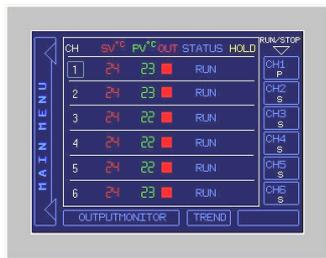# HeatManager Pro® USER MANUAL REV. 1.1

HMI

6, 8 OR 12 PROGRAMMERS / CONTROLLERS

6, 8 OR 12 TC INPUTS

6, 8 OR 12 TC OUTPUTS

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1) Introduction

First of all, we like to thank you for purchasing our HeatManagerPro®. We are confident it will meet 100% of your needs for Heat Treatment Applications. The HeatManagerPro® is a state of the art controller for Heat Treatment Applications and combines user friendly operation with the newest technology. The heart of the HeatManagerPro® is the Full color 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 HeatManagerPro is availlable as a 6-loop, 8-loop and 12-loop system.

Basic features:
Color TFT touch-screen
6, 8 or 12 loop controller
Free selectable programmer/slave combinations
Up to 8 ramp/soaks per programm
Auto Hold and Manual Hold function
Step function
Both °C and °F available
TC break and reverse detection
Calibration function
Realtime trend-charts (paperless recorder)
Output status monitor
Lock function against unauthorized operation
Datalogging function with export to excel

2) Main Menu

When you power-up the system, the "general Information" screen with company information of your supplier will be shown automatically. To exit this introduction screen, just touch the screen and you will swap to the Main Menu.

On the Main Menu, you can select to go to the "Operation mode", the "Profile setting mode" or the "Basic setting mode", by pushing the corresponding button. Push the "GENERAL INFORMATION" button to go back to the introduction screen.

2 a) Lock function

From the main menu, the operator can lock the complete system to prevent unauthorized operation by pushing the left down side corner for about 5 seconds. By pushing this touch-area, the system will automatically swap to the "operation locked" screen, where the start/stop buttons are disabled. To return from the "operation locked" screen, push again the left down side corner for about 5 seconds.

In "Lock mode", the operator still has the possibility to swap to the all channels trend, by pushing the button "TREND". Touching the trend screen just anywhere, returns you to the "RUN/STOP LOCK" screen.

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3) Profile settings

a) Push the "PROGRAMM SETTINGS" button to swap to the Profile Setting menu, where you can start setting the profile of channel number 1.

*Note that for all channels except channel 1, the operator can select whether that channel is a programmer, a slave (of the previous programmer) or unused. Due to this possibility, the system can have one programmer with all other channels set as slaves, all channels set as individual programmers or just every combination in between.

**Note that once you have entered the "PROGRAMM SETTING" mode, you have to go through all the channels to get back in the "MAIN MENU".

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 programm, from segment 1 to segment 8. Always start your programm in segment number one!
Next, programm the target setpoint for that segment, the ramp to setpoint 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!

After setting the temperatures and times for the first segment, you have to set the link-segment. This is the segment where the programm jumps to, after the current segment has elapsed. Setting range is 0 to 8, where "0" means no jump to another segment. After setting the first segment, increase the segmentnumber and repeat setting the values for that segment. Due to that procedure, you can create a programm of max. 8 ramps and 8 soaks that ends at the last segment (number 8), or that keeps on repeating by setting the link-segment at 1 in the last segment.
Of course, it is also possible to repeat a part of the programm by setting the link segment at X (for example 4) in segment 8. Segment 4 till 8 will then be repeated till the operator pushes the stop button.
After you have set your programm, push the "NEXT CHANNEL" button to swap to the next channel selection page.
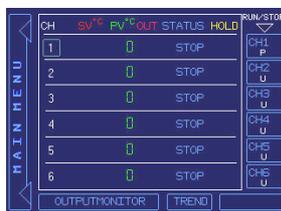
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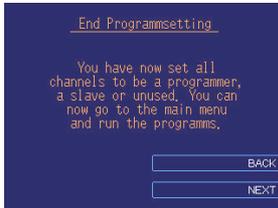
b) On the "Channel selection screen" you can select each channel to be programmer, slave of the previous programmer or unused, by pushing the corresponding button. You can go back to the previous channel at any time, by pushing "BACK" button.
Also, if you have selected that channel to be a slave, you can set a setpoint offset compared to the setpoint 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 Programmsetting" 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"

4) Operation Mode

Push the "OPERATION" button to swap to the Operation Mode, where you can RUN and STOP your programmers by pushing the corresponding channel number button. For each channel, the "P", the "S" or the "U" indicates wether that channel is a Programmer, a Slave or Unused. Programmers can easily be recognized by the blue rectangle surrounding the channelnumber.

