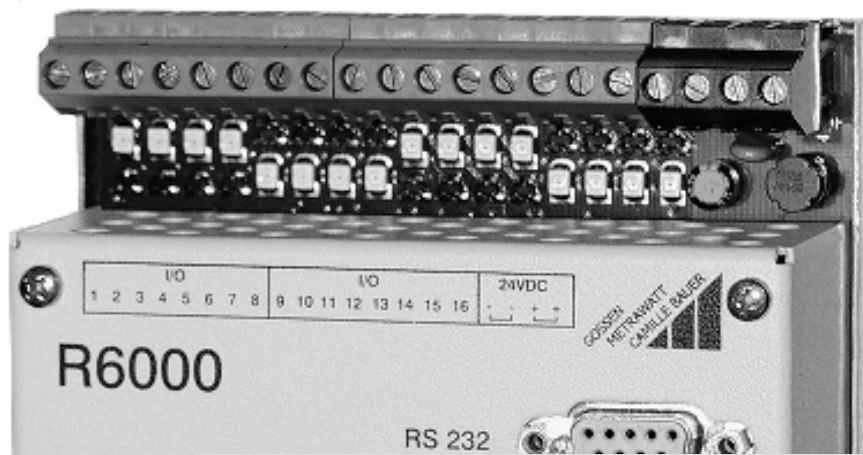


# R6000

## Configuration Tool R6KONFIG

Version 1.8  
4/05.04



The screenshot displays the 'R6000 configurator' software interface. The main window shows a configuration table for 8 modules (Modul 1 to Modul 8) and their connection to the controller's I/O ports. The interface includes a menu bar, a status panel on the left, and a status bar at the bottom.

Module	Param	Status	Input	Alarm	Controller Address	Output	Norm
MW1 Typ J	no	off	H	C	1	Out N	Nom
MW2 Typ J	no	off	H	C	2	Out N	Nom
MW3 Typ J	no	off	H	C	3	Out N	Nom
MW4 Typ J	no	off	H	C	4	Out N	Nom
MW5 Typ J	no	off	H	C	5	Out N	Nom
MW6 Typ J	no	off	H	C	6	Out N	Nom
MW7 Typ J	no	off	H	C	7	Out N	Nom
MW8 Typ J	no	off	H	C	8	Out N	Nom

Additional interface elements include a 'Controller address' field set to 3, a 'Bus Addr.' display, and a status bar at the bottom showing 'Version: 1.80', 'Device Feature Code: A0', 'No File', '05.04.02', and '10:39:27'.

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# 1 General

## 1.1 *Basics*

Basic knowledge of the Windows operating system is advantageous for using the configuration tool. Thoroughly familiarize yourself with Windows before starting the program the first time. The Windows user's guide and Windows online help may be helpful to this end.

## 1.2 *Installation*

### 1.2.1 **Hardware and Software Requirements**

The following system requirements must be fulfilled in order to use the configuration tool:

- ✓ IBM compatible PC
- ✓ At least 64 MB RAM
- ✓ Hard disk with at least 5 MB free memory capacity
- ✓ Windows 95, 98 or NT
- ✓ One free serial port
- ✓ Mouse (recommended)

### 1.2.2 **Installing the Software**

- Extract the ZIP file.
- Click the setup file and follow the instructions which appear at your monitor.

### 1.2.3 **Starting the Software**

- Click the start button.
- Select "Programs" from the list.
- Click the R6-Konfigtool icon:



