

# Operation Manual

## Series KM-RD6012-K

### Art-Nr: 61056012

### Three-phase



## Betriebsanleitung / Operation Manual KM-RD6012-K

### 1.1 Specified normal operation

The KM-RD6012 is only operated as intended if the following points are taken into account:

Only authorized and appropriately trained persons may work on the controller

The controller may only be operated within the limited range of the specified current.

The controller may only be operated in the limited range of the operating temperature of the connected heater.

The safety and operating instructions of this operating manual must be observed.

The operating instructions of the operator must be observed.

The statutory accident prevention regulations must be adhered to.

### 1.2 Reasonably foreseeable misuse

Operation in systems with dust and corrosive gas.

Operation with highly flammable, explosive gases (EX areas).

Operation with mechanical vibrations and shocks.

Operation in disregard of safety regulations

Operation with deactivated, modified / defective safety devices

If a higher temperature is set than the max. Operating temperature of the connected heater, so it can cause a considerable damage, for man and machine, building up come to smoke or fire damage.

Outside an ambient temperature between 0 and 50 ° C and outside condensing ambient humidity between 35 and 75% RH.

#### Note:

Do not install the controller near flammable material.

Avoid direct contact of the controller with flammable material.

The controller should be protected from direct sunlight or high UV lighting.

## 2 Safety information



Before putting the unit into operation, the safety information, the instructions for installation and the operating manual that is supplied with the unit must be read and observed.

Please read the safety information carefully and comply with the items stated. This is a matter of safety for personnel and equipment. The unit is predominantly designed as a temperature controller for electrical heating systems. Improper application, installation, configuration or operation of a system or that which goes against the machine's intended purpose may cause severe personal injuries and extensive property damage!



**Important: This unit is not a safety temperature limiter according to DIN EN 60730-1**

The unit must not be installed in potentially explosive atmospheres. If a process function originating from an explosion-risk area is to be processed by the unit installed outside the explosion-risk area, all supply lines of the unit leading into the explosion-risk area must be guided via safety barriers!

There are other special EX temperature controller / limiter combinations that you can find in our program!!!

The prerequisite for error-free and safe operation of the unit is its careful transport and storage, as well as correct assembly and installation. This device may only be installed, configured, parameterized and commissioned by qualified persons who are familiar with installation, commissioning and maintenance of comparable devices and with the system in which the device will be applied and who have appropriate knowledge in the field of instrumentation and control. Operating staff of the system in which the device is to be used must be instructed on operation and control of the unit by qualified persons.

Please observe and comply with:

- The contents of the present manual for installation and operation of the unit, in particular the information on installation, taking into operation, any notes in bold print and adjustment of the device to suit the overall system.
- Any and all safety information attached to the unit
- Any and all relevant safety regulations for installation and operation of electrical systems
- The keeping of this manual in a safe place for future use.

The regulations stated in the present manual are applicable and valid in all EU countries. For use of the device outside an EU country, the relevant national rules and regulations must be considered.

This device has been produced and tested in accordance with DIN EN 61010 Part 1, "Safety requirements for electrical equipment for measurement", and has left our company in an error-free condition in terms of its safety and functionality.



#### **DANGER**

The controller is an electrical resource.

Therefore, installation and commissioning may only be carried out by trained and qualified personnel.

Connection, maintenance and repair must only be carried out by trained, competent and qualified personnel.

### **13 Place of application of the unit**

The unit is designed as a temperature controller for flexible application in electrical heating systems. The place of operation or installation of the temperature controller must not be close to motors, transformers, circuit breakers or other inductive loads, it must be shock-free and vibration-free and positioned on solid

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ground. The ambient temperature at the place of installation must be between 0°C and 50°C, with a relative humidity of 75% (no condensation). Aggressive and corrosive gasses and vapours may damage the unit.

### **3 Instructions for installation**

Please read the installation instructions carefully and comply with all conditions mentioned here during installation of the unit. In case of non-compliance with the Instructions for installation, faults or malfunctions may occur, or the unit may fail to comply with the required EMC guidelines and the conditions for CE-conformity will not be fulfilled.

Before connection of the unit and before putting it into operation, please ensure that the operating voltage and the conditions for the operating voltage required by the unit correspond to the conditions on site (cf. name plate and technical specifications). If required, take any appropriate measures.

