... and everything is under control.

Over the last 30 years, we have established ourselves as the experts in control technology for the heating and solar sectors. During product development our driving aim has always been to provide effective tools for making efficient use of energy.

As of this year, our x2 series of devices will be able to distribute any surplus PV power within the building as required. For example, you can run specific household appliances such as a washing machine or dryer – or heating elements such as electric space heating or infrared panels in the bathroom or sauna. With ATON, we offer a straightforward plug & play solution for transferring the surplus to a buffer cylinder.

The aim is to achieve the highest and most efficient level of on-site electrical consumption possible – for both the private and the commercial sector.

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Support & Sales +43 (0)2862 53635
Mo - Th 7 am - 15 pm
Fr 7 am - 13 pm

List Prices do not include VAT. We reserve the right to make any technical changes.
The next logical step

We take pride in all that we have achieved over the last thirty years.

We began in 1988 by developing our own solar controller, more for private reasons than commercial ones as we could not find any decent solar controllers around — in terms of technology or price! What started out as a garage project became a limited company only one year later, in 1989. This was totally unforeseen and resulted from high levels of demand, particularly from self-build groups. Our devices were so sought after because they included a display screen, were easy to operate and reliable — and all accessories were included. In 1989, this was far from standard practice.

In the shape of the SLC64, we brought the first controller fitted with a processor onto the European market in 1992. It was possible, even at that stage, to select a suitable program to match a variety of schemes by inputting a number.

In 1993, we moved into the company’s premises (an empty detached house) and had to extend it for the first time. This was far from standard practice. In 1998, we extended for the first time, the largest to date, and in December production commenced in the new part of the building.

Coinciding with our 20th anniversary, in 2009 we moved into the second extension of our company offices. It provided more space for development, customer support, and a larger seminar room. Just a year later, we completed the next extension, the largest to date, and in December production commenced in the new part of the building.

With another extension following in 2013, we started supplying the UVR16x2 and C.M.I. at the end of 2014. The x2 series evolved from that with many extension modules, as well as the RSM610 as the “little sister” to the UVR16x2.

The next step

With PV systems proving increasingly popular and affordable electric cars and battery storage devices becoming available too, the smart management of electrical energy within buildings is becoming even more important.

With the launch of ATON, the associated function modules in the x2 devices and the new CAN energy meter 3, we are now facilitating precisely that — all thermal and electrical energy flows in a building can be centrally recorded and distributed.

With feed-in tariffs falling, it is in the interests of those who own PV systems to find good storage solutions for their surplus power. One option is power-to-heat. Being used more often on a wide scale in energy suppliers’ networks, our ATON solution comes to market for private and commercial use at TA’s typical exceptionally fair price.

With thanks

None of this would have been possible without the loyalty of our customers and their constructive feedback. We thank them, our partners and everyone who has accompanied us on this journey, and look forward to the exciting years ahead.
**ANS21**

Single circuit solar controller

Charging pump controller

The ANS21 or ANS21-L unit is a solar controller which has been kept deliberately simple when it comes to installation and operation. Both, the collector and the tank temperature, are indicated using light bars.

- Adjustable differential temperature
- Overtemperature protection for the tank or minimum threshold for boiler
- Separate display for generator and tank temperature
- Collector overtemperature switch-off
- Sensor short circuit and open circuit detection
- Switching between solar and load pump function is possible regardless of the front diagram.

**Inputs and Outputs**

- 2 inputs
- 1 relay output

---

**SBR22**

Swimming pool controller

Controller SBR22 is a differential controller for the solar charging of swimming pools. The two outputs allow controlling a changeover valve and the swimming pool pump.

- Adjustable differential temperature
- Separate display for generator and pool temperature
- Collector overtemperature switch-off
- Sensor short circuit and open circuit detection

**Inputs and outputs**

- 2 inputs
- 2 relay outputs

---

**ESR21**

Simple solar controller

ESR with graphical display

The ESR21 or ESR31 unit is a multi-purpose differential controller. The graphical display of ESR31 simplifies program selection and shows the position of the sensors in the hydraulic diagram. Additional information can be read in via the DL bus. Thus, in parallel to the controller operation (solar system) it is also possible to calculate the yield (thermal energy).

The range of use extends from the single circuit solar system through to sanitary water treatment by way of pump speed control.

- 17 different programs can be set
- Clear display with hydraulic diagrams (ESR31)
- Status display for system malfunctions
- Solar start function, frost protection function
- Pump blocking if a collector overtemperature exists
- System function control
- Heat meters
- DL bus for data evaluation on the PC via C.M.I. and for connection of external sensors
- Speed control of high efficiency pumps via control output PWM / 0-10 V
- Speed control of standard pumps: ESR21-D, ESR31-D

**Inputs, outputs and interfaces**

- 3 inputs
- 1 relay or triac output
- Interface: DL bus

**Accessories**

- Relay module HIREL-STAG to connect to a 0-10V control output for special applications (e.g. error message, burner requirement).

---

**Dimensions in mm (W x H x D):**

- ANS21: 126.8 x 76.5 x 45.5
- SBR22: 126.8 x 76.5 x 45.5
- ESR21: 223.8 x 148.7 x 45.5

---

**Scope of delivery**

<table>
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**ESR21**

Simple solar controller

ESR with graphical display

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<td>01/HIREL-STAG</td>
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---

**Inputs and Outputs**

- 2 inputs
- 2 relay outputs

---

**Inputs and Outputs**

- 2 inputs
- 1 control output: PWM / 0-10V
- Interface: DL bus

---

**Dimensions in mm**

- Single circuit controller: 126.8 x 76.5 x 45.5
- Swimming pool controller: 126.8 x 76.5 x 45.5
- Simple solar controller: 223.8 x 148.7 x 45.5
Universal controller Universal controller Universal controller

**UVR67**
Universal controller

**UVR67-H / UVR67-HU**
Universal heating controller

**UVR67-GT**
Universal heating controller for drying of buildings

Universal controller with more than 800 adjustable programs. Data-logging and function data transfer options using SD card or CAN bus.

The UVR67 universal controller features various thermostatic, differential temperature, speed control and heating circuit control functions for use in solar thermal and heating systems. The required control function is called up by entering the relevant program number.

- Intuitive operation via setting dial
- Status display for system malfunctions
- Pasteurisation function, pump anti-seizing protection
- Collector cooling function, collector overtemperature limitation
- Checking system functions
- 3 heat meters
- Time, date
- 5 freely programmable time programs
- DL bus and CAN bus for data evaluation via C.M.I. and for connecting external sensors
- Remote access using CAN bus via CMI, UVR16x2 and CAN-MTx2
- Transmission of function data via Micro SD-card or CAN bus
- Speed control of high efficiency pumps via 2 control outputs PWM / 0-10 V
- Output 3 can be configured as potential-free

**SUCCESSOR OF UVR65**

The UVR67 is the successor to the UVR65 and represents a progression in development. It has two further relay outputs, which means that the HIREL22 that was needed for some programs is no longer necessary. By popular request, the packages with room sensor are now supplied with the RAS+DL instead of the RASPT.

If replacing an installed UVR65 with a UVR67, please take note of the modified wiring diagram. Function data from UVR65 can be used with the UVR67.

**Inputs, outputs and interfaces**

- **6 inputs of the types:**
  - PT1000, KTY(2kΩ), room sensor, radiation sensor
  - Input 6 additional pulse input for flow rate transducer (pulses max. 20 Hz) and wind sensor

- **7 outputs of the types:**
  - 5 relay outputs
  - 2 multi-function outputs: PWM / 0-10 V

- **Interfaces:**
  - DL bus
  - CAN bus
  - Micro SD card

**Accessories**

- Room sensor RASPT, RAS+DL (see page 28)
- C.M.I. Control and Monitoring Interface (see page 25)

**Sample programs**

Program 80. Simple solar system and cylinder charge from a boiler
Program 96. Buffer and hot water cylinder charging via solid fuel boiler
Program 160. Insertion of two boilers into a heating system
Program 176. Solar system with 2 consumers and charging pump functionality
Program 224. Solar system with 3 consumers
Program 336. Solar system with 2 consumers and layered cylinder charging
Program 416. 1 consumer, 2 charging pumps and burner request
Program 432. Solar system, burner request, and one charging pump
Program 448. Burner request and 2 charging pumps
Program 480. 2 consumers and 3 charging pump functions
Program 624. Solar system with one consumer and swimming pool
Program 691. Room drying & comfort ventilation, minimal temp. monitoring for both
Program 692. Room drying, room temp. monitoring, comfort ventilation, for wine cellars
Program 800. Heating circuit with up to 2 heat sources
Program 816. Boiler circuit pump, mixer for return flow boosting
Program 832. Solid fuel burner, buffer cylinder, heating circuit, additional heating req.
Program 928. Buffer, Cylinder, Heating circuit, boiler request
Program 944. Solid fuel boiler, buffer, cylinder, heating circuit
Program 960. Boiler (or buffer), cylinder, 1 regulated & 1 unregulated heating circuit
Program 976. Screed drying

**Dimensions housing mm (W x H x D):**
150 x 100 x 48.7

**Scope of delivery**

<table>
<thead>
<tr>
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<th>01/UVR67-3</th>
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**Price in Euro**

| 168.00 | 204.00 | 219.00 | 237.00 | 237.00 | 269.00 |

**IMPORTANT**

If replacing an installed UVR65 with a UVR67, please take note of the modified wiring diagram. Function data from UVR65 can be used with the UVR67.
### Everything under control with x2 series of devices

The x2 series is the brain behind all building services. All energy sources, stores and consumers are monitored and “distributed” around the building by means of its programming.

