CAN-MT/F

Version E4.01 EN

CAN Monitor

Manual

en

TECHNISCHE ALTERNATIVE

Contents

Safety requirements

> **These instructions are intended exclusively for authorised professionals.**
>
> **All installation and wiring work on the controller must only be carried out in a zero-volts state.**
>
> **The opening, connection and commissioning of the device may only be carried out by competent personnel. In so doing, all local security requirements must be adhered to.**

The device corresponds to the latest state of the art and fulfils all necessary safety conditions. It may only be used or deployed in accordance with the technical data and the safety conditions and rules listed below. When using the device, the legal and safety regulations apposite to the particular use are also to be observed. Incorrect use will result in the negation of any liability claims.

► The device must only be installed in a dry interior room.

► Solar thermal systems can become very hot. Consequently there is a risk of burns. Take care when fitting temperature sensors!

► For safety reasons, the system should only be left in manual mode when testing. In this operating mode, no maximum temperatures or sensor functions are monitored.

► Safe operation is no longer possible if the CAN Monitor or connected equipment exhibits visual damage, no longer functions or has been stored for a lengthy period of time under unsuitable conditions. If this is the case, place the CAN Monitor and equipment out of service and secure against unintentional use.

Maintenance

If treated and used correctly, the device will not require maintenance. To clean use only a cloth dampened with a gentle alcohol (e.g. ethyl alcohol). Do not use aggressive cleaning agents and solvents such as chlorethene or trichloroethylene.

No components relevant to long-term accuracy are subject to loading if the device is used correctly. Consequently long-term drift is extremely low. Therefore the device cannot be adjusted. Thus any compensating is not possible.

During repair, the constructive characteristics of the device must not be changed. Replacement parts must correspond to the original spare parts and must be used in accordance with the fabrication version.

System requirements for the UVR1611 Controller

A UVR1611 controller with an operating system **≥ A2.00** is necessary so that the CAN monitor can access the UVR1611 controller.

Supply capacity
No more than two devices (CAN monitor, CAN-I/O module etc.) can be supplied with each controller (UVR1611). With 3 or more devices in the CAN network, a 12V-mains adapter is required.

Cable selection and network topology

The basics of bus cabling are described in detail in the UVR1611 manual, so that it is not described in detail here with the exception of the termination.
Each CAN network is to be provided with a 120 Ohm bus termination at the first and last network member (terminate using a jumper). Hence each CAN network always has two terminating resistances (each at the end). Spur lines or star-shaped CAN topologies are not permitted by the official specification!

Termination   Connection CAN bus
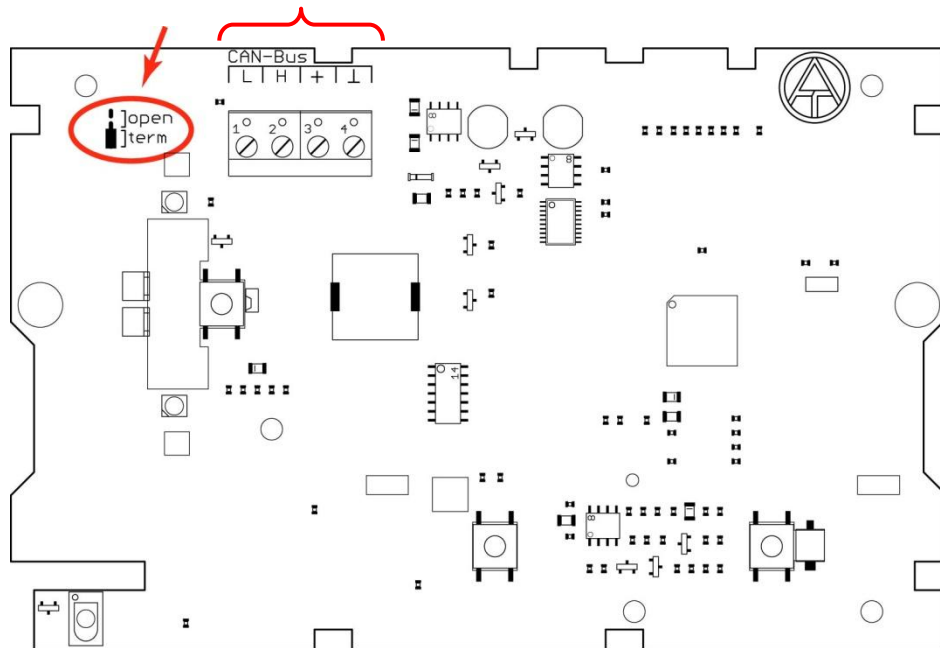
Operation

