OPA2-2T(H)-VC
Operation terminal for TCX2-Series Controller

Features

- Remote access to controller state, setpoints, inputs and outputs
- Access to time schedule and clock settings
- Access to configuration parameters
- RS485 peer to peer communication according to proprietary protocol
- The terminal adapts itself to the TCX2 controller used. One terminal thus fits all the configuration variations of the TCX2 product range.
- Internal temperature sensor
- Internal humidity sensor (H version) or with AES-HT-A3 for example
- OPA2-2T(H)-VC version with one passive and one active input

Applications

- Configuration and operation of TCX2 controllers
- Remote supervision (RS485)

General description

The OPA2-2T(H)-VC is a remote display and operation terminal for TCX2 series controllers.

Ordering

Item Name	Item Code	Description/Option
OPA2-2T-VC	40-50-0047	Operation terminal for TCX2-type controller with peer to peer RS485 communication and internal temperature sensor and 2 passive inputs
OPA2-2TH-VC	40-50-0023	As above with internal humidity sensor

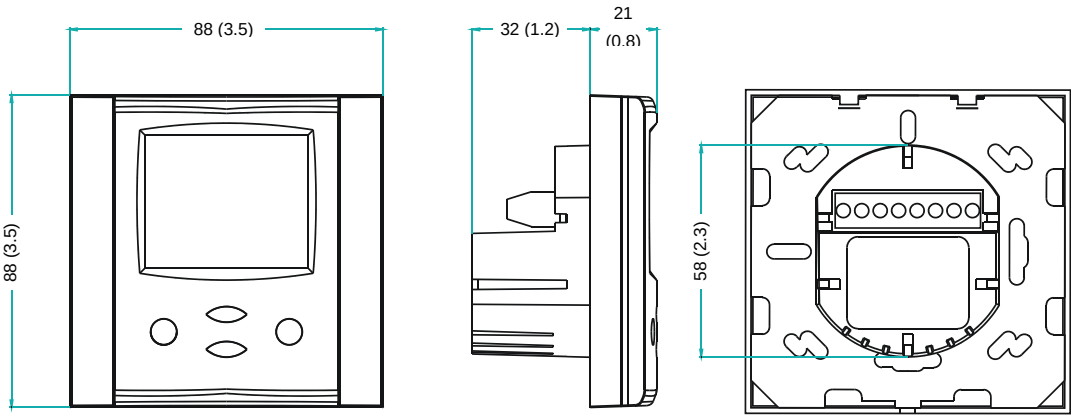
Mounting location

- Install the operation terminal on an easy accessible interior wall, approx. 1.5 m above the floor in an area of average temperature.
- Avoid direct sunlight or other heat sources, e.g. the area above radiators and heat emitting equipment.
- Avoid locations behind doors, outside walls and below or above air discharge grills and diffusers.
- Location of mounting is less critical if external temperature sensors are used.

Installation

See installation sheet no. 70-000377 (www.vectorcontols.com).

Dimensions mm (in)



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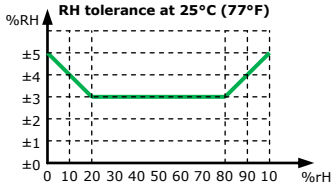
Technical specification

