TCT-FA-MZ2, TCT-FA-MK2 Controller for comfort ventilation

Functions

- Positioner and controller for comfort ventilation with time schedules
- LCD Touchscreen
- Two analog outputs for 0/2–10VDC with a resolution of 10mV
- TCT-FA-MK2 only: One control input for a measurement signal of 0/2-10 VDC
- One input for exhaust fan override or presence sensor
- Party mode with automatic setback
- Off mode with selectable ventilation interval and ventilation strength
- Selectable step or percentage setpoint resolution
- Password protected controls settings
- Blue background illumination
- Realtime clock with schedule events



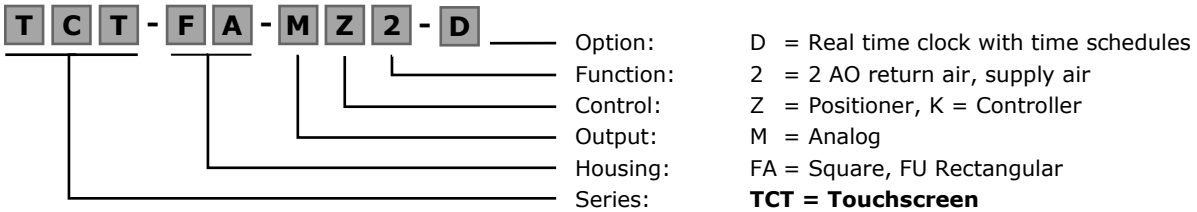
Applications

Control of ventilation systems for comfort and industrial applications.

General description

The TCT-MZ is a microprocessor-controlled precision positioner with a real time clock and time schedules. The TCT-MK2 also has a control function with which the ventilation can be controlled via a connected sensor signal.
Through user and engineering parameters the devices may be configured to work for most of the standard ventilation applications. They can be configured using the standard operation terminal. No special tool or software is required.

Name



Order

Item Name	Item code	Variant	Features
TCT-FA-MZ2-D	40-10 0237	Real time clock	Compact positioner with two analog outputs and one passive input
TCT-FA-MK2-D	40-10 0238	Real time clock and controller function	Compact positioner and controller with two analog outputs and one input each for one passive and one 0/2…10 VDC Signal

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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.

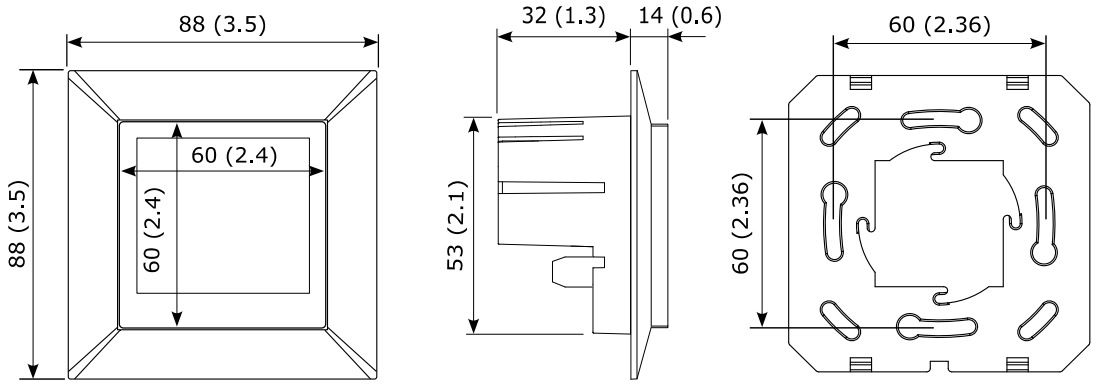
Power Supply	Operating Voltage Power Consumption Electrical Connection	24 V AC/DC ± 10 %, 50/60 Hz, Class 2 48VA max Max. 1.5 VA Terminal Connectors, wire 0.34…2.5 mm² (AWG 24…12)
Signal input	Passive input X1 For TCT-FA-MK2: Active input X2	For potential-free contact to ground 0….10 V DC
Signal outputs	Analog Outputs Output Signal Resolution Maximum Load	AO1 0…10 V DC 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 % rH 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 % RH non-condensing class 2MT2
General	Degree of Protection	IP30 to EN 60529
	Safety Class	III (IEC 60536)
	Housing material	Fire proof and impact resistant ABS plastic (UL94 class V-0)
	Dimensions (H x W x D)	88 x 88 x 31 mm (3.5” x 3.5” x 1.2”)
	Weight (including package)	190 g (6.7 oz)

