

TCM

Touch Control Module



COMES
ELECTRONIC CLIMATE CONTROL

TCM

Touch Control Module

The TCM, with its capacitive touch TFT display and completely customizable graphics, is our state-of-the-art product.

Versatile for different applications (e.g. agriculture machinery, construction and heavy-duty vehicles, marine, etc.), the device is available in two main versions, with or without push-buttons. Both versions are available as:

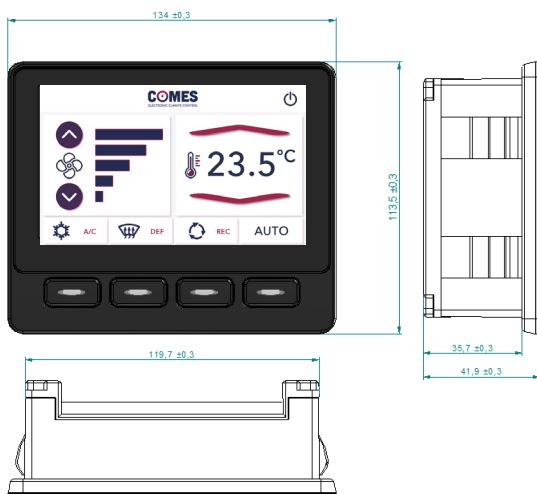
- HMI only, which can be fully integrated in the Customer system or used with COMES CCM or SCM control units;
- Full HVAC version, connected directly to the various sensors and actuators.

GENERAL PERFORMANCE, ELECTRICAL AND ENVIRONMENTAL TESTS

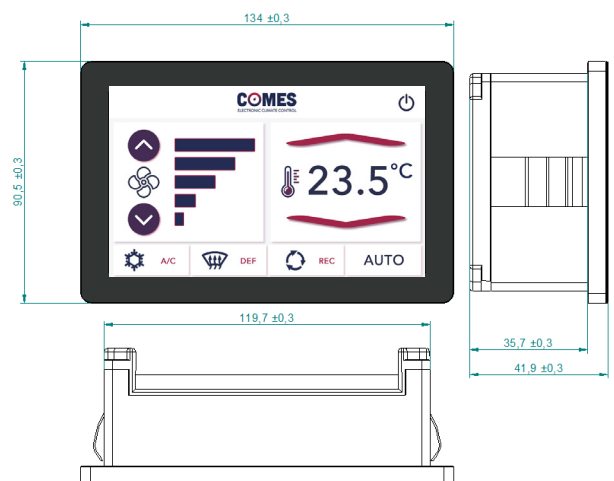
Operating Voltage Range:	10.5÷16V/18÷32V
Nominal Power Supply Voltage:	12V/24V
Output Rated Current, each pin:	max 400mA
Operating Temperature Range:	from -40°C to 85°C
Storage Temperature Range:	from -40°C to 90°C
Dust/Water Resistance on the Front Panel:	IP54
Over Voltage protection	
Reverse polarity protection	
Load dump protection	
Short-Circuit Protection	
Low consumption in stand-by	
Electromagnetic Compatibility according to UNECE Regulation No.10	

MECHANICAL DIMENSIONS

PUSH-BUTTON VERSION



FRAMELESS DESIGN VERSION



STANDARD INPUTS/OUTPUTS

- 5 analog inputs (e.g. NTC sensors, analog pressure sensors)
- 3 digital inputs (Heater command, light command, AUX command)
- 2 PWM/analog blower outputs
- 9 digital outputs fully configurable H/L side, protected
- CAN and LIN bus interfaces

FUNCTIONAL OVERVIEW

- TFT capacitive touch display and frameless design (in the version without push-buttons)
- Activation by proximity
- Ambient light sensor
- Additional feedback on Touch
- Optical bonding (OCA or OCR) on request
- LIN BUS on request
- CAN BUS/LIN BUS interface available, configurable baud rate
- Fully configurable CAN BUS protocol, J1939 available
- CAN BUS bootloader available for FW upgrade
- Special customer features and FW customizations available
- Graphic appearance fully customizable by COMES
- Easy wirings connections

