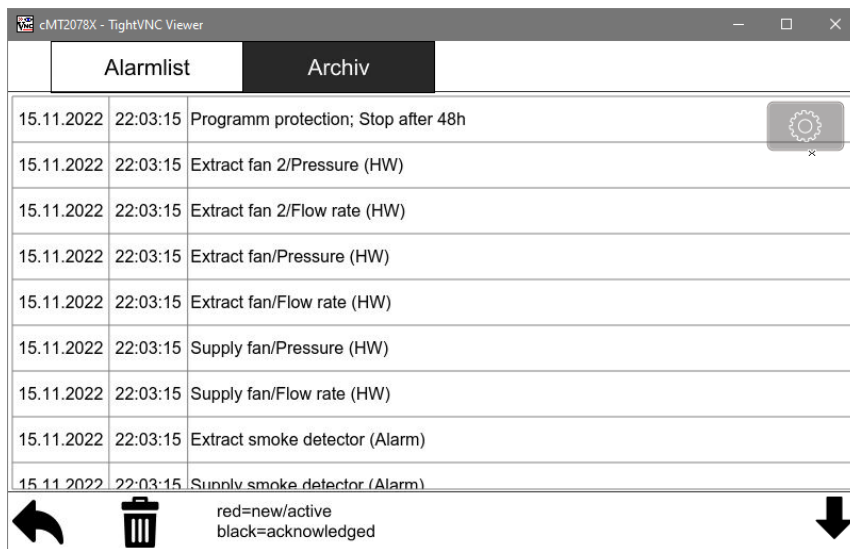
3.1 Troubleshooting

Faults can occur due to external contacts, sensor errors, limit value exceedances or internal events. If a fault occurs, it is displayed in the alarm list and the alarm symbol on the start page changes color to yellow for a warning and red for an alarm.

Alarms must be acknowledged, i.e. as soon as the fault is resolved, this is displayed in the alarm list, but only after acknowledging by means of the button  the alarm is really fixed and the ventilation starts again if necessary. If the acknowledgement is not desired, an automatic three-time acknowledgement or completely automatic acknowledgement by a service technician can be configured.

3.1.1 Alarmlist

Tapping the *Alarm* button on the home page displays the alarm list.



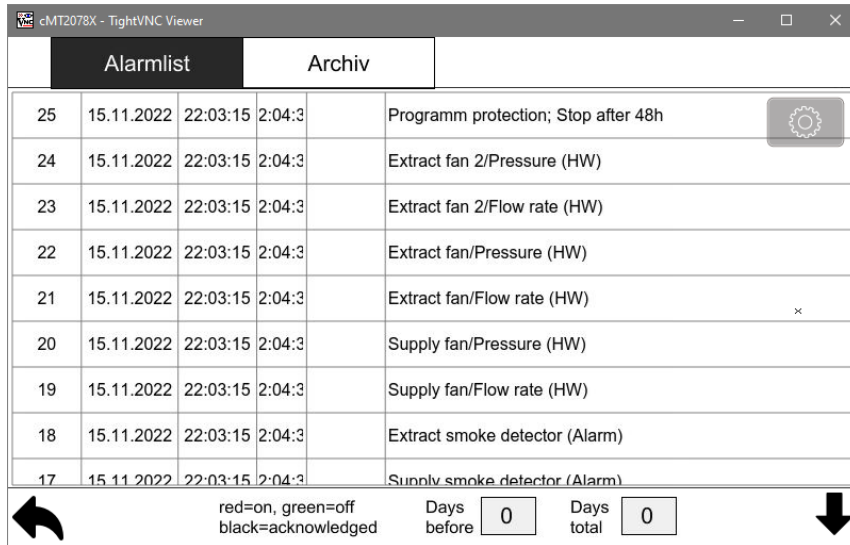
Alarmlist		Archiv
15.11.2022	22:03:15	Programm protection; Stop after 48h
15.11.2022	22:03:15	Extract fan 2/Pressure (HW)
15.11.2022	22:03:15	Extract fan 2/Flow rate (HW)
15.11.2022	22:03:15	Extract fan/Pressure (HW)
15.11.2022	22:03:15	Extract fan/Flow rate (HW)
15.11.2022	22:03:15	Supply fan/Pressure (HW)
15.11.2022	22:03:15	Supply fan/Flow rate (HW)
15.11.2022	22:03:15	Extract smoke detector (Alarm)
15.11.2022	22:03:15	Supply smoke detector (Alarm)

red=new/active
black=acknowledged

Img 12 - Alarmlist

The alarm list shows the currently pending alarm messages with date of occurrence and the alarm text. New messages are displayed in red. Black messages have already been acknowledged, but the cause of the message has not yet been resolved.

