



HM

CONTROL SYSTEM

HEATMASTERS' CONTROL SYSTEM

HeatMasters' Control System consists of Windows-based, HM20 heat treatment process control software and HM-Rigel26 controllers.



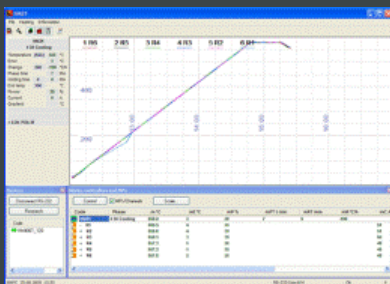
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CONTROL SYSTEM



HM-Rigel26 controller



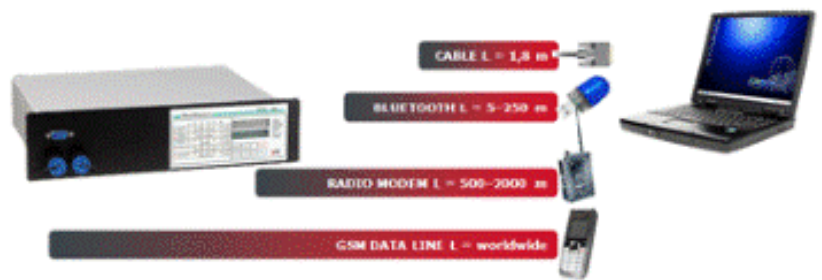
HM20 software



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All work specifications and controller set-ups are achieved using HM20 software. The system will not need your PC during HM heating. The PC is only needed during instruction input to the HM-Rigel26 controller's memory, and when it receives feedback of the achieved results. The HM-Rigel26 controller incorporates a versatile signal light and alarm system to guarantee the right results.

Connection methods between the HM-Rigel26 controller and the PC are data cable or wireless system using radio modems, bluetooth or GSM. The distance between two depends on the connection method used.



FEW ADVANTAGES OF THE HEATMASTERS' CONTROL SYSTEM

- Calibration using the HM20 program
- Unlimited possibility to save heat treatment processes receipts the PC's memory
- Timer to start the process by setting date and time
- Monitoring available in graphic and numeric form
- Possibility to change of heating parameters during the process
- Connect several heating units to work synchronously on the same workpiece
- Receiving alarms of failures or status of the work on your gsm-phone
- Making wireless contact with the heating unit, even from another country
- Saving results of the work in the memory of the PC, on a memory stick, on a CD
- Sending work results by email to another computer
- Printing out heat treatment certificates on a standard office printer
- Adding a drawing or a photo and company logo to the heat treatment certificate
- Printing out a separate heating diagram
- Delivering results of the project to the client on a CD.

SEPARATE TEMPERATURE RECORDER IS NOT NEEDED

HM-RIGEL26 CONTROLLER

The HM-Rigel controller is designed for use in heat treatment power sources and furnaces, in applications that require precise temperature control, reliable and safe process control.

HM-Rigel26 controllers and HM20 software are used in Heatmasters' heat treatment equipment. The system is also suitable for other producers' equipment.

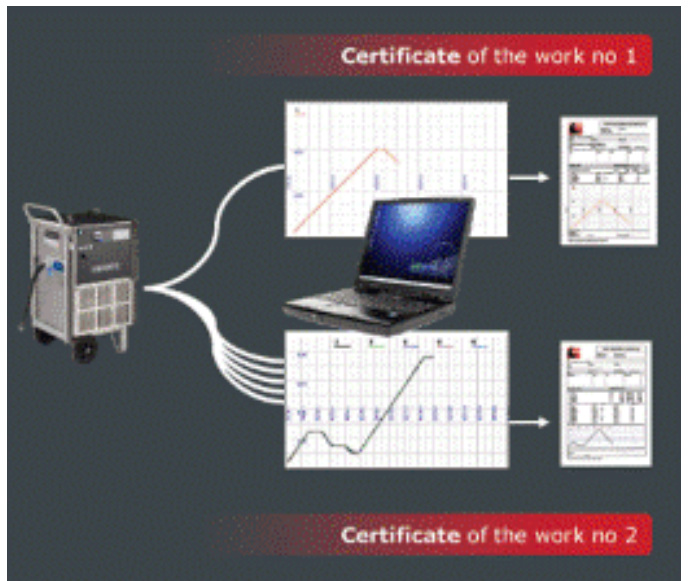
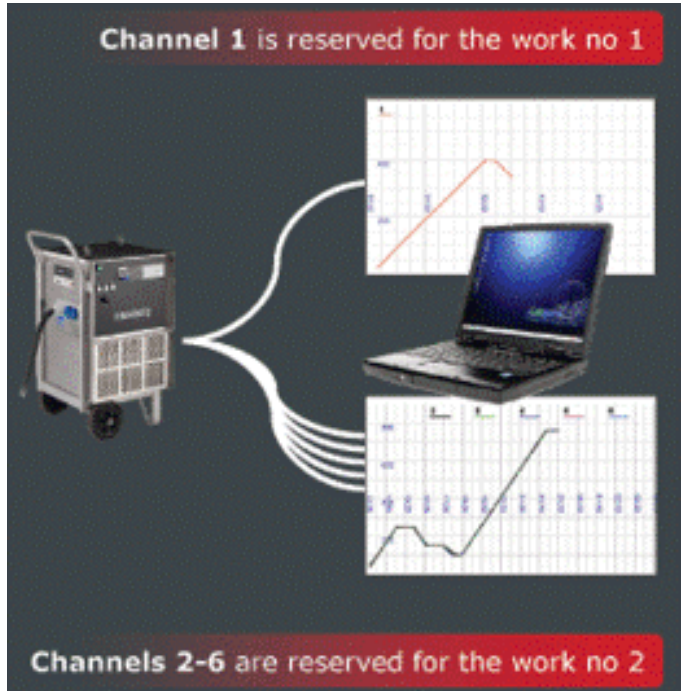
One HM-Rigel26 controller has six regulating heating channels with thermocouple connections. In addition, the unit can be outfitted with six extra measuring points. The Controller has external outputs that can be used to control separate actuating devices such as cooling fans, ventilation, wagon control etc.

