

RITTAL
TOP —
THERM



RITTAL
Thermoelectric Cooler

SK 3201.200
SK 3201.300

**Schaltschrank-
Klimagerät**

Climate control unit

RTC-PC-Software

RTC PC software

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1 Description

The PC software for your RITTAL Thermoelectric Cooler (SK 3201.200 or SK 3201.300), with its user-friendly operator interface, offers the following functions:

- Parameter adjustment of the unit
- Polling the current operating status
- Temperature logging
- Viewing the failure statistics

Safety and other instructions:



Danger!
Warning of a potential danger source.
Danger to life and health if ignored!



Note:
Useful information and special features.



Note:
This software constitutes an interface which is not intended for permanent operation. Before powering down your PC, it is essential to disconnect the USB correctly.

Connect interface **X2** of the Thermoelectric Cooler to your PC using the USB cable supplied.



Note:
The device need not be connected to the power supply (interface X1). The Thermoelectric Cooler confirms connection by flashing the status and function display simultaneously in red. If the device is additionally connected to the power supply, the function display will indicate the relevant operating status (see chapter “8 Restricted operation”, page 5 and Tab. 1, page 5).

4 Installation and first-time registration

The installation program is launched automatically. If this does not happen, double-click on the file **Setup.exe** and follow the steps for installing the RTC PC software.



Note:
The USB driver must be installed manually. Normally, the installation assistant starts automatically. If that is not the case, it has to be started manually via the Device Manager (System control → System). The installer file path must be selected manually:
c:\programs\rtc\driver

2 System requirements

The RTC PC software runs under the following operating systems: Windows 2000, XP, Vista and 7.

3 Connection

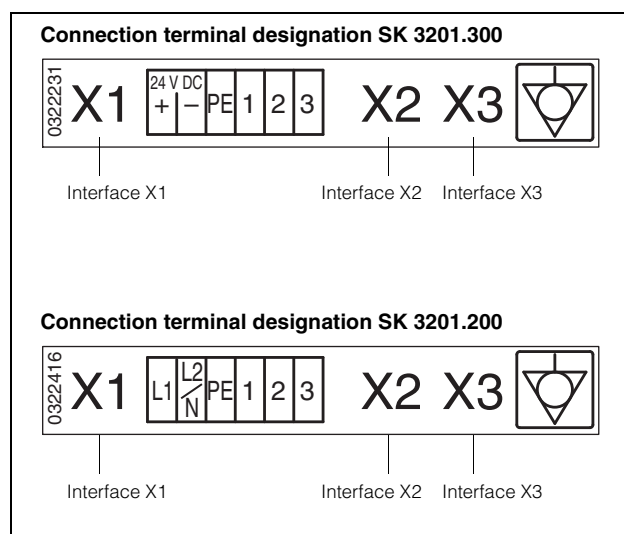


Fig. 1: Designations of the device interfaces

Once successfully installed, the following registration window will open and the device will be displayed in the box “Interface”:

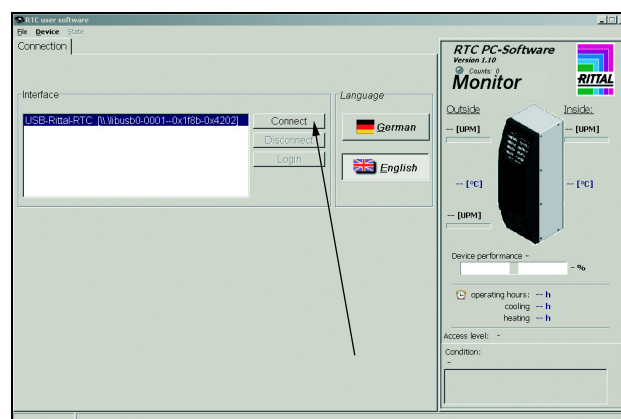


Fig. 2: Registration window, installation

Click on the **“Connect”** button to launch communication between the PC software and the device.

7 Display of the current operating status

4.1 Password



Fig. 3: Enter password

Enter the password “admin”.

