TLC3-BCR-U Series Thermostat



Features

- Low power energy consumption: < 1W per unit
- Relays switching for outputs each up to 300W
- Temperature control for 2 or 4-pipe heating or cooling systems.
- Optional external temperature input
- **New Feature:** high temperature range of external input up to 150°C (302°F)
- Choose between one 3-point actuator and two binary heating/cooling stages
- Reversing valve options
- New with V3.1 dual stage option
- Cost saving option with Economy functionality and set point limitations
- Multiple auxiliary functions: heat-cool auto changeover, automatic enable, high or low limits.
- Password protected programmable user and control parameters.

TLC3-BCR-U-D also includes

- Power Cap protected real-time clock with 48hr power backup.
- Time schedule events, with many options.
- Blue backlight.

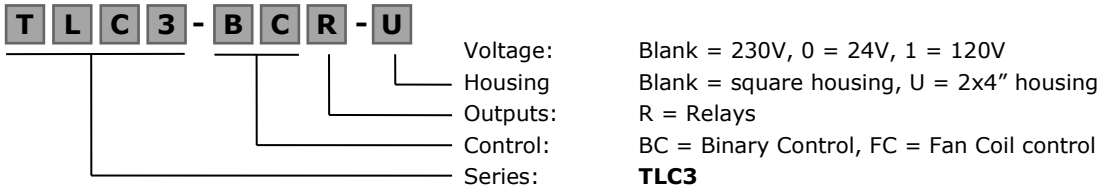
Applications

- Radiant heating
- Radiant cooling
- Small air handlers
- Constant air volume systems
- Frost protection
- General temperature control

General

- TLC3-BCR-U: 1 independent temperature control loop with 1 heating and 1 cooling sequence. 1 internal temperature sensor, 1 external temperature input, 1 auxiliary input for heat – cool changeover or high/low limit
- Flexible application configuration is made with a parameter-setting routine using the standard operation terminal.

Name



Ordering

Model	Item code	Variation	Option
TLC3-BCR-U-230 TLC3-BCR-U-230-W01	40-10 0160 40-10 0160-01	Standard Cooling only	Binary controller with: 1 RT int, 2 RT ext 2 DO (Relay) Binary valve control
TLC3-BCR-U-D-230 TLC3-BCR-U-D-230-W01	40-10 0161 40-10 0161-01	Deluxe Cooling only	

Temperature sensors: Use Vector Controls NTC sensors to achieve maximum accuracy: SDB-Tn10-20 (duct), SRA-Tn10 (room), SDB-Tn10-20 + AMI-S10 as immersion sensor. Choose cable types of wired temperature sensors based on temperature of application.

Binary auxiliary devices (e.g. pumps, fans, on/off valves, etc): Do not directly connect devices that exceed specified limits in technical specifications – observe startup current on inductive loads.

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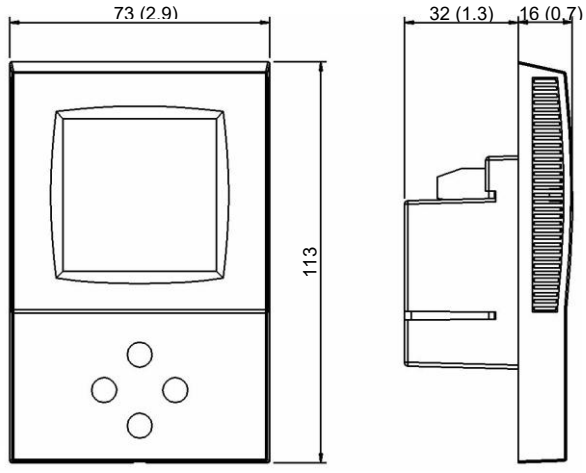
Technical specifications

Caution! This device is intended to be used for comfort applications. Where a device failure endangers human life and/or property, it is the responsibility of the owner, designer and installer to add additional safety devices to prevent or detect a system failure caused by such a device failure. Vector Controls or its affiliates cannot be held liable for any damage caused by such a failure. Failure to follow specifications and local regulations may endanger life, cause equipment damage and void warranty.

