



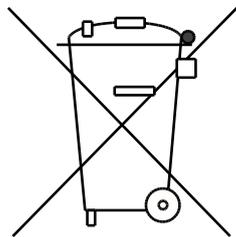
MVC WEB Control Panel Pool

User Manual

Rev. 2.1 – 090268

en

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1.0 Introduction

A complete DanX ventilation system for swimming pools requires a control system that corresponds to the actual unit configuration in the most energy efficient way as possible. Dantherm offer various options depending on the unit configuration, all are individually tested before delivery and are therefore giving the most reliable and energy efficient operation possible. The electronic control system with contactors, main switch and function switch etc. is built into a separate control cabinet, normally mounted near the ventilation unit. This manual gives you an introduction how to set the control system for your swimming pool.

For the exact connection of DanX unit and the el. panel, please refer to the separate electrical diagrams.



The installation of the DanX control panel should only be carried out by trained electricians! When working on the electric panel, always switch off the electric power before opening the panel door!

1.1 DanX control panel

The components on the electric panel can be different from panel to panel depending on the ordered specification, but in general the panel will look like the following.



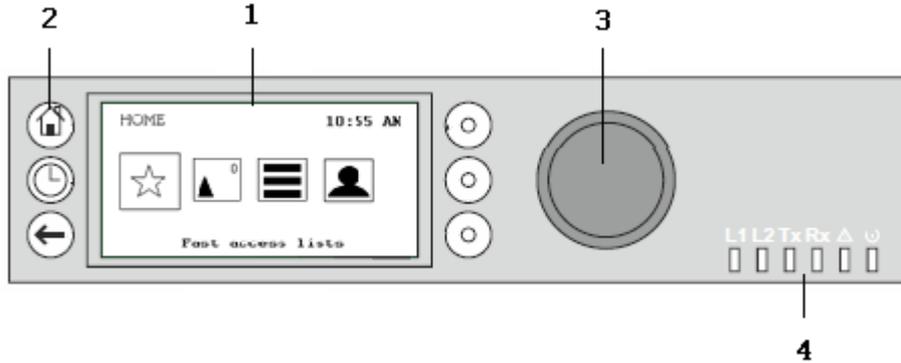
- 1) Plug for electrical connection between unit and el panel (accessory). There can be up to 4 different plugs for control and running current. If there are no plugs, the electrical components from the unit must be connected directly to the terminal strips inside the el panel.
- 2) MVC WEB controller.



- 3) Main service breaker.
Disconnects all power to the unit and control panel, so no safety function like frost thermostat is active any longer! Do not stop the unit with this switch! Always stop the unit with the function switch!
- 4) Function switch.
This switch has 2 steps. Normally the setting will be 1-AUTO.
 - 0 - Stop: Unit is stopped, but all safety devices are still active.
 - 1 - Auto: Unit runs with the MVC WEB program settings in the Unit Time Program.

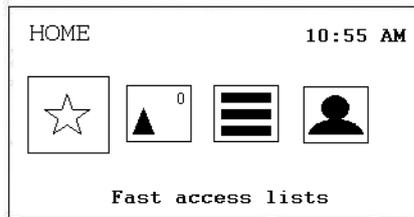
1.2 MVC WEB controller

The DanX control system is based on a Honeywell MVC WEB controller, with a software program by Dantherm to perform control strategies and functions in the most energy efficient way.



(1) LCD display.

Generally, when the display has not been in use, the display will show the following information. For easier reading press any button to light up the display.



The four icons shown on the display are providing the following functions:



Login / User options, here you log in into the controller. See more under chapter 2. Login and User Options.



Fast access lists calls up the Setpoint menu, Unit Status menu and Unit Configuration menu. See more under chapter 3. Fast Access Lists.



Alarms will show you Points in Alarm, the Alarm List and Alarm Status LED. The number in the right corner shows you how many alarms there are. See more under chapter 4. Alarms.



Main menu shows you Points in Manual, the Data Point List, Settings and Information. See more under chapter 5. Main Menu.

(2) Operating keys. These keys provide the following functions:



Home key calls up the Home menu, which provides information about the unit status. The Home menu is displayed by default if no operating key has been pressed for 10 minutes.



Time program key opens the different time programs in the controller. See more under chapter 6. Time Program.



Cancel key returns to the previous screen, discards current inputs and confirms alarm messages



Function keys, which can be used when an icon is shown in the display, left from the key. Depending on the icon these keys can have different functions.

(3) Rotate & Push button, which works as follows:

| Turning the button | Navigate – Highlight - Adjust |
|---|-------------------------------|
| <ul style="list-style-type: none"> • Navigates through menus and lists • Highlights items (menu, list, option, value, command symbol) • Adjust options (On, Off, etc.) and values (temperature, humidity, etc.) | |
| Pushing the button | Select - Save |
| <ul style="list-style-type: none"> • Selects items (menu, list, option, value, command symbol) • Saves options and values | |

(4) **LED's**, which indicate the operational status of the controller. In the DanX application only the Power LED and the Alarm LED are in function.

Power LED (Green)

| | Power LED behaviour | Reason |
|---|----------------------------|---------------------|
| 1 | ON | Normal operation |
| 2 | OFF | Power supply not OK |

Alarm LED (red)

| | Alarm LED behaviour | Reason |
|---|--|--|
| 1 | OFF after power up | Normal operation |
| 2 | Lit continuously after power up | Controller has encountered a hardware problem. |
| 3 | Flashes continuously 4 x ON/OFF followed by pause | Sensor failure of analog input |

2.0 Login and user options

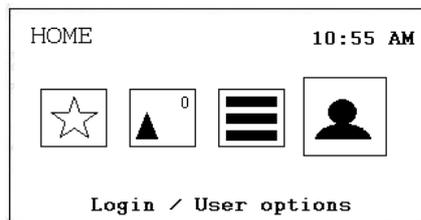


Under this icon you have the following possibility:

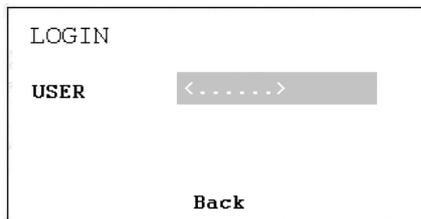
- Login with your password
- Change your password
- Change the delay for the auto logout
- See the current user details
- Logout manually

2.1 Login

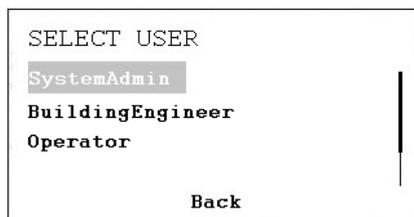
Scroll with the **Rotate button** to the Login / User Option icon and press the **Rotate button**.



