TEC3000 Color Series Thermostats Catalog Page

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Description

The TEC3000 Color Series Thermostat Controllers are wireless, stand-alone, and field-selectable BACnet® MS/TP or N2 networked devices that provide on/off, floating, and proportional control of the following:

- local hydronic reheat valves
- pressure-dependent VAV equipment with or without local reheat
- two- or four-pipe fan coils
- cabinet unit heaters
- other zoning equipment using an on/off, floating, or 0 to 10 VDC proportional control input
- single- or two-stage control of unitary rooftop units (RTUs)
- single- or two-stage control of RTUs with economizers
- single- or two-stage control of heat pumps
- single- or two-stage control of heat pumps with economizers

You can remote monitor and program the wireless and field-selectable BACnet MS/TP or N2 networked thermostat controllers through the building automation system, for efficient space temperature control. The wireless thermostat controllers feature a connection to the ZFR Pro wireless network. All models include a USB port configuration that reduces installation time by allowing simple backup and restore features from a USB drive, which enables rapid cloning of configuration between like units. The programming memory of all TEC3000 Series Thermostat Controllers is non-volatile.

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Some models feature a built-in occupancy sensing capability. These thermostat controllers use additional standby setpoints to maximize up to 30% energy savings in high-energy usage commercial buildings, such as schools and hotels, during occupied times.

A bright, high-definition capacitive touchscreen display provides responsive feedback and improved readability of text and icons. The home screen is configurable to Modern and Classic, and Light and Dark themes.

Models are available in modern black or white high-gloss designs with or without the Johnson Controls® logo.

The following fan configurations are supported for fan coil equipment types:

- single-speed
- multi-speed (two or three discrete speeds)
- variable-speed/EC motors (0 to 10 VDC control)

All models support dehumidification on two-pipe fan coil units with reheat, four-pipe fan coil units with individual coils or single coil with heating and cooling valves installed, rooftop units with hot gas reheat, and rooftop units with an auxiliary dehumidifier.

When no heating is required and mechanical cooling is available, the thermostat controller monitors space humidity and activates dehumidification control as necessary. Heat or reheat is used as required to maintain the space temperature.

For optimal dehumidification performance, use a fan coil unit that includes a multi-speed or variable-speed fan (VSF).

Refer to the *TEC3000 Color Series Wireless, Stand-Alone, and Field-Selectable BACnet® MS/TP or N2 Networked Thermostat Controllers Product Bulletin (LIT-12013193)* for important product application information.

Features and benefits

Two configurable binary inputs

Provide additional inputs for advanced functions such as remote night setback, service or filter alarms, motion detector, and window status.

Field-Selectable BACnet MS/TP or N2 Networked Communication (TEC36xx-1x-000 Models)

Simplifies the upgrade from N2 networked communication to BACnet MS/TP networked communication without changing hardware.

USB port configuration

Rapidly clone the configuration between like units through simple backup and restore features from a USB drive to reduce installation time.

Programmable in seven languages

Provides English, Spanish, French, German, Italian, Dutch, Portuguese (requires a downloadable language pack)

Backlit full-color liquid crystal display (LCD)

Offers an intuitive color backlit display that makes setup and operation quick and easy. The new display features on all models and offers real-time control status of the environment in easy-to-read, plain text messages with an adjustable backlight that brightens during user interaction.

Configurable touchscreen UI

Facility managers can limit the user interaction with the thermostat controller display based on specific energy policies.

Various models available

Offers models in modern black or white high-gloss designs with or without the Johnson Controls logo.

- The color code of the black used for the TEC3000 Color Series is: hex #2d2926 or RAL 9017.
- The color code of the white used for the TEC3000 Color Series is: hex #F4F5F0 or RAL 9016

End-of-line switch

Simplifies the layout and installation of communication buses.

Mobile Access Portal (MAP) Gateway compatibility (MAP Release 4.0 or Later)

View the equipment and control the conditions through your mobile devices.

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Onboard occupancy sensor (TEC3031-1x-000 and TEC3xx3-1x-000 Models)

Provides energy savings in high-energy usage commercial buildings without additional installation time or cost.

Integral humidity sensor

Monitors space humidity on all models. Activates dehumidification control on two-pipe fan coil units with reheat, four-pipe fan coil units with individual coils or single coil with heating and cooling valves installed, rooftop units with hot gas reheat, and rooftop units with an auxiliary dehumidifier.

