



# RS-485 Ancillary Peripherals

LED Address Controller  
8 Way Relay Mimic  
48-Way Open Collector Output Board

RS-485 Input / Output Controller  
8-Way LED Display

## Overview:

Pertronic Industries manufacture a range of **RS-485 Ancillary Peripherals** for Pertronic fire alarm panels. These products allow project-specific outputs and/or displays to be added to fire alarm systems built with Pertronic panels.

The ancillary peripheral product range includes controller units and output/display units.

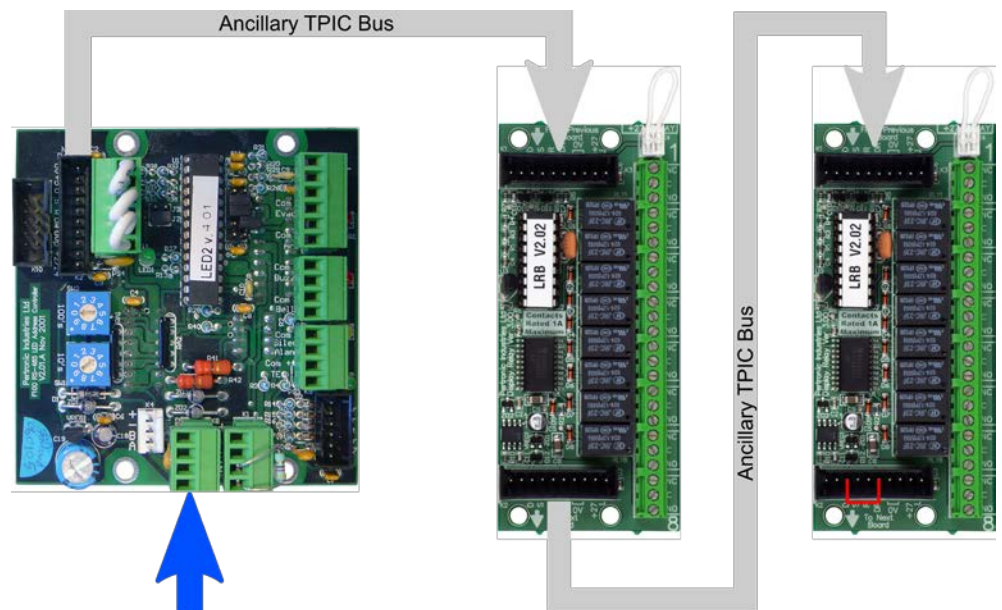
A controller unit interprets commands from the fire alarm control panel's RS-485 data bus and drives the **Ancillary TPIC Bus**, which in turn drives the output/display units. A single controller may control multiple output/display units, subject to current and output mapping constraints described on page 2.

The outputs are mapped in the Pertronic fire alarm panel configuration as **LED Outputs**. Each output has an address on the **Ancillary TPIC Bus**. A set of rotary switches on the controller unit defines the panel **LED Number** corresponding to the first address on the **Ancillary TPIC Bus**.

The **Ancillary TPIC Bus** is monitored for faults, and supplies DC power to the output and display units. The **Ancillary TPIC Bus** must be terminated to ensure correct operation of the fault-monitoring system.

**RS-485 Ancillary Peripherals** may be mounted inside a fire alarm panel or at any convenient remote location, up to approximately 1.2 km from the fire alarm panel.

Multiple **Ancillary TPIC Buses** may be connected to a single **Pertronic** fire alarm control panel.



RS-485 Data Bus from Fire Alarm Control Panel:  
» RS-485 Mimic Bus (F100A, F120A)  
» Internal or External Low-Speed RS-485 Bus (F220)

**A Typical RS-485 Ancillary Peripheral System**  
**LED Address Controller driving two 8-Way Relay Mimics**

## Features:

- » Controller can drive multiple output/display units
- » Fault monitoring
- » Optional steady or flashing display
- » Configured in panel configuration as **LED Mimic**

## Controllers:

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### LED Address Controllers:

These controllers share the same hardware. Each model has unique firmware. One controller may drive several display/output units, subject to the following constraints:

- » The total current drawn by a controller and its peripherals from the panel RS-485 data bus must not exceed 500 mA. This includes the current drawn by the controller, its on-board outputs, and all loads on the **Ancillary TPIC Bus**.
- » The total number of LEDs or outputs must not exceed the fire alarm panel's output mapping capacity. Refer to the relevant fire alarm panel technical manual for details.
- » The **Ancillary TPIC Bus** must not be spurred or teed. All display and output units connected to a single controller must have identical bus connectors, either single or double row.



