

EASYPACK CONTROLLER  
TCU3



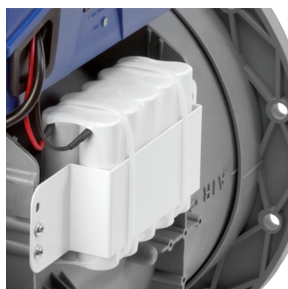
FOR CLEAN ROOMS, E.G.  
IN SEMICONDUCTOR  
MANUFACTURING



FOR HOSPITALS



FOR LABORATORIES



VARIANT WITH BATTERY  
PACK



PLUG SOCKETS ON THE  
OUTSIDE

## EASYPACK TCU3

REGULATORY EASYPACK PRZEZNACZONE DO

## NAJBARDZIEJ WYMAGAJĄCYCH PRZEDSIĘWZIĘĆ INŻYNIERYJNYCH

Elektroniczny regulator z funkcją plug&play ułatwiającą montaż i uruchomienie.

- Maksymalnie komfortowa regulacja w laboratoriach, clean roomach, salach operacyjnych oraz biurach
- Kompletny system dla pomieszczeń
- Adaptacyjny i szybko reagujący system dla dygestoriów, systemów nawiewno-wywiewnych oraz kontroli ciśnienia
- Interaktywne oprogramowanie konfiguracyjne z panelem uruchomieniowym oraz adapterem Bluetooth
- Kabel komunikacyjny z wtyczką
- Adaptacyjne panele sterowania, specjalne funkcje pozwalają na ustawienie indywidualnych trybów pracy oraz strategii regulacji
- Kontrola dygestoriów zgodnie z PN-EN 14175

Opcje rozszerzeń

- Podłączenie do sieci elektrycznej (230 V)
- Moduły rozszerzeń do układów BMS pracujących w sieci LonWorks, BACnet lub Modbus
- Automatykzna korekcja punktu zerowego gwarantująca długotrwałą stabilność działania i redukcję wymaganej obsługi
- Panele sterujące dla dygestoriów oraz pomieszczeń

## Zastosowanie



### Zastosowanie

- Elektroniczny regulator EASYLAB TCU3 for the control of volume flow rates in fume cupboards and for the control of supply and extract air in laboratories; can also be used as an attachment for air terminal units
- For use in laboratories, clean rooms in the pharmaceutical and semiconductor industries, operating theatres, intensive care units, and offices with very demanding control requirements
- Fast and stable control of the volume flow rate for fume cupboards, and of room supply air and room extract air
- Fume cupboard control tested to EN 14175, part 6, for fume cupboards of all brands
- Controllers can be used individually or combined with other controllers for a complete room solution
- System solution for the volume flow control in rooms (room balance)
- For extract air led areas such as laboratories
- For supply air led areas such as clean rooms
- Numerous options for the integration of additional volume flows into the room balance
- Room pressure control or duct pressure control as cascade of differential pressure and volume flow rate
- Interface to the central BMS, voltage signals 0 - 10 V or with expansion modules for LonWorks, BACnet, Modbus

### Special characteristics

- Plug and play communication system with automatic controller identification, no component addressing required
- Modular system for functional expansion
- Connections and status displays on the outside of the controller casing
- Project-specific adjustments are possible using adaptable control panel for fume cupboard and room
- Project-specific adjustments can be achieved with configurable special functions, monitoring, and alarm signalling
- Permanent function monitoring of the system and the connected sensors
- Very simple commissioning, configuration changes and diagnosis
- Centralised configuring and permanent signalling of room settings (room management function) on the TAM when combined with fume cupboards
- EasyConnect configuration software enables interactive navigation (also wireless)
- Factory tested and configured with project-specific parameters

## Opis



### Equipment functions

Fume cupboard control

- FH-VS: Face velocity transducer - face velocity control

- FH-DS: Sash distance sensor – linear control strategy
- FH-DV: Sash distance sensor – safety-optimised control strategy
- FH-2P: 2 switching steps for on-site switch contacts
- FH-3P: 3 switching steps for on-site switch contacts
- FH-F: Volume flow rate constant value

Extract air controller / supply air controller

External volume flow rate setting

- EC/SC-E0: Volume flow rate default setting 0 – 10 V DC
- EC/SC-E2: Volume flow rate default setting 2 – 10 V DC

Without signalling

With switching steps for on-site switch contacts

- EC/SC-2P: 2 switching steps
- EC/SC-3P: 3 switching steps
- EC/SC-F: Volume flow rate constant value

Room control

Extract air led system for laboratories

- RS/LAB: Supply air control
- RE/LAB: Extract air control
- PC/LAB: Differential pressure control (supply air)

Supply air led system for clean rooms

- RS/CLR: Supply air control
- RE/CLR: Extract air control
- PC/CLR: Differential pressure control (extract air)

