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Announcing: New features on TEC3000 Color Series Thermostats

From: Building Technologies & Solutions (BT&S)—Commercial thermostats Marketing

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New features on TEC3000 Color Series Thermostats

Johnson Controls is pleased to announce new features for the TEC3000 Color Series Thermostats. The new features are automatically implemented when you install firmware release 4.1.0.15 on the TEC3000 thermostat. This software update also includes bug fixes.

Important: This firmware package contains new alarms and notifications, which require Metasys 11 to function. Alternatively, language pack build 5.0.0.332 or later can be applied to engine versions below Metasys 11 to achieve the same result. For instructions, see [Language Installation Program Help \(LIT-12011349\)](#) on Knowledge Exchange. The new alarms and notifications are listed below:

- Zone CO2 Too High
- Zone Humidity Too High
- Zone Humidity Too Low
- Pre-Occupancy Ventilation Disabled
- Not Economizing When Should
- Economizing When Should Not
- Damper Not Modulating
- Excess Outdoor Air
- Air Temperature Sensor Failure

New features

The firmware 4.1 update contains the following four new features:

Note:

- This firmware update **does not apply** to the TEC31xx Wireless ZFR183x models. Do **not** attempt to apply this update to these models.
- Features 1, 2, and 3 apply to the TEC3000 Color Series rooftop and heat pump models TEC303x-1x-000, TEC333x-1x000, and TEC363x-1x-000.
- Feature 4 applies to all TEC3000 Color Series models, TEC3xxx-1x-000 (**except TEC31xx**). See [Table 1: New features](#).

Table 1: New features

Feature	Models
1, 2, 3	TEC303x-1x-000
	TEC333x-1x-000
	TEC363x-1x-000
4	TEC3xxx-1x-000 – all models (except TEC31xx)

Feature 1: Demand Control Ventilation (DCV) feature for rooftop and heat pump

- Demand Control Ventilation with CO2 sensors
 - Users can set a CO2 setpoint. The default setpoint value is a preset specified by Title 24, Part 6, Section 120.1(c)4 and 120.1(c)5 of the California Code of Regulations.
 - When the zone CO2 is above the setpoint, the TEC takes action to take in fresh air to maintain CO2 level in the zone.
 - If for any reason the zone CO2 value goes above the threshold of 1100 ppm (configurable), the TEC generates a critical alarm on the device display. If the TEC is configured with a BAS, the alarm propagates to the supervisory device.
- Occupant Sensor Ventilation
 - Occupant sensor's input is used to reduce the rate of outdoor air flow when occupants are not present.
- CO2 monitoring point over BACnet
 - Users can monitor CO2 value over standard BACnet interface.

Feature 2: Configuration option to adhere to ASHRAE guidance for building operation during COVID-19 pandemic

- Provides support to purge the zone prior to (Pre-Occ Purge) and after (Post-Occ Purge) occupied states, to achieve a clean air supply through a minimum of three air changes in the zone.
- Predefined ventilation and purge settings per [ASHRAE guidelines](#) as of October, 2021.

Feature 3: ECON Fault detection and notification feature for rooftop and heat pump

- Supports the five standard economizer faults specified by Title 24 Part 6, Section 120.2(i) of the California Code of Regulations.
- Thermostat control triggers a bell icon on the device home screen and generates a service alarm in BACnet and N2 communication modes for the following conditions:
 - Air temperature sensor failure
 - Economization not working when it should
 - Economization working when it should not
 - Damper not modulating
 - Excess outdoor air, damper not closed when it should be

Feature 4: External interrupt on BI (binary input) to halt thermostat operation

- Configure BI as External Interrupt and halt thermostat operation on True input. When External Interrupt is active, all outputs turn off.

Bug fixes

The TEC3000 series firmware 4.1 update contains the following three bug fixes:

Bug fix 1: Cooling OA Lockout will also lockout the heat when an OA-T is connected to the TEC. (CTEC-845)

The Control Status function for Heating breaks in the Zone Sequencer module when the Low OA Cooling Lockout Determination module changes status. This causes heating to stop functioning when the OA Temperature is below the Low OA Cooling Lockout Setpoint.