THE FLEXIBLE USE OF HEATING CHANNELS

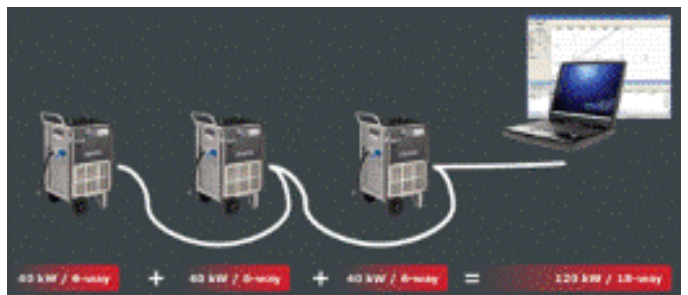
Heating channels can be grouped together as needed. Each group or single heating channel runs independently. You can monitor each process separately, and monitor their diagram and numerical values. The result of each process can be printed out as an individual heat treatment certificate.

SEVERAL DEVICES CAN BE CONNECTED TOGETHER

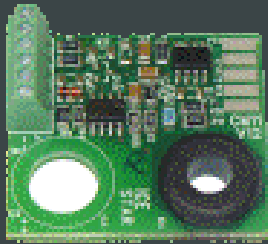
Five Controllers can be connected together to create a 30-channel synchronized control system. When each Controller is outfitted with six extra measuring points, there will be 60 measuring points available. Extra measuring points only record the temperature, and do not regulate the process. The HM-Rigel26 controller enables flexible equipment use. There is no need to have one big heavy unit to carry out several big heat treatment processes. HM-Rigel26 controllers allow you to connect several smaller units together to 'build up' one big unit in which all channels are functioning synchronously on the same workpiece.



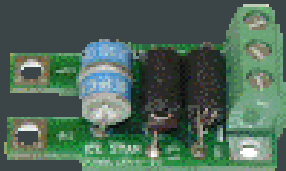
Flexible use of heating channels



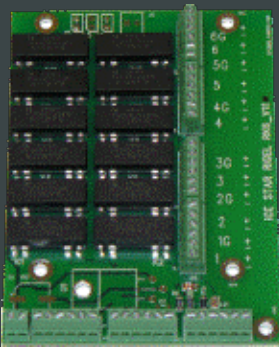
Several devices can be connected together



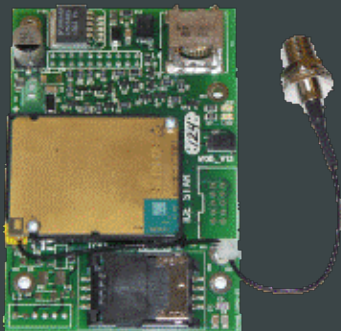
HM-Rigel26-CM11_V12



HM-Rigel26-YJ1 card



HM-Rigel26-RK6 additional measuring cards



HM-Rigel26-GSM modem card

OPTIONAL ACCESSORIES/SPARE PARTS

Following optional accessories are available

Code	Product
1300506	USB - RS232 Adapter
3900557	M-Rigel26-GSM-MOD V13 Four-frequency GSM modem for alarms and long distance control
3900534	HM-Rigel26-RK6 Relay card for six (6) additional measuring points, recording only
130051x	HM-Rigel26-JK-x Current loop cable to connect controllers together, Length x=3,6 or 9m
3901523	HM-Rigel26-YJ1 EP Over voltage protector
3900552	HM-Rigel26-CM11_V10 Current measurement sensor

Six additional measuring points are in use when installing the HM-MES6 T/C measurement card.