Please make sure that the control and load voltage on site are switched off and secured against accidental reactivation during installation of the device. The electrical connections must be made on the basis of the connection diagram and the relevant national rules and regulations. The supply lines for the device must be laid such that they are free from any tensile loads and are not exposed to risks of shearing or crushing under any circumstances.

The mains connection and the connections for the loads must each be provided by suitable cables with a cross-section of a minimum of 1.5mm<sup>2</sup>.

For sensor lines and signal lines, it is highly recommended to use shielded cables (especially if lines are long and/or running along potential sources of interference); for thermocouples, shielded compensation lines should be used likewise. Sensor lines and signal lines must be installed such that they are spatially separated from the load and control lines (high-voltage lines). If signs of incorrect switching behaviour are detected the circuit must be put out of service until remedial action.

For intermediate clamping of compensation lines for thermocouples, no regular terminals may be used, since this would result in generation of additional thermocouples that may falsify the measuring results.



Thermocouples that are connected to earth on one or both sides of the sensor lead cause a sensor breakage message and cannot be operated with this controller.

Connect the shield of the sensor lines and the signal lines with the signal ground as close to the unit as possible and lay a line with a diameter of minimum 1.5mm<sup>2</sup> from this point to the PE bus bar along the shortest possible route.

Any inductive loads activated by the unit, such as contactors, valves, motors, transformers, etc. must be wired separately and interferences must be prevented using device-specific suppression devices.

In this device version 10 A, the load circuit is protected against overcurrent with an internal miniature fuse.

The present manual does not contain all notes for regulations, standards, etc. that must be observed and complied with during working with the unit in connection with systems and plants. Any such regulations,

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standards, etc. shall be complied with and observed by the operator of the unit with regard to specific requirements of the respective system or plant.

### **4 Start-up and adjustment of controller**

The unit is delivered with a default setup. This Setup mostly will not fit to the application. The controller has to be set to the application-specific temperature limits and sensor type.

#### **Power-on**



***Carefully inspect the wiring and connections once again.***

Incorrect wiring or connection of the unit may cause severe damage of the unit and the plant. Please make sure that during initial switch-on of the unit the load voltage of the plant is switched off since the unit will not yet have been adjusted to the plant and may possibly trigger faults or malfunctions.

Now, switch on the operating voltage of the unit.

### **5 General information**

The KM-RD6012 is a compact PID Temperature Controller for wall-mounting.

Due to the connection at the 10 + PE pol. Sockets can be both three-phase heaters in star and in delta connection, as well as 1 and 2 phase heaters in 230V as well as in 400V.



**On the mains side, the N conductor must always be connected**

## 5.1 Operation

### 5.1.1 Display and operating elements

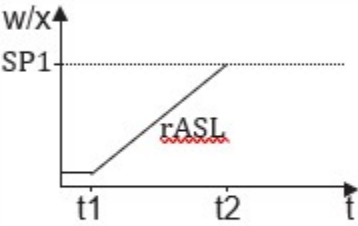
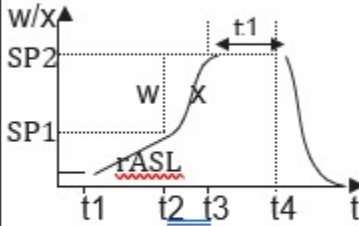
	(A) Programming / one level deeper
	(B) Value reduction / previous parameter
(C) Value increase / next parameter	
(D) Function key / leave level	
(E) Red 7-segment display (factory-set: Actual value); 4-digit, configurable decimal place (automatic adjustment in the case of display overflow)	
(F) Green 7-segment display (factory-set: Setpoint); 4-digit, configurable decimal place; also display of level and parameter symbols	
<p>The software version is displayed on the device when simultaneously pressing keys (A) and (C).</p>	(G) LED 1 to 3(5): Switching position of binary output (LED is lit = output active)
	(H) LED ramp function or firing curve

### 5.1.2 Self-optimization, setpoint and manual mode

On the basis of the **Normal display**, the following **Functions** are available:

