MZ3-C-FA-V11
Controller/positioner for comfort ventilation with integrated CO2 sensor

Function

- Positioner and controller for comfort ventilation with touch panel
- Internal CO2 sensor for air quality measurement
- Manual operation with up to 4 Levels, OFF, minimum air, 1st Level, 2nd Level, maximum air
- AUTO level mode: The controller switches the ventilation according to adjustable levels of the CO2 sensor value.
- AUTO continuous mode: The controller adjusts the ventilation level gradually between adjustable minimum and maximum according to CO2 sensor value
- One 0…10 VDC controls output to control the ventilation system
- Automatic reset of the maximum air level (standard: level 0 after 120 min.)
- Password protected controls settings
- Copy of settings with accessory (AEC-PM2)



Applications

This device is designed to control ventilation systems for comfort applications. For example, for well insulated residential areas which are required to be ventilated or for controlling dampers, valve drives, blinds or windows, etc.

General description

The MZ3-C-FA-V11 is a microprocessor-controlled precision positioner / proportional controller with touch panel. Through user and engineering parameters the positioner may be configured to work for most of the standard ventilation applications. The device is pre-configured according to this documentation. Settings such as switching levels of the control curve and ventilation strengths for each Level may be adjusted. The configuration may be performed using the programming device called OPA-S. This device may be used as well to visualize measuring values. Configuration can as well be updated using a remote memory device called AEC-PM2.

CO2 sensor

The CO2 concentration is measured by photoacoustic sensor technology PASens® with automatic background calibration algorithm (ASC). The measurement technology used guarantees high reliability and long-term stability. The sensor has a pressure dependence (atmospheric pressure), therefore the altitude above sea level can be optionally adjusted to achieve even better accuracy. The microprocessor measures the CO2 concentration every 5 seconds and calculates the signal value from a number of measured values.

Error indication

In case of a sensor error, the failed state is indicated with the OPA-S and the “CO2” LED.
In “auto” operation the “CO2” LED blinks in 1Hz cycle to indicate the error. Additionally, “Err3” is shown on OPA-S when plugged in.

Automatic CO2 background calibration (ASC)

Background Calibration (ASC) is turned on by default and constantly monitors the measured CO2 concentrations. The calibration function expects the CO2 concentration to periodically drop to fresh air levels of 400 ppm. Over a period of several days, the controller attempts to gradually reach this value by recalibrating a maximum of 30ppm per day.
To achieve the specified accuracy, it is necessary for the sensor to run continuously without power interruption for at least 3 weeks.

For special applications such as greenhouses, animal farms, etc., ASC calibration should be disabled and the sensor calibrated manually. The automatic calibration ASC can be deactivated via the external operating terminal OPA-S. The sensor can be calibrated by the customer and does not have to be sent in for calibration.

For more information on manual calibration, see section "Calibration" in the engineering manual.

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Types and ordering

Product name	Product No.	Description	Features
MZ3-C-FA-V11-B-T4-W	40-100282	- CO2 sensor - Blue LED - White frame - Lettering: Minimum, Normal, Maximum, Party	Compact positioner / controller in a white frame, with CO2 sensor and one 0-10 VDC output. Operation as 4-Level switch with touch panel and AUTO function.
Accessories			
OPA-S	40-500006	Programming and display device	LCD display for surface mounting or handheld operation.
AEC-PM2	40-500130	Memory-Device. Used for copying settings	Stores settings of MZ3

Interface to the ventilation system

The positioner works with all systems that are designed for a 0…10 VDC or 2…10 VDC input signal.

Technical Data

Caution! This device is intended to be used for comfort applications. Where a device failure endangers human life and/or property, it is the responsibility of the owner, designer and installer to add additional safety devices to prevent or detect a system failure caused by such a device failure. Vector Controls or its affiliates cannot be held liable for any damage caused by such a failure. Failure to follow specifications and local regulations may endanger life, cause equipment damage and void warranty.

Power supply	Operating voltage	24 V AC/DC ± 10%, 50/60 Hz, Class 2 48 VA max.
	Power consumption	Max. 1 VA
	Electrical connection	Terminal connectors, wire 0,34-2,5 mm2 (AWG 22…13)
Internal sensors	CO2 sensor	Photoacoustic sensor technology PASens® with automatic calibration in the background (ASC)
	Response time (63%)	1 minute
	Measuring range	0 - 2000 ppm vol.
	Repeatability	± 10 ppm typical
	Accuracy	± 50 ppm + 5% of measured value
Signal output	Analog output Output signal Maximum load	 DC 0…10 V 2 mA or 5 kΩ
Environment	Operation Climatic conditions Temperature Humidity	To IEC 721-3-3 class 3K5 0…50 ° C (32…122 ° F) < 95% RH non-condensing
	Transport & storage Climatic conditions Temperature Humidity Mechanical conditions	To IEC 721-3-2 and IEC 721-3-1 class 3K3 and class 1K3 0…50 °C (32…122 °F) < 95% RH non-condensing class 2MT2
Standards	Degree of protection	Wall mounted: IP40 acc. EN 60529 Not installed: IP00 acc. EN 60529
	Safety class	III (IEC 60536)
General	Housing material:	Flame retardant PC+ABS plastic (UL94 class V-0)
	Dimensions (H x W x D) including packaging	120 x 120 x 40 mm (4,7” x 4,7” x 1,6”)
	Weight (incl. packaging)	140 g (5.0 oz)

