



OPERATOR INSTRUCTIONS
PARTS LISTING
CIRCUIT DIAGRAMS
INSTALLATION DETAILS

These instructions cover the following models:-

Digi50 Controller

Designed and manufactured by:

**OPEN DATE EQUIPMENT LIMITED
UNITS 8 & 9 PUMA TRADE PARK
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MITCHAM
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EC DECLARATION OF CONFORMITY (Passed EMC Tests 24 November 2004)

We hereby declare that the following machinery complies with the essential health and safety requirements of the Machinery Directive 98/37/EC, and the Low Voltage Directive 73/23/EEC and its amendments, and the requirements of the Electromagnetic Compatibility Directive 89/336/EEC and its amendments.

Machine Description: **Digi50 Controller.**
 Model: **Digi50 Controller**
 Type:
 Serial number:

Manufactured by: **Open Date Equipment Limited.**
 Address **Units 8 & 9, Puma Trade Park,
 145 Morden Road,
 Mitcham,
 Surrey. CR4 4DG
 United Kingdom.**

The following transposed harmonised European standards have been used.

BS EN ISO 12100: part 1, 2003. Safety of machinery. Basic concepts, general principles for design. Basic terminology, methodology.

BS EN ISO 12100: part 2, 2003. Safety of machinery. Basic concepts, general principles for design. Technical principles.

EN294: 1992. Safety of machinery. Safety distances to prevent danger zones being reached by the upper limbs.

BS EN 563:1994. Safety of machinery. Temperatures of touchable surfaces. Ergonomics data to establish temperature limit values for hot surfaces.

EN60204: part 1, 1997. Safety of machinery. Electrical equipment of machines. Specification for general requirements.

BS EN 61000-6: part 4, 2001. Electromagnetic compatibility (EMC). Generic standards. Emission standard for industrial environments.

BS EN 61000-3: part 2, 2000. Electromagnetic compatibility (EMC). Limits. Limits for harmonic current emissions. (equipment input current up to and including 16 A per phase)

BS EN 61000-3: part 3, 1994. Electromagnetic compatibility (EMC). Limits. Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection.

BS EN 61000-6: part 2, 2001. Electromagnetic compatibility (EMC). Generic standards. Immunity standard for industrial environments.

FCC Part 15 Verification , Class A. Conducted and Radiated Emissions.

In addition, this machinery has been designed and manufactured in accordance with:-

PD 5304:2000, Safe use of machinery.

A technical construction file for this machinery is retained at the above address.

Signed: Date:

Name K.F. Wingfield. Position Service Manager

Signing on behalf of the manufacturer.

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions carefully. Follow all warnings and instructions marked on the product.
2. Always disconnect the printhead and controller from the mains electricity and air supply before attempting to clean or service it.
3. Never operate the printhead unless it is installed within the mounting frame supplied. When installed correctly the gap between the printer and print base should not be greater than 4mm (see page 38).
4. Do not use the product near water. Never spill liquid of any kind on to the product.
5. Do not place this product on an unstable stand, table or machine. It may fall causing serious damage to the product or injury to the operator.
6. Never insert objects of any kind into this product through any openings or gaps as they may touch dangerous voltage points or short circuit parts that could result in fire or electric shock.
7. This product should only be operated from the type of electrical supply as indicated on the rear of the printhead control unit (see page 7).
8. Ensure that the printhead connection cable is fully secured to the printhead with the screws attached to the "D" connector cover. Failure to do this will result in the machine not being properly earthed.
9. Use only the power cable supplied with the product. The cable supplied is three core mains cable, utilising one wire as a grounding conductor. This must be connected to a suitable earth point at the electrical supply. This is a safety feature. If any doubt arises in trying to connect the power cable, please contact the manufacturer or agent who supplied the product.
10. Do not allow anything to rest on the power cable. Do not locate the product where persons will walk on the cable.
11. If an extension cable is used with this product, make sure that the total ampere ratings of the equipment plugged into the extension cable does not exceed the extension cable ampere rating. Also make sure that the total rating does not exceed the fuse rating.
12. Do not service this product yourself as opening or removing guards may expose you to dangerous voltage points, major burns and other risks. Refer all servicing to qualified personnel.
13. Do not attempt to use to use this product in areas where explosive gases or substances are present.
14. Once the product is under normal working conditions, care must be taken when removing the type holder as you can easily burn yourself. There is a yellow warning sign on the type holder access door indicating a danger. Open the door by gripping it at the side. The type holder can get very hot, it should only be held by its plastic handle. Never touch the metallic parts, as temperatures could be as high as 220 degrees C.
15. Disconnect the product from the electrical and air supply, referring to servicing by qualified personnel under the following conditions.
 - a. If the power cable is damaged or frayed.
 - b. If the air pipes are damaged in any way.
 - c. If liquid has been spilled into or if the product has been exposed to rain or water.
 - d. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the instructions. Improper adjustment may result an damage needing qualified technicians to restore the product to normal operating conditions.

Digi50 Operating Instructions

Digi50 Control Unit (see page 6)



Temperature Button

To adjust the temperature setting, press and hold down the temperature button and use the up/down arrow keys to the left of the display to increase or decrease the set point. (Required Temperature)

Range:- Minimum 70°C (158°F), Maximum 220°C (428°F).

Note! When selecting operating Modes 2, 4 or 6, the printer will not operate on the external trigger until the temperature has reached the pre-programmed set point. (see page 9 for ranges of the mode settings etc.)

In normal operation, the temperature will fluctuate by up to ±4°C from the set point.



Print Dwell Button

To adjust the print dwell setting, press and hold down the print dwell button and use the up/down arrow keys to the left of the display to increase or decrease.

This adjustment controls the time the type/die face is in contact with the substrate. Higher numbers indicate longer dwell times.

Range:- 10 to 2000 milli-seconds. (0.010 – 2.0 Seconds)



Print Switch

1. Switches the print signal between external trigger (automatic print cycle) and the test button feature (manual operation).

Note! The Print LED (green) is illuminated when switched for external triggering (automatic print cycle).

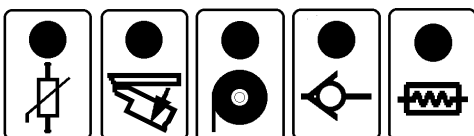
*Any Fault condition, will cancel (switch off) the Print Switch automatically.
"This is a safety feature"*



Test Button.