5 Manufacturer data

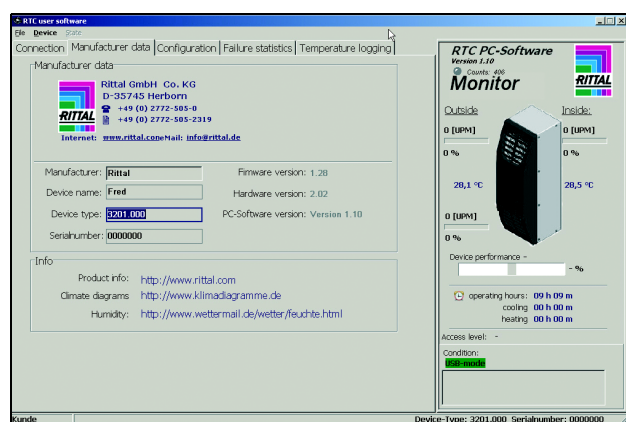


Fig. 4: Manufacturer data

6 Software updates

Current updates for the RTC PC software may be downloaded from www.rittal.com → Services & Support → Downloads → Software.

7 Display of the current operating status

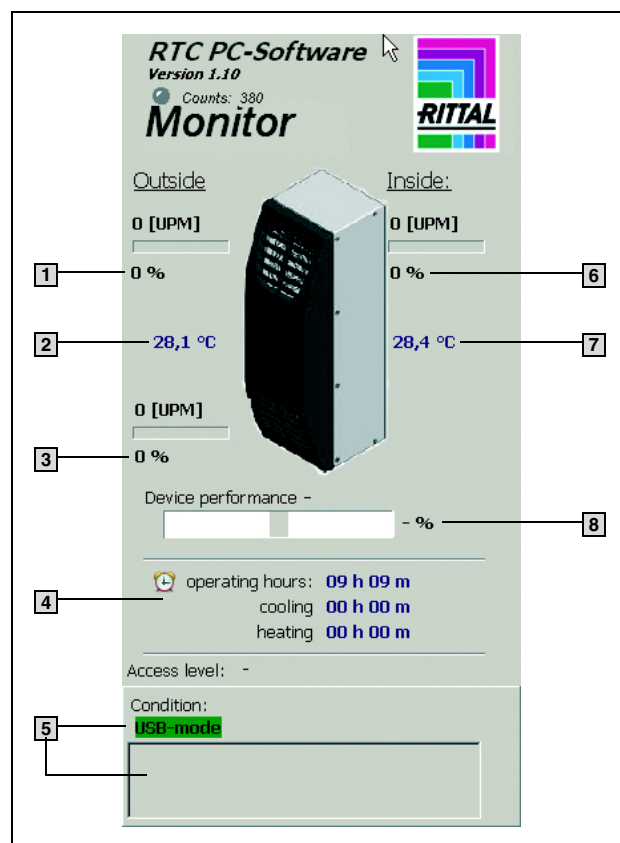


Fig. 5: Display of operating status

Key

- 1 Current speed and performance, external fan 1
- 2 Current ambient temperature
- 3 Current speed and performance, external fan 2
- 4 Operating hours meter
 - for total runtime
 - in cooling mode
 - in heating mode
- 5 Status display and display of error messages
- 6 Current speed and performance, internal fan
- 7 Current interior temperature (enclosure)
- 8 Current performance of RTC (heating, cooling or stand-by)

8 Restricted operation

To protect the device, it will operate in restricted mode in the following conditions:

Sensor failure in external, control or power pack sensor (max. device performance 80%).

Further information on operating status may be found in Tab. 1 "Overview of system messages".

The system messages are displayed on the device and in the PC software. The alarm relay may be activated and deactivated accordingly for these messages in the "Configuration" tab, by checking/unchecking the box for "Limit status as alarm".

