CAN-I/O

Version A2.08 EN

CAN-I/O module

en

Manual

CAN-I/O 44 - four inputs, three relay outputs and one analogue output
CAN-I/O 35 - three inputs, three relay outputs and two analogue outputs

TECHNISCHE ALTERNATIVE

Contents

Safety requirements

All installation and wiring work on the CAN-I/O module 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 requirements and regulations listed below. When using the device, the legal and safety regulations apposite to the particular use are also to be observed.

Safe operation is not possible if the device

….has visible signs of damage,

….is not functioning,

….has been stored for a long period under unfavourable storage conditions.

If this is the case, deactivate the device 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). Harsh solvents such as chlorethenes or trichloroethylene are not admissible.

As the components relevant to accuracy are not subjected to loads if used properly, long-term deviation is very low. Therefore the device cannot be adjusted. Hence, no calibration is possible.

During repair, the constructive characteristics of the device must not be changed. Spare parts must correspond to the original parts and be used as intended.

System requirements for the UVR1611 Controller

At least version A2.21 must be loaded on controller UVR1611 for the use of the CAN I/O-module.

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.

Cables and network topology

The basics of bus cabling are likewise described in detail in the UVR16** manual. Hence only bus terminations are considered here.

Each CAN network must be provided with an 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!
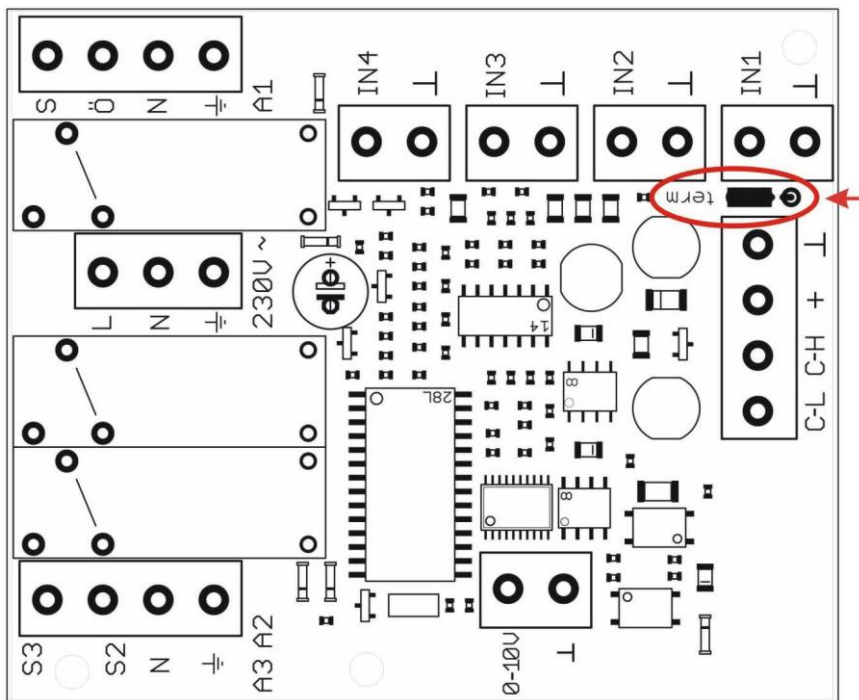
Termination CAN-Bus

Parameterisation

Parameterisation of the CAN I/O module takes place either via the UVR1611 controller, the CAN monitor, the C.M.I. or the software *F-Editor*. After incorporation of the CAN I/O module in the CAN bus network it appears with its node number (factory allocated: 32) in the Network menu as an "active node".

Access to the I/O module using the UVR1611 or CAN monitor

```
         MENU
─────────────────────────
Version
User
     :
Network                 ◄
```
Main menu of the UVR1611

Load the "Network" menu

```
        NETWORK
─────────────────────────
Node No.:            1
ENABLE:             ON
Autooperat.:       yes
     :
NETWORK NODES:          ◄
```

Load the "Network nodes" sub-menu

```
     NETWORK NODES
─────────────────────────
active Nodes:
     :
32 INFO?                ◄
```
List of all nodes active in the network

Select the nodes of the CAN-I/O module

```
    INFO CAN-NODE 32
─────────────────────────
Vend.ID: 00 00 00 CB
Pr.Code: 00 00 02 04
Rev.Nr.: 00 01 00 00
Des.:      CAN-I/O 44
Load menu page          ◄
```
- selected node number

Load the CAN-I/O module menu (only possible as an "expert")

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

Pr.Code: product code of the selected node (here for a I/O-module)

Rev.Nr.: Revision number

Des.: Node product description

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

Load menu page - access the CAN-I/O module menu level. The UVR1611 now serves as a display for the CAN-I/O module; an expert level user can change all device specific parameters and settings!

WARNING: Two devices cannot have the same node number (address) in a network! Consequently, if several CAN-I/O modules, which have the same node number (32), are linked together in a network, the devices must be connected sequentially. After the first I/O module has been connected to the CAN bus, it must be allocated a node number which does not equal 32 (see "Network" menu). Only then can the next module be connected to the network.

Main menu

MENU
Version
Function overview
Inputs
Switching outputs
Analogue outputs
Functions
Network
Data administration

Information about device software

Status display for the inputs and outputs

Input parameterisation

Switch output parameterisation

Parameterisation of the analogue outputs (0-10V or PWM)

Function parameterisation

CAN network settings

Data transfer using Bootloader (Version ≥ 2.00)

MENU Version

CAN-I/O 44
Operat. sys: A2.xxEN
Boot sector: B2.xx

Device software version number and language

Version number of the boot range

Operating system: Device software version number and language. 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 range. 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 Function Overview

This menu shows the current status of the CAN-I/O module inputs and outputs. This is a pure display page which has no adjustment options.