You will now see the following display.



Press the button and you can now choose between the following users:



- System Administrator
- Building Engineer
- Operator

After having chosen the right user you have to give in the password:

LOGIN

USER SystemAdmin

Password *****

Back

See chapter password handling which possibilities the different users can get.

When you have entered the correct password the display now will change and show a different Login icon.

HOME 10:55 AM

Login / User options

2.1.1 Password handling

There are four different access levels in the program. In Level 0 (no password needed) values can only be seen, not changed.

To change set points in the Time Program or set point, you have to use the level 1 password for the operator to get access. With level 2, some points can be set into manual to test the unit. All points can be changed on access level 3 by entering a service password, which your Dantherm service technician has.

| User | Access level | Password | Points which can be changed |
|------------------|--------------|----------|---------------------------------|
| Operator | 1 | 2222 | Time Program, set point changes |
| BuildingEngineer | 2 | 3333 | Points can be changed to manual |
| SystemAdmin | 3 | * | Passwords can be changed |

* Please ask Dantherm

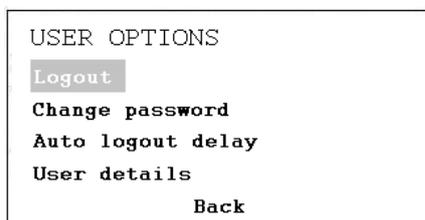
Important!



The passwords for entering the MVC WEB through the display are different from the passwords used to access the controller through the network/browser. For these passwords see chapter 7.4.

2.2 User options

After you have been logged into the controller you have now different options when pressing the Login icon, which you can see here:



Logout

If you want to leave the controller you just press Logout. If you forget this the controller will automatically log you out after 10 minutes.

Change password

It is possible to change the password, but it is not recommended by Dantherm, as new software has to be uploaded to the controller if the password has been forgotten. So only change the password if you are totally sure about it! Password can only be changed with the level 3 password.

Auto logout delay

Here you can change the standard time (10 minutes) for the automatic log out of the controller.

User details

Here you can see who is currently logged into the controller.

2.3 Changing language

If you want to change the language of the controller from English into your language, please go to chapter 5.3 Settings, where you can see how to change the language.

3.0 Fast access lists



Under this icon you have the following possibility:

- Change the Set points
- See the Unit Status
- Change the Unit Configuration
- Modify Control Loops

3.1 Set points menu

When pressing the **Rotate button** with “Setpoints” highlighted you will enter the following display.

| Setpoints | |
|--------------------|-------|
| Tempera...en_Pool | 28.00 |
| Tempera...ed_Pool | 28.00 |
| Humidity...en_Pool | 60.00 |
| Humidity...ed_Pool | 60.00 |

Here you will find the following set points (if you cannot see them please scroll down by rotating the **Rotate button**):

- Temperature_Open_Pool (Setpoint temperature in the pool hall when pool open)
- Temperature_Closed_Pool (Setpoint temperature in pool hall when pool closed)
- Humidity_Open_Pool (Setpoint humidity in the pool hall when pool open)
- Humidity_Closed_Pool (Setpoint humidity in pool hall when pool closed)
- Supply_Fan_Low_Airvolume (Setpoint low air volume)
- Supply_Fan_High_Airvolume (Setpoint high air volume)
- Return_Fan_Low_Airvolume (Setpoint low air volume)
- Return_Fan_High_Airvolume (Setpoint high air volume)
- Min_Fresh_Air (Setpoint minimum fresh air amount)
- Min_Supply_Temperature (Setpoint minimum supply air temperature)
- Max_Supply_Temperature (Setpoint maximum supply air temperature)

All points are read only for the Guest and can only be set into manual with the Operator / System Administrator password.

3.1.1 Set point change

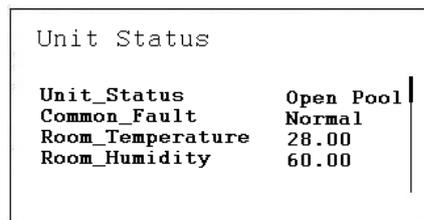
To enter one of the set points, highlight it and press the **Rotate button**. You will enter the following display now:



Push the **Rotate button** and you can now change the value by turning the **Rotate button** and then push the button again. Now the set point is changed.

3.2 Unit Status menu

When Unit Status is highlighted, press the **Rotate button** to see following display:



Here you will find the following unit status points (Scroll down with the **Rotate button**):

- Unit_Status (Actual status of the Unit)
- Common Fault (Actual fault status)
- Room_Temperature (Actual pool room air temperature)
- Room_Humidity (Actual pool room humidity)
- Supply_Air_Temperature (Actual supply air temperature)
- Outdoor_Air_Temperature (Actual outdoor temperature)
- Evaporator_Temperature (Actual temperature on the evaporator surface, only on heat pump units)
- Compressor (Actual status of the compressor, only on heat pump units)
- WCC_Pump (Actual status if pump is running, only on units with WCC)
- WCC_Heat_Demand (Water heating needed or not, only on units with WCC)
- Heating_Signal (Actual position of heating coil actuator, signal to electrical heating coil)
- Heating_Coil_Pump (Actual status if pump is running)
- Cooling_Signal (Actual position of cooling coil actuator)
- Cooling_Coil_Pump (Actual status if pump is running)
- DX_Cooling (Actual status for signal to DX cooling coil)

- Outdoor_Damper (Actual outdoor damper position)
- Exhaust_Damper (Actual exhaust air damper position)
- Mixing_Damper (Actual mixing damper position)
- Recirculation_Damper (Actual recirculation damper position)
- Bypass_Damper (Actual by pass damper position)
- Return_Air_Volume (Actual air volume on return air side)
- Supply_Air_Volume (Actual air volume on supply air side)
- Heat_Demand (Actual demand for heating in %. A demand < 50% means cooling demand, > 50% means heating demand)
- Dehumidify_Demand (Actual demand for dehumidification in %)
- Room_Temp_CalcSet (Actual room temperature set point)
- Supply_Air_Temp_CalcSet (Actual supply air temperature set point)
- Room_Humidity_CalcSet (Actual room humidity set point)
- PreHeat_Start (Actual status for pre heating coil)
- External_Signal (Actual status for external signal)

The points under Unit Status give an overall view of the actual running situation of the unit. All points are read only for the Guest / Operator and can only be set into manual with the System Administrator password.

