

## INSTALLATION AND OPERATING INSTRUCTIONS FOR TYPE XT EXPLOSION-PROOF AND MOISTURE RESISTANT THERMOSTATS

### 1.0 GENERAL

The XT thermostat series features the Norseman<sup>TM</sup> unique *x-Max*<sup>®</sup> track and trolley wiring system (patent pending). The unit can be field converted from externally adjustable to tamper-proof adjustable in minutes.

1.1 Type XT thermostats are suitable for both moisture resistant and explosion-proof applications. Check the thermostat nameplate to ensure that the thermostat area classification is suitable for the hazardous area classification.

### TEMPERATURE DIFFERENTIAL

Usually 5% of the range, but subject to variation depending on the application. Such factors as rate of temperature change, location of sensing bulb, etc. will affect the differential.

### OVERSHOOT

This control works on the principle of liquid expansion. A temperature rise expands the liquid in a bellows which operates a switch. Overshoot in excess of 77°F (25°C) above the highest set point can produce expansion forces that will possibly rupture the bellows or at least cause a deformation that will affect calibration. Calibration shifts result in the process operating at higher temperatures than indicated on the dial. Ultimate failure of this style of control will result in the load being energized continuously. Therefore it is very important to include a high limit in the control circuit as dictated by the electrical code.

### SENSING BULB

When handling the sensing bulb, do not kink or squeeze the bulb or capillary. Style 9, 3/16" diameter bulbs may be bent to a 16 minimum radius of 3/8". Style 4, 3/8" diameter bulbs may not be bent.

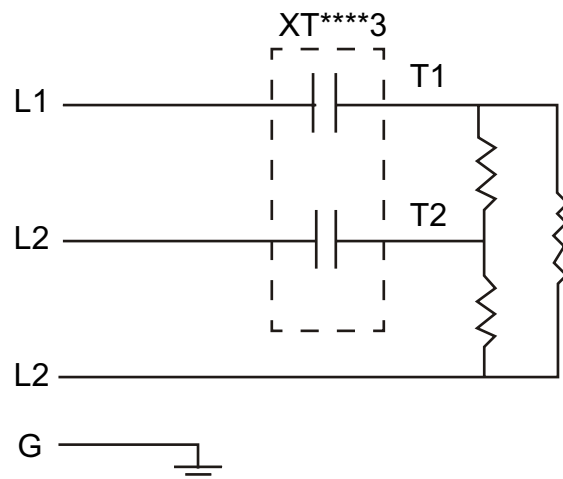
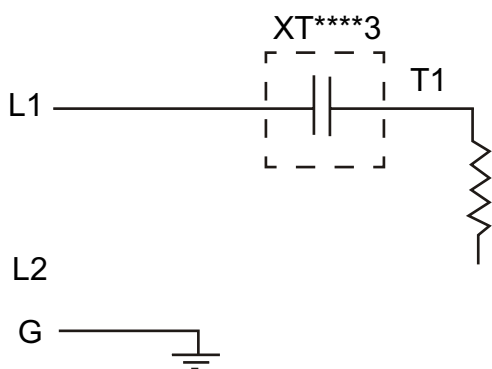
**CAUTION:** ALWAYS DISCONNECT POWER BEFORE INSTALLATION OR SERVICING.

### 2.0 WIRING

2.1 All units must be wired by qualified personnel to electrical code requirements. Conduit, conduit seals and fittings shall be approved for intended use.

2.2 Disconnect the power to the unit. Remove knurled cover.

2.3 Make all necessary electrical connections. Models XT\*\*\*\*1 are equipped with a S.P.S.T thermostat suitable for use as a switching component for single phase applications using less than 240 V / 30 A, 277 V / 25 A and 600 V / 15 A. Models XT\*\*\*\*3 are equipped with a D.P.S.T. thermostat suitable for use as a switching component for single or three phase applications using less than 600 V / 15 A (See Figures 1 and 2 below). Thermostats are suitable for pilot duty only in applications requiring higher voltages or currents.



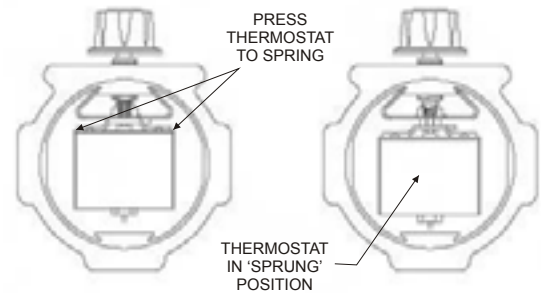
### 3.0 CONVERTING FROM TAMPER-PROOF TO KNOB-ADJUST MODE

**3.1** Disconnect the power to the device. Remove the knurled cover from the housing assembly. Remove the socket-head cap screw.