The CAN monitor is a display and operating unit for the freely-programmable UVR1611 universal controller and other CAN bus members. Reference is made to the UVR1611 operating manual for basic operation using display, buttons and scroll-wheel.

Basic display (start page)

After connecting the CAN monitor to the CAN bus, the display shows the following menu:

```
 CAN MONITOR Ex.xxEN
────────────────────────
Date            time
────────────────────────

Rel. humid.:  36.9 %        only with the CAN-MT/F
Room temp.:   20.5 °C
Out.Temp:     12.3 °C       only if the network input variable is defined
                            and by scrolling downwards:
.......................................
Load information
Meas.Val.Overview
Set date/time
SERVICE                     Main menu
```

Ex.xxEN - Version number of the device software.

Date/time - Shows date and time of the reference node (see menu "*SERVICE - User – ACCESS (user)*").

Error in the network connection:
Instead of the date/time, the following messages can be displayed:

```
 No network
 Connection
```
There are no other nodes on the network

```
 Searching for
 Reference node
```
No connection could be made to the reference node

```
 Unknown
 Reference node
```
Reference node is not a Technische Alternative device

```
 Unsuitable
 Reference node
```
Reference node is not a UVR1611

WARNING: Each network device must be allocated a different node number!

Load information - A list is displayed of all available devices (network nodes) in the network which the user is authorised to use. The enabling of individual network nodes for the user, takes place via expert access mode in the menu "*SERVICE - User – ACCESS (user) – Reference node/Network node*". Selection of a node takes you, depending on the device, to function overview (UVR1611 or CAN-I/O module), measured value overview (CAN-EZ) or M-bus display (CAN-BC).

```
  SELECT NETWORK NODE
─────────────────────────
Active NODES:
 1 Info?
 2 Info?
32 Info?
```

Note: Manual adjustment of a mixer is not possible from the CAN monitor.

Measured Value Overview (Meas.Val.Overview) - A list is displayed of all available devices (network nodes) in the network which the user is authorised to use. After selecting a node, function overview (UVR1611 or CAN-I/O module), measured value overview (CAN-EZ) or M-bus display (CAN-BC) is displayed, depending on the device.

Buttons - By pressing the right button ("INFO") the function overview of the reference node is loaded, by pressing the left button ("MEAS. VAL."), its measured values overview.
The button allocation changes, to permit navigation within the menu, to "START" (go to basic display of the CAN monitor) and "BACK" (one step back).

Set date /time - Date and time of the reference node can be changed from the CAN monitor.

Main menu SERVICE

```
          SERVICE
─────────────────────────
Version
User
Inputs
Network
Data Administration
```

MENU Version

Operat.Syst.: Version number of the device software. The latest software (higher version number) is available for download at http://www.ta.co.at. It can be transferred with the C.M.I. into the CAN I/O module.

Boot sector: Version number of the boot area. So that the device processor can program itself with the operating system, it requires a basic program in a protected memory area - the boot sector.

MENU User

```
          USER
─────────────────────────
OPERATING MODE:
Locked
User
Technician
Expert✓
```
.... *and by scrolling downwards:* ....
```
DISPLAY:
Contrast:          41
Brightness:        10
Illuminat.Off after:
 deactivated  00 sec
Automatic switch to
start page:
            10 Min


MESSAGES:
Acoustic alert: no
Visual alert: no


ACCESS (user):
Reference nodes:  1
User area:        A
Network node:


EXPERT CODE
CHANGE TO:  0 0 0 0
```

OPERATING MODE

Locked: Generally no inputs are possible (child-lock).

User: Access to the measured values overview as well as the function overview for all devices which are enabled for the user.

