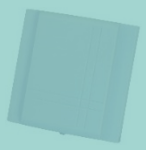
DEHUMIDIFIER CORPORATION OF AMERICA

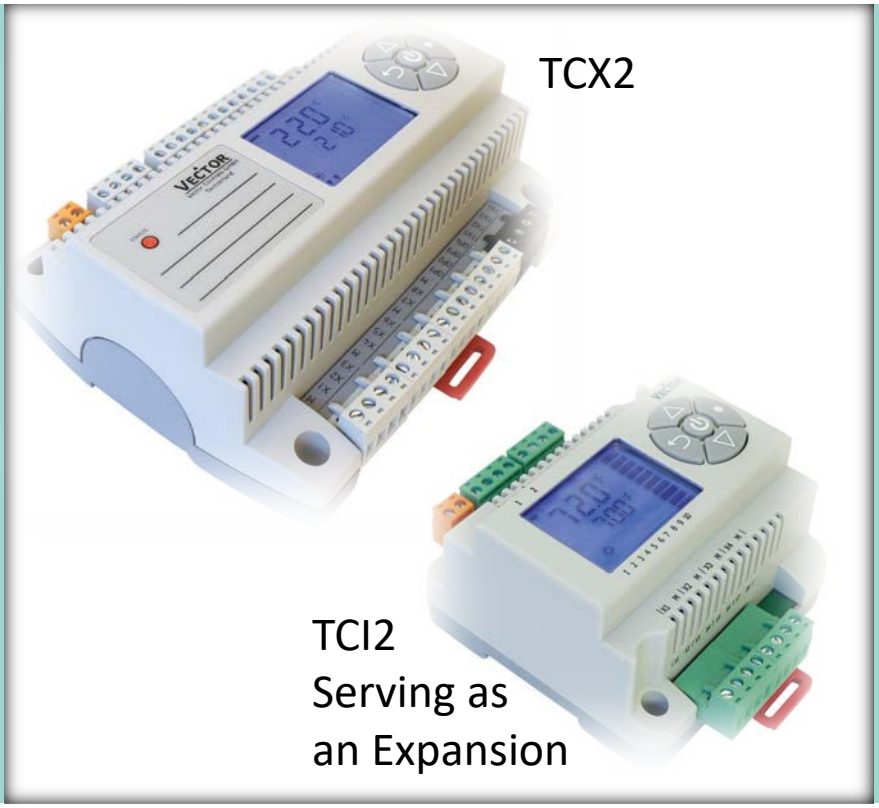
Value Driven Quality, Built Here

Duct Mount
Humidity/Temperature Transmitter



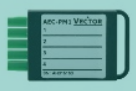
Wall Mount
Humidity/Temperature Transmitter

Remote Display



Thermal Well

Duct Mount
Temperature Sensor
(For Control of Heater LAT or
Pool Water Temp)



External Memory Plug-in

TCX2 Universal Controller

Features

- BACnet (MS/TP), MODBUS or Stand-Alone Application
- PID loop control
- Staged or modulating heat output
- Easy to use interface
- High and low limit alarm capable
- 8 Universal Inputs, 6 Binary Outputs, 3 Analog Output
- TCI2 Expansion with additional Inputs and Outputs if needed
- Custom Programming Options
- 4 Independent Control Loops
- Remote Display Capable

Typical Setup Options

Single Circuit Dehumidifier	Logic Options					
Control Features	**A**	**B**	**C**	**D**	**E**	**F**
1 Stage Dehumidification	●	●	●	●	●	●
1 Stage Cooling	●	●	●	●	●	●
2 Stage Heating	●			●		
Analog Heat Signal (no Supply Air Temperature Control)		●			●	
Analog Heat Signal with Supply Air Temperature Control			●			●
Pool Water Heating				●	●	●
Controllers Required						
1 x TCX2	●	●	●			
1 x TCX2 and 1 x TCI2				●	●	●

Dual Circuit Dehumidifiers	Logic Options					
Control Features	**A**	**B**	**C**	**D**	**E**	**F**
2 Stage Dehumidification	●	●	●	●	●	●
2 Stage Cooling	●	●	●	●	●	●
2 Stage Heating	●			●		
Analog Heat Signal (no Supply Air Temperature Control)		●			●	
Analog Heat Signal with Supply Air Temperature Control			●			●
Pool Water Heating				●	●	●
Controllers Required						
1 x TCX2 and 1 x TCI2	●	●	●			
2 x TCX2				●	●	●

These are most typical programming logics and are not meant to be used as control package selections. Please contact factory to check what package would suit your application.

