PERTRONIC INDUSTRIES LTD

INSTALLATION NOTE

AFI Controller (from s/w v2.04)

The AFI Controller and Zone Display system is used to present global and zonal Alarm Fault Isolate information on LED displays for ***F100A*** and ***F120*** fire alarm panels. The system consists of a controller having global panel status LED's connected to multiple 3x 8–way LED display boards for indication of zone status. The display follows the format specified by AS4428.1-1998.

LED Indication

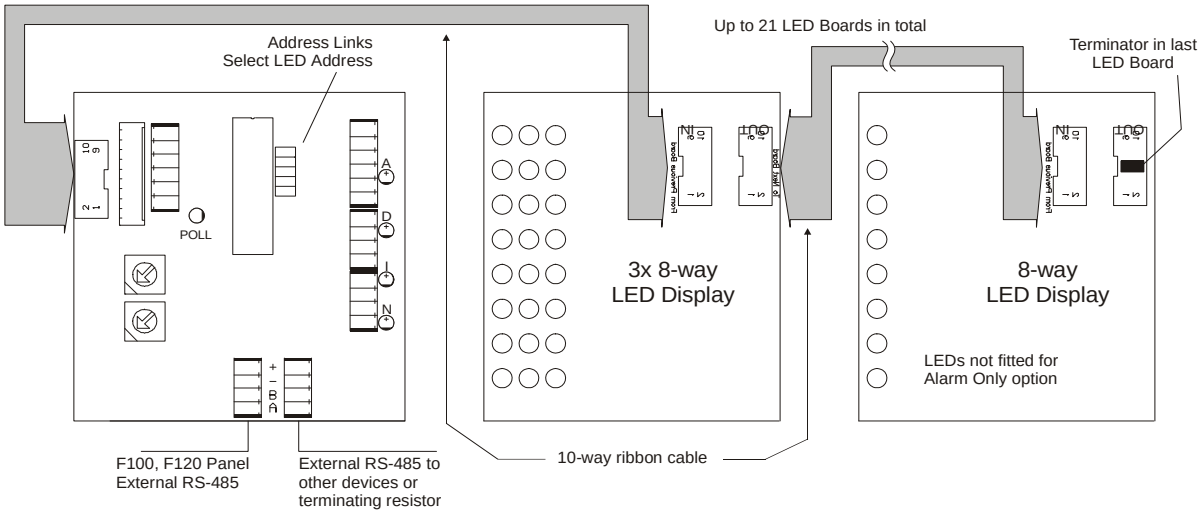
Global - **normal**	Steady when the fire panel has no current alarms or faults.
Global – **alarm**	Flashes when at least one current alarm has not been acknowledged. Steady when all current alarms have been acknowledged or isolated.
Global – **fault**	Steady when any component of the fire panel is in fault; otherwise, off.
Global – **isolate**	Steady when any device or zone is isolated; otherwise, off.
Zone – **alarm**	Flashes when a device in the zone is in alarm, and not isolated. Flashes when a device in the zone is in alarm and the device is isolated. Steady when a device in the zone is in alarm and the zone is isolated.
Zone – **fault**	Steady when any device in the zone is in fault; otherwise, off.
Zone – **isolate**	Steady when the zone is isolated; Flashes when a device in the zone is isolated.

Connection Diagram

The AFI Controller is connected to the fire panel via the panel's External RS485 Port. The RS485 line is connected to terminals K1, K8, and K4. Up to 32 RS485 devices may be connected to the panel's External RS485 line. 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 terminals A and B). The maximum voltage drop allowable between the panel and the AFI Controller is 10V.

K1, K8, K4 connections:

'+'	12 V to 24 V supply, maximum current is 500 mA
'0'	Supply return
A/B	RS485 signal lines



Note: Because of potential LED current requirements, (supply current is 500mA), it is recommended that a maximum of 12 AFI boards be connected to one AFI Controller.

Power Requirements

Power Supply: Provided through connectors K1, K8, or K4:
'+' terminal 12 to 24V, 500mA max; '–' terminal 0V.

AFI Controller average current: 14mA, normal state.
Add 9mA for each steady LED.
Add 4.5mA for each flashing LED.

Controller Addressing

The address links (1,2,4,8) are appropriately selected for addresses 1 to 8 (for polled LED Address Controllers); or for address 9 (for non-polled, indicating-only Controllers). Controllers that are polled return the state of their inputs to the panel (such as Evacuation). In addition, the panel must be notified of 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

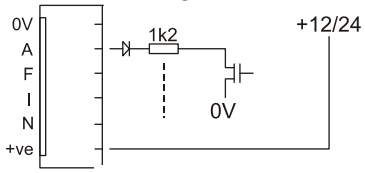
It is recommended that a maximum of 12 AFI LED display boards be connected to any one AFI controller. This gives a total of 60 zones for display. The LED displays are connected via the 10-way IDC connector, K2 of the controller, with a 10-way cable between each display. The last display must be terminated with a display terminator.

Zone Start Selection (Only applies to code AFI8v202 and later)

The two decade rotary switches are used to select the start zone number for the first LED in the LED chain. The number selected on 10's is the zone number for the first LED. For example: 1, 3 (100's, 10's) will make the first LED zone number 130. The maximum start zone number allowed is 240 (2, 4). If the switches are set to 0, 0, the start zone number will be 1.

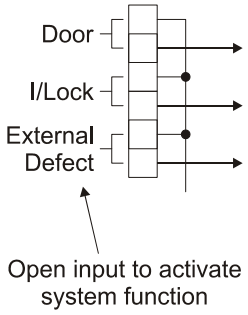
LED Outputs

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. (Refer to the diagram.) The LED's flash when active. The flash rate is 800 ms on, 800 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.



Auxiliary 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	Sent to the fire panel (F120) to indicate that the door switch (if connected) is open.
Door Interlock	Operates in conjunction with the door switch. If the door switch is closed and the door interlock input is active, a door interlock signal is sent to the panel. This generates a defect/fault on the fire alarm panel (plus a mimic display defect/fault on the F120).

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 panel is reset.

1st flash long	Door Interlock
2nd flash long	LED Chain fault
3rd flash long	E2prom Fault
4th flash long	Communication Fault

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 6 of the display bus.