Multiple fan configurations for fan coil equipment types

Provide field-selectable single-speed, multi-speed, and variable-speed fan control capabilities.

Full line of remote TE-6300 Series Temperature Sensors

Support a wide usage commercial buildings without additional installation time or cost.

Built-in schedule object

Allows all wireless and wired models of thermostat controllers to be scheduled as stand-alone devices; allows wireless and BACnet MS/TP models to be defined and adjusted through the building automation system.

Optimal start

Allows each thermostat controller to anticipate the heating or cooling needs of a space by starting the equipment early enough to reach the setpoint at the beginning of the scheduled occupancy.

Auto-tuned control loops

Reduce commissioning time, eliminate change-of-season recommissioning, and reduce wear and tear of the mechanical devices.

Load shed

Commands a load shed input to offset the heating and cooling setpoints by a fixed amount on networked models. The change rate of the setpoints is adjustable. The load shed feature is in place to help satisfy the California Title 24 requirements that are defined in joint appendix JA5, section JA5.2.4 for demand signal response. The trigger for this event is defined in another controller and passed through the network command.

Scheduled circulation

Runs the fan for a minimum duration per hour. If the minimum hourly fan runtime is not exceeded as part of normal HVAC operation, the fan turns on at the end of the hour for the length of time required to fulfill the minimum run time.

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Selection Charts

Table 1: Wireless thermostat controller models

Code number	Control output	Occupancy	Dehumidification	Johnson Controls logo	Color
TEC3012-13-000	On/off or floating fan coil and zoning	No	Yes	Yes	Black
TEC3012-14-000	On/off or floating fan coil and zoning	No	Yes	Yes	White
TEC3012-15-000	On/off or floating fan coil and zoning	No	Yes	No	Black
TEC3012-16-000	On/off or floating fan coil and zoning	No	Yes	No	White
TEC3013-13-000	On/off or floating fan coil and zoning	Yes	Yes	Yes	Black
TEC3013-14-000	On/off or floating fan coil and zoning	Yes	Yes	Yes	White
TEC3013-15-000	On/off or floating fan coil and zoning	Yes	Yes	No	Black
TEC3013-16-000	On/off or floating fan coil and zoning	Yes	Yes	No	White
TEC3022-13-000	0 to 10 VDC proportional fan coil and zoning	No	Yes	Yes	Black
TEC3022-14-000	0 to 10 VDC proportional fan coil and zoning	No	Yes	Yes	White
TEC3022-15-000	0 to 10 VDC proportional fan coil and zoning	No	Yes	No	Black
TEC3022-16-000	0 to 10 VDC proportional fan coil and zoning	No	Yes	No	White
TEC3023-13-000	0 to 10 VDC proportional fan coil and zoning	Yes	Yes	Yes	Black
TEC3023-14-000	0 to 10 VDC proportional fan coil and zoning	Yes	Yes	Yes	White
TEC3023-15-000	0 to 10 VDC proportional fan coil and zoning	Yes	Yes	No	Black
TEC3023-16-000	0 to 10 VDC proportional fan coil and zoning	Yes	Yes	No	White
TEC3030-13-000	Single- or two-stage RTU/heat pump with economizer	No	Yes	Yes	Black
TEC3030-14-000	Single- or two-stage RTU/heat pump with economizer	No	Yes	Yes	White
TEC3030-15-000	Single- or two-stage RTU/heat pump with economizer	No	Yes	No	Black
TEC3030-16-000	Single- or two-stage RTU/heat pump with economizer	No	Yes	No	White
TEC3031-13-000	Single- or two-stage RTU/heat pump with economizer	Yes	Yes	Yes	Black
TEC3031-14-000	Single- or two-stage RTU/heat pump with economizer	Yes	Yes	Yes	White
TEC3031-15-000	Single- or two-stage RTU/heat pump with economizer	Yes	Yes	No	Black
TEC3031-16-000	Single- or two-stage RTU/heat pump with economizer	Yes	Yes	No	White

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Table 2: Stand-alone thermostat controller models

