TC300 THERMOSTATS

CONNECTED DEVICE FOR COMMERCIAL BUILDINGS

TC300 thermostat models are advanced, highly configurable devices providing building automation connectivity well suited for commercial building applications. Supported equipment types include 2/4-Pipe FCU, 1H/1C conventional, and 2H/1C heat pump plus water source heat pump.

The TC300 models support BACnet MS/TP and Modbus communications, while the TC320 models also support BACnet IP via Wi-Fi.

All models have intelligent control algorithms, scheduling, and an intuitive touchscreen interface. The B models support low voltage power input, while the C models support line voltage power input. The TC320 variant also has Wi-Fi and Bluetooth connectivity.

FEATURES AND HIGHLIGHTS

CONVENIENT FOR USERS

- Color, capacitive-touch screen display for intuitive, fast commissioning and exceptional user experience.
- Embedded system monitoring screen for equipment and I/O status.
- Customizable inactive display modes, Auto dim display, always on, or dark mode.
- An LED ring indicator to show the operational status.
- Real-Time Clock time-keeping accuracy with 72-hour retention during power loss.

EASY FOR CONTRACTORS

- Thermostat can be configured via its own touch-screen interface or a BACnet/Modbus client.
- Fan coil, 2H/1C Heat Pump-Air Source Heat Pump, Water Source Heat Pump (with water valve enable/lock-out) 1H/1C Conventional, On/Off Valve, Floating Valve, Modulating Valve, and 6-Way Modulating Valve.
- 1-3 or variable speed fan
- Dehumidification with and without reheat.
- Enhanced 2-pipe fan coil functionality during seasonal or system changeover delivering improved occupant comfort.
- Service mode for manually enabling outputs for quicker diagnostics and equipment testing.
- Auxiliary heating options supporting peripheral or supplemental types.
- Auto mode to switch between heating and cooling according to the current space temperature.
- Staging control, PID Tuning, DAT Lockout, Modulating control, Compressor time delay.
- System Switch and Ventilation options.
- Integration with various external wired sensor types including Discharge air temperature, Drain pan, Occupancy, Proof of airflow, Proof of water flow, Space temperature, Outdoor air temperature, Humidity, Shutdown sensor, and 3 custom sensors.
- Complies with ASHRAE guideline 36-2021, Section 5.22 sequence of operations for high-performance operation when using floating/modulating valves and multi-speed/variable speed fan.
- Advanced commercial control algorithms such as auto changeover.

CONNECTED FOR FACILITY MANAGERS

- Multiple, configurable user types with customizable privileges to prevent unauthorized usage.
- Customizable daily schedules include options for setting up to 10 recurring holidays (with support for floating holidays) and up to 10 specific special events.
- Up to 4 schedule events per day.

Honeywell

TECHNICAL SPECIFICATIONS

ELECTRICAL CHARACTERISTICS		
PARAMETER	**TC300B-G/TC320B-G**	**TC300C-G/TC320C-G**
Power Supply	Rated voltage : 24 VAC 50/60 Hz Working Voltage range: 20-30 VAC UL listed class - 2 transformer or IEC 61558 listed transformer	Rated voltage : 100-277 VAC 50/60 Hz
Standby Power Consumption (Display On, All DOs off, All UIOs As Input)	1.5 VA@24 VAC	3.3 VA@Rated voltage
Max. Load	96 VA (all DOs ON)	1200 VA@120 VAC 1500 VA@240/277 VAC (all DOs ON)
Rated Impulse Voltage	500 V	2.5 KV (Overvoltage Category II)
Pollution Degree	2	
Operation Method	Type 1.B Action	
DO/DIO Combined Max. Current Limit	Total current cannot exceed 4 A	Total current cannot exceed 10 A

USER INTERFACE	
PARAMETER	**SPECIFICATIONS**
Display Type	Capacitive touch TFT, 320x240 pixels, 2.4 in. diag.
Backlight	LCD (Dimmable)
LED Color Ring	Blue (cooling), Orange (heating)

OPERATING ENVIRONMENT	
PARAMETER	**SPECIFICATIONS**
Ambient Operating Temperature	Range: 32 to 122 °F (0 to 50 °C)
Ambient Operating Humidity	10 to 90 % relative humidity (non-condensing)
Storage Temperature	-40 to 150 °F(-40 to 65.5 °C)
Protection Class	IP20

