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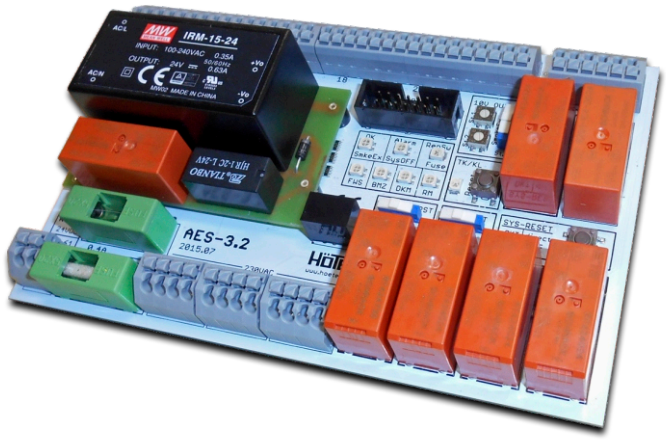
Edition	Version
11.15	D

Ventilation and Smoke Extraction Control Unit AES-ST3.2



Application

The ventilation and smoke extraction control unit AES-ST3.2 is designed for the operation of one or two-stage fan motors for ventilation under normal operating conditions and for emergency smoke extraction. The control unit is 12101 / Part 9 designed in accordance with DIN EN and has a general TÜV certificate.

Function

The functionality of the controller corresponds to VDMA 24177 and the BHE guidelines for mechanical smoke extraction system.
When **bleeding** all motor protection are organs in function.
With **smoke extraction** are all motor protection devices to achieve the longest possible Longevity bridged to the destruction of the fan motor.

Operation + Display module (internal)

READY Ventilation is switched off. The READY indicator is lit. An external smoke extraction alarm activates the smoke extraction mode as described in SMOKE EXTRACTION. In this switch position the fan motor can also be switched on in ventilation mode by a connected REMOTE SWITCH as described in ON or ST.1/ST.2.

SMOKE EXTRACTION Ventilation flap drives to OPEN position. In smoke extraction mode the fan motor is switched to a high speed via the start-up circuit. The SMOKE EXTRACTION indicator is lit. The motor circuit breaker is disabled. The fan can only be switched off by resetting the triggering alarm or by the external FIRE BRIGADE switch.

ON or ST.1 / ST.2 Ventilation flap drives to OPEN position. In ventilation mode the fan motor is switched on at the selected speed. The OPERATING indicator is lit. The motor circuit breaker is enabled. An external smoke extraction alarm activates the smoke extraction mode as described in SMOKE EXTRACTION.

INTERFERENCE Indication that the motor protective device, the repair switch has tripped or a system fault. In ventilation mode the fan motor off. In smoke extraction of the fan motor is not switched off. The Message needs to Troubleshooting the motor protective device and on the controller AES ST3.2 be unlocked.

FIRE BRIGADE SWITCH (external)

The switch has absolute priority. All other control elements are subordinated. It up to 6 firefighters switch (FWS-P4 / FWS-4S) are operated equally. About LED signal lights of the plant status is displayed. The detection loop is monitored for open and short circuit.

On It is the smoke extraction triggered
OFF The system is independent of the previous mode Switched off. The fan motor is no longer energized and the flap is fed in.

Motor circuit breaker (internal)

To monitor the motor rated currents for each fan level, various Motor protection devices are connected. Alternatively, a monitoring (PTC) without additional equipment. When triggered, a message is sent. The Message must be on the AES-ST3.2 reset. The fan shutdown after Tripping occurs only in ventilation mode.

Fan enable (external)

If the ventilation in ventilation or smoke extraction is switched operation, carried out the In-circuit the associated exhaust flap. Only when the flap over a Limit switch (NC) ON signals, the fan is enabled for switching. In order ensures that the ventilation is not working against the closed vent flap. Is no release contact connected, switch flap and ventilation simultaneously.

