

Technical Bulletin

Sigma 2 T Series two-wire Systems T11020, T11040, T11080

TB 1026

Sigma 2 T series control panels can be used to save on installation wiring by connecting detectors, call points and sounders to the same pair of wires, thus eliminating the need to install separate cables for sounder circuits.

The two-wire system works by reversing the polarity of the detection lines when there is a fire condition. This allows the sounders (which will only work with one polarity) to receive power from the control panel. Only polarized sounders can be used on two-wire systems. The majority of modern sounders are polarized but this should be checked before installation.

To enable the control panel to continue to detect fires on zones that are powering sounders, the control panel reverses the zone polarity back every few seconds and if a detector or call point has activated on one of these zones, a fire condition will be detected. This momentary polarity reversal can sometimes be heard as a very brief change of tone from sounders.

This method of wiring allows each zone to have its own sounder circuit as well as the two common, dedicated sounder circuits that are fitted to all Sigma 2 panels.

The zonal sounder circuits can be configured to operate as follows:

Common alarm (configuration option **10**) - any fire condition operates all sounder circuits.

Two stage alarm (configuration option **11**) - the two common sounder circuits and the the zone in alarm operate continuously and the remaining zonal sounder circuits pulse, 1 second on/1 second off.

Zonal alarm (configuration option **12**) - only the two common sounder circuits and the zone in alarm operate.

Currently, Hochiki YBO-R/5PA and Apollo 45681-206 detector bases can be used on two-wire systems. These have special circuitry which allows the detector to continue to work when the line voltage polarity is reversed to operate the sounders.

Refer to Sigma 2 operation and maintenance manual (Document reference K6800-01) for full details of compatible detectors and bases.

Zones that are configured as two-wire must not have Intrinsically Safe barriers fitted. These devices are polarity sensitive and will not work with their polarity reversed.

Active end of line devices (LCMU) should not be used on two-wire zones. All two-wire zones must be terminated with a 6K8 end of line resistor.

Compatible detector bases - Hochiki YBO-R/5PA, Apollo 45681-206.

Compatible detectors - Hochiki CDX range, Apollo Series 60 wide voltage, Apollo series 65.

Compatible call points - Any normally open call point with 100 - 1000 ohm trigger resistor with or without series diode.

Compatible sounders - Any polarized sounder which does not exceed 500 milliamp current consumption.