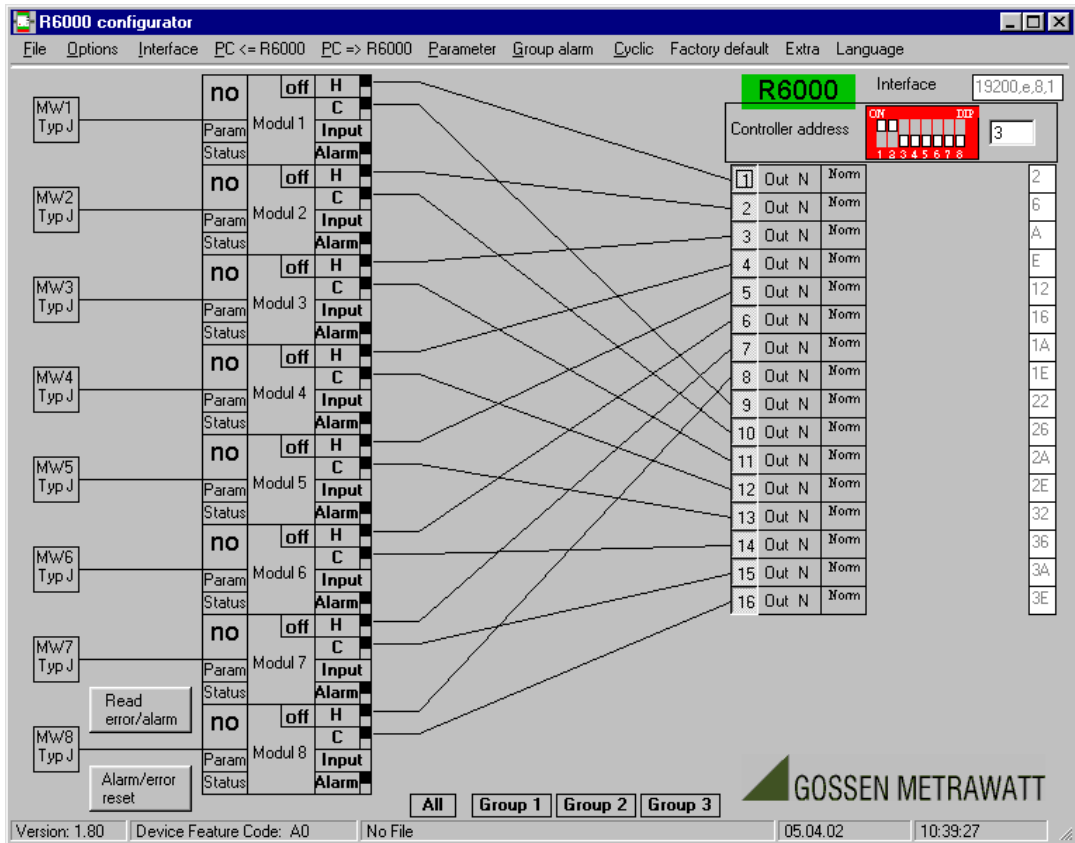
R6000-Konfigtool

# 2 The Configuration Tool

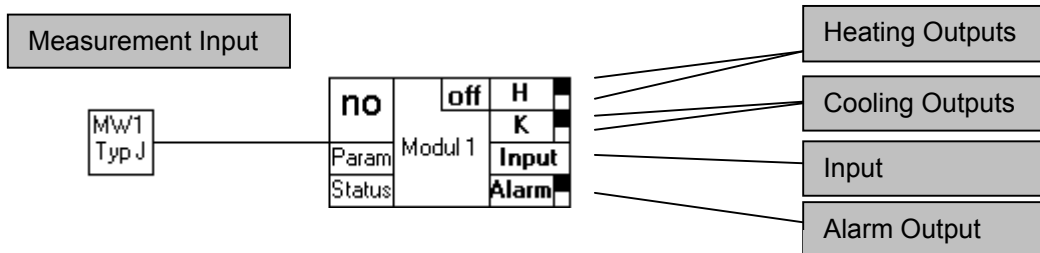
The R6Konfig.exe software tool is used to configure the R6000 8-channel controller. All of the R6000's parameters can be fully configured with this tool. Selected settings can be saved to the PC's hard disk, or to a floppy disk. Parameter and configuration values can be printed out as well. Values can be downloaded and uploaded via the PC's serial port (COM1 or COM2). Cyclically occurring values such as actual values, control variables, heating current and alarms can be observed online.

## 2.1 The Main Program Window

The following window appears after initializing the configuration tool:



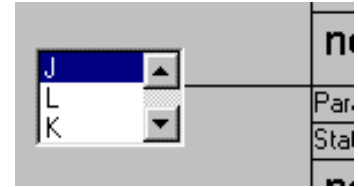
The 8 controller modules included with the R6000 are displayed as symbols at the left-hand side of the window.



Each of the 8 modules is equipped with one analog measurement input, one binary input (Input), two binary heating outputs (H), two binary cooling outputs (K) and one binary alarm output (Alarm).

### 2.1.1 Configuring the Analog Measurement Inputs

After clicking the measurement input symbol, a selection list appears which includes the implemented sensor types. A thermocouple type can be selected by simply clicking the desired type designation. If a resistance thermometer is selected, it must be assured that the DIP switch at the left-hand side of the controller is set to the correct position.



