

PERTRONIC INDUSTRIES LTD



INSTALLATION NOTE

LED Display Unit (LDU) : 12-Way / 8-Way

Overview:

Pertronic Industries' **LED Display Unit (LDU)** is a Fire Alarm Panel Repeater / Mimic that allows the status of a Fire Alarm Panel to be displayed remotely using LED's.

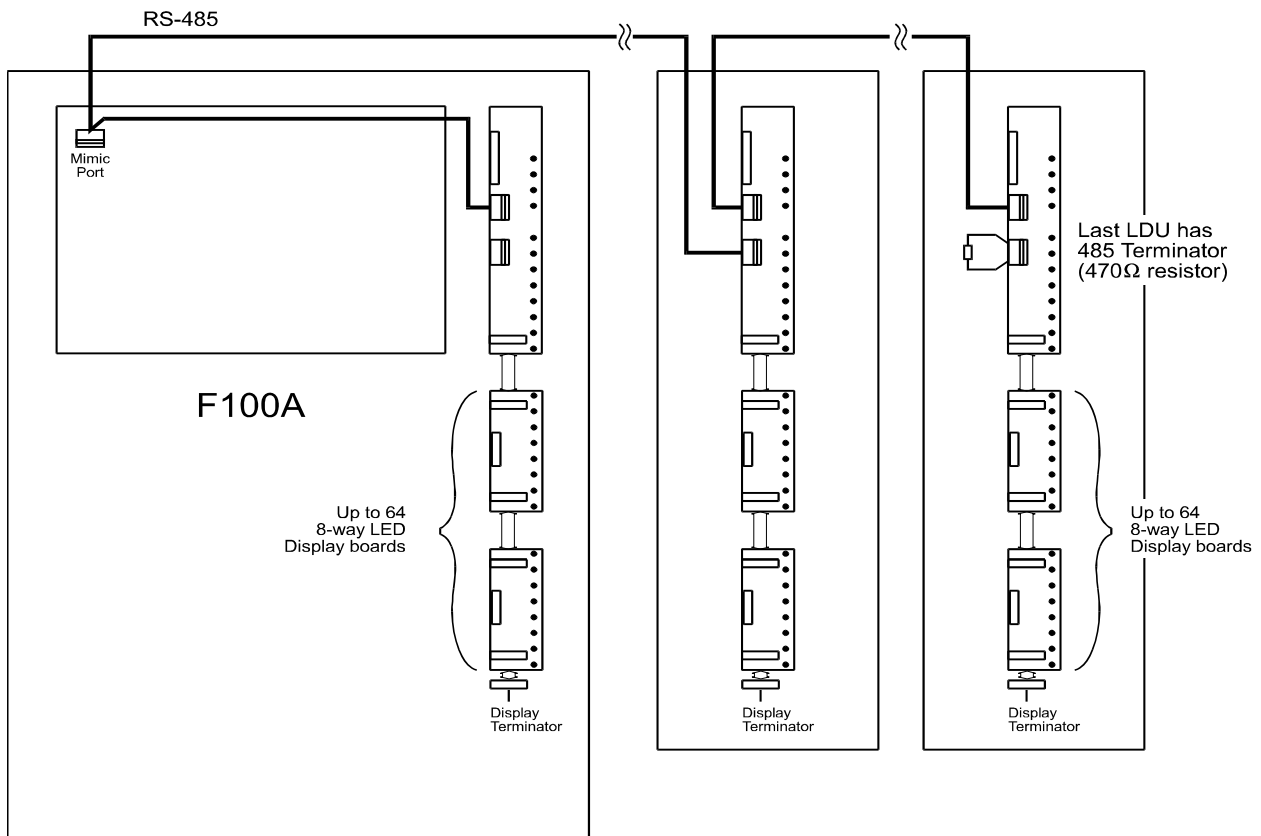
The **12-Way Smart LED Display Board** HW \geq v3.0, manufactured with SMD technology, connects to **F100A**, **F120A**, **F16e** and **F16** panels via the RS485 Mimic port.

