

Technical Bulletin

Interconnection of control panels

TB 1009

Often there is a requirement to link control panels, so that a fire condition on one panel will cause an activation on the other panel (or panels). In a multiple panel configuration, this interconnection can become complex.

For all of the Kentec control panels (except the K1001/E Sigma Economy panel) there are remote alarm inputs, which are used to control the sounders on the panel from a remote panel. In all cases, this remote input is non-latching, and does not control the operation of the Rem-sig / Fire relay output of the panel. This prevents the "loop round" effect, which may be experienced when a zone input is used to monitor the remote panel.

Panel Type	Pulsing Sounder Input	Continuous Sounder Input	Silenceable	Ouput Relay
Sigma K1000 Series (except K1001/E)	REM AL I/P (Resistor R143 fitted)	REM AL I/P (Resistor R143 removed)	No	Fire
K3000S Multi Zone	AL - 0V with CON05 switch SW1/B in OFF position	AL - 0V with CON05 switch SW1/B in ON position	No	Rem.Sig.
K2.01 Extinguishant Control Panel	AL - 0V with jumper link LKX removed	AL - 0V with jumper link LKX fitted	No	Rem.Sig.
K4.01 Multi Area Extinguishant Control	AL - 0V with CON05 switch SW1/B in OFF position	AL - 0V with CON05 switch SW1/B in ON position	No	Rem.Sig.
Solo/Solex Single Loop Addressable	INT - 0V shorted	CNT - 0V shorted	Yes	Rem.Sig.
Syncro Multi Loop Addressable Panel	INT - 0V shorted	CNT - 0V shorted	Yes	Fire

Table 1 - Kentec control panels - remote panel connections

The Signifire range of panels has Evacuate and Alert inputs, but these latch on activation. In such a configuration, it may be more useful to use an addressable input, redefined as a transparent alarm to operate the outputs using cause & effect programming.

2-panel link - unmonitored

If no indication is required on the panel, to show that the sounders are ringing due to an external signal from another panel, then the remote control input may be used. These are listed in Table 1.

The remote control input requires a clean contact from the remote panel. When the remote panel is activated, the local panel sounders will ring. On the addressable panels, a message will be displayed in the status window, and the event will be printed and stored in the event log.

To signal to a remote panel, the local FIRE / REM SIG output may be used to short the remote panel remote control input. This will cause the remote sounders to operate for as long as the local panel is in a fire condition. If the remote panel is a Kentec conventional panel, then the sounders will not be able to be silenced at the remote panel, nor will they silence when the local panel sounders are silenced.

The ALARM relay may also be used when linking two Kentec panels in the configuration above, but care must be taken to ensure that the signal does not "loop round" to the source control panel.

NOTE: When using the remote control inputs, the input is not monitored for open circuit faults. This may be unacceptable in some systems, in which case the monitored configuration given below should be used.

2-panel link - monitored

To provide a monitored interconnection between panels, the normal technique on conventional panels is to use a conventional zone to monitor fire relay contacts. The link will then be monitored for open circuit and short circuit faults, and the panel is put into fire using a 470 ohm firing resistor.

In such systems, the interconnecting zone will normally be set to non-latching and will also be configured so that it doesn't operate the Fire relay. This avoids the "loop round" effect, which causes both panels to lock into fire (and can only be cleared by resetting both panels at the same time).

The Kentec K3000 panel has the facility to select non-latching zones and no remote outputs, by removal of diodes for each zone. Refer to the K3000S Manual for further information.

An alternative method to interconnect panels using a monitored link is to use a sounder circuit to drive a polarised relay at the remote panel. The contacts of the relay are then used to link the remote control input to the panel, and operate the panel sounders.

In the case of addressable panels, loop input devices monitor the link. The input property of these devices should be defined as a non-latching input. The output device used to signal to the remote panel is controlled by a cause & effect, such that all devices, except the remote panel input, will operate the output. This also will avoid the "loop round" effect.

Multiple Panel Interconnection

The concept for the two-panel interconnection may be extended to 3 or more panels. In the case of a 3-panel interconnection (see figure 1), all panels need to be connected by a 4-core cable. This allows 2 cores for the input signal and 2 cores for the output signal. In effect, all panels are joined by a 4-core loop.

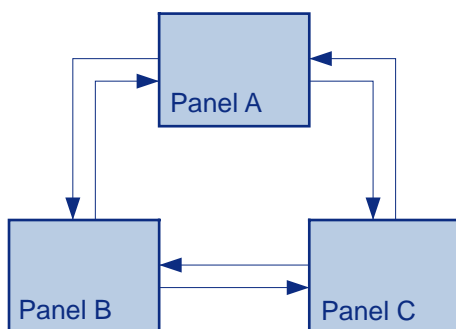


Figure 1 - 3 Panel Interconnection

For any panel activation, the output signal will need to signal to the "other two" panels. To do this, two output contacts are required. In the case of a conventional panel, the Fire output relay is used to drive a double pole relay. Each contact from the double pole relay is then used to signal to the remote panels.

The input signal from any panel needs to be controlled from two remote points. Again, the remote panels should control additional relays, which are then used to link the input of the control panel.

The purpose of adding relays is to ensure that all panels retain independent power supply sources. Under no circumstances should the monitored inputs or outputs of any panel be directly linked to another panels monitored circuits. At all times, the 24 volt supply for each panel must monitor and control equipment connected to the local panel only.

The 3-panel system shown above will operate so that the fire source panel is used to reset all three panels on the system. It is not possible to reset the fire source panel from one of the other two panels.

Suitable miniature relays for interconnecting panels are available as S375 (single relay unit) and S376 (four way relay unit).