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RAS-F(/F)
+ RCV-DL
Vers. 2.0 EN
Manual version 3

Wireless room sensor and Receiver



RAS-F = Wireless room sensor
with temperature measurement



RAS-F/F = Wireless room
sensor with temperature
and humidity measurement



RCV-DL = Radio receiver

Wireless room sensors RAS-F starting with serial number 2286 and RAS-F/F starting with serial number 1222 can only be used with radio receivers RCV-DL starting with serial number 1867

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Function description

The wireless system always comprises a transmitter (= e.g. wireless room sensor) and a receiver. The receiver can receive the signals from up to 8 transmitters.

The sensor sends the measurement values to the receiver every 10 minutes. If a manual change is made at the sensor (level adjustment +/-5 K, adjustment of the slider switch) or the measured values change (room temperature +/- 0.5K, room humidity +/- 1%) the values are transmitted immediately.

The receiver forwards the signals from the transmitters via the data link (DL bus) to the controller. With X2 controllers, they are applied as DL inputs; for the UVR1611 controller as network input variables (source: DL) and for the ESR31, UVR61-3, UVR63 and UVR63H controllers as external sensors.

With X2 controllers, there is a timeout if no value is transmitted after three queries by the controller. For controller UVR1611, time-out times can be defined for the DL network inputs (length: at least 10 minutes). If no information is received from the DL bus, the network error (X2 controllers) or network status (UVR1611) changes in the event of a time-out and the programming of the controller allows it to react to this interruption.

The receiver RCV-DL can be used with the following controllers:

- ◆ All controllers with X2 technology
- ◆ UVR1611 from version A3.00 **and** serial number 13286
- ◆ UVR63H from version 7.2
- ◆ UVR63 from version 1.0
- ◆ UVR61-3 from version 5.0
- ◆ ESR31 from version 1.0

Power supply

The wireless room sensor is supplied by the inserted battery.
The receiver is supplied directly from the DL-bus.

Important instruction for UVR1611: If CAN bus members are simultaneously fed from the controller, a 12V power pack (CAN-NT) must be used to aid in the power supply to these devices.

Setting up the RAS-F (/F) room sensor

The battery supplied for the sensor must be inserted before commissioning.

Coupling the receiver to the wireless sensor

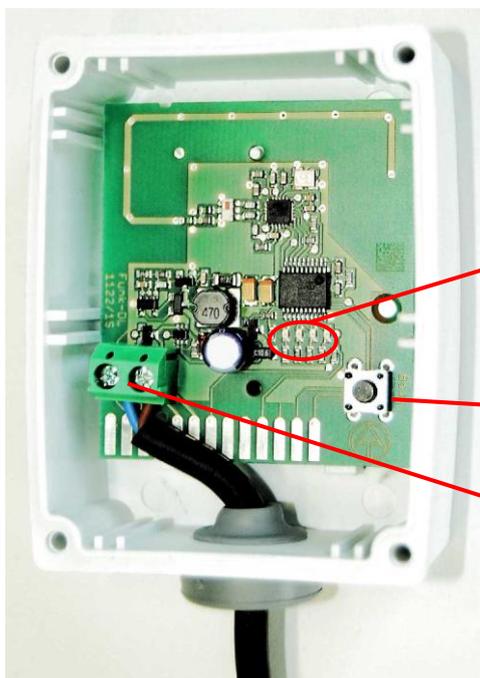
Push-buttons and 4 LEDs are used to couple the receiver to the particular wireless sensor. The 4 LEDs display a binary system, therefore:

- ◆ the first LED has the value **8**,
- ◆ the second LED has the value **4**,
- ◆ the third LED has the value **2** and
- ◆ the fourth LED the value **1**.

Therefore a maximum of 15 addresses can be specified for wireless sensors.

Address	1st LED Value 8	2nd LED Value 4	3rd LED Value 2	4th LED Value 1
1				☀
2			☀	
3			☀	☀
4		☀		
5		☀		☀
6		☀	☀	
7		☀	☀	☀
8	☀			
9	☀			☀
10	☀		☀	
11	☀		☀	☀
12	☀	☀		
13	☀	☀		☀
14	☀	☀	☀	
15	☀	☀	☀	☀

Receiver (opened):



4 display LED's
Sequence from left to right:
8 4 2 1

Coupling button

DL bus connection
(Wires can be connected either way.)
Wire routing inside in the housing as short as possible!

