TCY-MZ2 Positioner for comfort ventilation



Functions

- Positioner for comfort ventilation with time schedules
- 2 analog outputs 0–10 V DC with 10 mV resolution
- 1 input for exhaust fan override or presence sensor
- Party mode with automatic setback; off mode with selectable ventilation interval and strength
- Setpoint in steps or percent; password-protected settings
- -D version: backlight and real-time clock with time schedules

Applications

- Control of ventilation systems in comfort and industrial applications
- Residential ventilation with time-dependent airflow levels

General description

The TCY-MZ is a microprocessor-controlled precision positioner with real-time clock and time schedules. With user and control parameters it can be set up for most standard ventilation applications. It is configured with the standard operation terminal; no special tools or software are required.

Name

T C Y - M Z 2 - D

Option:	D	= Real time clock with time schedules
Function:	2	= 2AO
Control:	Z	= Positioner
Outputs:	M	= Modulating
Series:	**TCY**	

Ordering

Item Name	Item code	Control Type	Key-data
TCY-MZ2	40-10 0164	Positioner	Compact positioner with 2 analog outputs and 1 passive input
TCY-MZ2-D	40-10 0165	With clock function	

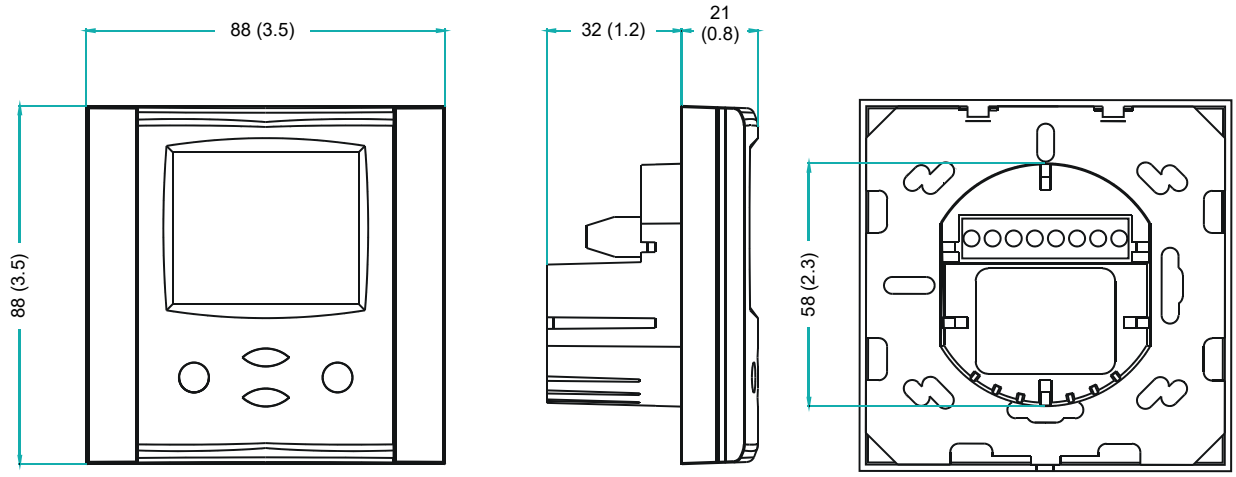
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Technical specifications

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.