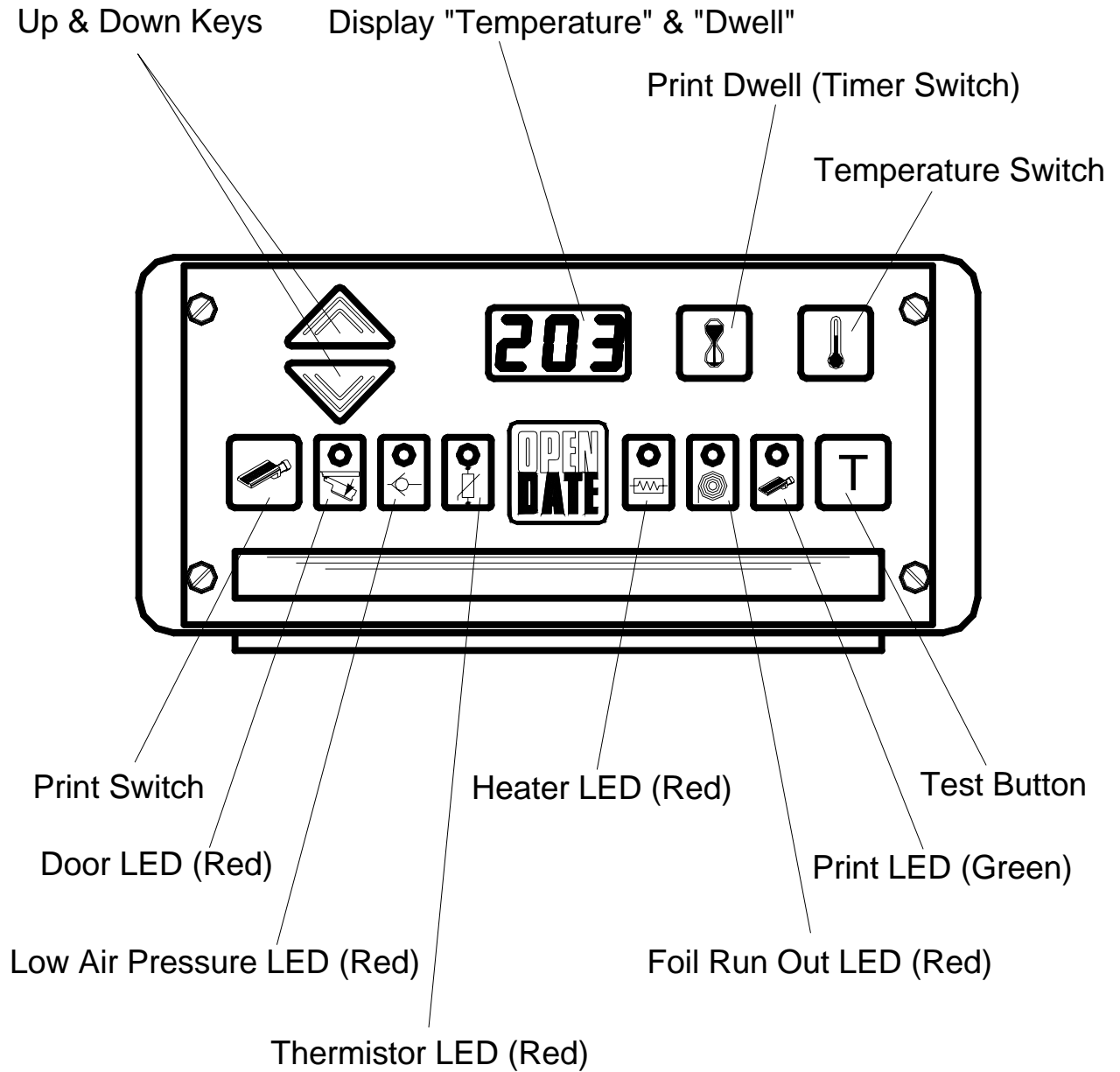
Manually operates the printer (will not operate whilst the Print LED is on).

Fault LED's.



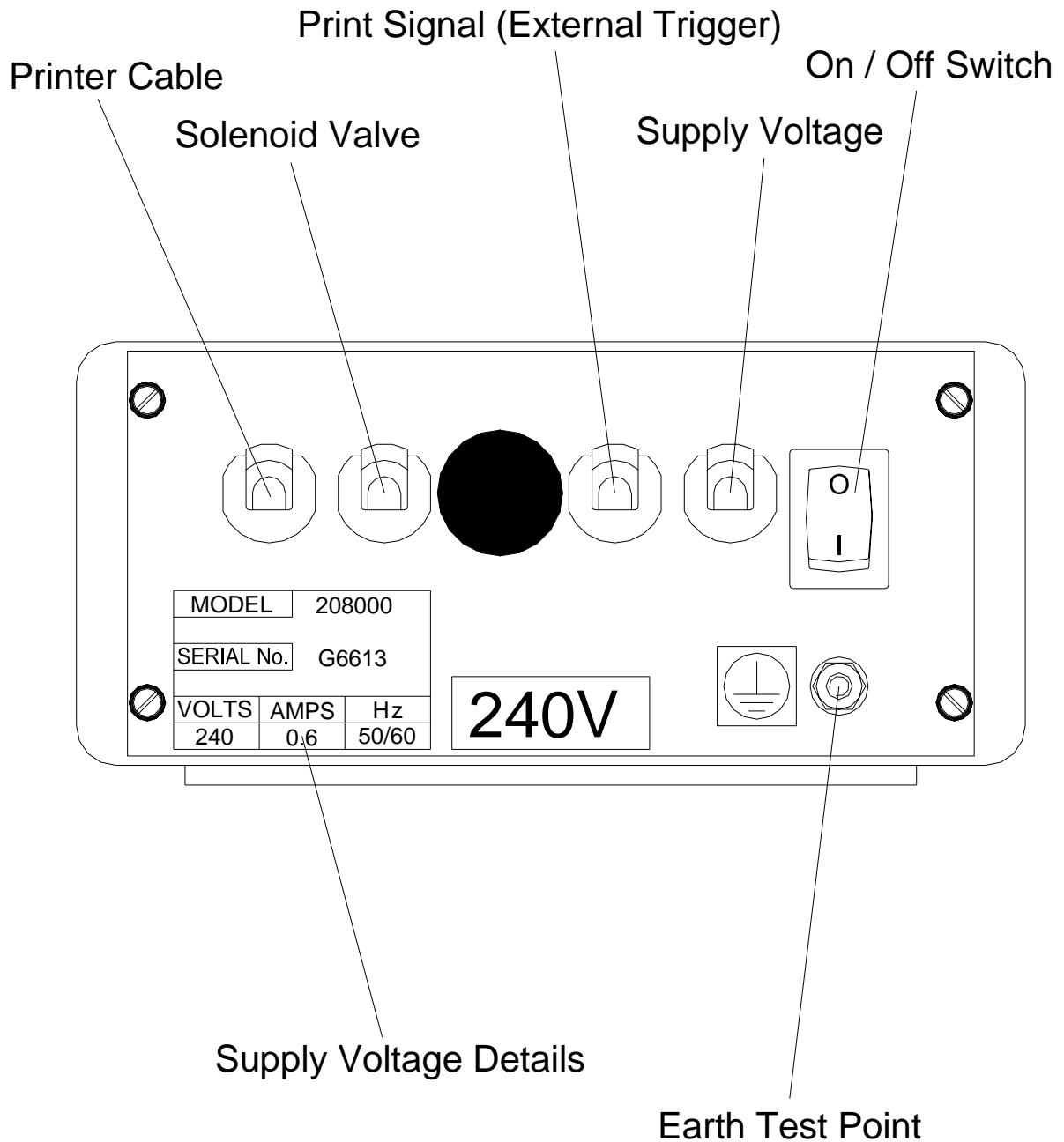
Refer to pages 18 & 19 for system faults.