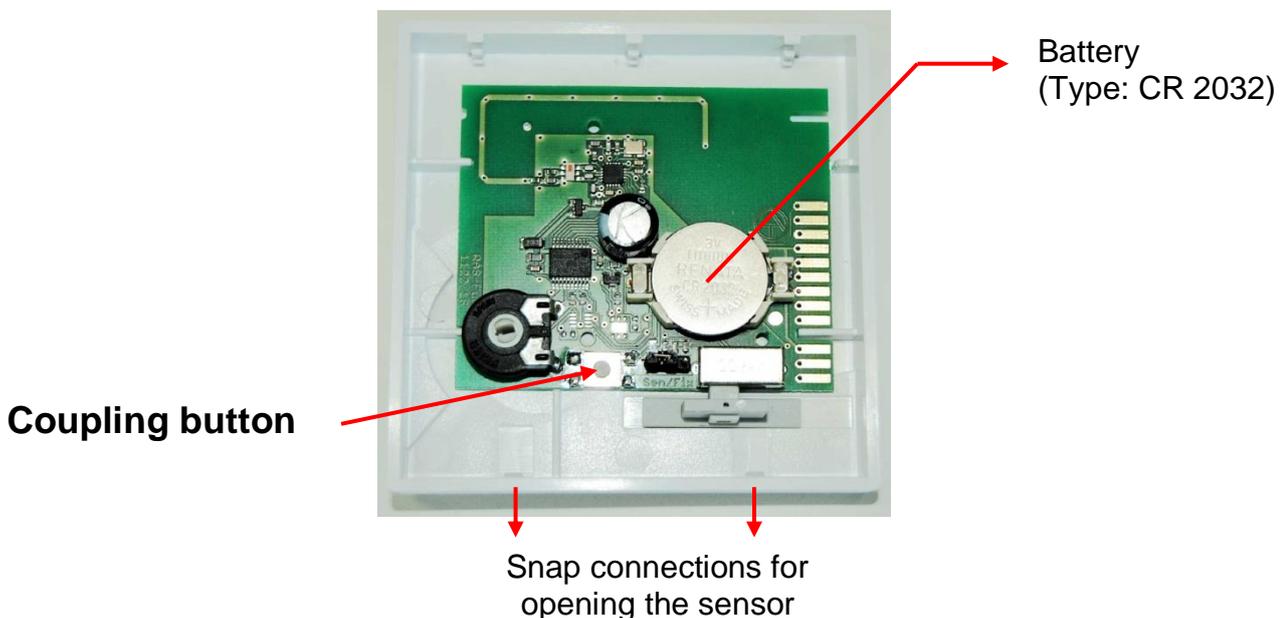
Coupling instructions

1	Select a free address in the DL bus net
2	Press the receiver button for at least 2 seconds
3	Couple the transmitter with the receiver by pressing the button in the room sensor or inserting the battery.

Supplementary explanations:

- 1.** A **free address** is selected by brief key presses at the receiver. A free **wireless address** can be identified because the relevant LEDs are permanently lit and do not flash. The same address cannot be used twice in the **DL bus network**. Thus for example, if address 1 is already occupied for a FTS4-50DL volume flow encoder, it cannot simultaneously be used for a wireless sensor.
- 2.** After selecting the address, press the button for approximately 2 seconds -> the LEDs start to flash slowly at intervals of a second.
- 3.** The coupling telegram is sent by pressing the coupling button in the sensor (refer to the following figure).
The sensor send a coupling telegram to the receiver and "registers itself". **After successful registration, the LEDs start to flash more quickly after about 5 seconds.** If the battery is not yet inserted in the wireless receiver, coupling can also be implemented by inserting the battery. If the battery is already inserted in the sensor, then for a coupling process after removal and insertion of the battery, it is necessary to wait for about 5 minutes so that the internal voltage supply can be reduced. Removal and immediate insertion of the battery does not generate a coupling telegram.
The sensor must be coupled within a minute of the LEDs starting to flash slowly, otherwise the receiver switches back again (LEDs illuminate continuously).
Likewise, coupling can be interrupted before registration of the transmitter by quickly pressing the receiver button.

Room sensor (opened):



Deleting an allocation in the receiver

To delete the allocation of an address to a sensor, the corresponding address must be selected (LEDs flash quickly) and then the button pressed for at least 10 seconds until the LEDs switch over to continuous illumination.