3.1.2 Alarmarchive



The screenshot shows a window titled 'cMT2078X - TightVNC Viewer'. Inside, there's a tabbed interface with 'Alarmlist' and 'Archiv'. The 'Archiv' tab is active, displaying a table of alarm events. The table has columns for ID, Date, Time, and Description. The events listed are:

ID	Date	Time	Description
25	15.11.2022	22:03:15	2:04:3 Programm protection; Stop after 48h
24	15.11.2022	22:03:15	2:04:3 Extract fan 2/Pressure (HW)
23	15.11.2022	22:03:15	2:04:3 Extract fan 2/Flow rate (HW)
22	15.11.2022	22:03:15	2:04:3 Extract fan/Pressure (HW)
21	15.11.2022	22:03:15	2:04:3 Extract fan/Flow rate (HW)
20	15.11.2022	22:03:15	2:04:3 Supply fan/Pressure (HW)
19	15.11.2022	22:03:15	2:04:3 Supply fan/Flow rate (HW)
18	15.11.2022	22:03:15	2:04:3 Extract smoke detector (Alarm)
17	15.11.2022	22:03:15	2:04:3 Supply smoke detector (Alarm)

Below the table, there's a legend: 'red=on, green=off', 'black=acknowledged'. To the right, there are two input fields: 'Days before' with value '0' and 'Days total' with value '0'. Navigation arrows (left and right) are located at the bottom left and right of the table area.

Img 13 – Alarmarchive

Tapping the *Archive* tab calls up the alarm archive. In the alarm archive is the history where the last 100 alarm events are displayed. The *Delete* button can be used to delete the entire list, and the arrow keys can be used to scroll through the list.

The alarm list is maintained in the event of a power failure.

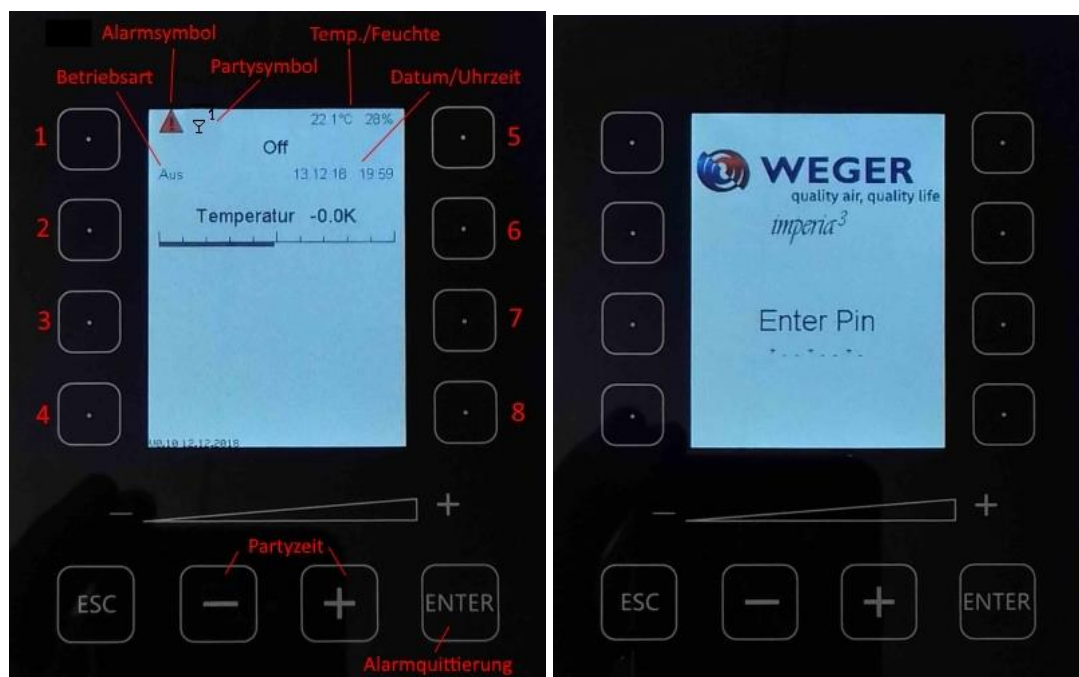
5.0 Room unit Leonis

The Leonis room unit consists of a colour display which gives various information and 14 touch-sensitive buttons via which the operation takes place. The configuration is done on the controller.

If PIN and logoff time is configured (see Configuration Login), the display switches to the login screen without operation after the set time; only after entering the configured PIN can the room unit be used again for operation.

Icon/Button	Function
Main Screen	
Button 1 + 5	Switch operating mode
Button 2, 3, 4	Decrease Offset <i>Temperature, humidity, air quality, recirculating air content, volume</i>
Button 6, 7, 8	Increase offset <i>Temperature, humidity, air quality, recirculating air content, volume</i>
-  +, ESC	No function
- / +	Set overtime/party time (Off – 1h – 2h – 3h)
ENTER	Alarm acknowledgement
Alarm icon	Current alarm status Red = A/danger, orange=B/alarm, yellow=C/warning, grey=no alarm
Party icon	Overtime function, with number 1..3 = 1..3h <i>Displayed when configured</i>
Temp./Humidity	Display Temp./Humidity Sensor Room Unit <i>Displayed when configured</i>
Mode	Display of current operating mode
Date/Time	Date/Time Controller
Login screen:	
Button 1..8	Pin Entry
-  +, ESC, - / +, ENTER	No function

Leonis – Buttons/Icons



Img 14 – Room unit Leonis