ONBOARD SENSORS	
PARAMETER	**SPECIFICATIONS**
Temperature Accuracy	TC300B-G: ±1.5 °F (0.8 °C) from 32 to 122 °F (0 to 50 °C) ±0.8 °F (0.45 °C) with 95 % confidence from 60 to 85 °F (15 to 30 °C) TC320B-G, TC300C-G, TC320C-G ±1.5 °F (0.8 °C) from 32 to 122 °F (0 to 50 °C) ±0.9 °F (0.5 °C) with 95 % confidence from 60 to 85 °F (15 to 30 °C)
Temperature Control Accuracy	±1.5 °F (0.8 °C) from 60 to 85 °F (15 to 30 °C), all models.
Temperature Display Precision	1 °F (0.5 °C), all models.
Humidity Accuracy	TC300B-G ±3 % RH from 20 to 80 % RH @ 25 °C TC320B-G, TC300C-G, TC320C-G ±5 % RH from 20 to 80 %RH @ 25 °C
Humidity Display Precision	1 % RH, all models.

COMPLIANCES				
SKU	**TC300B-G**	**TC320B-G**	**TC300C-G**	**TC320C-G**
Certificates	CE, FCC, ICES, UL/cUL, RoHS, REACH, Prop65		CE, FCC, ICES, RoHS, REACH, Prop65	
Standards	EN 60730-1 EN 60730-2-9 UL60730-1 UL60730-2-9 Title 47 part 15 subpart B ICES-003	EN 60730-1 EN 60730-2-9 UL60730-1 UL60730-2-9 Title 47 part 15 subpart B Title47 part15 subpart C ICES-003 RSS247 EN 300 328 EN 301 489-1 EN 301 489-17 EN 62479 EN 62311	EN 60730-1 EN 60730-2-9 Title 47 part 15 subpart B ICES-003	EN 60730-1 EN 60730-2-9 Title 47 part 15 subpart B Title47 part15 subpart C ICES-003 RSS247 EN 300 328 EN 301 489-1 EN 301 489-17 EN 62479 EN 62311

WIRED AND WIRELESS TECHNOLOGIES	
PARAMETER	**SPECIFICATIONS**
Sylk™	Honeywell Sylk™, 2-wire Bus
BACnet MS/TP	RS485 (9.6, 19.2, 38.4, 76.8, 115.2 Kbps)
Modbus RTU	RS485 (1.2 to 115.2 Kbps)
BACnet IP (TC320B/TC320C)	Over Wi-Fi
Wi-Fi 2.4 GHz (TC320B/ TC320C)	IEEE802.11 b/g/n NONE WPA_PSK WPA_WPA2_PSK WPA2_PSK WPA2_WAP3_PSK WPA3_PSK
Bluetooth (TC320B/TC320C)	BLE 5.3 Class 2 IEEE802.15.4 Open Thread

EIRP INFORMATION	
STANDARD	**MAX EIRP**
Wi-Fi 2.4 GHz for CE	20 dBm
BLE for CE	10 dBm