Index specification

To process sensor values in the controller, specification and selection of the sensor address (1-15) **and** the index (1-7) is necessary.

Indices can be specified for the following values:

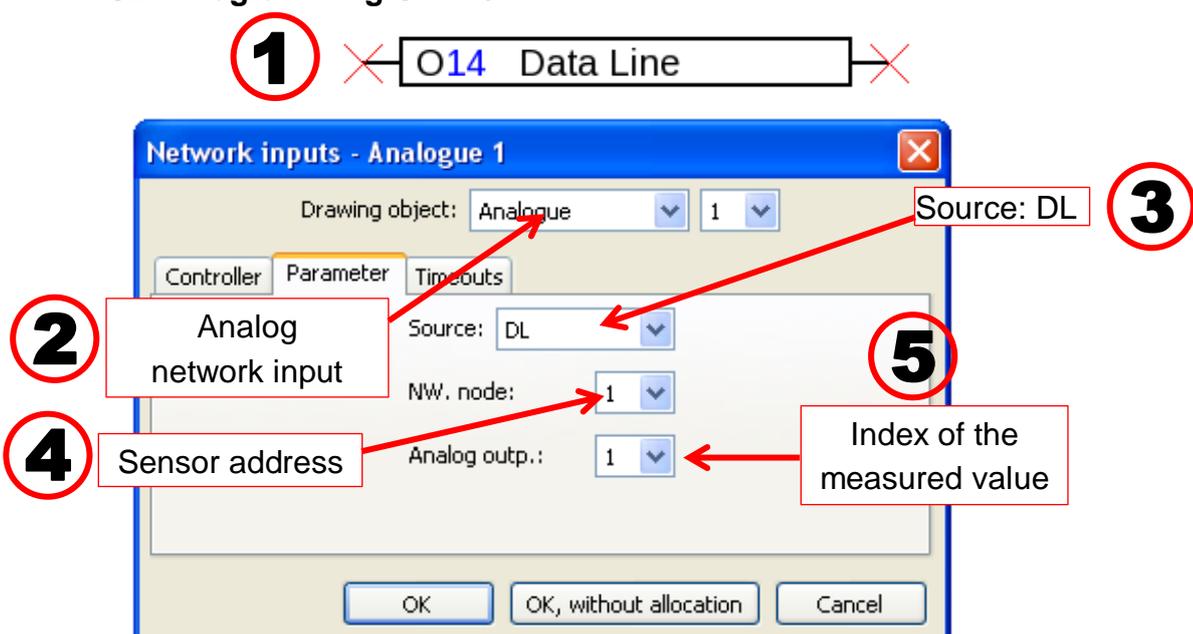
Index	Value
1	Room temperature with offset values of the +/- adjustment and the slider switch (for evaluation "RAS" in the controllers UVR16x2, UVR1611 and UVR63-H from version 7.2)
2	Measured room temperature (without offset values) (e.g. for UVR63)
3	Room moisture (only type RAS-F/F, otherwise the fixed value 127% is output)
4	Dew point temperature (only type RAS-F/F, otherwise the fixed value 0°C is output)
5	Time in minutes since the last radio telegram (see instructions re index 5)
6	Wireless receiver quality (only displayed with X2 controllers, UVR1611 and UVR63H from version 7.2) = Value between 0 and 1000, where 1000 represents the maximum receiving quality (a value less than 300 can cause malfunctions). A minus in front of this value indicates the battery is becoming weaker and must be replaced.
7	Binary number, only for internal testing

X2 controllers: The measured values are parameterised in the menu "DL bus".

UVR1611: The measurements are parameterised as **analog** network inputs:

NW.Node: **Sensor address**
 Anal.NW.Outp.: **Index of the measurement**
 Source: DL

TAPPS2 - Programming UVR1611:



A still unused network input variable must be selected for each new value.

ESR31, UVR61-3, UVR63 and UVR63H :

Adjustment of the measurements takes place in the menu **EXT DL** (external sensors)



Example: The external sensor 1 has address 1, the measured room temperature is imported without offset values (index 2). In the controllers ESR31, UVR61-3, UVR63 and UVR63H (version 5.0 up to 7.1) only the measured room temperature can be evaluated without offset values (index 2); the sliding switch and the rotary knob have no purpose with these controllers. This value can subsequently be allocated to a sensor value (menu ENTER/Men – SENSOR).

