

# Presscon Network - Wiring Specifications & Startup

The Following information relates to installations using PB60 unit/s (1999 onwards).  
Please refer to PN 327 for earlier installations.

The following minimum standard of wiring must be attained to guarantee reliable operation of Presscon Network. If any aspect of this specification is not adhered to, intermittent operation of any board component of the system will most likely occur.

## 1. SYSTEM EARTH

a. There is to be a single nominated **SYSTEM EARTH** position- referred to in this text as EARTH. This point shall be a brass earth block. The earth block shall be connected to a good earth in the normal manner (a 4mm<sup>2</sup> cable is recommended). All connections to this earth from Presscon boards should be run **separately** in cable (0.75-1.5mm<sup>2</sup> recommended). **It is not acceptable to daisy chain the earth connection.**

## 2. DATA CABLE CONNECTION.

*Recommended data cable:* Twisted, shielded data cable (1 pair). Type MCP-1S. Cable size 2 x 7/0.2. 30v working voltage, 4kV spark tested. Screen-conductors; 1500V RMS 1 minute. Supplier AG Garland (03) 543 6411. (Phasefale can supply sample on request)

Please note. The data cable connection is most **critical** to reliable system communication. Because communications can still operate, but be intermittent or fail under adverse operating conditions, it should be carefully installed and tested. Minor errors (eg a loss of continuity of B+, B- or drain wire) will not necessarily show up during system programming.

a. The data cable, including its shield trace wire (drain wire) are to be connected in a daisy chain fashion, and be continuous through all connections. At ONE end only, the drain should be connected to EARTH.

b. *THE MOST IMPORTANT TEST YOU WILL DO.....*

Test: a test will be conducted as follows BEFORE commissioning system.

*unplug all 3 position data plugs from circuit boards  
disconnect earth wire from drain wire connection from end of data cable  
test for isolation of B+ to earth, B- and drain wire  
test for isolation of B- to earth, B+ and drain wire  
test for isolation of drain wire to earth, B+ and B-  
test for continuity of B+ from one end of data cable to the other  
test for continuity of B- from one end of data cable to the other  
test for continuity of drain wire from one end of data cable to the other  
plug 3 way data connectors back to Presscon Network boards  
measure 50 Ohm (+/- 10 ) between B+ and B- no power to boards and  
2 terminate jumpers are engaged at end boards)*

IMPORTANT: reconnect earth to drain wire at one end of data cable

c. The drain wire is to be taken to the earth at **ONE POINT ONLY**. This connection point is to be from the end board position.

d. The data cable (Bus+, Bus-, and drain wire) must be shielded for its entire length. The maximum exposed cable (B+,B-) is 20mm- therefore a shield is required on connection between relay and sensor card.

e. The drain wire is to be joined at the shield connection point (labelled SHLD on the circuit boards) to ensure shield continuity along the data cable.

## **2. DATA CABLE CONNECTION. (Cont'd)**

- f. Exposed drain wire is to be taped or sleeved and covered at the B+, SHLD, B- terminals to each board.
- g. The two end boards of the data cable connection are to have termination resistor jumpers engaged. All other boards have resistors **DISENGAGED**.

## **3. 240VAC POWER SUPPLY TO PRESSCON**

- a. A surge arrester, Phasefale parts PB60, PL10 or recognised equivalent must be fitted to the 240VAC supply used to power the Presscon system. This unit provides EMI (electo- magnetic) filtering , HF (high frequency) , and surge filtering to clamp excess voltages presented on the 240VAC supply.
- b. It is **RECOMMENDED** that a separate and dedicated control circuit breaker of low capacity (eg 10A) be fitted for the power to the Presscon Network.

## **4. BOARD EARTHING**

- a. The PB60 unit/s are to have an earth connection from the **EARTH** terminal to EARTH. A separate earth from boards not generating 12VDC (eg sensor, display and clock boards) is **NOT** required.

## **5. POWER SUPPLY TO SYSTEM COMPONENTS**

- a. PB60 unit/s are used to provide 12VDC power to all system components requiring 12V. Refer to Power Considerations using PB60 (PN392) for card ratings and distribution information. The +12V output from each PB60 is **NOT** to be joined to a common +12V connection for the whole system.
- b. PB60 power supply boards shall not have more than the rated load attached per data sheet reference *PN392*.

## **6. POWER SUPPLY TO DISPLAY CONTROLLERS**

- a. The power cable to the display controllers (rack/con, alarm, temp control, defrost etc.) shall be run in a shielded cable. The shield trace wire connection of the power cable to be left **UNTERMINATED** at the controller end, and **TAKEN** to EARTH at the power board end. The shield trace wire connection to be fully insulated.