Technician: Extended modification authorisations in the function overview of the network nodes. Access only possible using code number (result of 2^6) possible.

Expert: Access to **all** devices in the network. The expert can call various menus from network nodes for display on the CAN monitor and to change the settings.

The code number necessary to do this, is forwarded, only to trained personnel, by E-mail or telephone.

DISPLAY

Contrast: Adaptation of the display contrast to the lighting conditions.

Brightness: The strength of the background lighting is variable and can be switched off after an adjustable time (0 to 150 seconds), during which no operating element is pressed.

The display has background lighting which is integrated into the circuit so that it does not require any additional energy. Thus switching it off does not provide any energy saving.

Automatic switch to start page - After an adjustable time (0 to 15 minutes) during which no buttons are pressed, the CAN monitor display automatically switches from the respective display in to the start page. If setting 0 is selected, this switching back to the start page can also be deactivated.

MESSAGES

Faults in the controllers, which are enabled as network nodes for the user (see `ACCESS (user)`), can be signalled at the CAN monitor, if an appropriate configuration is set up, by an acoustic or visual warning:

```
!!! CAUTION !!!
Important msg. at


Node 1   ◄
```
Confirmation with the scroll wheel brings up the function overview of the corresponding node

WARNING: Only errors, faults and warnings are transferred to the CAN monitor. The generation of a message type "message" at the controller does not cause any display at the CAN monitor!

ACCESS (user)

Reference nodes: Network nodes to which the user has **automatic** access.

User area: Area (user A, B or C) in the reference node to which the user of the CAN monitor receives access. This is helpful, if several CAN monitors access a UVR1611, e.g.: user A can access the parameters of heating circuit 1 and undertake changes, user B can access heating circuit 2 and undertake changes. Allocation takes place through programming of the function overview in the UVR1611 itself, i.e., entries for users A, B and C can be programmed here.

Network node: In addition to the reference node, a **further** 8 devices can be enabled for the user from this menu.

EXPERT CODE CHANGE TO

Change of the factory allocated code number by the expert. Without knowledge of this number, changes to basic settings as well as the transfer of function data is not possible.
In normal circumstances, the CAN monitor automatically switches back to user mode two hours after the last button was pressed. If this is not desired, automatic switching back can be blocked with code number 0 0 0 0.
WARNING: Loss of a self-selected code number can only be rectified in the factory, by resetting to the factory setting - with a complete loss of function data.

MENU Inputs

This menu provides the option of correcting the measurements of the sensors integrated in the CAN monitor by a fixed value.

```
        EINGAENGE
Room temp.:     24.7 °C
SENSOR CORR:    0.0  K


Rel. humid.:    44.8 %        only with the CAN-MT/F
SENSOR CORR:     0.0 %


Dewpoint:       11,6 °C        only with the CAN-MT/F
SENSOR CORR:     0.0 K
```

The dew point (or also dew point temperature) is that temperature of moist air, at which this air would be water vapour saturated and then if the temperature started to fall, the water would condense out. In this state the relative humidity would equal 100%.

MENU Network

```
        NETWORK
Node No.:        50
ENABLE:          ON
Autooperat.:    yes
Status:       operat


OUTPUT VARIABLE:
ANALOG:
Transm.Conditions:


INPUT VARIABLE:
ANALOG:
Timeouts:


Active NODES:
 1 Info?
 2 Info?
32 Info?
```

the device has network address 50 (factory setting)
bus communication enabled
device communicates with other bus participants without Master and is active

network - output variables

network - input variables

list of nodes active in the network
all nodes are listed (even those which are not enabled for the user)

Node No.:	Each network device must be allocated a different address (node number 1-62)!
ENABLE:	Without network enable (ON), the device can neither send nor receive messages; i.e. it does not participate in communication.
Autooperat.:	If the network is solely comprised of devices belonging to the UVR1611-family (UVR1611, CAN-Monitor, BL-NET …) Autooperat. must be set to "yes". If the network has a superordinate device (master or network manager), Autooperat. must be set to "no".
Status:	With Autooperat. set to "yes", then after controller start-up, the status changes automatically, according to the specified process, from *init* → *preop(erational)* → *operat(ional)*. Only then is communication possible. If there is a bus master, then it switches the nodes to *operational*.

