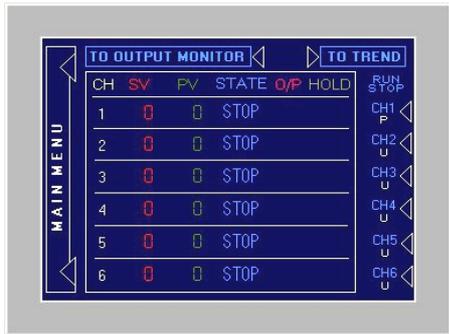


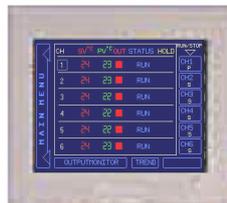
HeatManager Pro V3

User manual



HMI

6 OR 12 PROGRAMMERS / CONTROLLER



6 OR 12 TC INPUTS

6 OR 12 TC OUTPUTS

CasCade® Automation Systems

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1) Introduction

First of all, we would like to thank you for purchasing our HeatManager Pro®. We are confident that it will meet 100% up to your expectations for heat treatment applications. The HeatManager pro® is a state of the art controller for heat treatment applications and combines user friendly operations with the newest technology. The heart of the HeatManager Pro® is the full colour TFT touch screen from which you can set-up and run your system. The control is done by a dedicated rack-mounting system that is located inside the cabinet. The HeatManager Pro® is available as a 6-loop and a 12 loop system.

Basic features of the HeatManager Pro®:

- Colour TFT touch-screen
- 6 or 12 loop controller
- Free selectable programmer/slave combinations
- Up to 7 ramp/soaks per program when in normal mode
- Auto hold and manual hold function
- Step function
- Thermocouple break and reverse detection
- Calibration function
- Real-time trend charts (paperless recorder)
- Output status monitor
- Lock function against unauthorized operations
- Data logging function with export to Excel

2) Initiation

When you start the system for the first time you will first need to go through a initiation.

Here you'll be asked the following questions:



Please select your language. You can choose for English, Deutsch and Nederlands.



Select your operation mode. This can either be Easy or Normal.

When you choose a Easy mode Heatmanager you can only program one ramp and one soak per channel.

When you choose the Advance mode you've got eight ramp and eight soak program options per channel.



Next you'll be asked to choose between 6 and 12 channels.

Please select the correct number of channels. When you only would want to use 8 channels, please select 12 channels and then in the program settings you can select channel 9 to 12 as unused.



When you have insert all the correct options the following screen will appear.

This is the component initiation which can take 20 to 60 minutes to configure.

Note: When this screen appears, please wait while the screen is initiating the TIO's and other components. When you cut the power to the touch panel in this phase of the initiation you will need to do the complete initiation again.

3) Main menu

When the initiation is complete you will land on the “GENERAL INFORMATION” screen. On this screen you will find the general information from your supplier. To exit this screen, just touch the screen and you will swap to the main menu.

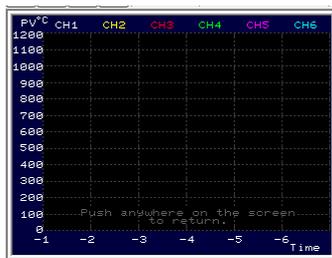


From the main menu you can choose to go to the Operation mode, the Program settings, Basic settings, Copy data, General information, PV offset and PID settings.

**Note: When you push and hold the top left corner in the main menu for five seconds you can re-init the touch panel.*

3 a) Lock function

When you push and hold the bottom left corner in the main menu for five seconds the screen will automatically change to the operation lock screen, where the start/stop buttons are disabled. To return from the operation locked screen, push and hold the bottom left corner again for five seconds. In lock mode the operator can still go to the trend screens by pushing the “TREND” button.



4) Operation mode



Push the “OPERATION” button in order to swap to the operations menu where you can RUN and STOP one or all of your programmers by pushing the corresponding channel number button. For each channel the “P”, the “S” or the “U” indicates whether that channel is a Programmer, Slave or Unused. Programmers can easily be recognized by there blue rectangle surrounding the channel number.