Code number	Control output	Occupancy	Dehumidification	Johnson Controls logo	Color
TEC3312-13-000	On/off or floating fan coil and zoning	No	Yes	Yes	Black
TEC3312-14-000	On/off or floating fan coil and zoning	No	Yes	Yes	White
TEC3312-15-000	On/off or floating fan coil and zoning	No	Yes	No	Black
TEC3312-16-000	On/off or floating fan coil and zoning	No	Yes	No	White
TEC3313-13-000	On/off or floating fan coil and zoning	Yes	Yes	Yes	Black
TEC3313-14-000	On/off or floating fan coil and zoning	Yes	Yes	Yes	White
TEC3313-15-000	On/off or floating fan coil and zoning	Yes	Yes	No	Black
TEC3313-16-000	On/off or floating fan coil and zoning	Yes	Yes	No	White
TEC3322-13-000	0 to 10 VDC proportional fan coil and zoning	No	Yes	Yes	Black
TEC3322-14-000	0 to 10 VDC proportional fan coil and zoning	No	Yes	Yes	White
TEC3322-15-000	0 to 10 VDC proportional fan coil and zoning	No	Yes	No	Black
TEC3322-16-000	0 to 10 VDC proportional fan coil and zoning	No	Yes	No	White
TEC3323-13-000	0 to 10 VDC proportional fan coil and zoning	Yes	Yes	Yes	Black
TEC3323-14-000	0 to 10 VDC proportional fan coil and zoning	Yes	Yes	Yes	White
TEC3323-15-000	0 to 10 VDC proportional fan coil and zoning	Yes	Yes	No	Black
TEC3323-16-000	0 to 10 VDC proportional fan coil and zoning	Yes	Yes	No	White
TEC3330-13-000	Single- or two-stage RTU/heat pump with economizer	No	Yes	Yes	Black
TEC3330-14-000	Single- or two-stage RTU/heat pump with economizer	No	Yes	Yes	White
TEC3330-15-000	Single- or two-stage RTU/heat pump with economizer	No	Yes	No	Black
TEC3330-16-000	Single- or two-stage RTU/heat pump with economizer	No	Yes	No	White
TEC3331-13-000	Single- or two-stage RTU/heat pump with economizer	Yes	Yes	Yes	Black
TEC3331-14-000	Single- or two-stage RTU/heat pump with economizer	Yes	Yes	Yes	White
TEC3331-15-000	Single- or two-stage RTU/heat pump with economizer	Yes	Yes	No	Black
TEC3331-16-000	Single- or two-stage RTU/heat pump with economizer	Yes	Yes	No	White

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Table 3: Field-selectable BACnet MS/TP or N2 Networked thermostat controller models

Code number	Control output	Occupancy	Dehumidification	Johnson Controls logo	Color
TEC3612-13-000	On/off or floating fan coil and zoning	No	Yes	Yes	Black
TEC3612-14-000	On/off or floating fan coil and zoning	No	Yes	Yes	White
TEC3612-15-000	On/off or floating fan coil and zoning	No	Yes	No	Black
TEC3612-16-000	On/off or floating fan coil and zoning	No	Yes	No	White
TEC3613-13-000	On/off or floating fan coil and zoning	Yes	Yes	Yes	Black
TEC3613-14-000	On/off or floating fan coil and zoning	Yes	Yes	Yes	White
TEC3613-15-000	On/off or floating fan coil and zoning	Yes	Yes	No	Black
TEC3613-16-000	On/off or floating fan coil and zoning	Yes	Yes	No	White
TEC3622-13-000	0 to 10 VDC proportional fan coil and zoning	No	Yes	Yes	Black
TEC3622-14-000	0 to 10 VDC proportional fan coil and zoning	No	Yes	Yes	White
TEC3622-15-000	0 to 10 VDC proportional fan coil and zoning	No	Yes	No	Black
TEC3622-16-000	0 to 10 VDC proportional fan coil and zoning	No	Yes	No	White
TEC3623-13-000	0 to 10 VDC proportional fan coil and zoning	Yes	Yes	Yes	Black
TEC3623-14-000	0 to 10 VDC proportional fan coil and zoning	Yes	Yes	Yes	White
TEC3623-15-000	0 to 10 VDC proportional fan coil and zoning	Yes	Yes	No	Black
TEC3623-16-000	0 to 10 VDC proportional fan coil and zoning	Yes	Yes	No	White
TEC3630-13-000	Single- or two-stage RTU/heat pump with economizer	No	Yes	Yes	Black
TEC3630-14-000	Single- or two-stage RTU/heat pump with economizer	No	Yes	Yes	White
TEC3630-15-000	Single- or two-stage RTU/heat pump with economizer	No	Yes	No	Black
TEC3630-16-000	Single- or two-stage RTU/heat pump with economizer	No	Yes	No	White
TEC3631-13-000	Single- or two-stage RTU/heat pump with economizer	Yes	Yes	Yes	Black
TEC3631-14-000	Single- or two-stage RTU/heat pump with economizer	Yes	Yes	Yes	White
TEC3631-15-000	Single- or two-stage RTU/heat pump with economizer	Yes	Yes	No	Black
TEC3631-16-000	Single- or two-stage RTU/heat pump with economizer	Yes	Yes	No	White