Digi50 Control Unit Front Panel



Digi50 Control Unit Rear Panel

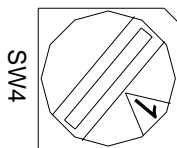
(Cables Excluded For Clarity)



Digi50 Mode Settings for Temperature Tolerance Ranges

The Mode selector is a Rotary Switch located between the Front Panel and the Transformer.

Mode 1 (Default)



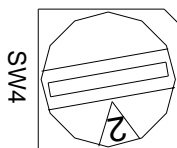
Temperature Range. -5% to +10% of the set point.

Printer operates on all temperatures.

Fault relay functions within the temperature range of the set point.

(The printer will continue to print when under or over temperature)

Mode 2

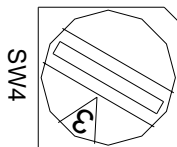


Temperature Range. -5% to +10% of the set point.

Printer operates within the temperatures range of the set point.

Fault relay functions within the temperature range of the set point.

Mode 3



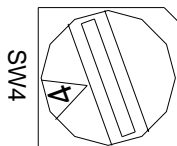
Temperature Range. -5% to +5% of the set point.

Printer operates on all temperatures.

Fault relay functions within the temperature range of the set point.

(The printer will continue to print when under or over temperature)

Mode 4

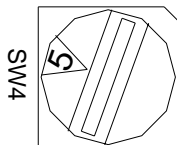


Temperature Range. -5% to +5% of the set point.

Printer operates within the temperatures range of the set point.

Fault relay functions within the temperature range of the set point.

Mode 5



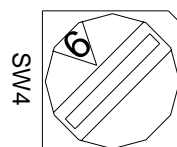
Temperature Range. -10% to +10% of the set point.

Printer operates on all temperatures.

Fault relay functions within the temperature range of the set point.

(The printer will continue to print when under or over temperature)

Mode 6



Temperature Range. -10% to +10% of the set point.

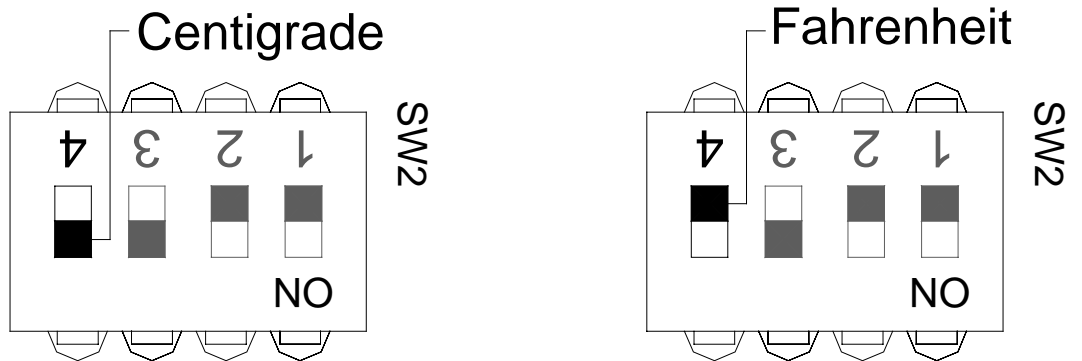
Printer operates with in the temperatures range of the set point.

Fault relay functions within the temperature range of the set point.

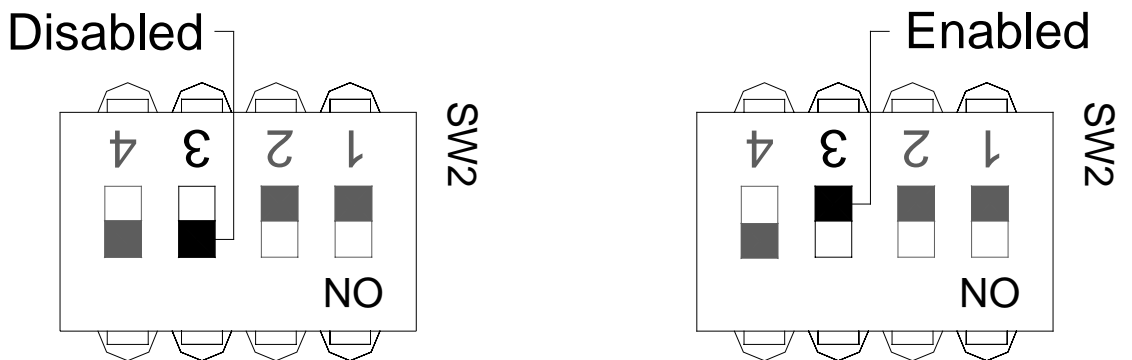
Modes 7, 8, 9 and 0 are the same as the default value. (Mode 1)