4a) How to run or stop a program



To run or stop a program, toggle the corresponding programmer channel button for *one* second. The one second delay on this button is to prevent a operator from switching a program by accident. The slave(s) that belong to this programmer will automatically follow the run or stop status of the programmer.

In the status column you can easily see if a channel is in run or in stop mode. In the “OUT” (output) column a red rectangle will tell you whether a channels output is active or not. In the “HOLD” column you can see if programmer is in hold by the word “ON”. A yellow light will indicated witch of the slave(s) channel(s) is responsible for the programmers hold. This can either be the programmer it self or one of it slaves.

4b) Output monitor

When you touch the “OUTPUTMONITOR” button on the operation run/stop screen you will swap to the output monitor screen. Here you can view the output percentages per channel and also the thermocouple break indicator. Both screens look similar to each other however, the function of the channel number buttons (CH1 ~ CH12) has changed.

**Note: when a thermocouple break appears while in RUN mode, the heatmanager pro will automatically swap to the “OUTPUTMONITOR” screen.*

4c) Profile settings

On the “OUTPUTMONITOR” screen you can use the CH1 ~ CH12 buttons to enter the profile setting mode for the programmer channels. Slave and unused channels will be ignored. Also note that this is only possible when the programmer is not in hold status. After pushing the channel number button of a programmer that is not in hold, you will swap to the corresponding setting screen, even when that channel is in RUN mode. You are now able to change the running step, or one of the other steps.

Pushing the “Back” button will bring you back to the “OUTPUTMONITOR” screen. Pushing the “OPERATION” button on the output monitoring screen will bring you back to the operation RUN / STOP screen.

4d) Trend-charts

Touch the “TREND” button on both the RUN/STOP or OUTPUTMONITOR screen to swap to the “all channels trend” screen where you can view 6 Process values at the same time over the last 6 hours. In case of the 8 and 12 loop system, push the same “ TREND” button on the corresponding channel screen. Touching the trend screen just anywhere will return the operator to the previous screen.

To view a trend of one specific channel go to the “detail channel screen” from a specific channel and select “TREND CH(x)”.

4e) Detail channel screen

To swap to the “DETAIL CHANNEL SCREEN”, you have to touch the blue rectangle program channel number. This means you can see the detailed information of all different programmers by touching the corresponding channel.

On the “DETAIL CHANNEL SCREEN” you can find useful information about the status of the programmer. Push the “BACK” button to return to the Operation RUN/STOP or OUTPUTMONITOR screen.

4f) Next segment

Push the “NEXT SEGMENT” button to activate the step function. The running program will skip directly to the next segment, remember that each segment exist of one ramp and one soak, so when you push the “NEXT SEGMENT” button you will automatically go to the start of the next ramp.

**Note: The step function will only work when the programmer is not in hold.*

***Note: The elapsed soak time will reset when changing from ramp to soak state. This means that when you “STEP” while a soak is running, and jump to the start of a new ramp, the elapsed soak time of the previous step will be shown until the ramped set point has reached the target set point of that step and start soaking.*

4g) Hold function

Push the program hold button to activate the hold function manually. Pushing the button again will release the manual hold function.

4h) Calibration

Push the “PV OFFSET” button to swap to the calibration screen. On the calibration screen the operator can add or subtract some degrees of the process values to calibrate the controller with your paper trend chart recorder. Touch the number to set the value by the pop-up keypad. Touch the up and down keys to directly add or subtract one degrees. Push the reset screen to “zero” the applicable channels. Push “BACK” to return to the detail channel page.

4i) PID settings

Push the “PID SETTINGS” button to enter the PID settings menu where you can edit the PID settings. Please note that the factory settings are carefully chosen for this application and will work well in most situations.

**Note: you can set different PID settings for each segment of each channel. By touching the segment number a small touch pad will pop-up to change the segment. After you have changed the segment, you can edit the PID values for that segment. Push “BACK” to return to the previous screen.*

4j) Password protection

As the “CALIBRATION” and “PID SETTINGS” screens are password protected, type “USER” in CAPITAL letters to enter these screens. After 1 minute not touching the screen, the password is timed-out and the operator has to type “USER” again if he wants to enter again or leave the calibration screen.