Product testing and certification

CE Declaration of conformity

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

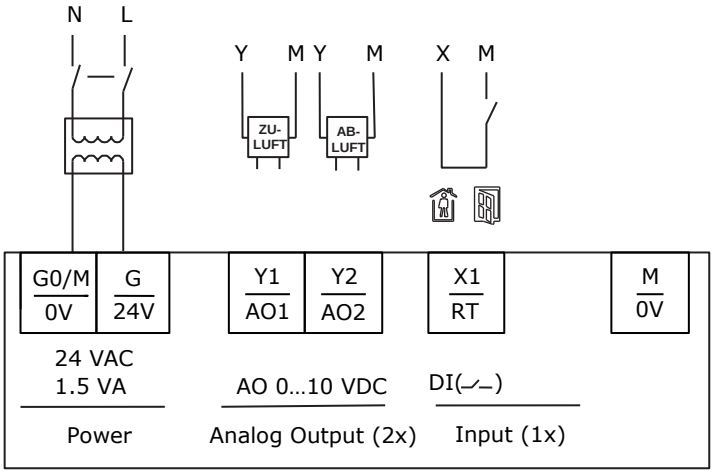
Dimension [mm] (in)



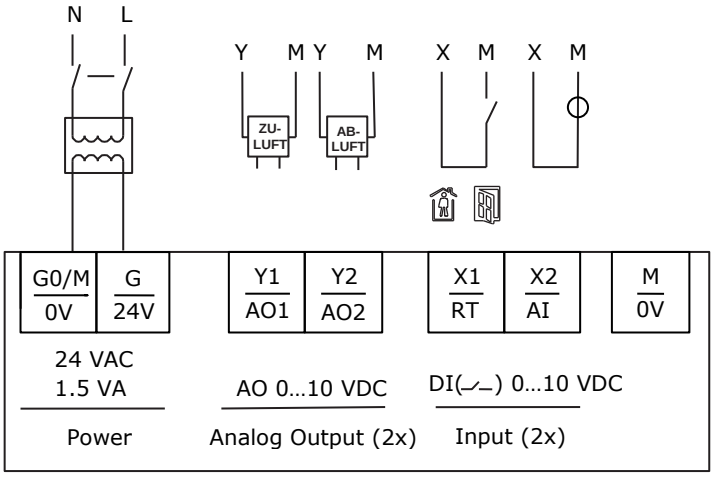
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Connection diagram

TCT-FA-MZ2



TCT-FA-MK2



Description:

1	**G0/M**	**0V**	Power supply:	0V, -24VDC, internally connected to signal common
2	**G**	**24V**	Power supply:	24VAC, +24VDC
3	**Y1**	**AO1**	Analog output supply air:	0/2…10 VDC
4	**Y2**	**AO2**	Analog output return air:	0/2…10 VDC
5	**X1**	**RT**	External passive input:	open contact to signal common
6	**X2**	**AI1**	External active input:	0/2…10 V DC (only for TCT-FA-MK2)
7	**M**	**0V**	Signal common:	Common 0 potential for analog inputs and analog outputs

Selection of actuators

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

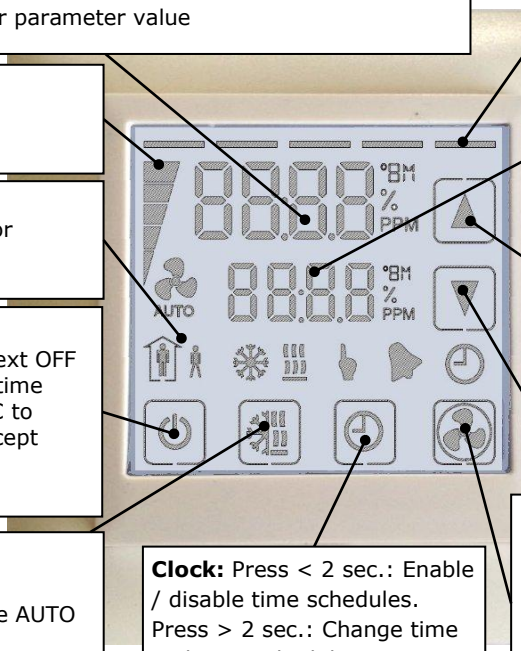
Mounting and installation

Mount the controller on a flat, easily accessible interior wall. Avoid direct sunlight, heat sources, niches with poor air circulation and the direct air flow of ventilation outlets and fans.