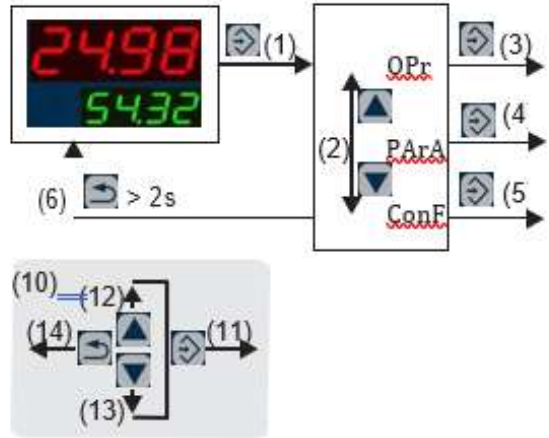
<p><b>Start of self-optimization:</b> Simultaneously press keys (B) and (C) (&gt; 2 s)</p> <p><b>Abort of self-optimization:</b> Simultaneously press keys (B) and (C)</p>	<p>"tUnE" flashes in the lower display.</p> <p>No parameters are changed by the abort.</p>
<p><b>Change setpoint</b> using keys (B) and (C)</p>	<p>The longer the key is kept pressed, the faster the set point value changes. The value will be automatically applied.</p>
<p>Function key (D) (&gt; 2 s) is used to <b>Change-over to manual mode</b> and to exit the manual mode</p>	<p>The output level (%) is displayed in the lower display and can be changed with the keys (B) and (C). (The controller automatically changes to manual mode in the event of overrange/underrange and probe break.)</p>

## 5.1.3 Ramp function/firing curve

Ramp function (start after mains ON or with the binary function)		Firing curve (start with the binary function or using the function key)	
	t1: Start (actual value) t2: Setpoint setting was reached		t1: Start t2: SP1 -> SP2 (automatically) t3: Timer start t4: Timer end
LED (H): Is lit with the ramp function active		LED (H): Flashes in phase 1 (t1 to t2), is lit in phases 2 and 3 (t2 to t4) OFF (F): Firing curve not active	

## 5.1.4 Level concept

 The parameters for device setting are organized at different **levels**.

 <p>If no key is pressed for 180 s (factory-setting), the device will return to its normal display. This time period can be configured.</p>	(1) Changeover from <b>normal display</b> to the levels
	(2) Changeover between levels
	(3) Changeover to the <b>operator level</b> (setpoints, process values, timer value and time)
	(4) Changeover to the <b>parameter level</b> (controller parameters)
	(5) Changeover to <b>configuration level</b> (analog input, controller, ramp function, limit value monitoring, timer, outputs, binary functions, display and operation, interface)
	(6) Return to the normal display
	(10) <b>Navigation principle:</b>
	(11) - one level deeper
	(12) - next parameter / increase value
	(13) - previous parameter / reduce value
	(14) - one level back

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The various levels are also accessible in manual mode.

**Level inhibit** (factory-setting: all levels are free):

Code	Operator level	Parameter level	Configuration level	
0	free	free	free	1. Simultaneously press (A) and (B) (> 5 s) 2. Press (A) (display flashes) 3. Enter code using (B) or (C) 4. Use (D) to return to the normal display (or automatically after 180 s) (key designation in brackets; see chapter 2.1.1)
1	free	free	inhibited	
2	free	inhibited	inhibited	
3	inhibited	inhibited	inhibited	

### 5.1.5 Operator level (OPr)

Depending on the configuration, the following parameters are available:

Symbol	Description	Symbol	Description
SP1	Setpoint 1 (can be edited)	rASL	Ramp rate (for firing curve; can be edited)
SP2	Setpoint 2 (can be edited)	SPr	Current ramp setpoint (for ramp function or firing curve)
T1	Timer value (if timer or firing curve are inactive; can be edited)	InP1	Measured value at analog input
tL	Timer run time (if timer or firing curve are active)	v	Output level
tr	Residual timer run time (if timer or firing curve are active)		

### 5.2 Configuration (ConF)



**TIP!**

The device will map out parameters unless the equipment level permits the function assigned to the parameter. Factory settings appear in **bold** in the following table.



**Analog selector**

With some parameters in the configuration level, the user can choose from a series of analog values. The following list contains all available signals.