Dip Switch Settings

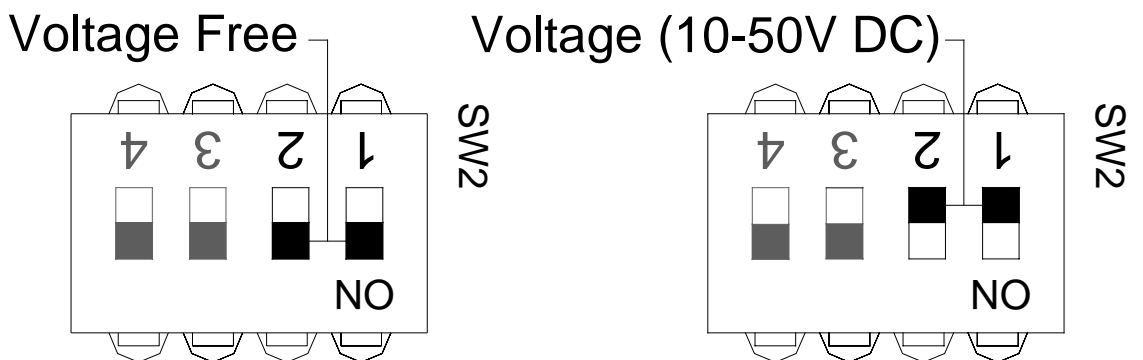
Temperature Range SW2 (No 4)



Low Air Configuration SW2 (No 3)

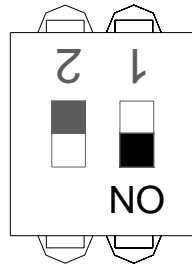


Print Trigger Selection SW2 (No 1 & 2)



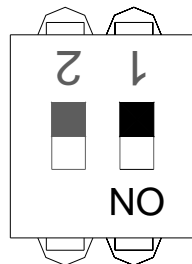
Thermistor Dip Switch Settings (SW1)

Settings for the Standard Thermistor.



Part No. THE 500502 (Standard)
Thermistor Type G55-Bead
White Wires Fitted

Settings for optional Thermistor.

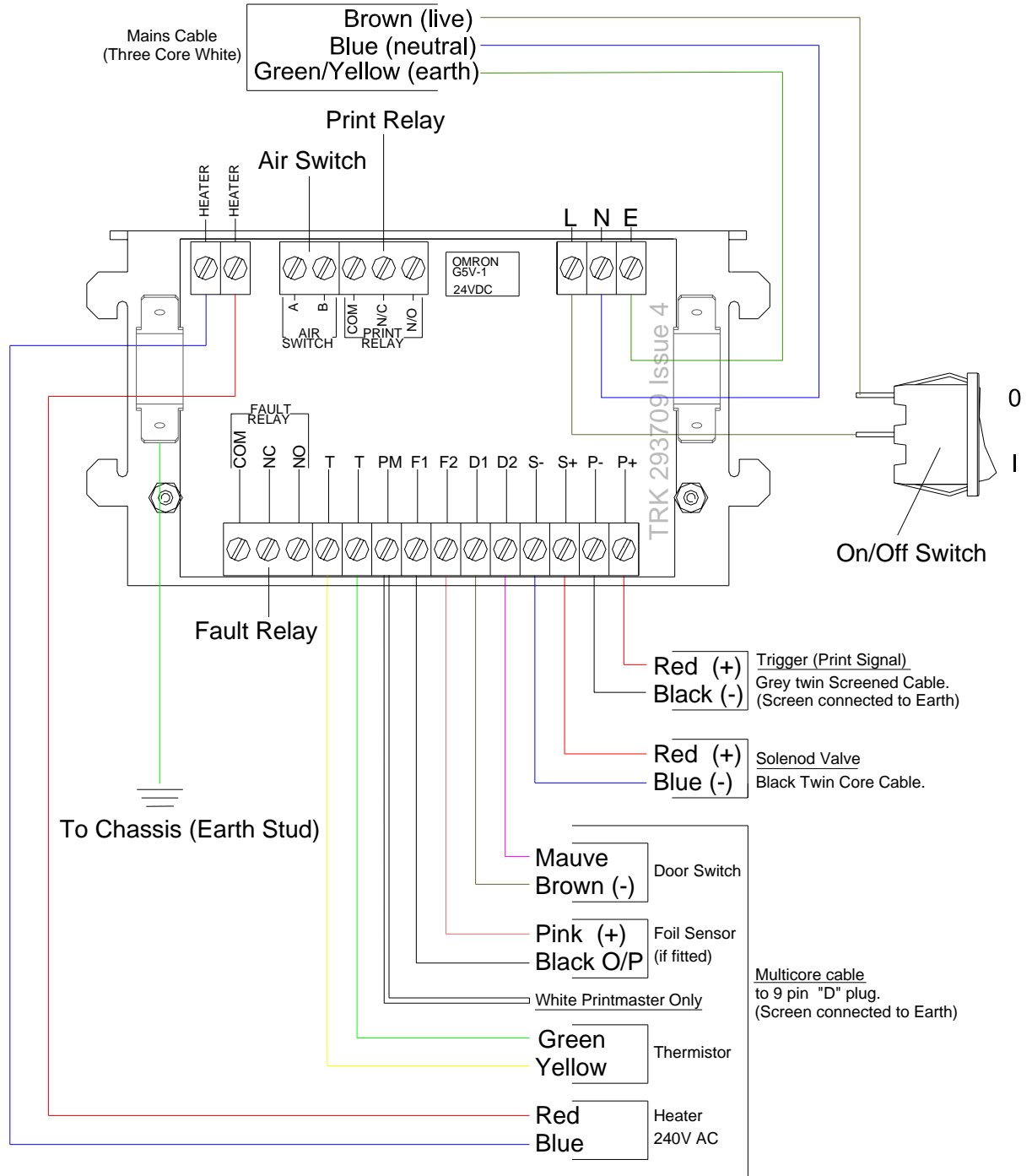


Part No. THE 312080
Thermistor Type USP 5362
Black Wires Fitted

NOTE!

If in doubt as to which thermistor is fitted, please contact your local supplier, referring to your printer serial number.