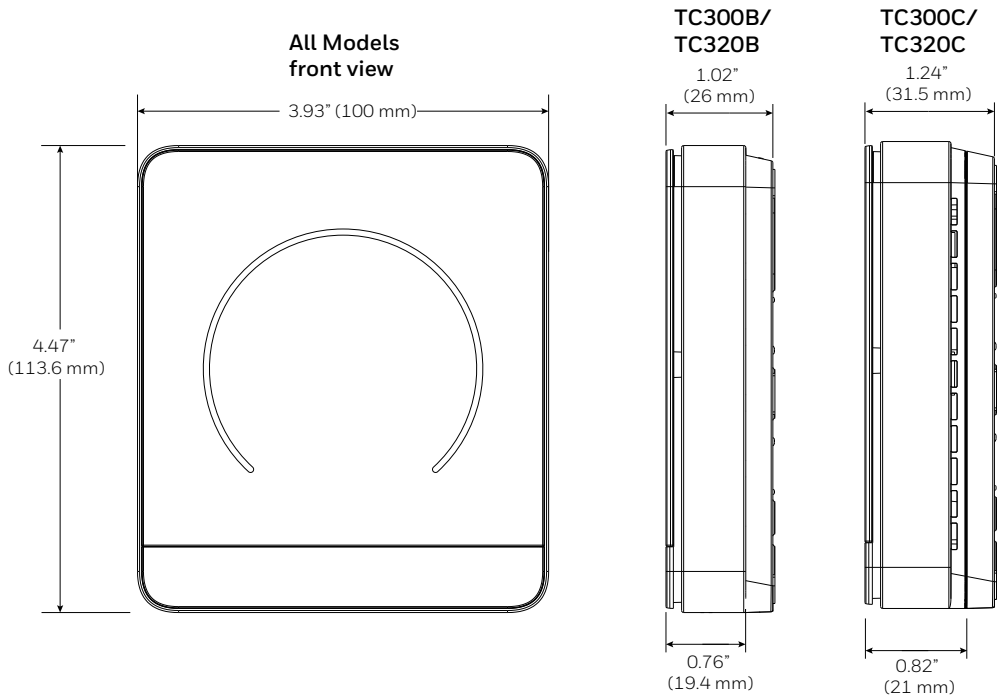
TC300 MODELS					
SKU	**INPUT POWER**	**WIRELESS**	**WIRED COMMUNICATIONS**	**EQUIPMENT TYPES**	**OUTPUTS**
TC300B-G	24 VAC	No	RS485 BACnet MS/TP Modbus RTU	FCU - 4 Pipe/2 Pipe 2H/1C Heat Pump (air/ water source) 1H/1C Conventional	3 x DO (24 VAC) 2 x DIO 3 x UIO
TC320B-G		Wi-Fi/BACnet IP, Bluetooth			
TC300C-G	100-277 VAC	No		FCU - 4 Pipe/2 Pipe	5 x DO (100-277 VAC) 3 x UIO
TC320C-G		Wi-Fi/BACnet IP, Bluetooth			

ACCESSORY	
PART NUMBER	**DESCRIPTION**
TRTC-DECOPLATE-1	Decorative wall plate, TR and TC Series

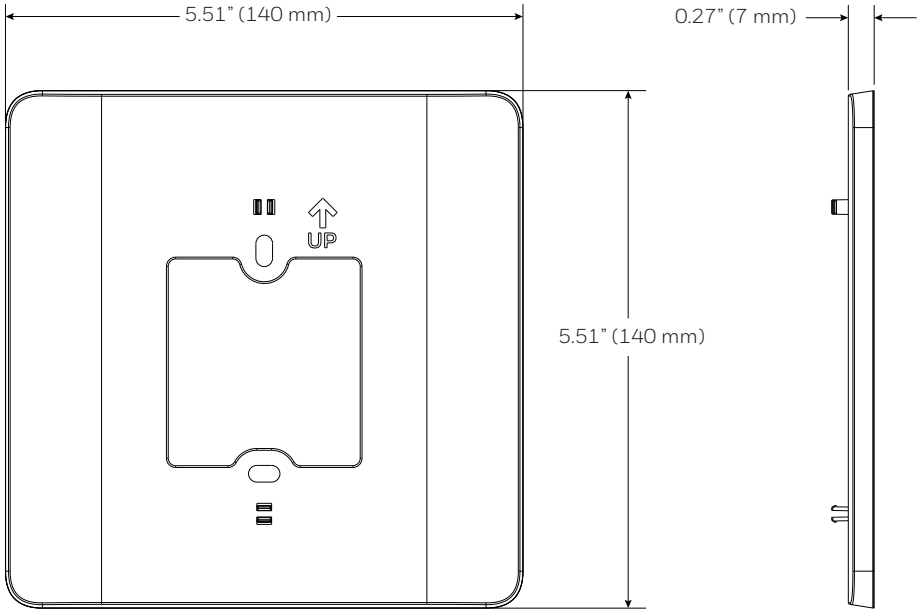
Note: The accessory is available in separate order.