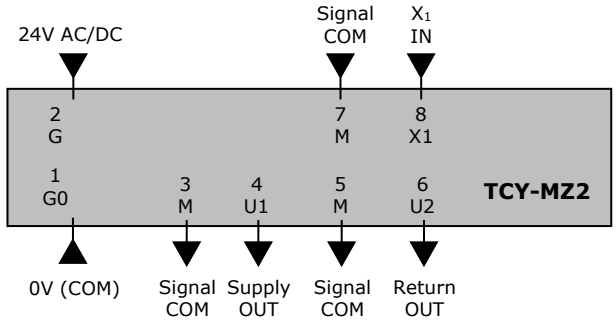
Power Supply	Operating Voltage	24 V AC/DC ± 10 %, 50/60 Hz, Class 2 48VA max
	Power Consumption	Max. 1.5 VA
	Electrical Connection	Terminal Connectors, wire 0.34-2.5 mm² (AWG 24…12)
Signal inputs	Temperature Input	
	Range	0-50 °C (32-122 °F)
	Accuracy	0.5 K
Signal outputs	Analog Outputs Output Signal Resolution Maximum Load	AO1, AO2 DC 0-10 V 9.76 mV (10 bit) 10 mA
Environment	Operation Climatic Conditions Temperature Humidity	To IEC 721-3-3 class 3 K5 0-50 °C (32-122 °F) <95 % r.H. non-condensing
	Transport & Storage Climatic Conditions Temperature Humidity Mechanical Conditions	To IEC 721-3-2 and IEC 721-3-1 class 3 K3 and class 1 K3 -25-70 °C (-13-158 °F) <95 % r.H. non-condensing class 2MT2
Standards	CE conform according to EMC Standard 89/336/EEC EMEI Standard 73/23/EEC	EN 61 000-6-1/ EN 61 000-6-3
	Product standards Automatic electrical controls for household and similar use Special requirement on temperature dependent controls	 EN 60 730 –1 EN 60 730 – 2 – 9
	Degree of Protection	IP30 to EN 60529
	Safety Class	III (IEC 60536)
	Cover, back part Mounting Plate	Fire proof ABS plastic (UL94 class V-0) Galvanized Steel
General	Dimensions (H x W x D)	Front part: 88 x 88 x 21 mm (3.5” x 3.5” x 0.8”) Power case: ø 58 x 32 mm (ø 2.3” x 1.3”)
	Weight (including package)	252 g (8.9 oz)

Dimensions [mm] (inch)



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Connection diagram



Description:

G0	Power supply:	0V, -24VDC, internally connected to signal common
G	Power supply:	24VAC, +24VDC
M	Signal common:	Common 0 potential for analog inputs and analog outputs.
X1	External passive input:	open contact to signal common
U1	Analog output supply air:	0…10 V DC
U2	Analog output return air:	0…10 V DC