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Accessories

Table 4: TEC3000 Color accessories

Code number	Description
TEC-WALLPLT	Wallplate for retrofitting existing installations or concealing mounting surface damage; can be used with any TEC3000 Color Series Thermostat Controller
MS-WNC1820-0A	WNC1800-0SZ with base, 120 to 230 VAC power, ZFR1820 ProCordFlag, with 3 ft (0.9 m) cable
MS-WNC1823-0A	WNC1800-0SZ with base, 120 to 230 VAC power, ZFR1823 ProCordWall, with 10 ft (3 m) cable
MS-WNC1820-0B	WNC1800-0SZ with base, 24 VAC power, ZFR1820 ProCordFlag, with 3 ft (0.9 m) cable
MS-WNC1823-0B	WNC1800-0SZ with base, 24 VAC power, ZFR1823 ProCordWall, with 10 ft (3 m) cable
MS-ZFR1821-0B	ZFR1821 Pro Flag Repeater, 24 VAC/DC power, with 3 ft (0.9 m) cable
MS-ZFR1822-0B	ZFR1822 Pro Wall Mount Repeater, 24 VAC/DC power, with 10 ft (3 m) cable
MS-ZFR1821-0	ZFR1821 Pro Flag Router, with 3 ft (0.9 m) cable
MS-ZFR1822-0	ZFR1822 Pro Wall Mount Router, with 10 ft (3 m) cable
ZFR-CBLEXT-0	10 ft (3 m) extension cable accessory, RJ12 F-F coupler
ZFR-WALLCOVER	ZFR Repeater wallplate cover
ZFR-USBHA-0	Wireless USB dongle
TE-6300 Series[1]	Remote temperature sensors
T-4000-119	Allen-head adjustment tool (30 per bag)
CD-2xx-E00-00	Wall Mount CO_2 and Temperature Transmitter

1 Refer to the *TEC3000 Color Series Wireless, Stand-Alone, and Field-Selectable BACnet® MS/TP or N2 Networked Thermostat Controllers Product Bulletin (LIT-12013193)* for ordering details regarding Johnson Controls TE-6300 Series Remote Temperature Sensors.