Typical BMS Points

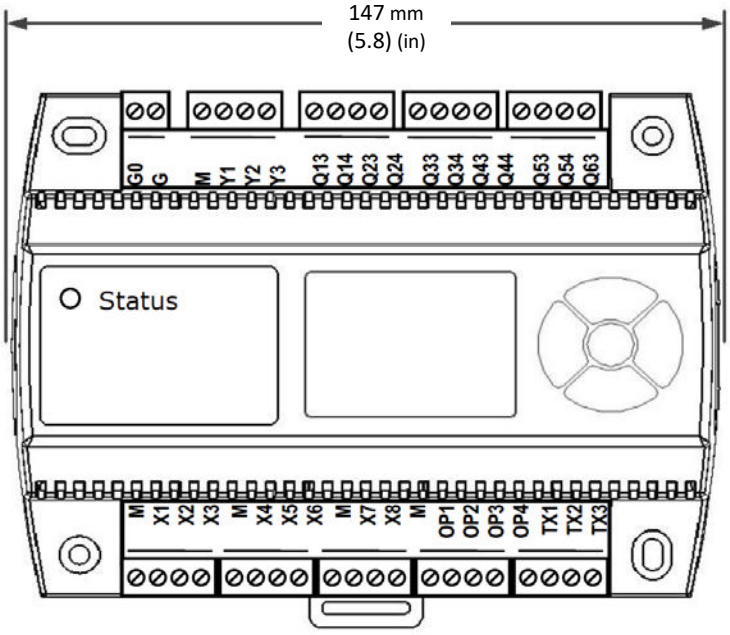
- Entering Air Humidity
- Entering Air Temperature
- Pool Water Temperature
- Humidity, Room Temperature and Pool Water Temperature Setpoints
- Air Flow Signal
- Compressor Fault Signal
- Pool Water Flow Signal
- Blower and System Start
- Ventilation Signal

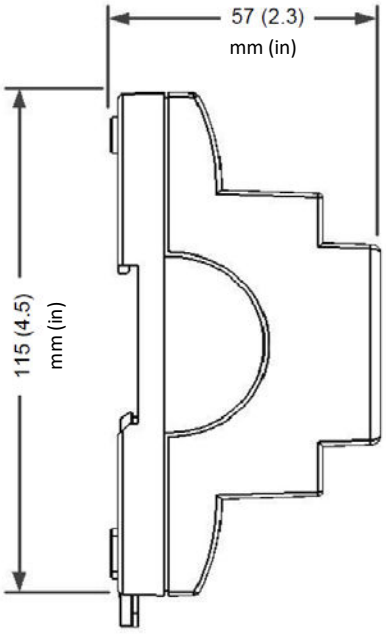
These are most typical BMS points. Some points listed are available only on Water Heating Dehumidifiers. Not all points available are listed. Please contact factory for additional information.

