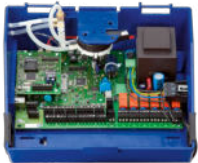




TROX UNIVERSAL controller with integrated EM-TRF UPS



EASYLAB controller with integrated EM-TRF UPS



EASYLAB adapter module TAM with integrated EM-TRF-USV

Extension modules

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

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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 characteristics

- 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 PCB controller TCU3 by means of connector plug
- Simple wiring of switchable fume cupboard lighting in conjunction with the EM-LIGHT expansion 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:

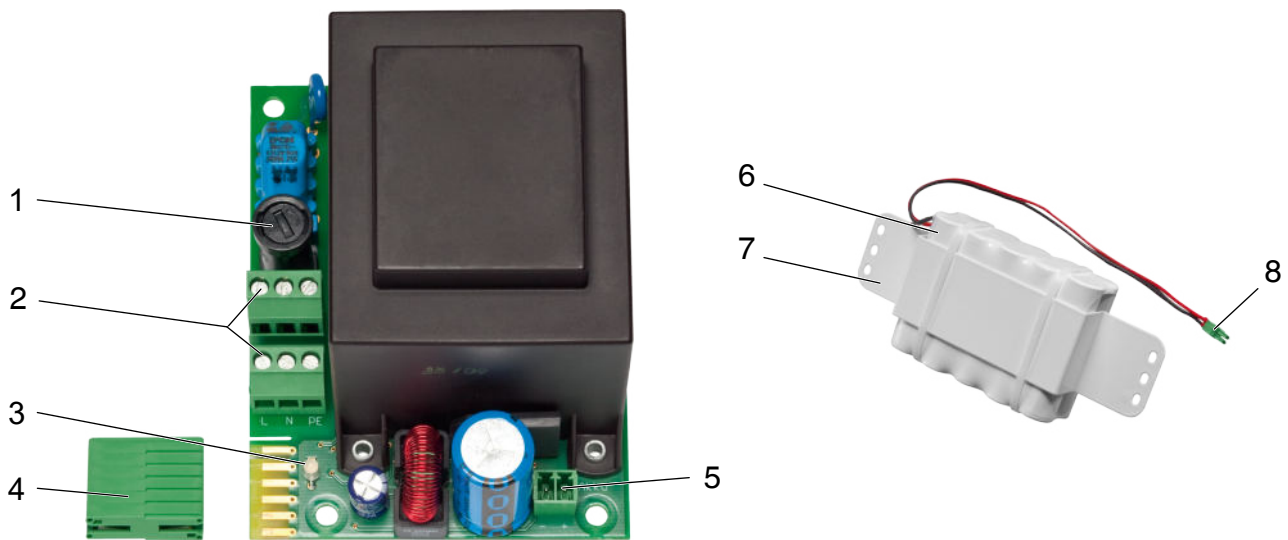
- Expansion module EM-TRF-USV installed in TCU3
- Emergency power accumulator mounted and connected to the control unit or enclosed with the TAM

For retrofitting:

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

Function

EM-TRF-USV



- 1 Primary fuse
- 2 Connection terminals supply voltage
- 3 Control light operating status display
- 4 PCB connector plugs for connection to the controller board
- 5 Connection socket emergency power accumulator
- 6 Emergency power accumulator
- 7 Fixing brackets
- 8 Connection cable

Note:

For retrofitting, the emergency power accumulator (6) must be ordered separately.

Technical data

Supply voltage	230 V AC $\pm 10\%$, 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 <ul style="list-style-type: none">Up to 9 VA for EASYLAB adapter moduleUp to 29 VA for individual or room controller without control unitUp to 33 VA for room controller with control unitUp to 35 VA for fume cupboard controller with control panelUp 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: <ul style="list-style-type: none">Maintaining regular operation approx. 4.5 hParameterised damper position and power failure display approx. 6 h
Capacity emergency power accumulator	1500 mAh 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 mm ²
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)

Specification text

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

Expansion module for EASYLAB and TROX UNIVERSAL controllers as well as EASYLAB adapter module TAM. Enables direct connection of the PCB controller TCU3 to a supply voltage of 230 V AC. The expansion 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 PCB controller TCU3 by means of connector plug
- Simple wiring of switchable fume cupboard lighting in conjunction with the EM-LIGHT expansion 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:
 - Continuation of the normal control function
 - Holding the last damper blade position
 - Move the damper blade to the shut-off position
 - Move the damper blade to OPEN position
- In case of power failure:
 - Optical signalling on the operating unit
 - Configurable alarm transmission via alarm relay and via optional communication module (e.g. EM-BAC-MOD or EM-IP)

Technical data

- Supply voltage: 230 V AC $\pm 10\%$, 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 mm²

- Protection level: IP 20

Specification/Order notice

EM-TRF UPS as on-site retrofit

- Only in conjunction with suitable EM-TRF-USV-AKKU emergency power accumulator
- EM-TRF-USV-AKKU to be ordered separately

EM-TRF-USV as part of a VAV terminal unit, factory-fitted

- Order the VAV control unit for the first time using the order code
- Order code section Expansion for attachments, order code abbreviation **U**
- Emergency power accumulator included in the scope of delivery
- EM-TRF-USV installed in the base housing of the TCU3 control component and electrically connected to the motherboard
- Emergency power accumulator attached and connected to the terminal unit

