PERTRONIC INDUSTRIES LTD

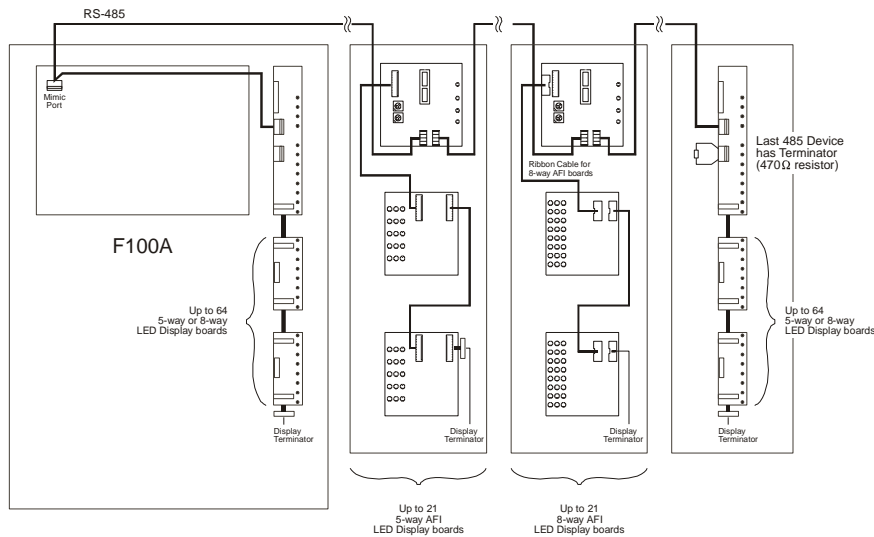## INSTALLATION / OPERATING INSTRUCTIONS

RS485 LED ADDRESS CONTROLLER
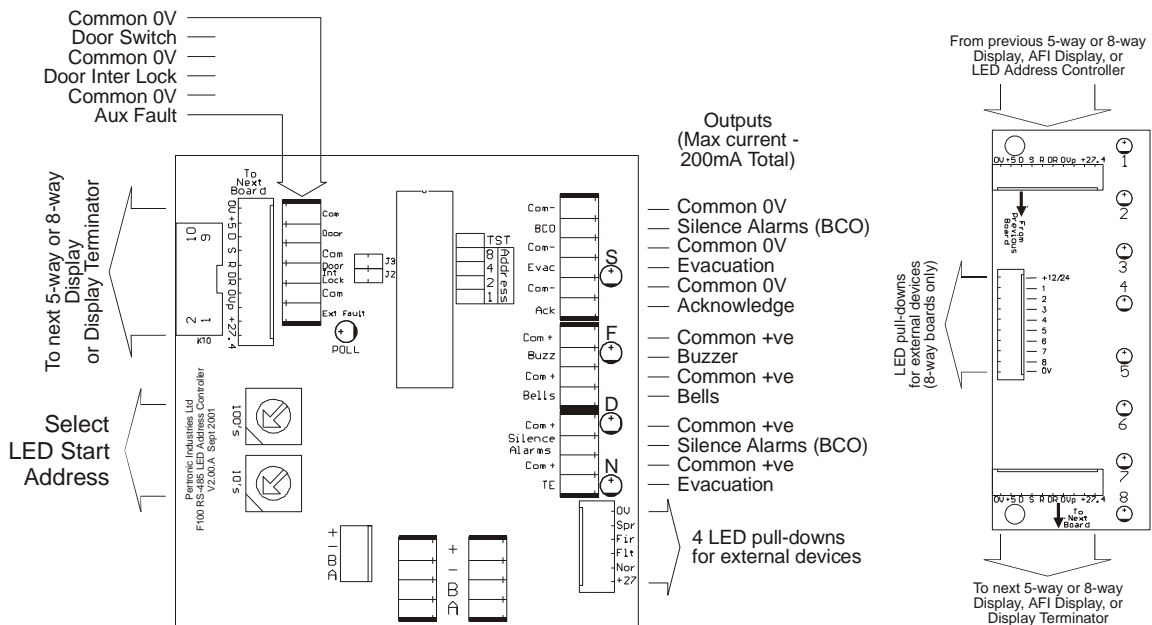
Connection to a Panel

The RS485 LED address Controller is connected to the fire panel via the panel's RS485 Mimic Port. Three connectors are provided: K1 and K8, using screw terminal plug connectors; and K4 for IDC connection. These connectors are provided to aid the connection of multiple LED displays or other RS485 devices.