MENU Inputs

This menu is used for parameterisation of the CAN-I/O module inputs.

```
      INPUTS
1:  52,7 °C    PAR?
2:  23,4 °C    PAR?
3: unused      PAR?
4:   ON        PAR?
```

Input 2 is only available for CAN-I/O 44.

Input properties

Type / *Measured variable* / *Process variable*	**Input 1**	**Input 2** (only CAN-I/O 44)	**Input 3**	**Input 4**
Digital	X	X	X	X
Analogue *Meas. var.:* temperature (KTY, Pt1000, RASPT, RAS, thermocouple THEL)	X	X	X	
Analogue *Meas. var.:* solar radiation (GBS), humidity (RFS), rain (RES)	X	X	X	
Analogue *Meas. var.:* voltage 0-10V *Proc. var.:* dimensionless, temperature, solar radiation, voltage, current, resistance, flow rate, pressure	X	X		
Impulse *Meas. var.:* flow rate (VSG), wind speed, impulse			X	X

The technology of the inputs corresponds to that of the UVR16**, hence reference is made to the UVR16** manual (*Input parameterisation*) and a more detailed description is not given here.

WARNING: For CAN-I/O modules of type CAN-I/O 35, input 2 is not available. Rather, this device has a second analogue output (0-10V/PWM).

MENU Switching outputs

This menu is used for parameterisation of the CAN-I/O module switch (relay) outputs.

```
   SWITCHING OUTPUTS
─────────────────────────
1: Source: NETWORK
   DIG. NW INP.  1
   Status:     OFF


2: Source: MIXER


3: Source: MIXER
```

Source: Here there is a possibility of selecting between MAN., NETWORK and MIXER (only outputs 2 and 3).

           If NETWORK is selected as a source, the network input variable associated with the output is displayed.

           If MIXER is selected, the outputs are directly controlled from the CAN-I/O module integrated function "Mixer control".

Status: If the MAN. source is selected, the output status (ON / OFF) can be selected by the user.

           If NETWORK is selected, the current status of the output is displayed, which is indicated by the linked network input variable.

MENU Analogue outputs

The analogue output provides a voltage between 0 and 10V for performance control of modern burners (burner modulation) or for pump speed control. The scaling offers the possibility to adapt the arithmetic value to the control range of the downstream controller.

The output of the arithmetic value takes place optionally either as a voltage (0 to 10 V) or PWM (pulse width modulation) with a voltage level of around 12 V. In the latter case the duty cycle is changed at a constant cycle duration (2 ms/500Hz, scaling: 0 – 100%).

```
    ANALOGUE OUTPUTS
────────────────────────
1: Source: NETWORK
   Mode:   0-10V
   ANLG.NW INP. 1
   SCALING:
   Value:       4.72V


2: Source: PID CTRL1
   Mode: 0-10V
   SCALING:
   Value:       7.40V
```

Analogue output 2 is only available for CAN-I/O 35

Source: There is a choice between MAN., PID CTRL and NETWORK.

If NETWORK is selected as a source, the network input variable associated with the output is displayed.

If PID CTRL is selected, the output is directly controlled from the corresponding function "PID control", which is directly integrated in the CAN-I/O module.

Mode: Selection between 0-10V or PWM (pulse width modulation 0-100%)

Scaling: Adjustment of the input value to the output value

Example 0-10V:

```
     SCALING 1
────────────────────────
    0 ◄:   0,00 V
 1000  :  10,00 V
```

Value: With MAN. source selected, manual specification of the output voltage in the range 0.00 V to 10.00 V is possible.

If NETWORK or PID CTRL is selected, the current voltage of the output is displayed, which is indicated by the linked network input variable for function "PID-Control" and the scaling specified.

MENU Functions

This menu contains all function modules directly integrated in the CAN-I/O module and permits their parameterisation.

```
      FUNCTIONS
─────────────────────
MIXER CONTROL
PID CONTROL 1
PID CONTROL 2
```
PID controller 2 is only available for CAN-I/O 35

Function module Mixer control

```
     MIXER CONTROL
─────────────────────
INPUT VARIABLE:
OUTPUT VARIABLE:

MODE:        std
Runtime:   2.5 Min

CONTROL TEMP.:
Tctrl ACT:   51.1 °C
Tctrl SET:   50.0 °C
Differen.:    0.0 K

if ENABLE = off
MIXER:  close
```

The mixer closes as the temperature increases
Mixer overall running time (must be specified)

Current control temperature
Specified control nominal temperature
Additional offset from the nominal value

Selection: open, close, unchanged

The mode of operation of the mixer control is identical to that of the UVR16**, hence reference is made to the UVR16** manual (*Function module mixer control*) and a more detailed description is not given here. In contrast to the UVR16** with the CAN-I/O module, the linking of the functions with the outputs is fixed:

Mixer open: Output 2   Mixer closed: Output 3

WARNING: In the outputs menu, both outputs must be chosen for the MIXER mode!

WARNING: The control temperature (flow temperature Tctrl ACT) must be measured directly at an input of the CAN-I/O module! Transfer of the measurement via the CAN bus as a network input variable would not result in steady behaviour and therefore is not supported by the function.

