

TEC210x-4 and TEC210x-4+PIR Series

N2 Networked Thermostat Controllers

Description

The TEC210x-4 and TEC210x-4+PIR Series Thermostat Controllers are N2 networked devices that provide control of rooftop units (with and without economizers), heat pumps, and single- and multi-stage heating/cooling equipment. The TEC210x-4+PIR Series Thermostat Controllers have occupancy sensing capability built into the device. These devices provide energy savings in high-energy usage light commercial buildings such as schools and hotels. The devices maximize these energy savings by using additional setpoint strategies during occupied times.

The TEC210x-4 and TEC210x-4+PIR Series Thermostat Controllers feature Building Automation System (BAS) N2 Bus communication capability that enables remote monitoring and programming for efficient space temperature control.

The TEC210x-4 and TEC210x-4+PIR Thermostat Controllers use an intuitive, plain text, menu-driven, backlit display that makes setup and operation quick and easy.

The TEC210x-4(+PIR) Series includes four models, each include the option of a PIR occupancy sensing cover:

- Single-stage (TEC2101-4 and TEC2101-4+PIR)
- Heat Pump (TEC2102-4 and TEC2102-4+PIR)
- Multi-stage (TEC2103-4 and TEC2103-4+PIR)
- Economizer (TEC2104-4 and TEC2104-4+PIR).

All thermostat controllers use a unique Proportional-Integral (PI) time-proportioning control algorithm that virtually eliminates temperature offset associated with traditional differential-based thermostat controllers.

Refer to the *TEC210x-4 and TEC210x-4+PIR Series N2 Networked Thermostat Controllers Product Bulletin (LIT-12011600)* for important product application information.

Features

- BAS N2 open communication — provides compatibility with a proven communication network; N2 Bus is widely accepted by Heating, Ventilating, and Air Conditioning (HVAC) control suppliers.
- onboard occupancy sensor (Passive Infrared [PIR] models) — provides energy savings without additional installation time and cost
- password protection option — protects against unwanted thermostat controller tampering
- backlit Liquid Crystal Display (LCD) — offers real-time control status of the environment in easy-to-read, English text messages with constant backlight that brightens during user interaction
- simplified setpoint adjustment — enables the user to change the setpoint by simply pressing the **UP/DOWN** arrow keys
- five easy-to-use interface keys — allow for easy commissioning of the thermostat, and eliminate the need for DIP switches
- two configurable digital inputs — provide additional inputs for advanced functions such as remote night setback, occupancy override, and service or filter alarms
- over 20 configurable parameters — enable the thermostat to adapt to any application, allowing installer parameter access without opening the thermostat cover
- optional discharge air sensor — monitors unit efficiency



TEC210x-4+PIR Series Networked Thermostat Controller

- economizer output (TEC2104-4 and TEC2104-4+PIR models) — provides control of economizer operation for single- and multi-stage unitary rooftop equipment
- configurable auxiliary output — provides 24 VAC control for lighting, exhaust fans, and other auxiliary functions

Repair Information

If a TEC210x-4 or TEC210x-4+PIR Series Thermostat Controller fails to operate within its specifications, replace the unit. For a replacement thermostat controller, contact the nearest Johnson Controls® representative.

Selection Charts

N2 Networked Thermostat Controller Models

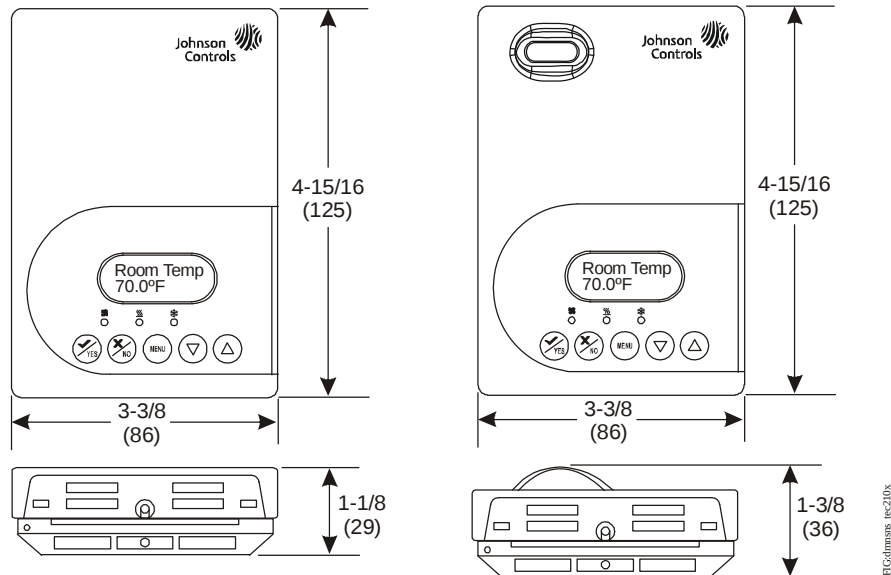
Code Number	Description	Applications
TEC2101-4	Single-Stage	Unit Heaters and Single-Stage Packaged Heating/Cooling Equipment
TEC2101-4+PIR	Single-Stage with Onboard Occupancy Sensor	
TEC2102-4	Heat Pump	Heat Pumps with up to 3 Heating/2 Cooling Stages
TEC2102-4+PIR	Heat Pump with Onboard Occupancy Sensor	
TEC2103-4	Multi-Stage	Multi-Staged Packaged Heating/Cooling Equipment
TEC2103-4+PIR	Multi-Stage with Onboard Occupancy Sensor	
TEC2104-4	Multi-Stage, Economizer	Economizer Operation for Single- and Multi-Stage Unitary Rooftop Equipment
TEC2104-4+PIR	Multi-Stage, Economizer with Onboard Occupancy Sensor	