Affects

This problem affects all TEC3x31-1x models.

Cause

This bug was fixed for the first release of patch 4.0.0.1813. The bug was later re-introduced because the current module was overwritten by previous work.

Symptoms

The heat stops functioning when the OA Temperature is below the Low OA Cooling Lockout Setpoint.

Workaround

Disable Cooling Lockout. To do this, set the lockout setpoint to 0°F or disconnect the OA-T.

Solution

This problem is fixed in this software update. After the software update, the Low OA Cooling Lockout does not prevent heating.

Bug fix 2: Dehum Enable was not available on all TEC3x3x-1x models (CTEC-850)

The configuration option required to enable the dehumidification sequence for TEC3x31-1x models was unavailable.

Affects

This problem affects all TEC3x31-1x models.

Cause

Previous TEC3000 Monochrome Series software prevented the option from appearing.

Symptoms

The Dehum Enable option does not exist in the Settings > Setup > General Setup menu.

Solution

The option automatically appears when the update is installed.

Bug fix 3: The Dehumidification Sequence Mode option cannot be changed from Simple Dehum to Hot Gas Reheat Dehum (CTEC-851)

The Dehumidification Sequence Mode option cannot be changed.

Affects

This problem affects all TEC3x3x-1x models.

Cause

The software does not allow you to change the configuration point.

Symptoms

The TEC3000 Color Series interface does not allow changes to the Dehumidification Sequence Mode value.

Solution

The Settings > Setup > General Setup > Dehumidification Sequence Mode value becomes changeable after the software update is installed.

General software update

Non-branded TEC3000 models show Johnson Controls logo at start up and restart (CTEC-831)

Non-branded TEC3000 models show the Johnson Controls logo at start up and restart. OEM manufacturers do not want the Johnson Controls logo visible in the software on their TEC3000 models.

Affects

This affects the following models:

- TEC3xxx-15-000
- TEC3xxx-16-000

Solution

The Johnson Controls logo is removed from the software for all TEC3xxx-1x-000 models. The only way to distinguish between branded and non-branded TEC3000 models is through the logo embossed on the display faceplate.

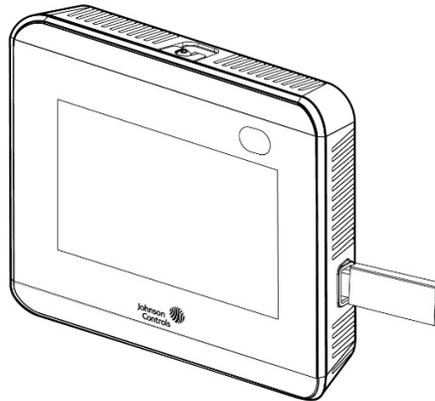
Firmware release 4.1.0.15 contents

- 4.1.0.15.EN.BR.IT.tecusb.pkg
- 4.1.0.15.EN.FR.ES.tecusb.pkg
- 4.1.0.15.EN.NL.DE.tecusb.pkg
- 4.1.0.15.EN.NL.PL.tecusb.pkg
- TEC3x1x-1x.PRN
- TEC3x2x-1x.PRN
- TEC3x3x-1x.PRN
- Literature folder, including this product information letter (“New features on TEC3000 Color Series Thermostats”, LIT-12001185)

Accessing the latest firmware

The TEC3000 Thermostat design incorporates a USB port that you can use to load enhancements, update, back up, and restore firmware settings without the need to replace the thermostat.

Figure 1: TEC3000 Thermostat with attached USB drive



Preparing the USB drive for the TEC3000 upgrade

The TEC3000 identifies up to eight configuration files or firmware package files. The USB drive format must be FAT or FAT32. The drive cannot be formatted for NTFS. If the passcode is enabled, you must have access to the TEC3000 passcode to upgrade firmware or copy configuration files. The TEC3000 does not support USB 3.0 drives. Do not remove the USB drive until the upgrade is complete. After you upgrade the firmware, the TEC3000 restarts and may go offline to the network engine. The upgrade takes approximately 3 minutes.

