# TCT-FS-MZ2, TCT-FS-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-FS-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
- Design fits to the Feller SNAPFIX® program with the design lines EDIZIOdue® and EDIZIO.liv®.
- (Note: SNAPFIX® mounting plate and EDIZIO design frames are not included and must be ordered separately)



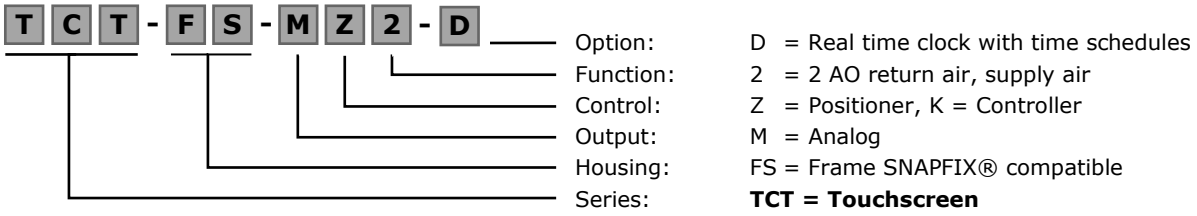

## Applications

Control of ventilation systems for comfort and industrial applications.

## General description

The TCT-FS-MZ is a microprocessor-controlled precision positioner with a real time clock and time schedules. The TCT-FS-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-FS-MZ2-D | 40-10 0304 | Real time clock | Compact positioner with two analog outputs and one passive input |
| TCT-FS-MK2-D | 40-10 0305 | 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 |
| Note: Mounting plate and frame are not included. See below for options. | | | |

| **Accessories** | | | |
|---|---|---|---|
| AMM-DS-W | 40-510104 | white | Feller EDIZIOdue® frame with SNAPFIX® mounting plate |
| AMM-LS-W | 40-510105 | white | Feller EDIZIO.liv® frame with SNAPFIX® mounting plate |


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# Technical Data

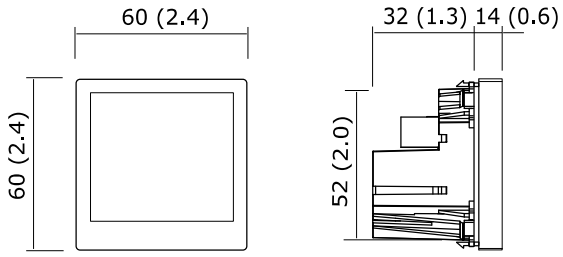
Caution! This device is intended to be used for comfort applications. Where a device failure endangers human life and/or property, it is the responsibility of the owner, designer and installer to add additional safety devices to prevent or detect a system failure caused by such a device failure. Vector 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<br>Power Consumption<br>Electrical Connection | 24 V AC/DC ± 10 %, 50/60 Hz, Class 2 48VA max<br>Max. 1.5 VA<br>Terminal Connectors,<br>wire 0.34…2.5 $mm^2$ (AWG 24…12) |
| **Signal input** | Passive input X1<br>For TCT-FS-MK2: Active input X2 | For potential-free contact to ground<br>0….10 V DC |
| **Signal outputs** | Analog Outputs<br>Output Signal<br>Resolution<br>Maximum Load | AO1<br>0…10 V DC<br>9.76 mV (10 bit)<br>10 mA |
| **Environment** | Operation<br>Climatic Conditions<br>Temperature<br>Humidity | To IEC 721-3-3<br>class 3 K5<br>0…50 °C (32…122 °F)<br><95 % rH non-condensing |
| | Transport & Storage<br>Climatic Conditions<br>Temperature<br>Humidity<br>Mechanical Conditions | To IEC 721-3-2 and IEC 721-3-1<br>class 3 K3 and class 1 K3<br>-25…70 °C (-13…158 °F)<br><95 % RH non-condensing<br>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) | Front part: 60 x 60 x 8 mm (2.4” x 2.4” x 0.3”)<br>Power case: ø 58 x 27 mm (ø 2.3” x 1.1”) |
| | Weight (including package) | 115 g (4.0oz) |