3.3 Unit Configuration menu

When entering the Unit Configuration you will see the following start display in the program:

```
Unit Configuration
Heating...guration   Water
Offset_E...Damper    0
WCC_Pump...ration    Hour
External...ration    PIR..
```

Here you will find the following unit configuration points:

- Heating_Coil_Configuration (see 3.2.1)
- Offset_Exhaust_Damper (see 3.2.2)
- WCC_Pump_Exercise_Configuration (see 3.2.3)
- External_Signal_Configuration (see 3.2.4)
- Closed_Mode_Cooling (3.2.5)
- Cooling_Coil (see 3.2.6)
- Start_Preheating (see 3.2.7)
- Wake_Up_Temperature_Configuration (see 3.2.8)
- Wake_Up_Humidity_Configuration (see 3.2.8)

- Return_Fan_K_Value (see 3.2.9)
- Supply_Fan_K_Value (see 3.2.9)

The points under Unit Configuration should be set once when the unit is commissioned and not be changed afterwards. All points are read only for the Guest / Operator and can only be changed with the System Administrator password.

3.3.1 Heating Coil

Under the point Heating Coil you can configure if your unit is equipped either with water or electrical heating coil.

3.3.2 Offset Exhaust Damper

Under the point Offset Exhaust Damper you can configure if the exhaust damper should be more open than the outdoor damper. This function is used if you want to run with under pressure in your pool hall, meaning that your exhaust air volume is larger than your supply air volume.

3.3.3 WCC Pump exercise

Under the point WCC Pump exercise you can configure how often the pump for the water cooled condenser should run for a few minutes to get the still standing water exchanged in the condenser. You have the possibility to set it once an hour, day or week.

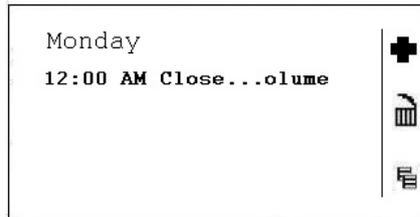
3.3.4 External Signal (PIR sensor or pool cover switch)

If you want to start or stop the unit with the help of an external contact you can define this under External Signal configuration. Here you can choose between the following possibilities when the external signal is activated:

- PIR Open Low (When there is a signal from the PIR sensor the unit will go in Open Pool mode with the fans in low speed)
- PIR Open High (When there is a signal from the PIR sensor the unit will go in Open Pool mode with the fans in high speed)
- Cover Closed Low (When there is a signal from the pool cover switch the unit will go in Closed Pool mode with the fans in low speed)
- Cover Closed High (When there is a signal from the pool cover switch the unit will go in Closed Pool mode with the fans in high speed)
- Cover Closed Stop (When there is a signal from the pool cover switch the unit will go in Closed Pool mode with the fans stopped)

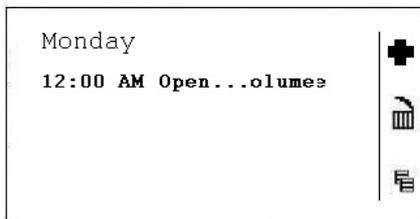
With a PIR sensor:

Enter the time program and change the standard two points (Open Pool and Closed Pool time) to only Closed Pool with the start time 00:00 (afterwards it will be shown as 12:00 AM in the display) and delete the Open Pool time completely from the program. Be aware that you have to do that for every day. Under Closed Pool you can then set the wanted fan speed for closed mode (high, low or stop).



With a pool cover switch:

Enter the time program and change the standard two points (Open Pool and Closed Pool time) to only Open Pool with the start time 00:00 (afterwards it will be shown as 12:00 AM in the display) and delete the Closed Pool time completely from the program. Be aware that you have to do that for every day. Under Open Pool you can then set the wanted fan speed for open mode (high, or low).



See also chapter 5.1 “Modify a daily program” how you make the changes in the Unit Time Program.

3.3.5 Closed Mode Cooling

Under the point Closed Mode Cooling you can configure if your unit should cool (free and active cooling) when the pool is closed or not. Normally this point is set to NO, but for example in therapy pools, or hot countries it will be set to YES.

3.3.6 Cooling Coil

Under the point Cooling Coil you can configure if your unit is equipped either with or without a cooling coil. If you have a XWPRS unit you can configure if the 4 way valve should set the heat pump in cooling mode in summertime or not.

3.3.7 Start Preheating

Under the point start preheating you can configure at which outdoor temperature an installed pre heating coil should start to pre heat the outdoor air.

3.3.8 Wake up function



If using the Wake Up function it is essential that the standard humidity and temperature duct sensor is being placed directly after the return air duct grill to be able to measure the humidity and temperature in the room without any air movement (fans stopped). If this is not possible, the duct sensor has to be placed directly in the room or replaced by a room humidistat / temperature sensor.

With the wake up function you can choose if the unit should start up automatically at too high humidity or too low temperature, if you have set the unit to be stopped in the time program. If you have chosen YES, the unit will run as long as it takes to reach the wanted set point. When the set point is reached the unit will then automatically stop again. If you choose NO the unit will not start up, even if the room conditions not correspond to the wanted set points.

3.3.9 Fan K value

This point specific the k value of the fan. This setting should normal not be changed.

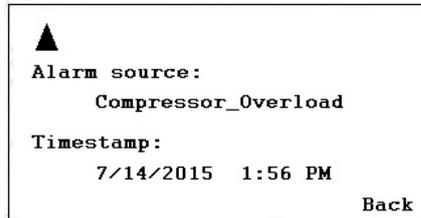
3.4 Control Loops menu



You cannot see this menu with your normal guest or operator password, as this menu is strictly for System Administrators only. Here the values for the PID regulation for temperature, humidity and air volume can be changed. If you do not understand regulation, do not touch these points, even if you are a system administrator.

4.0 Alarms

If there is a current alarm and the unit has stopped, the actual alarm will be shown in the display like this compressor overload.



When the unit has stopped, because of a critical fault you have to do the following:



- Switch off the unit at the repair breaker.
- Locate the fault and correct it (see chapter 4.2).
- Switch on the unit again and see if the alarm has switched over to normal again.