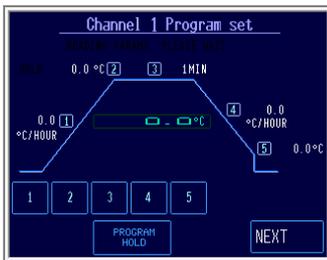
5) Program settings

5a) Easy mode program setting

Push the “PROGRAM SETTINGS” to swap to the profile settings menu, where you can start setting the profile of channel 1.

**Note: you can select whether a channel is a programmer, slave or unused. Channel one is always a programmer but all other channels can be set to programmer, slave or unused. This makes it possible to have one programmer and eleven slaves.*

***Note: once you've entered the “PROGRAM SETTING” mode, you have to go through all the channels in order to get back to the “MAIN MENU”.*



On the profile setting screen there are five parameters which can be set. You can set your parameters by touching the numbers in the bottom screen or by pressing the numbers on the graph.

You can set the ramp speed in deg. per hour and the dwell time in minutes.

5b) Normal mode program setting



On the profile setting screen, there are four parameters that can be set for each segment. First select the segment you want to set by touching the segment number. The keypad will pop-up and you can select the segment you want to program, from segment 1 to segment 8. Always start your program in segment number one!

Next, program the target set point for that segment, the ramp to set point in deg. per hour and the dwell time in minutes. Use the small “dwell time help” to calculate your minutes and save them in the dwell time by pushing the “copy to dwell time” button. Max. is 99 hours and 59 minutes. Remember to do so for each segment!



On the “Channel selection screen” you can select each channel to be a programmer, slave of the previous programmer or unused, by pushing the corresponding button. You can go back to the previous channel at any time, by pushing “BACK” button.

Also, if you have selected that channel to be a slave, you can set a set point offset compared to the set point of the previous channel.

After setting the channel function, push “NEXT”. If you choose “PROGRAMMER”, you will automatically swap to the channel 2 profile setting screen. If you have selected “UNUSED” or “SLAVE”, you will swap to the next channel selection screen.

From here, you repeat the same procedure to set all channels.



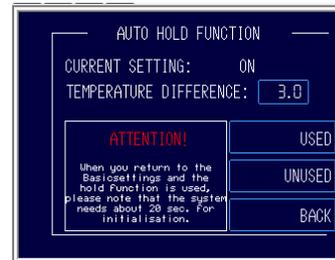
After you have set all channels to be a programmer, slave or unused you will enter the “End Program setting” page that confirms that all channels have been set.

Also, if you are not sure you did set all channels in a proper way, you can go back to the previous channel by pushing the “BACK” button. Push “NEXT” to swap to the “MAIN MENU”

6) Basic settings

In the main menu you can choose for the basic settings menu. To access this menu you will need a password, this password is “MASTER” in capital letters.

6a) Hold settings

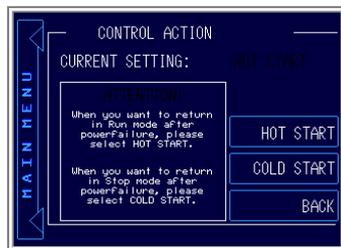


In the hold settings menu you can insert a maximum deviation between the set point and the process value. When this maximum deviation is reached, the auto hold function will prevent the set point from ramping to far away from the process value.

The factory settings of the auto hold function is set on a maximum deviation of 100 degrees and it is set on off.

To set the auto hold on, just press the used button and insert a maximum deviation of 100 degrees or a minimum of 3 degrees.

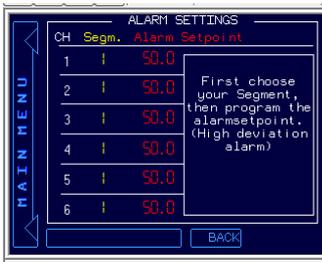
6b) Hot/cold start selection



In the “hot/cold start selection screen” you can select whether you want to hold your set-up after a power failure or directly continue your set-up.