## 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"

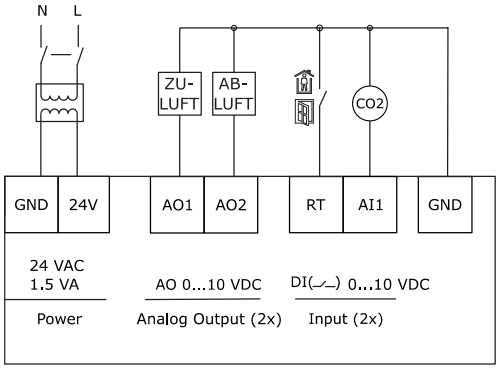
## Dimension [mm] (in)



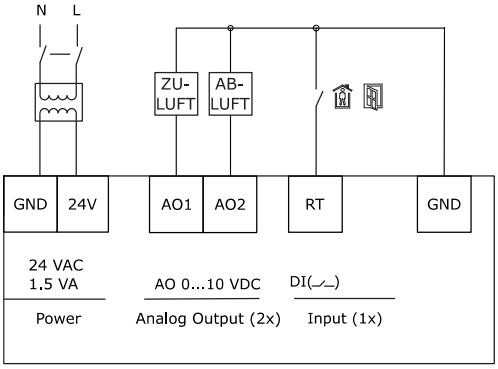


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## Connection diagram




TCT-FS-MZ2




TCT-FS-MK2

## Description:

| | | |
|---|---|---|
| **GND** | Power supply: | 0V, -24VDC, internally connected to signal common |
| **24 V** | Power supply: | 24VAC, +24VDC |
| **AO1** | Analog output supply air: | 0/2…10 V DC |
| **AO2** | Analog output return air: | 0/2…10 V DC |
| **RT** | External passive input: | open contact to signal common |
| **AI1** | External active input: | 0/2…10 V DC |
| **GND** | Signal common: | Common 0 potential for analog inputs and analog outputs |

The device consists of two parts: The flush-mounted part and the front part with the display. A Feller EDIZIOdue® or EDIZIO.liv® frame with SNAPFIX® mounting plate is required for correct installation. (Available as an accessory).

## Selection of VAV-actuators

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

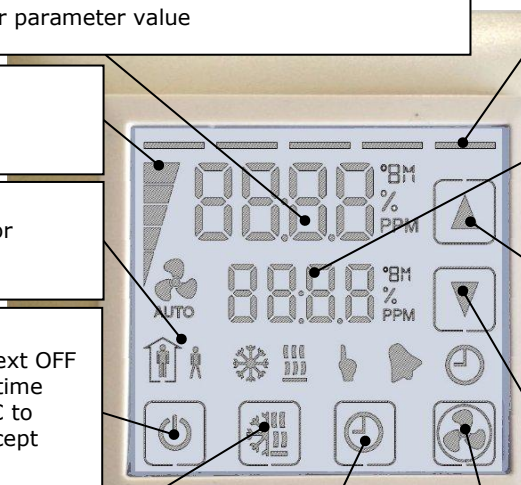
## Mounting and installation

Mount the controller on an easily accessible interior wall, approx. 1.5 m (4.5 ft) above the floor, with a Feller SNAPFIX® mounting plate and EDIZIO design frame (not included).

For more information on mounting, refer to Installation Manual No. 70-001094 (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-FS-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-FS-MK2: The ventilation intensity is controlled by the measured signal of a sensor or external transmitter.<br>The measured sensor value is displayed as the measured value.<br>"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-FS-MZ2-D and TCT-FS-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<br>Press the RIGHT button to change the time (minute display blinks):<br>Press UP / DOWN button to change minutes,<br>Press RIGHT button to save (hour display blinks):<br>Press UP / DOWN button to change hours,<br>Press RIGHT button to save (day1 flashes):<br>Press UP / DOWN button to change day,<br>Press RIGHT button to save. | SEL<br>00:00<br>day1<br>(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.<br>Press UP button and select PRO.<br>Press the right button.<br>Large digits show Pr01, small digits show the time of the first switch event: 00:00<br>Press RIGHT button to change the time of the event: 00:00 blinks.<br>Press UP/DOWN buttons to set time.<br>Press RIGHT button to save.<br>(1 bar will appear - step 1 completed), day1 will flash. | Pr01<br>08:00 |

## Step 2: Adjusting the weekdays of the switch event

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

## Step 3: Definition of the setpoint

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