Two versions are available, flashing and non-flashing display (firmware suffix 'S')

The **8-Way LED Display Board** connects directly to the **12-Way Smart LED Display Board** or to previous **8-Way LED Display Boards**.

Additional related products available are:

- **8-Way Display Relay Extender Board** : contains 8 non-latching relays that correspond to LED position numbers in the display.
- **RS485 LED Address Controller (LAC) Board** : used in place of the 12-Way Smart LED Display Board if the Sprinkler, Fire, Defect and Normal LEDs are not required.
- **LED Zone Off-Set Board** : used in conjunction with the 12-Way Smart LED Display Board to offset the start address of the LED's.
- **48-Way Open-Collector Board** : provides a cost effective solution to control large numbers of LED's and/or Relays.



Connection to Panel

Three connectors are provided: K1 and K8, which use screw terminals; and K4 which uses an IDC connection. These connectors provide connection of multiple LDU's or other RS485 devices.

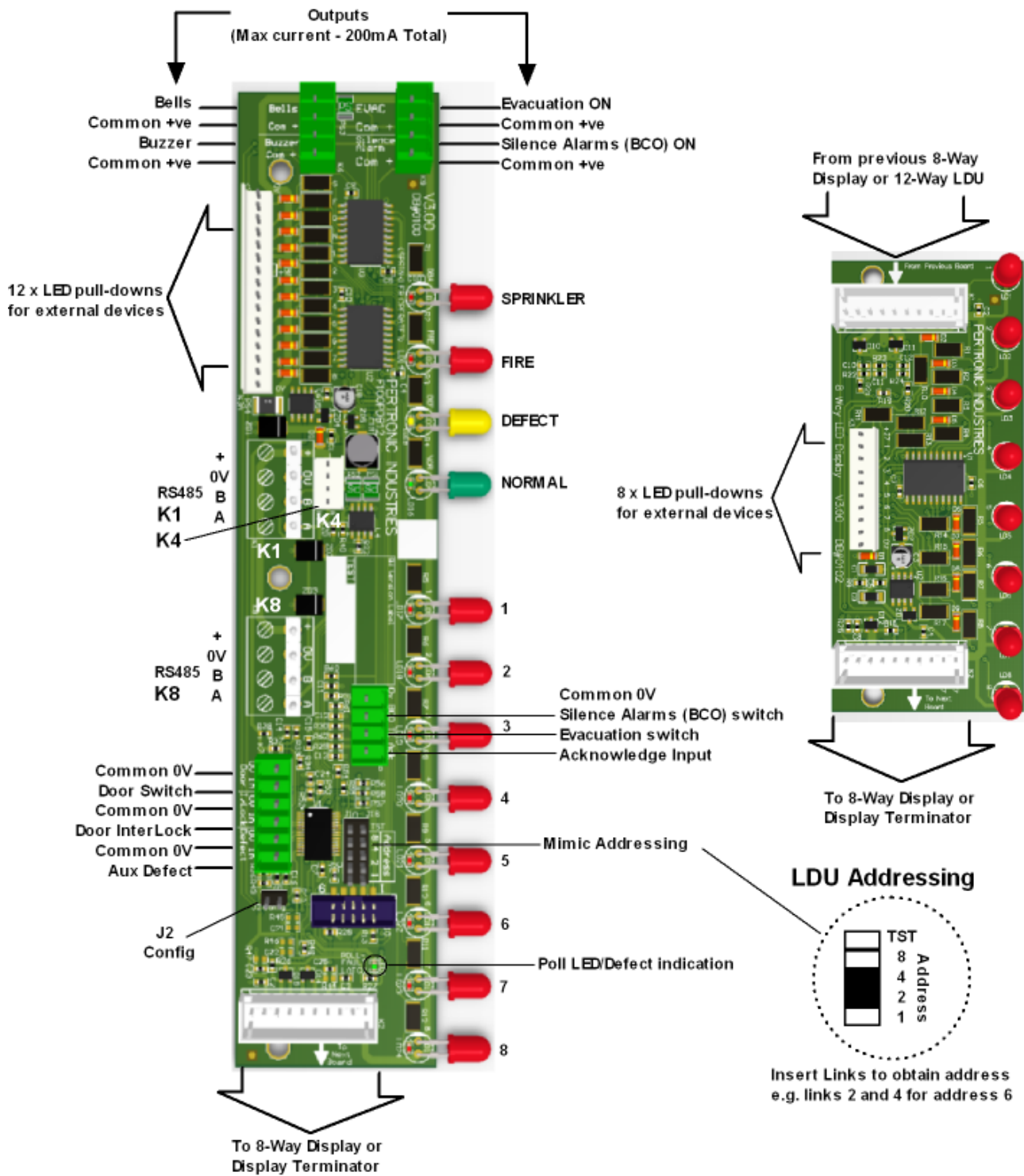
Connections are:

+	12 to 24VDC supply. Maximum current to LDU is 500mA.
0	Supply return.
A / B	RS485 Data.

Twisted pair cable is recommended. The maximum length of cable between the panel and the last device on the Mimic Port is 1.2km.

The A/B signal lines must be terminated at the remote device with a 470 Ω resistor placed between A and B.

12-Way and 8-Way LDU Layout and Connection



5-Way or 8-Way LED Operation

For Hardware v3.0 and Software \geq v4.10, insert the J2 link for 5-way operation.

Mimics and LED Limits

Up to 32 x RS485 devices (LDU's, LCD Mimics, GPIB's, and such) may be connected to the RS485 line.

Up to 63 x **8-Way Display Boards** may be connected to the **12-Way Display Board**, giving a total of 512 LED indications for zones, plus the 4 global LED's, which are Sprinkler, Fire, Defect, and Normal. The **8-Way Display Boards** connect to the **12-Way Display Board** using a 10-Way IDC connector, K2.

The **F120** can control up to 512 LED addresses, the **F100A** up to 255 LED addresses and the **F16e/F16** can control up to a maximum of 32 LED addresses. Note that in Residential mode the **F16e** may control a maximum of 64 LED's, 32 for Local (Residential) alarm and 32 for Global alarms.

LDU Addressing

a) Analogue Addressable Panels

(i) Addresses 1 to 8 provide fully addressable boards, polled for input control information. These outputs pulse, and should be used for LED's.

(ii) Address 9 is similar to addresses 1-8, except the inputs are not monitored, so are used for slave LDU's.

(iii) Address 10 is identical to address 9 except the outputs do not pulse, so may be used for relay outputs.

(iv) Addresses 11-15 are similar to addresses 1-5, except the outputs do not pulse, so may be used with monitored inputs and steady outputs (relays).

Any number of slave LDU's may be used, with the total number of devices on the **MIMIC** port limited to 32.

b) Conventional Panels

Addresses 1 to 3 are used for individually addressable boards, which are polled for input control information. The panel must also be configured for the precise number of polled LDU's; otherwise, the panel reports a fault condition.

Fault Latches

Four Fault conditions are detected and latched by the LDU : Door Interlock, LED Chain fault, External Defect Input and RS485 Communication fault.

The faults latch and are encoded by the **POLL/FAULT LATCH LED** when a fault is present. The latched states are Reset by cycling the power to the mimic OFF, then ON again.

1st flash long	Door Interlock input open
2nd flash long	LED Chain fault
3rd flash long	External Defect input open
4th flash long	RS485 Data Communication fault

Note: the RS485 Fault indicated is between the device indicating the Defect and the panel. An RS485 Defect beyond a specific LDU will indicate a Defect on devices beyond that fault, but not on LDUs closer to the panel. All LDUs may be reported in Defect by the panel, however the status of the LDUs may be useful to assist diagnosing the location of a fault.