System message	Description	LEDs		Alarm relay	Solution
		Status	Function		
Sensor failure/short-circuit: – External sensor – Power pack sensor – Control sensor	Temperature sensor defective or short-circuit. Device performance limited to max. 80%.	orange (flashing)	off = stand-by green = cooling orange = heating	freely configurable	Replace the device.
Sensor failure/short-circuit: – Interior sensor	Temperature sensor defective/short-circuit. Device offline. External fan 40%, internal fan 100% in operation.	red	–	switched	
Overtemperature: Interior temperature > Cooling setpoint	Device cooling (normal operation).	green	green	not switched	–
Overtemperature – Exterior > 55°C – Power pack > +75°C – Control > +85°C	Device performance limited to max. 80%.	orange (flashing)	off = stand-by green = cooling orange = heating	freely configurable	Check cooling output, replace filter mat if necessary, excessive heat loss inside enclosure.
Overtemperature: Interior temperature > Cooling alarm temperature	Device cooling.	orange	green	switched	
Undertemperature: Interior temperature < Heating setpoint	Device heating (normal operation).	green	orange	not switched	–
Undertemperature – Exterior temperature < –30°C – Power pack and control temperature < –40°C	Device performance limited to max. 80%.	orange (flashing)	off = stand-by green = cooling orange = heating	freely configurable	Check heating output, replace filter mat if necessary, ambient temperature too low.
Undertemperature: Interior temperature < Heating alarm temperature	Device heating.	orange	orange	switched	
Exterior fan top or bottom blocked/defective	Remaining intact exterior fan is operating at 100%.	orange (flashing)	off = stand-by green = cooling orange = heating	switched	Check whether fan blocked Replace the device if necessary.
Interior fan blocked/defective or exterior fan blocked/defective	Device offline.	red	–	switched	Replace the device.
Power supply incorrect (< 20 V or > 28 V)	Device performance limited to max. 80%.	orange (flashing)	off = stand-by green = cooling orange = heating	switched	Check power supply, use a transformer if necessary.
USB mode	Device offline. Sensors are being monitored.	red	red	switched	–
Test mode	Device carries out a self-test when activated.	red/green	green/red	switched	–
Slave operation	Master-slave operation	orange/green (flashing)	off = stand-by green = cooling orange = heating	not switched	–

Tab. 1: Overview of system messages

9 Configuring the RTC

9 Configuring the RTC

Under the “**Configuration**” tab, changes can be made to the operating parameters of the RTC.

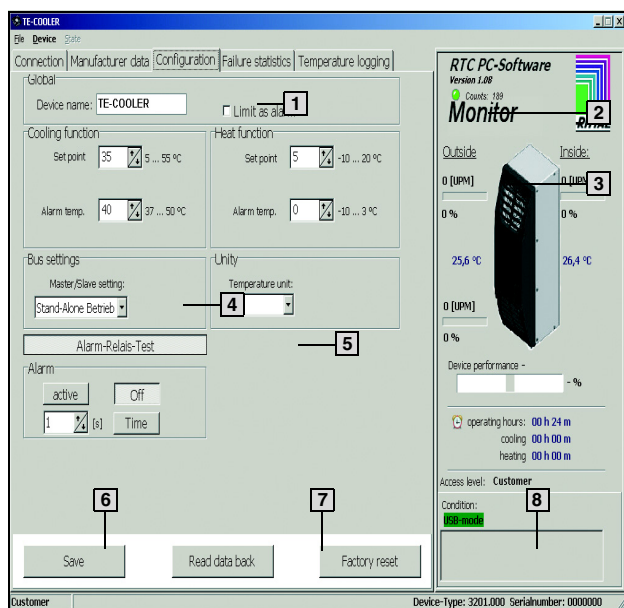


Fig. 6: RTC configuration

Key

- 1 Individual assignment of a device name
- 2 Configuration of alarm relay
- 3 Parameter range:
see Tab. 2 Setting ranges
- 4 Master-slave setting
- 5 The alarm relay of the RTC can be activated and reset manually using the alarm relay test button. Additionally, it is possible to set a period of time after which the relay is automatically reset.
- 6 Transfer the previously made settings to the RTC
- 7 Read the parameter currently stored in the RTC
- 8 Reset all parameters to factory setting (see Tab. 2 Setting ranges)