LED Address Controller

### LED Address Controller, Non-Pulsing (LAC485-S)

This controller is designed for driving relays or open collector outputs. It is often used with the **48-Way Open Collector O/P (48WOC-IF)**, and the **8-Way Common Relay Board (8WCOMR)**, to provide multiple 1 Amp 30 VDC form C clean-contact (unmonitored) relay outputs.

The **LAC485-S** may also be used with one or more **8-Way Relay Mimics (8RLYM)** to provide 1 Amp 30 VDC form C clean-contact (unmonitored) relay outputs. It can also drive LED displays such as the **8-Way LED Display (F100PDB)**.

### LED Address Controller, Pulsing (LAC485)

This controller is almost identical to the **LAC485-S**. However, the display LEDs are pulsed to reduce current consumption. The **LAC485** is designed for driving LED displays such as the **8-Way LED Display Board (F100PDB)**.

## Specifications:

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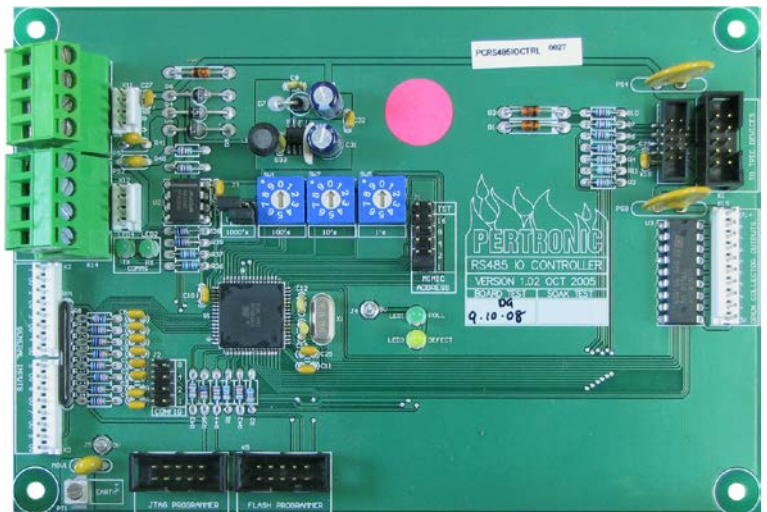
» Dimensions		85 x 85 x 25	W x H x D mm
» Operating Current	No Load	14 mA @ 27.4 VDC	from RS-485
»	Maximum	500 mA	including total load on outputs
» Ancillary TPIC Bus		Single-row 10-way 2.54 mm IDC header Double-row 10-way 2.54 mm IDC header	
» System Inputs		Acknowledge, Evacuation, Silence Alarms	
» Auxiliary Inputs		Aux. Fault, Door Interlock, Door Switch.	
» System Outputs		Bells, Buzzer, Evacuation, Silence Alarms.	
» Open Collector Outputs		Normal, Fire, Fault, Sprinkler	
» Address on Panel RS-485 Data Bus		0 – 31, link selectable	
» Lowest LED Number in Panel Config		0 – 990 in steps of 10, via two decade rotary switches	
» On-board diagnostics		LED	
» RS-485 Data Rate		9600 bit/s	

## RS-485 Input / Output Controller:

This controller has been developed for applications requiring large numbers of LEDs or ancillary outputs. Its capabilities are similar to those of the LED Address Controllers described above. However the **RS-485 Input / Output Controller** has an additional rotary decade switch and configuration links to support up to 2000 individual outputs.

This controller may be configured for general LED displays (with flashing outputs), or for fan block display, with the LED arranged in groups of three, configurable as flashing or steady.

A single **RS-485 Input / Output Controller** may drive several display and/or output units, subject to the supply current, mapping, and bus connector constraints described on page 2 above.



**RS-485 Input / Output Controller (RS485IOCTRL)**

The unit includes eight local open-collector outputs. Each local output is activated when the corresponding peripheral output is activated. The local outputs are hard-mapped to the first eight peripheral outputs, that is, from *<Lowest LED Number>*, to *<Lowest LED Number + 7>*.