Remote switching (external)

The remote switch can be connected as an additional switch for ventilation mode and is subordinate to the OPERATING & DISPLAY MODULE.
0 or OFF Ventilation is switched off.
ON or ST.1 / ST.2 Ventilation flap drives to OPEN position. In ventilation mode the fan motor is switched on at the selected speed. The OPERATING indicator is lit. The motor circuit breaker is enabled. Smoke extraction mode is activated if an external smoke extraction request is received.

Flap actuation (external)

If the ventilation is switched on in ventilation or smoke extraction mode, the associated ventilation flap is actuated. For maximum functional reliability the flap output is fed via a separate fuse.

Operating / Ready / Smoke extraction / Overload (signal)

Non-isolated (+ 24VDC) relating to the forwarding of a parent body.

ARM - automatic smoke alarm (external)

For connection of up to 20 automatic smoke detectors. When is detector alarm smoke extraction triggered. The detection loop is a short circuit, wire break and missing alarm insert monitored. The alarm is latching. The reset of the alarm via the "System Reset", or by pressing the reset button on the manual call HRM-3 for 1 second.

BMZ - central fire alarm (external)

In Message triggering by the BMZ or interruption of the connecting line is triggered smoke extraction. The detection loop is on Short monitored. The release is optionally storing or self-resetting. To be set using selector switch on the control part.

HRM - manual smoke vent button (external)

For the connection of up to 20 manual call points, in execution as smoke vent button or alternatively connected as manual call points in-stage version over Opener will. The setting is made via the selector switch on the control unit. In detectors operating is triggered smoke extraction and stored the alarm.

- **Selector switch in position "DKT" (tripping: 20mA current signal)**

The detection loop is monitored for open and short circuit. A Resetting the alarm can be made directly at the smoke vent button.

- **Selector switch in position "DKM" (triggering: NC / wire break)**

The detection loop is monitored for short circuits. Resetting the alarm carried out by previous provision at the tripped detectors and hand subsequent resetting by "System Reset".

INTERFERENCE / Warning (signal)

Isolated signal contact system disorder.
Possible causes: power supply is missing or main switch off control Blown fuse, low voltage supply is broken, triggered motor monitoring, fault the detector loops, repair switch.

Triggering ventilation (internal)

Switching outputs for switching on the fan stages 1 or 2 in accordance with the Request by external detector / controller.

Analog output 0-10V (internal)

For two ventilation levels and for the smoke extraction operation, the signal level be set separately on the AES-ST3.2.

Repair switch - Signal input (external)

In ventilation mode is performed fan shutdown and fault.
In smoke extraction operation only fault occurs, no Fan Off!
The repair switch must always be carried out with load disconnect.

LT - lamp test (internal)

Control input for controlling the indicator lights on the control and display module.

Optical on-board diagnostics (internal)

For quick and easy diagnosis of system status on the Controller AES ST3.2 visually.

- Operating mode (ready, tripped and fault)
- Per detector loop, whether this has been triggered or a fault.
- Fault to repair switch and the motor protective device

System-reset (internal: Button)/(external: Input Kl.60:61)

For central resetting the controller to the standby mode, after withdrawal of allowances to the individual detector loops.

Lock function(external control input +24VDC)

Work several AES ST3.2 on only one common smoke extract fan, provides the barrier function provides a possibility that only a control part always active can be. With Lock function is active, the controller is disabled, this included also the fireman's switch. There is fault / alarm is generated.