Order code**EM – TRF-USV**

1	2

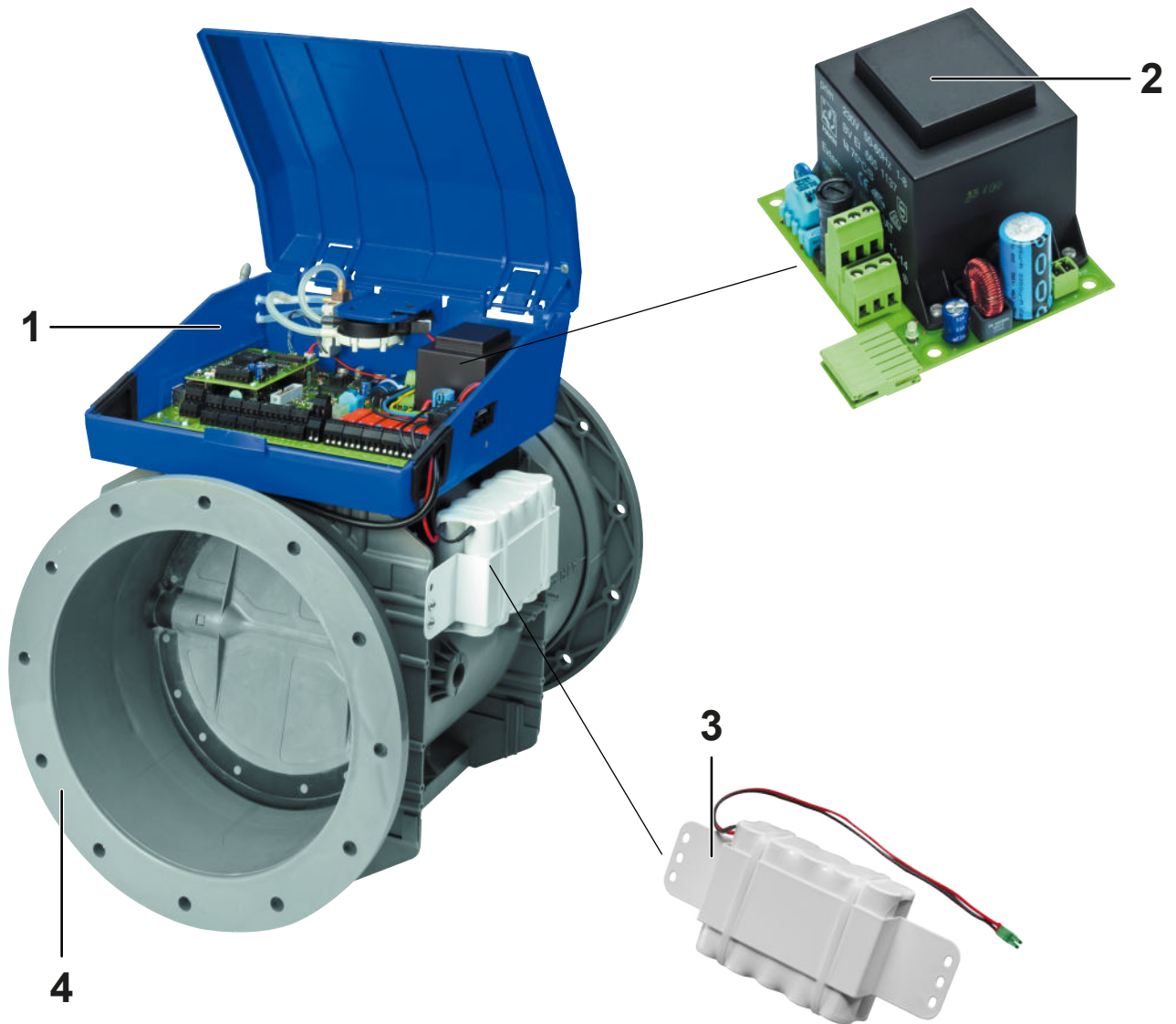
1 Product**EM-TRF-USV** Expansion module**2 Variante****TRF-USV** for 230 V AC uninterruptible power supply (UPS)**Note:**

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, in addition to the EM-TRF-USV transformer module with emergency power function, the EM-TRF-USV-AKKU emergency power accumulator must also be ordered.

Generally, the expansion module is ordered with the VAV terminal unit via the order code of the basic unit under the section **Expansion modules** with the order code **U**. In this case, the emergency power accumulator is included in the scope of delivery.

Product details

EM-TRF UPS extension module with emergency power accumulator using the EASYLAB controller as an example



- 1 EASYLAB extension module EM-TRF-USV with emergency power accumulator using the example of the EASYLAB controller TCU
- 2 Extension module EM-TRF-USV
- 3 UPS emergency power accumulator
- 4 Air terminal unit, e.g. TVLK

Installation details

Important note

If the EM-TRF-USV extension module is installed, the TCU3 controller board must not be supplied with 24V.

Commissioning with factory preparation

When ordering the EASYLAB or TROX UNIVERSAL controller with EM-TRF-USV extension module, the module is installed at the factory, the battery is connected and ready for operation. The UPS performance in the event of a power failure (default = maintain regular operation) can be adjusted with the EasyConnect configuration software. An initial charge of approx. 24 h is required for full emergency power functionality.

Installation and commissioning for retrofitting

- Disconnect the EASYLAB or TROX UNIVERSAL controller from the power supply
- Disconnect 24 V supply
- Install the EM-TRF-USV extension module in the controller housing and connect it to the TCU3 controller board
- Mount and connect emergency power accumulator (to be ordered separately)
- Mounting the safety latch on the outside of the controller housing
- Connecting the 230 V mains supply
- Extension module and accumulator are automatically recognised at the next switch-on
- Adjust performance in case of power failure with EasyConnect configuration software if necessary
- An initial charge of approx. 24 h is required for full emergency power functionality.