Example of use: "Heating circuit control using the CAN-I/O module"

In the presented example, pump and mixer of a heating circuit are controlled using the CAN-I/O module. Consequently, the function module "Heating Circuit Control" in the UVR1611 controller transfers the switching signal (ON/OFF) to the CAN-I/O module using the network variable for the pump and the calculated flow nominal temperature.
The output for the heating circuit pump is switched at the CAN-I/O module directly from the corresponding network input variable. The mixer is controlled by means of the "Mixer control" function integrated in the CAN I/O module to attain the flow nominal temperature specified by the UVR1611. Transfer of the flow temperature measured by the CAN-I/O module to the UVR1611 serves solely for display of the instantaneous flow temperature in the function module "Heating Circuit Control" and therefore is not absolutely necessary.
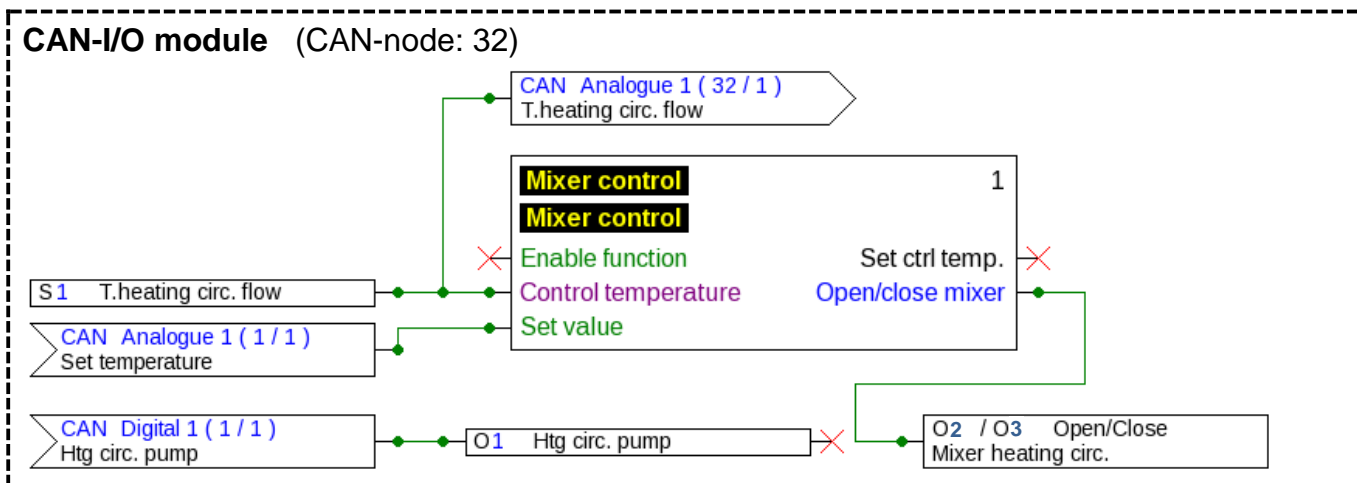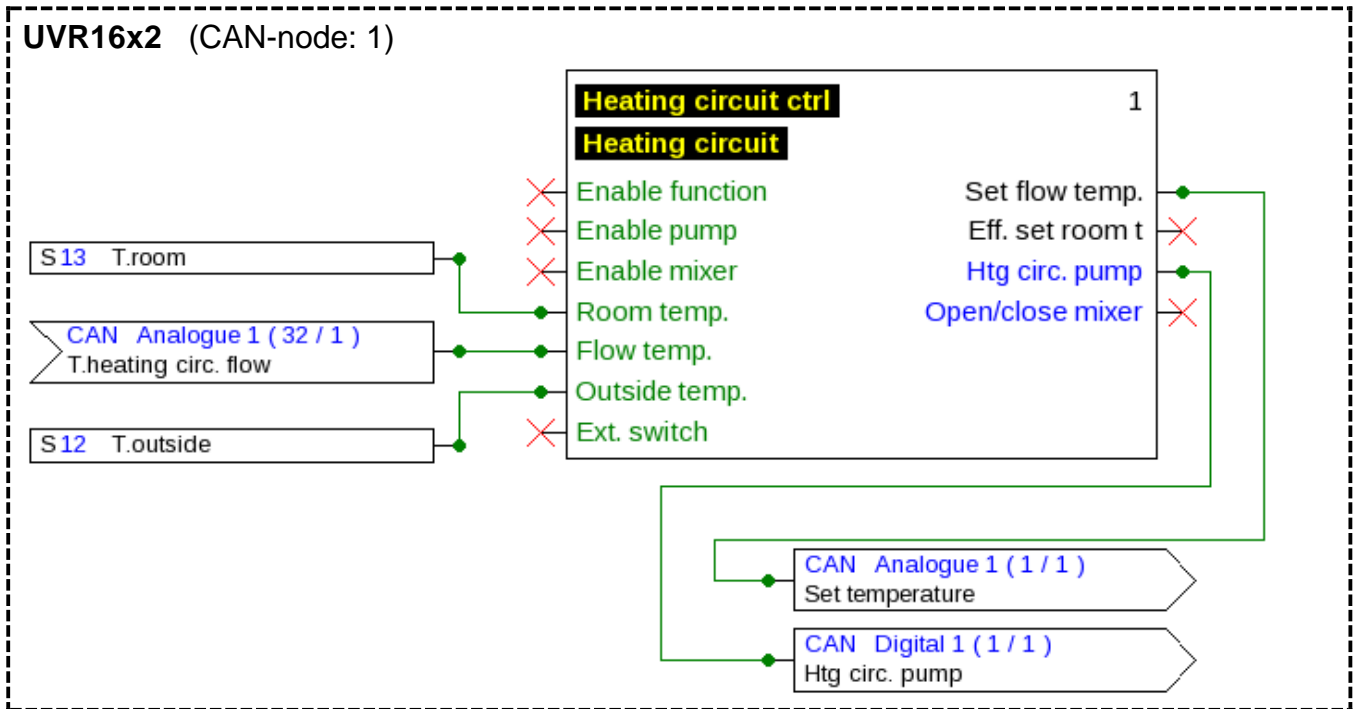
This graphic for the CAN-I/O module is only a schematic diagram. TAPPS2 can only be used to create configurations for the UVR16**. The configurations of CAN monitor and CAN I/O module can be made directly on the device itself or using the software *F-Editor*.

