TRC3500

Viconics Room Controller
Low-Voltage Fan Coil Unit & Zone Control

Specification Sheet

Introduction

The Viconics Room Controller TRC3500 is a low-voltage fan coil unit and zone control Room Controller, suitable for commercial and high-end hospitality markets. It is an application-specific and programmable Room Controller with different color and screen theme options.

The perfect balance between simplicity and sophistication. Select a black or white theme for the screen. Display custom standby images on the screen to reinforce your brand and provide a more enjoyable occupant experience.

Features

- Dynamic HVAC optimization with AI Eco Mode
- Equipped with an embedded Passive Infrared Sensor (PIR) for a configurable occupancy detection
- Automatic energy savings
- Configurable for °C/°F temperature measurement
- 22 selectable languages
- Available in 2 casing color options: white and black
- Optional halo LED backlight that reflects the mode of operation on the wall behind the device
- Configurable proportional band for room temperature control
- Fully programmable control sequences using Lua scripting
- Configurable Scheduler
- Change of Value (COV) function for building management system integration
- Universal inputs and outputs including a CO_2 sensor input, and a fresh air station input
- Humidity sensor with onboard dehumidification sequence
- Light sensor screen brightness adjustment according to ambient lighting for an optimal user experience
- Optional proximity sensor to turn on the screen using a hand gesture without touching the device
- Designed to comply with the BACnet B-ASC (Application-Specific Controller) profile
- Wired BACnet™ MS/TP, wired Modbus RTU or optional wireless BACnet/IP over Wi-Fi connectivity
- Optional wireless Zigbee™ 3.0 connectivity to a portfolio of wireless Zigbee sensors
- Real-time clock with a 7-day internal battery backup
- Control lights and blinds with the touchscreen user interface

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VICONICS Beyond Comfort

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Smart energy management has never been easier than with the Viconics Room Controller for fan coil unit applications. Designed for new construction and retrofit projects, the Viconics Room Controller dramatically decreases project delivery costs by reducing installation, configuration, and commissioning time. No complex software or tools are required to customize functionality to meet the applications requirements. The Room Controllers provide all the advanced features and monitoring functions required by modern building automation systems in a simple compact enclosure.

Dynamic HVAC optimization with AI Eco Mode

Automatically optimize energy consumption while maintaining comfort through advanced thermal, energy, and comfort modeling. Unlike traditional systems with fixed schedules, the Viconics Room Controller can dynamically adapt to changing conditions with self-regulating set points. AI logic can continuously analyze factors like occupancy patterns, indoor temperature, outdoor weather conditions, and humidity levels to make real-time adjustments to HVAC setpoints. Occupants can easily enable AI Eco Mode through an intuitive touchscreen interface, making it accessible for everyone.

Application Specific & Programmable

The Viconics Room Controller is both application-specific AND programmable. This enables the modification of pre-configured control sequences, or the creation of entirely new control sequences for fan coil applications. Their configurable control sequences, and scheduler functionalities deliver all the flexibility necessary for optimal applications.

Scalable Capabilities Controller

Up to 17 I/Os (Inputs and Outputs) with universal I/O support to cover any kind of application in any room, from standard to advanced functionality. This provides the flexibility to tackle any type of energy efficiency application.

Easy to Use

The commissioning flow has been completely redesigned to make commissioning the product hassle and fault-free, while increasing the speed of loading sites.

Touchscreen with Customizable User Experience

The screen of the Viconics Room Controller offers a customizable user experience with a selection of languages, temperature scales, buttons, and screen themes. With the Uploader Tool or via BACnet, the screen also supports the upload of an image or logo that can be used as the standby screen of the device.

Passive Infrared Motion Sensor

All models are equipped with a discrete passive infrared (PIR) motion sensor as a standard feature. With this sensor, the Viconics Room Controller uses advanced occupancy routines and optional additional Lua scripts to generate automatic energy savings during occupied and unoccupied periods without sacrificing comfort. It can have adjustable sensitivity with up to an 8 m (26.25 ft) detection range.

In addition to the standard PIR sensor, the device can have an optional proximity sensor, detecting hand gestures on the short range that will turn on the screen when the device is on standby.

Automatic Demand Response

The Automatic Demand Respond (ADR) implements the load shedding and pricing applications compatible with regulations for Occupant Controlled Smart Thermostats. The application requires a BACnet command from interfacing equipment to turn on/off the Load Shedding feature. Messaging and confirmations are performed by adjoining equipment having Internet connectivity and then providing the Viconics Room Controller with the BACnet or Modbus command message.