Power Supply	Power Requirements		210 – 250 V AC 50/60 Hz
	Power Consumption		Max 1W, 1.5VA
	Electrical Connection		Terminal Connectors
	Clock backup		Min 48h if charged for 24h
Signal inputs	Temperature Inputs Range Accuracy		RT Internal 0…50 °C (32…122 °F) 0.5°C (1°F)
	Input type: Range Accuracy		External (Sxx-Tn10 sensor) -40..150°C (-40…302°F 0.5°C (1°F) if 0…50°C (32…122°F) 1.0°C (2°F) if -40…100°C (-40…212°F) 5°C (10°F) if > 100°C (212°F)
Signal outputs	Digital Switching Outputs Switching Type AC Switching power Insulation strength between relays contacts and system electronics: between open relays contacts		Y1 to Y2 Relays 0…250V AC 1.25A max. each output 4000V AC 1000V AC
Environment	Operation Climatic Conditions Temperature Humidity		To IEC 721-3-3 class 3 K5 0…50 °C (32…122 °F) <95 % r.H. non-condensing
	Transport & Storage Climatic Conditions Temperature Humidity Mechanical Conditions		To IEC 721-3-2 and IEC 721-3-1 class 3 K3 and class 1 K3 -25…70 °C (-13…158 °F) <95 % r.H. non-condensing class 2M2
Standards	CE conformity RoHS Directive EMC Directive Low Voltage Directive		 2011/65/EU 2004/108/EC 2006/95/EC
	Product standards Automatic electrical controls for household and similar use Special requirement on temperature dependent controls		 EN 60 730 –1:2011 EN 60 730 – 2 – 9:2010
	Electromagnetic compatibility for domestic sector		Emissions: EN 60 730-1:2011 Immunity: EN 60 730-1:2011
	Degree of Protection		IP30 to EN 60 529
	Pollution Class		II (EN 60 730-1:2011)
	Safety Class		II (IEC 61140:2001 + A1:2004)
	Overvoltage Category		III (EN 60 730-1:2011)
	Restriction of the use of certain hazardous substances		EN 50581:2012
General	Dimensions (H x W x D)	Front part: Power case:	16 x 73 x 113mm (0,7 x 2.9 x 4.5 in.) 60 x 50 x 32mm (2.4 x 2.0 x 1.3 in.)
	Material:	Cover, back part Mounting Plate	ABS plastic (UL94 class V-0) Galvanized Steel
	Weight (including package)		Standard: 295g (10.4oz) Deluxe (-D): 305g (10.7oz)

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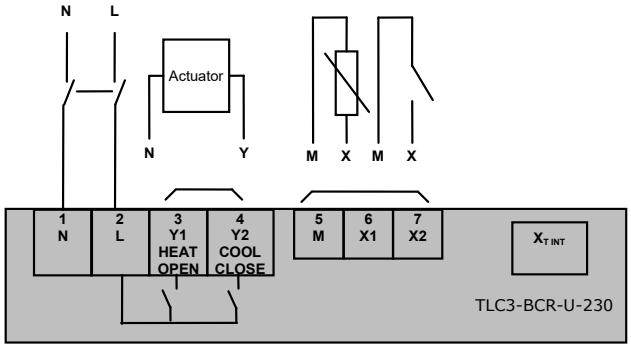
Dimensions, mm (inch)



Space required in flush mounting box:
(H x W x D)
60 x 50 x 32mm (2.4 x 2.0 x 1.3 in.)

Distance for mounting screws:
Horizontal 55 to 60mm (2.2 to 2.4 in.)
Vertical: 55 to 93mm (2.2 to 3.7 in.)

Connection



Warning:
Live Electrical Components!
During installation, testing, servicing and troubleshooting of Vector Controls products, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

Terminal Description

N	Power supply:	0V Neutral
L	Power supply:	230VAC
Y1	Binary output 230V AC:	
		Heat for binary or PWM actuators if in 4-pipe or single stage mode Open for 3-point actuators Stage 1 if in reversing valve mode Stage 1 if in 2-stage mode
Y2	Binary output 230V AC:	
		Cool for binary or PWM actuators if in 4-pipe mode or single stage mode Close for 3-point actuators Reversing valve if activated Stage 2 if 2-stage mode
X1	External control input:	NTC 10kΩ @ 25°C (77°F) Automatic detection for control input
X2	Changeover input:	NTC 10kΩ @ 25°C (77°F) or open contact to SGND Function according to setup

Mounting and installation

Mount the controller on an interior wall, approx. 1.5 m above the floor, in a place with average room temperature. Avoid direct sunlight, heat sources, doors, outside walls and air outlets. The location is less critical if an external temperature sensor is used.

Mount and connect the controller as shown in the installation sheet supplied with the device, and wire it according to the connection diagram above.

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Switzerland

info@vectorcontrols.com
www.vectorcontrols.com/

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