9.1 Setting ranges

Variable	Range	Factory setting
Cooling function: Setpoint	+5 ... +55°C	+35°C
Cooling function: Alarm temperature (hysteresis)	2 ... 15 K above setpoint	5 K
Heating function: Setpoint	-10 ... +20°C	+50°C
Heating function: Alarm temperature (hysteresis)	2 ... 15 K below setpoint	5 K
Changeover °C/°F	°C/°F	°C
Master-slave operation	1 master, up to 4 slaves	Stand-alone operation

Tab. 2: Setting ranges



Note:

The setpoints of the cooling and heating function are locked in relation to one another, i.e. the minimum difference is 1 K, to facilitate precise temperature control inside the enclosure.

9.2 Master-slave operation

If several devices are used for climate control on one enclosure, it is advised to connect them using the master-slave function (parallel operation for higher cooling output, redundancy). To do so, connect the devices via interface X3 and the network cable using the adaptor, Model No. SK 3201.070.

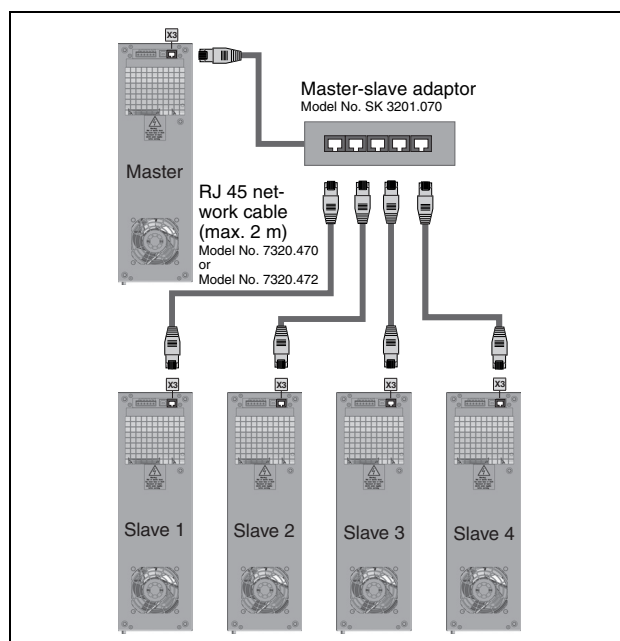


Fig. 7: Master-slave adaptor



Caution!

The network cable on the adaptor should be connected directly to the master unit.

You will then need define the status “master” or “slave” for each unit once only in the “Configuration” field (see chapter “9 Configuring the RTC”, page 6). The devices may also be configured individually before installing in the master-slave network. Up to a maximum of 5 units may be linked together.

9.3 System messages in master-slave mode

The RTC PC software is only capable of reading the system messages from an individual unit in the master-slave network. To this end, each unit must be connected and read individually via a USB.

10 Temperature logging

The “**Temperature logging**” tab allows you to log the ambient and enclosure interior temperature.

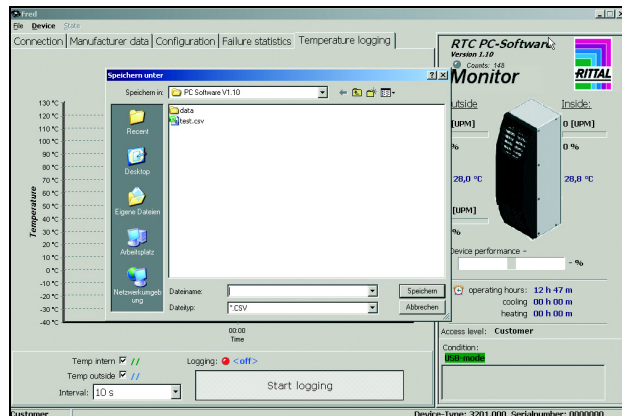


Fig. 8: Temperature logging

When the system starts logging, the data may be saved in a .csv file. This format can then be imported directly e.g. into Excel for further processing.



