

# TCMF8-DM

## HVAC controller for AC fans



The TCMF8-DM are universal fan speed controllers with Modbus RTU communication. They have two analogue / modulating inputs, two triac outputs and two thermal motor protection inputs. They provide on demand ventilation control according to sensor measurements and run according to defined downloadable functionalities (via Senteraweb) and schedules. They can also switch or stage outputs or can be used as a simple air handling or air curtain controller.

### Key features

- Analogue input signal: 0–10 / 10–0 VDC / 0–20 / 20–0 mA / PWM
- Minimum and maximum motor voltage is adjustable via Modbus
- Automatic or manual control mode
- Modbus RTU (RS485) communication
- Kick start or soft start
- RGB-LED on the cover for status indication
- Selectable output voltage for minimum fan speed and maximum fan speed, selection between single output and mirrored or independent double output (application / solution specific).
- Two separate TK inputs for thermal motor protection.
- Integrated power supply for connected sensors

### Area of use

- Fan speed control in ventilation systems
- For indoor use only

### Technical specifications

Supply voltage (Us)	85 - 305 VAC / 50 - 60 Hz	
Regulated output x 2	20–100% Us	
Minimum output voltage selection, Umin	20–60% Us	
Maximum output voltage selection, Umax	60–100% Us	
Integrated power supply for external sensors	24 VDC (Imax 750 mA)	
Protection standard	IP54 (according to EN 60529)	
Ambient conditions	Operating temperature	-10–60 °C
	Relative humidity	5-95% rH (non-condensing)

### Download and Install Sentera Solution Firmware



This product requires application dedicated firmware, which can be downloaded from the Sentera website: [www.senteraweb.eu](http://www.senteraweb.eu). Select your application via [www.senteraweb.eu/en/solutions](http://www.senteraweb.eu/en/solutions).

First, connect all required products including the Sentera internet gateway. Then connect your installation to [www.senteraweb.eu](http://www.senteraweb.eu). Click "Link to solution" and enter the solution code to download the selected firmware into the connected devices. After the download there is the possibility to use the installation stand alone or to keep the internet gateway connected.



### Article codes

Article code	Maximum load
<b>TCMF8-302DM</b>	2 x 3 A
<b>TCMF8-602DM</b>	2 x 6 A

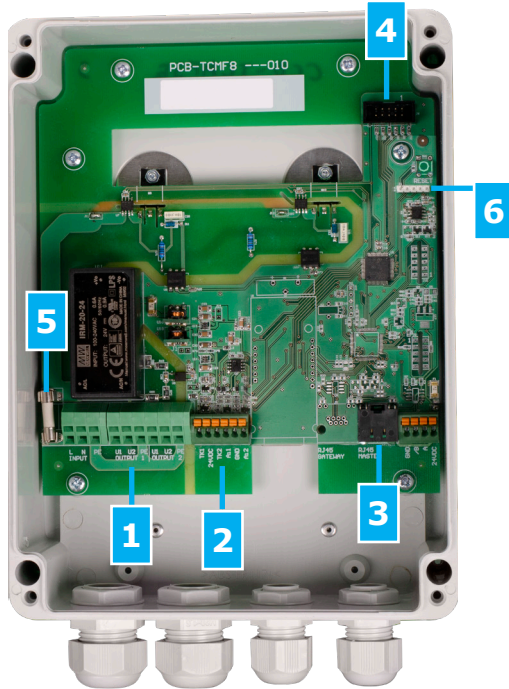
### Wiring and connections

L	Supply voltage, Line	
N	Supply voltage, Neutral	
PE	Protective Earth	
U1, U2	Regulated outputs to control AC fan speed	
TK1, TK2	Thermal contact inputs	
A	Modbus RTU (RS485) signal A	
/B	Modbus RTU (RS485) signal /B	
Ai1, Ai2	Analogue input 0–10 VDC / 0–20 mA / PWM	
GND	Ground	
Connections	Cable cross section	max. 2,5 mm <sup>2</sup>
	Cable gland clamping range	3–6 mm / 5–10 mm
RJ45 socket and terminal block	Modbus RTU signal A and /B, 24 VDC and GND	

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### Legend



1 - Terminal block power supply and regulated outputs



2 - Terminal block analogue inputs and thermal protection



3 - RJ45 socket and terminal block PoM



To connect HVAC sensors, potentiometers or other slave devices. Do not connect an external 24 VDC power supply to TCMF8 - this will cause permanent damage. Modbus RTU communication can be connected via the RJ45 socket, via the terminal block or via both.