Technical Specifications

Power Supply	Power Requirements	24 VAC ±10%, 50/60 Hz, 15…34 VDC ±10% SELV to HD 384, Class II, 48VA max
	Power Consumption	Max. 10 VA
	Electrical Connection	Removable Terminal Connectors, 0.34…2.5 mm² wire (AWG 24…12)
Signal Inputs	Universal Input Input Signal Resolution Impedance	Setting for Voltage or Current 0-10 V or 0-20 mA 9.76 mV or 0.019 mA (10 bit) Voltage: 98kΩ Current: 240Ω
	Passive input Type and Range	Input jumper configured to remote temperature (RT) or digital input (DI) NTC (Sxx-Tn10 sensor): -40…100 °C (-40…212 °F)
Signal Outputs	Analog Output Output Signal Resolution Output Load	 DC 0-10 V or 0-20 mA 9.76 mV / 0.019 mA (10 bit) Voltage: ≥1kΩ Current: ≤250Ω
	Relays Outputs AC Voltage DC Voltage	 0…250 VAC, full load current 3A, locked-rotor 18A 0…30 VDC, full load current 3A, locked-rotor 18A
	Insulation Strength between relays contacts and system electronics: Between neighboring contacts:	 4000V AC to EN 60 730-1 1250V AC to EN 60 730-1
Connection to remote terminal	Hardware Interface Cabling	RS485 in accordance with EIA/TIA 485 Twisted pair cable
Network	Hardware Interface Max nodes per network Max nodes per segment Conductors Impedance Nominal Capacitance Nominal Velocity Galvanic Isolation Line Termination Network topology Recommended maximum length per chain	RS485 in accordance with EIA/TIA 485 128 64 (Vector devices only) Shield Twisted Pair (STP) cable 100 - 130 ohm 100 pF/m 16 pF/ft or lower 65% or higher The communication circuitry is galvanic isolated A line termination resistance (120 ohm) shall be connected between the terminals (+) and (-) of the furthermost node of the network Daisy chain according EIA/TIA 485 specifications 1200 m (4000 ft)
Modbus	Communication Standard Default Setting Communication speed Protocol: Data bits Parity – stop bit	Modbus (www.modbus.org) 19200 baud rate, RTU 8 data bits, 1 even parity bit, 1 stop bit 4800, 9600, 19200, 38400 RTU – 8 data bits, ASCII – 7 – data bits, No parity – 2 stops, even or odd parity – 1 stop
BACnet	Communication Standard Communication speed	BACnet MS/TP over RS485 9600, 19200, 38400, 57600, 76800, 115200
Environment	Operation Climatic Conditions Temperature Humidity	To IEC 721-3-3 Class 3 K5 0…50 °C (32…122 °F) <85 % 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 Special requirements on temperature dependent controls	 EN 60 730-1 EN 60 730-2-9
	Electromagnetic compatibility for industrial and domestic sector	Emissions: EN 60 730-1 Immunity: EN 60 730-1
	Degree of Protection	IP00 to EN 60 529
	Pollution Class	II (EN 60 730-1)
	Safety Class: Local regulations must be observed	III (IEC 60536) if SELV is connected to DO II (IEC 60536) if line voltage is connected to DO
	Overvoltage Category	III (EN 60 730-1)
	Product Standards: Temperature- indicating and –regulating equipment Mark: c(ETL)us	 UL 873 CSA C22.2 No.24 Certified by Intertek: 4005917

Dimensions





Display

Loop Indication
Standard Display (no buttons pressed for 30 sec.): Not visible
Loop display: Bar at 1 = Loop 1, Bar at 2 = Loop 2

Small Digits
Display of Setpoint or Parameter Value (refer to the table on the wiring diagram of dehumidifier)

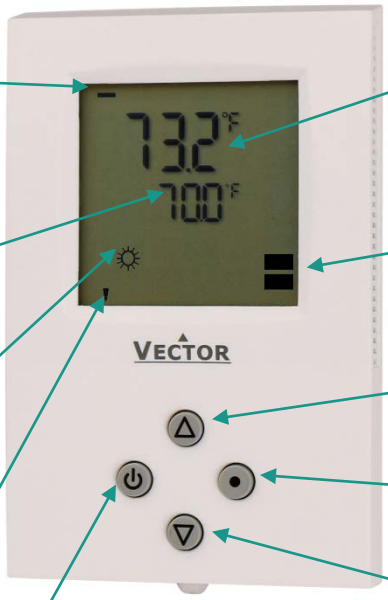
Mode
Display of Operation Mode (Visible only in the Loop Display Mode)

Indicators
Standard Display: Active digital outputs (at 1, 2) (i.e. dehumidification, cooling)

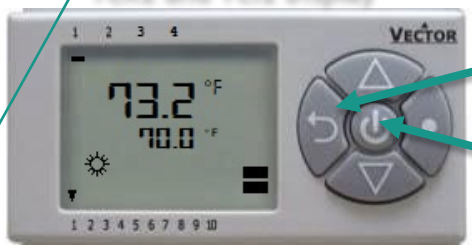
Loop Display: Active digital stages (at 8, 9, 10) – typically same as active digital outputs

Left (POWER)
Turn Unit OFF. Text OFF displayed with temperature and/or humidity shown.

Remote Display



TCX2 and TCI2 Display*



Large Digits
Display of Input or Parameter Value (refer to the table on the wiring diagram of dehumidifier)

Vertical Bar
Scrolls up or down with 10% increments, shows output value (typically heat signal)

Up
Increase Set Point

Right (OPTION)
Select Control Loop

Down
Decrease Set Point

Left (ESC)
Select Control Loop

Center (POWER)
Turn Unit OFF

*All other TCX2 and TCI2 display features same as for the Remote Display