### 2.1.2 Linking the Outputs

16 or 20 R6000 outputs (depending upon the device feature code) are displayed as symbols at the right-hand side of the window. These outputs can be assigned as desired to the outputs of the controller modules.

This is accomplished by clicking one of the outputs and holding the mouse key depressed, and dragging the line which then appears to the desired module output. When the mouse key is released, the line is connected to the selected module output, if the selected assignment is permissible. The controller module output is now linked to the actual physical output of the R6000.

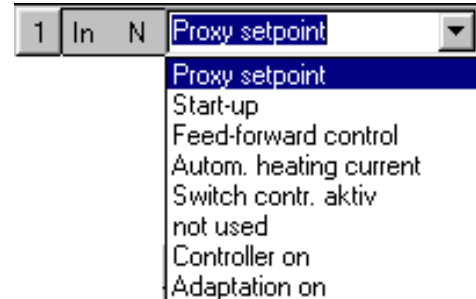
Each of the module outputs is subdivided into a black and a white square. This subdivision has the following significance relative to assignment to a physical output:

H	K	Alarm	■	□	Binary	Cont	
4			4		4		Discontinuous-action heating output. If the H □ output is connected to a binary output: step-action control for more heat
4				4	4		Only possible if the H ■ output is connected with a binary output: step-action control for less heat
4			4			4	Continuous heating output, dead zero. If a binary output has been connected to H, it remains inactive.
4				4		4	Continuous heating output, live zero. If a binary output has been connected to H, it remains inactive.
	4		4		4		Discontinuous-action cooling output. If the H □ output is also connected to a binary output: step-action control for more cooling
	4			4	4		Only possible if the H ■ output is connected with a binary output: step-action control for less cooling
	4		4			4	Continuous cooling output, dead zero. If a binary output has been connected to K, it remains inactive.
	4			4		4	Continuous cooling output, live zero. If a binary output has been connected to K, it remains inactive.
		4	4		4		Discontinuous-action alarm output, operating current
		4		4	4		Discontinuous-action alarm output , closed-circuit current
		4	4			4	Not possible
		4		4		4	Not possible

A heating or cooling output always reads out the control variable of the corresponding channel. The alarm output becomes active in the event that one or more of the errors selected in the alarm mask occurs at the respective channel (see "Status"). The configuration number for the output configuration byte which corresponds to the respective channel appears in the horizontally arranged boxes at the right-hand side of the window for each output link.

### 2.1.3 Linking the Inputs

Each module includes an input area in the display as well (Input). The input symbol can be connected to a physical binary input. A binary input can be created by double clicking "Out". The output is thus transformed into an input, and a drop-down list appears. This input, as well as a binary output, can then be connected with the input of the controller module. The drop-down list allows the user to select which action will be executed at the corresponding module when the input is activated.

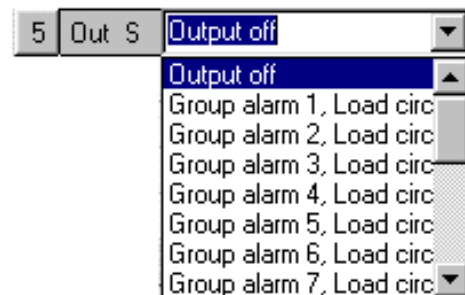


The input can be transformed back into an output by double clicking "In".

### 2.1.4 Special Links

Each output and input can be set to special mode operation (S) by double clicking the N (normal).

For outputs, a drop-down list then appears which allows the user to select an action by means of which the output will be activated.



Possible actions:

- Output off
- Group error (see group error menu)
- Adaptation on

The actions represent OR operations for the events of **all** 8 channels. No links can be made to a single channel (no drag and drop lines).



The same drop down list appears for special outputs as is also the case for normal outputs. The difference is that in this case a drag and drop connection can be created to group 1, 2, 3, or "All", but not to a specific channel. An action can thus be triggered for an entire group of modules, or for all modules, when the input is activated.

## 2.1.5 The Menu Bar

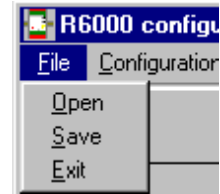


### 2.1.5.1 The File Menu

The file menu allows for standard Windows file processing.

- **Open**

An existing configuration can be loaded with this function. After clicking open, a standard dialog box appears which allows for selection of the drive, the directory path and the desired file name.