Selection of actuators

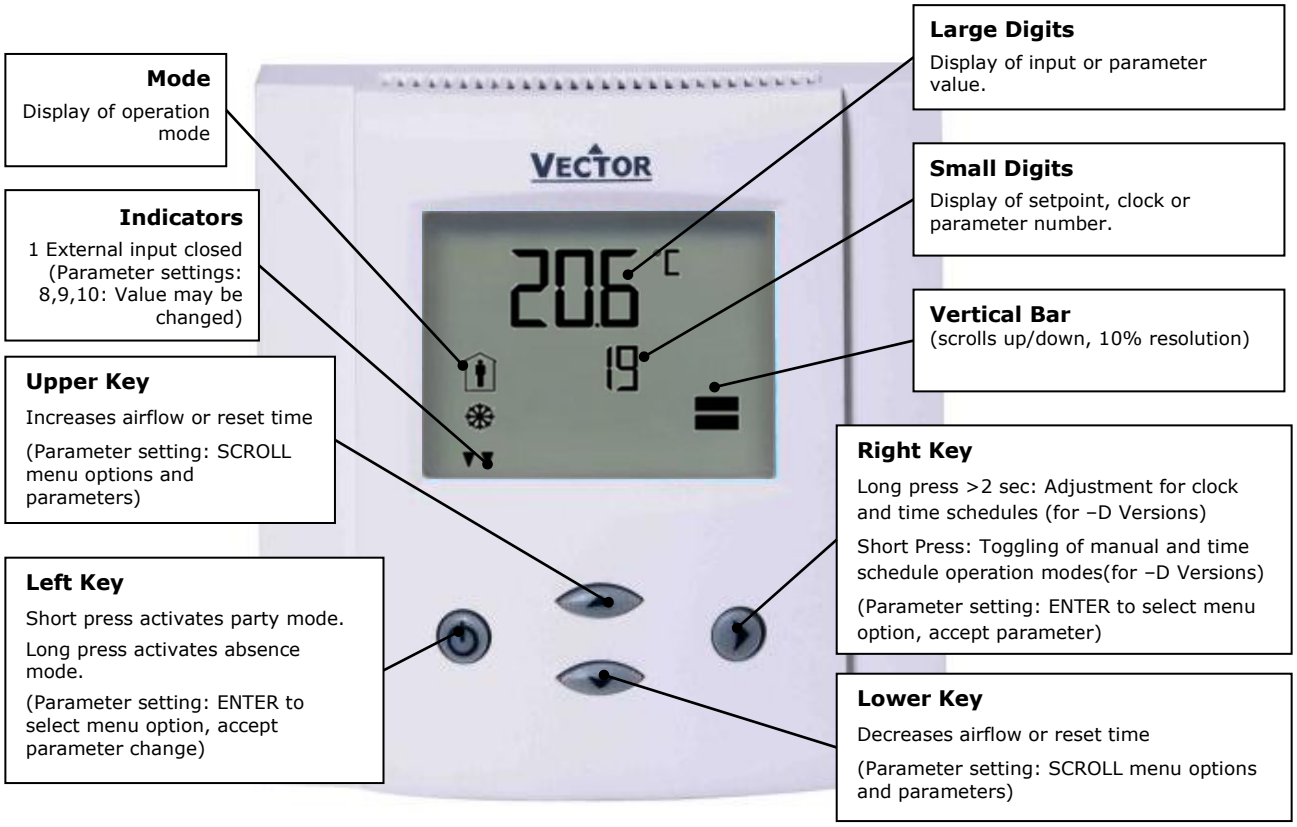
Choose actuators with an input signal type of 0–10V DC or 2–10V DC.

Mounting and installation

Mount the controller on an interior wall, approx. 1.5 m above the floor, in a place with average room temperature. Avoid direct sunlight, heat sources, doors, outside walls and air outlets. The location is less critical if an external temperature sensor is used.
Mount and connect the controller as shown in the installation sheet supplied with the device, and wire it according to the connection diagram above.

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Display and operation



Operation Modes

STEP	Normal mode	The ventilation is operating based on selected values
OFF	Absence mode	Ventilation is operated with on and off intervals. The intensity and duration of both on and off intervals may be defined with parameters. The default is 5.5 hours in off mode and 0.5 hours with minimum airflow.
	Party mode (FULL)	Ventilation is fully activated. The reset time is shown on the display. It may be set.
HIGH	Full supply mode	This mode is activated by an external input for example a switch on the kitchen or bathroom exhaust fan. The Supply air opens full and the return air is switched off. The values of full supply mode for both supply and return air are selectable through parameters.
	Time schedule mode	Airflow is defined by time schedules
	Manual override	Short term manual override of the time schedule value. After a fixed reset time of 60 min the positioner will revert to the scheduled value.

Power Failure

All the parameters and set points are memorized and do not need to be reentered. Depending on **UP03** the unit will remain switched off, switch on automatically or return to the operation mode it was in before the power failure.
Deluxe version only: Timer operation and daytime setting will be retained for 24h. The controller has to be connected to a power supply for at least 10 hours for the backup function to operate accordingly.

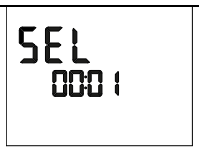
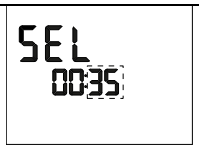
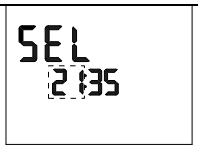
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Clock operation

The TCY-MZ2-D contains a quartz clock with battery back-up (not available in TCY-MZ2). Up to 8 switching events based on time and day of the week may be programmed. A switching event is defined by the time, day of the week and ventilation setpoint.
A blinking clock indicates that the time has not been set or that the unit has been without power for longer than 48 hours. The time needs to be set to allow time schedules to operate.