It allows you to control all building services – from heating and cooling, through to ventilation or domestic hot water heating – regardless of make or manufacturer. You also have extensive options available to you for effective energy and load management.

### Usefully optimise on-site consumption of PV energy

Thanks to new functions for the management of electrical energy, it is possible to switch on certain components in a targeted way. From the washing machine to electric space heating and infrared panels, from activating ventilation units, air conditioners or a heat pump on demand, the possibilities are endless.
Intelligently control and manage building services

Practically unlimited opportunities

Heating, cooling, ventilation, air conditioning, shading, lighting and solar thermal: now you can take advantage of energy management to optimise on-site consumption from a photovoltaic system, as well as to achieve effective load management.

It is possible to integrate practically all components – from a hydraulic valve to a heat pump, wall mounted gas boiler, combined heat and power unit or an electric charging station.

Comprehensive online help

To make it easier to work with our freely programmable devices, in 2018 we updated our wiki at https://wiki.ta.co.at. Here you will find everything you need to know about how the x2 works, all programs and some helpful step-by-step instructions.

Video guides are available on our Youtube Channel at www.ta.co.at/youtube. We are constantly adding new videos on specific topics and issues.

Seminars

Time is money. And although programming our controllers is actually not rocket science, our seminars enable you to adopt the optimum method of working right from the start.

We hold around 20 seminars a year in Austria and Germany, only available in German. For current dates and prices, go to www.ta.co.at/seminare

TAPPS2 programming interface

Programming and simulation of all x2 devices

The free TAPPS2 software is a graphical interface for programming all x2 devices. You select the required functions, define the chosen inputs and outputs, and transfer your finished program to the device.

The relevant device can be programmed with more than 40 functions, (e.g. heating circuit control, PID control, mathematics function or energy manager) and simulated via a computer using the x2-Simulator software.

Visualisation

Every system and every customer is different

This is why we provide TA-Designer, a simple program which enables you to create a suitable interface for your customers for a specific user interface (CAN monitor, tablet, smartphone, PC).

Create templates to save time and to standardise your design for all customers.

Ready-to-use programs

Our website features schematics for about 30 different systems, readily programmed. Visualisations, a bill of materials, manuals and terminal diagrams are included.

Prices and downloads at www.ta.co.at/en/download/x2-programmbibliothek
UVR16x2

Freely programmable universal controller

UVR16x2K / UVR16x2S

The UVR16x2 device provides numerous control options for heating and building management through more than 40 different function modules that can be combined as required. Linking up to 128 functions leaves the programmer with virtually no limits.

A 4.3” touch display serves as user interface. A graphical overview of the important control parameters (e.g. heating times, hot water target temperature etc.) can be defined for convenient system operation.

In combination with the interface C.M.I., system operation and monitoring as well as interactive visualisation via smart phone, tablet or PC is possible. With various accessory devices, control inputs and outputs can be expanded, energy be metered and data exchanged with a KNX/EIB bus network.

The UVR16x2 can be programmed either directly on the controller with the 4.3” touch display or with the free software TAPPS2. The programming generated on the PC is transmitted to the control easily with the SD card or C.M.I.

Each mounting base has one slot available for the HIREL-230V and two for the HIREL-PF. HIREL22 is suitable too.

UVR16x2 DC

UVR16x2K-DC / UVR16x2S-DC

Instead of the 24 V output, there is an input here for a 24 V DC supply. The original mains voltage input can accommodate any potential between 0 and 230 V DC or AC to supply the relays.

Accessories

- Relay module HIREL-230V (see page 37)
- Relay module HIREL-PF (see page 37)
- Relay module HIREL22 (see page 37)
- Surge protection for CAN bus CAN-UES (see page 38)
- Surge protection for CAN bus CAN-UES2 (see page 38)

Inputs, outputs and interfaces

16 inputs of the types:
- PT1000, KTY(1kΩ, 2kΩ), PT100, PT500, Ni1000/TK3000, Ni1000, NTC, room sensor, radiation sensor, humidity sensor, rain sensor
- Max. pulse 10 Hz
- Voltage up to 3.3V
- Resistance 1-100kΩ, digital
- Inputs 7, 8: 2 x 0-10V, 1 x 4-20mA
- Inputs 15, 16: 2 x pulse 20 Hz

16 outputs of the types:
- 11 relay outputs
- 5 multi-function outputs, optionally 0-10V, PWM, relay (with HIREL-230V, HIREL-PF or HIREL22 relay module)
- 24 V output (e.g. for actuators)

Interfaces:
- DL bus for connection of external DL sensors
- CAN bus: for communication with CAN bus devices
- SD card

Sensor packages

Prefabricated basic as well as complementary sensor packages. GP3PT corresponds to the sample program “Factory settings”. GP4PT is optimized for RSM610. (see page 19).

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</table>

Price in Euro

|                | 114.00  | 134.00  | 195.00  | 68.50  | 81.00  |

Our proprietary x2tech operating system was also developed with and for the UVR16x2.

The DL bus is a bidirectional bus system developed in-house. Each DL bus system can only ever have one DL master (e.g. UVR16x2), but several DL slaves (e.g. different sensors).

Versions with triac outputs, useable for e.g. speed control of older asynchronous pumps, are available on request.
UVR16x2E-DE

Power unit with processor module

Like UVR16x2K, but board version with separate control unit for switch cabinet installation. Operating system, operation, function data and data transfer via SD card are also compatible with UVR16x2.

The included 700 mm ribbon cable is provided for the connection board and control unit.

- Separate fuse for outputs 12 - 14
- 24V power supply for industrial sensors and actuators (max. 6W)
- Connection and recognition of a safety temperature limiter
- Inputs and outputs have separate connections
- Different plug systems prevent plugging errors between mains and low voltage protector
- Two optional current sensors possible (UVR16x2E-DE-I)

Inputs, outputs and interfaces

- 16 inputs of the types:
  - PT1000, KTY(1kΩ, 2kΩ), PT100, PT500, Ni1000, NTC, room sensor, radiation sensor, humidity sensor, rain sensor
  - Max. pulse 10 Hz
  - Voltage up to 3.3V
  - Resistance 1-100kΩ, digital
  - Inputs 7, 8: 2 x 0-10V, 1 x 4-20mA
  - Inputs 15, 16: 2 x pulse 20 Hz

- 16 outputs of the types:
  - 11 relay outputs
  - 3 multi-function outputs with integrated relay (switchable 0-10V/250/relay with jumper)
  - 2 multi-function outputs, optionally 0-10V, PWM, relay (with relay module HIREL-230V, HIREL-PF or HIREL22)
  - 24 V output (e.g. for actuators)

Interfaces:

- DL bus
- CAN bus
- SD card

UVR16x2E-NP

Power unit with processor module

Similar to the UVR16x2E-DE, with identical performance characteristics but with an integrated processor module without control unit. A system with several UVR16x2E-NP’s can be operated and visualised with a single operator unit (e.g. CAN-MTx2 or interface C.M.I.) but also with a UVR16x2. The TAPPS2 programming files can be transferred via Micro SD card or the control and monitoring interface C.M.I.

Two optional current sensors are possible (UVR16x2E-NP-I)

UVR16x2S-DE

Power unit with externalized control unit

The control unit sits on a top-hat rail in the control panel, for straightforward and professional installation. Operation is convenient using the programming unit built into the control panel door; as usual, the programming unit can display a system visualisation.

<table>
<thead>
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</table>
**Konsole UVR16x2**

Wall mounting console

Comprising terminal mounting plate and housing. The console has a total of six assembly positions for various auxiliary modules (relay module, var. bus adapters, board of the radio receiver RCV-DL and the like).

Both parts can also be ordered separately.

<table>
<thead>
<tr>
<th>Art. no.</th>
<th>Price in Euro</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/KONSOLE UVR16x2</td>
<td>68.00</td>
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<td>01/GEHÆUSE-KONSOLE UVR16x2</td>
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<td>01/KLEMMPLATTE UVR16x2</td>
<td>43.50</td>
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---

**EWS16x2**

Development set

Controller UVR16x2 with development environment SIM-BOARD16x2 for the testing of function data, simulation of 16 PT1000 sensors as well as digital signals on inputs 15 and 16 directly on the console. Rear connection option for CAN and DL bus. CAN bus cable enclosed.