DIMENSIONS

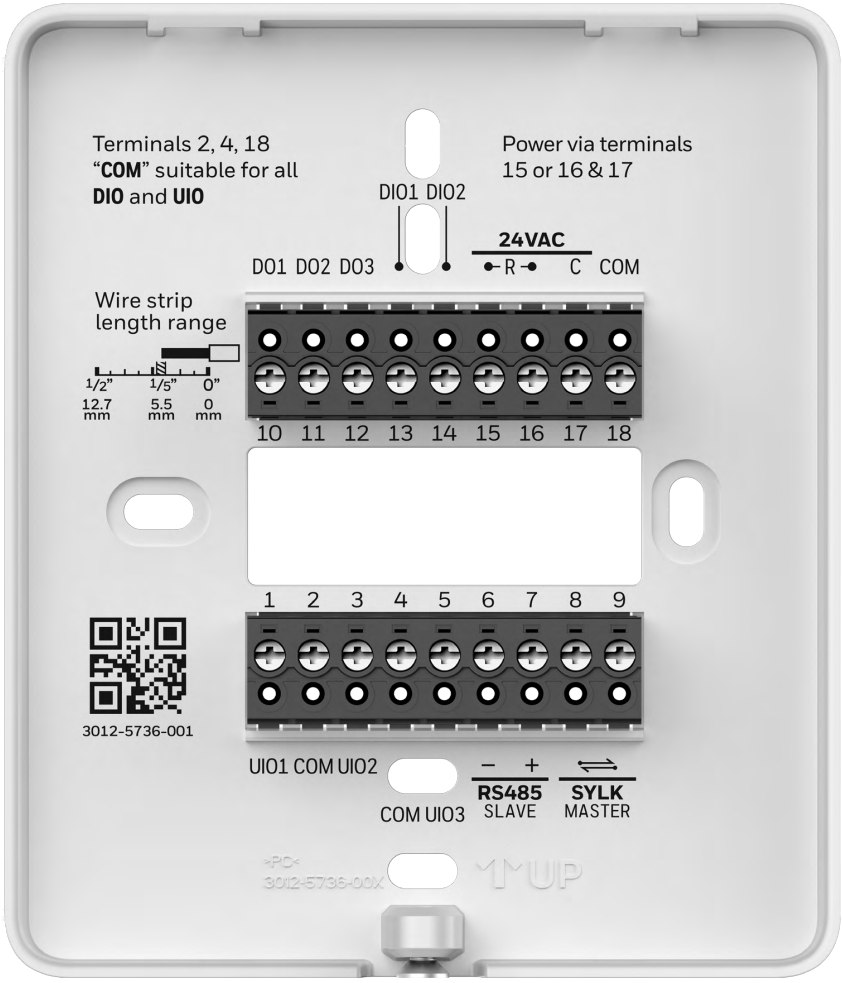
ALL MODELS THERMOSTATS



TRTC-DECOPLATE-1

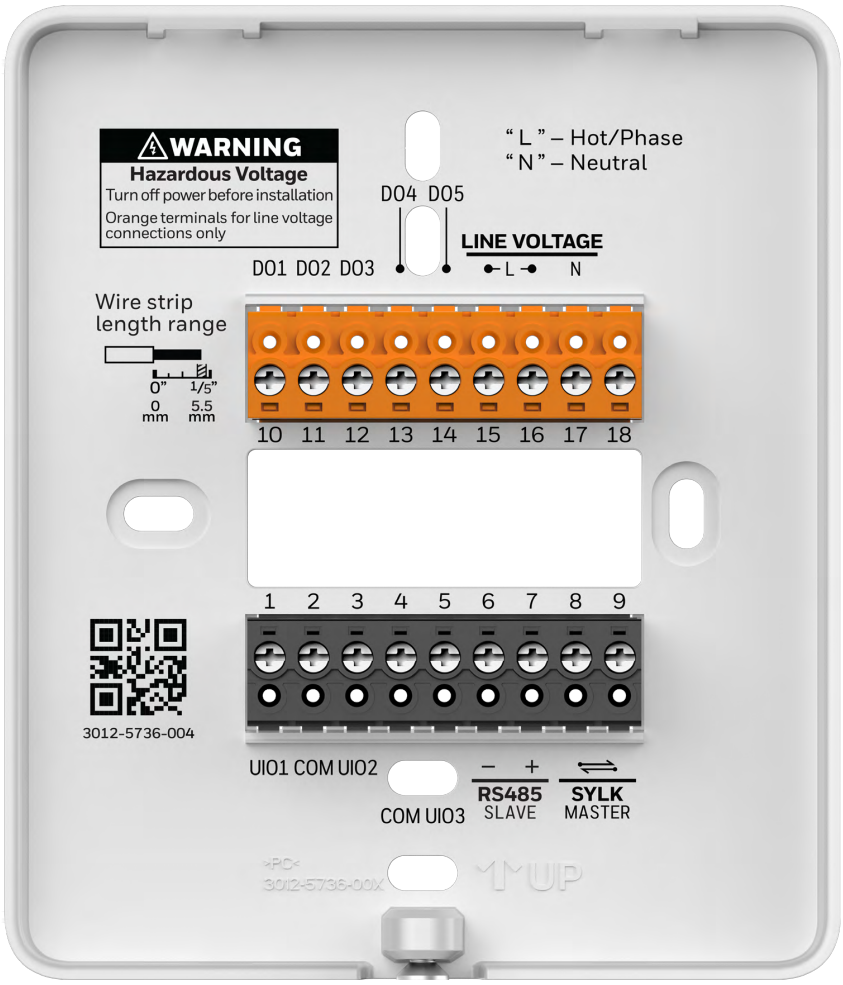


TERMINAL LAYOUT TC300B-G/TC320B-G (24 VAC)



