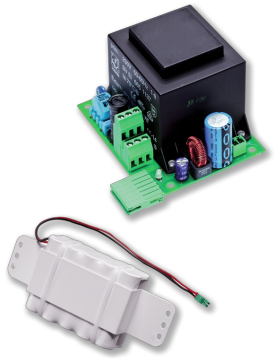
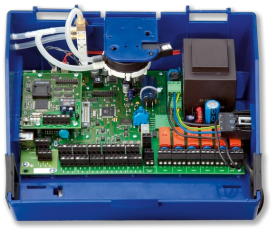


EXPANSION MODULE EM-TRF-USV



EASYLAB CONTROLLER TCU3

EASYLAB ADAPTER MODULE TAM

# EM-TRF-USV

## FOR AN UNINTERRUPTED POWER SUPPLY OF THE EASYLAB CONTROLLER AND ITS ADAPTER MODULE TAM AS WELL AS THE TROX UNIVERSAL CONTROLLER.

Extension module enables direct connection to a 230 V AC mains supply

- Double connection terminals for supply voltage 230 V AC
- Electric plug connection to the main PCB
- Extension module is integrated into the housing of the EASYLAB or TROX UNIVERSAL controller
- Uninterrupted power supply (UPS) for the connected modules
- Integral battery charging electronics with charge status indicator
- Signalling of a power failure at the control units
- Controller performance in case of a power failure is definable

## General information

**Application**

- Enables direct connection of the TCU3 controller board to a 230 V AC mains supply without additional power supply units for the following components:
- EASYLAB controller and its adapter module TAM
- TROX UNIVERSAL controller
- Secure power supply through emergency power accumulator
- Control or defined behaviour of the control damper and/or alarm signalling in case of mains failure
- Power supply of the TCU3 including connected modules, actuators and control units
- Suitable for factory installation or retrofitting

**Special features**

- Ready-to-install and matched to the fixing points in the basic  housing
- Double connection terminals for supply voltage 230 V AC
- Simple electrical connection of expansion module and controller board TCU3 motherboard through connector plug
- Simple wiring of switchable fume cupboard lighting in conjunction with the EM-LIGHT extension module for EASYLAB fume cupboard controller
- Intelligent charge control with trickle charging, deep discharge protection, and reverse polarity protection
- Operating state indicator light
- Configurable control behaviour in the event of a power failure
- In the event of a power failure: configurable alarm transmission and visual signalling on the control panel, if present

**Parts and characteristics**

- Mains transformer 230 V AC (primary), 24 V AC (secondary)
- Intelligent charge control with trickle charging, deep discharge protection, and reverse polarity protection
- Operating state indicator light
- Board connector plug for connection to the TCU3 controller board
- Safety latch for controller housing TCU3

**Construction features**

- Dimensions and fixing suitable for the controller housing of an EASYLAB or TROX UNIVERSAL controller or EASYLAB TAM
- Fixing with screws
- Double connection terminals for easy wiring of the supply voltage 230 V AC

**Commissioning**

- When ordering an air terminal unit with EASYLAB, TROX UNIVERSAL controller or EASYLAB TAM - specifying order option U: EM-TRF-USV installed, connected and ready for operation
- For retrofitting: installation required

**Important:**

After installation of the EM-TRF-USV, the TCU3 controller board must no longer be supplied with 24 V

**Useful additions**

- EasyConnect: Configuration software for commissioning and diagnostics of the UPS function

**Supply package**

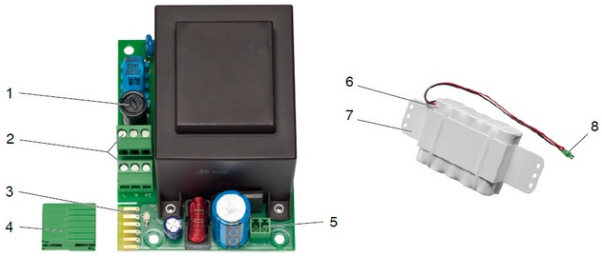
When ordering an air terminal unit or TAM for the first time:

- Extension module EM-TRF-USV installed in TCU3
- Emergency power accumulator mounted and connected to the control unit or enclosed with the TAM

For retrofitting:

- Extension module EM-TRF-USV
- Emergency power accumulator must be ordered separately