Assembly of the UVR16x2K controller from the development set requires a console (01/KONSOLE UVR16x2).

---

**SIM-BOARD16x2**

Simulation board

In combination with a UVR16x2 controller for simulating the generated program.

---

**RSM610**

Control module

The RSM610 freely programmable control module has the same technology as the UVR16x2 controller. It can be used as an extension for the UVR16x2 and UVR1611 controllers or as an independent device.

The module is programmed using the TAPPS2 software. All the function modules of the UVR16x2 controller are available in a maximum program configuration of 44 functions. The RSM610 can be operated via the UVR16x2 controller, via CAN-MTx2 or via the C.M.I. interface. These devices are likewise used to transfer function data and to update the firmware.

- Own power supply via integral power supply unit
- Simple installation by dividing into controller section and connecting base, suitable for top-hat rail installation
- Special versions with 24 V output and/or M-Bus interface are available on request

For convenient transfer of function data, the SK-RSM mounting base is available with 230 V and CAN connections.

**Accessories**

- Sensor packages (see page 15)

**Inputs, outputs and interfaces**

- 6 inputs of the types:
  - PT1000, KTY(1kΩ, 2kΩ), PT100, Ni1000/5000, Ni1000, NTC, room sensor, radiation sensor, humidity sensor, rain sensor,
  - Max. pulse 10 Hz
  - Voltage up to 3.3V
  - Resistance 1-100kΩ, digital
  - Inputs 4, 5: 0-10V
  - Input 6: pulses max. 20 Hz (S0 pulses)
- 10 outputs of the types:
  - 6 relay outputs, one of which can be potential-free changeover contact
  - Multi-function outputs, optionally 0-10V, PWM, relay (e.g. with HIREL22 see page 37)

**Interfaces**

- DL bus
- CAN bus

**Recommendation**

- Control unit with 4.3” touchscreen (CAN-MTx2, see page 20)

---

<table>
<thead>
<tr>
<th>Art. no.</th>
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<tbody>
<tr>
<td>01/EWS16x2</td>
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<td>01/SIM-BARD16x2</td>
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<tr>
<td>01/RSM610</td>
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<tr>
<td>01/RSM610/MB</td>
<td>181.00 with M-Bus including power cable</td>
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<tr>
<td>01/RSM610/MB24</td>
<td>181.00 with M-Bus and 24V output including power</td>
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<tr>
<td>01/SK-RSM</td>
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---

**RSM610**

Control module

The RSM610 freely programmable control module has the same technology as the UVR16x2 controller. It can be used as an extension for the UVR16x2 and UVR1611 controllers or as an independent device.

The module is programmed using the TAPPS2 software. All the function modules of the UVR16x2 controller are available in a maximum program configuration of 44 functions. The RSM610 can be operated via the UVR16x2 controller, via CAN-MTx2 or via the C.M.I. interface. These devices are likewise used to transfer function data and to update the firmware.

- Own power supply via integral power supply unit
- Simple installation by dividing into controller section and connecting base, suitable for top-hat rail installation
- Special versions with 24 V output and/or M-Bus interface are available on request

For convenient transfer of function data, the SK-RSM mounting base is available with 230 V and CAN connections.

**Accessories**

- Sensor packages (see page 15)

**Inputs, outputs and interfaces**

- 6 inputs of the types:
  - PT1000, KTY(1kΩ, 2kΩ), PT100, Ni1000/5000, Ni1000, NTC, room sensor, radiation sensor, humidity sensor, rain sensor,
  - Max. pulse 10 Hz
  - Voltage up to 3.3V
  - Resistance 1-100kΩ, digital
  - Inputs 4, 5: 0-10V
  - Input 6: pulses max. 20 Hz (S0 pulses)
- 10 outputs of the types:
  - 6 relay outputs, one of which can be potential-free changeover contact
  - Multi-function outputs, optionally 0-10V, PWM, relay (e.g. with HIREL22 see page 37)

**Interfaces**

- DL bus
- CAN bus

**Recommendation**

- Control unit with 4.3” touchscreen (CAN-MTx2, see page 20)
The CAN-MTx2 with its 4.3” touchscreen is a control and display unit for the freely programmable universal controllers UVR16x2, RSM610 and all x2-compatible devices. It uses the same operating concept as the UVR16x2 controller and features a sensor unit for room temperature, humidity and air pressure.

In CAN networks, it is possible both for multiple CAN-MTx2 devices to access one controller and for one CAN-MTx2 device to access multiple controllers. The TA-Designer software can be used to design screen pages as a supplement to the operating menus, which are then transferred into the device by means of an SD card.

» Housing in white (WT) and black (BK) available.

CAN-MTx2-CO2: Also with integral CO2 sensor to capture the indoor air quality.

**Interfaces**

- CAN bus
- SD card

### Art. no. | Price in Euro
---|---
01/CAN-MTx2-WT | 179.00 housing white
01/CAN-MTx2-BK | 179.00 housing black
01/CAN-MTx2-CO2-WT | 279.00 integral CO2 Sensor
01/CAN-MTx2-CO2-BK | 279.00 integral CO2 Sensor

**The perfect duo**

RSM610 with CAN-MTx2 programming unit

The UVR16x2 is too complex for some smaller projects. For such cases, we offer an inexpensive alternative. „The perfect duo“ comprises the RSM610 and CAN-MTx2. This combo gives you access to the functionality and operating concept of the UVR16x2, as well as peace of mind when it comes to future extensions.

**CAN-MTx2**

CAN-MTx2-WT

CAN-MTx2 can monitor and control your UVR16x2, RSM610, and other x2-compatible devices. It features a 4.3” touchscreen and has a sensor unit for room temperature, humidity, and air pressure.

**CAN-MTx2-CO2**

CAN-MTx2-CO2 with an integral CO2 sensor provides accurate indoor air quality monitoring.

**CAN-TOUCH**

CAN-TOUCH with CAN-TOUCH/TFS

The CAN-TOUCH is a 9.7” LCD monitor with a touch-sensitive surface, offering a display and operating interface for freely programmable controllers. It allows you to define as many pages as needed for system operation.

**CT-TFS**

CT-TFS, an integral sensor module, measures room temperature, humidity, and dew point.

**Scope of delivery**

- Touch screen for wall mounting with CAN power pack, SD card (including parameterisation software), and operating pen.

**Interfaces**

- CAN bus
- SD card

**Art. no. | Price in Euro**
---|---
01/CAN-TOUCH-BK | 369.00 housing black
01/CAN-TOUCH-SI | 369.00 housing silver
01/CAN-TOUGH/TFS-BK | 407.00 integral sensor module CT-TFS
01/CAN-TOUGH/TFS-SI | 407.00 integral sensor module CT-TFS
01/CT-TFS | 44.00 sensor module
CAN energy meter 2
CAN-EZ2/C / CAN-EZ2/E

The CAN energy meter captures electrical and thermal energy flows and sends a series of measurements to the CAN bus. The electrical measuring device captures the current, voltage, cos(phi), and the reactive, real and apparent power of all three phases (individually and in total). It is possible to realize several heat meters. The module is programmed using the TAPPS2 software.

- Max. 3.3 kVA per phase, resolution 2 VA
- CAN-EZ2/E-30: max. 10 kVA per phase, 4 VA

Suitable for:
- General measurement of energy flows
- Energy monitoring – monitoring of the consumption of any electrical devices
- Calculation of the performance factor of heat pumps
- Load management for photovoltaic systems in connection with CAN bus controllers

CAN-EZ2/C
With integral current sensors to measure electrical energy by looping through all conductors.

CAN-EZ2/E
External clip-on current sensors allow quick change of the measured conductor. Voltage measurement inputs are integrated for all three phases. Connecting the first phase only is sufficient for a less precise measurement. A supply bridge to the CAN electronics is sufficient to measure the apparent power.

CAN-EZ2/E-30
Same as CAN-EZ2/E but with measuring range up to 30 kVA

Inputs and interfaces
- 6 inputs
  - 4 analogue inputs
  - 2 pulse inputs
- Interfaces
  - DL bus
  - CAN bus

Sensor packages for heat metering
Pre-assembled sensor packages for heat metering incl. 2 m ribbon cable for CAN-EZ2 energy meters.

Scope of delivery | 01/EZ4-50 | 01/EZ5-85
--- | --- | ---
FTS4-50 | 1 | volume flow sensor FTS (see page 36)
FTS5-85 | 1 | volume flow sensor FTS (see page 36)
MSP60 | 1 | ultra-fast sensor 5x60 mm (see page 32)

Price in Euro | 109.00 | 121.30

CAN energy meter 3
NEW
CAN-EZ3

Like the CAN-EZ2, the new CAN energy meter records electrical and thermal energy flows. It is programmed using TAPPS2 software.