Value	Description	Value	Description
0	Switched off	7	Setpoint 2
1	Analog input	8	Output level display (-100 % to +100 %)
2	Actual value	9	Controller output 1 (e.g. heating, output level 0 to -100 %)
3	Current setpoint	10	Controller output 2 (e.g. cooling, output level 0 to -100 %)
4	Ramp end value	11	Timer run time (time unit off the timer)
5	(reserved)	12	Timer residual time (time unit off the timer)
6	Setpoint 1		

**5.2.1 Analog input**

ConF → InP →

Parameters	Value	Description	Value	Description
Probe type SEnS		RTD temperature probe:		Thermocouples:
	<b>0</b>	<b>Pt100 3-wire</b>	9	NiCr-Ni K
	1	Pt1000 3-wire	10	Pt10Rh-Pt S
	2	Pt100 2-wire	11	Pt13Rh-Pt R
	3	Pt1000 2-wire	12	NiCrSi-NiSi N
	4	KTY 2 wire	13	NiCr-CuNi E
	5	Cu-50 3-wire		Standard signals:
		Thermocouples:	14	0 to 20 mA
	6	Cu-CuNi T	15	4 to 20 mA
	7	Fe-CuNi J	16	0 to 10 V
8	Fe-CuNi L			
When selecting "0 to 10 V", binary input bin1 is inactive.				
Parameters	Value	Description		
Measured value offset OFFS	-1999 ... <b>0</b> ... +9999	The measured value is corrected through this value (offset), prior to being used as a controller input value and in the analog selector.		
Display start SCL	-1999 ... <b>0</b> ... +9999	On transducers with standard signal, a display value is assigned to the physical signal.		

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Display end SCH	-1999 ... <b>100</b> ... +9999	Example: 0 to 20 mA = 0 to 1500 °C
Filter time constant dF	0.0 ... <b>0.6</b> ... 100.0 (s)	Adaptation of the digital input filter (0 = Filter OFF)
Temperature unit Unit	<b>1</b> 2	deg. Celsius deg. Fahrenheit
(Setup program: Adjustable resistance of the KTY at 25 °C.)		

**5.2.2 Controller**

The actual value is provided for the controller by the analog input.

ConF → Cntr →

Parameters	Value	Description
Controller type CtyP	<b>1</b>	<b>2-state controller</b>
	2	3-state controller
	3	Continuous controller
Action CAcT	0	Direct: (The output level of the controller is > 0 when the actual value exceeds the setpoint, e.g. cooling).
	<b>1</b>	Inverse: (The output level of the controller is > 0 when the actual value is smaller than the setpoint, e.g. heating.)
Output value, manual mode HAnd	-100 ... 0 ... <b>+101</b>	Output level after switching to manual mode 101 = last output value
Output level at Out-of-Range rOut	-100 ... <b>0</b> ... +100	Output level in the event of overrange or underrange
Setpoint limit start SPL	<b>-1999</b> ... +9999	The setpoint limitation prevents the entry of values exceeding the default range.
Setpoint limit end SPH	-1999 ... <b>+9999</b>	The setpoint limits are not effective when entering setpoints via the interface. The correction value is limited for external setpoints with offset.
(Setup program: Manual mode and self-optimization can be inhibited.)		

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### 5.2.3 Ramp function/firing curve

The device can be operated as a fixed value controller with and without ramp function. In addition, a firing curve is supported.

ConF → rAFC →

Parameters	Value	Description
Function	<b>0</b>	<b>Ramp function/firing curve switched off</b>
FnCt	1	Ramp function Kelvin/Minute
	2	Ramp function Kelvin/Hour
	3	Ramp function Kelvin/Day
	4	Firing curve Kelvin/Minute
	5	Firing curve Kelvin/Hour
	6	Firing curve Kelvin/Day
Ramp rate rASL	<b>0 ... 999</b>	Value of the ramp rate (only for function = 1 to 6)

(Setup program: For the firing curve, timer value, time unit and setpoint can also be set here.)

### 5.2.4 Limit value monitoring affects the alarm contact

The device is equipped with two functions for limit value monitoring (Li 1, Li 2) each with eight different alarm functions (AF1 to AF8). The two output signals are available for binary functions.

ConF → Lil , Li2 →

Parameters	Value	Description
Alarm function	<b>0</b>	<b>Limit value monitoring switched off</b>
FnCt	1	AF1: Limit value above and below the setpoint (monitoring range); symmetric or asymmetric
	2	AF2: As AF1, output signal inverted
	3	AF3: Limit value below the setpoint
	4	AF4: As AF3, output signal inverted
	5	AF5: Limit value above the setpoint
	6	AF6: As AF5, output signal inverted
	7	AF7: Fixed limit value (setpoint independent)
	8	AF8: As AF7, output signal inverted
Limit value AL, AL2	-1999 ... <b>0 ... 9999</b>	Limit value to be monitored For asymmetrical limit value: AL is below the setpoint, AL2 is above the setpoint. Limit value range for AF1 and AF2: 0 to 9999
Switching differential HySt	<b>0 ... 1 ... 9999</b>	Switching differential in respect to the limit value