To stop the set-up just select “COLD START” and the set-up stops after a power failure. To continue your set-up please select “HOT START”.

6c) Alarm settings



You can set a alarm per channel per segment. To do so, first select a segment from which you would like to set a alarm and then select the alarm column. You can insert a minimum of 0.0 degrees deviation high alarm, and a maximum of 1200.0 degrees.

Note: When you would like to use the Alarm function, you will need to install additional DIO modules in order for the alarm functionality to work.

6d) Language selection



On the “LANGUAGE SELECTION” page you can switch between English, German, Francais and Nederlands (Dutch). In the future there will also be other languages available.

6e) Date and time



On the “DATE AND TIME SETTINGS” page you can set the correct date and time that will be used in the automatic data logging feature. This will make sure that the correct date and times are used in the .csv file that you can create on the “COPY DATA” page. The blue numbers are the current settings, the white settings are the new settings. Just touch the white numbers, and type in the desired date and time. The new values are immediately active.

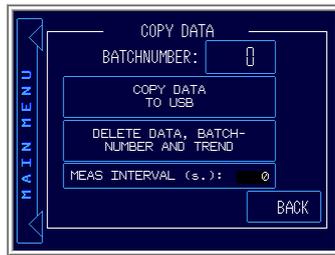
6f) Switch Easy/Normal



To switch to a different mode (easy or normal) go to the “switch easy/normal” menu.

The difference between easy and normal is the number of segments you can enter. In easy mode you can only set one segment (one ramp and one soak), in normal mode you can set-up to eight segments per channel.

6g) Copy data



To copy your trend data to a USB storage device you'll need to go back to the main menu and press the “COPY DATA” button.

Here you can change your “batch number”(this is the number your file will get when it is saved to your USB), copy your data to your USB, delete the trend data and set your measurement interval for your trends.

6h) General information

To view your suppliers
“GENERAL INFORMATION”

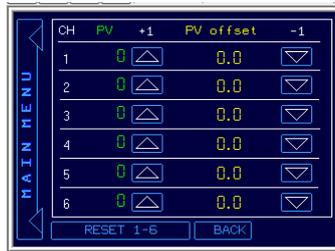
You can have your
customers.



general information just select the
button in the main menu.

own Information here for your

7) Process value offset



Push the "PV OFFSET" button to swap to the calibration screen. On the calibration screen the operator can add or subtract some degrees of the process values to calibrate the controller with your paper trend chart recorder. Touch the number to set the value by the pop-up keypad. Touch the up and down keys to directly add or subtract one. Push the reset screen to "zero" the applicable channels. Push "BACK" to return to the main menu.

The password for this screen is "MASTER" in capital letters.

8) PID settings



The image shows a dark blue screen with the text "PID SETTINGS" at the top. Below it is a table with columns: CH, Segm., P-Band, I-Time, D-Time, and At. The table contains six rows of data, each representing a channel. A vertical label "MAIN MENU" is on the left side, and a "BACK" button is at the bottom right.

| CH | Segm. | P-Band | I-Time | D-Time | At |
|----|-------|--------|--------|--------|----|
| 1 | 1 | 11.0 | 80 | 20 | ■ |
| 2 | 1 | 11.0 | 80 | 20 | ■ |
| 3 | 1 | 11.0 | 80 | 20 | ■ |
| 4 | 1 | 11.0 | 80 | 20 | ■ |
| 5 | 1 | 11.0 | 80 | 20 | ■ |
| 6 | 1 | 11.0 | 80 | 20 | ■ |

Push the “PID SETTINGS” button to enter the PID settings menu where you can edit the PID settings. Please note that the factory settings are carefully chosen for this application and will work well in most situations.

**Note: you can set different PID settings for each segment of each channel. By touching the segment number a small touch pad will pop-up to change the segment. After you have changed the segment, you can edit the PID values for that segment. Push “BACK” to return to the previous screen.*