Note:

The USB connection must be maintained throughout the entire duration of measurement.

10.1 Start/end temperature logging

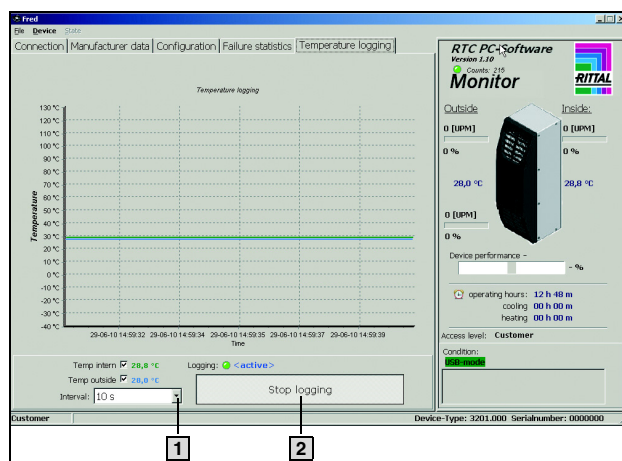


Fig. 9: Start/end temperature logging

Key

- 1 Setting the measurement interval
- 2 Start or end logging

11 Failure statistics

The recorded minimum and maximum interior and exterior temperatures can be read under the “**Failure statistics**” tab. Additionally, various failures are recorded via an error-counter.

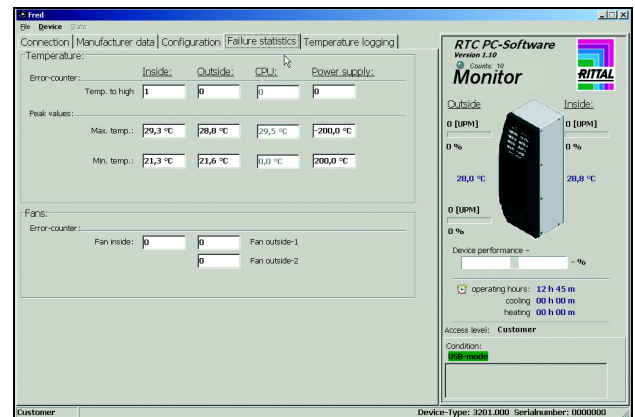


Fig. 10: Failure statistics

12 Saving the configuration

Your chosen configuration for an RTC can be saved in a parameter file and reused to configure other devices. To this end, save the settings in the task bar under “**File**” → “**Save config as file**”, then connect the RTC to be configured (see chapter “4 Installation and first-time registration”, page 3). In the task bar, click on “**File**” → “**Open config**” and then select the relevant file. By opening the file, the settings saved in that file are transferred into the “**Configuration**” tab.

In order to transfer the settings into the device, click on the “**Accept**” button (see chapter “8 Restricted operation”, page 5).

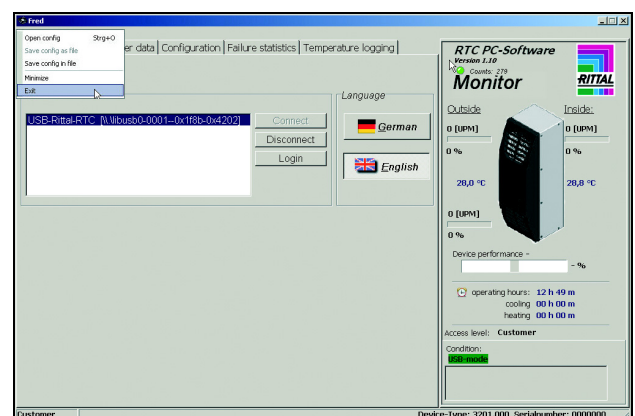


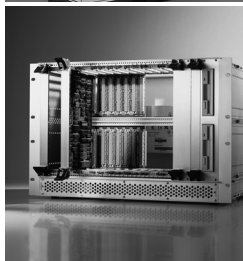
Fig. 11: Save configuration



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