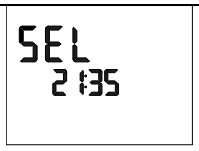
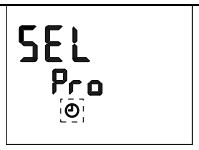
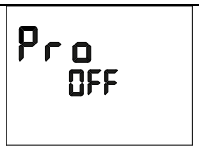
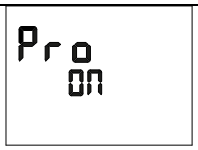
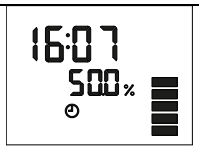
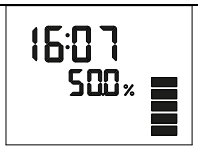
Clock setup

This section describes how to set the time and the day of the week.

1. Press the RIGHT key for more than 2 seconds. SEL and the current time are displayed.	
2. Press the RIGHT key briefly to change the time. Minutes blink: press UP/DOWN to change, RIGHT to save. Hours blink: press UP/DOWN to change, RIGHT to save.	 
3. DAY1 blinks: press UP/DOWN to select the day of the week, RIGHT to save. Monday is day 1 of the week.	

Enable/disable time schedules

The time schedules can be switched on and off as a whole. The programmed switching events are kept.

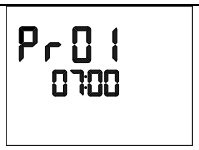
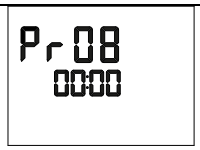
1. Press the RIGHT key for more than 2 seconds. SEL and the current time are displayed.	
2. Press UP. SEL and PRO are displayed, the clock symbol blinks.	
3. Press RIGHT. The time schedule status OFF or ON is displayed.	 
4. Press RIGHT: OFF/ON blinks. Press UP/DOWN to change, RIGHT to save. When the time schedules are ON, the clock symbol is shown on the main display.	 

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Creating time schedules

Up to 8 switching events (programs Pr01…Pr08) can be programmed. A switching event is defined in three steps: switching time, days of the week and setpoint. The bars on the right side of the display show which step is being set.
Requirement: the time schedules are enabled (PRO ON, see above).

Step 1: Select the program and the switching time

1. While PRO ON is displayed, press UP. The large digits show the program (Pr01), the small digits its switching time. Press UP/DOWN to select the program Pr01…Pr08.	 
2. Press RIGHT: the switching time blinks. Press UP/DOWN to set the time from 00:00 to 23:45 in steps of 15 minutes. Press RIGHT to save. One bar indicates that step 1 is completed.	

Step 2: Select the days of the week

3. DAY1 (Monday) blinks. Press UP to execute the switching event on this day: a triangle appears above 1. Press DOWN to not execute it on this day: the triangle disappears.	 
4. Press RIGHT to go to the next day and repeat for DAY2 to DAY7 (Tuesday to Sunday). The triangles show the days on which the switching event is executed. Two bars indicate that step 2 is completed.	 

Step 3: Define the setpoint

5. Press UP/DOWN to set the desired setpoint. Three bars indicate step 3.	
6. Press RIGHT to complete the switching event. The display returns to the program selection (instruction 1). Continue with the next program as required.	

Default switching times

These switching times are preprogrammed:

Program	Days of the week	Switching time	Setpoint
Pr01	Monday to Sunday (DAY1…DAY7)	07:00	50%
Pr02	Monday to Sunday (DAY1…DAY7)	17:00	100%
Pr03	Monday to Sunday (DAY1…DAY7)	20:00	25%

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