AMV3500 Operating Manual

Contents

1. Starting and connecting the AMV3500

1.1 Connecting the sensors

1.1.1 Current sensor

There are two current sensing devices for the AMV3500. A clamp system is mostly used as it is a convenient and simple way to attach to the welding cable. Secondly an inline sensor, this offers greater accuracy and repeatability but is less flexible.

1.1.1.1 Clamp Sensor

The current sensor (P332) is clamped around either the torch or earth return. Practically both sides should measure the same values.

The clamp will determine a positive and negative flow of current. The AMV3500 will show only the magnitude of current on the digital display the direction is shown in the OSCILLOSCOPE mode.

The clamp meters are iron based and will take an offset as they become magnetised. Check that the current channel reads zero, or close to, before monitoring a weld.

Check the clamp has not been mechanically damaged, the clamp arms should be fully closed and aligned with each other.

1.1.1.2 Inline sensor

The inline current sensor (P360) fits inline with the welding cables, either torch or earth return. The inline sensor uses Dinse connectors.

1.1.2 Voltage connections

It is important to remember that unless measuring the voltage at the welding head or torch, all measured voltage will include the voltage drop across the cables. So, if a procedure is qualified using 3m cables but in production uses 6m cables the voltage measured at the power source will be different.

AMV3500 will display the voltage magnitude when displaying digital values, it is only in OSCILLOSCOPE mode that polarity of voltage is shown. For all calculations the magnitude is used.

1.1.2.1 Voltage clips

These are the simplest way to connect to any power source. Generally, one side on the earth clamp and, if MIG/ MAG welding the other on the wire feed unit.

1.1.2.2 Dinse connectors

Dinse connectors provide a convenient way to measure welding voltage. These are particularly applicable to TIG and MMAW welding.

1.1.3 Wire Feed Sensor

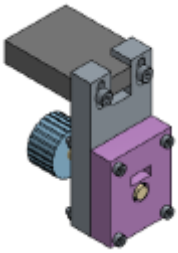
Clip the wire feed sensor around the welding wire and connect to the AMV3500.

1.1.4 Temperature Sensor

1.1.5 Gas Flow Sensor

The gas flow sensor is plumbed into the gas flow line. The direction of flow is marked on the sensor.

1.1.6 Travel Speed Sensor



The travel sensor is a surface contact sensor for monitoring table or welding torch speeds. The mounting of the sensor is dependent on the application, it can be by surface wheel or through the gear train. Output pulses are calibrated by the AMV to give results in speed (units can be specified at calibration) or RPM as the application dictates.

1.1.7 Voltage breakout box (P316)

The voltage breakout board provides an easy way to integrate additional sensors to the AMV weld monitors. The P316 is intended for a device that outputs voltage that can feed into the +/- 3V input stage on the AMV.
In addition, it can also power device from the internal 12V AMV power bus. Max drain 20mA.
Connections are made by screw terminal.

1.1.8 4-20mA Breakout box (P362)

The voltage breakout board provides an easy way to integrate additional sensors to the AMV weld monitors. The P362 is intended for a device that outputs a 4-20mA signal that can feed into the +/- 3V input stage on the AMV.
In addition, it can also power device from the internal 12V AMV power bus. Max drain 20mA.
Connections are made by screw terminal.

1.2 Charging the AMV3500

The AMV3500 is charged using the 18V 3.3A DC Jack at the back of the unit. The bayonet is centre positive. The charger will time out after approximately 4 hours, to ensure the battery is fully charged from empty two 4 hours cycles are required.

A full charge should run the AMV3500 for 3-4 hours depending on the printer setting. When the low battery alarm goes off there is about 15 minutes of charge left.

