

ESL 449CTE, CSTE, and 448CTE

Self-Diagnostic Photoelectric Smoke Detector

449 Series



448 Series

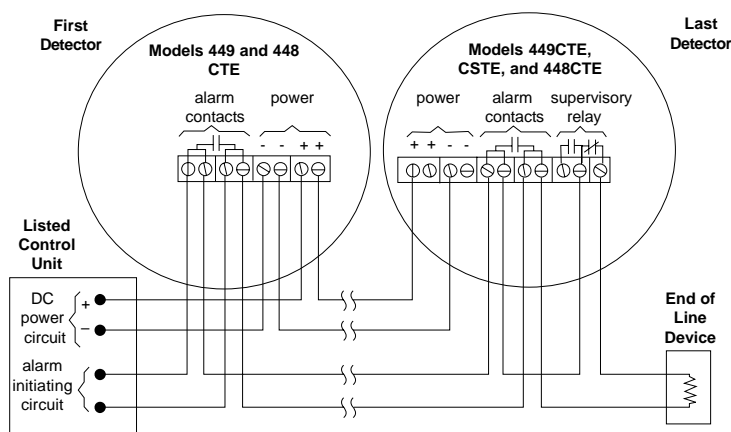


Wiring Diagrams

ESL's models 449CTE, CSTE, and 448CTE are 4-wire self-diagnostic smoke detectors with an extra relay that provides the added function of power supervision. NFPA standards require power supervision for all 4-wire smoke detectors. The supervisory relay is normally energized, and will release with loss of power, providing power supervision, if wired appropriately.

The supervisory relay also trips if the detector's self-diagnostics detect an electronic failure, or if the detector is outside the UL or ULC listed sensitivity range for more than one day. This results in a trouble condition at the control panel, providing early warning that the detector needs cleaning or maintenance.

There are a number of ways the supervisory relay can be wired into a system, depending on the type of installation. The following are four recommended methods:



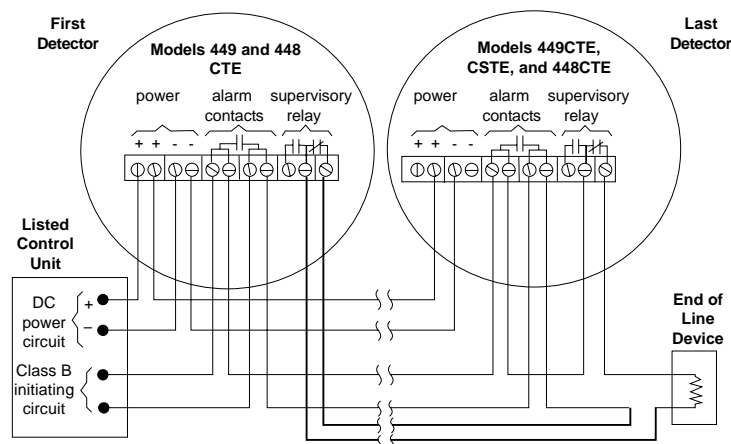
Note
CTE and CSTE terminal block diagrams are reversed for illustration purposes.

Option #1: End-of-line Applications (No extra wires or zones)

The 449CTE, CSTE, and 448CTE take the place of a 4-wire smoke detector and external end-of line power supervision unit. The supervisory relay is built-in and easy to wire. It also provides an automatic trouble signal to the control panel when the detector needs cleaning or maintenance.