- **Save**

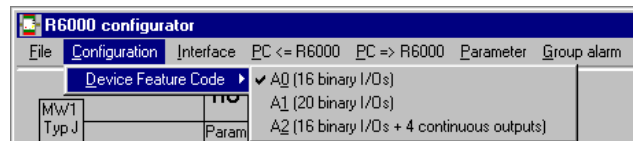
A newly created configuration can be saved to memory with this function.

- **Exit**

The program is closed after clicking this function. The user is first asked whether or not he wants to save the currently open project.

### 2.1.5.2 The Configuration Menu

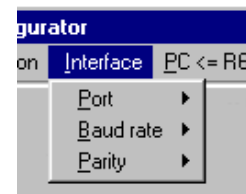
The various types of R6000 controllers can be selected with this menu.



**Caution: All existing parameters and configuration data are deleted after selecting a respective device feature code.**

### 2.1.5.3 The Interface Menu

Important serial interface parameters can be configured with the interface menu, i.e. port, baud rate and parity. The selected parameter settings are continuously displayed at the upper right-hand corner of the main program window. However, the interface settings cannot be changed at this display. Selected parameter settings are saved to a configuration file, and are thus reactivated the next time the configuration tool is initialized.



### 2.1.5.4 The Download and Upload Menus (PC <= R6000, PC=> R6000)

After clicking one of these menus, all parameter settings and configuration data are immediately transferred from the PC to the R6000, or are saved from the R6000 to the PC via the serial interface. This is only possible if the interface is correctly configured, and if the address of the R6000 has been correctly set. When data are transferred to the R6000, the device feature code for the configuration data must coincide with that of the respective R6000. If this is not the case, an error message appears.

### 2.1.5.5 The Parameters Menu

After clicking the parameters menu, all parameters and configuration data are displayed in a table. Values **cannot** be changed in the table. The parameters window for the respective channel must be opened in order to change values. The table can be printed out by clicking the “Print” button (after configuring the printer with the Windows dialog box for printer setup).

	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6	Channel 7	Channel 8
Setpoint	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
AL1-Upper limit	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
AL1-Lower limit	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Setpoint 2	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
AL2-Upper limit	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
AL2-Lower limit	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Min. setpoint	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Max. setpoint	900,0	900,0	900,0	900,0	900,0	900,0	900,0	900,0
SoftStart	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
SoftStart time	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Measuring offset	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
SP Ramp up	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
SP Ramp down	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Pb heating	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0
Pb cooling	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0
Dead band H/C	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Integral time	50,0	50,0	50,0	50,0	50,0	50,0	50,0	50,0
Cycle time	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
PWR out	0	0	0	0	0	0	0	0
SoftStart PWR	10	10	10	10	10	10	10	10
Motor stroke	60,0	60,0	60,0	60,0	60,0	60,0	60,0	60,0
PWR out offset	0	0	0	0	0	0	0	0
PWR out low	-100	-100	-100	-100	-100	-100	-100	-100
PWR out high	100	100	100	100	100	100	100	100
PWR out safty	0	0	0	0	0	0	0	0
Hysteresis	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0
Controller	0	0	0	0	0	0	0	0
Controller	4	4	4	4	4	4	4	4
Alarm mask	0	0	0	0	0	0	0	0
Group alarm	0	0	0	0	0	0	0	0
Device ID	96							
Attributes	0							
Dimension	0							
Sensor type	0	0	0	0	0	0	0	0

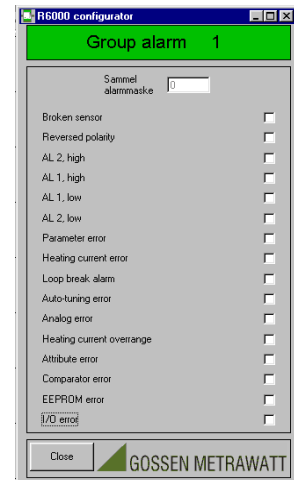
The display is returned to the main program window by clicking the “Close” button.