The controller can be set to switch off the heating device when the process is complete.

In the case, not having serial port in the computer an USB/RS232 adapter is used

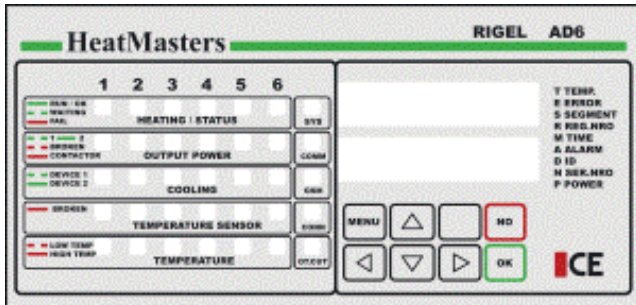
A GSM alarm system sends a message to your mobile phone with information of the failure. For this you will need to install an alarm card.

USB Adapter



HM-RIGEL26-AD6 OPERATING PANEL

The control panel is designed for controlling the status of the heating project. It enables to start and stop heating work that is transferred to its memory by a PC.



HM-Rigel26 front panel

HM-Rigel26 controller is equipped with a information panel, on which are shown:

CHANNEL INFORMATION WITH SIGNAL LIGHTS

- Indicates when the process or channel can't follow the given values
- Heating element condition
- Thermocouple status
- Temperature too low/high gauge

SYSTEM INFORMATION

- Controller status
- Communication between software and Rigel26 status
- GSM status
- Information about connections from other devices
- Indicates signal power-failure due to overheating

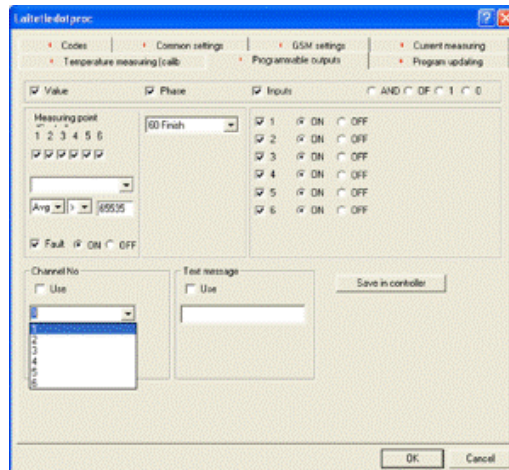
INFORMATION ON DIGITAL DISPLAY

On the digital display you can browse information about each heating channel or channel group

- Temperature
- Difference between the set value and measured value
- Individual heating process phase
- Channel number
- Phase duration
- Alarms
- Data on the Control card

ACTUATING DEVICE CONTROL

The HM-Rigel26 has six additional outputs, enabling you to program and control the separate actuating devices. Among the functions available you can start the cooling fan, open ventilation, raise the cover of the furnace etc. The temperature or the heating phase in which device is activated can be programmed using the HM20 software.



HM-RIGEL26'S DEVICE CONTROL

Alarm lights on the front panel indicate the precise reason for the alarm. Failures can be a sensor fault, overheating, temperature too low or power failure.

HEATMASTERS SYSTEM ON ALARM

When the controller is equipped with a HM-Rigel26-GSM alarm option, an alarm signal is sent as an SMS text message to a preset number. The message includes information about the alarm. The controller can be set to make a voice call to ensure the alarm signal.



After receiving the alarm you can either go to the unit and fix the problem, or use the wireless GSM contact and check the failure.

Several HM-Rigel26 controllers can be connected together



DOCUMENTATION AND FILING

CLEAR DOCUMENTATION: QUICK AND EASY

Heatmasters HM20 program enables you to print heating certificates. Documents are created without copying and extra calculations. The two guidelines of the Heatmasters program are 'Fast' and 'Easy'. The diagram document can be printed on a normal office printer, making a separate diagram recorder unnecessary. It is possible to add a drawing or photograph of the heated object in the printout.

The Heatmasters HM20 program can print out a certificate of the results of each heat treatment performance. The certificate shows the work's positioning, temperature diagrams and company logo.

EASY AND SAFE FILING

All measuring results are saved in the PC's memory and are always accessible. The results are completely reliable, no misinterpretation can occur, and it is not possible to alter the results afterwards.

All heat treatment work results are initially saved in the controller's memory temporarily. After connecting the PC to the heating unit, all data is copied to the PC's memory. Files can then be saved to a CD and/or company network for easy retrieval.

WIRELESS CONTROL

When working on site, the areas for heat treatment are often difficult to access and solution to avoid accidents is wireless contact between the monitoring place and the heating units. This connection can be done with HM-Rigel26 controller and radio modems.