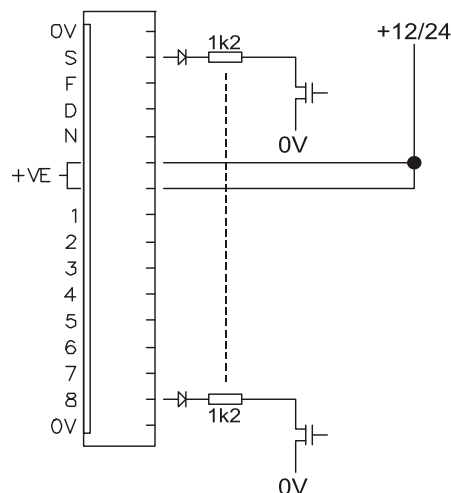
Display Relay Boards

Display Relay Boards may be inserted anywhere in the chain of **LED Display boards** and **Relay Display Boards**, provided only version 2 or greater boards of both types are used.

NOTE: If version 1 LED or Relay boards are used, v2 or v3 LED or Relay boards must be placed at the end of the PCB chain.

LED Outputs (K3)

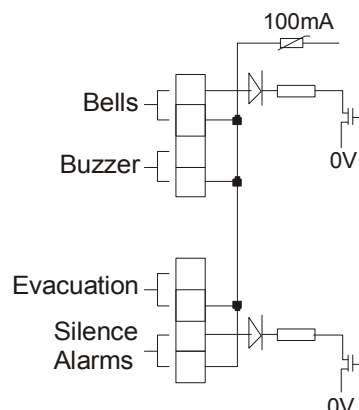
Each of the LED's of the 12-Way LDU and 8-Way LDU have drive capability for ancillary purposes. Each LED can sink 20mA to 0V via a diode and a 1k2Ω resistor—refer to the diagram. When active, the LED's flash at a rate of 400ms ON, 400ms OFF. Note that the LEDs also flash when the LDU is being tested via the panel LED test function—the test has a different flash rate.



Output Functions (K6 and K9)

Four outputs are provided on the 12-Way LDU that follow the state of the corresponding panel signals:

- Buzzer** Activates (to 0V) when the panel internal Buzzer is ON. It may be silenced by signaling Acknowledge on K5 (refer to Input Functions).
- Bells** Activates when one or both of the panel Bell Relays are ON.
- Evacuation** Activates when any 'Evacuation' input is ON.
- Silence Alarms** Activates when any 'Silence Alarms' input on the system is ON.

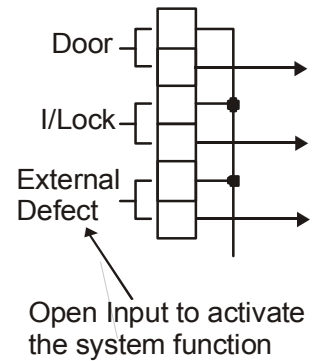




Auxiliary Functions (K7)

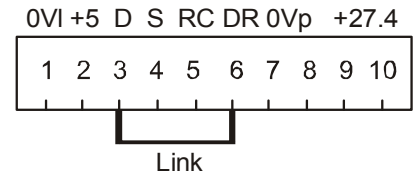
The input state of the function is sent to the fire panel if the LDU has an address 1 to 8. The active state occurs when the input is disconnected from the adjacent common:

- Door This input is currently unassigned
 - do not use
- 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.



Display Terminator (K2)

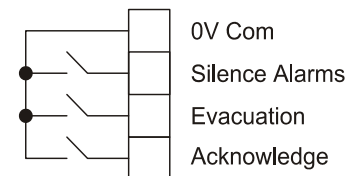
A display terminator is required on the last device in the chain. Connecting pins 3 and 6 of the display bus provides a return monitor signal.



Input Functions (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 input function is connected to the Common (pin1):

- Silence Alarms Sent to the fire panel to silence (BCO) 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.



Connect input to Common to activate function

Product Codes:

NZS Code	Description
F100PDB12	12-Way SMD Smart (Flashing) LED Display Board
F100PDB12S	12-Way SMD Smart (Steady) LED Display Board
F100PDB	8-Way SMD LED Display Extender Board
F100ZDRLY	8-Way Display Relay Extender Board
LAC485	RS485 LED Address Controller (LAC)
LAC12W	LED Address Controller (LED Offset) Board