## Parts and characteristics

- Ready-to-commission controller, as an attachment for air terminal units
- Static differential pressure transducer for rapid actual value measurement
- Fast-running high-precision actuator, running time for 90° is 3 s
- Microprocessor system with programme and system data stored in nonvolatile memory
- Double-stack terminal block for supply voltage connection
- Connections for two control panels
- Connection of communication line to plug socket or screw terminals
- Digital outputs with screw terminals
- Digital inputs with screw terminals or plug socket
- Analog inputs with screw terminals or plug socket
- Analog outputs with screw terminals or plug socket (actuator)
- Integral terminal resistor for the communication line
- Alarm indicator lights on both sides of the casing
- Status indicator lights (heartbeat, communication and terminal resistor)
- Equipment function FH-VS: Face velocity transducer VS-TRD for measuring the face velocity for fume cupboards
- Equipment function FH-DS, FH-DV: Sash distance sensor DS-TRD-01 for capturing the sash position of a fume cupboard

## Attachments

Expansion modules are factory mounted or can be fitted at a later stage

- T: EM-TRF, power supply unit for connecting the controller to the 230 V AC mains voltage
- U: EM-TRF-USV, power supply unit for connecting the controller to the 230 V AC mains voltage and to ensure uninterrupted power supply
- Z: EM-AUTOZERO, automatic zero point correction for long-term stable volume flow rate measurement and hence reduced maintenance.
- L: EM-LON, LonWorks FTT-10A interface
- B: EM-BAC-MOD-01, interface configured for BACnet MS/TP
- M: EM-BAC-MOD-01, interface configured for Modbus RTU
- S: EM-LIGHT, wired socket (230 V) for the connection of lighting and for switching the lighting on/off using the control panel
- EM-IP: BACnet-IP, Modbus-IP, webserverinterface

## Useful additions

- BE-SEG-\*\*: Control panel for fume cupboard control
- BE-LCD-01: Control panel for fume cupboard control and room control
- TAM: Adapter module as an interface between fume cupboard control and room control, and to the central BMS

- Differential pressure transducers: Static differential pressure transducers for room pressure control or duct pressure control
- EasyConnect: Configuration software for the commissioning and diagnosis of EASYLAB components

#### Construction features

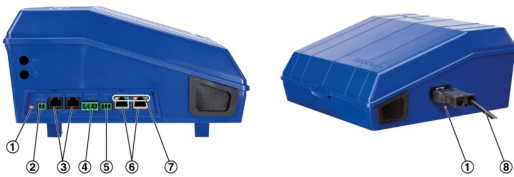
- Main PCB and expansion modules in one casing
- Controller casing is clip-fixed to the VAV terminal unit
- Controller casing can be opened without tools, except for TCU3 with EM-TRF or EM-TRF-USV
- Pin header socket for the connection of expansion modules
- Plug sockets for the most important connections on the outside of the casing
- Static differential pressure transducer with room air induction to protect the sensor

#### Materials and surfaces

- Casing made of ABS plastic, blue (RAL 5002)

## INFORMACJE TECHNICZNE

#### Fume cupboard control



- ① Monitoring of the maximum operational sash opening (EN 14175)

Supply voltage	24 V AC $\pm$ 15 %; 230 V AC as option; 50/60 Hz
Power rating	35 VA fume cupboard controller with control panel; 29 VA room controller; 33 VA room controller with room control panel; max. 40 VA with all expansion modules
Micro fuse	2 A, slow blow, 250 V
Actuator	Fast-running high-precision actuator, running time for 90° is 3 s
Operating temperature	10 - 50 °C
IEC protection class	III (protective extra-low voltage)
Protection level	IP 20
EC conformity	EMC according to 2004/108/EC
Weight	1.4 kg

### **Standard description (characteristics)**

EASYPAC, electronic control unit with plug and play communication interface; modular system that can be expanded to provide sophisticated variable volume flow rate control with a fast-running actuator.

With the application software the control unit can be set to various equipment functions such as fume cupboard control, supply and extract air control, and differential pressure control in order to meet demanding control requirements; even entire rooms can be controlled individually.

### **Special characteristics**

- Plug and play communication system with automatic controller identification, no component addressing required
- Modular system for functional expansion
- Connections and status displays on the outside of the controller casing
- Project-specific adjustments are possible using adaptable control panel for fume cupboard and room
- Project-specific adjustments can be achieved with configurable special functions, monitoring, and alarm signalling
- Permanent function monitoring of the system and the connected sensors
- Very simple commissioning, configuration changes and diagnosis
- Centralised configuring and permanent signalling of room settings (room management function) on the TAM when combined with fume cupboards
- EasyConnect configuration software enables interactive navigation (also wireless)
- Factory tested and configured with project-specific parameters

### **Materials and surfaces**

- Casing made of ABS plastic, blue (RAL 5002)

### **Technical data**

- Supply voltage: 24 V AC  $\pm$  15 %; 230 V AC as option; 50/60 Hz
- Power rating: 35 VA fume cupboard controller with control panel; 29 VA room controller; 33 VA room controller with room control panel; max. 40 VA with all expansion modules
- Micro fuse: 2 A slow blow, 250 V
- Actuator: Fast-running high-precision actuator, running time for 90° is 3 s