The connections are: '+'   12 V to 24 V supply, maximum current is 500 mA.

                      '0'   Supply return.

                     A/B   RS485 signal lines.

Twisted pair cable is recommended. The maximum length of cable between the last device on the Mimic Port and the Panel is 1.2 Km. The A/B signal lines must be terminated at the remote device with a 470 ohm resistor (this is placed between A and B).

LED Address Controller Layout and Connection

Start Address Selection

The two rotary switches labeled 100's and 10's are used to select the LED number for display in the first LED position. Subsequent LED's in the display then follow the number sequence starting from the number selected for the first LED. For example, if 14 is selected by the rotary switches (100's = 1, 10's = 4), then the first LED on the 8-way LED display connected directly to the LED Address Controller is LED 140. Similarly, if 08 is selected, the first LED is LED 80. If 00 is selected, the first LED is LED 1.

Configuration Jumpers J2 and J3

5-way or 8-way LED displays may be used by the Controller, and flashing during tests can be disabled to prevent connected relays clicking on/off (Firmware v4.08 and greater).

Firmware Version	J2 Open	J2 Shorted	J3 Open	J3 Shorted
4.08(s) and up	Lamp test disabled	Lamp test enabled	5-way LED operation	8-way LED operation
4.06	No effect	No effect	5-way LED operation	8-way LED operation
4.04 and lower	5-way LED operation	8-way LED operation	No effect	No effect

Limits to the Number of LCD and LED Displays

Up to 32 RS485 devices may be connected to the RS485 line.

Up to 64 5- or 8-way Display Boards (21 5- or 8-way AFI Display Boards) may be connected to the LED Address Controller.

64 8-way display boards give a total of 512 LED indications for zones plus the 4 global LEDs. 64 5-way display boards give 320 LED indications.
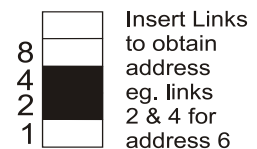
The 5-way displays are connected via the 10-way IDC connector, K2. The 8-way displays are connected via the 10-way ribbon cable connector, K10. The last display must be terminated with a display terminator.

The *F100A* can control up to 255 LED addresses, and the *F120* can control 512 LED addresses. The *F16* can control a maximum of 32 LED addresses (or 64 if residential mode is used).

Controller Addressing

The address links (1, 2, 4, 8) are appropriately selected for addresses 1 to 8 (Maximum address for polled LED Address Controllers is 8).

Controllers that are polled return the state of their inputs to the panel (such as Door Switch, Buzzer Mute etc.). In addition, the panel must be configured with the exact number of polled LED Address Controllers; otherwise, the panel will report a fault condition.

Insert Links to obtain address eg. links 2 & 4 for address 6

Pulsing or Non-pulsing outputs

Software versions (**without S Suffix**). Addresses 11-15 respond the same as addresses 1-5, but the output states are continuous not pulsing, with address 10 for non-polled controllers.

Software versions (**with S Suffix**). Output states are continuous not pulsing on **all** addresses, i.e. 1-9 as well as 10-15. Note that addresses 11-15 still respond the same as addresses 1-5, and addresses 9 and 10 are for non polled controllers.

This is useful when driving relays from the open-collector outputs.
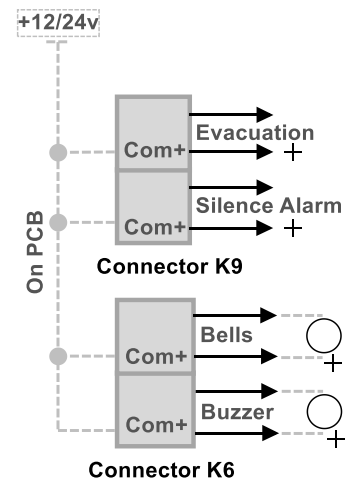
Function Outputs

Four outputs that follow the state of the corresponding signals at the panel are provided from K6 and K9 on the Controller. These signals are the following:

Buzzer	Active (to 0 V) when the panel internal buzzer is active. It may be silenced by signaling Acknowledge on K5 (see Function Inputs).
Bells	Active when one or both of the panel Bell Relays are on.
Evacuation	Active when any 'evacuation' input is on.
Silence Alarms	Active when any 'silence alarms' input on the system is on.