Digi50 Connections shown from rear of the Control Unit



Connection Details - Row "c"

Trigger/Print Signal - Grey twin core screened.

P+.	Red	External trigger input. + volts connection.
P-.	Black	External trigger input. – volts connection.

Solenoid Valve - Black twin core.

S+	Red	Solenoid output. + volts connection.
S-.	Blue	Solenoid output. – volts connection.

Printer – Multi-Core screened to 9 pin D plug. D plug Connections.

D2.	Mauve	Type Holder door safety switch return.	Pin 6
D1.	Brown	Feed to the safety switch & foil sensor, –0v DC.	Pin 5
F2.	Pink	Feed to the foil sensor, +14v DC.	Pin 9
F1.	Black	Output from the foil sensor.	Pin 8
PM.	White	Foil sensor Printmaster only.	Pin 7
T.	Green	Thermistor connection.	Pin 2
T.	Yellow	Thermistor connection.	Pin 1
H.	Red	Heater element.	Pin 3
H.	Blue	Neutral ac heater element.	Pin 4

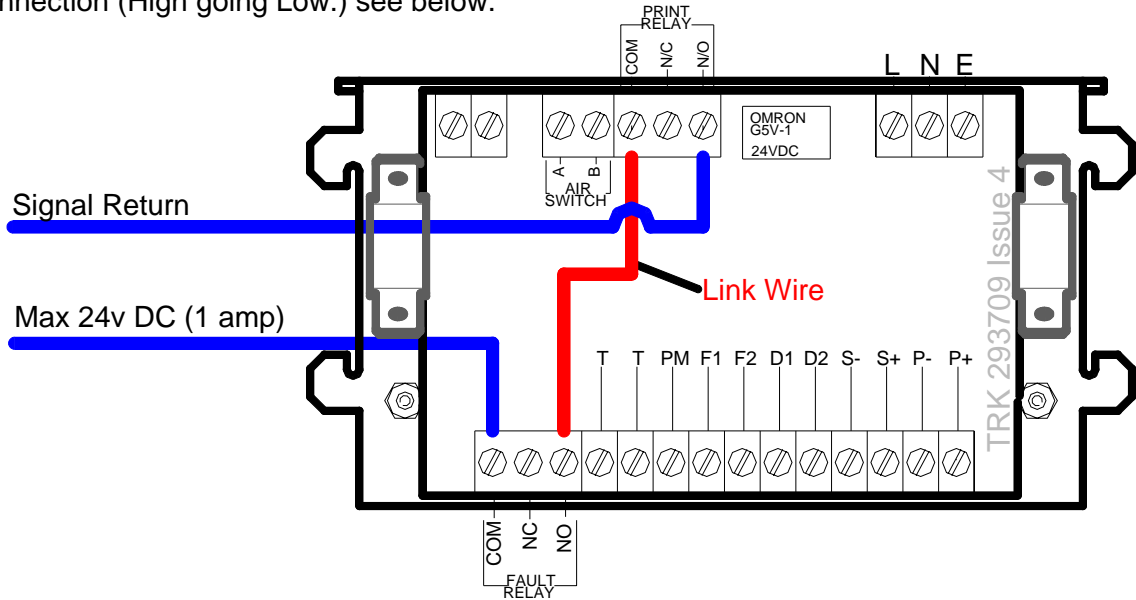
Mains Cable - Three core white.

N.	Blue	Neutral.
L.	Brown	Live.
E.	Yellow/Green	Earth.

Digi50 Fault and Print Relay Connections

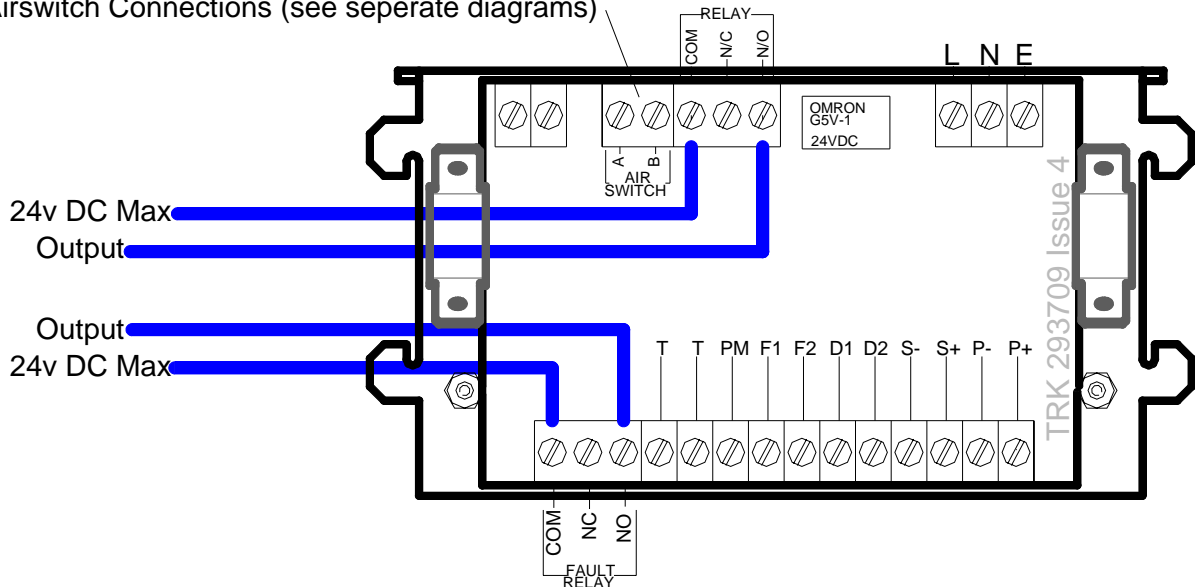
Note.

Linking the Fault & Print Relay will achieve optimum security. If the Print Switch is switched off, or when any printer fault occurs the relays will change state. This will break the Signal Return connection (High going Low.) see below.