- Max. 10 kVA per phase; up to 20 kVA per phase as an option (CAN-EZ3/60)
- Mounting kit in control cabinet for 45 mm standard installation bezel
- Scaling of measured output possible with the mathematics function in TAPPS2
- External clip-on current sensors allow quick change of the measured conductor. Voltage measurement inputs are integrated for all three phases. Connecting the first phase only is sufficient for a less precise measurement.

Possibilities
- Comprehensive energy management to optimise on-site consumption from a photovoltaic system
- Load management (e.g. to reduce load peaks in a commercial setting)
- Integration of various consumers such as immersion heaters, infrared panels, washing machines, air conditioners and ventilation units

Inputs and interfaces
- 6 inputs
  - 4 analogue inputs
  - 2 slots for direct connection of FTS-sensors or 2 pulse inputs
- Interfaces
  - DL bus CAN bus
  - Micro SD card
  - Wireless (not compatible with wireless system on page 29)

CAN-Repeater
NEW
CAN-RP

With the CAN repeater it is also possible to realise branch cables in the serial CAN bus topology. The CAN-RP does not require its own bus address. Port CAN-3 is isolated from CAN-1 and CAN-2. Ensure that the devices are terminated correctly.

Isolation: 3 kV

Interfaces
- CAN bus

Read more about power management with x2 devices on page 42

Art. no. | Price in Euro
--- | ---
01/CAN-EZ3 | 246.00
01/CAN-EZ3/60 | 260.00
01/CAN-RP | 69.00
**CAN bus converter**

**CAN-BC2**

The CAN bus converter makes additional interfaces available for all CAN bus devices. It is programmed using TAPPS2 software. The CAN-BC2 can be operated via the UVR16x2 controller, via CAN-MTx2 or via the C.M.I. interface.

**Interfaces**

- Two isolated CAN bus interfaces
- One DL bus interface for reading in DL sensors
- One M-Bus interface for reading out four M-Bus meters, each with 32 values

**Further interfaces** are available via the following additional modules. For each bus converter max. one additional module possible.

**KNX-module**

Connection to KNX with the option of issuing 64 values to the KNX and reading in 64 values from the KNX

**Modbus/M-bus module**

The module has:
- One Modbus RTU interface which can be configured either as a master or slave, with the option of issuing 64 values to the Modbus and reading in 64 values from the Modbus
- One M-Bus interface for reading out further four M-Bus meters, each with 32 values

**CAN expansion module**

**CAN-I/O45**

The CAN-I/O module provides additional inputs and outputs for the freely programmable universal controllers UVR16x2 and RSM610. The range of programming options, functions and output is the same as the RSM610 control module, but the device has no clock function, no own power supply and fewer inputs and outputs.

**Inputs, outputs and interfaces**

- 4 inputs
- Interfaces
  - DL bus
  - CAN bus
- 3 relay outputs
- 2 multi-function outputs optionally 0-10V, PWM, relay (e.g. with HIREL22 see page 37)

**C.M.I.**

Control and Monitoring Interface

The C.M.I. is an interface for convenient system monitoring, remote-control, data logging and visualisation of all controllers with DL or CAN bus.

- Remote maintenance of CAN bus devices
- Function data administration for CAN bus devices
- Operating system management for CAN bus devices
- System visualisation via PC, smart phone or tablet
- Revision of parameters of CAN bus devices
- Data logging via CAN bus or DL bus
- Event-controlled notification via e-mail
- DIN rail or wall mount
- Slot for GSM module MDC-GSM
- Option to connect to Modbus TCP

**Operation/access:**

- Directly via LAN network
- Via web portal [https://cmi.ta.co.at](https://cmi.ta.co.at)
- C.M.I. App for Google Android™ and Apple iOS™

**Interfaces**

- CAN bus
- Ethernet (RJ45)
- SD card

**Netzteil 12V**

The power supply unit is required if additional CAN bus modules are connected to one controller along with the C.M.I., the C.M.I. is operated exclusively via DL bus or a GSM module MDC-GSM is used.

**WNA**

This router is an expansion to the C.M.I.. It comes with an individual power supply unit and can forward the Ethernet connection or an Internet connection to the C.M.I. via Wi-fi or UMTS stick (not part of the delivery scope).

**MDC-GSM**

Extension module for the C.M.I. to receive notifications, send orders or inquire values via SMS.
Easy remote access to your systems with the „C.M.I.“

Customer service made easy

The Control and Monitoring Interface allows access to the CAN bus controller and extension modules „as if they were right in front you.”

This enables you to meet requirements, rectify errors and change settings, which would normally involve being at the customer’s premises.

Plug & Play

The „C.M.I.“ automatically detects DL and CAN bus devices. In terms of networking, it is assigned a default IP address by the router and is then immediately accessible with http://cmi via browser.

Anyplace, at any time

The „C.M.I.“ gives you remote access to your system(s). Your system is accessed via web portal https://cmi.ta.co.at or app. Aside from maintenance, monitoring and data-logging, this also enables you to offer your customers the option to control their system via smartphone, tablet and PC.

App included

In the age of smartphones, apps for Android and iOS are essential. The app provides access to the controller and online diagram using a smartphone or tablet.

It can be downloaded free from Google Play or the App Store.

Security first

A high level of convenience should not compromise security. An encrypted connection is used when you access our web portal. If necessary, communication with the web portal can also be completely disabled. In this case, access from a PC or app only uses the local network.

Datalogging

The „C.M.I.“ is also responsible for datalogging. Data is evaluated via the free „Winsol“ program.

Since 2017, our web portal has also featured a datalogging option. This is a convenient way for end customers in particular to track yields or monitor temperature curves.

SSL encryption

Access via browser or smartphone app, evaluations with Winsol.

TA web portal
Room sensor
RASPT / RASKTY

The room sensor provides the possibility of changing the measured room temperature in heating mode by approximately +/- 4K and select one of the individual operating modes (normal, lowered or automatic mode or frost protection). The room sensor is available as PT1000 (RASPT) and KTY (RASKTY).

» Permissible temperature range 0°C to 40°C.

Room sensor with remote display
RAS+DL

The RAS+DL transfers the value of the room temperature, the room humidity, the dew point, absolute humidity, air pressure, the operating mode and the correction value to the nominal value (+/- 4K) via the DL bus. It also functions as a remote display for the sensor values, output statuses, heat meters and network inputs received from the controller via the DL bus.

» DL bus load without 12V supply: 20 %
» DL bus load with 12V supply: 10 %

External sensor
AUSPT / AUSKTY

Air temperature sensor with integrated overvoltage protection, as external sensor for heating controllers.

» The external sensor is available as PT1000 (AUSPT) and KTY (AUSKTY).
» Permissible temperature range -30°C to 50°C.

Using the 868 MHz wireless system up to 8 wireless sensors can be coupled to the wireless receiver RCV-DL. In the open air the range extends to 1000 m while in buildings at least 2 steel-reinforced concrete ceilings/walls can be transmitted through. Not compatible with the x2 wireless system in the CAN-EZ3 and ATON (page 43).

Wireless room sensor
RAS-F / RAS-F/F

The wireless room sensor transmits the following data: room temperature, desired deviation (+/- 5K from the rotary wheel position) plus the operating mode (normal, lowering or automatic mode or frost protection function). By use of jumpers, the room sensor is converted to a pure remote control with a fixed value of 20 °C instead of the room temperature. A CR2032 battery supplies the sensor.

RAS-F/F transmits additionally measurement of the room humidity and calculation of the dew point.

Wireless radiation sensor
GBS-F

For measuring the solar radiation [W/m²]. The sensor simplifies system startup or makes possible more precise „switching up“ in the priority consumers with multi-circuit solar systems. The sensor is supplied from a small solar panel.

A PT1000 collector sensor can be connected to the GBS-F, the measurement value of which is likewise transmitted to the receiver.

GBS-F+KPT

The GBS-F+KPT is delivered with the PT1000 collector sensor.

Wireless receiver
RCV-DL

The receiver forwards the signal via the DL bus to the controller. During startup, the transmitters to the receiver are allocated unique DL bus addresses.