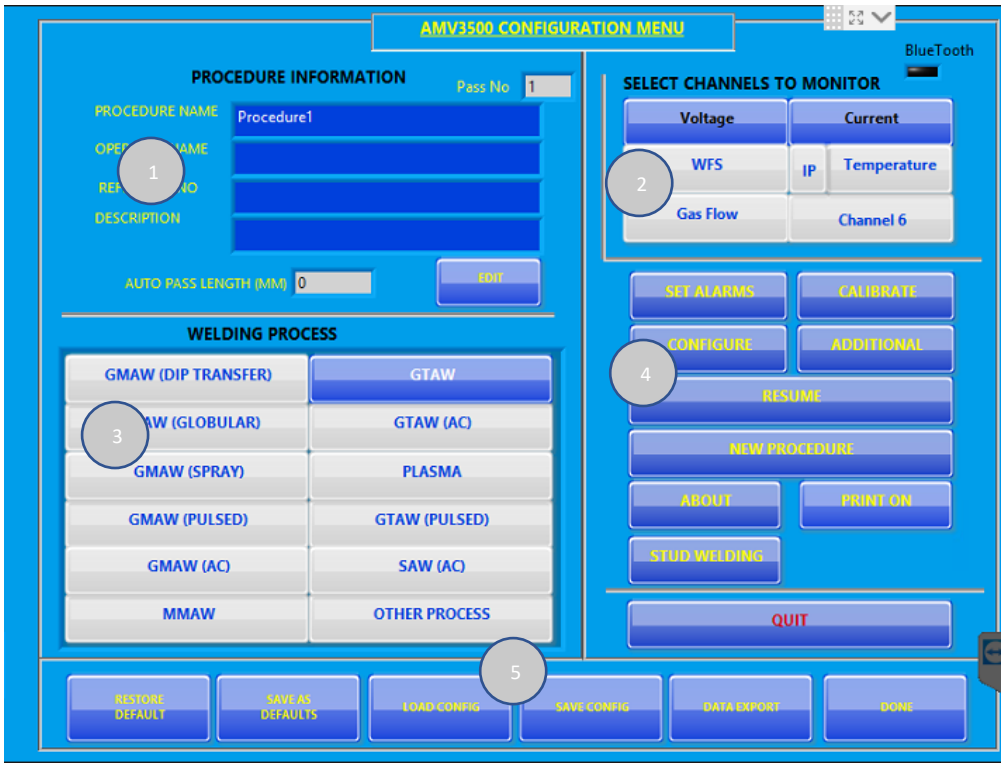
With regular charging cycles the battery will last for a few years.

1.3 Starting the AMV3500

To start the AMV press the ON/OFF button at the back of the unit. It takes 2 minutes to boot to the [AMV3500 Configuration menu]

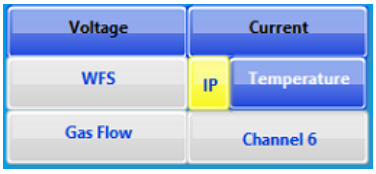
2 Main Operating Screens and Menus

2.1 AMV3500 configuration menu



This is the main screen to setup and record a new procedure. The main sections are:

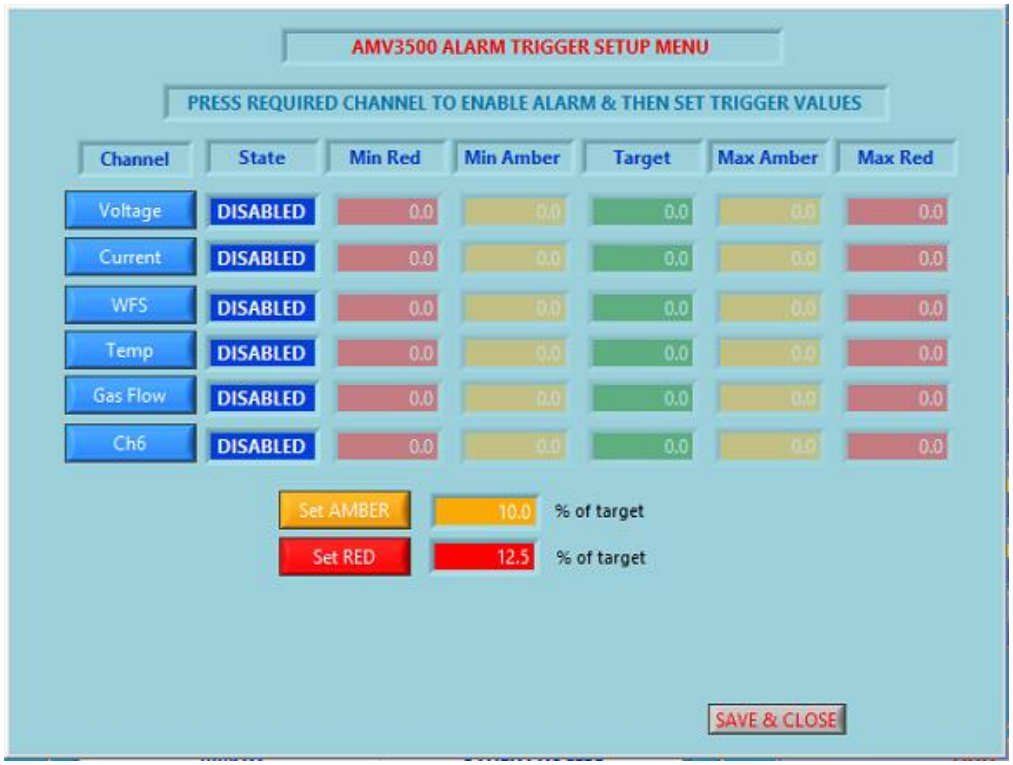
1. Procedure information – this section displays the current procedure name and details. To change the entries, press NEW PROCEDURE or EDIT
2. Channels to monitor, select the channels Voltage and Current these must be selected. Temperature can be set to IP (InterPass). In this mode the temperature is taken at the start of the weld.