Digi50 Individual Relays & Connections

Airswitch Connections (see separate diagrams)



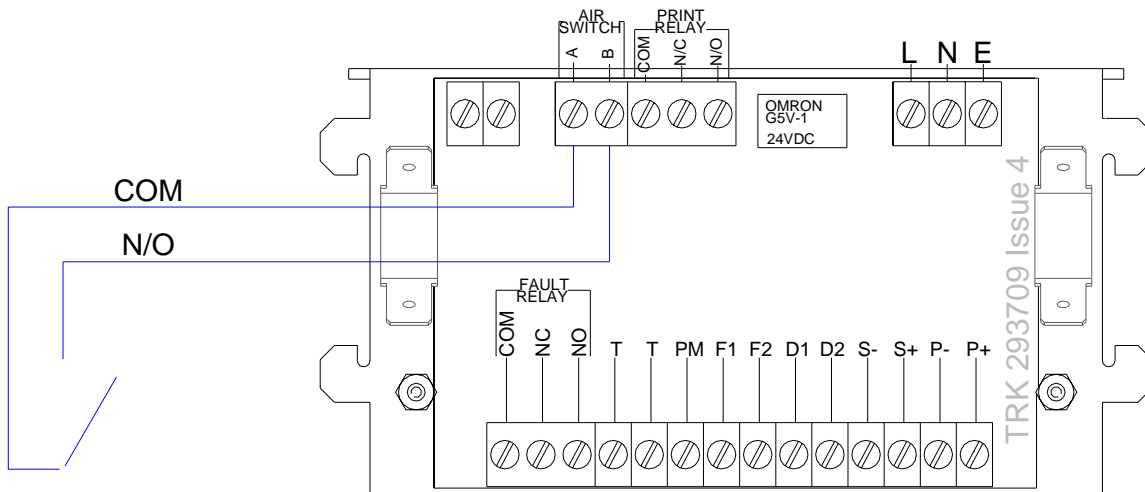
Print Relay:- Rated 24v DC, 1 amp max current

Fault Relay:- Rated 24v DC, 1 amp max current

Digi50 Low Air Pressure Option

Note.

The low air pressure switch connections are to Air Switch "A" and "B" and can be found on the terminal board mounted in the rear section of the enclosure. (See Below)



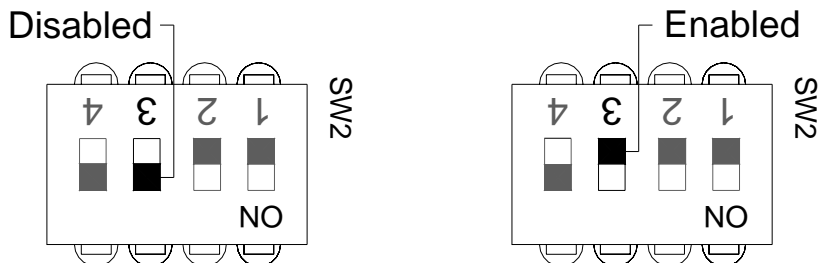
Air Switch Not Supplied

Adjust the Air Pressure Switch to suit the application.

See specification sheet to suit the printer, should be in the front of this manual.

Ensure the Dip Switch settings are correct. (See below)

Low Air Configuration SW2 (No 3)



Digital Control Calibration

NOTE!

Calibration & Temperature Range:= 70°C to 220°C (158°F to 428°F)

The unit is factory calibrated at 130°C, and is set up as "MODE 1" supplied as standard. (See page 9 for a list of the different modes available)

Unless you are running temperatures outside the range 70°C to 180°C (158°F to 356°F), the default calibration should not be altered.

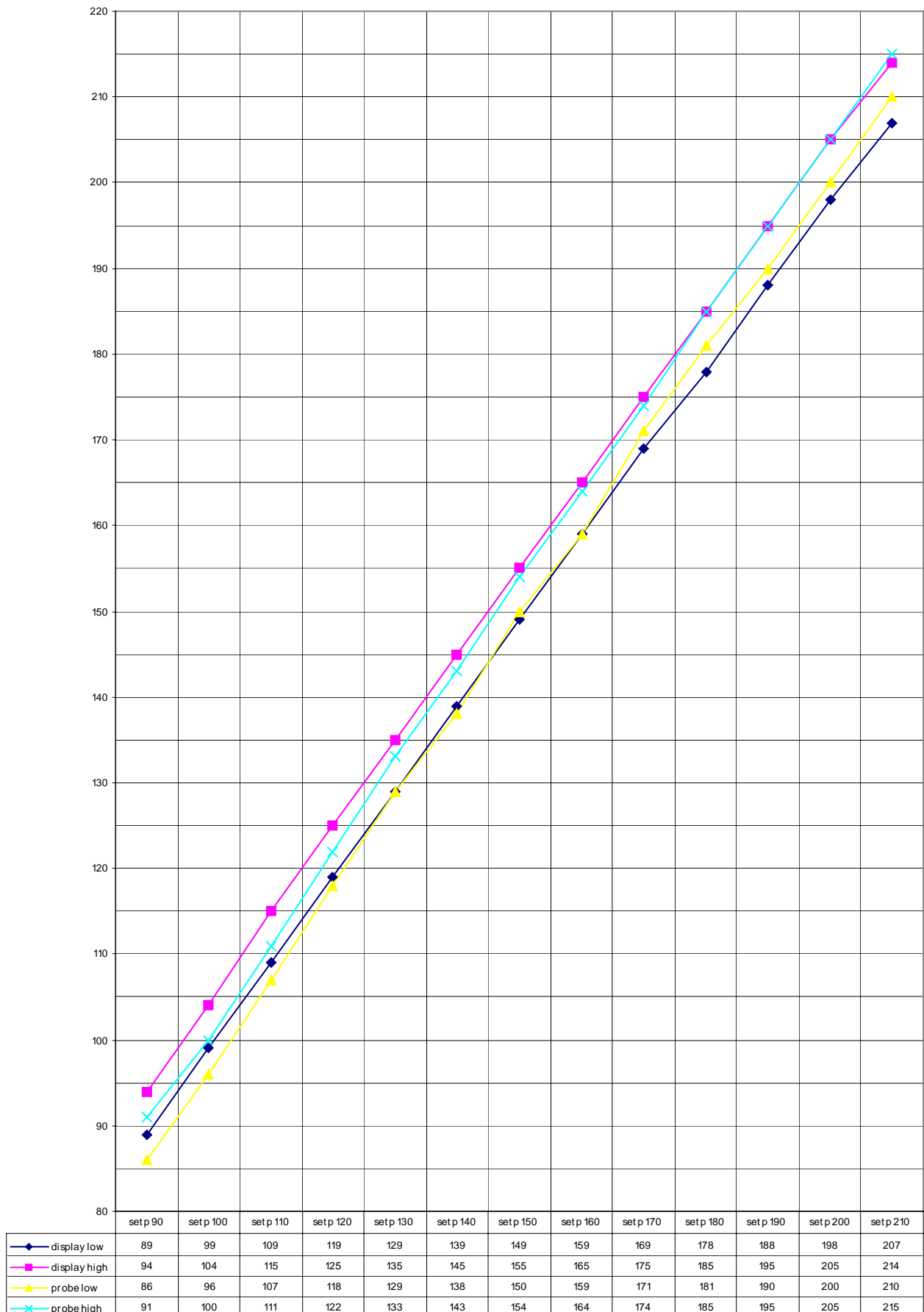
Fitting of an optional thermistor (THE 312080) will require (SW1) position to be altered (See page 11), again this will be accurate to plus or minus 7°C. If accurate temperatures are needed, you should recalibrate to suit the individual thermistor fitted.