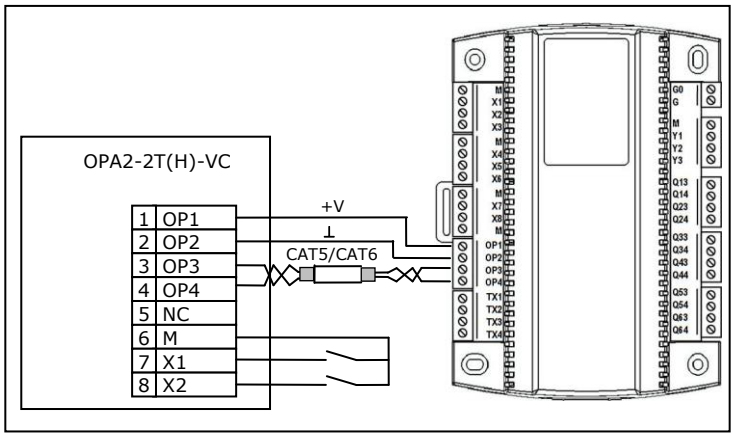
Important notice and safety advice

This device is for use as operating controls. It is not a safety device! Where a device failure endangers human life and/or property, it is the responsibility of the client, installer and system designer to add additional safety devices to prevent a system failure caused by such a device failure. Ignoring specifications and local regulations may cause equipment damage and endangers life and property. Tampering with the device and misapplication will void warranty.

Power supply	Operating voltage	12-30VDC
	Power consumption	Max 1 VA
	Electrical connection	Terminal connectors, wire 0.34…2.5 mm² (AWG 24…12)
Inputs	Internal temperature Range Accuracy	 0…50 °C (32…122 °F) 0.5 K
	Humidity sensor: Range Measuring accuracy Hysteresis Repeatability Stability	Capacity sensor 0…100 % RH See Figure to the right ± 1% ± 0.1% < 0.5% / year
	Passive inputs Range	X1, X2 Open contact to GND
Communication	Hardware interface	RS485 in accordance with EIA/TIA 485
	Cabling Impedance Nominal capacitance Nominal velocity	Shielded Twisted Pair (STP) balanced 100 to 120 ohm 50 pF/m 16pF/ft or lower 65% or higher
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 2M2
Standards	CE conformity EMC directive Low voltage directive	 2004/108/EC 2006/95/EC
	Product standards Automatic electrical controls for household and similar use	EN 60 730 –1
	Pollution class	Normal acc. to EN 60 730
	Degree of protection	IP30 to EN 60 529
	Safety class	III
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”)
	Housing material	Fire proof ABS plastic
	Mounting plate	Zinc coated steel
	Standard color	White RAL 9003
	Weight (including package)	250 g (8.8 oz)



Connection diagram



Description

OP1-OP4	Connection to TCX2 controller via RS485
NC	Do not connect
M	Common for potential free contacts
X1	Passive input for dry contact. VI3
X2	Passive input for dry contact. VI4