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Parameters	Value	Description
Response at Out-of-Range / symmetry of limit value ACrA	<b>0</b>	<b>Off / symmetric (only AL is active)</b>
	1	On / symmetric (only AL is active)
	2	Off / asymmetric (AL and AL2 are active)
	3	On / asymmetric (AL and AL2 are active)
		Switching state in the event of overrange or underrange ("Out-of-Range") / symmetry of alarm functions AF1, AF2
Switch-on delay tOn	<b>0 ... 9999</b>	Switch-on delay of the output signal (in seconds)
Actual value AFPr	<b>2</b>	Signal to be monitored; <b>2 = actual value</b> ⇒ "Analog selector", page 9
Setpoint value AFSP	<b>3</b>	Setpoint for limit value monitoring (reference signal for AF1 to AF6); <b>3 = current setpoint</b> ⇒ "Analog selector", page 9

**5.2.5 Timers**

The timer provides an output signal available for the binary functions. This signal can be used, e.g. to realize a time-limited control or a time-dependent setpoint changeover.

The timer value is not saved during a mains failure. After the mains connection is restored, the timer remains inactive.

ConF → tFCt →

Parameters	Value	Description
Function FnCt	<b>0</b>	<b>Timer switched off</b>
	1	Timer signal is "high" while the timer is running
	2	Timer signal is "low" while the timer is running
Start condition Strt	<b>0</b>	Manual start via function key or binary signal (no restart after mains failure)
	1	Automatic start after mains ON (restart after mains failure); manual start is also possible
Time unit Unit	<b>0</b>	<b>mm:ss</b>
	1	hh:mm
	2	hhh.h
Timer value t1	<b>00.00.</b> ... 999.9.	Timer run time (in the time unit set)

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Tolerance band toLt	<b>0 ... 9999</b>	Tolerance band for timer start The timer only starts once the actual value has reached the tolerance band. 0 = Start without tolerance band
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### 5.2.6 Outputs

The configuration of the device outputs is subdivided in binary outputs (OutL) and analog output (OutA). The switching states of binary outputs 1 to 3 (5) are displayed by LEDs K1 to K3 (K5) (LED is lit = output active).

#### Binary outputs

The device is equipped with a relay output (N/O, output 1) as standard and can be optionally equipped with two (four) additional binary outputs (relay or logic output; outputs 2 to 5).

ConF → OutL →

Parameters	Value	Description
Output 1 ... 5	<b>0</b>	<b>Output not active</b> (factory setting for Out2 ... Out5)
Out1	<b>1</b>	<b>Controller output 1</b> (factory setting for Out1)
Out2	2	Controller output 2
Out3	3	Limit value monitoring 1 + 2
	6	Timer signal

(Setup program: The output signal can be inverted.)

#### Analog output

The device can be optionally equipped with an analog output (output 2).

ConF → OutA →

Parameters	Value	Description
Function FnCt	<b>9</b>	Function of the output; <b>9 = Controller output 1</b> ⇒ "Analog selector", page 9
Type of signal SiGn		Physical output signal
	<b>0</b>	<b>0 ... 20 mA</b>
	1	4 ... 20 mA
	2	0 ... 10 V
Value at Out-of-Range rOut	<b>0 ... 101</b>	Signal (in percent) at overrange or underrange 101 = last output signal

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Zero point 0Pnt	-1999 ... <b>0</b> ... +9999	Value range of the output variable for the physical output signal
End value End	-1999 ... <b>100</b> ... +9999	

### 5.2.7 Binary functions

The binary signals of the binary output, the limit value monitoring and the timer can be used to trigger different functions.

The binary functions for start and abort react to the rising flank of the triggering signal, all other binary functions are state-dependent controlled and active with "High".

ConF → binF →

Parameters	Value	Description
Binary input bin1	<b>0</b>	<b>Signal without function</b>
	1	Start self-optimization
	2	Abort self-optimization
Limit value monitoring 1 and 2 Lil, Li2	3	Change to manual mode
	4	Switch off controller (controller outputs inactive)
	5	Switch on controller
	6	Inhibit manual mode
Timer signal tF1	7	Stop ramp/firing curve
	8	Abort ramp/firing curve
	9	Restart ramp, start/abort firing curve
	10	Switch over from setpoint 1 to setpoint 2
	11	Lock keypad
	12	Inhibit parameter and configuration level, inhibit self-optimization start
	13	Switch off the display
	14	Start timer
	15	Abort timer
	16	Stop timer
	17	Start/abort timer

### 5.2.8 Display and operation

Both displays and the function key can be individually adapted to the respective requirements.