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Function module PID Control

The mode of operation of the PID control is identical to that of the UVR16**, hence reference is made to the UVR16** manual and a more detailed description is not given here.

As CAN-I/O modules of type CAN-I/O 35 have a second analogue output (0-10V) rather than the input 2, two function modules of type "PID controller" are also available to these devices.

WARNING: The control temperature sensors (input variable) must be directly connected to the CAN-I/O module! Transfer of this measurement via the CAN bus as a network input variable would not result in steady behaviour and therefore is not supported by the function.

WARNING: in the menu "analogue outputs", the function PID CTRL1 or PID CTRL 2 must be selected as the "Source" for the corresponding output.

```
     PID CONTROL 1
────────────────────────
INPUT VARIABLE:


OUTPUT VARIABLE:


ABSOLUTE VAL. CTRL:
DIFFERENTIAL CTRL:
EVENT CONTROL:
CORRECTVAR.:


CONTROL PARAMETER:
P: 5   I: 0   D: 0
```

To be parameterised as with the UVR16** (subdivided into further sub-menus)

Display of the current correcting variable

Sub-menu for absolute value control
Sub-menu for differential control
Sub-menu for event control
Specification of the control range

Menu **input variable**:

```
    INPUT VARIABLE
────────────────────────
ENABLE CONTROL:
Source: User
Status:  ON

ABSOLUTE VAL. CTRL:

DIFFERENTIAL CTRL:

EVENT CONTROL:
```

Selection: user, input 1-4, network digital 1-4

Sub-menu for absolute value control

Sub-menu for differential control

Sub-menu for event control

Sub-menu **input variable** absolute value control:

```
    ABSOLUTE VAL. CTRL
────────────────────────
TEMPERATURE
ABSOLUTE VAL. CTRL:
Source: Input 1

SET VALUE
ABSOLUTE VAL. CTRL:
Source: User
```

Selection: input 1-4

Selection: user, input 1-3, network analogue 1-4

Sub-menu **input variable** differential control:

```
   DIFFERENTIAL CTRL
TEMPERATURE (+)
DIFFERENTIAL CTRL:
Source: Input 1

TEMPERATURE (-)
DIFFERENTIAL CTRL:
Source: Input 1
```
Selection: input 1-4

Selection: input 1-4

Sub-menu **input variable** event control:

```
   EVENT CONTROL
ACTIVATION TEMP.
EVENT CONTROL:
Source: Input 1

ACTIVATION THRESHOLD
EVENT CONTROL:
Source: User

CONTROL TEMP.
EVENT CONTROL
Source: Input 1
SET VALUE
EVENT CONTROL
Source: User
```
Selection: input 1-4

Selection: user, input 1-3, network analogue 1-4

Selection: input 1-4

Selection: user, input 1-3, network analogue 1-4

Sub-menu for absolute value control:

```
  ABSOLUTE VAL. CTRL
MODE:       std
Tabs.ACT:   50.3 °C
Tabs.SET:   50 °C
```
Speed increases as temperature increases

Sub-menu for differential control:

```
  DIFFERENTIAL CTRL
MODE:        std
Tdiff+.ACT: 50.3 °C
Tdiff-.ACT: 42.7 °C
SET DIFF:    8.0 K
```
Speed increases with increasing difference

Sub-menu for event control:

```
  EVENT CONTROL
MODE:       off
COND.:  ACT > THRES
TactivACT:   48.1 °C
TactivTHR:   50 °C
Tctrl ACT:   50.3 °C
Tctrl SET:   40 °C
```
Event control deactivated

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Specification of the control range:

```
      CORRECTVAR.
maximum:          100
minimum:            0
current:           42
```

Maximum permitted output value
Minimum permitted output value
The value 42 is currently being output

MENU Network

```
       NETWORK
Node no.:        32
Node status


INPUT VARIABLE:
OUTPUT VARIABLE:
```

The device has network address 32 (factory setting).

Node No.: Each network device must be allocated a different address (node number 1--62)!

Node status: Shows an overview of the current states of the inputs and outputs of the CAN-I/O module, comparable with the function overview of the UVR1611. However this page is fixed and cannot be configured by the user.

Changing the device node number

If the node number is selected in the network menu, the following sub-menu appears for changing the device address:

```
CHANGE NODE NO.
Current no.:     32
New no.:         32  ◄


REALLY
CHANGE ?         no
```

The device has network address 32 (factory setting).
The new node number is selected here.

Adopt new node number

As the UVR16** controller or CAN monitor (client) has a fixed connection to the I/O module (server) via the set node number, changing the node number leads to this communication connection being cancelled. I.e. after the change command, the client displays the "Node number is changed". Then the client jumps back to the start page. The new node number can then be used to make a new connection to the I/O module.

