Code No. LIT-1900631
Issued February 8, 2010

TEC226x-4(+PIR) and TEC220x-4(+PIR) Series

LONWORKS® Network Staged Thermostat Controllers

Description

The TEC226x-4(+PIR) Series Programmable and TEC220x-4(+PIR) Series Non-Programmable LONWORKS® Network Configurable Staged Thermostat Controllers provide control of rooftop units (with and without economizers), heat pumps, and single- and multi-stage heating/cooling equipment. The TEC226x-4+PIR and TEC220x-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 technologically advanced TEC226x-4(+PIR) and TEC220x-4(+PIR) Series Thermostat Controllers feature a Building Automation System (BAS) LONWORKS Network communication capability that enables remote monitoring and programming for efficient space temperature control.

The TEC226x-4(+PIR) and TEC220x-4(+PIR) Series Thermostat Controllers use an intuitive, plain text, menu-driven, backlit display that makes setup and operation quick and easy.

The TEC220x-4+PIR and TEC226x-4+PIR Series includes four models, each include the option of a PIR occupancy sensing cover:

- Single-stage (TEC22x1-4 and TEC22x1-4+PIR)
- Heat Pump (TEC22x2-4 and TEC22x2-4+PIR)
- Multi-stage (TEC22x3-4 and TEC22x3-4+PIR)
- Economizer (TEC22x4-4 and TEC22x4-4+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 *TEC226x-4(+PIR) and TEC220x-4(+PIR) Series LONWORKS Network Thermostat Controllers Product Bulletin (LIT-12011606)* for important product application information.

Features

- LONWORKS network communication — provides compatibility with a proven communication network; LONWORKS Network 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
- economizer output (TEC22x4-4 and TEC22x4-4+PIR models) — provides control of economizer operation for single- and multi-stage unitary rooftop equipment

TEC22xx-4+PIR Series LONWORKS Network Staged Thermostat Controller

- configurable auxiliary output — provides 24 VAC control for lighting, exhaust fans, and other auxiliary functions

Repair Information

If a TEC226x-4(+PIR) or TEC220x-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 Chart

LONWORKS Network Configurable Staged Thermostat Controller Models (Part 1 of 2)

Code Number	Description	Programmable	Applications
TEC2261-4	Single-Stage	Yes	Unit Heaters and Single-Stage Packaged Heating/Cooling Equipment
TEC2201-4		No	
TEC2261-4+PIR	Single-Stage with Onboard Occupancy Sensor	Yes	
TEC2201-4+PIR		No	
TEC2262-4	Heat Pump	Yes	Heat Pumps with up to 3 Heating/2 Cooling Stages
TEC2202-4		No	
TEC2262-4+PIR	Heat Pump with Onboard Occupancy Sensor	Yes	
TEC2202-4+PIR		No	

TEC226x-4(+PIR) and TEC220x-4(+PIR) Series LONWORKS® Network Staged Thermostat Controllers (Continued)

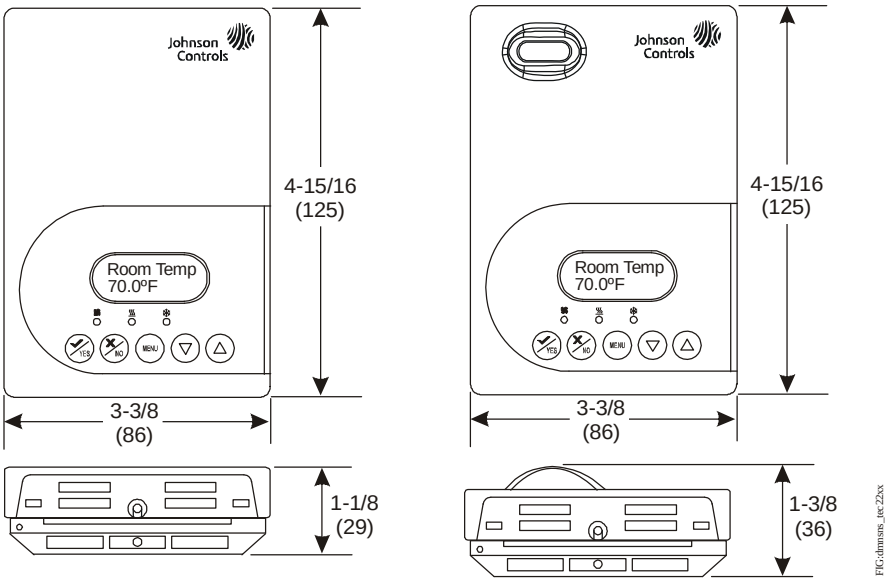
LONWORKS Network Configurable Staged Thermostat Controller Models (Part 2 of 2)

Code Number	Description	Programmable	Applications
TEC2263-4	Multi-Stage	Yes	Multi-Staged Packaged Heating/Cooling Equipment
TEC2203-4		No	
TEC2263-4+PIR	Multi-Stage with Onboard Occupancy Sensor	Yes	
TEC2203-4+PIR		No	
TEC2264-4	Multi-Stage, Economizer	Yes	Economizer Operation for Single- and Multi-Stage Unitary Rooftop Equipment
TEC2204-4		No	
TEC2264-4+PIR	Multi-Stage, Economizer with Onboard Occupancy Sensor	Yes	
TEC2204-4+PIR		No	

Accessories

Code Number	Description
SEN-600-1	Remote Indoor Air Temperature Sensor
SEN-600-4	Remote Indoor Air Temperature Sensor with Occupancy Override 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 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 be used to replace the existing cover on a non-PIR TEC22xx-4 Staged Thermostat Controller to provide occupancy sensing capability.



Dimensions, in. (mm) (TEC22xx-4 and TEC22xx-4+PIR Model Shown)

TEC226x-4(+PIR) and TEC220x-4(+PIR) Series LONWORKS® Network Staged Thermostat Controllers (Continued)

Technical Specifications

TEC226x-4(+PIR) and TEC220x-4(+PIR) Series LONWORKS Network Staged Thermostat Controllers		
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 (TEC22x4-4 and TEC22x4-4+PIR Models)	**Rating**	0 to 10 VDC into 2k ohm resistance minimum
	Accuracy	±3%
Wire Size		Unshielded Twisted Pair - 22 AWG (0.6 mm Diameter) Minimum, 18 AWG (1.0 mm Diameter) Recommended
Temperature Sensor Type		Local 10k ohm Type II NTC Thermistor
LONWORKS Network Standard		64 Devices Maximum without repeater, 128 Devices Maximum with repeater; 6,250 ft (1,905 m) Maximum Length (Bus Topology)
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
Minimum Deadband		2F°/1C° 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
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 LONMARK® Certification 3.4
	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 EN 61000-6-1 and EN 61000-6-3
	Australia and New Zealand	C-Tick Mark, Australia/NZ Emissions Compliant
Shipping Weight		TEC226x-4 and TEC220x-4 Models: 0.75 lb (0.34 kg) TEC226x-4+PIR and TEC220x-4+PIR Models: 0.77 lb (0.35 kg)