Zigbee Wireless Sensors

The RF Viconics Room Controller versions support the pairing of several Zigbee wireless sensors. Users will be able to use those wireless sensors to design a fully wireless ecosystem, which will enhance saving and improve operation while maintaining guest comfort and health. All of this done with less effort and reduced costs of installation making it ideal for retrofit jobs.

Communication & Connectivity

Ready for networking communication with a building management system using BACnet (MS/TP, or IP via Wi-Fi), or Modbus RTU (RS-485), as needed.

Integration to Building Management Systems

The Viconics Room Controller can be seamlessly integrated with the following:

- EcoStruxure Building Operation
- Most third-party building management systems that support open protocols
- Direct wired integration to BACnet MS/TP or Modbus RTU
- Wireless integration to BACnet IP via Wi-Fi
- Firmware upgrades over-the wire (BACnet MS/TP) or over-the-air (BACnet IP via Wi-Fi) for easy upgrades in large installations in EcoStruxure Building Operation

Custom Match Styling to Decor

- 2 color casing options (white and black)
- LED-backlit LCD touchscreen with customizable standby screens
- Optional halo LED backlight that reflects on the wall behind the device
- 22 selectable languages
- Customized home screens for specific use cases

Light and Blind Control

The Viconics Room Controller provides an easy to access touchscreen interface where the occupants can control the lights and blinds in the room. The light and blind screens are accessed by swiping left on the home screen, and can control up to 8 lights and 8 blinds.

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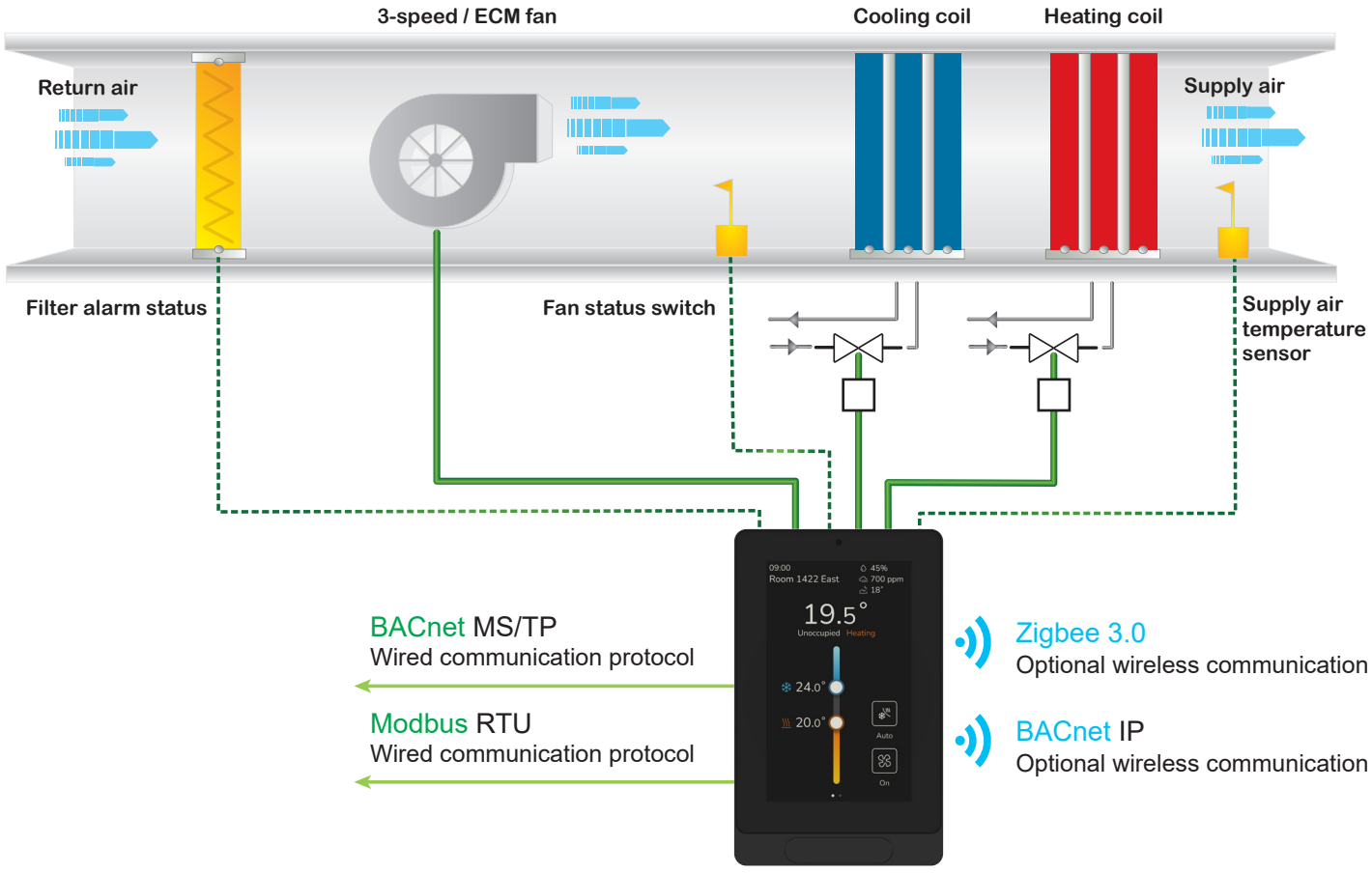
Applications