For normal running temperatures above 180°C recalibrate at 200°C

External Calibration Method

1. Switch the Digi50 unit on and adjust the temperature setting to 130°C or 266°F.
2. Leave on for 10 to 15 minutes, allowing the temperature to stabilise.
3. Measure the temperature at the type face using a temperature probe.
4. Allow the temperature probe to stabilise before noting the reading.
5. Adjust the Digi50's set point to match the temperature probe reading.
6. Press the both the up and down arrow keys at the same time, then press the print switch.
7. The controller is now calibrated.

Static Temperature Results. Calibrated at 130° C



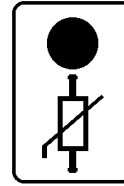
System Faults

Thermistor

Thermistor short circuit; the LED is on and digital display reads similar to, or the same as that shown (the figures may be different depend upon calibration values).

The heater is switched off.

Internal bleeper is sounding.



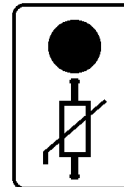
2.7.1

Thermistor

Thermistor open circuit, the LED is on and the display reads similar to or the same as that shown (the figures may change).

The heater is switched off.

Internal bleeper is sounding.

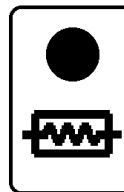


. . 5

Heater

Heater is open circuit, the LED is on.

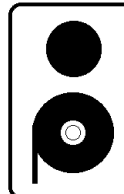
Internal bleeper is sounding.



Foil Run Out

At end of foil roll, the LED is on.

Internal bleeper is sounding.



Type Holder Door Opened

Type holder door is open, the LED is on.

Print & Test trigger signals, are disabled.

Internal bleeper is sounding.



Low Air Pressure Switch (If connected)

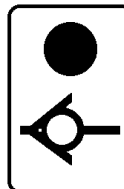
When air pressure is low, the LED is on.

External Pressure switch required.

See separate wiring detail. (see page 15)

Internal Bleeper is sounding.

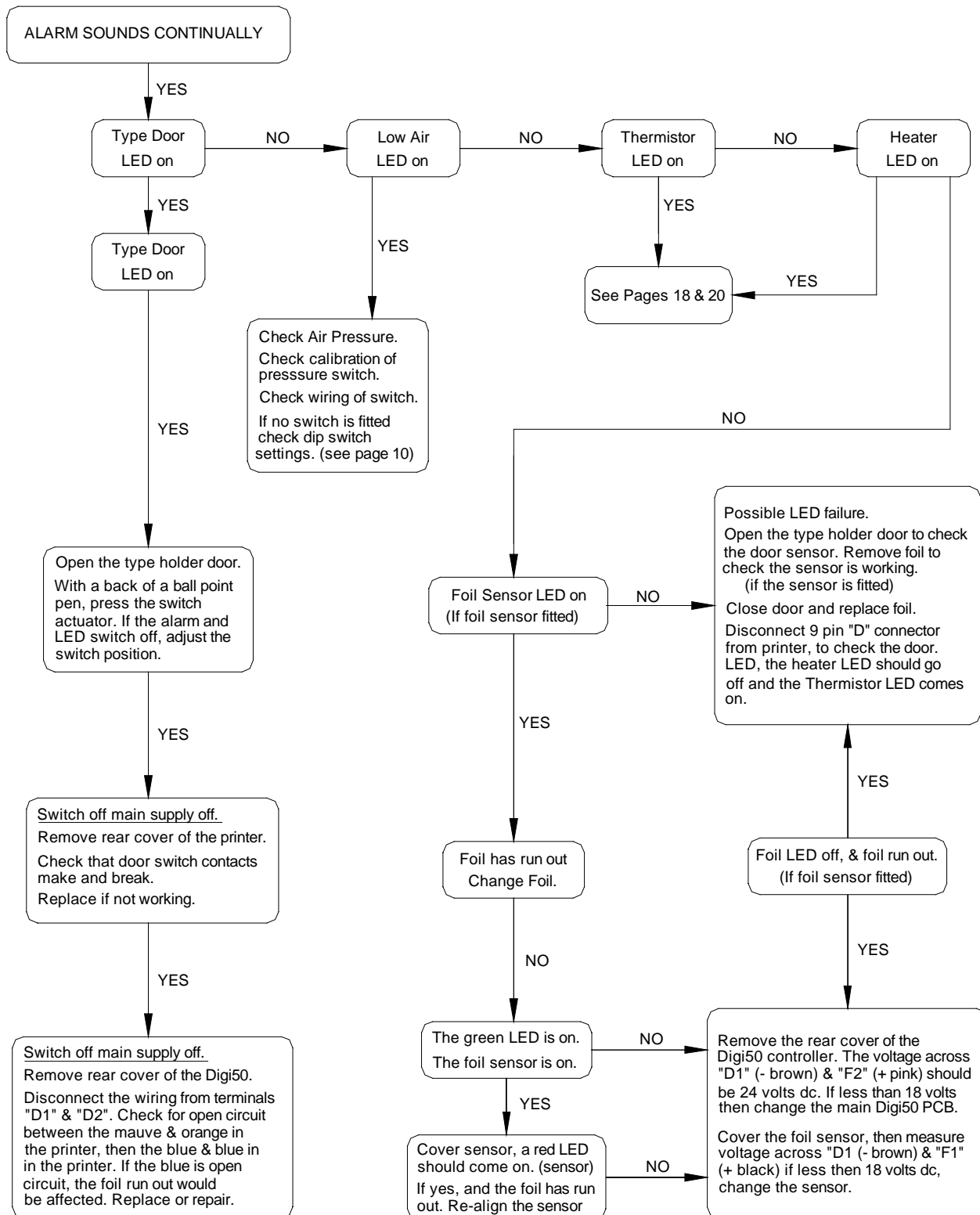
Set Dip Switch to enable this function.(see page 10)



In any of the above fault conditions, the fault relay will be de-energised. See pages 12, 14 & 15 for connection details.