a) To RUN or STOP a programm, toggle the the corresponding programmer channel button for **one** second. The one second delay on these buttons is to prevent the operator for running and stopping channels by incident. The slaves belonging to that programmer will automatically follow. In the "STATUS" column, you can see for each channel if it is in RUN or STOP mode. In the "OUT" (OUTPUT) column you can see which outputs are active. In the "HOLD" column you can see on the word "ON" if that programmer is in Hold. "ON" will only be displayed on the programmers. On the yellow leds in the HOLD column, you can see which channel(s) are responsible for the programmer's hold. This can be the programmer itself, any of its slaves, or any combination.
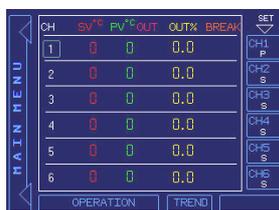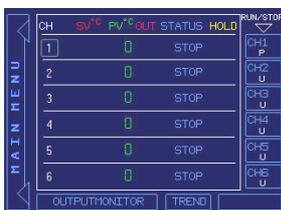
b) If you touch the "OUTPUTMONITOR" button on the operation RUN/STOP screen, you will swap to the output monitor screen, where you can view the output percentage per channel and also the TC break indicator. Both screens look quite similar, however the function of the channel number buttons (CH1 ~ CH6) has changed.

*Note that if a TC break appears while in RUN mode, the HeatManagerPro will automatically swap to the "OUTPUTMONITOR" screen.

c) On the "OUTPUTMONITOR" screen you can use the CH1 ~ CH6 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 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, in the same way as described in chapter 3a.

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.

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d) Touch the "TREND" button on both the RUN/STOP or OUTPUTMONITOR screen to swap to the "all channels trend" screen where you can view all 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.
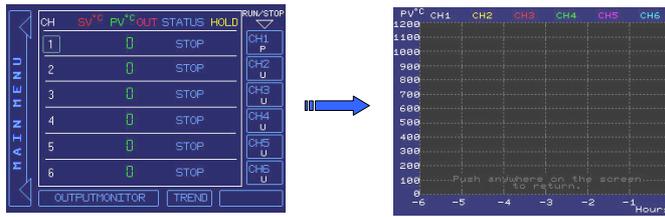
e) To swap to the "DETAIL CHANNEL SCREEN", you have to touch the blue rectangled programm channelnumber. This means you can see the detail information of all different programmers by touching the corresponding channel.

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

f) Push the "NEXT SEGMENT" button to activate the step function. The running programm will skip directly to the next segment. Remember that each segment exists of one ramp and one soak. So, if you push the "NEXT SEGMENT" button, you will directly jump to the start of the next ramp.

*Note:
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 if you "STEP" while a soak is running, and jump to the start of a new ramp, the elapsed soaktime of the previous step will be shown until the ramped setpoint has reached the target setpoint of that step and start soaking.

g) Push the programm Hold button to activate the Hold function manually. Pushing the button again will release the manual Hold function.
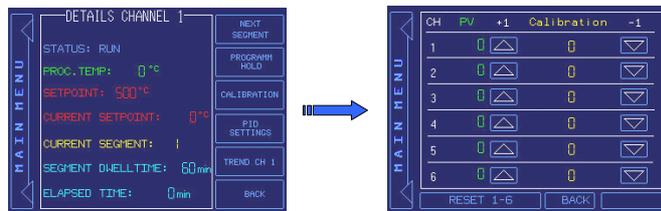
h) Push the "CALIBRATE" button to swap to the calibration screen. On the calibration screen the operator can add or substract some degrees of the process values to calibrate the controller with your paper trend chartrecorder. Touch the number to set the value by the pop-up keypad. Touch the up and down keys to directly add or substract one. Push the reset screen to "zero" the applicable channels. Push "BACK" to return to the detail channel page.

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.
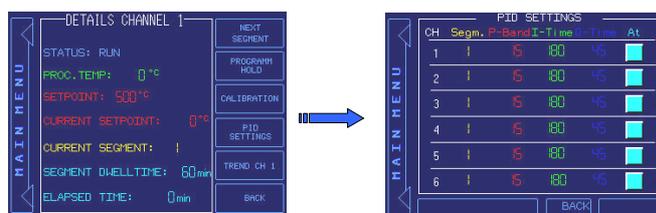
i) Push the "PID SETTINGS" button to enter the PID settings menu, where you can edit the PID settings. Please note that the factory settings are carefully choosen for this application and will work well in most situations.

*Note that 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 valued for that segment using the same pop-up touchpad. Push "Back" to return to the previous screen.

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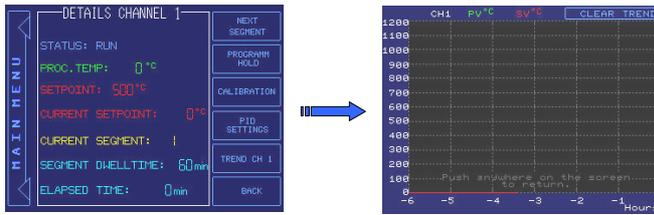
j) Push the "TREND CH" button to swap to the trend screen of the corresponding programmer. On this screen the operator can view the elapsed setpoint and the process value trend. Push anywhere on the screen to return to the previous screen.