TEC210x-4 and TEC210x-4+PIR Series N2 Networked Thermostat Controllers (Continued)

Accessories

Code Number	Description
SEN-600-1	Remote Indoor Temperature Sensor
SEN-600-4	Remote Indoor Temperature Sensor with Occupancy Override Button and LED
TE-6361M-1 ¹	Duct Mount Air Temperature Sensor
TE-636S-1 ¹	Strap-Mount Temperature Sensor
TE-6363P-1 ¹	Outdoor Air Temperature Sensor
TEC-3-PIR ²	Cover with Occupancy Sensor

1. Additional TE-636xx-x Series 10k ohm Johnson Controls® Type II Thermistor Sensors are available; refer to the *TE-6300 Series Temperature Sensors Product Bulletin (LIT-216320)* for more details.
2. The TEC-3-PIR Accessory Cover can replace the existing cover on a non-PIR TEC210x-4 Series Thermostat Controller to provide occupancy sensing.



Dimensions, in. (mm) (TEC210x-4 and TEC210x-4+PIR Models Shown)

Technical Specifications

TEC210x-4 and TEC210x-4+PIR Series N2 Networked Thermostat Controllers (Part 1 of 2)			
Power Requirements		19 to 30 VAC, 50/60 Hz, 2 VA (Terminals RC and C) at 24 VAC nominal, Class 2 or Safety Extra-Low Voltage (SELV)	
Relay Contact Rating		19 to 30 VAC, 1.0 A Maximum, 15 mA Minimum, 3.0 A In-Rush, Class 2 or SELV	
Analog Inputs		Resistive Inputs (RS and UI3) for 10k ohm Johnson Controls Type II Negative Temperature Coefficient (NTC) Thermistor Sensors	
Digital Inputs		Voltage-Free Contacts across Terminal C to Terminals DI1 and DI2	
Economizer Output Rating (TEC2104-4 and TEC2104-4+PIR Models)	Rating	0 to 10 VDC into 2k ohm resistance minimum	
	Accuracy	±3%	
Wire Size		18 AWG (1.0 mm Diameter) Maximum, 22 AWG (0.6 mm Diameter) Recommended	
Temperature Sensor Type		Local 10k ohm Type II Negative Temperature Coefficient (NTC) Thermistor	
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	±0.9°F/±0.5°C at 70.0°F/21.0°C Typical Calibrated	
Minimum Deadband		2°F/1°C between Heating and Cooling	
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	

TEC210x-4 and TEC210x-4+PIR Series N2 Networked Thermostat Controllers (Continued)

TEC210x-4 and TEC210x-4+PIR Series N2 Networked Thermostat Controllers (Part 2 of 2)		
Compliance	United States	UL Listed, File E27734, CCN XAPX, Under UL 873, Temperature Indicating and Regulating Equipment FCC Compliant to CFR 47, Part 15, Subpart B, Class A
	Canada	UL Listed, File E27734, CCN XAPX7, Under CAN/CSA C22.2 No. 24, Temperature Indicating and Regulating Equipment Industry Canada, ICES-003
	Europe	CE Mark, EMC Directive 2004/108/EC
	Australia and New Zealand	C-Tick Mark, Australia/NZ Emissions Compliant
Shipping Weight		TEC210x-4 Models: 0.75 lb (0.34 kg) TEC210x-4+PIR Models: 0.77 lb (0.35 kg)