» DL bus load 43 %

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<tr>
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<td>01/RAS+DL</td>
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<td>01/AUSKTY</td>
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</tr>
</tbody>
</table>

* For all room sensors, the controls (dial and selector) will be changed from grey to white (as shown) over the course of the year.
PT1000 sensors are our standard sensors
(Precision class B)

**Collector sensor PT1000**

*KFPT1000*

Temperature resistant sensor with PT1000 characteristics, with 2 or 4 m silicone cable for collector, supplied with connection box and over-voltage protection

- Permissible temperature range -50 °C to 240 °C
- Briefly loadable up to 260 °C
- Sensor cap 6 x 27 mm

*KFPT1000 4x35MM:*
- Permissible temperature range -20 °C to 240 °C
- Sensor cap 4 x 35 mm

**Boiler sensor PT1000**

*KEPT1000*

Temperature resistant sensor with 2 m silicone cable for the boiler area with PT1000 characteristics

- Permissible temperature range 0°C to 160°C
- Briefly loadable up to 180 °C
- Sensor cap 6 x 20 mm

**DHW tank sensor PT1000**

*BFPT1000*

Temperature sensor with 2 m cable for the tank area with PT1000 characteristics

- Permissible temperature range 0 °C to 90 °C
- Briefly loadable up to 100 °C
- Sensor cap 6 x 20 mm

*BFPT1000 4x35MM:*
- Permissible temperature range -20 °C to 240 °C
- Sensor cap 4 x 35 mm

*BFPT1000 5x60mm:*
- Permissible temperature range 0 °C to 90 °C
- Sensor cap 5 x 60 mm
- Suitable for installation in ball valve

---

**Collector sensor KTY**

*KFKTY*

- Semiconductor characteristic 2000 Ω / 25°C
- Permissible temperature range -20 °C to 160 °C
- Briefly loadable up to 180 °C
- Sensor cap 6 x 20 mm

**Boiler sensor**

*KEKTY*

- Semiconductor characteristic 2000 Ω / 25°C
- Permissible temperature range 0 °C to 160 °C
- Briefly loadable up to 180 °C
- Sensor cap 6 x 20 mm

**DHW tank sensor**

*BFKTY*

- Semiconductor characteristic 2000 Ω / 25°C
- Permissible temperature range 0 °C to 90 °C
- Briefly loadable up to 100 °C
- Sensor cap 6 x 20 mm

---

<table>
<thead>
<tr>
<th>Temperature</th>
<th>R (PT1000)</th>
<th>R (KTY81)</th>
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<tr>
<td>-20</td>
<td>922</td>
<td>1357</td>
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<tr>
<td>10</td>
<td>961</td>
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</tr>
<tr>
<td>100</td>
<td>1385</td>
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**Temperature range -50°C to 150°C**

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<thead>
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<tr>
<td>01/BFPT1000 5x60mm</td>
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</tbody>
</table>

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**Temperature-resistance characteristic curve**

Collector sensor KFY

Collector sensor KTY

Boiler sensor

Boiler sensor

DHW tank sensor

DHW tank sensor

PT1000 sensors are our standard sensors (Precision class B)
Ultra-fast sensor
MSP130 / MSP60

Brass mounting kit + ultra-fast sensor for sanitary hot water preparation MSP130 or heat metering MSP60.

- Cable length: 2 m
- Fitting: 1/2"

Mounting kit MSP130
- Sensor cap: 5 x 130 mm
- Sensor type PT1000
- Precision class B

Mounting kit MSP60
- Sensor cap: 5 x 60 mm
- Sensor type PT1000
- Precision class B

Mounting kit ventilation with sensor
MSL130 / MSL60

Mounting kit with temperature sensor with stainless steel fitting for installation in the air ducts.

Mounting kit MSL130
- Sensor cap: 5 x 130 mm
- Sensor type PT1000
- Precision class B

Mounting kit MSL60
- Sensor cap: 5 x 60 mm
- Sensor type PT1000
- Precision class B

Thermocouple
THEL-DL / THEL-MV-DL

To capture high temperatures (up to 600 °C = permissible temperature of the thermocouple) in conjunction with UVR controllers. The measurement amplifier provides the DL bus with the sensor and ambient temperatures, as well as the sensor temperature reduced by a factor of 10.

The thermocouple is available in lengths 1.63 and 2.5 m (including measurement amplifier).

- DL bus load 13 %

THEL-MV-DL
Measurement amplifier without thermocouple, suitable for type K thermocouple up to 1200 °C

Humidity sensor
RFS-DL

The humidity sensor RFS-DL was developed for control tasks in the air conditioning sector in combination with Technische Alternative controllers.

- Permissible temperature range -10°C to 50°C
- DL bus load 8 %

The following measured values can be recorded:
- Relative humidity
- Absolute humidity
- Temperature
- Dew point temperature

Radiation sensor
GBS01

GBS01 was developed for measurement of the solar radiation [W/m²] when used in conjunction with the UVR controllers. Using this sensor system startup is simplified or a more accurate “Switch-up” to the priority consumer is possible when used with multi-circuit solar systems. If two sensors are used it is possible to configure a collector tracking system. Its measurement accuracy is +/- 10 %. Consequently it can also be used for pure measurement purposes.

Rain sensor
RES01

The rain sensor RES01 was developed for weather-guided control tasks (e.g. opening and closing of winter garden windows). The integrated measurement amplifier converts the sensor signal into a temperature value. The dry temperature equals approx. 90°C. This can fall slightly due to dirt. The humidity threshold should be set approx. 20°C beneath the displayed dry temperature.

Wind sensor
WIS01

The wind sensor WIS01 is suitable for measurement of wind velocity up to 140 km/h with a maximum error of 5 % in conjunction with UVR controllers.

- Signal: pulse output of 1 Hz per 20 km/h
- Mounting diameter 30 mm
- Warning: without integrated heater, therefore only has limited suitability for winter measurements

<table>
<thead>
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<tbody>
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<tbody>
<tr>
<td>01/RFS-DL</td>
<td>46.20</td>
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<td>01/GBS01</td>
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<td>01/RES01</td>
<td>48.60</td>
</tr>
<tr>
<td>01/WIS01</td>
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</table>
Lambda probe

**LAMBDA-DL**

The lambda probe is used to control the residual quantity of oxygen in boilers. For this we use a professional probe of the kind often installed in biomass boilers.

- Sensor heating consumes just 8 W
- Can be switched via DL bus
- The switching power supply unit has a standby consumption of just 0.2 W
- Additional input for thermocouple type K up to 1200 °C
- DL bus load 10%
- Direct replacement for the O2 sensor (01/O2-DL)

**Pressure sensor**

**PRS0-6DL / PRS0-6**

Electronic pressure sensor for system monitoring.

- Measurement of system pressure between 0 and 6 bar
- Maximum permissible pressure (burst pressure) 12 bar
- Measurement principle insensitive to medium properties
- Temperature range +2° to +90°C
- Connection thread G 3/8"

**PRS0-6DL**

With adapter PCB for direct connection to the DL bus.

- DL bus load 13%

**PRS0-6**

With 0.7 m special cable to connect to the adapter electronics of a volume flow sensor of the FTS series. The measured value is transmitted to the control with the FTS signals.

- Additional DL bus load 5%

**Current sensor**

**IS-DL**

With this sensor, the true effective current (RMS) can be measured for any consumer up to 16 A. The resolution is 10 mA and a pulse load of up to 100 A (e.g. starting current) is permissible.

- DL bus load 19%

**Differential pressure sensor**

**DDS-DL**

The sensor measures the differential pressure, e.g.: between chimney and living room and transfers the value via a signal converter on the DL bus.

- Maximum permissible pressure (burst pressure) 0.4 bar
- Maximum measurable pressure 1200 μbar (120 Pa)
- Resolution equals 1 μbar (0.1 Pa)
- Provided with 2 m hose, inclusive temperature resistant chimney union piece
- Attention: no DIBt approval
- DL bus load 38%

**Immersion sleeves**

**TH**

Precisely manufactured brass ensures effective heat transfer to the sensor. 6 mm internal diameter, 1/2" external thread, 22 mm AF, internal thread PG7 for the also supplied strain relief device.

- Length: 40 - 300 mm: brass
- Length: 60 and 140 mm: stainless steel
- Length: 60 mm: nickel-plated brass (additional lengths upon request)
**Volume flow sensor**

FTS2-32DL / FTS4-50DL / FTS5-85DL / FTS9-150DL / FTS14-240DL

The measurement principle of the FTS electronic volume flow sensor is based on Karman vortex streets. An obstructing body projecting into the flow generates eddies. These are detected by a piezoelectric paddle and evaluated by the integrated electronics. A microprocessor converts the analogue measurement values into a serial digital signal suitable for the DL bus.

- Measurement of flow rates
- Measurement of media temperature (PT1000 sensor)
- Connection option for an additional PT1000 sensor
- Connection option of a pressure sensor PRS0-6
- No moving parts in the flow channel
- Freely selectable fitting position
- Measurement principle insensitive to contamination and medium properties
- Drinking water approvals: KTW and DVGW process sheet W270, WRAS
- FTS14-240DL: only suitable for controllers with x2 technology
- DL bus load 25%

**Flow rate pulse generator**

VIG

Impeller meter for precise measurement of the volume flow. Temperature range up to 90 °C; Impulsausgang potentialfrei - Pulse output potential-free: max. load 10 mA

Measurement ranges:

- VIG0,3-40 .................. 0.3 to 40 l/min (0.5 l / pulse)
- VIG0,5-65 .................. 0.5 to 65 l/min (0.5 l / pulse)
- VIG0,3-160 ................. 0.3 to 160 l/min (1 l / pulse)

<table>
<thead>
<tr>
<th>Temperature measurement range</th>
<th>Value</th>
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<tbody>
<tr>
<td>-40° C to 125° Celsius</td>
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</table>

<table>
<thead>
<tr>
<th>Measurement ranges l/min</th>
<th>Value</th>
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<tbody>
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<td>4 to 50</td>
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<table>
<thead>
<tr>
<th>Connection thread</th>
<th>Value</th>
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</thead>
<tbody>
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<td>3/4&quot; **</td>
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<table>
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<tr>
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Price in Euro

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<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>90.00</td>
</tr>
</tbody>
</table>

* plastic thread; ** brass thread

**Analog signal converter**

ACON34

This device is suitable for converting signals between UVR controllers and third party devices or industrial sensors. Signal conversion from 0-10 V => 0-20 mA and from 0-10 V => 0-24 V, two adjustable amplifiers with voltage output: 0-10 V or 0-20 mA signal (selection via jumper) with amplification of 1-5 and damping 1-5. PWM signals can also be converted into analogue values thanks to input filters.