4.1 Alarm menu



Under this icon you have the following possibility:

- See Points in Alarm
- See Alarm List
- See Alarm Status of LED

4.1.1 Points in alarm

Here all current critical and non-critical alarms can be read. The first one will be identical with the alarm in the normal display, but there can be more alarms at the same time, which can then only be read in this point.

4.1.2 Alarm list

In the alarm list, you can find the last 99 alarms with the last one on top. You can see on the right side of the alarm at which day and when pressing the **Rotate button** at what time the alarm has appeared.

4.1.3 Alarm status of LED

Here it is possible for the System Administrator to configure at which fault the red LED lamp at the front of the controller should light. Standard configuration is for sensor fault and Panel Bus error.

4. ALARMS

4.2 Critical alarms

A critical alarm will either stop the total unit (heat pump and fans) or just the heat pump. The unit can first be started up again when the alarm has been acknowledged. Critical alarms are:

| Alarm point | Description |
|---------------------|---|
| Heating_Coil | Frost danger for LPHW coil, or OT for electrical heating coil |
| Fire_Alarm | Fire thermostat on supply or return air side has switched off |
| Fan_Alarm | Return or supply fan overload |
| Compressor_Overload | Thermo relay for compressor has switched off (Only units with HP) |
| HP_LP_Alarm | HP/LP pressure compressor alarm (Only units with HP) |

4.3 Non critical alarms

A non-critical alarm will not stop the unit, but it is a reminder to check the part (filter) which is in alarm. Non critical alarms are:

| Alarm point | Description |
|--------------|---|
| Filter_Dirty | Outdoor or exhaust air filter should be checked |

4.4 How to solve alarms

| Alarm | Problem | Cause | Action |
|--------|---------------------------------|---|---|
| Frost | Valve not opening | <ul style="list-style-type: none"> Defect actuator Valve stuck | <ul style="list-style-type: none"> Change/Repair actuator Change/Repair valve |
| | No hot water | <ul style="list-style-type: none"> Pump not working Boiler problem | <ul style="list-style-type: none"> Change/Repair pump See boiler manual |
| Fire | Return air temperature > 40°C | <ul style="list-style-type: none"> Fire in the building | |
| | Supply air temperature > 70°C | <ul style="list-style-type: none"> After heating coil not working correct at low air volume Fire in the unit | <ul style="list-style-type: none"> Check heating coil controls |
| Filter | Filter is dirty | <ul style="list-style-type: none"> Filter blocked | <ul style="list-style-type: none"> Change filter |
| Flow | Flow error | <ul style="list-style-type: none"> Fan belt broken Fan motor broken Damper not open | <ul style="list-style-type: none"> Change belt Change/repair motor Check damper/motor |
| | Thermo relay switched off | <ul style="list-style-type: none"> Fan motor broken Phase missing Fan belt broken Thermo relay broken | <ul style="list-style-type: none"> Change/Repair motor Connect all phases correct Change belt Change thermo relay |
| | Frequency inverter switched off | <ul style="list-style-type: none"> Fan motor overload Fan motor broken Phase missing | <ul style="list-style-type: none"> Check air volume/pressure Change/Repair motor Connect all phases correct |

4. ALARMS

| Alarm | Problem | Cause | Action |
|------------|---------------------------|---|---|
| HP/ LP | HP pressure over 24 bar | <ul style="list-style-type: none">• Air volume too small• Blockage in cooling circuit• Outside temperature too high | <ul style="list-style-type: none">• Check air volume• Check/Repair cooling circuit• Reset pressure switch |
| | LP pressure under 1.5 bar | <ul style="list-style-type: none">• Leakage in the cooling circuit• Evaporator iced up | <ul style="list-style-type: none">• Repair cooling circuit• Deice evaporator/Check de-icing function |
| Compressor | Thermo relay switched off | <ul style="list-style-type: none">• Compressor broken• Phase missing• Thermo relay broken | <ul style="list-style-type: none">• Change compressor• Connect all phases correct• Change thermo relay |

For more detailed explanations see the Service Manual for DanX units for swimming pools.

5.0 Main menu



Under this icon you have the following points and functions:

- Points in Manual
- Data Point List
- Settings
- Information

5.1 Points in manual

In this menu you will find all the points which have been set in Manual mode. Normally points are only set in Manual mode when testing some functions of the unit and these points should be set back to automatic immediately after the test has been finished. Before leaving a unit it is always a good idea to look into this menu to make sure that it is empty. If there is still a point in Manual you can change this point directly back to automatic in this menu.

5.2 Data point list

In this menu you will find all data points of the controller in alphabetic order.

| DATAPOINT LIST | |
|----------------|--------|
| B24_lower_B21 | YES |
| ByPass_Damper | 20 |
| Common_Fault | NORMAL |
| Compressor | OFF |

If you are looking for a specific data point you can press the function button on the left side of the display beside the triangle in the display. You will then have the possibility to select some special points like analog inputs, digital outputs and so on. This will make your data point list shorter and easier to work with.

| FILTER DATAPOINTS | |
|--------------------|--|
| Select Plants | |
| Select Point types | |
| Back | |

| SELECT POINT TYPES | |
|---|--|
| <input checked="" type="checkbox"/> All | |
| <input checked="" type="checkbox"/> Analog Input | |
| <input checked="" type="checkbox"/> Analog Output | |
| Back | |

If you have logged in as System Administrator you have also the possibility to set values in Manual mode for testing purpose. When the data point is in Manual mode a hand icon will be shown in front of the data point and the data point will also be shown in the menu Points in Manual.

| DATAPOINT LIST | |
|---|--------|
|  B24_lower_B21 | NO |
| ByPass_Damper | 20 |
| Common_Fault | NORMAL |
| Compressor | OFF |

It is very important to set back the data point to automatic after testing!



As the operator of the unit you should normally not change a point from Auto mode into Manual mode. This should only be done by professional service technicians!

5.3 Settings

In this menu you will find the most important settings for the controller.

| SETTINGS | |
|-----------|-----------|
| Language: | English |
| Date: | 7/15/2015 |
| Back | |

Here you can change the language, the date, the time and the time zone. To change the settings no password is needed. You can chose between most of the European languages, but the names of data points and the description of them will stay always in English.

5.4 Information

Under Information you can find mostly information's about the controller's software some for example which program and firmware version is used, which IP address the controller has, serial number and much more.