Instruction re index 1:

The value of index 1 is indicated in the main level of the controller UVR63H for external values by "999°C".

Instructions re index 5:

During normal operation a radio telegram must be received at least every 10 minutes. The value is not given as a dimensionless number but rather as a temperature with a comma, e.g. 8 minutes = 0.8°C. The highest counted value is 2500 minutes (= 250.0°C).

With each received radio telegram, this counter is reset to zero.

An error message can therefore be generated in X2 controllers or UVR1611 by means of a comparison function.

However, if a **reset** is performed, the meter is set to 61. If the DL bus is overloaded or the processor malfunctions, an unintentional reset may occur. So that this case can also be detected in X2 controllers or UVR1611, the comparison value must be set to no more than 60 (= 6.0 °C). It must indeed be noted that after commissioning of the receiver up to receipt of the first radio telegram, this index value counts up from 61.

Table of settings

Sensor No.	Address	Sensor serial number	Room
1			
2			
3			
4			
5			
6			
7			
8			

Operation with X2 controllers, UVR1611 (from version A3.00 and serial number 13286) and UVR63H (from version 7.2)

Switching between different operating modes:

- Automatic mode 
- Normal mode 
- Lowering mode 
- Standby mode 
- Changing the room temperature by +/- 5°C 

The room sensor is used as a command and temperature measurement instrument for the Technische Alternative controllers. The reported signal corresponds to the room temperature changed using the rotary knob. The following signals are forwarded to the controller according to the switch setting:

- Automatic mode = Room temperature +/- inverse rotary knob
- Normal mode = Room temperature + 50°C +/- inverse rotary knob
- Lowered mode = Room temperature + 100°C +/- inverse rotary knob
- Standby mode = Room temperature + 150°C +/- inverse rotary knob

The increased values for normal, lowering or standby mode are evaluated internally in the heating circuit controller function module of controllers UVR16x2, UVR1611 (from version A3.00 **and** serial number 13286) and in UVR63H (from version 7.2). The display in the measured values overview of UVR16x2 and UVR1611 takes place without offset values of the operating mode switch.

Turning the temperature selection knob in the "+" direction **reduces** the display value of the room temperature at the heating control unit by the difference and vice-versa.

Operation with other controllers

In the controllers ESR31, UVR61-3, UVR63 and UVR63H (version 5.0 up to 7.1) only the measured room temperature can be evaluated without offset values (index 2); the sliding switch and the rotary knob have no purpose with these controllers.

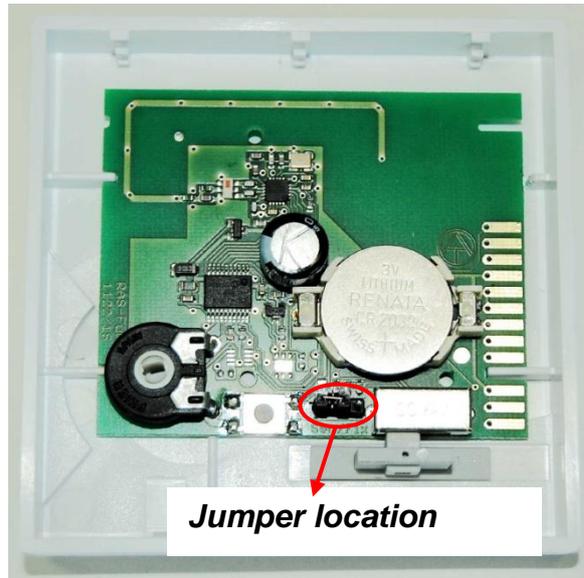
Minimum controller version:

- ◆ UVR63 from version 1.0
- ◆ UVR63H from version 5.0
- ◆ UVR61-3 from version 5.0
- ◆ ESR31 from version 1.0

Use as a remote control

If the installation location of the room sensor is unsuitable as a reference space, then the **wireless room sensor** can also be used just as a **remote control**:

A jumper inside the housing can be used to set a fixed value of 20°C instead of the measured room temperature (left jumper position: Sen, right position: Fix). Thus using the rotary knob and the switch, the room sensor takes on the characteristic of a pure remote control (**only applicable to the X2 controllers, UVR1611 and UVR63H (from version 7.2)**).