OUTPUT VARIABLE

```
ANAL. NETW. OUTPUT
_____
OUTPUT 1: Room temp.
          21.6 °C


OUTPUT 2: Humidity        only with the CAN-MT/F
          44.8 %
OUTPUT 3: Dewpoint        only with the CAN-MT/F
          11.6 °C
```
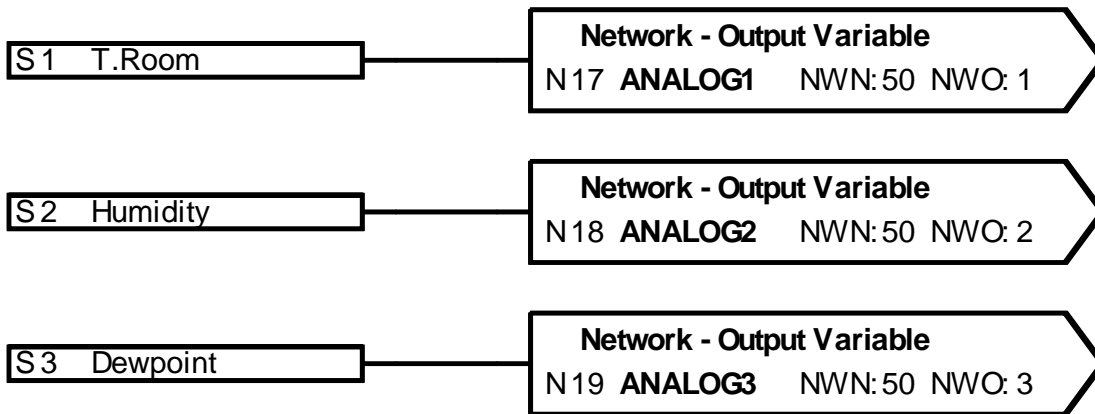
As the CAN monitor only makes three measurements available (room temperature, room humidity and dew point), the links between the measurements and the corresponding network output variables are fixed in the CAN monitor. Hence this menu has no setting options.

Measurements CAN-Monitor ⇨ Network outputs

Schematic representation:

```
┌──────────────┐        ┌─────────────────────────────────┐
│ S1  T.Room   │────────│ Network - Output Variable        │
└──────────────┘        │ N17 ANALOG1   NWN:50 NWO: 1      │
                        └─────────────────────────────────┘

┌──────────────┐        ┌─────────────────────────────────┐
│ S2  Humidity │────────│ Network - Output Variable        │
└──────────────┘        │ N18 ANALOG2   NWN:50 NWO: 2      │
                        └─────────────────────────────────┘

┌──────────────┐        ┌─────────────────────────────────┐
│ S3  Dewpoint │────────│ Network - Output Variable        │
└──────────────┘        │ N19 ANALOG3   NWN:50 NWO: 3      │
                        └─────────────────────────────────┘
```

Transmit conditions

```
 TRANSM. NETW.OUTPUT
_____
ANALOG OUTP.:  1..4
On Change  >  30
Blocked:  10 Sec
Interval:  5 Min
```

On Change: > 30 - if the current value changes relative to the last transmitted value by more than 3.0, a new transmission is made (= 30, as numerical values are transmitted without the decimal point).

Blocked: 10 sec - if the value changes by more than 30 within 10 seconds of the last transfer, the value is, nevertheless, only transmitted again after 10 seconds.

Interval: 5 min - The value is transmitted every 5 minutes under all circumstances, even if it has not changed by more than 30 since the last transmission.
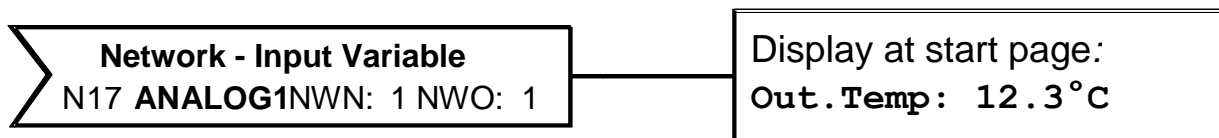
Input variables

```
 ANAL. NETW. INPUT
 ───────────────────
INPUT:
NW.Node:         1
Anal.NW.Outp.    1
Value:         123
```

This menu permits entry of the transmission node and its output variable, via which the value of the external temperature is transmitted. If a network node is defined, then the line "**Out. Temp.**" is displayed on the CAN monitor start page with the corresponding value for this analogue network input variable. By contrast, if the set node number equals 0, this display is not applicable.