TERMINAL IDENTIFICATION - TC300B-G/TC320B-G			
TERMINAL NAME	**TERMINAL NUMBER**	**TERMINAL LABEL**	**DESCRIPTION**
UIO1	1	UIO1	Universal input/output
COM	2	COM	Common
UIO2	3	UIO2	Universal input/output
COM	4	COM	Common
UIO3	5	UIO3	Universal input/output
RS485 SLAVE	6	-	BACnet/Modbus Communications
RS485 SLAVE	7	+	BACnet/Modbus Communications
SYLK MASTER	8	⇄	Sylk bus
SYLK MASTER	9	⇄	Sylk bus
DO1	10	DO1	Relay output
DO2	11	DO2	Relay output
DO3	12	DO3	Relay output
DIO1	13	DIO1	Relay output Analog input Dry contact digital input
DIO2	14	DIO2	Relay output Analog input Dry contact digital input
24 VAC POWER	15/16	R	24 VAC power from Class2 transformer
24 VAC POWER	17	C	24 VAC common (Neutral) from Class2 transformer
COM	18	COM	Common

TERMINAL LAYOUT TC300C-G/TC320C-G



TERMINAL IDENTIFICATION - TC300C-G/TC320C-G			
TERMINAL NAME	**TERMINAL NUMBER**	**TERMINAL LABEL**	**DESCRIPTION**
UIO1	1	UIO1	Universal input/output
COM	2	COM	Common
UIO2	3	UIO2	Universal input/output
COM	4	COM	Common
UIO3	5	UIO3	Universal input/output
RS485 SLAVE	6	-	BACnet/Modbus Communications
RS485 SLAVE	7	+	BACnet/Modbus Communications
SYLK MASTER	8	⇌	Sylk bus
SYLK MASTER	9	⇌	Sylk bus
DO1	10	DO1	Relay output
DO2	11	DO2	Relay output
DO3	12	DO3	Relay output
DO4	13	DO4	Relay output
DO5	14	DO5	Relay output
Line Voltage Hot/Phase	15/16	L	Line - Line voltage power input TC300C-G/TC320C-G: 100-277 VAC
Line Voltage Neutral	17	N	Neutral - Line voltage power input
Not applicable	18	NC	Not connected

TERMINAL ASSIGNMENT

TERMINAL ASSIGNMENT 24 VAC (TC300B/TC320B)					
TYPE	**TERMINAL**	**LABEL**	**DEFAULT**	**INPUTS**	**OUTPUTS**
Digital Output	DO1	DO1	On/Off Heat	NA	Heating On/Off, Heating Floating Open, Cooling Floating Open, Valve On/Off, Valve Floating Open, Changeover Valve, Fan Command, High Speed Fan, Medium Speed Fan, Low Speed Fan, Auxiliary Heat, Heat Stage1(Heat/Cool Stage1 for heat pump), Valve Stage1 **Note**: FCU changeover valve used to switch between heating and cooling modes
	DO2	DO2	On/Off Cool	NA	Heating Floating Close, Cooling Floating Close, Cooling On/Off, Valve Floating Close, Changeover Valve, Fan Command, High Speed Fan, Medium Speed Fan, Low Speed Fan, Auxiliary Heat, Cool Stage1, Reversing Valve, Dehumidifier, Humidifier
	DO3	DO3	NA	NA	Cooling Floating Open, Changeover Valve, Fan Command, High Speed Fan, Medium Speed Fan, Low Speed Fan, Auxiliary Heat, Heat Stage1, Cool Stage1, Water Flow Valve, Dehumidifier, Humidifier
	DIO1	DIO1	NA	Discharge Air Sensor, Drain Pan Sensor, Occupancy Sensor, Proof of Airflow, Pipe Sensor, Space Temp Sensor, Changeover Switch, Proof of Waterflow, Outdoor Air Sensor, Shutdown Sensor, Custom1, Custom2, Custom3 sensors	Cooling Floating Close, Changeover Valve, Fan Command, High Speed Fan, Medium Speed Fan, Low Speed Fan, Auxiliary Heat, Dehumidifier, Humidifier
	DIO2	DIO2	Fan command	Discharge Air Sensor, Drain Pan Sensor, Occupancy Sensor, Proof of Airflow, Pipe Sensor, Space Temp Sensor, Changeover Switch, Proof of Waterflow, Outdoor Air Sensor, Shutdown Sensor, Custom1, Custom2, Custom3 sensors.	Changeover Valve, Fan Command, High Speed Fan, Medium Speed Fan, Low Speed Fan, Auxiliary Heat, Dehumidifier, Humidifier
Universal Input/ Output	UIO1	UIO1	NA	Discharge Air Sensor, Drain Pan Sensor, Occupancy Sensor, Proof of Airflow, Pipe Sensor, Space Temp Sensor, Changeover Switch, Proof of Waterflow, Outdoor Air Sensor, Shutdown Sensor, Custom1, Custom2, Custom3 sensors	6-Way Valve, Modulating Cool , Modulating Heat, Modulating Valve, Variable Speed Fan
	UIO2	UIO2	NA		
	UIO3	UIO3	NA		