ConF → diSP →

Parameters		Value	Description
Upper display diSU		2	Display value for the upper display; <b>2 = Actual value</b> ⇒ "Analog selector", page 9
Lower display diSL		3	Display value for the lower display; <b>3 = current set point value</b> ⇒ "Analog selector", page 9

Parameters	Value	Description
Display change when timer is started diSt		Time appears in the bottom display once the timer is started
	0	No display change
	<b>1</b>	<b>Residual timer time</b>
	2	Timer run time
Time-out tout	0 ... <b>180</b> ... 255	Time period in seconds, after which the device automatically returns to its normal display (if no key is pressed). 0 = Function switched off
Decimal place dECP	<b>0</b>	<b>No decimal place</b>
	1	One decimal place
	2	Two decimal places
Function key, press briefly (< 2 s) tAS	0	No function
	1	Start timer/firing curve
	2	Abort timer/firing curve
	3	Stop/continue timer/firing curve run
	<b>4</b>	<b>Start/abort timer/firing curve</b>
	5	Timer display (timer run time or residual timer time)
(Setup program: The function of pressing the function key longer (> 2 s) can also be configured.)		

## 5.2.9 Interface

An optional RS485 interface can be used to integrate the device in a data network. When the communication takes place via the setup interface, the RS485 interface is inactive.

ConF → IntF →

Parameters	Value	Description
Baud rate	<b>0</b>	<b>9600 baud</b>
bdrt	1	19200 baud
Device address Adr	0 ... <b>1</b> ... 254	Address in data network

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For further information about the RS485 interface, the Modbus protocol and the communication with other devices, please refer to the interface description B 702030.2.0 available as a PDF document.

### 5.3 Parameterization (PArA)

Enter the controller parameters here.

PArA ->

Parameters	Value	Description
Proportional band PB1, PB2 <sup>1</sup>	<b>0</b> ... 9999	Range of the proportional band The larger the proportional band the lower the controller amplification. The controller structure is not effective with Pb = 0 (behavior identical to limit value monitoring). For the continuous controller, ensure that Pb is > 0.
Derivative time dt	0 ... <b>80</b> ... 9999 (s)	Influences the differential portion of the controller output signal The larger the derivative time the higher the effectiveness of the D portion. 0 = derivative time switched off (no D portion)
Reset time rt	0 ... <b>350</b> ... 9999 (s)	Influences the integral portion of the controller output signal The larger the reset time the lower the effectiveness of the I portion. 0 = reset time switched off (no I portion)
Cycle time Cy1, Cy2 <sup>1</sup>	0.0 ... <b>20.0</b> ... 999.9 (s)	When using a switched output, the cycle time should be chosen so that the energy flow to the process is as continuous as is practicable without overloading the switching elements.
Contact spacing db	<b>0.0</b> ... 999.9	Spacing between the two control contacts of a 3-state controller
Hysteresis HyS1, HyS2 <sup>1</sup>	0.0 ... <b>1.0</b> ... 999.9	Hysteresis for a switching controller with proportional range Pb = 0 (behavior identical to that for limit value monitoring)
Working point y0	-100 ... <b>0</b> ... +100	The output level for P and PD controllers (if x = w then y = y0)
Output level limiting y1, y2	0 ... <b>100</b> (%)	y1: Maximum output level limitation
	<b>-100</b> ... +100 (%)	y2: Minimum output level limitation (only effective when Pb > 0)

<sup>1</sup> Only available for 3-state controllers (controller output 2)

The display of parameters depends on the controller type. For some parameters, the decimal place depends on the device setting.

Factory settings appear in **bold**.



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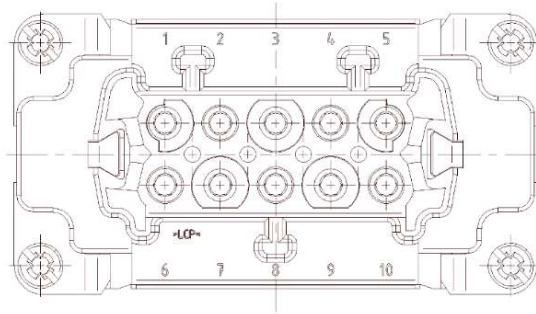
### 6 Main switch

Switch controller on / off

The controller has a main switch that can be used to switch off the controller.