2 or 4 Pipe Low-Voltage Fan Coil

The Viconics Room Controller can also be used as a Zone Controller to control ON/OFF, floating, or 0 to 10 Vdc heating or cooling terminal equipment such as valves, and other end devices.

The following are typical Zone Controller applications:

- 3 speed or ECM fan
- 2 or 4 pipe FCU with reheat
- Fin-tube radiators
- Cabinet heaters
- Radiant panel heaters
- Electric re-heat zones
- Terminal reheat



For more information on the possible applications for the TRC3500, refer to the Application Guide.

Part Numbers

The low-voltage fan coil unit and zone control Viconics Room Controller comes with the following part numbers:

Part Number	BACnet/MSTP or Modbus RTU	RF (Wi-Fi + Zigbee)	RH Sensor	Passive IR Sensor	Proximity Sensor	Halo Light	Color	Region
TRC3500B11X-VC	●		●	●			White	Global
TRC3500B11W-VC	●	●	●	●	●	●	White	Global (except NAM)
TRC3500B11WA-VC	●	●	●	●	●	●	White	North America
TRC3500B00X-VC	●		●	●			Black	Global
TRC3500B00W-VC	●	●	●	●	●	●	Black	Global (except NAM)
TRC3500B00WA-VC	●	●	●	●	●	●	Black	North America

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Specifications

TRC3500	
Electrical	
Input	24 Vac ±15 % recommended, Absolute Max 29.5 Vac, 50/60 Hz or 24 Vdc ±15 %
Peak device consumption	Up to 6 VA with CO_2 sensor Plus Output Load (max total 94 VA)
Transformer maximum rating	100 VA, 4.17 A, Class 2
Output ratings	**5 Digital Outputs (Electronic Relays):** 24 Vac or 24 Vdc ±15%, 50/60 Hz, 1.0 Amp. **4 Universal Outputs (Electronic Relays or Analog Outputs – Configurable):** 0 - 10 Vdc, 5 mA max
Digital outputs	5 (D1 - D5)
Universal outputs	(Selectable: Digital outputs or Analog outputs) 4 (A1/D6- A4/D9)
Universal inputs	8 (U1- U8)
Real-time clock	7-day internal battery backup
UL file number	E527425
Environment	
Environmental conditions	Indoor use only
Ambient temperature, operating	0 to 50 °C (32 to 122 °F)
Humidity, operating	0 to 95 % RH non-condensing
Ambient temperature, storage	-30 to 50 °C (-22 to 122 °F)
Humidity, storage	0 to 95 % RH non-condensing
Dehumidification setpoint range	30 to 95% R.H.
Occ, unocc and standby cooling setpoint range	12 to 37.5 °C (54 to 100 °F)
Occ, unocc and standby heating setpoint range	4.5 to 32 °C (40 to 90 °F)
Room and outdoor air temperature display range	-40 to 50 °C (-40 to 122 °F)
Proportional band for room temperature control	Cooling and Heating: Default: 1.8°C (3.2°F)
Sensors	
Local and remote temperature sensor	10,000 ohm Type 2 NTC Thermistor
Temperature sensor resolution	± 0.1 °C (± 0.2 °F)
Temperature control accuracy	±0.5 ° C (± 0.9 °F) @ 21 °C (70 °F) typical
Humidity sensor accuracy	Reading ranges from 10 - 90 % R.H. non-condensing 10 to 20% precision: 10% 20 to 70% precision: 5% 70 to 90% precision: 10%
Humidity sensor stability	Less than 0.25 % yearly (typical drift)
Occupancy sensor	Minimum of n angular degrees up to a distance of 8 m (26.25 ft), based on a clear line of sight
Antenna (RF version only)	
Maximum gain	2 dBi
Radiation pattern	Omni-Directional
Impedance	50 Ohm
Connector type	U.FL
Wi-Fi interface	2.4GHz/5GHz b/g/n/ac module
Antenna type	Omni-Directional, internal
FCC ID	VPYLB2AE