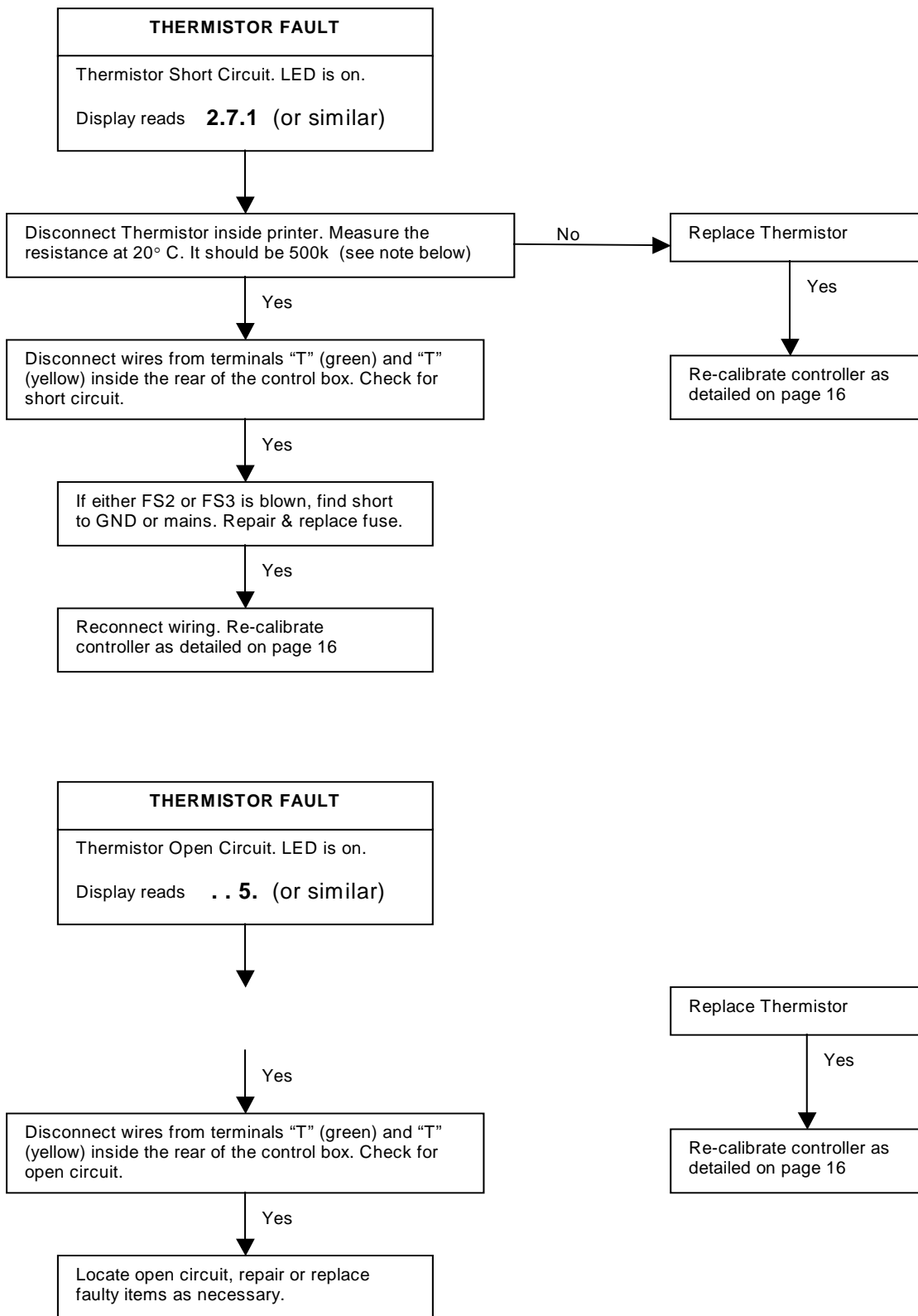
Digi50 Alarm System Faults

If no LED's are on, check the mains supply and the fuses on the PCB.
(for wiring connections see pages 12, 14 & 15)



Thermistor Faults

Digi50 controller utilising the Opendate Printer Range and a Standard Thermistor,



NOTE! Results may vary, dependant on type of Thermistor and actual temperature.

Specifications for Digi50 Controller

Supply Voltage

Nominal 230v AC, plus or minus 10% tolerance (207 – 253). 50 or 60 Hertz.

Nominal 115v AC, plus or minus 5% tolerance (109 – 121). 50 or 60 Hertz.

Heater

Maximum 4 Heaters. (240 Volt 250 Watt)

Thermistor (Standard)

Model No. G55W (Part No. THE 500502)

Output Relay Contacts

Fault Relay:- Rated at 24V DC, 1 amp current.

Print Relay:- Rated at 24V DC, 1 amp current.

(both relays utilise common, normally open or normally closed contacts)

Input Print Signals

Voltage Free contacts. (relay or plc etc.)

Voltage 10 – 30 Volts AC or DC (polarity unimportant)

Microprocessor

PIC Micro-Processor.

Controlled by a specific designed membrane panel with inbuilt switches etc.

The temperature display, is seen through a translucent red panel on the membrane.

Solenoid Valve Output

24 Volt DC, 80mA current normally.

(Part No's VAL 400017 or VAL 400018 or VAL 400021)

A maximum of 2 Solenoid Valves (Opendate Supplied) can be driven by the Controller.

(Maximum current available 200mA)

OPEN DATE GROUP COMPANIES

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OPEN DATE FRANCE

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