



## Fault Finding

During operation, the welding unit monitors all aspects of its operation. If a fault occurs then an error message will be shown.

### **0: Weld OK**

No Fault, weld completed OK.

### **1: Stuck button on start up**

This fault shows when the power is first switched on. Either the Stop, Start, or a keypad button is stuck in. Free the button to clear the fault.

### **2: Output fault before weld start**

This fault shows when the power is first switched on. The unit will check the output terminals to make sure no voltage is present when first switched on. If this fault happens then the internal power relays have stuck in the closed position. The unit will need to be returned for service.

### **3: Toroid thermal switch tripped**

This fault happens when the toroidal transformer becomes too hot. This will happen if the unit is used for a long period of time on large fittings. Let the unit cool down and the fault will clear. If this happens when the unit is cold, then there could be a bad connection on one of the internal plugs. In this case, the unit will need to be returned for repair.

### **4: No calibration**

This fault happens when the unit has no calibration. This will normally not show, and if the unit has been calibrated, would be caused by a fault with the internal memory. Return the unit for service.

### **5: Case temperature sensor fault (if fitted)**

Some units have a case temperature sensor fitted to switch the unit off if the electronics become too hot. This fault will show if the sensor is faulty. Return the unit for service.

### **6: Case temperature out of limits (if fitted)**

Some units have a case temperature sensor fitted to switch the unit off if the electronics become too hot. This fault will show if the temperature is too hot. Let the unit cool down.

### **7: Ambient temperature less than -40°C.**

The unit has detected that the ambient temperature is very cold or the sensor has broken. If the temperature is not below -40°C then the unit will need to be returned to a service agent for repair.

### **8: Ambient temperature more than +600°C.**

The unit has detected that the ambient temperature sensor has broken or a wire has gone open circuit. The unit must be returned to a service agent for repair.

### **10: Low supply frequency <40Hz**

The unit has detected that the supply frequency is below 40 Hz. This will normally be caused by a poor quality generator. If this fault happens then check the supply or change the generator.

### **11: High supply frequency >70Hz**

The unit has detected that the supply frequency is above 70 Hz. This will normally be caused by a poor quality generator. If this fault happens then check the supply or change the generator.

### **12: High supply voltage >140v (or 280v with a 220v supply)**

The unit has detected that the supply voltage is more than 140 volts (280 volts with a nominal 220v supply). Check the supply voltage and if necessary use a different generator.

### **13: Low supply voltage <95v (or 190v with a 220v supply)**

This fault can be caused by a few problems. It could be that the generator is running slowly and so the supply voltage is low. Try speeding the generator up or use a different generator.

It could also be caused by a generator that is too small. If a large fitting is welded, then a large amount of power will be needed from the generator. If it can not supply this power then it will stall and the voltage will drop away. Check that the generator is the correct size, if needs be try another generator.

It could be caused by the use of long extension leads. If a large fitting is welded then a high current will be taken from the supply. If extension leads are used, there will be a volts drop down the lead making the unit sense a low supply voltage. Try not to use extension leads with the unit.



If you have to then use just 10 meters of 4.0mm<sup>2</sup> cable, the same size fitted to the unit.

#### **14: Relay failed to latch on weld start**

This fault could happen when the start button is pressed. If the main power relays do not operate correctly then this fault will be shown. The unit needs to be returned for service.

#### **20: Low output volts (-1.25%)**

This fault will happen if the output voltage is 1.25% lower than the set point for more than 3 seconds. This can be caused by a generator that is not big enough to supply the required power to the fitting. Check the size of the generator and if needs be try another generator. It can also be caused by using long extension leads with the unit. It is recommended that only 10 meters of extension are used, and the cable should be the same thickness as the input lead on the unit (4.0mm<sup>2</sup>).

#### **21: High output volts (+1.25%)**

This fault will happen if the output voltage is 1.25% higher than the set point for more than 3 seconds. It will normally be caused by a poor quality generator with the supply voltage fluctuating. Try a different generator.

#### **22: Excess output volts (+6.25%)**

This fault will happen if the welding voltage is 6.25% more than the set point for more than 2 seconds. This fault is normally caused by a fault within the unit, a short circuit triac. The unit must be returned for service.

#### **23: Low output current (<2.5A)**

This fault will happen if the welding current is below 2.5 amps for more than 3 seconds. It can be caused by a faulty fitting. Try another fitting. If this doesn't clear the fault then there is a problem inside the unit and it must be returned for repair.

#### **24: Shorted turn detected in fitting.**

While welding, the unit has detected a sharp increase in welding current. This is normally caused by a shorted turn happening in the fitting. (An increase OF 10%). If this happens then it is most likely a faulty fitting.



This must be replaced. If the fault persists then it could be a fault within the unit.

### **25: User stop button pressed**

The operator has pressed the stop button.

### **26: Relay unlatched**

During welding, if the main power relay disconnects then this fault will be shown. It could be caused by the unit being knocked or a temporary dip in the power supply. If the fault persists then the unit should be returned for repair.

### **27: Fitting open circuit**

This fault is shown if the output lead disconnects from the fitting while welding. Follow the guidelines from the fitting manufacturer, reconnect the lead and try welding again.

### **30: Bar Code Mode: No fitting connected**

This fault is shown if the output lead is not connected to a fitting when a bar code is read. Connect the fitting.

### **31: Bar Code Mode: Ohms error**

This fault is shown if the connected fitting resistance is different from that coded into the bar code. Try another fitting.

### **40: Bar Code Invalid: Temperature Compensation.**

Digits 22 and 23 of the bar code have been decoded incorrectly.

### **41: Bar Code Invalid: Resistance Coefficient.**

Digit 18 of the bar code has been decoded incorrectly.

### **42: Bar Code Invalid: Welding Voltage.**

Digits 13 and 14 of the bar code have been decoded incorrectly.

### **43: Bar Code Invalid: Regulation Mode.**

Digit 12 of the bar code has been decoded incorrectly.

### **44: Bar Code Invalid: Fitting Size.**

Digits 9, 10 and 11 of the bar code have been decoded incorrectly.

### **45: Bar Code Invalid: Cooling Time.**

Digit 7 of the bar code has been decoded incorrectly.



**46: Bar Code Invalid: Fusion Cycle Type.**

Digit 5 of the bar code has been decoded incorrectly.

**47: Bar Code Invalid: Energy Correction.**

Digit 3 of the bar code has been decoded incorrectly.

**48: Bar Code Invalid: Component Type.**

Digits 1 and 2 of the bar code have been decoded incorrectly.

**49: Bar Code Invalid: Check Digit.**

Digit 24 of the bar code has been decoded incorrectly.

**50: USB Memory: Disc full.**

This fault will happen if the USB flash memory pen is full. Delete some files from the device.

**51: USB Memory: File allocation table full.**

This will happen if the USB flash memory pen's file structure becomes fragmented. Follow the instructions with Windows to defragment the memory pen.

**52: USB Memory: File not found.**

When performing a software upgrade, the required file was not found on the memory drive. Reload the upgrade files onto the memory drive.

**127: Power off failure.**

If the power is turned off while the unit is welding, this fault will be recorded to the datalog.