TERMINAL ASSIGNMENT LINE VOLTAGE (TC300C/TC320C)					
TYPE	**TERMINAL**	**LABEL**	**DEFAULT**	**INPUTS**	**OUTPUTS**
Digital Output	DO1	DO1	On/Off Heat	NA	Heating On/Off, Valve On/Off, Changeover Valve, Auxiliary Heat, Heat Stage1, Valve Stage1
	DO2	DO2	On/Off Cool	NA	Cooling On/Off, Changeover Valve, Auxiliary Heat, Cool Stage1
	DO3	DO3	Low Speed Fan	NA	Changeover Valve, Low Speed Fan, Auxiliary Heat, Heat Stage1, Cool Stage1
	DO4	DO4	Medium Speed Fan	NA	Changeover Valve, Medium Speed Fan Auxiliary Heat
	DO5	DO5	High Speed Fan/Fan Command	NA	Changeover Valve, Fan Command, High Speed Fan, Auxiliary Heat
Universal Input/ Output	UIO1	UIO1	NA	Discharge Air Sensor, Drain Pan Sensor, Occupancy Sensor, Proof of Airflow, Pipe Sensor, Space Temp Sensor, Changeover Switch, Outdoor Air Sensor, Shutdown Sensor	6-Way Valve, Modulating Cool , Modulating Heat, Modulating Valve, Variable Speed Fan
	UIO2	UIO2	NA		
	UIO3	UIO3	NA		

WIRING				
SKU	**TERMINAL**	**WIRE GAUGE**	**NORMAL LOAD**	**WIRE TYPE**
TC300B-G/TC320B-G	R, C	14-18 AWG	0-4 A	Copper
	DO	14-26 AWG	0-1 A	
	Others	14-26 AWG	N/A	
TC300C-G/TC320C-G	L,N	14-18 AWG	0-10 A	
	DO3-DO5	14-20 AWG	0-3 A	
	DO1, DO2	14-26 AWG	0-1 A	
	Others	14-26 AWG	N/A	

Note: The recommended wire gauge 14-26 AWG (0.2-1.5 mm² for solid or stranded, max 2.5 mm² for solid).

IO CHARACTERISTICS		
PARAMETER		**SPECIFICATIONS**
All models	UIO x 3	• Resistive Temperature Sensor Input - NTC10K Type II, C7021 series - NTC10K Type III, C7023 series - NTC20K, TR21, and C7041 series • Digital Input - Dry contact closure - Open circuit (≥ 100 Kohms) - Closed circuit (≤100 ohms) • Voltage Output - 0-10 V, ±1.5% of full scale @2 Kohms
TC300B/TC320B	DIO x 2	• Resistive Temperature Sensor Input - NTC10K Type II, C7021 series - NTC10K Type III, C7023 series - NTC20K, TR21, and C7041 series • Digital Input - Dry contact closure - Open circuit (≥ 100 Kohms) - Closed circuit (≤100 ohms)
	DO x 3 DIO x 2	• Relay Output • Rated Average Current - 1 A Resistive at 24 VAC • Rated Pulse Current - 3.5 A Resistive at 24 VAC
TC300C-G/TC320C-G	DO1 DO2	• Relay Output • Rated Average Current - 1 A Inductive at 100-277 VAC • Power Factor > 0.85
	DO3 DO4 DO5	• Relay Output • Rated Average Current - 3 A Inductive at 100-277 VAC • Power Factor > 0.85