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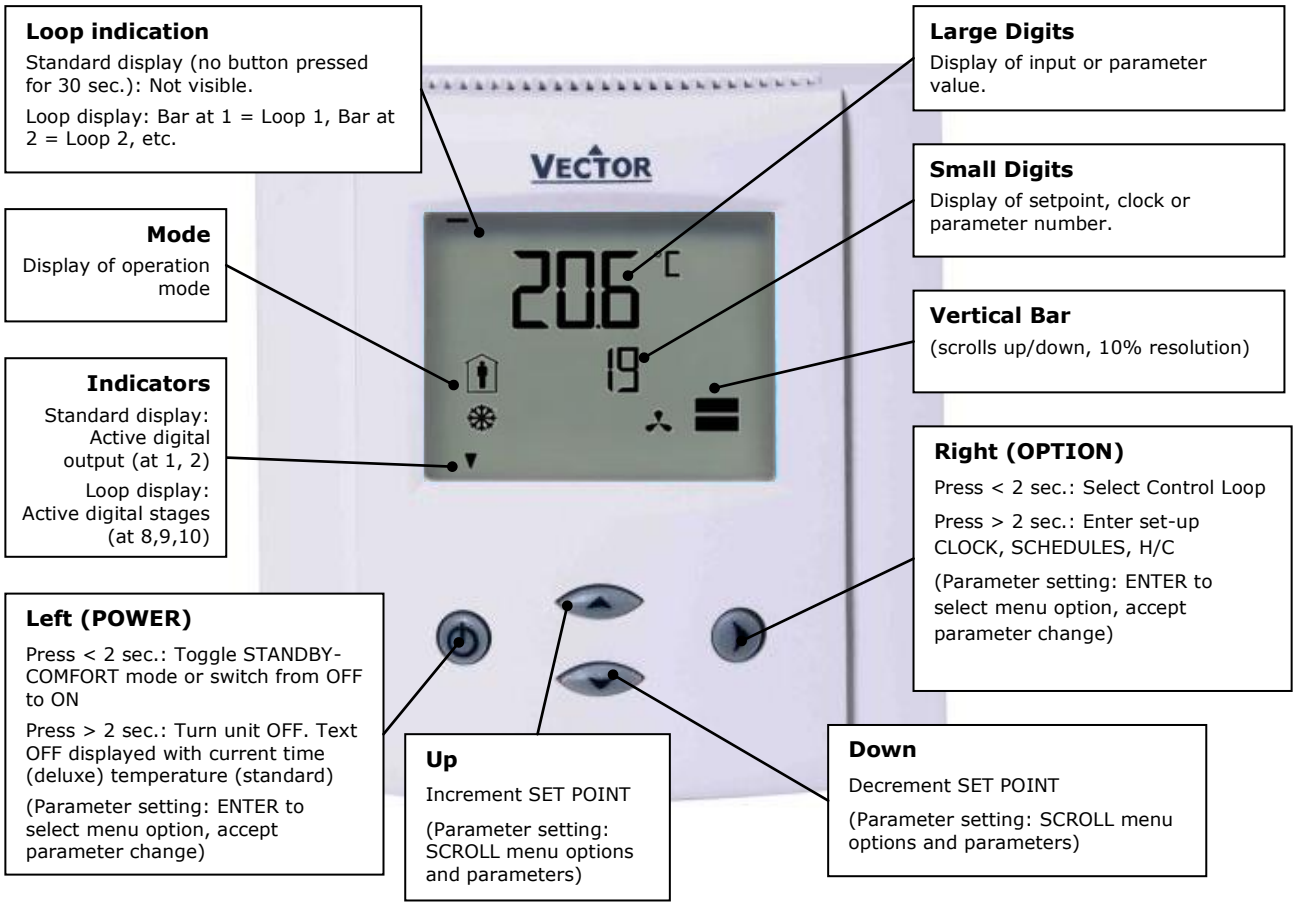
Display and Operation



Operation modes		Control symbols	
	Occupied: (Comfort) All control functions operating per set points.		Heating (reverse) active
	Unoccupied: (Standby, Economy) If enabled, alternative setpoints are used with the intention to reduce energy consumption.		Cooling (direct) active
OFF	OFF: (Energy Hold Off, EHO) Normal control functions are inactive, inputs are monitored for alarms.		Schedule set
			Manual override, delay on enable function
		*	Fan active

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Idle display

- The idle display is activated when no key has been pressed for 30 seconds.
- The contents of the idle display are selectable through parameters UP08 to UP14.
- Setting UP08 to OFF will disable idle display. Last active control loop or manual output will remain displayed.

Display of control loop

- Active when changing set points. Large digits show input value. Small digits show set point. Horizontal bars top left show which loop is being displayed.

Override of secondary set point in cascade control

- If cascade control is active (with VAV for example) the user can override the primary loop and manually select the set point of the secondary loop (the loop is then changed to constant air volume mode). This function is helpful for tuning the VAV system. This feature may be disabled by setting UP02 to OFF.
- While the secondary loop is displayed change the set point with UP/DOWN. The hand symbol appears.
- Change setpoint again to cancel cascade override. The hand symbol disappears.

Delay on enable function

- During a pending delay the hand symbol will be shown. For example the condition to activate the controller with 1FU is met, but a startup delay is specified. The controller will remain switched off and show the hand symbol until the delay expired.

Error messages

Err1: Communication error

Additional error message depend on the connected controller and its firmware version. Please use controller manual for further instructions.

Accessing advanced operation modes and user settings

The actual settings and their interpretation depend on the connected controller and its installed firmware version. Please refer to the documentation of that controller for further details.

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