A 12V or 24V common (dependent on the panel supply) is provided for each signal. Each signal pulls its connected load through an FET to 0 V when energised. Refer to the diagram.
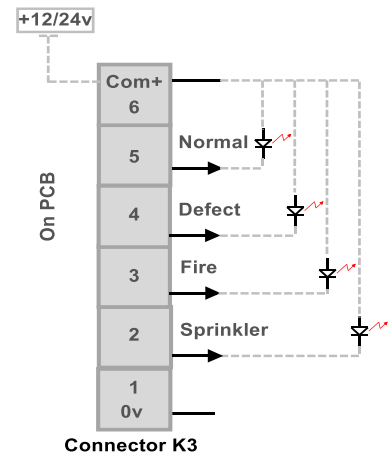
The maximum individual current for any output is 100 mA. The sum of all the currents at any one time due to the outputs being energised is not to exceed 100 mA.

LED Outputs (Connector K3)

The 4 LED's of the Controller have drive capability for ancillary purposes. These signals are available at K3. Each LED can sink 20 mA to 0 V via a diode and a 1K2 resistor on the PCB. (Refer to the diagram.) The LED's flash when active. The flash rate is 400 ms on, 400 ms off. Note that the LED's also flash when the LDU is being tested via the panel LED test function. The test has a different flash rate.
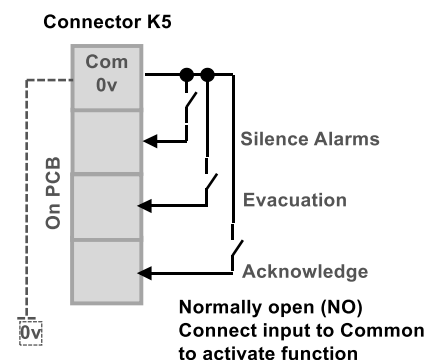
Flashing during tests can be disabled to prevent connected relays clicking on/off in software v4.08 or later with the link J2 not fitted; link J2 fitted enables "lamp test" commands

System Input Functions (Connector K5)

The input state of the function is sent to the fire panel if the LDU has an address 1 to 8. The active state occurs when the common (pin1) is connected to the input function.
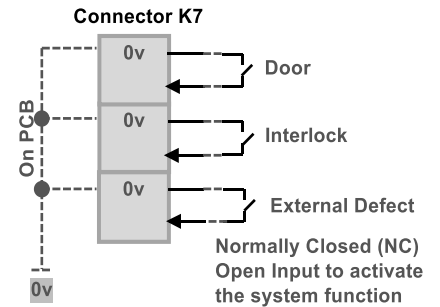
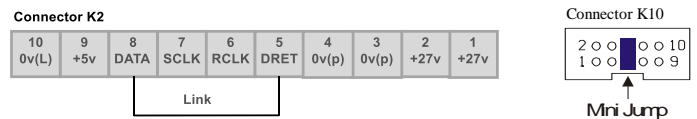|	
Silence Alarms	(BCO) is sent to the fire panel to silence the system alarms.
Evacuation	Sent to the panel to activate the system alarms.
Acknowledge	Sent to the panel to indicate a request to silence the buzzer.

Auxiliary Input Functions (Connector K7)

The input state of the function is sent to the fire panel if the LDU has an address 1 to 8. The active state occurs when the input is disconnected from the adjacent common:

Door — Sent to the fire panel to indicate that the door switch (if connected) is open.

Door Interlock — If the door interlock input is active, a door interlock signal is sent to the panel.

External Defect — Sent to the panel in the event of a fault from an external device.

Connector K7

0v — Door
0v — Interlock
0v — External Defect

On PCB
0v

**Normally Closed (NC)
Open Input to activate
the system function**

Display Terminator

A display terminator is required on the last device in the chain. This gives a return monitor signal by connecting pins 5 and 8 (for connector K2) or pins 5 and 6 (for the connector K10) of the display bus.

Connector K2

10	9	8	7	6	5	4	3	2	1
0v(L)	+5v	DATA	SCLK	RCLK	DRET	0v(p)	0v(p)	+27v	+27v

Link

Connector K10

2 ○ ○ ■ ○ ○ 10
1 ○ ○ ■ ○ ○ 9

Mini Jump

Fault Latches

4 fault conditions are detected and latched by the LDU. These are door interlock, LED chain fault, e2prom memory fault, and fire panel communication fault. The faults are latched and encoded by the **POLL/FAULT LATCH LED** when a fault is present. The latched states are reset when the power to the mimic is cycled off and then on again.

- 1st flash long   Door interlock
- 2nd flash long   LED chain fault
- 3rd flash long   Eeprom fault
- 4th flash long   Communication fault