**Filter 0-10V**

Boilers from some manufacturers cause disturbing EMC feedback if they are requested externally using a 0-10 V signal. The filter removes these interference signals.

**Pulse converter**

IK22

The IK22 converter converts and splits pulses from third party devices and sensors with an adjustable division rate of between 0.1 and 1023. A signal input captures the pulses from a potential-free contact or open collector output (NPN transistor). A second input captures the 100 Hz half waves from 230 V~ signals. One sensor input in the controller is sufficient for the signal transfer and supply.
Surge protection for CAN bus  
CAN-UES / CAN-UES2

Sturdy surge protection for CAN bus with two protection levels. Generally it can be used on every other CAN node.

CAN-UES is suitable especially for direct installation in the mounting base of the UVR16x2 and the C.M.I. Der CAN-UES2 im Universalgehäuse eignet sich zur Hutschieneinmontage.

DL-extension module for 5 digital inputs  
DI5-DL

The module translates digital signals for the DL bus and issues them to corresponding indices. Due to the transfer rates, the DL bus is not suitable for switching lights on and off. DL bus load: 11 %

DL-extension module for 5 analogue inputs  
AI5-DL

The module enables an additional 5 analogue inputs (0-10V) for devices with x2 technology. DL bus load: 11 %

DL extension module for 4 analogue outputs  
AO4-DL

The module enables an additional 4 analogue outputs for devices with x2 technology. Communication with the controller takes place via the DL bus. Selecting an index allows you to choose 0-10 V or PWM mode for each individual output. DL bus load: 5 % (12V supply voltage necessary)

DL bus coupler / sensor extension  
DL-BC2

This module enables two controllers to exchange measured values. It is also an input extension for all UVR controllers. The measured values of the four inputs for PT1000 and RASPT sensors are issued via both DL buses. DL bus load: 13 %

Dimmable power controller - 2x 400 W  
LST2x2D-DL

The energy to be controlled can be specified separately from 0 to 100 % at 1 % intervals for each channel via the DL bus from an overriding controller (UVR16x2, RSM610).

DL busload: 10% (12V supply voltage necessary)

Application areas
- Infrared panels (e.g. in a bathroom or sauna area)
- Heating elements (immersion heater, electric space heating)
- Blowers/fans (single phase asynchronous capacitor motors)
- Energy and load management in conjunction with CAN-EZ3 or ATON

Power controller - 3x 3000 W  
LST3x13-DL

All three channels can be switched separately or together via the DL bus. Unlike a standard switching element (contactor), the LST3x13 contains special technology which is very quiet and durable.

DL busload: 10% (12V supply voltage necessary)

Application areas
- Energy and load management in conjunction with CAN-EZ3 and ATON
- Heating elements (immersion heater, electric space heating)
- Three heating assemblies for a sauna heater (max. 9 kW)

Sauna controller

New addition to the x2 program library

A sample program is available in our x2 program library to demonstrate optimum control of two infrared panels, a sauna heater, a herbal sauna unit and two lighting circuits (sauna lighting and LED chain).

www.ta.co.at/en/downloads/x2-program-library

Hardware
- Power controller (as needed)
- RSM610
- CAN-MTx2
- Humidity sensor RFS-DL
Ball valve

KH

The ball valve has a M10 x 1 fitting opposite the lever for insertion of the temperature sensor 01/8FPT1000 5x60MM for a heat meter arrangement. The ball also has a hole at that location. This places the sensor in the flow channel at the centre of the ball. When the valve is shut off, the sensor is sealed off as well, allowing it to be removed easily (e.g. for calibration).

Universal three-way valve

UDV

Ball valve 3/4” up to 100°C with T-bore and valve setting display. All materials in the hydraulic area have drinking water approval. But it is not DVGW certified as a unit. With internal spring terminals for free wiring in place of a fixed connection cable. Control possible with continuous phase and relay closer (virtual retaining spring) as well as with relay changeover contact. Internal coding and random positioning of the motor allows free selection of the hydraulic paths (left-right, straight-left, straight-right).

Flow switch

STS02AC / STS01DC

Switches from a volume flow of approx. 1.5 litre/min. Installation: vertical with flow from bottom to top. External thread and conical face union available as 3/4” or 1” version.

- Permissible temperature range 0°C to +80 °C.
- Warning: Not suitable for use with asynchronous pumps or in combination with after-running or time relays of any type or model.
- STS02AC: AC version only for direct switching of high-efficiency pumps connected to the 230 V AC mains up to 1.5 A
- STS01DC: DC version as a signal generator at the usual controller inputs up to 30 V DC/AC max. 10mA

Roll spring

RF

Simple fitting of the sensor as a clip-on sensor, large range of use (15-45 mm pipe diameter)

Fresh water station for heat pumps

FRISTAR2 / FRISTAR2WP

Optimal matching of the control behaviour to the high efficiency pump and the heat exchanger guarantees perfect stabilisation of the outlet temperature regardless of flow changes. Uniform and interchangeable G3/4” connections reduce the assembly effort.

A heat exchanger with twice the heated length has been integrated for systems with low flow temperatures. The FRISTAR2WP therefore achieves the specified draw-off rate of 30 litres/minute at half the temperature differential between the cylinder flow and DHW outlet (compared to FRISTAR2).

- Easy operation
- LED status indicators
- Integral heat and water meter
- Data output via DL bus
- Connection for circulation pump in pulse mode
- High efficiency pump
- Stainless steel plate heat exchanger, copper soldered
- Interchangeable connections (left/right)
- 4 stopcocks, in the primary return with gravity brake
- Cascading of several modules possible

Draw performance:

FRISTAR2:...............................max. 30 l/min (65°C / 45°C)
FRISTAR2WP:.........................max. 30 l/min (55°C / 45°C)

Both versions are delivered with a preinstalled insulation cover, ready to be installed.

Fresh water system

Pre-mixing set

VMS

- Setting range: 45°C - 65°C
- Must be used if the tank is operated with a temperature > 70°C

Art. no. | Price in Euro
---|---
01/FRISTAR2-L | 986.00
01/FRISTAR2-L-VMS | 1,135.00
01/FRISTAR2-R | 986.00
01/FRISTAR2-R-VMS | 1,135.00
01/FRISTAR2WP-L | 1,298.00
01/FRISTAR2WP-L-VMS | 1,447.00
01/FRISTAR2WP-R | 1,298.00
01/FRISTAR2WP-R-VMS | 1,447.00
01/VMS | 159.00

Dimensions FRISTAR2 (W x H x D):
366 x 573 x 160 mm

Dimensions FRISTAR2WP (W x H x D):
366 x 810 x 160 mm

Sensor mounting with roll spring
Energy management with the x2 series

In conjunction with the CAN-EZ3 energy meter and the power controllers, the new x2 functions for energy management open up many possibilities for optimising on-site consumption of self-generated PV energy, as well as for effective load management.

ATON is a plug & play solution for using surplus PV energy – without additional wiring. It consists of an energy meter and an immersion heater, which can be variably controlled from 50 W to 3 kW, for installation in a buffer cylinder.

Through a wireless connection, the energy meter (x2-tech) specifies the output the immersion heater can consume. The immersion heater sends all measurements (high limit safety cut-out, internal temperature and the values of the two external sensors) back to the energy meter.

Benefits
» Minimal installation effort thanks to new x2 wireless technology and factory program
» Freely programmable for individual requirements
» Energy meter and immersion heater are connected ex works
» Up to 12 immersion heaters per energy meter
» Wireless range ~1 km free space / 2 reinforced concrete ceilings or walls

Possibilities
» Optimisation of on-site consumption rate
» Central heating backup
» Domestic hot water heating outside the heating season
» Limited use with cylinders for drinking water (refer to manual)
» DL bus for controlling power controllers (new; see page 39) for enhanced energy management
» Remote access, datalogging and visualisation via C.M.I.

Make effective use of surplus PV power

Solutions conventionally available on the market use phase-angle control. Smart meters detect the momentary load and this costs the customer money.

