

Low-Temperature, Cut-Out Capillary Thermostats



DESCRIPTION

Electro-mechanical, low-temperature limit/cut-out thermostat with a 20 ft, 10 ft or 6 ft capillary sensing element, auto- or manual reset, and 1-SPDT or 2-SPDT switched output.

APPLICATION

The thermostat and its capillary sensing element provide an antifreeze function. It detects temperature drops below a fixed safety value (setpoint), i.e. heaters in A/C units, exchangers in cooling systems, etc.

FEATURES

- Vapor-filled 20 ft, 10 ft or 6 ft copper capillary sensing element
- Joint spring protector at capillary-bellow connection
- Airtight single-stage switch, 1-SPDT or 2-SPDT contacts, 250 VAC, 15A
- Auto- or manual reset
- Wide range, 14 to 54° F, fits water w/glycol added applications
- Setpoint safety-lock protection and simple adjustment
- Visual setpoint scale
- Easy installation and wiring
- Maintenance-free
- Two-year warranty

SPECIFICATIONS

Thermostat Type Sensing	Self-contained, electromechanical
- element	Vapor-filled capillary
- media	Temperature in air
- operating range	14°F to 54°F (-10°C to 12°C)
- response	To lowest temperature sensed by any 1 ft. section of the capillary element
Type of Control	
General	On/off, low-level single-stage or cut-out control, w/ (1) microswitch output
Low-level setpoint	
- factory set	At 39°F (4°C), and safety-lock secured
- adjustment	Over full operating range, via screwdriver slot
- visual scale	14°F to 54°F
Switch output	1-SPDT or 2-SPDT, airtight
- contact rating	24...250 VAC, 15 (8)A
- switching differential	1.8°F (1°K), auto- or manual reset
Environmental	
Permissible ambient	
- working temperature	14°F to 54°F (-10°C to 12°C)
- enclosure temperature	14°F to 131°F (-10°C to 55°C)
- capillary overload temperature	392°F (200°C), max. 60 min.
- storage temperature	14°F to 158°F (-10°C to 70°C)
- humidity	0 to 95% rH (rF), non-condensing

Physical

Enclosure (base and cover)	
- base material	Steel, galvanized
- cover material	ABS, fire retardant
- color	Silver / light gray
- protection	NEMA 1 (IP 40)
Capillary	
- material	Copper
Installation	
- enclosure	Surface mounted
- capillary	Duct and across coil mounted
Dimensions (H x W x D)	
- enclosure	3.3 x 4.1 x 2.1 in. (83 x 105 x 53 mm)
- capillary sensing element	∅ 0.08 in. (2 mm), various lengths: 20 ft (6 m), 10 ft (3 m), or 6 ft (1.8 m)
Cable entry	(1) M20 compression fitting, removeable, hole fits 1/2 in. conduit connector
Wire connection	Terminal with wire-retaining screws
Wire size	Max. 14 AWG (2.5 mm ²)
Weight	1.6 lbs. (0.7 kg)
Manufacturing Approvals/Listings	ISO 9001 certified
Warranty	CE Two-year material and workmanship



“Bulb on 6-ft capillary stores excess vapor (gas); still responds to the lowest temperature along any 1 ft. section of the entire capillary length.”

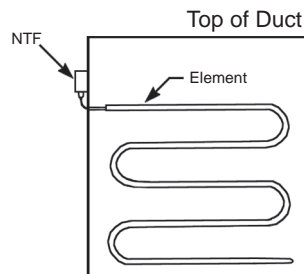
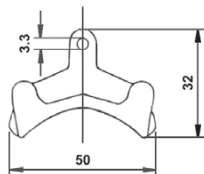
ORDERING INFORMATION

Part Numbers	SPDT 15(8)A	Capillary Length ft (m)	Reset
NTF-3-US NTF-3R-US	1 1	6 (1.8) 6 (1.8)	Auto Manual
NTF-5-US NTF-5R-US	1 1	10 (3) 10 (3)	Auto Manual
NTF-1-US NTF-1R-US	1 1	20 (6) 20 (6)	Auto Manual
NTF-32-US NTF-3R2-US	2 2	6 (1.8) 6 (1.8)	Auto Manual
NTF-52-US NTF-5R2-US	2 2	10 (3) 10 (3)	Auto Manual
NTF-12-US NTF-1R2-US	2 2	20 (6) 20 (6)	Auto Manual
DBZ-05/0	Capillary mntg. clips, metal (6 pcs)		

INSTALLATION

- Thermostat enclosure to be surface mounted; avoid location subject to excessive vibration
- Allow unrestrictive access to the manual reset button (NTF-.R series)
- Use mounting holes, located rear case site, for flush mounting to duct or other flat surfaces
- Capillary sensing element to be located down the stream-side of a coil, exposed to all areas that encounter low temperature
- Install capillary sensing element across the face of the coil, horizontally serpentine only

DBZ-05/0 Accessory Capillary Mounting Clip Dimensions (mm)

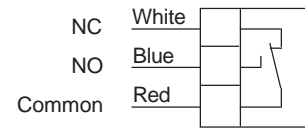


- Do not kink or apply excessive force to the capillary sensing element
 - Tie up the capillary element at appropriate points to prevent damage from air movement or vibration
- Note:
- Thermostat enclosure **must not** be exposed to temperatures lower than the capillary element's sensing ability

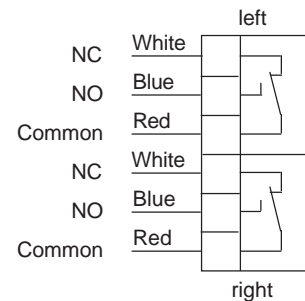
WIRING CONFIGURATION

NTF and NTF-2

Falling temperature and attained low cut-out setpoint, contact connection: Red to Blue



Vapor-filled capillary; control responds to the lowest temperature along any 1ft section of the capillary length.



- All wiring should comply with national and electrical codes
- All operations performed on the units, whether wiring, testing, or maintenance, must be done with neither power supply on the unit nor external load
- For protection, enclosure cover must be installed, all screws to be fastened and cable entry secured

OPERATION

- The low cut-out setpoint is factory set and can be adjusted by turning the slotted screw on top of the enclosure
- Auto-reset types will automatically switch back to the normal position if the temperature returns to normal conditions.

Manual-reset types will switch back *only* if both the temperature returns to normal conditions *and* the reset button (at the enclosure's front) is manually pushed.

Dimensions (mm)