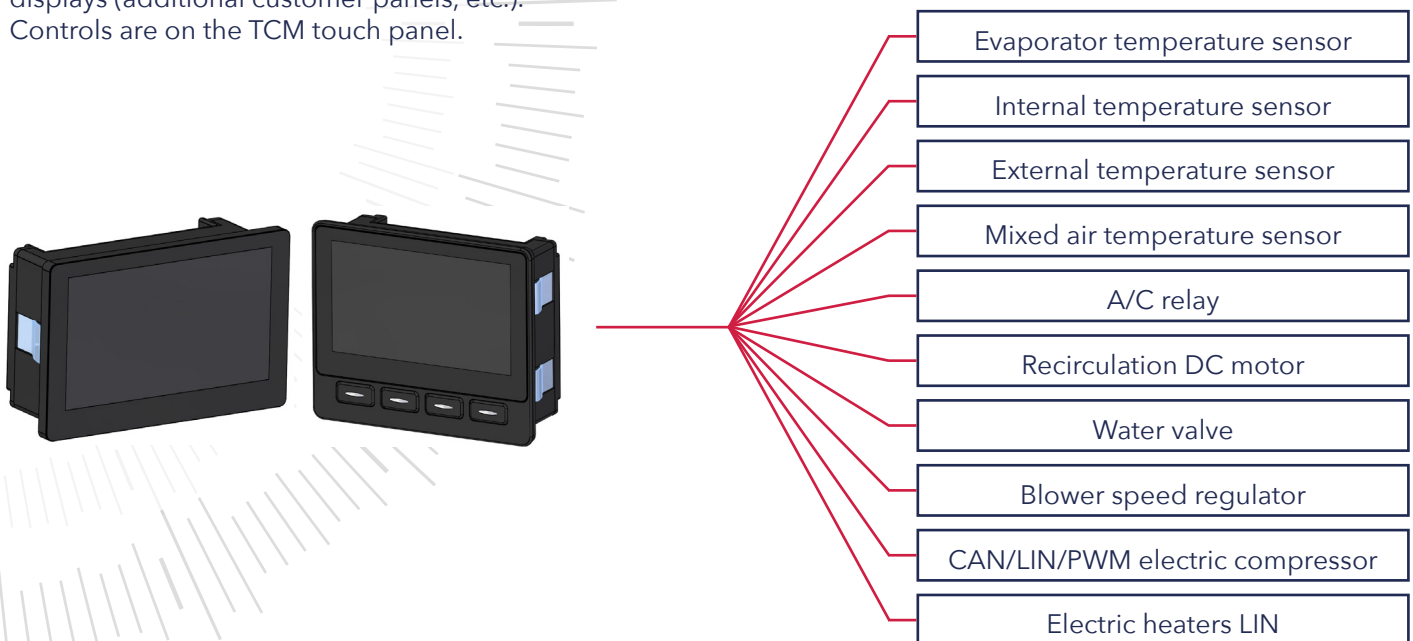
ELECTRICAL CONNECTIONS - Only HMI Version

In this option, the unit works only as HMI (Human-Machine Interface), receiving and transmitting CAN or LIN BUS messages towards a specific control unit on the customer's vehicle or COMES CCM and SCM. CAN/LIN BUS protocol must be defined and customized following customer's requirements.



ELECTRICAL CONNECTIONS - Full HVAC Version

In this option, the unit works as HVAC control unit with all sensors and actuators directly connected. It is also possible to connect LIN and CAN actuators (electric compressors, PTC heating elements, blowers), sensors and multiple displays (additional customer panels, etc.). Controls are on the TCM touch panel.



EXAMPLES OF GRAPHIC INTERFACE





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