Note

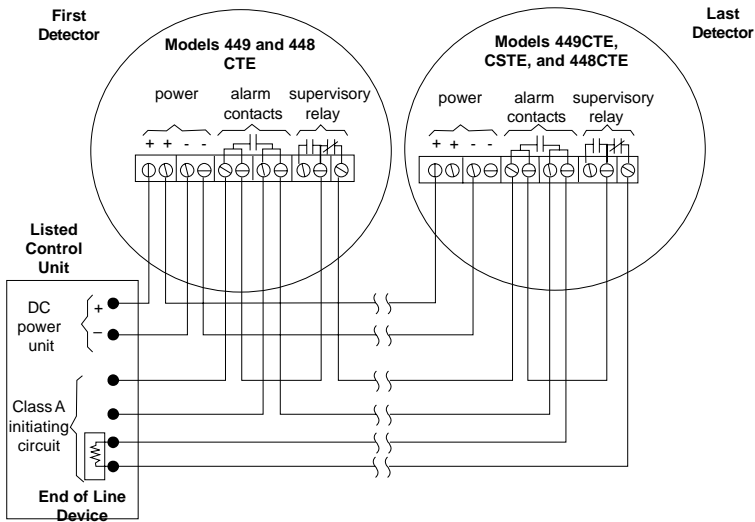
The supervisory relay can only be wired in at the end of the alarm loop. Since the relay signals a trouble condition by breaking the loop, any devices connected downstream would no longer be able to signal an alarm to the control panel.



Note
CTE and CSTE terminal block diagrams are reversed for illustration purposes.

Option #2: Class B (Style B) Wiring (Extra wires, no extra zones)

The 449CTE, CSTE, and 448CTE can be used for every smoke detector on a class B loop, by running all the supervisory relay outputs to the end of the line. This way, a trouble signal will break the loop only at the very end, and it will not prevent any other smoke detector from signaling an alarm. No added power supervision unit is needed.



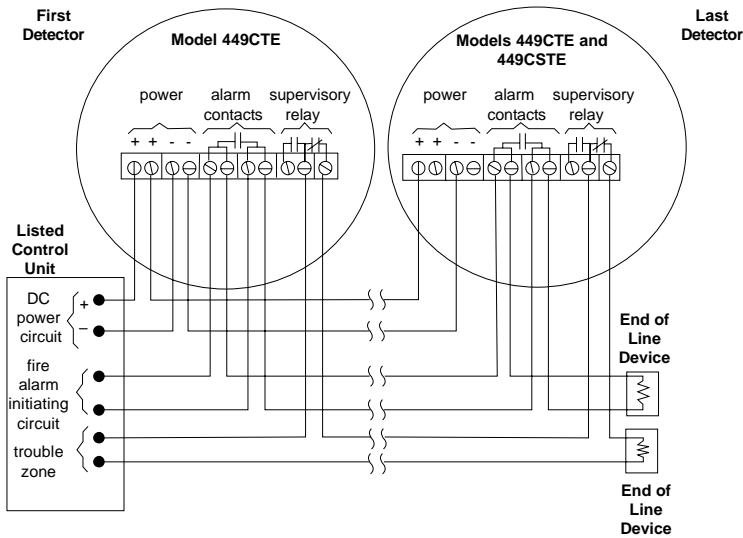
Note
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Option #3: Class A (Style D) Wiring (No extra wires, no extra zones)

When Class A wiring is used, the 449CTE, CSTE, and 448CTE can be used for every smoke detector on the loop without having to run the supervisory wires to the end of the line. The supervisory relay output is simply connected in series with the alarm loop at every detector. With Class A wiring, a break in the alarm loop will not prevent other smoke detectors from signaling an alarm, since the loop is bi-directional. No added power supervision unit is needed.

WARNING!

Pull stations and heat detectors are not recommended on the same loop when wired in this configuration. If pull stations and heat detectors must be used on the same loop, they must only be wired before or after all of the CTE units. Otherwise, if power is lost, the pull stations and heat detectors will not signal an alarm.



Note
CTE and CSTE terminal block diagrams are reversed for illustration purposes.

Option #4: With Separate Trouble Zone (Extra wires and extra zones)

If a separate trouble zone is available, the 449CTE, CSTE, and 448CTE can also be used for every smoke detector on the loop. The supervisory relay outputs are simply connected in series with the trouble loop. No added power supervision unit is needed.