Input variable

```
   INPUT VARIABLE
─────────────────────────
DIGITAL:    1   2   3   4

ANALG.:     1   2   3   4


Timeouts:
```
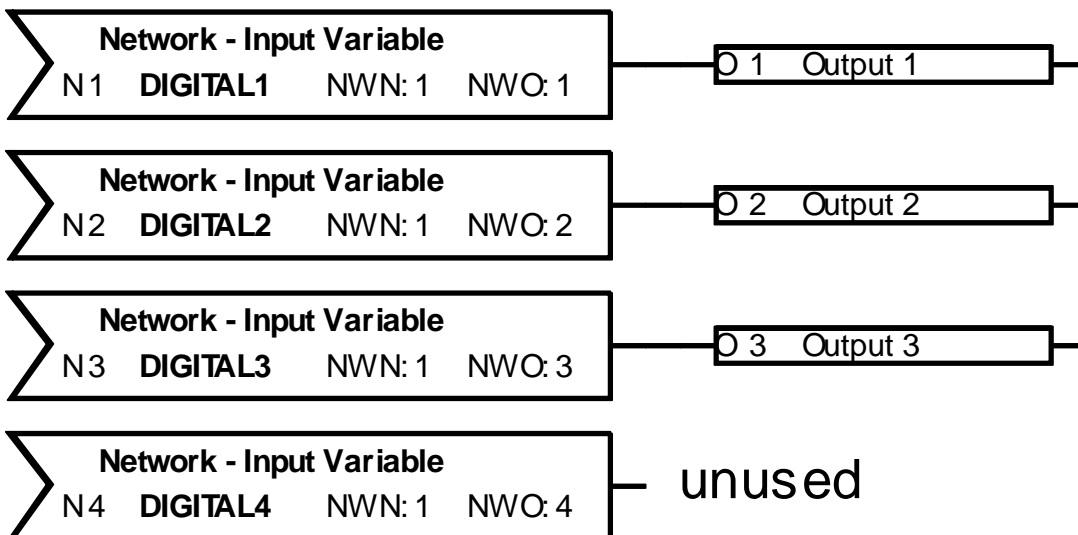
As the CAN-I/O module has only 3 switch outputs and one or two analogue outputs, the links (mapping) between network input variables and the outputs of the CAN-I/O module are fixed.

Only the transmission node and the corresponding output variables, via which the value is transferred, are necessary. Moreover, the timeouts can be set in this menu.

Network input links

(Schematic representation, parameterisation is not possible within TAPPS2)

Digital:

Network - Input Variable
N 1 **DIGITAL1** NWN: 1 NWO: 1 — O 1 Output 1

Network - Input Variable
N 2 **DIGITAL2** NWN: 1 NWO: 2 — O 2 Output 2

Network - Input Variable
N 3 **DIGITAL3** NWN: 1 NWO: 3 — O 3 Output 3

Network - Input Variable
N 4 **DIGITAL4** NWN: 1 NWO: 4 — unused

Analogue:

Network - Input Variable
N 17 **ANALOG1** NWN: 1 NWO: 1 — Analog - Output 1

Network - Input Variable
N 18 **ANALOG2** NWN: 1 NWO: 2 — Analog - Output 2 (only CAN-I/O 35)

Network - Input Variable
N 19 **ANALOG3** NWN: 1 NWO: 3 — unused

Network - Input Variable
N 20 **ANALOG4** NWN: 1 NWO: 4 — unused

Digital example:

```
 DIGITAL NETW. INPUT 1
─────────────────────────
NW.node:            1
dig.NW.outp.:       1
Status:           OFF
NW status          OK
```

Node number of the transmission node

Numbers of the output variables of the transmission node

Current status

Network status (display "Timeout" if the signal has not been received for longer than the set time.)

Parameterisation of the analogue network inputs takes place in the same way, rather than the "status", the value is displayed without the comma.

All network inputs designated as "unused" in the above graphic, are available for any links (e.g. for the release of a function or transfer of a nominal values). If outputs are not used by their allocated network input variables rather by a function integrated in the CAN-I/O module, the corresponding network variable can be used for other links.

Timeout: If the value of a network input variable is not received for longer than the set time, a timeout is generated and the corresponding **output is switched off!**