The intelligent ATON immersion heater has a sinusoidal power input, which avoids drawing expensive and unnecessary power from the grid.

ATON

SMART METER FIT

Optimise on-site consumption of PV energy

Set comprising EHS-R immersion heater (page 44) and CAN-EZ3A energy meter. The devices are connected wirelessly. The energy meter comes with electrical output measuring functions, CAN bus, DL bus and wireless functionality.

Energy meter interfaces
» DL bus, CAN bus
» Micro SD card
» wireless (not compatible with wireless system on page 29)

SMART METER FIT

Art. no. Price in Euro Price group
01/ATON 487.00 PG2
**Immersion heater - 3000 W variable control**

**EHS-R**

The EHS-R immersion heater (included with the ATON) can be controlled directly by the freely programmable controllers (UVR16x2 and RSM610) via PWM, with a variable output from 50 W to 3000 W.

The immersion heater sends the sensor values wirelessly back to the CAN-EZ3 for further utilisation or forwarding to the CAN bus or DL bus.

**Inputs and interfaces**

- 3 inputs
  - 2 sensor inputs PT1000
  - 1 PWM input 0-100% if not radio-controlled

**Interfaces**

- wireless (not compatible with wireless system on page 29)

**Dimensions in mm**

- total length of immersion heater: 410 mm
- screw thread: 1 1/2"

**SMART METER FIT**

Both makes of immersion heater are eligible for use in drinking water environments, but eligibility for installation in cylinders for DHW or drinking water is limited by galvanic reactions. Refer to manual for details.

<table>
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<tr>
<th>Price group</th>
<th>Art. no.</th>
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<tr>
<td>PG2</td>
<td>01/EHS</td>
<td>314.00</td>
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</table>

**Immersion heater - 3000 W**

**EHS**

The EHS immersion heater switches the heating output in 750 W stages. In conjunction with the controlled EHS-R immersion heater or ATON, it is possible to arrange cascades economically. In the process, the EHS-R always performs the fine adjustment, which enables variable control of the output to be achieved.

**Inputs and interfaces**

- 3 inputs
  - 2 sensor inputs PT1000
  - 1 PWM input (in steps of 25%) if not radio-controlled

**Interfaces**

- wireless (not compatible with wireless system on page 29)

**SMART METER FIT**

**NEW**

<table>
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<td>01/KONSOLE UVR1611-N</td>
<td>68.00</td>
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</table>

**UVR1611**

**UVR1611K-N / UVR1611S-N**

Freely programmable universal controller

The UVR1611 unit can be freely programmed to match every system-configuration for heating management through the use of function modules. Together with the interface C.M.I., it is possible to operate this controller via LAN network or web portal, to monitor it and show an interactive visualisation on PC, smart phone or tablet. Using the CAN-Touch, remote control of the controller is possible. Further CAN bus components make it possible to exchange information with a KNX/EIB bus network, to increase the number of inputs and outputs and to meter energy.

The module is programmed using the TAPPS2 software.

**Inputs, outputs and interfaces**

- 16 inputs
  - 16 sensor inputs for PT1000 oder KTY sensors
  - 2 inputs, also as pulse input
  - 1 input for analogue signals 4-20mA or 0-10V

- 11 outputs
  - 11 relay outputs
  - 2 further outputs through relay modules HIREL-230V, HIREL-PP or HIREL22 can be retrofitted
  - 2 analogue outputs 0-10 V / PWM

**Interfaces**

- DL bus
- CAN bus

**Accessories**

- Relay modules (see page 37)
- Sensor packages (see page 15)
- Surge protection for CAN bus (see page 38)

**Klemmplatte UVR1611**

Suitable for wall mounting or top-hat rail installation of the UVR1611.

**Konsole UVR1611-N**

Same mounting base as the UVR16x2; contains the UVR1611 terminal mounting plate.
Advanced software solutions to support you when working with our devices are an integral and no-fee part of what you can expect from us.

www.ta.co.at/en/download/software/

TAPPS2: Graphic programming of x2 controllers and extension modules. You select the appropriate function modules, define properties and link system component inputs and outputs.

TA-Designer: Creation of a function overview for UVR16x2 or CAN-MTx2 with online diagram for the C.M.I. and programming of the CAN-Touch.

x2/RSM610-Simulator: Simulation of TAPPS2 programming and visualisation on a PC.

WINSO: Graphic display of the recorded datalogging values of the C.M.I.

Reference projects

“Sonnenhaus+“ Smart Home

Dipl.-Ing. (FH) Matthias Gemeinhardt and his company Gemeinhardt AG have been a Technische Alternative customer for 12 years. The company supplies and installs a full range of products encompassing the heating, solar, photovoltaic and ventilation sectors.

Persuaded by the “Sonnenhaus“ (literally “sun house“), he wanted to achieve his own “Sonnenhaus Plus“ concept with his own home.

This house certainly has everything you would expect from a modern detached house, which was precisely the proprietor’s objective. The complex heating system is efficiently controlled by two UVR16x2 devices and an RSM610. Incorporated into the KNX bus system, the controllers supply and receive the required values to/from KNX.

Heating, cooling and ventilation at Variotherm

Variotherm Heizsysteme has renovated its company site in Lower Austria and added a new building. Sustainability, a regional focus and building biology were all key aspects of the project.

Small recesses throughout the building make the company’s own products visible. The entire heating and cooling system, as well as the ventilation equipment, are controlled by the x2 series, specifically by three UVR16x2E-NPs, CAN-MTx2 and CAN-Touch, as well as C.M.I. for remote maintenance.

A total of 52 sensors are used for monitoring and the CAN-BC2 provides bidirectional communication with the KNX system.

Additional references can be found on our website at www.ta.co.at/en/reference-projects.

Questions?

We offer our customers free support in the event of questions or issues with our products.

Of course, we are also happy to offer you a consultation before you make a purchase, to help you select the right devices from our range.

Important!

In order to answer your questions, we always require the device serial number.

For information on how to find this, go to www.ta.co.at/haeufliche-fragen/seriennummern/

Monday - Thursday 7 am - 3 pm, Friday 7 am - 1 pm
Web https://support.ta.co.at Mail technik@ta.co.at Tel +43 (0)2862 53635

“We have been working with TA for over 12 years. We were looking for an affordable, modern and convenient controller for our heating systems. We have become much more independent and can easily implement our own ideas and the sophisticated requirements of our customers.”

Dipl.-Ing. (FH) Matthias Gemeinhardt

„Very, very good products, but even more importantly, with absolutely perfect support. I know of no other company with such a good support team. Keep it up!“

Manuel Hanabick, via Facebook
Can I also buy the products directly from you?

Yes. We also sell our products directly to the trade. Call us on +43 (0)2862 53635 or write an email to mail@ta.co.at.

Why is it necessary to program the UVR16x2?

Can I do it myself?

All x2 devices are designed with maximum flexibility in mind and are freely programmable for their intended purpose. It is easy to carry out programming using our free TAPPS2 software.

How do I load programs onto the UVR16x2?

Programs can be transferred to the controller using the SD card provided. No auxiliary appliances are required for the transfer.

What is the web portal?

Our web portal allows access via the internet to all systems equipped with a C.M.I. and enabled for the web portal. Access via browser (e.g. Chrome, Firefox, Edge, Safari, etc.) at https://cmi.ta.co.at or using the C.M.I. app, free to download from Google Play and Apple’s App Store.

How secure is remote access via web portal and app?

A high level of convenience should, of course, never compromise security. Sensitive data in the cloud or direct access to the system are unthinkable for us. The C.M.I. polls the web portal at short intervals to check whether there are new enquiries or updates, and only downloads files on demand.

However, connection to our web portal can be completely disabled at any time. LAN access via browser and/or app is still possible.

Do you also have field engineers?

No. We are developers and manufacturers of controllers, extension modules and sensors. Qualified specialists (installers, electricians, heating contractors, etc.) are responsible for the correct installation and commissioning of our products.

Is it worth repairing a device?

Definitely! Even if your device is no longer covered by our guarantee, we will do our best to get it up and running again. Repairs cost between €35 and €65 depending on the device. Further information can be found under our repair and service conditions.

In the unlikely event that we are unable to repair your device, we will keep you informed and endeavour to find a suitable solution.
Repair
If the device is outside the two-year warranty period or damage has been caused through incorrect handling (voltage surge or similar), the costs will be charged according to the price overview below.

You will be notified if repair is no longer possible. If the fault description is not sufficient, there is a charge of €30 for the extra administrative and technical work involved, irrespective of the warranty period. Expressly, we shall not bear labour costs associated with replacing the goods or expenses to determine the defect.

Repair with replacement device
A replacement device must generally be arranged within a member of the support team of Technische Alternative RT GmbH and is a voluntary service on our part. The faulty device must be returned in its entirety to us within one month of receipt of the replacement device, along with the enclosed delivery note and replacement notification form. Furthermore, by requesting a replacement device, the customer accepts the following conditions:

- A handling fee of €45 (€65 for a UVR1611 with a serial number < 96269) will be charged to replace any device that is outside its warranty period
- It is not possible to replace a UVR1611 with a serial number below 50000.