Connection diagram AES-ST3.2

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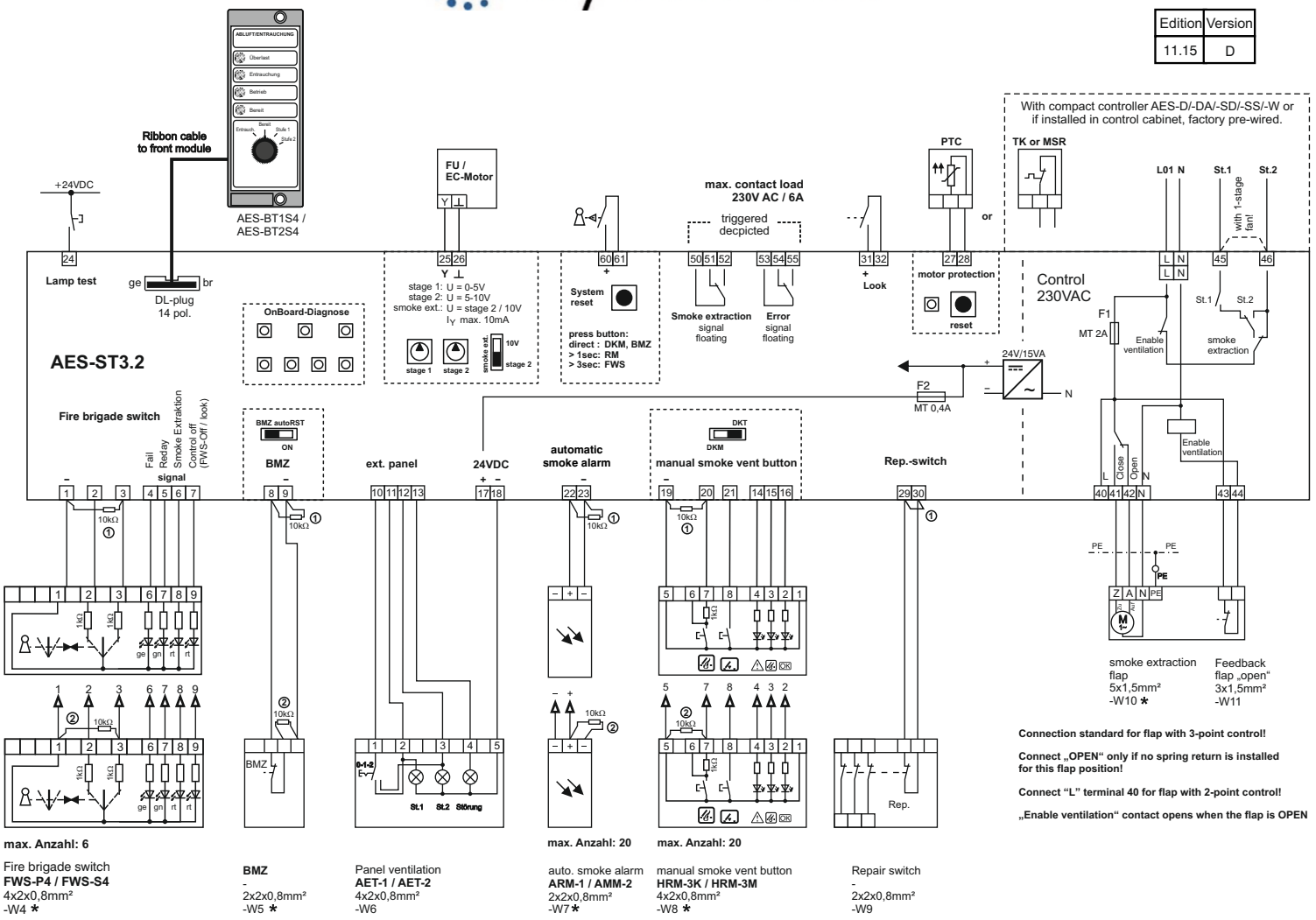

max. Anzahl: 6

Fire brigade switch
FWS-P4 / FWS-S4
4x2x0,8mm²
-W4 *

BMZ
-
2x2x0,8mm²
-W5 *

Panel ventilation
AET-1 / AET-2
4x2x0,8mm²
-W6

max. Anzahl: 20

auto. smoke alarm
ARM-1 / AMM-2
2x2x0,8mm²
-W7 *

max. Anzahl: 20

manual smoke vent button
HRM-3K / HRM-3M
4x2x0,8mm²
-W8 *

Repair switch
-
2x2x0,8mm²
-W9

① **Resistor or bridge removed when device or detector connected.**

② **Resistor on the last or insert single detector in the loop.**

* **Function retaning line**

Specified line types and dimensions are minimum requirements excluding laying, cable length, type of network and necessary integrity. The related to the building specifications must be taken autonomously by the plumber.