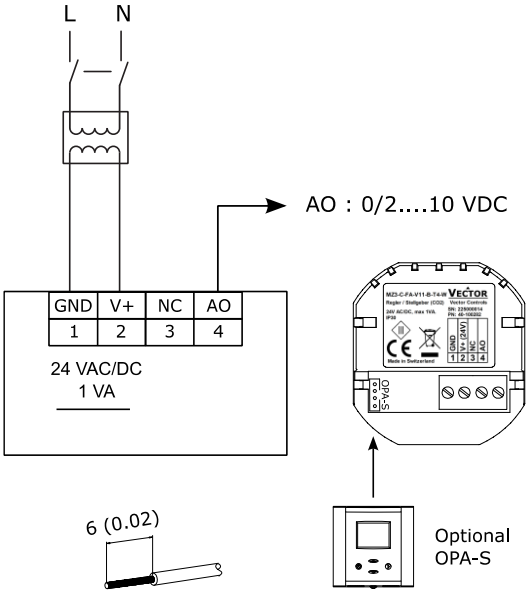
Product testing and certification

CE Declaration of Conformity

Information on the conformity of our products can be found on our website www.vectorcontrols.com on the corresponding product page under "Downloads".

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Connection diagram



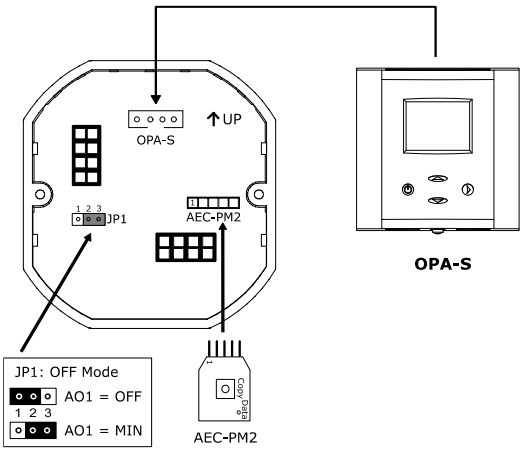
Description:

1	**GND**	Power supply:	0 V, -24 VDC, internally connected to signal common
2	**V+**	Power supply:	24 VAC, +24 VDC
3	**NC**	No connection	
4	**AO**	Analog output ventilation:	0/2…10 VDC

Sealing of cable entries

Important
All cable entries into the connection box must be sealed to prevent air drafts, which could otherwise affect the sensors in the device and prevent correct measurements!

View of rear part, without front panel

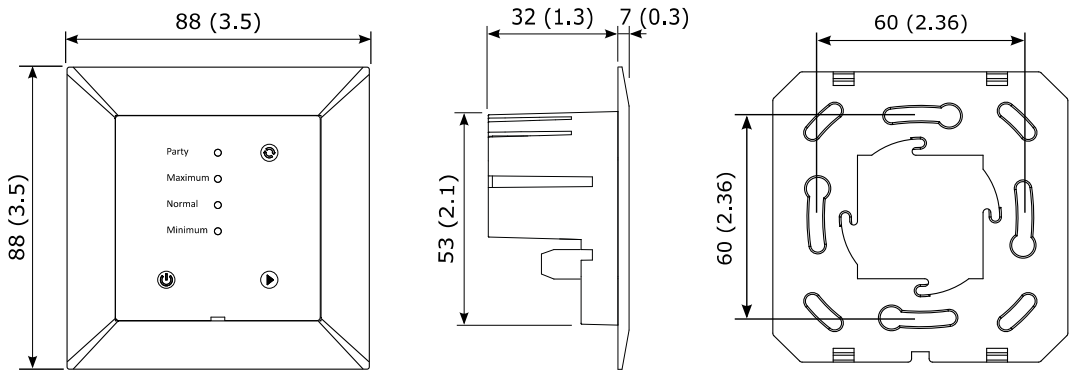


NOTE: For parameter programming, the OPA-S programming and display device must be plugged into the connector under the front panel or on the rear of the MZ3.
If an OPA-S programming and display unit is permanently connected to the MZ3, parameter programming is performed with this unit.

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Dimensions mm (in)

The MZ3-C-FA-V11 is so designed that it can be incorporated into a commercially available flush box (frame and mounting plate are included).



Mounting and installation

Mount the controller on an easily accessible interior wall in a standard flush box.
Mount and connect the controller as shown in the MZ3-C-FA-V11 installation manual no. 70-000835 supplied with the device, and wire it according to the connection diagram above.

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