See the TCT-FA-Mx2 installation sheet, document no. 70-000811 (www.vectorcontrols.com).

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Display and operation



Large Digits:
Display of clock, step or parameter value

Vertical Bar:
Fan speed or progress indication

Mode:
Display of Party, Auto or manual Mode.

Left-button
Turn unit ON or OFF. Text OFF displayed with current time (Program function: ESC to select menu option, accept parameter change)

AUTO-button:
Only for TCT-FA-MK2:
Press shortly to activate AUTO mode.

Clock: Press < 2 sec.: Enable / disable time schedules.
Press > 2 sec.: Change time and time schedules.

Indication: Shows when an external switch is closed.
(Program function: Shows when value can be changed)

Small Digits: Display of set point, clock or parameter number.

Up-button Increment SET POINT and reset time.
(Parameter setting: SCROLL menu options and parameters)

Down-button: Decrement SET POINT and reset time.
(Parameter setting: SCROLL menu options and parameters)

Right-button: Toggle Party mode. In Party mode air volume is maximum.
(Program function: ENTER to select menu option, accept parameter change)

Operation Modes

STEP	Normal mode	The ventilation is operating based on selected values.
OFF	Holiday 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.
FULL	Party mode	The ventilation is fully switched on. The reset time is adjustable.
HIGH	Return air mode	Controlled by external contact. The supply air opens fully, the return air is reduced to the minimum. The values of the return air and supply air in this operating mode can be set via parameters.
Auto	Control Mode	Only with TCT-FA-MK2: The ventilation intensity is controlled by the measured signal of a sensor or external transmitter. The measured sensor value is displayed as the measured value. "Auto" is displayed in the setpoint value field.
	Time schedule mode	Ventilation intensity is defined by time schedules.
	Manual override	Short-term manual switching. The timer operation or the auto operation were manually overridden. After the reset time has elapsed, the timer or auto mode determines the output value again. The set ventilation intensity in % or level is displayed under Setpoint.

Power Failure

All the parameters and set points are memorized and do not need to be reprogrammed. 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.
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 TCT-FA-MZ2-D and TCT-FA-MK2-D include a time switch. Up to 8 switch events can be programmed. A switch event is defined by specifying the weekdays on which the event is to be executed, the time and the ventilation intensity.
A flashing clock indicates that the time has not been set or that the unit has been without supply voltage for more than 48 hours.

Clock setup

Press CLOCK button > 2 sec SEL and current time is displayed Press the RIGHT button to change the time (minute display blinks): Press UP / DOWN button to change minutes, Press RIGHT button to save (hour display blinks): Press UP / DOWN button to change hours, Press RIGHT button to save (day1 flashes): Press UP / DOWN button to change day, Press RIGHT button to save.	SEL 00:00 day1 (Mon)

Enable / disable time schedules

At least two switch events must be defined for the time programs to function correctly.

Press CLOCK button < 2 sec. Time schedule operation is enabled or disabled alternately.		

Create time programs (Pr01- Pr08)

Step 1: Adjusting the time of day of the switch event

Press Clock button > 2 sec SEL and current time is displayed. Press UP button and select PRO. Press the right button. Large digits show Pr01, small digits show the time of the first switch event: 00:00 Press RIGHT button to change the time of the event: 00:00 blinks. Press UP/DOWN buttons to set time. Press RIGHT button to save. (1 bar will appear - step 1 completed), day1 will flash.	Pr01 08:00

Step 2: Adjusting the weekdays of the switch event

While Pr01 is displayed and day1 is flashing: To execute the switch event on Monday (day1), press the UP button. Five horizontal bars will flash at the top. To cancel the Monday switch event, press the LOWER key. The five bars are not visible. Press the RIGHT button to advance to the next day. Repeat this procedure to define day2 - day7 (Tuesday to Sunday).	‾‾‾‾‾ Pr01 dAY1

Step 3: Definition of the setpoint

The setpoint is flashing. (Step or percentage setting) Press UP/DOWN to adjust the setpoint to the desired level. Press RIGHT button to complete. The switching event is now defined. TCT-FA-MK2 devices can be set to AUTO. Set the setpoint to <0.	Pr01 1

Default switching times

The following switching times are pre-programmed:
Monday to Sunday:
PR01: 07:00 Step 2
PR02: 17:00 Step 3

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