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Order-Code

Typ:	article:
AES-ST3.2	Ventilation & Smoke Extraction Control Unit
AES-BT1S	Operating & display module for 1-stage fan
AES-BT2S	Operating & display module for 2-stage fan
AET-1	AP panel, 1-stage, "Ventilation" (remote switch)
AET-2	AP panel, 2-stage, "Ventilation" (remote switch)
FWS-S4	Fire brigade switch „smoke extraction“ with 4 indicator lights and standard-key-switch
FWS-P4	Fire brigade switch „smoke extraction“ with 4 indicator lights and mounting for DIN profile cylinder
FWS-ZY	DIN profile cylinder-key set for fire brigade switch
ARM-1	Automatic smoke alarm with alarm socket
AMM-2	Automatic multi-sensor alarm, optical / thermal with alarm socket
HRM-3K-[ ]	Smoke vent button „smoke exhaust" in plastic housing
HRM-3M-[ ]	Smoke vent button „smoke exhaust" in metal housing

calour grey **[GR]** / yellow **[GE]** / orange **[OR]**

DK-GLAS	Spare glass pane for pushbutton alarm

Technical data

Terminal voltage control	V AC	230
Smoke extraction flap:		
Rated voltage / rated current	V AC / A	230 / 2
Control fuse (-F1)	A	2 medium slow
Control - low voltage	V DC	24
Control fuse 24VDC (-F2)	mA	400 medium slow
max. Connection power 24V DC (on terminal 17:18 / ext. panel)		
P = 10W - 0,35W x (quantity HRM + quantity FWS)		
Contacts floating signal	V AC / A	230 / 2
Detector loops (FWS, BMZ, ARM, HRM):		
Rated voltage	V DC	22
max. quantity of detectors per loop	see wiring diagram	
max. cable length per loop	m	450
recommended signal conductor	Art	solid, 0,8mm
terminating resistor	kOhm	10
trip resistance	kOhm	1
wire breakage detection	mA	<1
short-circuit (short-circuit proof)	mA	> 40
Evaluation motor protection (PTC)		
Ok + (reset about button)	kOhm	< 1,9
release	kOhm	> 2,7
current load Analog output	mA	max. 10
provided by customer repair switch:	**only with load disconnect!**	
ambient temperature	°C	0 to +40
dimensions l/w/d	mm	150/97/65
identification	CE	
applied standards	EN 12101-9 , DIN 18232-5/6	
EMC tested to	EN 50130-4 , EN 55011	