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IC ID	772C-LB2AE
Mechanical	
Dimensions	132.8 L x 82.5 W x 27.9 H mm (5.2 L x 3.2 W x 1.1 H in)
Weight	241.4 g (0.5 lb)
LED indicator	Optional Halo (RGB)
Material	
Wire gauge	Power supply: 18 AWG Communications: 22-24 AWG
Enclosure	Polycarbonate
Display	Glass
Glass hardness	≥7H
Ingress protection rating	IP 20
Plastic flame rating	UL94 V-0
FCC ID	2BATG-SXWTRC
IC ID	30486-SXWTRC
Pollution degree	2
Color	White or Black
Surface finish	Matte
Display	
Display resolution	800 x 480 pixels (WVGA)
Display aspect ratio	16:10
Display size	109.2 mm (4.3 in)
Display type	Capacitive 226 Pixels per Inch (PPI)
Color	16 million colors
Display languages	Arabic, Chinese (Simplified), Czech, Danish, Dutch, English (Default), Finnish, French, German, Hebrew, Hungarian, Indonesian, Italian, Japanese, Norwegian, Polish, Portuguese, Russian, Slovak, Spanish, Swedish, Turkish
Brightness control	400 cd/m2, 16 levels
LED lifetime[a]	50,000 hours.
a) The LED lifetime is defined as the time when the LED continues to operate at the ambient temperature 25 °C +/-2 °C (77 °F +/- 3.6 °F) until the brightness is reduced to 25% of its original value	
Installation	
Placement	Wall mounted in rooms and open spaces, ideally 1.5 meters (5 feet) above the floor surface

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Regulatory Notices

Federal Communications Commission
FCC Rules and Regulations CFR 47:
Part 15, Subpart B, Class B – EMC Radiated and Conducted Emissions for Residential User
Part 15, Subpart C – Intentional Radiators
RSS-247 – Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
FCC ID – 2BATG-SXWTRC
IC – 30486-SXWTRC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference. (2) This device must accept any interference received, including interference that may cause undesired operation.

UL 60730-1 – Standard for Safety Automatic Electrical Controls
UL 60730-2-9 – Particular Requirements for Temperature Sensing Controls
UL 60730-2-13 – Particular Requirements for Humidity Sensing Controls
UL E527425 – Plastics for Additive Manufacturing

Listed products for the United States and Canada, Open Class Energy Management Equipment.

UK Conformity Assessed
BS/EN 60730-1 – Standard for Safety Automatic Electrical Controls
BS/EN 60730-2-9 – Particular Requirements for Temperature Sensing Controls
BS/EN 60730-2-13 – Particular Requirements for Humidity Sensing Controls
BS EN 62479 – Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)
BS/EN 302 502

UK Representative	Manufacturer
Schneider Electric Limited Stafford Park 5 Telford, TF3 3BL United Kingdom	Schneider Electric Industries SAS 35 rue Joseph Monier Rueil Malmaison 92500 France

International Electrotechnical Commission
IEC 60068-2-27 – Environmental Testing, Test Ea and Guidance: Shock
IEC 60068-2-6 – Environmental testing, Test Fc: Vibration (sinusoidal)

ICES-003, Issue 7, Class B – EMC Radiated and Conducted Emissions for Residential Users

CE - Compliance to European Union (EU)
2014/30/EU – Electromagnetic Compatibility Directive
2014/53/EU – Radio Equipment Directive
EN 60730-1 – Standard for Safety Automatic Electrical Controls
EN 60730-2-9 – Particular Requirements for Temperature Sensing Controls
EN 60730-2-13 – Particular Requirements for Humidity Sensing Controls
ETSI EN 300 328 – 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
ETSI EN 301 489-1 – ElectroMagnetic Compatibility (EMC) Standard for Radio Equipment and Services, General Requirements
ETSI EN 301 489-3 – Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU
ETSI EN 301 489-17 – Specific Conditions for Broadband Data Transmission Systems
ETSI EN 301 893 – Harmonized European standard which applies to 5 GHz Wireless Access Systems (WAS), including RLAN (Radio Local Area Networks) equipment used in wireless local area networks for high-speed data communication
ETSI EN 302 502 – Wireless Access Systems (WAS); 5,8 GHz fixed broadband data transmitting systems; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

This equipment complies with the rules, of the Official Journal of the European Union, for governing the Self Declaration of the CE Marking for the European Union as specified in the above directive(s).

CAN/CSA-E60730-1 – Automatic Electrical Controls, General Requirements
CAN/CSA-E60730-2-9 – Particular Requirements for Temperature Sensing Controls

This equipment and its packaging carry the waste of electrical and electronic equipment (WEEE) label, in compliance with European Union (EU) Directive 2012/19/EU, governing the disposal
and recycling of electrical and electronic equipment in the European community.

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