**3.2** Ensuring that the thermostat shaft remains aligned with the cap screw hole, place the knob onto the operating shaft and thread it into the cap screw hole.

**3.3** When the operating shaft engages with the thermostat shaft, with light finger pressure, gently spring the thermostat away from the bracket assembly, as shown in Figure 3 (DO NOT press down on the steel bracket). Rotate the knob one more full revolution to assure a positive engagement of the thermostat. Release the thermostat.

**3.4** Upon release, the thermostat should spring back into its original position. If the thermostat remains sprung down, a slight twisting of the knob in both directions should create a positive engagement. The knob should be able to turn through the entire temperature range but should not turn one full revolution. If the knob turns completely around, repeat 3.3.



**Figure 3:** 'Springing' the thermostat

### 4.0 CONVERTING FROM KNOB-ADJUST TO TAMPER-PROOF MODE:

**4.1** Disconnect the power to the device. Remove the knurled cover from the housing assembly. Using finger pressure, gently spring the thermostat away from the bracket assembly, as shown in Figure 3 (DO NOT press down on the steel bracket). While the thermostat is sprung down, rotate the thermostat knob counterclockwise to remove the operating shaft.

**4.2** Ensuring that the thermostat shaft remains aligned with the operating shaft hole, place the socket-head cap screw into the hole at the front of the housing and tighten. Replace the knurled cover.

### 5.0 OPERATION

**5.1 TAMPER-PROOF MODE:** To set the thermostat temperature:

**5.1.1** Disconnect the power to the unit.

**5.1.2** Completely remove the socket-head cap screw from the housing assembly.

**5.1.3** Insert a flat-head screwdriver into the slot cut in the thermostat shaft.

**5.1.4** Rotate the screwdriver to set the thermostat to the desired temperature. See Figure 4 to determine the temperature setting. Turning the shaft clockwise increases the set point temperature, counterclockwise rotation decreases the set point temperature (A quick check, note that the thermostat will switch at the ambient temperature when the shaft is rotated).

**5.1.5** Read the temperature from the front face of unit, as shown in Figure 4.



**Figure 4:** Thermostat temperature setting

**5.2 KNOB-ADJUST MODE:** To set the thermostat temperature:

**5.2.1** Rotate the knob to set the thermostat to the desired temperature. Turning the shaft clockwise increases the set point temperature, counterclockwise rotation decreases the set point temperature.

### 6.0 INSTALLATION

**6.1** The type XT universal mounting bracket is designed for horizontal (knurled cover at the side) or vertical (knurled cover at the top) mounting. Use the bracket supplied as a template to locate wall holes before attaching the bracket to the thermostat and affixing the assembly to the wall.

**6.2** The model XTW\*\*\*\*\*L has an external 3/8" NPT fitting for installing into a tank wall. Use an open end wrench to tighten the 8 fitting to a mating tank fitting. Check for leaks and retighten if necessary.

**6.3** All other model XTW thermostats are equipped with aluminum fins for increased temperature sensitivity.



Engineered Electric Heat

2721 Plymouth Drive, Oakville, Ontario, Canada L6H R5R

Phone: (905) 829-4422 Fax: (905) 829-4430

PLEASE ADHERE TO INSTRUCTIONS PUBLISHED IN THIS MANUAL.  
Failure to do so may be dangerous and may void certain provisions of your warranty.  
For further assistance, please call:

Oakville: 1-800-410-3131

(U.S.A. and Canada)

Please have model and serial numbers available before calling.

**WARRANTY:** Under normal use the Company warrants to the purchaser that defects in material or workmanship will be repaired or replaced without charge for a period of 18 months from date of shipment, or 12 months from the start date of operation, whichever expires first. Any claim for warranty must be reported to the sales office where the product was purchased for authorized repair or replacement within the terms of this warranty.

Subject to State or Provincial law to the contrary, the Company will not be responsible for any expense for installation, removal from service, transportation, or damages of any type whatsoever, including damages arising from lack of use, business interruptions, or incidental or consequential damages.

The Company cannot anticipate or control the conditions of product usage and therefore accepts no responsibility for the safe application and suitability of its products when used alone or in combination with other products. Tests for the safe application and suitability of the products are the sole responsibility of the user.

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- any act or omission by the Purchaser, its agents, servants or independent contractors which for greater certainty, but not so as to limit the generality of the foregoing, includes physical, chemical or mechanical abuse, accident, improper installation of the product, improper storage and handling of the product, improper application or the misalignment of parts.

No warranty applies to paint finishes except for manufacturing defects apparent within 30 days from the date of installation.

The Company neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the product(s).

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