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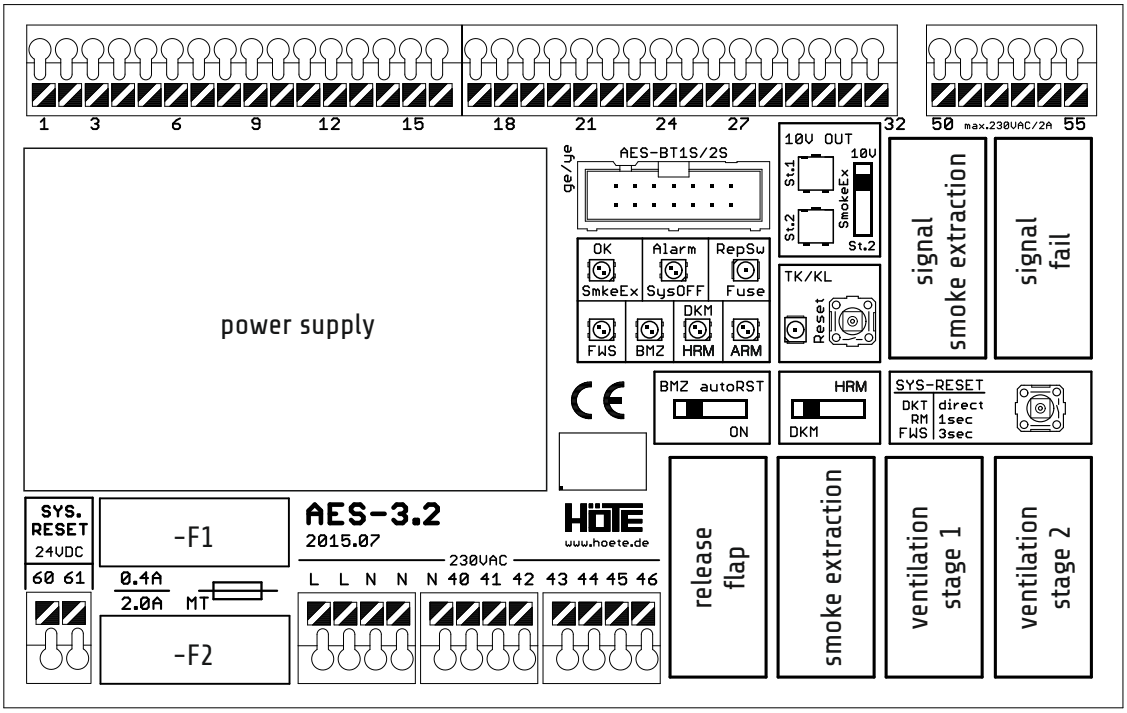
Top view controlboard AES-ST3.2

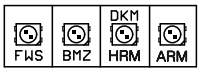


Function OnBoard-Diagnose and control elements:

indicator GREEN: system ready
RED: system in smoke extraction
OUT: system fault is present, staked adjustment module (AES BTxS) or see ads of OB diagnostics

indicator YELLOW: system OFF, by FWS "OFF" or input "Look"
RED: triggering in maintained command

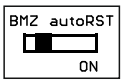
indicator YELLOW: input "repair switch" open or fuse (F1, F2) dropped
OUT: no fault



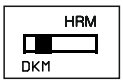
indicator YELLOW: wire break or short circuit of the displayed detector loop
RED: triggering active
OUT: detector circuit without fault, no tripping

indicator YELLOW: motor protection triggered or input "motor protection" open message maintained command
OUT: no fault

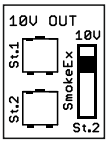
Button „reset“: after checking and resetting the ext. surveillance authority
press button to reset message



Switch ON: triggering on the BMZ is not maintained command
OFF: triggering on the BMZ is maintained command



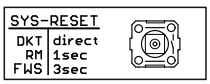
Switch DKM: detector circuit for latching manual call via NC (wire break = release)
HRM: detector circuit for smoke vent button (HRM-3) (wire break = fault)



Settings for analog output at terminal 25:26

rotarypoti St.1: setting output voltage 0-5V for ventilation level 1
St.2: setting output voltage 5-10V for ventilation level 2 (and smoke extraction operation)

Switch 10V: output voltage determined in smoke extraction operation 10V
St.2: output voltage in smoke extraction operation the same as for ventilation level 2



Reset saved trips

Button: press: tripping on hand detector and BMZ is reset. Only possible if no trigger is present.
1sec to press: triggering the automatic RM will reset and the detector circuit for 3sec interrupted
3sec to press: triggering at FWS is reset. Only possible if previously FWS "Off"
Input terminal 60:61: Function is the same as using button "Sys Reset".

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