Johnson Controls Technicians

If you are a Johnson Controls technician, the firmware update is available on the License Portal at: <https://software.jci.com/licenseportal/#/home>

Go to **Software > Patches > TEC3000 Color Series Thermostats > 4.0 Firmware > 4.1.0.15** to download the latest firmware.

Download and copy **4.1.0.15.EN.FR.ES.tecusb.pkg** to the USB drive.

You must save the file to the root directory of the USB drive for the TEC3000 to locate the file.

ABCS contractor download

If you are an ABCS contractor, the firmware update is available on the Pro FX User connected community. Go to the **Resources + Tools > Software Downloads > TEC3000 Updates** section of <https://www.hvacnavigator.com> to download the latest firmware.

Download and copy **4.1.0.15.EN.FR.ES.tecusb.pkg** to the USB drive.

You must save the file to the root directory of the USB drive for the TEC3000 to locate the file.

UPG contractor download

If you are a UPG contractor, the firmware update is available on UPG Net under the Verasys® supported files.

Download and copy **4.1.0.15.EN.FR.ES.tecusb.pkg** to the USB drive.

You must save the file to the root directory of the USB drive for the TEC3000 to locate the file.

ARW contractor download

If you are an ARW contractor that is selling Verasys, the firmware update is available at verasyscontrols.com under the partner's login.

Download and copy **4.1.0.15.EN.FR.ES.tecusb.pkg** to the USB drive. You must save the file to the root directory of the USB drive for the TEC3000 to locate the file.

Loading the firmware to the TEC3000 Thermostat Controller

Note: Optionally, you can back up the TEC3000 Thermostat before upgrading the firmware. For the steps, refer to *TEC3000 Series On/Off or Floating Fan Coil Thermostats Installation Guide (LIT-12013161)*, *TEC3000 Series Proportional Fan Coil Thermostats Installation Guide (LIT-12013162)*, and *TEC3000 Series Thermostats for Packaged Rooftop and Heat Pump with Economizer Installation Guide (LIT-12013163)* on [Knowledge Exchange](#).

1. Ensure that the TEC3000 screen is on.
2. Insert the USB drive into the right side of the TEC3000 controller. See [Figure 1](#) for the USB port location.
3. Press the **Menu** icon.
4. Press **Update**.
5. Press **Load Firmware**.
6. Select firmware version **4.1.0.15.EN.FR.ES.tecusb.pkg**. The correct file name has the .pkg extension.

Note: If the filename is scrolling on the screen, select the file again on the TEC display.

7. Press **Confirm**. The firmware is loaded from the USB drive into the TEC3000 operating system.

Note: The TEC3000 locates the new firmware only if the new firmware is on the root drive of the USB.

8. When the update is complete, remove the USB drive from the TEC3000 controller. The TEC3000 firmware update is complete when the TEC3000 restarts and returns to the home screen.
9. Verify your firmware version is 4.1.0.15.

Contact information

For questions, contact your local branch office: www.johnsoncontrols.com/locations or contact Johnson Controls: www.johnsoncontrols.com/contact-us.

Documentation

The documents listed in the following table are available on [Knowledge Exchange](#).

Table 2: Related documentation

Document title	Document number
TEC3000 Color Series Thermostats Catalog Page	LIT-1901109
TEC3000 Color Series Thermostats Product Bulletin	LIT-12013193
TEC3000 Series On/Off or Floating Fan Coil Thermostats Installation Guide	LIT-12013161
TEC3000 Series Proportional Fan Coil Thermostats Installation Guide	LIT-12013162
TEC3000 Series Thermostats for Packaged Rooftop and Heat Pump with Economizer Installation Guide	LIT-12013163
TEC3000 Series On/Off or Floating Fan Coil Thermostats Quick Start Guide	Part No. 24-11353-00001
TEC3000 Series Proportional Fan Coil Thermostats Quick Start Guide	Part No. 24-11353-00028
TEC3000 Series Thermostats for Packaged Rooftop and Heat Pump with Economizer Quick Start Guide	Part No. 24-11353-00036
TEC3000 Color Series Field-Selectable BACnet MS/TP or N2 Networked and Wireless Thermostats Technical Bulletin	LIT-12013267

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