HM-Rigel26-GSM control card enables long distance control by GSM data line.

Heatmasters HM-Rigel26 controller, which is equipped with an HM-Rigel26-GSM control card, enables worldwide alarm and monitoring of heat treatment processes.

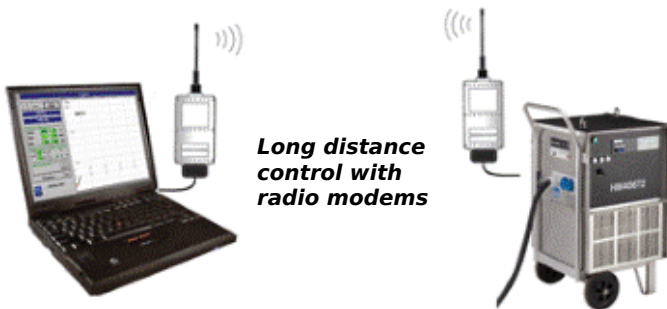
When you do not have access to the computer, you can request the status of process parameters at any time with a gsm-phone. In reply, HM-Rigel26-GSM will send information of the process.

ON SITE CONTROL WITH RADIO MODEMS

When working on site, the areas for heat treatment are often difficult to access. To avoid the risk of accidents and make the work easier, wireless communication is used between the PC and heating unit. Radio modems are used for wireless contact on site.

Heatmasters' control system for heat treatment enables wireless connection between the PC and the heating device using radio modems. The distance between the device and the monitoring location can be kilometres. The distance depends on the type of antenna used and the local conditions. The system requires heat treatment devices with Heatmasters' HM-Rigel26 controllers.

When a wireless control system is required, the PC and heat treatment devices are equipped with radio modems. Connection between heat treatment units and the PC is on-line and each unit can be monitored in real time.



Equipment needed for long distance monitoring with radio modems:

For the PC:

- One radio modem, connection cable; PC <-> radio modem and power source for the modem

For one heating device:

- One radio modem, connection cable; heating unit <-> radio modem and power source for the modem

RADIO MODEMS TECHNICAL DATA

Frequency range	370 ... 470 MHz
Channel spacing	25 kHz
Number of channels	80
Communication mode	Half-Duplex
Interface	RS-232 or RS-485, RS-422
Interface connection	D15, female
Transmission power	1 W; adjustable
Data speed of RS interface	300 ... 38400 bps
Data speed of radio interface	19200 bps
Data formats	Asynchronous data
Operating voltage	+9 ... +30 V
Power consumption	2,5 VA typical (receiver) 6,0 VA typical (transmitter)
Temperature range	-25 ... +55 °C
Antenna connector	TNC, 50 Ohm, female
Construction	Aluminium enclosure
Size	137 x 67 x 29 mm
Weight, g	250



Radio modem

The equipment complies with the ETS 300 220 and ETS 300 683 specifications. The of radiomodem may require a local authority license.

SET-UPS BY A MOBILE PHONE

CHANGING SETTINGS WITH A MOBILE PHONE

Set-ups can be done from only one phone. HM-Rigel26-GSM will be locked on one phone number and set-ups are available only from this number. However, process information is available for every phone number. The following operations can be carried out via the mobile phone to which HM-Rigel26-GSM is locked:

- Stop the process
- Lock and unlock HM-Rigel26-GSM to a phone number
- Set HM-Rigel26-GSM to call after the alarm SMS message
- Send a question to check status of the heating process
- Set automatic periodic data transfer from HM-Rigel26-GSM

REQUEST STATUS OF THE PROCESS

You can request the status of process parameters at any time with a gsm-phone. In reply, HM-Rigel26-GSM will send the following information:

- Number of the heating channel
- Phase in progress (heating, holding, cooling)
- Temperature of the measuring point and error to the set value
- Power in use (% of the full power)

WIRELESS CONTROL BY GSM DATA LINE

HM-RIGEL26_GSM CONTROL CARD

HM-Rigel26-GSM control card is an optional device that enables long distance control by GSM data line. Heatmasters HM-Rigel26 controller, which is equipped with a GSM control card, enables worldwide alarm and monitoring of heat treatment processes. The control card includes an alarm board and a gsm modem. Set-ups of the system are done with HM20 software.

ALARM TO MOBILE PHONE

Distance between the process supervisor and the heating unit is unlimited. The HM-Rigel26 controller together with HM-Rigel26-GSM control card enable alarm messages and process data to be passed directly to your mobile phone.

When the alarm option is on, the heating unit will send an alarm message in the event of:

- Thermocouple error
- Low temperature
- High temperature



ON-LINE MONITORING

When using HM-Rigel26-GSM control card, the system can be expanded to include an on-line connection between the PC and the heating unit. With on-line connection, it is possible to start or stop the process or change heating parameters.



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