## TECHNICAL INFORMATION




| | |
|---|---|
| Supply voltage | 230 V AC ±10 %, 50/60 Hz |
| Power consumption | depending on the equipment of the respective control component and in particular on the type of actuator used on the TROX UNIVERSAL or EASYLAB controller<br>• Up to 9 VA for EASYLAB adapter module<br>• Up to 29 VA for individual or room controller without control unit<br>• Up to 33 VA for room controller with control unit<br>• Up to 35 VA for fume cupboard controller with control panel<br>• Up to 40 VA for controllers with all extensions |
| Operation in case of a power failure | depending on the equipment of the respective control component and the parameterised function in the event of a power failure: EASYLAB or TROX UNIVERSAL controller or TAM with one operating unit:<br>• Maintaining regular operation approx. 4.5 h<br>• Parameterised damper position and power failure display approx. 6 h |
| Capacity emergency power accumulator | 1500 mAh<br>Recharge time until fully charged approx. 24 h |
| Service life emergency power accumulator | up to 4 years, maximum shelf life without trickle charge 6 months |
| Primary fuse | 50 mA slow-blow, 250 V |
| Double connection terminal | Cable cross section up to 2.5 mm² |
| Operating temperature | 0 – 50 °C |
| IEC protection class | I (protective grounding) |
| Protection level | IP 20 |
| EC conformity | EMC according to 2014/30/EU, low voltage 2014/35/EU with TCU3 controller, RoHs according to 2011/65/EU |
| Storage temperature | -10 °C - +70 °C, humidity max. 90 % (non-condensing) |
| Weight | 2.4 kg (of which emergency power accumulator 1.1 kg) |

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design programme.

Extension module for EASYLAB and TROX UNIVERSAL controllers as well as EASYLAB adapter module TAM. Enables direct connection of the TCU3 controller PCB to a supply voltage of 230 V AC. The extension module contains a transformer whose secondary voltage (extra-low voltage 24 V) corresponds to the supply voltage of the controllers and connected modules. Uninterruptible power supply (UPS) by means of a battery pack that maintains defined functions in case of a power failure.

**Special features**

- Ready-to-install and matched to the fixing points in the basic housing
- Double connection terminals for supply voltage 230 V AC
- Simple electrical connection of expansion module and controller board TCU3 by means of connector plug
- Simple wiring of switchable fume cupboard lighting in conjunction with the EM-LIGHT extension module for EASYLAB fume cupboard controller
- Intelligent charge control with trickle charging, deep discharge protection, and reverse polarity protection
- Operating state indicator light
- Control response in case of a power failure definable
- In case of power failure: optical signalling on the control unit and configurable alarm forwarding

**Technical data**

- Supply voltage: 230 V AC ±10 %, 50/60 Hz
- Power consumption depends on the equipment of the respective control component and in particular on the type of actuator used on the TROX UNIVERSAL or EASYLAB controller
- Up to 9 VA for EASYLAB adapter module
- Up to 29 VA for individual or room controller without control unit
- Up to 33 VA for room controller with control unit
- Up to 35 VA for fume cupboard controller with control panel
- Up to 40 VA for controllers with all extensions
- Operation in case of power failure: one controller (TCU3 or TAM) with one operating unit, maintenance of control operation approx. 4.5 h, parameterised damper position and display of power failure approx. 6 h
- Charge emergency power accumulator: 1500 mA
- Service life: up to 4 years
- Double connection terminals: Power cross-section up to 2.5 $mm^2$
- Protection level: IP 20

**1 Product**

**EM-TRF-USV** Extension module for 230 V AC uninterruptible power supply (UPS)

**2 Variant**
TRF-USV for 230 V AC uninterruptible power supply (UPS)

**Note:**

This is the order code for retrofitting the expansion module into a VAV terminal unit with EASYLAB or TROX UNIVERSAL control component or a TROX adapter module TAM. When retrofitting, the EM-TRF-USV emergency power accumulator must be ordered in addition to the EM-TRF-USV-AKKU transformer module with emergency power function.

As a rule, the expansion module is ordered for the first time when the VAV terminal unit is ordered via the order code of the basic unit under the section **Expansion modules** with the order code **U** set. In this case, the emergency power accumulator is included in the scope of delivery

**EM – TRF-USV**
**1 2**