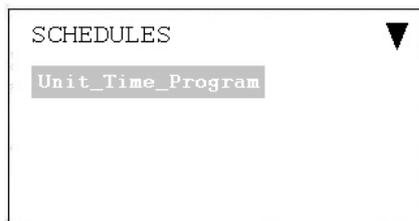
6.0 Time programs



When pressing the Clock Button of the controller the following points will appear on the display:

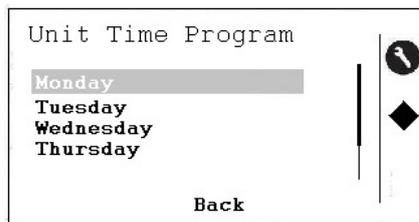
- Calendars (not used in this application)
- Schedules

When pressing the **Rotate button** on Schedules the following display will appear.



6.1 Unit Time Program

When opening the Unit Time Program the following display will appear:



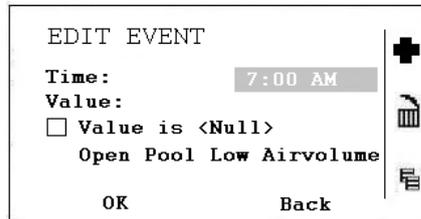
Now the time program can be changed for Monday and the following display will appear:



To activate the three icons on the right side of the display you have to press the button on the controller which is beside the icon. The three icons are having the following functions:

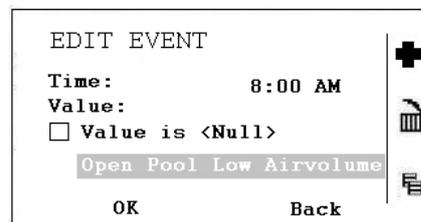
- With this icon you can add a new line in the time program of the day
- With this icon you can delete the line you are standing on with the cursor
- With this icon you can copy the program for this day to other days

To change a start time or the setting set the cursor on the line you will change and the following display will appear:



```
EDIT EVENT
Time:      7:00 AM
Value:
 Value is <Null>
  Open Pool Low Airvolume
          OK          Back
```

Now you can change the start time. If you want to change the setting of this time program line scroll further down:



```
EDIT EVENT
Time:      8:00 AM
Value:
 Value is <Null>
  Open Pool Low Airvolume
          OK          Back
```

You can now change the settings of this line. There are the following possibilities:

- Open Pool Low Air Volume
- Open Pool High Air Volume
- Closed Pool Low Air Volume
- Closed Pool High Air Volume
- Unit Stopped

For more explanations of this five settings see the next chapter.

7.1 Introduction

The MVC WEB controller is operated via a standard web browser. By default, an integrated web server provides all operation pages for a full browser-based operation. Through the consequent use of software standards, any PC platform can be used as an operator interface (client). Other than the operating system and Internet Explorer, Chrome or Firefox, no software needs to be installed on the client PCs. Any MVC WEB controller on the network can be accessed via the browser-based MVC Web Interface, both locally and remotely. The local access is normally only used to change the LAN IP address of the controller and for service reasons. The customer access is normally remotely over the LAN network.

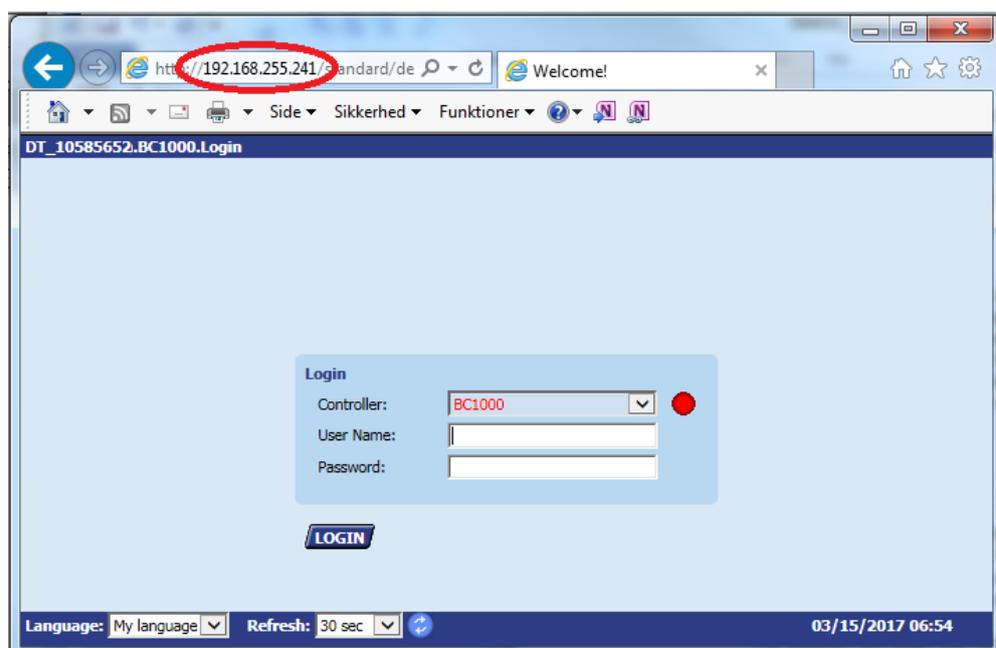
7.2 Local access

To locally connect to the MVC WEB controller via USB interface, an USB cable of type B standard has to be used. The USB connection / local access type is mandatory for the initial setup of the controller and the LAN IP address.

For access via the USB connection, the controller has a factory default IP address **192.168.255.241** and Network Mask **255.255.255.0**.

To connect your computer locally for the first time, do the following:

- Copy the directory with the MVC WEB drivers on your computer.
- Connected your computer and the MVC WEB controller with the USB cable.
- Power up the MVC WEB controller. Depending on your Windows system your computer will automatically search for a driver, or you have to install the driver manually.
- Open now the browser on your computer. Enter the IP address for the USB connection which is always **192.168.255.241** and you will see the following picture and be ready to enter the controller.



7.3 Remote access

The MVC WEB is operated via a standard web browser. By default, an integrated web server provides all operation pages for a full browser-based operation. Through the consequent use of software standards, any PC platform can be used as an operator interface (client). Other than the operating system and Internet Explorer, Chrome or Firefox, no software needs to be installed on the client PCs.