3. Select the welding process. This has most effect when calculating heat input using process efficiency – see CONFIGURE.
4. These are the main control features and are discussed in more detail later.
5. Options for saving configuration files and exporting the recorded data.

The next sections go through the individual screens and options, there are also examples for how to run through a setup in the How to Guides.

2.2 Set Alarms



The alarms show on the main screen. There are two levels an amber warning level and a red out of tolerance level. To turn on the channel's alarm press the channel button and the state changes to ENABLED:

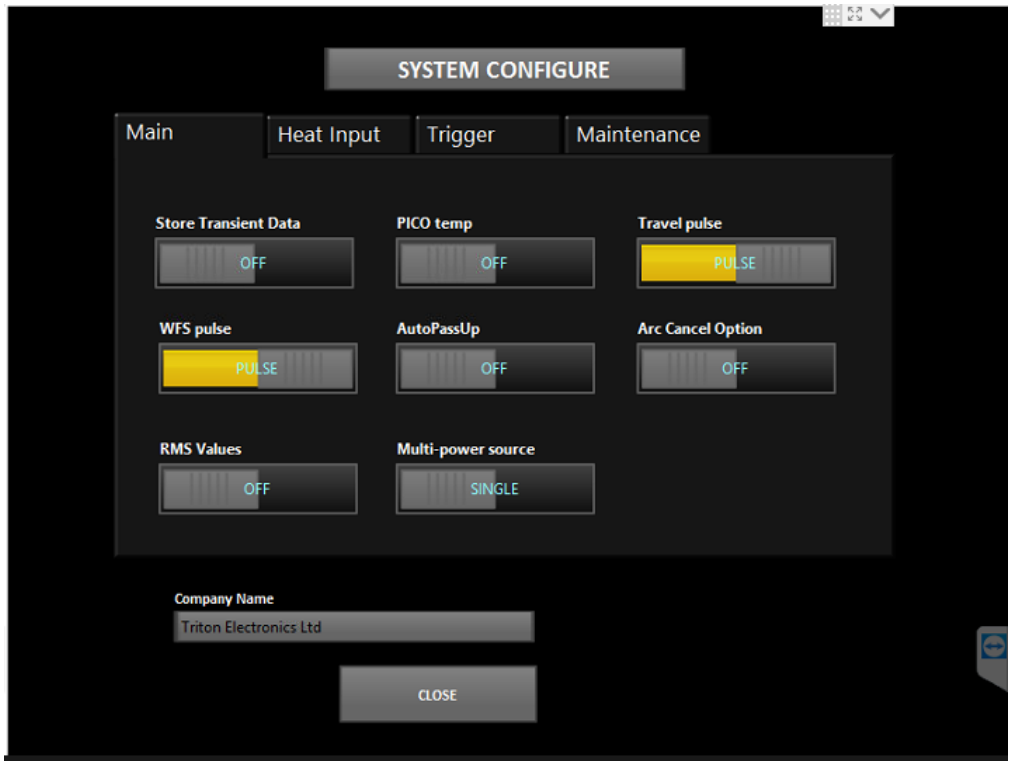
To set the values, enter the target values in the central column. Click in the box and a numeric entry pad will be displayed. Once the values have been entered press the Set AMBER and Set RED buttons to automatically set the limits. By default these are 10% and 12.5% respectively, but this can be changed, by clicking inside the red and amber value boxes. Individual boxes can also be changed as required.