Technical data

Battery:	Type CR2032, service life maximum 5 years When replacing the batteries, no new coupling process is necessary
Accuracy rel. humidity:	± 3% RH from 20 to 80 % RH (RAS-F/F)
Bus load of receiver:	43%
Radio frequency:	868.5 MHz
Range in the open air:	max. 1000m
Range in buildings:	typically 30m, 2 walls or ceilings (dependent on the wall thickness and material)
Protection class:	Receiver IP40 Room sensor IP20

Installation

The sensor and the receiver must only be installed in dry rooms.

The room sensor must be opened for mounting. A small screwdriver is used to press in the clamps beneath the temperature selection knob and sliding switch while simultaneously raising the cover. The base plate can now be easily mounted.

The receiver has 2 fastening points for wall mounting.

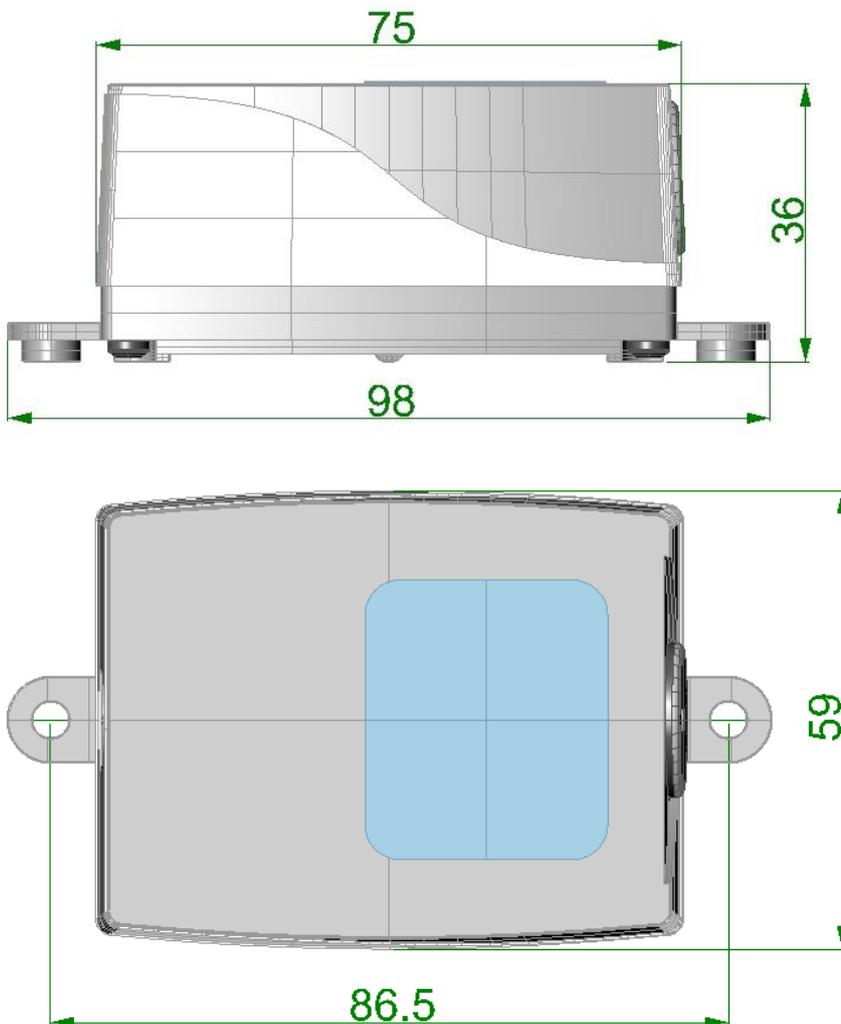
Electrical connections RCV-DL

The receiver has to be connected to data link (DL-bus) and sensor mass. The connection polarity is unimportant.

Any cable with a cross section of 0.75 mm² can be used for the data link (e.g. twin-strand) having a max. length of 30 m. For longer cables, we recommend the use of shielded cable.

Room sensor dimensions: Width: 81.5 mm, height: 81.5 mm, depth: 18 mm

Receiver dimensions in mm:



We reserve the right to make technical changes.

