

The 7931 unit currently in production requires quite a lot of intricate manual assembly operations to build it. These are necessary partly to build the unit in compliance with some of the more recent changes in the CE requirements.

To make the unit easier to produce, the design has been changed. To accommodate the changes, two of the PCB's have been completely redesigned, and the layout of the PCB's has been totally changed, it has been necessary to group together certain circuit functions,, which means that the terminal connection pin outs have changed. It is therefore essential that new units are not wired as per the old 7931 unit, this would result in damage to the new counter. To ensure that the new units can't be plugged into the connectors for the old 7931, we have changed the number of pins on the plug in connectors that we use, for example a 3 way plug will only plug into a 3 way socket (due to keyways moulded into the counter casing, it is therefore nearly impossible to plug the old plugs into a new unit, or new plugs into an old unit, to get the plugs to go in would require excessive force.

Connector details:

Old 7931

- Pins 1-7 (7 way connector)
- Pins 8 to 11 (4 way connector)
- Pins 12 to 14 (3 way connector)

New design unit

- Pins1 – 2 (2 way connector)
- Pins3 – 7 (5 way connector)
- Pins 8 – 15 (8 way connector)

The terminal connections are shown below:

Old 7931unit

Pin	Description	Range
1	Live	94 to 240VAC ±10% 50/60 Hz
2	Neutral	
3	Auxilliary DC Supply +ve	<i>Power Supply (see pages 37 & 38)</i> The counter can be powered by AC mains, in which case pins 3 and 11 provide an Auxilliary supply (+12V DC ±10%, 100mA max) which can be used to power sensors if required. Alternatively, the counter can be powered by an external DC source (12-24V DC ±10%, 100mA), connected to pins 3 and 11.
4	Normally Open contact	Isolated relay contacts 50/60Hz 300V AC max, 220V DC max See <i>Specification, page 2</i>
5	Common contact	
6	Normally Closed contact	
7	Not used	-----
8	High Speed Counter Input (Input CH)	Opto-isolated, 10-30 VDC See <i>Specification, page 2</i> This input can be used in Counter Mode only
9	Keyboard Disable Input (Input K)	Opto-isolated, 10-30 VDC See <i>Specification, page 2</i> This input can be used to disable the front panel buttons, but only if configured by the <i>Inhibit</i> option. See <i>Programming, page 6</i>
10	8/9 Common	See <i>Input Polarity, page 5</i>
11	Auxilliary DC Supply -ve	0V - See pin 3, above
12	Low Speed Counter/Timer Input (Input CT)	Opto-isolated, 12-240 V ±10% DC or 50/60Hz AC See <i>Specification, page 2</i> This input can be used in Counter or Timer Mode
13	External Reset Input (Input R)	Opto-isolated, 12-240 V ±10% DC or 50/60Hz AC See <i>Specification, page 2</i>
14	12/13 Common	See <i>Input Polarity, page 5</i>

New design unit

Pin	Description	Range
1	Auxilliary DC Supply -ve	0V - See pin 2, below
2	Auxilliary DC Supply +ve	<i>Power Supply (see pages 37 & 38)</i> The counter can be powered by AC mains, in which case pins 1 and 2 provide an Auxilliary supply (+12V DC +20% -0%, 75mA max recommended) which can be used to power sensors if required. Alternatively, the counter can be powered by an external DC source (12-24V DC ±10%, 100mA), connected to pins 1 and 2.
3	4/5 Common	See <i>Input Polarity, page 5</i>
4	External Reset Input (Input R)	Opto-isolated, 12-240 V ±10% DC or 50/60Hz AC See <i>Specification, page 2</i>
5	Low Speed Counter/Timer Input (Input CT)	Opto-isolated, 12-240 V ±10% DC or 50/60Hz AC See <i>Specification, page 2</i> This input can be used in Counter or Timer Mode
6	Neutral	94 to 240VAC ±10% 50/60 Hz
7	Live	
8	Not used	-----
9		
10	P1 Normally Open contact	Isolated relay contacts 50/60Hz 300V AC max, 220V DC max See <i>Specification, page 2</i>
11	P1 Common contact	
12	P1 Normally Closed contact	
13	14/15 Common	See <i>Input Polarity, page 5</i>
14	Keyboard Disable Input (Input K)	5-30 VDC See <i>Specification, page 2</i> This input can be used to disable the front panel buttons, but only if configured by the <i>Inhibit</i> option. See <i>Programming, page 6</i>
15	High Speed Counter Input (Input CH)	5-30 VDC See <i>Specification, page 2</i> This input can be used in Counter Mode only

The changes have affected the actual pin out connections as shown above.

The input circuits for the High speed counter input, and Keyboard disable have also been changed. The old 7931 had opto isolated inputs for these two inputs (rated to operate on voltages 10 to 30V DC). These circuits have now been changed, and are no longer opto isolated, the signals are input directly into the input IC's, the rated voltage for these inputs is now 5 to 30VDC, which means that customers with 10V signals on old units can still use the same input device. The inputs IC's have Schmitt trigger input circuits, which can help the counter to receive a stable count signal from high speed signals, noise tends to have less of an effect.

The power supply circuit has also changed slightly, the power fail detection circuit has been modified, when the external power supply to the unit fails or dips for a length of time, the power fail circuit signals the processor, to tell it to save all its data and shut down, this is a minor change and won't have any effect on the customer.

The software in the unit is unchanged, so the menu structures, and operation of the unit will not change.