5) Basic settings

Touch the "BASIC SETTINGS" button on the Main Menu screen to swap to the "BASIC SETTINGS" screen. As the basic settings are Password protected, you have to type-in the word "MASTER" in CAPITAL letters, to enter the "BASIC SETTINGS" mode.

Please note that the "BASIC SETTINGS" mode is only mentioned for skilled personnel. As the "BASIC SETTINGS" do have serious influence on the control of the unit, all channels have to be in STOP mode. If one or more channels are still in RUN mode when you try to enter the "BASIC SETTINGS" mode, you will get an "ATTENTION" screen. Push "BACK" to return to the "MAIN MENU" and go back to the Operation "RUN/STOP" screen to STOP all channels, before you can enter the "BASIC SETTINGS" mode.
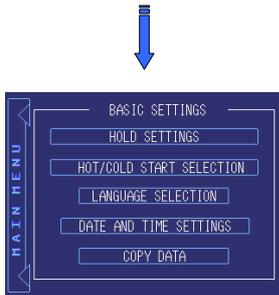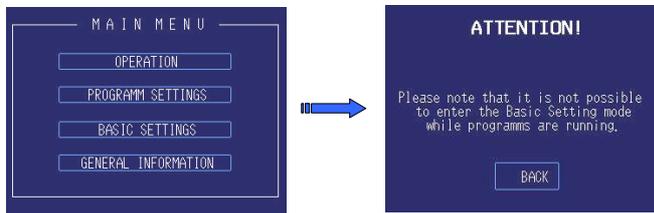

After you have entered the "BASIC SETTINGS" mode you can select if you want to change the hold settings, the hot/cold start selection and the desired Language. Also you can set the correct date and time, needed for correct datalogging of your process values. With the copy data function you can copy the logged data onto you memory-stick.
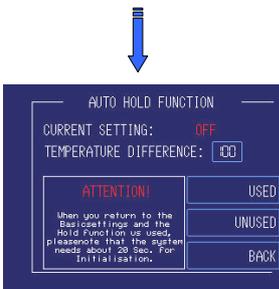

a) Push the "HOLD SETTINGS" button to enter the Hold setting menu, where you can switch between used and unused by pushing the corresponding button.

A small pop-up touchpad will allow the operator to set the correct value between 3 and 100. Factory settings for the HOLD function is "OFF" and a deviation value of "100" degrees. Push "BACK" to return to the Basic Setting menu.
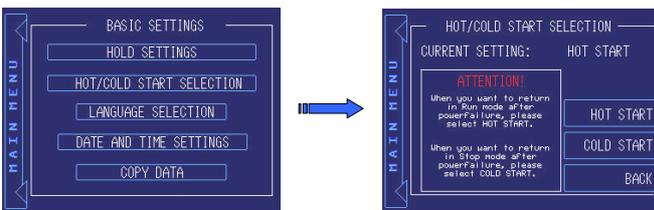
b) At the "HOT/COLD START SELECTION" page, you can select the mode after power failure. When you want to return in RUN mode after powerfalure, please select "HOT START".
When you want to return in STOP mode after powerfalure, please select "COLD START".
Push "BACK" to return to the "BASIC SETTINGS" menu.

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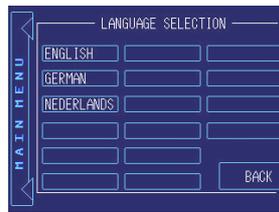
c) On the "LANGUAGE SELECTION" page you can switch between English, German and Nederlands (Dutch). In the future there will also be other languages availlable.

d) On the "DATE AND TIME SETTINGS" page you can set the correct date and time that will be used in the automatic datalogging 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 active inmediately.

e) Push the "COPY DATA" button to enter the "COPY DATA" screen. A batchnumber can be set, that will be used as a filenumber when copying the data to your USB stick. Of course, make sure your USB stick is connected.
After copying the .csv file to your USB stick by just pushing the "COPY DATA TO USB" button, you can delete the logfile by pushing the "DELETE DATA" button for 3 seconds.

By this action, the Batchnumber will be reset also and the "ALL CHANNELS" trend will be cleared as well! The individual channel trends must be cleared by hand. Return to the "MAIN MENU" by pushing the corresponding button at the left-side.

6) Other settings

Brightness
Brightness can be set by toggeling the two top corners of the touch area. At the bottom, an eight step selection box is shown where you can select the brightness you like. After you selected the right brightness, just touch the "X" button and the selection box will disapear.

TC reverse connection
When the operator has connected the thermocouple wrong by changing the plus and minus, the temperature on the display will decrease while the real temperature will increase due to the output power of the heating elements. When the system measures a temperature of –50 degrees (the real temp is 90 degrees), the operator will see a warning message on the screen. Touching this screen will return the operator to the operation "RUN/STOP" screen where the operator can see which channel is connected wrongly.

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