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EU Declaration of conformity

Document- Nr. / Date: TA17055 / 02/02/2017
Company / Manufacturer: Technische Alternative RT GmbH
Address: A- 3872 Amaliendorf, Langestraße 124

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Product name: RAS-F, RAS-F/F
Product brand: Technische Alternative RT GmbH
Product description: Wireless room sensor

The object of the declaration described above is in conformity with Directives:

2014/53/EU Radio equipment (RED)
2011/65/EU RoHS Restriction of the use of certain hazardous substances

Employed standards:

EN 60730-1: 2011 Automatic electrical controls for household and similar use –
Part 1: General requirements
EN 61000-6-3: 2007 Electromagnetic compatibility (EMC) - Part 6-3: Generic standards -
+A1: 2011 Emission standard for residential, commercial and light-industrial
+ AC2012 environments
EN 61000-6-2: 2005 Electromagnetic compatibility (EMC) - Part 6-2: Generic standards -
+ AC2005 Immunity for industrial environments
EN 50581: 2012 Technical documentation for the assessment of electrical and electronic
products with respect to the restriction of hazardous substances

Position of CE - label: On packaging, manual and type label



Issuer: Technische Alternative RT GmbH
A- 3872 Amaliendorf, Langestraße 124

This declaration is submitted by

A handwritten signature in black ink, appearing to read 'Schneider Andreas', written in a cursive style.

Dipl.-Ing. Andreas Schneider, General manager,
02/02/2017

This declaration certifies the agreement with the named standards, contains however no warranty of characteristics.

The security advices of included product documents are to be considered.

EU Declaration of conformity

Document- Nr. / Date: TA17057 / 02/02/2017
Company / Manufacturer: Technische Alternative RT GmbH
Address: A- 3872 Amaliendorf, Langestraße 124

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Product name: RCV-DL
Product brand: Technische Alternative RT GmbH
Product description: Radio receiver

The object of the declaration described above is in conformity with Directives:

2014/53/EU Radio equipment (RED)
2011/65/EU RoHS Restriction of the use of certain hazardous substances

Employed standards:

EN 60730-1: 2011 Automatic electrical controls for household and similar use –
Part 1: General requirements
EN 61000-6-3: 2007 Electromagnetic compatibility (EMC) - Part 6-3: Generic standards -
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+ AC2012 environments
EN 61000-6-2: 2005 Electromagnetic compatibility (EMC) - Part 6-2: Generic standards -
+ AC2005 Immunity for industrial environments
EN 50581: 2012 Technical documentation for the assessment of electrical and electronic
products with respect to the restriction of hazardous substances

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Issuer: Technische Alternative RT GmbH
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This declaration is submitted by

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Dipl.-Ing. Andreas Schneider, General manager,
02/02/2017

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Guarantee conditions

Note: The following guarantee conditions do not in any way limit the legal right to a guarantee, rather expand your rights as a consumer.

1. The company Technische Alternative RT GmbH provides a two-year guarantee from the date of purchase by the end consumer for all the devices and parts which it sells. Defects must be reported immediately upon detection and within the guarantee period. Technical support knows the correct solution for nearly all problems. In this respect, contacting us immediately will help to avoid unnecessary expense or effort in troubleshooting.
2. The guarantee includes the free of charge repair (but not the cost of on site fault-finding, removal, refitting and shipping) of operational and material defects which impair operation. In the event that a repair is not, for reasons of cost, worthwhile according to the assessment of Technische Alternative, the goods will be replaced.
3. Not included is damage resulting from the effects of overvoltage or abnormal ambient conditions. Likewise, no guarantee liability can be accepted if the device defect is due to: transport damage for which we are not responsible, incorrect installation and assembly, incorrect use, non-observance of operating and installation instructions or incorrect maintenance.
4. The guarantee claim will expire if repairs or actions are carried out by persons who are not authorised to do so or have not been so authorised by us or if our devices are operated with spare, supplementary or accessory parts which are not considered to be original parts.
5. The defective parts must be sent to our factory with an enclosed copy of the proof of purchase and a precise description of the defect. Processing is accelerated if an RMA number is applied for via our home page www.ta.co.at. A prior clarification of the defect with our technical support is necessary.
6. Services provided under guarantee result neither in an extension of the guarantee period nor in a resetting of the guarantee period. The guarantee period for fitted parts ends with the guarantee period of the whole device.
7. Extended or other claims, especially those for compensation for damage other than to the device itself are, insofar as a liability is not legally required, excluded.

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