SUPPORTED SENSORS AND FUNCTIONS		
SENSORS	**OPTIONS**	**PART NUMBERS**
Occupancy Sensor	Direct (Normally Open) Reverse (Normally Closed)	Dry contact occupancy sensor
Proof Of Air Flow Sensor	Direct (Normally Open) Reverse (Normally Closed)	DPS200 DPS400 DPS1000 MCS, CS, CSP current switches (Dry contact switches)
Discharge Air Temperature Sensor	NTC 20K NTC 10K Type II NTC 10K Type III Sylk	C7250A C7041 C7021 C7023 C7400S
Space Temperature Sensors	NTC 20K NTC 10K Type II NTC 10K Type III Sylk	TR21 C7041, C7772A, C7021, C7772F, C7023, C7772G, TR40, TR40-H, TR40-CO2, TR40-H-CO2, TR50-3N, TR50-3D
Pipe Sensor	NTC 20K NTC 10K Type II NTC 10K Type III	C7250A C7041 C7021 C7023
Changeover Switch	Closed with heat Closed with cool	Digital input
Drain Pan / Leak Detector	Direct (Normally Open) Reverse (Normally Closed)	Dry contact float switch or water sensor
Proof of Water Flow Sensor	Direct (Normally Open) Reverse (Normally Closed)	Dry contact pressure switch
Shutdown sensor	Direct (Normally Open) Reverse (Normally Closed)	Digital input
Custom sensor (remote monitoring)	Digital Input - NO or NC Analog Input - 0-10VDC - 0-100% scaled Temperature Input - NTC 20K, NTC 10K Type II and Type III	Digital input Analog input

GENERAL SAFETY INFORMATION

- When performing any work (installation, mounting, start-up), all manufacturer instructions and in particular the Mounting and Installation Instructions guide (31-00642) and the user guide (31-00644) are to be observed.
- The thermostats be installed and mounted only by authorized and trained personnel.
- Rules regarding electrostatic discharge should be followed.
- If the thermostats are modified in any way, except by the manufacturer, all warranties concerning operation and safety are invalidated.
- Make sure that the local standards and regulations are always observed.
- Use only accessory equipment that comes from or has been approved by Honeywell.
- It is recommended that out-of-the-box devices be kept at room temperature for at least 24 hours before applying power. This is to allow any condensation resulting from low shipping/storage temperatures to evaporate.
- Investigated according to United States Standard UL60730-1, UL60730-2-9, EN 60730-1 and EN 60730-2-9.
- Do not open the thermostats, as they contain no user-serviceable parts inside!
- For TC300B/TC320B models, CE declarations according to EMC Directive 2014/30/EU.
- For TC320C-G models, CE declarations according to RED Directive 2014/53/EU.
- For TC300C-G models, CE declarations according to Low Voltage Directive 2014/35/EU..
- The thermostats are Class B digital apparatus and comply with Canadian ICES-003.
- 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, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- Caution: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- Prudence: Les changements ou modifications apportés à cet appareil non expressément approuvés par la partie responsable de la conformité pourraient annuler le droit de l'utilisateur à utiliser l'équipement.
- This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:
  - This device may not cause interference.
  - This device must accept any interference, including interference that may cause undesired operation of the device.

- L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:
  - L'appareil ne doit pas produire de brouillage;
  - L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  - Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio/TV technician for help.
- Limited by local law regulations, version for North America does not have region selection option.
- To satisfy FCC&IC&CE RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.
- Les antennes installées doivent être situées de facon à ce que la population ne puisse y être exposée à une distance de moin de 20 cm. Installer les antennes de facon à ce que le personnel ne puisse approcher à 20 cm ou moins de la position centrale de l' antenne. Region Selection (for Wi-Fi 2.4G device).

SAFETY INFORMATION

The thermostats are intended for commercial environments.

The thermostats are independently mounted electronic control systems with fixed wiring.

The thermostats are used for the purpose of building HVAC control and are suitable for use only in non-safety controls for installation on or in appliances.

Note: All images used in this document are for illustrative purposes only and may not match the actual product.

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31-00645-04 | Rev. 10-24