### 2.1.5.6 The Group Alarm Menu

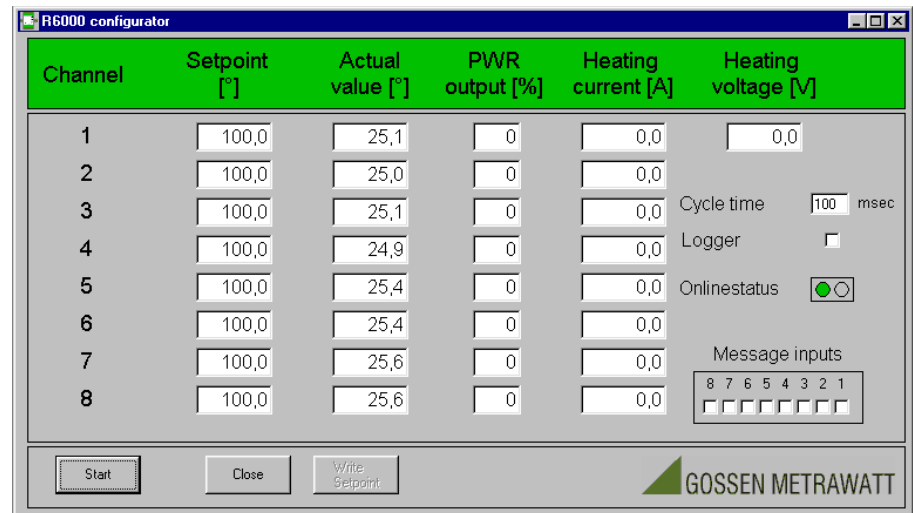
This menu allows for selection of the eight group errors which will be used as special functions for the outputs.

After opening one of the available group alarm windows, a selection list including possible R6000 errors appears. The special output to which the respective group alarm has been assigned is activated by selecting individual errors from the list (see special links).



### 2.1.5.7 The Cyclic Menu

This menu opens a window which allows for the observation of all cyclically occurring data (actual values, on-time, heating current, heating voltage, Message inputs).



The desired cycle time, which defines the frequency at which values are transmitted from the R6000, is entered to the cycle time entry field in milliseconds. Cyclic transmission is then started by clicking the start button. Data transmission is of course only possible if the serial interface has been correctly configured (see “The Interface Menu”), and a device address has been assigned. Cyclical values are transmitted until the stop button is clicked, or until the window is exited by clicking the close button or by clicking on another window. A blinking online status display indicates active data transmission. If the logger function is activated with the corresponding checkbox, values are saved cyclically to the specified file after making the appropriate selections in the standard Windows directory path dialog box. Setpoints are also displayed, and can be changed after clicking the desired setpoint value. After a setpoint value has been changed, it is displayed in red until it is written to the device by clicking the “Write Setpoint” button, after which it appears in black. Setpoints can also be changed and written to the R6000 during cyclical display.

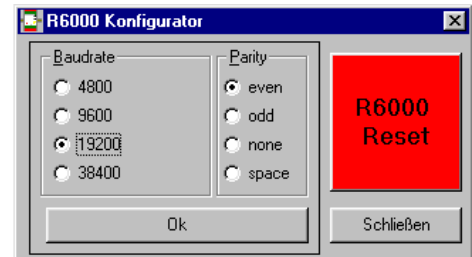
### 2.1.5.8 The Factory Default Menu

After clicking the factory default menu, the R6000 is returned to its original default settings.

**Caution: Currently selected parameters at the R6000 are overwritten.**

### 2.1.5.9 The Extra Menu

After clicking the extra menu, you can change the interface settings of the R6000. Although you can reset the R6000. **The interface settings are activated after the reset of the R6000.**

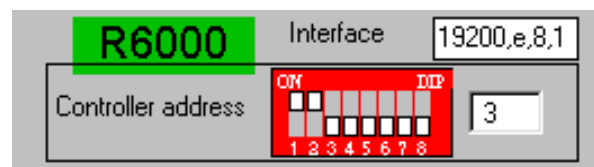


### 2.1.5.10 The Language Menu

All of the texts in the user interface are displayed in the language selected with this menu. The selection is saved to a configuration file, and is thus reactivated the next time the configuration tool is initialized.

## 2.1.6 Setting the Device Address

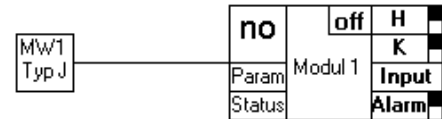
In order to allow for communication with the interconnected R6000, all interface settings and the device address for the R6000 must correspond with those entered to the configuration tool. The interface settings are configured with the interface menu as described above. The device address is selected with the DIP switch display at the upper right-hand corner, or with the adjacent address entry field. Each of the switches in the DIP switch array can be moved up or down by clicking with the mouse (when the mouse has been correctly positioned, the mouse pointer appears as a hand). The selected address appears simultaneously in the adjacent address field. If the address is changed directly in the address field, the DIP switches are automatically moved to the corresponding positions. The selected address is saved to memory, and is thus reactivated the next time the configuration tool is initialized.