Unfounded complaint
If, after inspection, no defect in the device is found (operating error, instruction manual not followed), the device shall be returned against payment of an inspection charge of €30.

Packing and shipping costs
We do not charge any shipping costs for shipments within the EU. For non-EU countries, the actual costs will be invoiced. Unpaid postage back to us will subsequently be charged to the customer.

Data backup
We assume no liability for data loss.

Prices

<table>
<thead>
<tr>
<th>Device</th>
<th>Repair flat rate (incl. software update)</th>
<th>Update (Hard- and/or Software)</th>
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</thead>
<tbody>
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<td>45 Euro</td>
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<tr>
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<td>x</td>
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<tr>
<td>UVR16x2</td>
<td>x</td>
<td>x</td>
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<tr>
<td>other x Devices</td>
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<td>x</td>
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<tr>
<td>C.M.J.</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>UVR64 / UVR65 / UVR67</td>
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<td>x</td>
</tr>
<tr>
<td>UVR61 / UVR63</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>ESR21 / ESR31</td>
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<td>ANS21</td>
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<td>x</td>
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<tr>
<td>other Devices</td>
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<td>x</td>
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<tr>
<td>Devices older 10 Years</td>
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<td>FRISTAR2, EHS, EHS-R</td>
<td>Price on request</td>
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</tbody>
</table>

The supplies, services and offers of Technische Alternative RT GmbH, hereinafter called TA, are subject to these terms and conditions. These terms and conditions apply to all offers and services based on an agreement between the Austrian Electrical and Electronics Industries.

1. GENERAL

These terms and conditions form an integral part of any offer and associated legal transactions with TA. Deviating agreements, especially contractual agreements, are only legally valid if they are confirmed by TA in writing. Conditions of the customer which are contrary to these terms and conditions or deviate from them are not recognised by TA. Technical documents as well as samples, catalogues, brochures, images, etc. remain the intellectual property of TA at all times. Any use, reproduction, distribution, publication or presentation requires the express agreement of TA.

2. CONCLUSION OF THE CONTRACT

A contract offer or an order of the customer requires an order confirmation by TA. If the order confirmation forwarded by TA is not contradicted by the customer immediately upon receipt, then the legal transaction is concluded through implicit acceptance. Offers are valid for 1 month from date of issue or until the expiration date stated in the offer.

3. PRICES

Prices are ex works and for domestic deliveries excluding any statutory sales taxes (VAT). Deliveries within the EU internal market will only be exempted from VAT for orders where the valid sales tax identification number (VAT registration number) of the recipient is specified. Our terms of delivery and payment apply. The prices within a list are valid until a new price list is published. Errors excepted. When shipping to a third party address (e.g. end customer), TA applies a handling fee of €10.

4. DELIVERIES AND SERVICES

Delivery is at the cost and risk of the customer. Partial deliveries are possible. Upon transfer of the goods to the carrier, the risk of damage and loss — even when delivered “free to destination” or “freight paid” — is transferred to the customer. The place of performance for delivery and payment is TA’s registered office: TA is free to choose the type of dispatch of the goods and the means of transport. The delivery address is generally the customer’s address. Delivery periods are subject to TA’s suppliers’ maker’s order and timely delivery. If a fixed delivery date has not been expressly agreed, the delivery periods are always non-binding. Unless otherwise agreed, the specified delivery dates are given ex warehouse (place of dispatch). For force majeure and other such events which are unforeseeable by TA or over which TA does not have any influence, such as labour disputes, sovereign action, traffic disruption, disruption of energy supplies and the like, and traffic accidents for which TA or its suppliers are not responsible, exempt TA, for the duration of the impact, from the duty to deliver; even if they involve the suppliers or their sub-suppliers, however in any case only if TA proves to the customer that these events are the cause of the impairment of performance. If, due to the aforementioned events, delivery is impossible, TA’s duty of delivery also lapses subject to the same conditions. Replacement of goods is generally only possible within 14 days from the date of delivery, provided the goods remain in their original packaging (undamaged seal), unused and the return does not incur any costs for TA.

5. TRANSPORT DAMAGE

TA goods are packed in accordance with industry practice. Transport losses caused by force majeure or other risks excluded from the liability insurance of the carrier shall be borne by the customer. In general, the goods will only be insured by written request and at the cost of the customer against damage or loss during transport.

6. SHIPPING COSTS

 Deliveries in Austria and Germany are free of charge from a net invoice amount of € 300, but in Austria and Germany a shipping charge of € 5 applies and in Germany € 10. In the rest of the internal EU market and third countries, we deliver EXW+VAT to the port. The INCOTERMS in force on the date of conclusion of the contract apply.

7. CLAIMS AND LIABILITY

The recipient of the goods is obliged to immediately inspect them upon delivery and to report in writing any detected defect to TA without delay. TA must be notified of hidden and thus not immediately identifiable defects in writing no later than seven days after delivery. If the above terms and conditions for reporting claims or transport damage are not adhered to, loss of warranty applies to the customer; provided that the transaction concerned is not a consumer transaction. If a defect becomes apparent at a later date, but before expiry of the statutory or agreed warranty period, the customer must report it immediately in writing to TA. In the event that timely notification does not occur, the goods are classed as approved, provided that the transaction concerned is not a consumer transaction. Within the scope of product liability, TA is not liable for damage due to incorrect installation that is not in line with the operating and installation instructions, incorrect commissioning or storage, as well as mechanical factors. TA accepts no liability for consequential losses. The fulfilment of the warranty claim is, at the discretion of TA, either by repair or replacement of the defective goods, unless a repair or replacement is impossible. Replaced parts and products become our property. Labour costs associated with the replacement to rectify the defect are accepted by TA subject to the following rules up to a maximum of the value of a replacement delivery: if a TA product is suspected of having a material defect, it must be demonstrated that the matter has been raised with our support team. Only standard professional rates for statutory normal working time will be accepted. In the event of excessive and repeated trips, TA reserves the right to appoint a trusted service provider to perform troubleshooting and replacement.

8. RETURN OF GOODS

Please ensure that sufficient postage is paid for returns. Unpaid postage will subsequently be charged to the customer. Without an RMA number (can be applied for on our homepage at www.ta.at in the Support/RMA section) and a detailed fault report, quick processing will not be possible. A return of supplied, defect-free goods is only possible in exceptional cases and only after prior written agreement has been given. Special designs or custom orders cannot be returned under any circumstance. Likewise, damaged goods or goods no longer in their original packaging are also excluded from return. We will invoice the processing expenses. When returning faulty goods, please note the “Repair and service conditions”. Please ensure that sufficient postage is paid for returns. Unpaid postage will subsequently be charged to the customer. A return of supplied, defect-free goods is only possible in exceptional cases and only after prior written agreement has been given. Furthermore, a credit note is only possible if:

- The goods are unused and in their original packaging
- The latest engineering standards are met
- The goods are complete and include the return shipment
- Our invoice number is stated

Binding information about acceptance of returned goods can only be given following an assessment at our factory. A credit note will be issued for returned and accepted articles, from which 15 % of the list price (at least €5 per device) will be deducted. Special designs or custom orders cannot be returned.

9. TERMS OF PAYMENT

Unless otherwise agreed, all invoices must be prepaid. Bank transfers must be free of charge. Payments with debt-discharging effect can only be made to the account given in the order confirmation and invoice. An indicated VAT amount of the total price shall be paid in full according to the invoice. Incurred payments shall be credited to the oldest demand. In the event that the due date for payment is exceeded, late interest of 12 % shall be charged by TA.

10. RETENTION OF TITLE

Unless otherwise agreed, all invoices must be prepaid. Bank transfers must be free of charge. Payments with debt-discharging effect can only be made to the account given in the order confirmation and invoice. An indicated VAT amount of the total price shall be paid in full according to the invoice. Incurred payments shall be credited to the oldest demand. In the event that the due date for payment is exceeded, late interest of 12 % shall be charged by TA.

11. PLACE OF PERFORMANCE JURISDICTION

The place of performance for both contracting parties is TA’s registered office. The contracting parties agree on Austrian domestic jurisdiction. For all legal disputes arising between the contracting parties, the court of law responsible from a professional or geographical viewpoint, for TA’s registered office is agreed upon, provided the transaction concerned is not a consumer transaction.

12. APPLICABLE LAW

Austrian law applies. The applicability of the UN Convention on Contracts for the International Sale of Goods (CISG) is explicitly excluded. The contract language is German.

13. DATA STORAGE

The customer agrees that TA shall save their personal data within an IT system insofar as necessary for the purposes of business and in conformance with data protection legislation. The customer is obliged to inform TA of changes to their personal or business addresses respectively. In the event of failure to do so, declarations shall be considered delivered if they are sent to the last known address.
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