### 7 Connector pin assignment

Harting HAN 10E 10+PE or kompatible

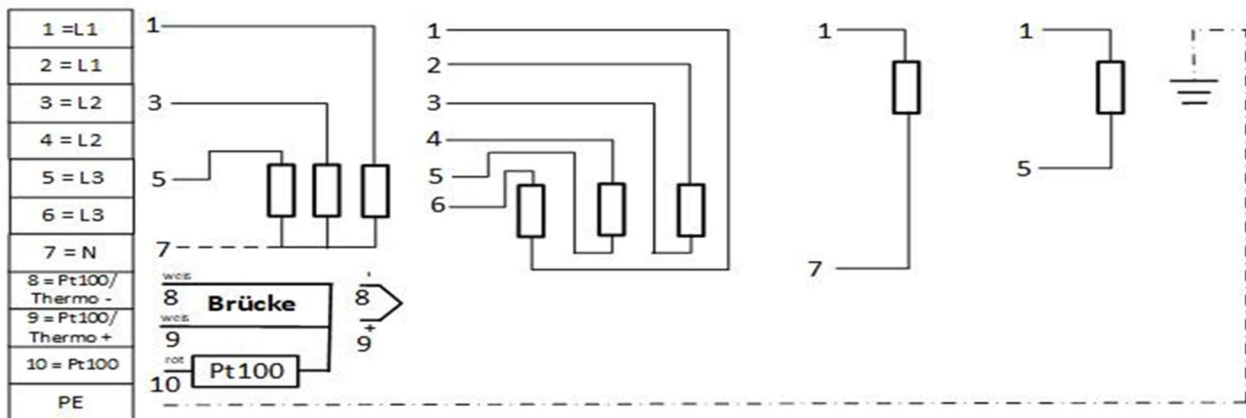


**Sternschaltung**  
*Y connection*

**Dreieckschaltung**  
*Delta-connection*

**1-Phasen 230V**  
*single-phase*  
**230V**

**2-Phasen 400V**  
*two-phase*  
**400V**



Alarmkontakt  
Potentialfreier Schließer  
Alarm contact  
potential-free NC  
max. 230VAC1, 3A



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### 8 Technical Data (Reserve technical changes)

Housing:	ABS and PC with transparent cover Hinges for manual operation → No tools required! Dimensions: 264 x 141 x 234mm
Mains supply:	230/400VAC 50/60Hz Three-phase
Load current:	max. 3x16 A (no built-in fuse)
Alarm contact:	potential-free NC contact: max. 230V AC1, 3A run on terminals and accessible via a cable gland
Thermal protection:	Sensor inputs:Pt100 with sensor break and sensor short-circuit protection, thermocouples type K, J with potential-free with sensor rupture protection
Setpoint range:	0°C..999°C
Controller type:	PID control algorithm (with Autotuning function)
Power switch:	Miniatur contactor (> 1,0 Mio. switching cycles specified)
Display:	LED display
Operation:	via soft keys and menu control
Ambient temperature:	0°C...+50°C
Safety class:	I
Degree of protection:	IP65
Weight:	1.80 kg

### 9 Device versions

Typ KM-RD6012-K	Item number: 61056012 Mains connection via 3,0m cable with CEE* plug Heater connection via socket 10+PE Load current max. 16 A
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**Other heating connections can be provided on request via appropriate adapter cables**

### 10 Repair and maintenance

Repairs may only be carried out at our factory!

If the controller shows any damage, please send the controller to us with an error description.

The device must only be checked by qualified personnel in accordance with the applicable regulations for creating and maintaining.

Test periods and test specifications according to DGUV regulation 3 must be observed.

If, during the visual inspection, it is found that the temperature controller is heavily soiled, it should be cleaned with a damp cloth when switched off. If necessary, a light commercially available dishwashing and cleaning agent should also be used.

## Betriebsanleitung / Operation Manual KM-RD6012-K

### 11 Warranty

We assume a warranty.