To access the MVC WEB controller through a LAN network you have to allocate a valid and permanent IP address to the controller, which is reachable within the LAN.

7.4 LAN password

To enter the controller through a browser you need a password as if you would enter through the display (see chapter 4.4.1.1).

There are three different access levels in the program, depending on the username and password. To change the Time Program or set point, you have to use the level 1 password for the operator to get access. With level 2, all points can be set into manual to test the unit. On access level 3 you can change passwords, users and the IP address. Furthermore you can set up alarm e-mails.

| User Name | Access level | Password | Possibilities |
|------------------|--------------|-----------|--|
| Operator | 1 | operator | Time Program, set point changes |
| BuildingEngineer | 2 | honeywell | Points can be set to manual |
| SystemAdmin | 3 | * | IP address and password change. E-mail set up |

* Please ask Dantherm

7.5 Change of LAN IP address

The LAN IP address of the MVC WEB controller is from the factory set up with the following address:

| | |
|--------------|---------------|
| IP: | 192.168.1.202 |
| Subnet Mask: | 255.255.255.0 |
| Gateway: | 192.168.1.1 |

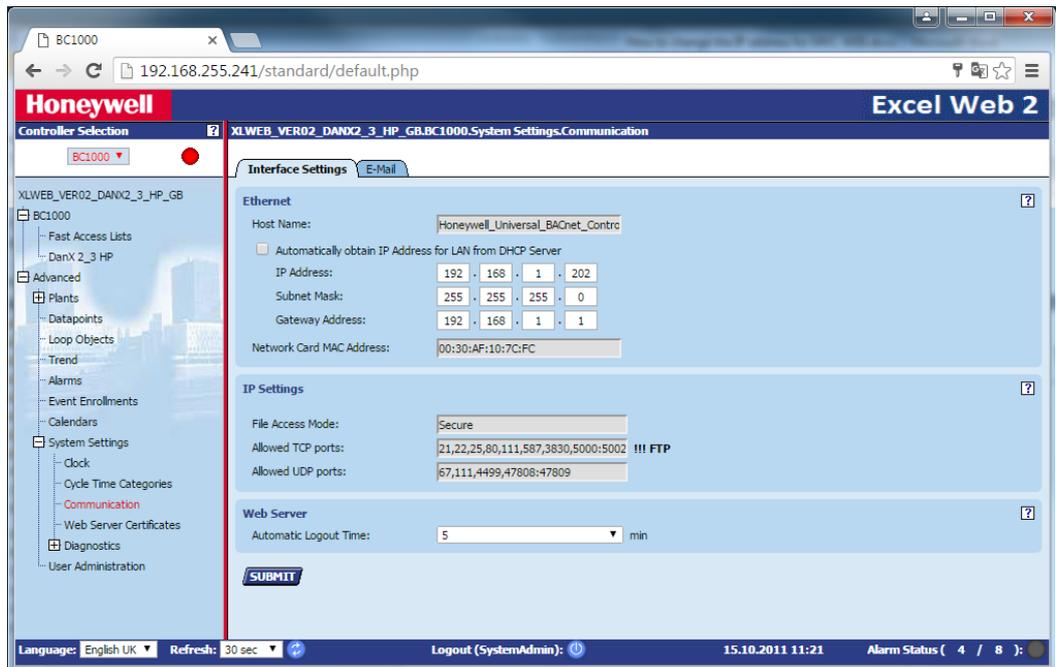
This address will maybe work in some smaller home networks, but if you have a larger network you surly have to change the LAN IP address. This you do in the following way:

- Make a local connection to the MVC WEB controller (see chapter 4.10.1)
- Open a browser on your computer. Enter the IP address for the USB connection which is always 192.168.255.241 and enter the password for the System Administrator which you can get from your Dantherm dealer (see chapter 4.10.3)
- After Login you will see the flow diagram of the unit (see chapter 4.10.5)

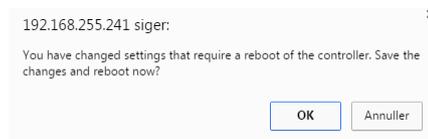
- Click on Communication in the left tree and you will now be able to change IP address, subnet mask and gateway address.

Alternatively it is possible that the controller will obtain an IP address automatically. In this case the controller has of course been connected to the local network through a LAN cable to get the IP address automatically.

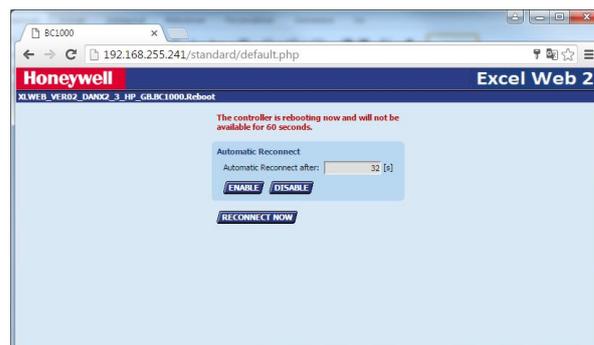
Be aware of that if you use an automatically obtained IP address that the IP address will change whenever you switch the controller OFF and ON! You can always find the new IP address the network has given to the controller by entering the Main Menu directly in the MVC WEB controller.



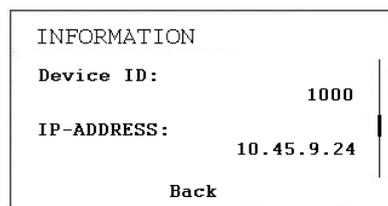
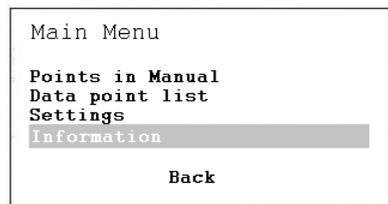
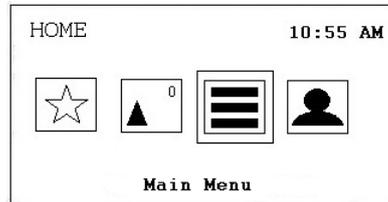
- Click on SUBMIT. You will be asked if you want to change the settings and you press OK.



The controller will now reboot and will be ready after about 60 seconds.