Output Variable

```
  OUTPUT VARIABLE
DIGITAL:  1  2  3  4
          5  6  7  8
ANALG.:   1  2  3  4
          5  6  7  8


Transmission cond.:
```
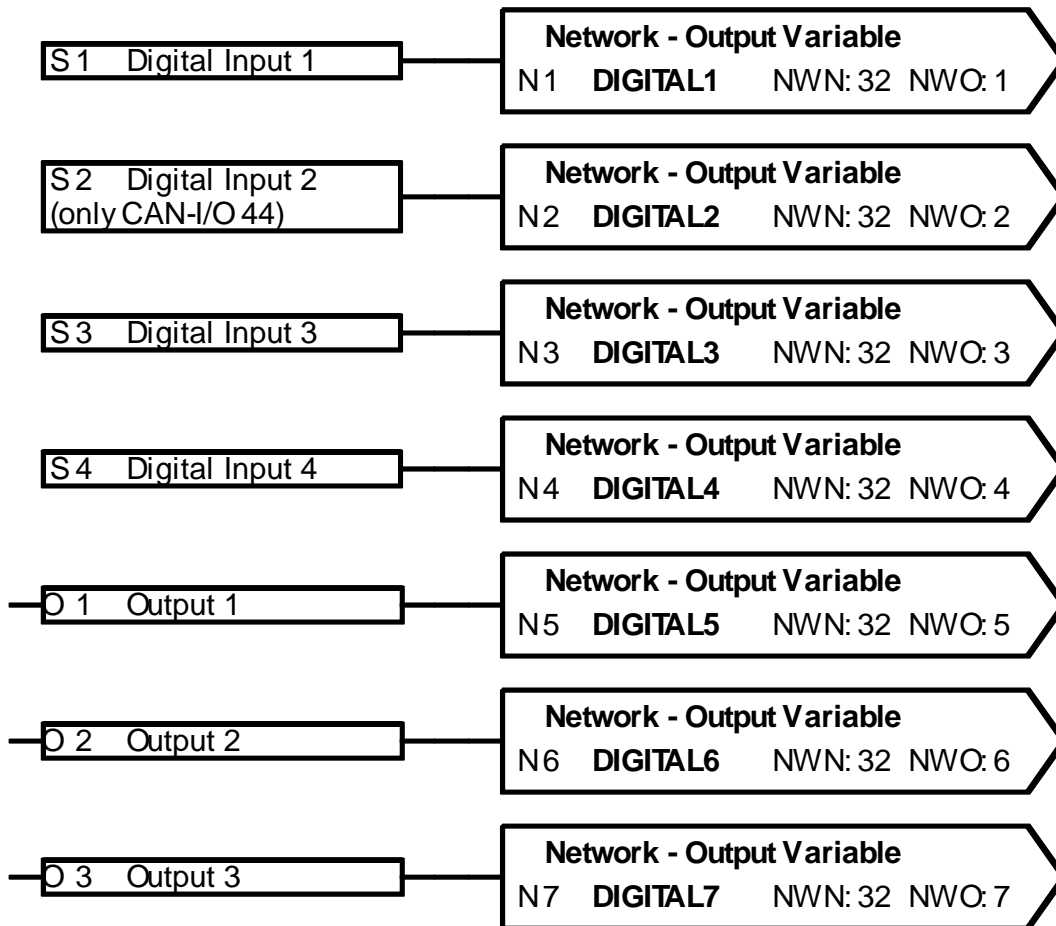
As the CAN-I/O module has only a maximum of four inputs, the links between network input variables and the inputs of the CAN-I/O module are fixed.
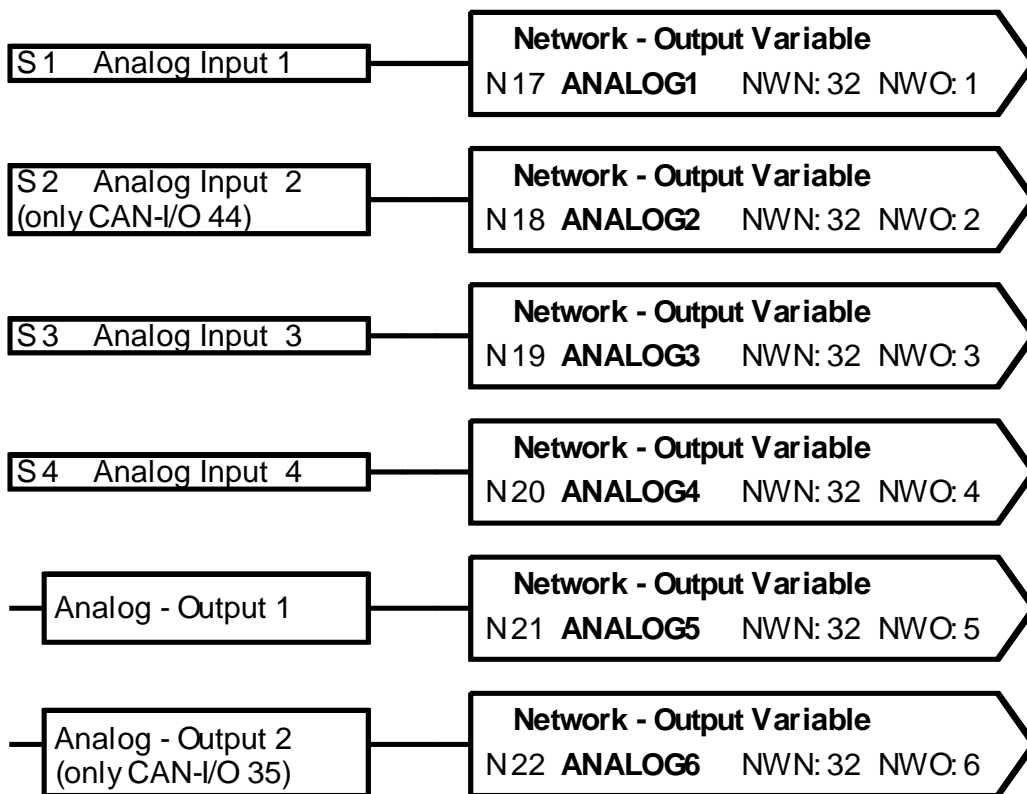Consequently only the transmission conditions can be set in this menu.

Network output links

(Schematic representation, parameterisation is not possible within TAPPS2)

Digital:

S 1 Digital Input 1	**Network - Output Variable** N 1 **DIGITAL1** NWN: 32 NWO: 1
S 2 Digital Input 2 (only CAN-I/O 44)	**Network - Output Variable** N 2 **DIGITAL2** NWN: 32 NWO: 2
S 3 Digital Input 3	**Network - Output Variable** N 3 **DIGITAL3** NWN: 32 NWO: 3
S 4 Digital Input 4	**Network - Output Variable** N 4 **DIGITAL4** NWN: 32 NWO: 4
O 1 Output 1	**Network - Output Variable** N 5 **DIGITAL5** NWN: 32 NWO: 5
O 2 Output 2	**Network - Output Variable** N 6 **DIGITAL6** NWN: 32 NWO: 6
O 3 Output 3	**Network - Output Variable** N 7 **DIGITAL7** NWN: 32 NWO: 7

Analogue:

S 1 Analog Input 1	**Network - Output Variable** N 17 **ANALOG1** NWN: 32 NWO: 1
S 2 Analog Input 2 (only CAN-I/O 44)	**Network - Output Variable** N 18 **ANALOG2** NWN: 32 NWO: 2
S 3 Analog Input 3	**Network - Output Variable** N 19 **ANALOG3** NWN: 32 NWO: 3
S 4 Analog Input 4	**Network - Output Variable** N 20 **ANALOG4** NWN: 32 NWO: 4
Analog - Output 1	**Network - Output Variable** N 21 **ANALOG5** NWN: 32 NWO: 5
Analog - Output 2 (only CAN-I/O 35)	**Network - Output Variable** N 22 **ANALOG6** NWN: 32 NWO: 6

Whether an input is linked with a digital or analogue network output variable depends on how the input itself is parameterised (type "digital" or "analogue").
The status or value of the outputs is likewise linked with network output variables and is therefore available to other devices in the network.
Warning: The input variable „Pulse" (Flow, Wind Speed, Pulse) is output as an analogue value.