## Specifications:

» Dimensions		162 x 111 x 30	W x H x D mm
» Operating Voltage		19.2 VDC – 30 VDC	
» Operating Current	No Load	25 mA @ 27.4 VDC	from RS-485
»	Maximum	500 mA	including total load on outputs
» Ancillary TPIC Bus	2 mm	Double-row 10-way 2mm IDC header	
»	2.54 mm	Double-row 10-way 2.54mm IDC header	
» Local Outputs		8 Open-Collector Outputs, synchronised with the first eight peripheral (LED) outputs	
» Local Inputs		Unused	
» Address on Panel RS-485 Data Bus		0 – 31, link selectable	
» Lowest LED Number in Panel Config		1 – 2000, via three rotary decade switches & one link	
» RS-485 Data Rate		9600 bit/s	
» On-board Diagnostics		Lamp Test and Base Address Check	
» On-board LEDs	Poll	Flashes when controller is polled via the RS-485	
	RX	Lights up when controller is polled via the RS-485	
	TX	Lights up when controller replies over the RS-485	
	Defect	Lights up when the controller detects a fault	

## Output and Display Units:

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Output and display units are designed to be daisy-chained on to the **Ancillary TPIC Bus**.

The number of units that may be driven from a single controller is limited by supply current, mapping, and bus connector constraints, as described on page 2 above.

### 48-Way Open Collector O/P (48WOC-IF):

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This output unit is well-suited for applications requiring custom-built displays with large numbers of LEDs.

It is also frequently used with the **Pertronic 8-Way Common Relay Board (8WCOMR)** to provide multiple clean-contact (unmonitored) relay outputs. Refer to the 8-Way Common Relay Board datasheet for details.

» Outputs		48 open-collector outputs
» Dimensions		86 x 87 x 22 W x H x D mm
» Operating Current	No load	1 mA @ 27.4 VDC
» Output Current Sink	Max.	10 mA @ 27.4 VDC per output
» Ancillary TPIC Bus	In/Out	Double-row 10-way 2.54 mm IDC header



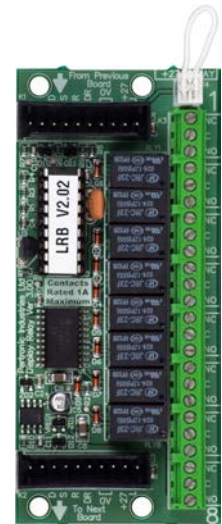
**48-Way Open Collector O/P (48WOC-IF)**

### 8-Way Relay Mimic:

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The **Pertronic 8-Way Relay Mimic** provides eight 1 Amp relay contacts. This output unit may be daisy-chained with any number of other **8-Way Relay Mimics** and **8-Way LED displays**, on a common **Ancillary TPIC Bus**, subject to the constraints described on page 2.

» Outputs		Eight 1 Amp 30 VDC (resistive) form C clean-contact (unmonitored) outputs
» Wire Size	Outputs	0.2 mm <sup>2</sup> to 1 mm <sup>2</sup> (flexible stranded)
» Dimensions		43 x 97 x 20 W x H x D mm
» Operating Current	No load	2.9 mA @ 27.4 VDC
	Active	9 mA per active relay @ 27.4 VDC
» Ancillary TPIC Bus	In/Out	Single-row 10-way 2.54 mm IDC hdr



**8-Way Relay Mimic (8RLYM)**

## 8-Way LED Display:

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The **Pertronic 8-Way LED Display** provides eight red LEDs. This display may be daisy-chained with any number of other **8-Way Relay Mimics** and **8-Way LED displays** on a common **Ancillary TPIC Bus**, subject to the constraints described on page 2.

- » Outputs Eight 5 mm red light-emitting diodes
- » Local Outputs Eight open-collector outputs (each output activates when the associated LED activates)
- » PCB Dimensions 43 x 97 x 20 W x H x D mm
- » Operating Current
  - No load 1.2 mA @ 27.4 VDC
  - Active 11 mA per active LED
- » Ancillary TPIC Bus In/Out Single-row 10-way 2.54 mm IDC hdr



**8-Way LED Display  
(F100PDB)**

## Ordering Information (see note):

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Product Code	Description
LAC485	LED Address Controller, RS-485 for F100A, F120A, with Pulsing LED Driver
LAC485-S	LED Address Controller, RS-485 for F100A, F120A, for Non-pulsing LEDs
RS485IOCTRL	RS-485 Input / Output Controller
8RLYM	8 Way Relay Mimic (Requires LAC485)
F100PDB	8-Way LED Display
48WOC-IF	RS-485 to 48-Way Open Collector O/P Board

Note: The **Pertronic AFI Display** also uses the Ancillary TPIC Bus. Refer to the AFI Display datasheet for details.