- For our articles for proper execution for a period of 12 months from the date of shipment, such that we are responsible for any parts whose premature failure is due to design, work or material defects, with free return of the defective pieces to Sandhausen Germany, free replacement deliver from Sandhausen Germany, unless otherwise agreed. We are not liable for damage caused by natural wear or improper handling.
- In our articles of any kind only as far as demonstrable material defects are present. A time-limited warranty is excluded, since the durability depends essentially on the care of the handling, i. of factors that elude our influence.  
However, in none of these cases will any other compensation be granted as a free replacement of defective parts; as well as other claims for damages, compensation of any expenses for wages, freight and the like are expressly rejected.

### 12 Disassembly and disposal



The device may only be disassembled when switched off, disconnected from the mains and secured.



The packaging protects the temperature controller from damage during transit. The packaging material is selected and recyclable according to environmental and disposal considerations.

The return of the packaging to the material cycle reduces waste and saves raw materials. Dispose of the packaging material that is no longer needed at the collection points for the recycling system "Green Point" or other national recycling systems.

The temperature controller must be recycled in accordance with the electronic waste ordinance "WEEE".

### 14 shipment

Check the completeness and integrity of the delivery. Contact your supplier immediately should parts be missing or defective.

**1x temperature controller KM-RD6012**

**1x Operation Manual (german/english)**



Kletti GmbH - Gottlieb-Daimler-Str. 10 – 69207 Sandhausen

## EU-Konformitätserklärung

Hiermit erklären wir, dass unsere nachstehend bezeichneten Produkte in ihrer Konzeption und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den grundlegenden Sicherheits- und Gesundheitsanforderungen der EU-Richtlinie Niederspannung 2014/35/EU(2014) und der EU-Richtlinie Elektromagnetische Verträglichkeit 2014/30/EU entsprechen. Bei einer mit uns nicht abgestimmten Änderung unserer Produkte verliert diese Erklärung ihre Gültigkeit.

**Hersteller:**

Kletti GmbH  
Gottlieb-Daimler-Straße 10  
69207 Sandhausen

**Beschreibung der Produkte:**

- Temperaturregler Typ KM-RD6012 und KM-RD6012-K zur Temperaturregelung von elektrischen Drehstrom Heizungen.

**Es wird die Übereinstimmung mit folgenden Normen erklärt:**

- EN 61000-6-4 (2011) Störaussendung
- EN 61000-6-2 (2006) Störfestigkeit

**Es wird die Übereinstimmung mit weiteren, ebenfalls für die vorgenannten Produkte geltenden Richtlinien des Europäischen Parlaments und des Rates erklärt:**

- Richtlinie 2011/65/EU (2011) zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten

Sandhausen, Juni 2020

  
Steffen Exner  
-Geschäftsführer-

  
Jürgen Müller  
-Tech. Leitung-

**KLETTI Flexible elektrische Beheizungen**

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Amtsgericht Heidelberg  
HRB 701099  
Finanzamt Heidelberg  
Steuer-Nr. 32495/15409  
UST-ID DE250796062

Geschäftsführer :  
Bernd Kletti  
Christiane Kletti  
Steffen Exner

Bankverbindungen :  
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BIC CODE GENO DE 61 HD 3  
IBAN DE 72 6729 0100 0013 150400



Kletti GmbH - Gottlieb-Daimler-Str. 10 – 69207 Sandhausen

## EU-Declaration of Conformity

Hereby we declare that the concept and construction of our products mentioned below as well as fulfillment of the essential safety and health demands conform to EU-Low Voltage Directive 2014/35/EU and Electromagnetic Compatibility Directive 2014/30/EU. In case of modification of our products without our authorization, this Declaration of Conformity loses its validity.

**Manufacture:**

Kletti GmbH  
Gottlieb-Daimler-Straße 10  
69207 Sandhausen

**Description of the products:**

- Temperature controller Typ KM-RD6012 and KM-RD6012-K for temperature control of three-phase electric heaters.
- 

**The agreement with the following standards is explained:**

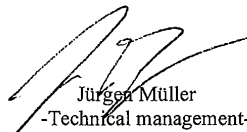
- EN 61000-6-4 (2011) Emission
- EN 61000-6-2 (2006) Immunity

**It will match with others, also for the aforementioned Products of the European Parliament and of the Council explained:**

- Directive 2011/65/EU (2011) Restricting the use of certain hazardous substances in electrical and electronic equipment

Sandhausen, June 2020

  
Steffen Exner  
-Managing Director-

  
Jürgen Müller  
-Technical management-

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