## **7. REMOTELY MOUNTED PRESSCON NETWORK CARDS**

- a. If a network card is mounted outside the power board enclosure supplying power to it, then power cables to it shall be shielded. An example of this is where sensor cards are mounted in cabinet fixtures. The shield trace wire connection of the power cable to be left **UNTERMINATED** at the remote end, and taken to EARTH at the power board end. The shield trace wire connection to be fully insulated.

## **8. SENSOR CABLING**

- a. All sensor cables are to be shielded cables. 3 wires are required for each pressure sensor (+12v, Signal, Ground) and 2 wires for each temperature sensor. Where a single sensor card has more than one temperature sensor, the G (ground terminal) may be a common conductor. For example, for a sensor card with 8 temperature sensors, 9 wires (8 signals plus a single common ground) will suffice. There is no polarity to the temperature sensors. It is **NOT** acceptable for temperature sensors to share a single common ground where they are connected to different sensor cards.
- b. All sensor shield trace wires to connect directly to the system earth. The shield trace wire connection to be left **UNTERMINATED** at the remote end, and taken to EARTH at the relay board/ power board end. Sensor Shield trace wires to be fully insulated.
- c. Sensor and all low voltage cabling in the switchboard, shall not run parallel to 240 or 415V cables in duct for more than 200 mm unless that cable is shielded and its drain wire connected to EARTH.

## 9. CONTROL OUTPUTS

- a. Control output loads are supplied from terminal "LOAD", whilst the common (active) supply is wired to the "A" or "B" terminal for each output. Use "A" for outputs which should close for failsafe, "B" for outputs which should open for failsafe and program accordingly- see relay board instructions.
- b. Where multiple points are required from a single output (eg. a close and an open signal) use auxiliary or pilot relays for this function. ONLY TWO Connections should be made for each relay output; between LOAD & "A", or LOAD & "B".
- c. There is a snubber circuit between each output at LOAD and the terminal "Snubber" (located below the "Neutral" terminal). The snubber consists of a 0.47uF/250VAC polyester capacitor in series with a 470 Ohm 1.6 Watt resistor. This snubber when engaged absorbs electrical switching noise.
- d. Snubber neutral should be wired to "Unfiltered Control Neutral". Where 240VAC control actives are used the Snubber would be connected to 240VAC Neutral, alternatively where a 24VAC or other control voltage is required, the snubber neutral is wired to the 24VAC or other control voltage Neutral.
- e. Outputs 7 and 8 are a special case, they can be used as 240VAC outputs, or as low voltage/voltage free alarm contacts. To use as 240VAC outputs: engage jumper bridges. To use as voltage free or low voltage outputs: disengage jumper bridges. The bridges are located to the left of the terminal 8-LOAD.
- f. Outputs are rated: SPST 5A (resistive) 240VAC.

## 10. MODEM SUPPLY (RECOMMENDATIONS ONLY)

- a. The power supply to the modem plug pack should be from the filtered 240VAC output of the PB60 and should be interrupted for at least 20 seconds at least once every 24 hours. This can be achieved by either interrupting the 240VAC supply using a timer, or by a Presscon System controller, which has a modem output which is ideal for interrupting the supply to the modem without requiring a pilot relay. Refer to the System controller instructions for details.

## 11. CHECKLIST

The table over-leaf should be completed by the switchboard manufacturer.

## 12. SYSTEM STARTUP

- a. Preparation

*Disconnect pressure transducer/s.  
Identify and locate all power supply boards.  
Have a multi-meter ready to use as power is applied to the system.*

- b. Initial power On

As soon as power is applied, check that each power supply board is supplying 12V DC. If an overload condition exists then the PB60 will shut down and no voltage will be measured at the +12V and GND terminals. Switch off the power immediately and look for the reason.

- c. Transducer check.

Before connecting transducers, check supply polarity- red is +12V. Reverse polarity to transducers will damage them.

**Presscon Network Wiring Checklist**

|   |                   |               |
|---|-------------------|---------------|
| Site  |                   |               |
| Date  |                   |               |
| Commissioning Engineer  |                   |               |
| <b>Item to Check</b>  | <b>OK</b>         | <b>Attend</b> |
| 240VAC Supply to all PB60 unit/s                                  |                   |               |
| System Earth position is a separate identifiable item             |                   |               |
| Data cable is in daisy chain fashion                              |                   |               |
| Data cable test completed   |                   |               |
| Data cable shield trace wire to earth one end only                |                   |               |
| Termination resistors engaged each end of data cable              |                   |               |
| PB60 Power Supply boards have separate ground connection to Earth |                   |               |
| Snubber on each relay board to unfiltered neutral                 |                   |               |
| Low voltage outputs (eg dialler) has snubber jumper disengaged    |                   |               |
| Each PB60 power board load is less than 5000 mA (refer PN392)     |                   |               |
| The above items have been checked and verified by ;               | Date              |               |
| .....   | ...../...../..... |               |