4 - LED's connector

To connect LED's on cover of casing with circuit board.

5 - Fuse



TCMF8-302DM	(5*20 mm) T 8,0 A H 250 VAC
TCMF8-602DM	(5*20 mm) T 12,5 A H 250 VAC

6 - PROG header, P1



Put a jumper onto pins 1 and 2 and wait for at least 5 seconds to reset the Modbus communication parameters



Put a jumper onto pins 3 and 4 and restart the supply to enter bootloader mode

### Standards



- Low Voltage Directive 2014/35/EC
  - EN 60529:1991 Degrees of protection provided by enclosures (IP Code) Amendment AC:1993 to EN 60529
  - EN 60730-1:2011 Automatic electrical controls for household and similar use - Part 1: General requirements
  - EN 62311:2008 Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)
  - EN 60950-1:2006 Information technology equipment - Safety - Part 1: General requirements Amendments AC:2011, A11:2009, A12:2011, A1:2010 and A2:2013 to EN 60950-1
- EMC Directive 2014/30/EC
  - EN 60730-1:2011 Automatic electrical controls for household and similar use - Part 1: General requirements
  - EN 61000-3-2:2014 Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
  - EN 61000-6-2:2005 Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments Amendment AC:2005 to EN 61000-6-2
  - EN 61000-6-3:2007 Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments Amendments A1:2011 and AC:2012 to EN 61000-6-3
  - EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
  - EN 55011:2009 Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement Amendment A1:2010 to EN 55011
  - EN 55024:2010 Information technology equipment - Immunity characteristics - Limits and methods of measurement
- RoHS Directive 2011/65/EU
  - EN IEC 63000:2018 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
- Radio equipment Directive 2014/53/EU:
  - EN 300 328 V2.1.1 Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU
- ETSI EN 301 489-1 V2.1.1 (2017-02) ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1:
  - Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU
- ETSI EN 301 489-17 V3.1.1 (2017-02) ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17:
  - Specific conditions for Broadband Data Transmission Systems; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU

### LED Indications

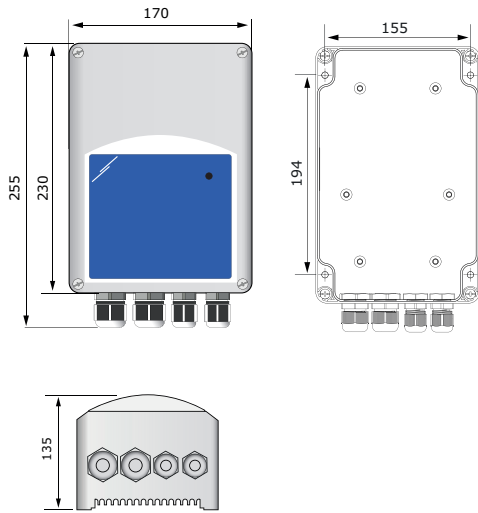
Green	Normal operation.
Yellow	Off level activated for input 1/2 or both.
Red	System Error - TK1 or TK2 activated (when enabled).

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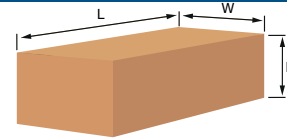
HVAC controller for AC fans



### Fixing and dimensions



### Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
TCMF8-302DM	Unit (1 pc.)	260	170	140	1.10 kg	1.35 kg
TCMF8-602DM	Unit (1 pc.)	260	170	140	1.35 kg	1.60 kg

### Global trade item numbers (GTIN)

Packaging	Unit (1 pc.)	Pallet (pcs.)
TCMF8-302DM	05401003018668	05401003701317
TCMF8-602DM	05401003018699	05401003701348

### Application example: destratification