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Technical specifications

Table 5: TEC3000 Color Series Thermostat Controllers technical specifications

Specification		Description
Power requirements		19 to 30 VAC, 50/60 Hz, 4 VA at 24 VAC nominal, Class 2 or safety extra-low voltage (SELV)
USB port power rating		120 to 250 mA current draw supported
Analog output rating (for TEC3x2x models)		0 to 10 VDC into 2k ohm resistance (minimum)
Relay contact rating (for TEC3x1x and TEC3x3x models)	On/off or floating control (for TEC3x1x models)	19 to 30 VAC, 1.0 A maximum, 15 mA minimum, 3.0 A in-rush, Class 2 or SELV
Fan relay output rating (for TEC3x1x and TEC3x2x models)		19 to 30 VAC, 1.0 A maximum, 15 mA minimum, 3.0 A in-rush
Auxiliary output rating/triac output (for TEX3x1x and TEC3x2x models)		19 to 30 VAC, 1.0 A maximum, 15 mA minimum, 3.0 A in-rush
Binary inputs		For TEC3x1x and TEC3x2x models: Dry contact across terminal COM to terminals BI1, BI2, or COS
		For TEC3x3x models: Dry contact across terminal COM to terminals BI1 or BI2
Analog inputs		For TEC3x1x and TEC3x2x models (two AIs): Nickel, platinum, A99B, 2.25k ohm NTC, 10k ohm NTC, 10k ohm NTC Type 3 across terminal COM to terminals R SEN or COS, 0-10 VDC
		For TEC3x3x models (three AIs): Nickel, platinum, A99B, 2.25k ohm NTC, 10k ohm NTC, 10k ohm NTC Type 3 across terminal COM to terminals R SEN, SAT, or OAT, 0-10 VDC
Temperature and humidity sensor type		Local digital sensor
Wire size		18 AWG (1.0 mm diameter) maximum, 22 AWG (0.6 mm diameter) recommended
MS/TP network guidelines		For wired models: Up to 100 devices maximum for each Network Automation Engine (NAE); 4,000 ft (1,219 m) maximum cable length. Refer to the MS/TP Technical Bulletin for the Metasys, FX, or Verasys® system installed.
		For wireless models: Up to 100 devices maximum for each Network Automation Engine (NAE)
Wireless band (for wireless models)		Direct-sequence spread-spectrum 2.4 GHz ISM bands
Transmission power (for wireless models)		10 mW maximum
Transmission range (for wireless models)		50 ft (15.2 m) recommended indoor
		250 ft (76.2 m) line of sight, maximum
Temperature range	Backlit display	-40.0°F/-40.0°C to 122.0°F/50.0°C in 0.5° increments
	Heating control	40.0°F/4.5°C to 90.0°F/32.0°C
	Cooling control	54.0°F/12.0°C to 100.0°F/38.0°C
Accuracy	Temperature	±0.9F°/±0.5C° at 70.0°F/21.0°C typical calibrated
	Humidity	±5% RH from 20 to 80% RH at 50 to 90°F (10 to 32°C)
Minimum deadband		2F°/1C° between heating and cooling
Occupancy sensor motion detection (occupancy sensing models)		Minimum of 94 angular degrees up to a distance of 15 ft (4.6 m); based on a clear line of sight
Ambient conditions	Operating	32 to 122°F (0 to 50°C); 95% RH maximum, noncondensing
	Storage	-22 to 122°F (-30 to 50°C); 95% RH maximum, noncondensing
Compliance	BACnet International	BACnet Testing Laboratories™ (BTL) 135-2001 Listed BACnet Advanced Application Controller (B-AAC)
	United States	UL Listed, File E27734, CCN XAPX, Under UL60730
		Networked models: FCC Compliant to CFR 47, Part 15, Subpart B, Class B
		Wireless models: Transmission complies with FCC Part 15.247 regulations for low power unlicensed transmitters; transmitter identification FCC: OEJ-WRZRADIO

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Table 5: TEC3000 Color Series Thermostat Controllers technical specifications

Specification		Description
	Canada	UL Listed, File E27734, CCN XAPX7, Under E60730
		Networked models: Industry Canada, ICES-003
		Wireless models: Industry Canada (IC) RSS-210; Transmitter identification ZFR1810-1: IC: 279A-WRZRADIO
CE	Europe (for networked models only)	CE Mark – Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive and the RoHS Directive.
	Australia and New Zealand	RCM Mark, Australia/NZ Emissions Compliant
Shipping weight	Models without occupancy sensor	0.75 lb (0.34 kg)
	Models with occupancy sensor	0.77 lb (0.35 kg)

Repair Information

If the TEC3000 Color Series Thermostat Controllers fails to operate within its specifications, replace the unit. For a replacement TEC3000 Thermostat Controller contact the nearest Johnson Controls® representative.

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Software terms

Use of the software that is in (or constitutes) this product, or access to the cloud, or hosted services applicable to this product, if any, is subject to applicable terms set forth at www.johnsoncontrols.com/techterms. Your use of this product constitutes an agreement to such terms.

Patents

Patents: https://jcipat.com

Single point of contact

APAC	Europe	NA/SA
JOHNSON CONTROLS C/O CONTROLS PRODUCT MANAGEMENT NO. 32 CHANGJIJANG RD NEW DISTRICT WUXI JIANGSU PROVINCE 214028 CHINA	JOHNSON CONTROLS WESTENDHOF 3 45143 ESSEN GERMANY	JOHNSON CONTROLS 507 E MICHIGAN ST MILWAUKEE WI 53202 USA

Contact information

Contact your local branch office:
www.johnsoncontrols.com/locations

Contact Johnson Controls:
www.johnsoncontrols.com/contact-us

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