Transmission conditions:

with change yes/no:	Transmission of a message if status is changed.
with change > 30:	If the last analogue value transmitted has been changed by more than 3.0 K, the date are transmitted again (= 30 because numbers are transmitted without a comma).
Block. time: 10 sec.:	If the value is changed within 10 seconds of the last transmission by more than 30, the value is not transmitted anew for another 10 seconds.
Interval time: 5 min.:	The value is transmitted every five minutes even if it has not changed by more than 30 (3.0K) since the last transmission.

MENU Data administration (only for Bootloader BL-NET)

Note: When using the C.M.I. interface, data management is performed using drag and drop in the C.M.I. menu.

```
   DATA ADMINISTRATION
─────────────────────────
current func. data:
TA FACTORY SETTINGS


Last transfer:
successful


DATA <=> BOOTLD.:   ◄
```

Name of the current function data in the CAN-I/O module

Status of the last data transfer

Sub-menu for the data transfer

Sub-menu Data <=> Bootloader

```
DATA <=> BOOTLOADER
─────────────────────────
Upload data:
I/O mod. => BOOTLD.
Download data:
BOOTLD. => I/O mod.


OPER.SYSTEM<=BOOTLD.:
Download oper.System:
BOOTLD. => I/O mod.
```

Function data upload

Function data download

Operating system update

After the CAN-I/O module has been prepared for the desired data transfer and the security prompt confirmed, the module is ready for communication (the cursor flashes on the right edge of the display). To carry out the data transfer, the START button must now be pressed on the Bootloader.

WARNING: During the data transfer the UVR1611, CAN monitor and the BL-NET cannot access the CAN-I/O module.
As the CAN-I/O module does not have its own display, the data transfer cannot be monitored. Whether the data transfer was successful or not can only be checked by next opening the menu Data Administration in the CAN-I/O module and checking the status of the last data transfer.

Function data upload

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

```
I/O mod. <=> BOOTLD.
DATA SOURCE:I/O mod.


DATA TARGET: Bootld.
Storage point:  1


REALLY START DATA
UPLOAD?     no
```

Storage location for the function data in the Bootloader

Selecting yes changes the I/O module to transfer mode

If the CAN-I/O module 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-I/O module and in so doing the current configuration is overwritten.

```
BOOTLD. <=> I/O mod.
DATA SOURCE: Bootld.
Storage point: 1


DATA TARGET: I/O mod.


REALLY START DATA
DOWNLOAD?     no
```

Storage location for the function data in the Bootloader

Selecting yes changes the I/O module to transfer mode

If the CAN-I/O module 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 is able to replace its own operating system (device software) with a more current version (obtain from the download area under the address http://www.ta.co.at) using the boot loader.

Importing a new operating system is only advisable, if it contains new, required functions. Updating the operating system always represents a risk (comparable with flashing the PC Bios) and requires an examination of all function data for compatibility problems, as these are to be expected due to new function components!

WARNING: CAN-I/O modules with an A1.xx operating system cannot be upgraded with an A2.xx version!

```
 BOOTLD. => I/O mod.

REALLY START OPERAT
SYSTEM DOWNL.?   no
```
Selecting yes changes the I/O module to transfer mode

If the CAN-I/O module is ready for data transfer, this is carried out by pressing the START button on the Bootloader.

WARNING: As operating system transfer cannot be monitored, the version of the current operating system can be checked in the Version menu of the CAN-I/O module after the update.

Installing the device

Screw the casing tray to the wall using the supplied fastenings fitted through the two holes provided.

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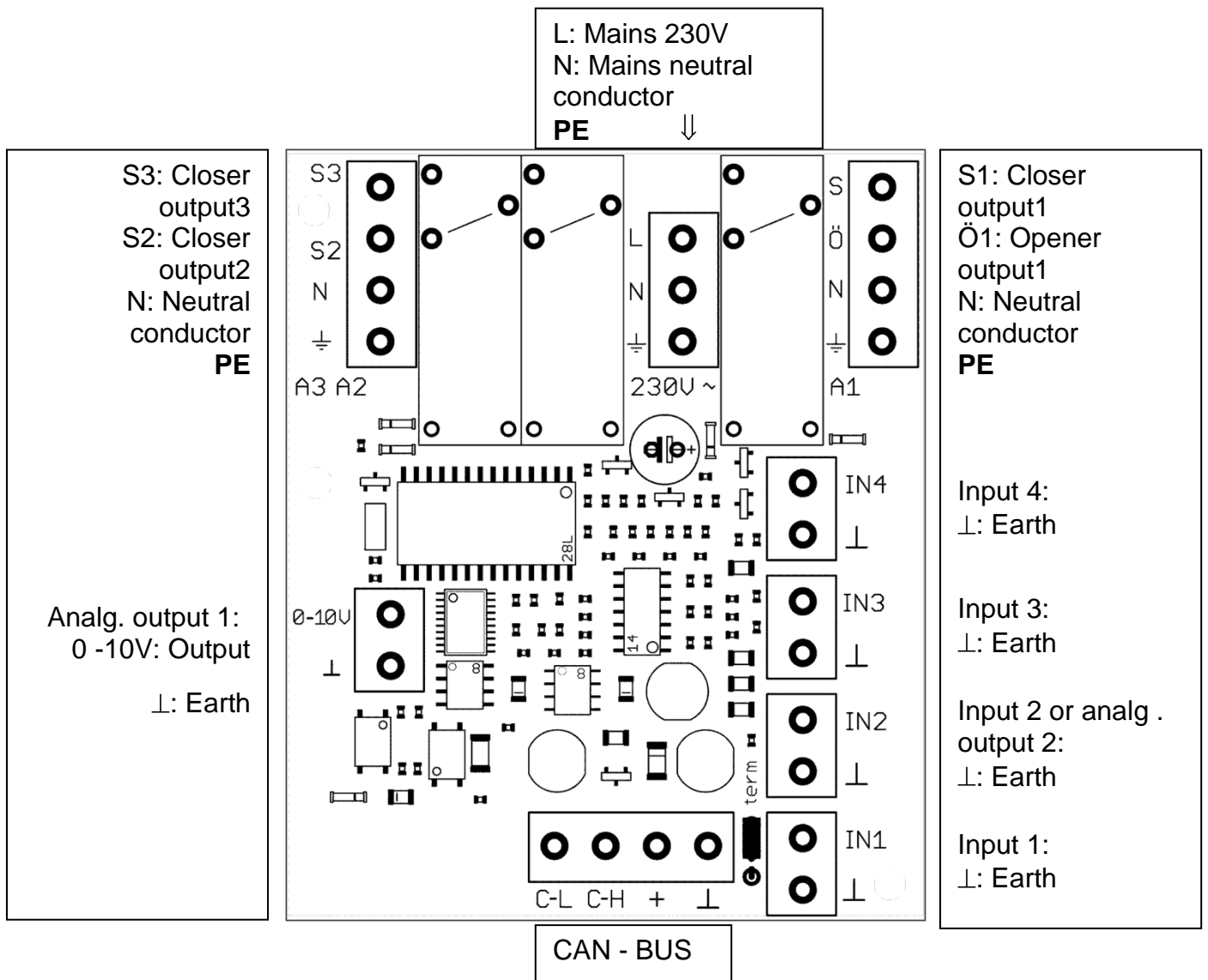
Electrical Connection