## 2.2 The Parameters Window

Parameters can be configured for the individual channels by clicking the “Param” button at the respective modules. A window then appears with channel-specific parameters. These parameters can

be edited by clicking into each of the respective entry fields. However, the setting limits specified in the operating instructions for each of the individual values must be observed, because errors will otherwise occur when the parameters are transferred to the R6000.



Controller channel 1			
Setpoint	100,0 °C	Pb heating	50,0 °C
Min. setpoint	0,0 °C	Pb cooling	50,0 °C
Max. setpoint	900,0 °C	Dead band H/C	0,0 °C
SoftStart setpoint	0,0 °C	Integral time	50,0 sec
Setpoint 2	0,0 °C	Cycle time	1,0 sec
AL1-Upper limit	0,0 °C	Motor stroke time	60,0 sec
AL1-Lower limit	0,0 °C	PWR out high limit	100 %
AL2-Upper limit	0,0 °C	PWR out low limit	-100 %
AL2-Lower limit	0,0 °C	SoftStart PWR limit	10 %
Hysteresis	4,0 °C	PWR out safty value	0 %
SP Ramp up	0,0 °C/min	PWR out positioner	0 %
SP Ramp down	0,0 °C/min	PWR out offset	0 %
SoftStart time	0,0 sec	Measuring offset	0,0 °C
Heating current nominal value	0,0 A	F. s. v. for linear	100,0 %
CT ratio	100,0 A		
Secondary heating voltage	0,0 V		

Buttons: Copy to, Close

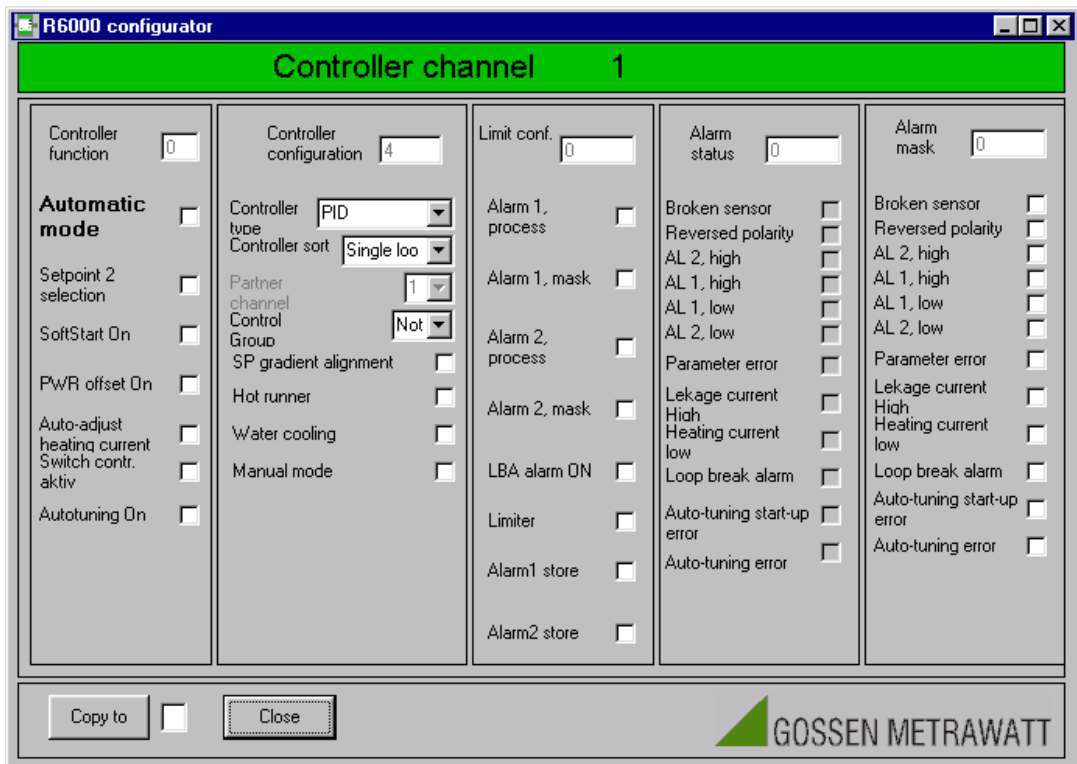
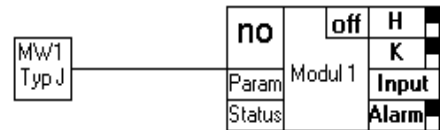
GOSSEN METRAWATT

The copy button can be used to transfer the same values to additional channels. The desired channel number is entered to the adjacent entry field before clicking the copy button. If a zero is entered (0), the values are copied to all channels. The display is returned to the main program window after clicking the close button.