Network inputs ⇨ CAN monitor display (start page)
Schematic representation:

```
 ╲───────────────────────────
  ╲   Network - Input Variable          Display at start page:
   ╲  N17 ANALOG1NWN: 1 NWO: 1          Out.Temp: 12.3°C
  ╱───────────────────────────
 ╱
```

The node number of the transmitter device (UVR1611) as well as its network output, via which the external temperature is transmitted, can be freely set.

Timeouts

```
TIMEOUTS NETW.INP.
───────────────────
ANALOG INPUT:  1..4
Timeout:      60 Min
```

Timeout - If the external temperature is not received for longer than the set time, then a timeout is generated and the error message "Timeout" is displayed on the start page instead of the external temperature value.

Active Nodes

After selecting a network node from the list "active nodes", information about the selected device is displayed.

```
   INFO CAN-Node  1
Vend.ID: 00 00 00 CB
Pr.Code: 00 00 10 0B
Rev.Nr.: 00 01 00 00
Des:     UVR1611
Load Menu
```
- selected node number

Vend.ID: Manufacturer identification number (CB for Technische Alternative GmbH)

Pr.Code: Product code of the selected node (here for a UVR1611)

Rev.Nr.:   Revision number

Des: Node product description

These data are fixed values specified by Technische Alternative GmbH and cannot be changed.

Load menu: This is used to access the menu level of the selected network node. The CAN monitor serves as a display for this device.

Note: Manual adjustment of a mixer is not possible from the CAN monitor.

MENU Data Administration (data transfer only for Bootloader BL-NET)

```
   DATA ADMINISTRATION

Current Funct. Data:
TA_WERKSEINSTELLUNG


Load Factory Setting


DATA <=> BOOTLOADER:
Upload Data:
CAN MON. => BOOTLD.
Download Data:
BOOTLD. => CAN MON.


OPER.SYSTEM<=BOOTLD.:
Download Oper.System:
BOOTLD. => CAN MON.
```

Name of the current function data in the CAN monitor

Version ≥ E2.00

Load Factory Setting

Calling up of the factory settings takes place as for the following commands by confirming the safety question YES / NO.
WARNING: This will delete your own function data and replace them with the factory setting.

Function data upload

The function data can be transferred via the CAN bus into the boot loader to act as a data backup.

```
CAN MON. => BOOTLD.

DATA SOURCE: CAN MON.


TARGET: Bootld.
Storage Point: 1


UPLOAD DATA
REALLY START?    no


CAN IR-Interface
Activate?       yes
```

Storage location for the function data in the Bootloader

Selecting `yes` changes the CAN monitor to transfer mode

Data transfer via the infrared interface **is not possible** with the CAN monitor.

If the CAN monitor is ready for data transfer, this is carried out by pressing the **START** button on the Bootloader.

Function data download

During a download, the function data stored in the Bootloader are transferred to the CAN monitor and in so doing the current configuration is overwritten.

```
BOOTLD. => CAN MON.
DATA SOURCE: Bootld.     Storage location for the function data in the Bootloader
Storage Point: 1


TARGET: CAN MON.


DOWNLOAD DATA            Selecting yes changes the CAN monitor to transfer mode
REALLY START?    no


CAN IR-Interface         Data transfer via the infrared interface is not possible with
Activate?       yes      the CAN monitor.
```

If the CAN monitor is ready for data transfer, this is carried out by pressing the **START** button on the Bootloader.

Operating System Download

Through its flash technology, the device provides the option of replacing its own operating system (device software) with a more up-to-date version (link to the download area of the address http://www.ta.co.at) with the aid of the Bootloader.