This should only be carried out by a qualified electrician in accordance with the relevant local guidelines. The sensor lines must not be laid in the same cable as the supply voltage (standard, regulations). In a commonly used cable channel, appropriate shielding has to be provided.

Notice: The system has to be grounded properly to protect it from damage due to lightening. Sensor failures due to storms and static electricity are usually the result of improper grounding.
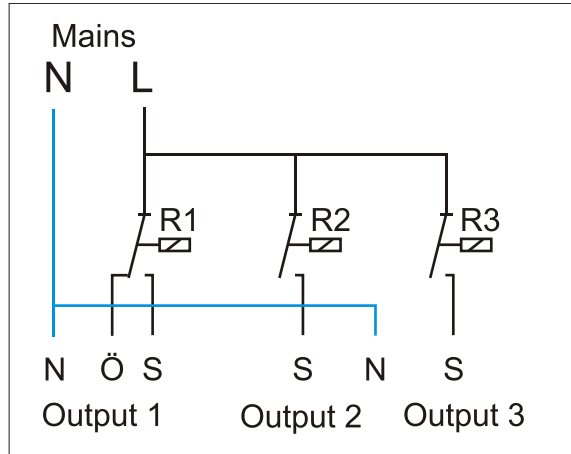
Cable channels for power and sensor lines may cause a disturbance in the sensor lines if they lie too close to each other over long stretches. If no fast signals (such as ultrafast sensors) are transmitted, these disturbances can be filtered out by averaging the sensor inputs. Nevertheless, a minimum distance of 10 cm is recommended between the cable channels.

Caution: Only work inside the console with the power cable disconnected. If you assemble the device with the power connected, the device may be damaged.

All sensors and pumps/valves must be connected as they are numbered in the design selected. For grade power, cross sections of 1 - 1.5² fine-strand are recommended except for the feed line. A cross-section of 0.75² is sufficient for the sensor lines.

L: Mains 230V
N: Mains neutral conductor
PE   ⇓

S3: Closer output3
S2: Closer output2
N: Neutral conductor
PE

Analg. output 1:
0 -10V: Output

⊥: Earth

S1: Closer output1
Ö1: Opener output1
N: Neutral conductor
PE

Input 4:
⊥: Earth

Input 3:
⊥: Earth

Input 2 or analg . output 2:
⊥: Earth

Input 1:
⊥: Earth

S3
S2
N
⊥
A3 A2

L
N
⊥
230V ~

S
Ö
N
⊥
A1

0-10V
⊥

IN4
⊥

IN3
⊥

IN2
⊥

IN1
⊥

C-L C-H + ⊥

CAN - BUS

Wiring diagram of switching outputs:

Technical data

All sensor inputs	Possible as digital input
Sensor input 1, 2, 3	Additionally for standard sensors of the type PT1000 and KTY (2 kΩ), thermocouple, humidity, rain, radiation and room sensor
Sensor input 1, 2	Additionally for control voltage (0-10 V DC) e.g. for electronic sensors
Sensor input 3, 4	Additionally as pulse input, e.g. for volume flow encoder
Output 1	Relay output, with opener and closer
Output 2, 3	Relay outputs, with closer
Analogue output 1, 2	Analogue outputs 0-10V / 20mA or PWM (12V / 500Hz)
CAN- Bus	Data rate 50 KB/sec
Temperature measurement	-50 to +199°C with a resolution of 0.1K
Accuracy	Typically 0.4, but max. +-1°C over the range 0 - 100°C
Max. breaking capacity	Relay outputs max. each 230/ 3A
Connection (for the relay outputs)	Max. 230V, 50- 60Hz, (outputs and devices not fused)
Power consumption	Max. 4 W
Permissible ambient temperature	-20 °C to +50°C
Protection	IP40
Dimensions	W / H / D = 127 / 76 / 46 mm

We reserve the right to make technical changes.   © 2017

EU Declaration of conformity

Document- Nr. / Date: TA17013 / 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-I/O35, CAN-I/O44

Product brand: Technische Alternative RT GmbH

Product description: CAN-I/O module

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

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

$$ C \in $$

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

This declaration is submitted by

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. A filled in "service advice note", which can be downloaded from our homepage www.ta.co.at, will accelerate processing. 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.

Technische Alternative RT GmbH   CE

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