TROX® TECHNIK

The art of handling air

CONTROLLER TAM

TYP TAM

ADAPTER MODULE FOR THE EXPANSION OF THE EASYLAB SYSTEM

Adapter module as an interface between fume cupboard control and room control, and to the central BMS

- Plug and play communication with up to 23 EASYLAB controllers, fume cupboard controllers, or room controllers
- Additional data points for the integration of other variable and constant volume flow rates into the room balance, e.g. controllers or fume hoods
- Can be set up as room interface to the central BMS
- Connection of a room control panel for the signalling and use of room functions
- Used when fume cupboards are used in a room

Expansion options

- Connection to the mains (230 V)
- Expansion modules with LonWorks, BACnet or Modbus standard interfaces to the central BMS
- Room control panels for operating mode default setting

Application

Application

- Adapter module Type TAM for the expansion of the EASYLAB system, in particular for the integration of fume cupboards
- Interface between fume cupboard control and room control
- Interface to the central BMS, voltage signals 0 – 10 V or with expansion modules for LonWorks, BACnet, Modbus
- Very simple commissioning: automatic controller identification, no component addressing required (plug and play communication), configuration software with interactive menu navigation and extended diagnostic functions
- Project-specific configuration using expansion modules and room control panels
- Numerous options for the integration of additional volume flows into the room balance
- Room management function (RMF) can be activated
- For use in laboratories, clean rooms in the pharmaceutical and semiconductor industries, operating theatres, intensive care units, and offices with very demanding control requirements

Special characteristics

- Plug and play communication 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 using adaptable room control panels
- Project-specific adjustments can be achieved with configurable special functions, monitoring, and alarm signalling
- Permanent function monitoring of the system
- Very simple commissioning, configuration changes and diagnosis
- Centralised configuring and permanent signalling of room settings (room management function)
- EasyConnect configuration software enables interactive navigation (also wireless)
- Factory tested and configured with project-specific parameters

Description

Operating modes

- LAB: extract air led system for laboratories
- CLR: supply air led system for clean rooms
- LAB/CLR-RMF: System with active room management function

Parts and characteristics

- 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
- Integral terminal resistor for the communication line
- Alarm indicator lights on both sides of the casing
- Status indicator lights (heartbeat, communication and terminal resistor)

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
- 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

Useful additions

- BE-LCD-01: Control panel for fume cupboard control and room control (only for operating mode ...-RMF)
- 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
- Angle bracket for fixing the casing in a switch cabinet or to a wall or ceiling
- Casing can be opened without tools, except for TAM 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

Materials and surfaces

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

INFORMACJE TECHNICZNE

Tilkoblinger og tilstandsdisplay – TAM

① Indikatorlampe alarm

② Digital inngang

③ Tilkoblinger romkontrollpaneler eller service

④ Analog inngang

⑤ Tilkobling kommunikasjonskabel

⑥Indikatorlamper kommunikasjon, aktiv endemotstand, regulatorfunksjon (heartbeat)

Supply voltage	24 V AC ± 15 %; 230 V AC as option; 50/60 Hz
Power rating	9 VA max.
Micro fuse	2 A, slow blow, 250 V
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	1.7 kg including fixing bracket

Adapter module for the EASYLAB system as an interface between fume cupboard control and room control

Control electronics using a microprocessor, with configuration settings stored in EEPROM memory and hence safe in case of a power failure.

Connections for all important communication and peripheral devices are located on the outside of the casing and hence easily accessible. Indicator lights on the outside of the casing for alarms (on both sides), controller function (heartbeat), and communication.

Communication system with plug-in communication lines, automatic connection setup without manual network configuration, easy to expand with additional controllers (usually without integration issues).

Integration of variable or constant volume flow rates in the room balance using analog signals, switch contacts or constant values. Signalling of volume flow rate consolidated signals, faults, and status messages to central BMS with analog or switch outputs.

5 analog inputs for the integration of variable volume flows.

6 volt-free digital inputs for the integration of constant flows and/or the control of special functions.

Analog output for signalling the total volume flow rate of the room (supply air or extract air)

Digital output for an alarm; alarm conditions can be configured.

Supply voltage 24 V AC

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Additional functions with active room management function

- Connection of one or two adaptable EASYLAB control panels BE-LCD-01 with optical and acoustic signalling
- The alarm sound can be suppressed or its duration limited; alarm signalling is configurable, e.g. suppressing alarms for certain operating modes or consolidating alarms from different levels
- Operating mode default setting by the central BMS and/or room control panel with flexible suppression and prioritisation options
- Supported special operating modes: increased operation, reduced operation, shut-off, and open position
- Operating mode default setting for all controllers in the room
- Central interface for individual faults
- Monitoring of room functions
- Centralised configuring of room parameters

TAM / TL / LAB / ...

① ② ③ ④

① Type
TAM   Adapter module

② Expansion modules
Option 1: Supply voltage
No entry: 24 V AC
T   EM-TRF for 230 V AC
U   EM-TRF-USV for 230 V AC, provides unin-
           terruptible power supply (UPS)
Option 2: Communications interface
No entry: none
L   EM-LON for LonWorks-FTT-10A
B   EM-BAC-MOD-01 for BACnet MS/TP
M   EM-BAC-MOD-01 for Modbus RTU

③ Operating mode
LAB   Extract air led system (laboratories)
LAB-RMF   Extract air led system with
           active room management function (labor-
           atories)
CLR   Supply air led system (clean room)
CLR-RMF   Supply air led system with
           active room management function

④ Operating values [m³/h or l/s, Pa]
Only with operating mode LAB-RMF or
CLR-RMF
$\dot{V}1$ Total room extract air/supply air – standard
             mode
$\dot{V}2$ Total room extract air/supply air – reduced
             operation
$\dot{V}3$ Total room extract air/supply air –
             increased operation
$\dot{V}4$ Constant room supply air
$\dot{V}5$ Constant room extract air
$\dot{V}6$ Supply air/extract air difference
$\Delta p_{setpoint}$ Setpoint pressure (only with differential
             pressure control)

Useful additions
Room control panel
BE-LCD-01 with 40-character display