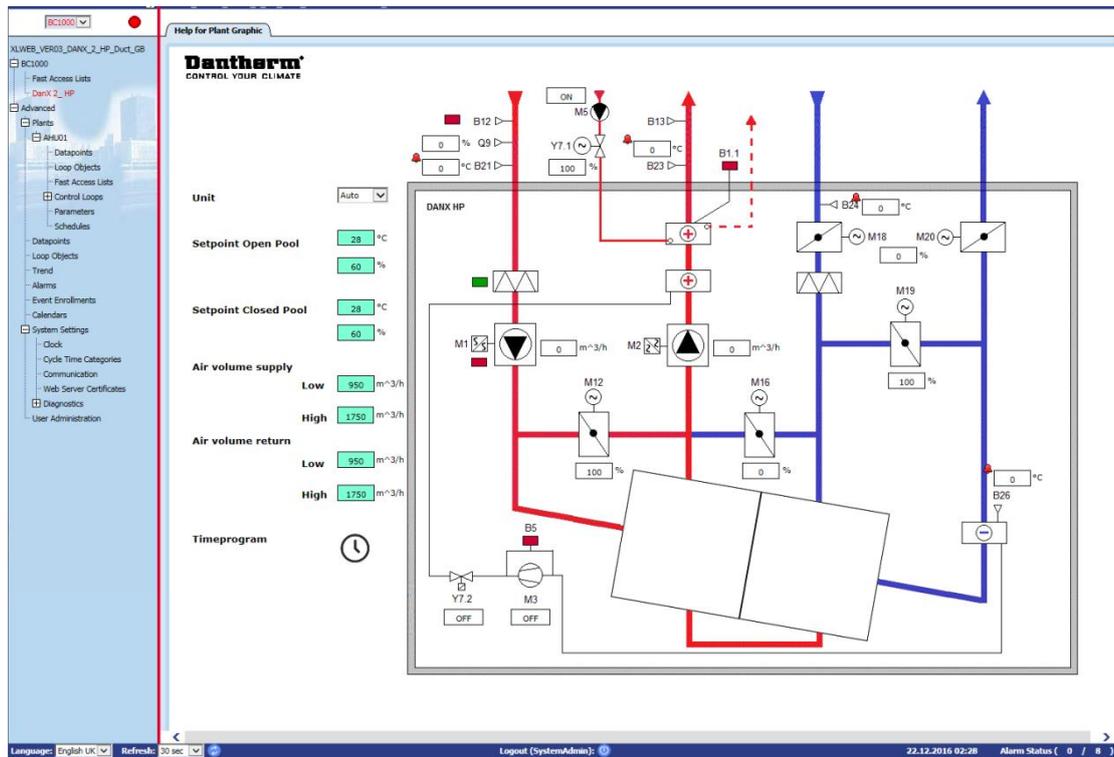


- You can now check in the Honeywell WEB controller if the correct IP address has been downloaded under Main Menu / Information / IP-Address.



- Now connect the Honeywell WEB controller to the local network with a LAN cable. Start a browser on your networks computer and give in the new LAN IP address. If the controller has automatically obtained an IP address you can find the IP address in the controller under Main Menu / Information / IP-Address. Now you can open the controller over your LAN network.

7.6 Operation



When opening the WEB controller through a browser the first page you will always see shows the flow diagram of the unit with all the important values. Secondly you can access set points and the time program from this page.

The controller selection pane on the left displays the application of the current controller in a hierarchical tree structure. The alarm indicator icon next to the drop-down listbox indicates whether alarms exist (red) or not (green).

In the tree structure the following most important points can be chosen:

- BC1000 / Fast Access Lists: Here you find the Setpoint and Unit Status menu.
- Advanced / Plants / AHU01 / Fast Access Lists: Here you find the Unit Configuration list, where you configure the unit for your needs.
- Advanced / Plants / AHU01 / Schedules: Here you find the Timeprogram where you can set the units start/stop times and night/day running times.
- Advanced / Plants / Datapoints: Here you find all data points of the program and in SystemAdmin mode you can set these from automatic to manual.
- Advanced / Plants / Alarms: Here you find the alarm buffer for the controller with all recorded alarms.
- Advanced / System Settings / Clock: Here you set the time and date.
- Advanced / System Settings / Communication: Here you set the IP address for the LAN network. Secondly you can setup e-mails for different users which will be send in the case of an alarm.
- Advanced / System Settings / User Administration: Here you change user passwords, create new user and configure the access level for each user.

For further and deeper information's, there is a English Honeywell user guide available from Dantherms FTP server.

8.1 Functional description XWPS / XWPRS

The control strategy for a swimming pool unit is quite complex, therefore this user manual will only describe the basic functions of the control system. In general, the humidity control has always the highest preference, before the temperature control.

8.1.1 Humidity control

Humidity level in the pool hall is lower or equals the set point:

- The compressor will be stopped. If the compressor runs, the temperature control has taken over.
- The outdoor / exhaust air dampers are partly open in day time (Set point Fresh air amount - Minimum_Fresh_Air) and will be closed in night time.

Humidity level in the swimming pool hall is higher than the set point:

- The compressor will start to dehumidify.
- If the dehumidification capacity of the compressor is not efficient enough, the outdoor / exhaust air dampers will open more to get more dry outdoor air to the pool hall (overriding the set point Fresh air amount - Minimum_Fresh_Air)

If in summertime the outdoor air temperature is higher than 23°C, condense in the pool hall is no longer an issue. Therefore the humidity set point will be moved upwards with 1% for each °C above 23°C outside, but maximum by 5%. This means with a set point of 55% R.H. the maximum possible relative humidity is 60% at an outdoor temperature of 28°C.

IMPORTANT

If the compressor does not start, even if the humidity in the pool hall is above the set point there can be the following reasons:



- The outdoor / exhaust air damper is open >90% (normally in summertime).
- The temperature control has taken over with free or active cooling.

8.1.2 Temperature control

Temperature level in the swimming pool hall equals the set point:

- The compressor will be stopped. If the compressor runs, the humidity control, or a built-in water-cooled condenser has taken over.
- The heating coil will be stopped.
- The outdoor / exhaust air dampers are partly open in day time (Set point Fresh air amount - Minimum_Fresh_Air) and will be closed in night time.

Temperature level in the pool hall is lower than the set point:

- The compressor will be running.
- The heating coil is running, if the compressor capacity is not large enough or the compressor is not running (night time).
- The outdoor / exhaust air dampers are partly open in day time (Set point Fresh air amount - Minimum_Fresh_Air) and will be closed in night time.