The alarms are saved with the configuration file.

2.3 Calibrate

To access the calibration menu please contact Triton Electronics Ltd.

2.4 Configure



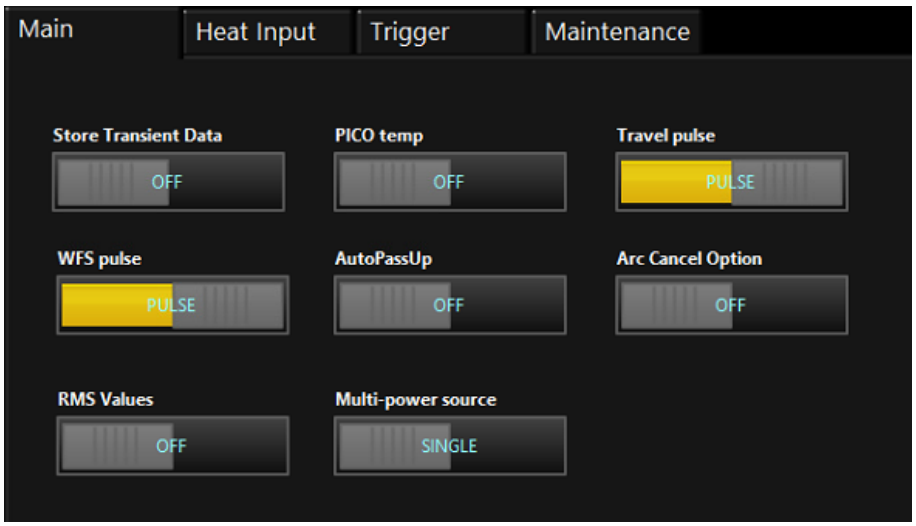
There are 4 main tabs of configurations

- Main – these are most of the user configurations
- Heat Input – special options for heat input calculation
- Trigger – where to set the arc on / arc off condition
- Maintenance – mainly for Triton engineers to help diagnose any system issues

Company name can be set (needs a USB keyboard to be used) – this is printed at the top of all reports.

CLOSE returns the programme to the main AMV3500 Configuration Screen and saves the values.

2.4.1 Main



2.4.1.1 Store Transient Data

This will store the welding waveform data. The data can be analysed using our AMV_Desktop software. This is available to all purchasers of the AMV3500.

Generally, this is not set as transient data files can be large.

2.4.1.2 WFS pulse

Sets the wire feed speed sensor to a frequency type. The option to use a voltage input sensor is for legacy compatibility – all new sensors are frequency base.

2.4.1.3 RMS Values

If RMS values are preferred this should be turned on. By default if the process is set to AC the RMS option is activated, otherwise it is off.

2.4.1.4 PICO temp

For compatibility with a TC-08 Pico Data logger, please ask if you are interested in using this option.

2.4.1.5 AutoPassUp

This is for surfacing type applications. In normal operation the pass complete button is blocked when an arc is recording. This stops an operator accidentally completing a recording before the weld has completed. However, for a surfacing application the welding arc is maintained during the completion of the pass. Activating this function allows a pass up to be completed while the AMV continues to "see" a welding arc. It can result in a few seconds of data loss (approx. 5 seconds) as the files are saved and the next pass started.