The importing of a new operating system is only advisable, if it contains new, required functions. Updating the operating system always has an associated risk (comparable with flashing a PC bios) and in all cases requires checking of all function data, as compatibility problems are to be expected due to new function components!

```
BOOTLD. => CAN MON.
DOWNL.OPERAT.SYSTEM
REALLY START ?   no      Start the download by pressing yes
                         and pressing the start key of the Bootloader
WARNING: Use
Cable Wiring


CAN IR-Interface         Data transfer via the infrared interface is not possible with
Activate?       yes      the CAN monitor.
```

If the CAN monitor is ready for data transfer, this is carried out by pressing the **START** button on the Bootloader.

Installing the device

Press the two left and right clamps and lift the cover. The control electronics are located in the cover.

Securely screw the casing tray to the wall using the supplied fastenings fitted through the two holes in the tray. Optimally mount with the opening arranged over an electrical outlet in the wall at approximately eye height (approx. 1.6 m).

Create the network connection, as described in the chapter "Cable selection and network topology" and then reinsert the cover in the casing tray.

Dimensions

in mm
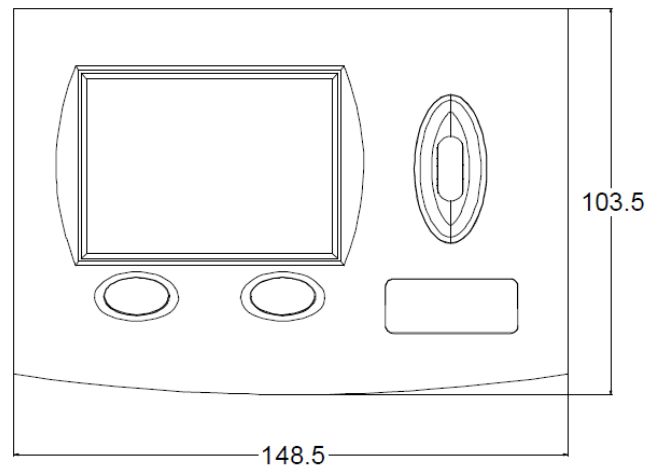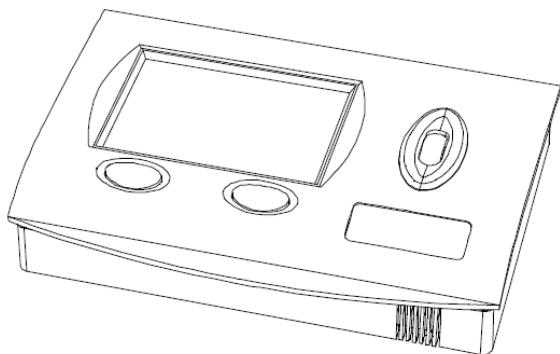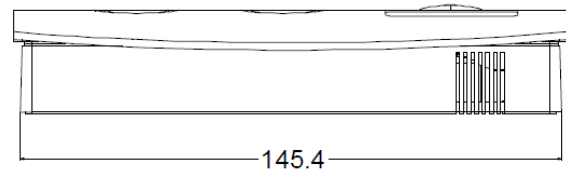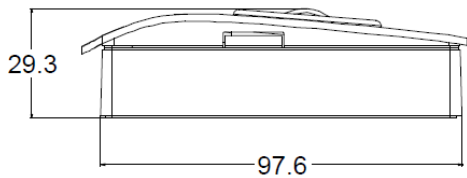
We reserve the right to make any technical changes © 2015

EU Declaration of conformity

Document- Nr. / Date: TA17011 / 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: CAN-MT, CAN-MT/F

Product brand: Technische Alternative RT GmbH

Product description: CAN Monitor

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

2014/35/EU	Low voltage standard
2014/30/EU	Electromagnetic compatibility
2011/65/EU	RoHS Restriction of the use of certain hazardous substances
2009/125/EC	Eco-design directive

Employed standards:

EN 60730-1: 2011	Automatic electrical controls for household and similar use – Part 1: General requirements
EN 61000-6-3: 2007 +A1: 2011 + AC2012	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
EN 61000-6-2: 2005 + AC2005	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - 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

$$\mathsf{C}\,\mathsf{E}$$

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

This declaration is submitted by

Schneider Andreas

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.

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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