**Attention: Newly entered values are not transferred to the R6000 after merely changing parameter settings and closing the parameters window. New values are not activated at the controller until after a download has been executed (PC => R6000).**

## 2.3 The Status Window

The control and status window can be opened for each individual channel by clicking the "Status" button at the respective module.

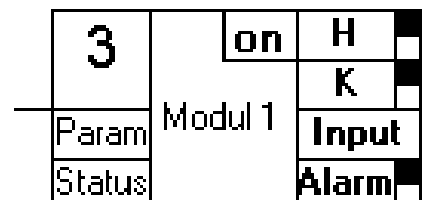


Control and alarm configurations can be viewed and edited in the window which then appears. Values can be copied to other channels using the same procedure as described above for the parameters window. The display is returned to the main program window after clicking the close button.

**Attention: Newly entered values are not transferred to the R6000 after merely changing the settings and closing the status window. New values are not activated at the controller until after a download has been executed (PC => R6000).**

### 2.3.1 The Controller Function Column

The function of the respective controller channel is selected here. Functions are activated by entering a check mark. Functions are taken over by the R6000 itself for auto heating current and adaptation (not visible until after executing an upload). The controller is switched on by pressing the "Controller on" button. Controller function is displayed as follows in the upper right-hand corner: off = controller off, on = controller on and opt = controller on plus adaptation.



### 2.3.2 The Controller Configuration Column

The desired configuration is activated by entering a check mark to the corresponding box. PDPI appears twice in the controller type list. Selecting controller type 4 or 5 specifies the controller itself. 5 is a pure *PDPI step-action controller*, and 4 represents all other actuator combinations.

The individual controller channels can be assigned to one of three groups with the group selection. The group in the controller configuration is set to a valid *group number (1 to 3)* to this end. In this way, channels assigned to a group can participate mutually in actual value control, or selective changes to the controller function via the binary input. Group assignments are displayed at the upper left-hand corner of the module symbols. If a given module has not been assigned to a group, "no" is displayed in this field.

3	Modul 1	on	H	<input type="checkbox"/>
		K	<input type="checkbox"/>	
Param		Input		<input type="checkbox"/>
Status		Alarm		<input type="checkbox"/>

### 2.3.3 The Limit Value Column

The desired limit value function is selected, and heating circuit monitoring can be activated by entering a check to the corresponding box.

### 2.3.4 The Alarm Display Column

No changes can be made in the alarm display column. It is used exclusively to display alarm messages for the respective channels.

### 2.3.5 The Alarm Mask Column

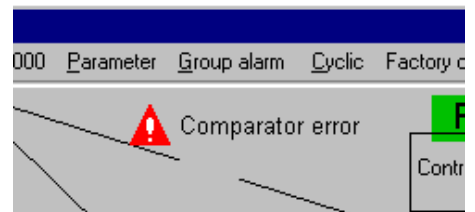
Alarm messages which trigger activation of the controller module's binary alarm output can be selected here. This has no effect on the alarm messages in the alarm display column.

## 2.4 Error Messages

The "Read error" and "Clear error" buttons are located at the bottom left-hand corner of the main program window. Error messages are read out from the R6000 after clicking the "Read error" button. This is only possible if the interface is correctly configured, and if the address of the R6000 has been correctly entered. Error messages then appear at the alarm display in the status windows of the individual channels. Beyond this, a red triangle appears at the respective module in the main program window to indicate the occurrence of an error.

If an error occurs which cannot be allocated to a specific channel, it is displayed in the middle of the main program window underneath the menu bar.

no	Modul 1	on	H	<input type="checkbox"/>
		K	<input type="checkbox"/>	
Param		Input		<input type="checkbox"/>
Status		Alarm		<input type="checkbox"/>



After clicking the red triangle a errorlist appear, wich disappear by clicking again on it.

no	Channel 4
Param	Broken sensor
Status	Parameter error
	Auto-tuning error