IMPORTANT

If the compressor does not start, even if the temperature in the pool hall is below the set point there can be the following reasons:



- The unit runs in night mode (Closed Pool High Airvolume / Closed Pool Low Airvolume or STOP)
- The outdoor / exhaust air damper setting (Minimum_Fresh_Air) is <10%.

Temperature level in the swimming pool hall is higher than the set point:

- The compressor will be stopped on XWPS units. If the compressor runs, the build in water cooled condenser has taken over.
- The compressor will run in cooling mode (4 way valve activated) on XWPRS units, if cooling in the Unit Configuration menu (see 3.3) is activated.
- The heating coil will be stopped.
- The outdoor / exhaust air dampers will open more to get more cooled outdoor air to the pool hall (overriding the set point Fresh air amount - Minimum_Fresh_Air). Secondly the by-pass damper will slowly open to avoid heating the outdoor air in the heat exchanger.

8.1.3 Evaporator de-icing

If the evaporator sensor (B26) is measuring a temperature $<+2^{\circ}\text{C}$ for more than 20 minutes the compressor will be stopped and the outdoor / exhaust air dampers closed. At the same time the fan speed goes up to full speed. When the evaporator has been de-iced, all functions are going back to normal.

8.1.4 Fan control



Normally the fans are running at the air volume set in the Time Program, but if the speed is set to low speed (Open Pool Low Airvolume or Closed Pool Low Airvolume) there can be the following reasons, why the unit is running still on full speed.

- If the calculated dehumidification demand is $>50\%$, which means there is a larger difference between the actual humidity and the set point, the fans will go to full speed, until the calculated dehumidification is again $<50\%$.
- If there is a demand for free cooling (Outdoor_Air_Temperature $<$ Room_Temperature) the fans will go over to full speed until the set point temperature has been reached again.
- If there is a larger difference between the actual hall temperature and the set point than 2°C the fans will go to high speed, until the difference is lower than 2°C .
- If the supply air temperature is above the set point (Max_Supply_Temperature).
- If the evaporator is been de-iced. The de-icing stops when the evaporator temperature (Evaporator_Temperatur) is $>+2^{\circ}\text{C}$.

8.2 Functional description XKS

The control strategy for a swimming pool unit is quite complex, therefore this user manual will only describe the basic functions of the control system. In general, the humidity control has always the highest preference, before the temperature control.

8.2.1 Humidity control

Humidity level in the pool hall is lower or equals the set point:

- The outdoor / exhaust air dampers are partly open in day time (Set point Fresh air amount - Minimum_Fresh_Air) and will be closed in night time.

Humidity level in the swimming pool hall is higher than the set point:

- The outdoor / exhaust air dampers will open more to get more dry outdoor air to the pool hall (overriding the set point Fresh air amount - Minimum_Fresh_Air).

If in summertime the outdoor air temperature is higher than 23°C, condense in the pool hall is no longer an issue. Therefore the humidity set point will be moved upwards with 1% for each °C above 23°C outside, but maximum by 5%. This means with a set point of 55% R.H. the maximum possible relative humidity is 60% at an outdoor temperature of 28°C.

8.2.2 Temperature control

Temperature level in the swimming pool hall equals the set point:

- The heating coil will be stopped.
- The outdoor / exhaust air dampers are partly open in day time (Set point Fresh air amount - Minimum_Fresh_Air) and will be closed in night time.

Temperature level in the pool hall is lower than the set point:

- The heating coil is running.
- The outdoor / exhaust air dampers are partly open in day time (Set point Fresh air amount - Minimum_Fresh_Air) and will be closed in night time.

Temperature level in the swimming pool hall is higher than the set point:

- The heating coil will be stopped.
- The outdoor / exhaust air dampers will open more to get more cooled outdoor air to the pool hall (overriding the set point Fresh air amount - Minimum_Fresh_Air). Secondly the by-pass damper will slowly open to avoid heating the outdoor air in the heat exchanger.
- The controller gives a digital / analog signal to a cooling unit.

8.2.3 Fan control



Normally the fans are running at the air volume set in the Time Program, but if the air volume is set to low speed (Open Pool Low Airvolume or Closed Pool Low Airvolume) there can be the following reasons why the unit is running still on full speed.

- If the calculated dehumidification demand is $>5\%$, the fans will go to full speed, until the calculated dehumidification demand is again $<5\%$.
- If there is a demand for free cooling ($\text{Outdoor_Air_Temperature} < \text{Room_Temperature}$) the fans will go over to full speed until the set point temperature has been reached again.
- If there is a larger difference between the actual hall temperature and the set point than 2°C the fans will go to high speed, until the difference is lower than 2°C .
- If the supply air temperature is above the set point ($\text{Max_Supply_Temperature}$).

Contact Dantherm

Dantherm Air Handling A/S
Marienlystvej 65
7800 Skive
Denmark

Phone +45 96 14 37 00
Fax +45 96 14 38 00

infodk@dantherm.com
www.dantherm.com

Dantherm Air Handling AS
Postboks 4
3101 Tønsberg
Norway
Besøksadresse: Skallestad, Nøtterøy

Phone +47 33 35 16 00
Fax +47 33 38 51 91

dantherm.no@dantherm.com
www.dantherm.no

Dantherm Air Handling AB
Virkesgatan 5
614 31 Söderköping
Sweden

Phone +(0) 121 130 40
Fax +(0) 121 133 70

infose@dantherm.com
www.dantherm.se

Dantherm Air Handling (Suzhou) Ltd.
Bldg#9, No.855 Zhu Jiang Rd.,
Suzhou New District, Jiangsu
215219 Suzhou
China

Phone +86 512 6667 8500
Fax +86 512 6667 8500

dantherm.cn@dantherm.com
www.dantherm-air-handling.com.cn

Dantherm Limited
12 Windmill Business Park
Windmill Road, Clevedon
North Somerset, BS21 6SR
England

Phone +44 (0)1275 87 68 51
Fax +44 (0)1275 34 30 86

infouk@dantherm.com
www.dantherm.co.uk

Dantherm Air Handling Inc.
110 Corporate Drive, Suite K
Spartanburg, SC 29303
USA

Phone +1 (864) 595 9800
Fax +1 (864) 595 9810

infous@dantherm.com
www.dantherm.com



Dantherm Air Handling A/S

Marienlystvej 65

7800 Skive

Denmark

www.dantherm.com

service@dantherm.com

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