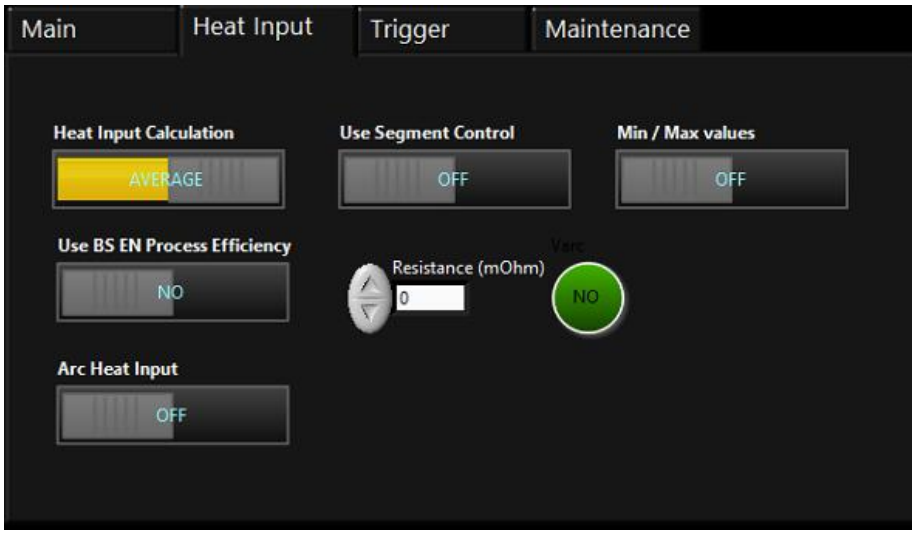
2.4.1.6 Multi-power source

Voltage and current are set as data channels 1 and 2, but the remaining channels can be configured as needed. In this case up to 4 current channels can be summed for heat input. For instance, a SAW system with 4 wires feeding the same weld pool, the assumption is that the voltage is common. Of course, this is rarely the case, but it can be used as an approximate control.

2.4.1.7 Arc Cancel Option

If this is selected the user has an option to cancel the last recorded arc.

2.4.2 Heat Input



2.4.2.1 Heat Input Calculation

Changes calculation from instantaneous to average.

2.4.2.2 Use BS EN Process Efficiency

Adds the process efficiency to the overall heat input calculation

2.4.2.3 Arc Heat Input

If turned on a weld length is entered at the end of an arc so heat input can be calculated, this is aimed at automated applications.

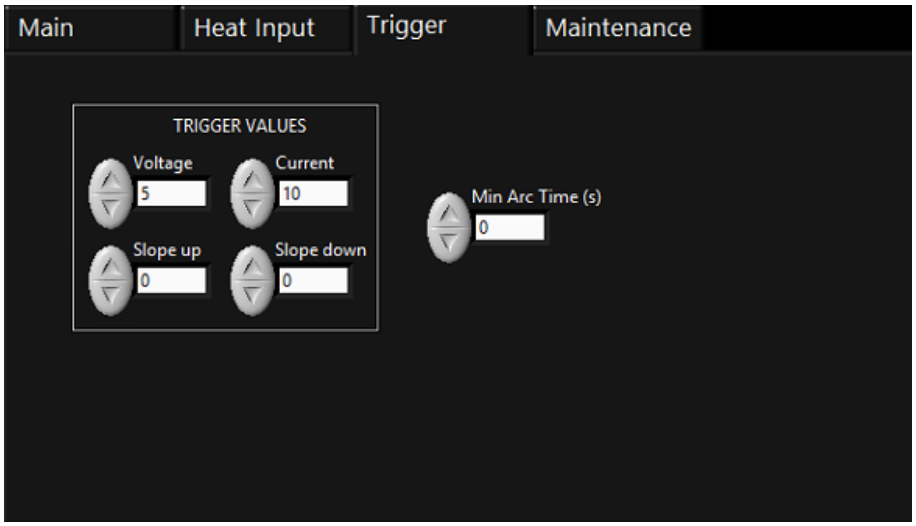
2.4.2.4 Use Segment Control

If you are using the strip welding technique you can use segment control to calculate heat input as the pipe is welded. At the completion of an arc you can complete a section, enter a weld length so the heat input is calculated. Once the last segment is welded all segments are included in the pass data.

2.4.2.5 Resistance

Practically it is not possible to monitor the welding voltage across the welding arc. This allows for an adjustment to be made if the resistance of the power cables is known.

2.4.3 Trigger



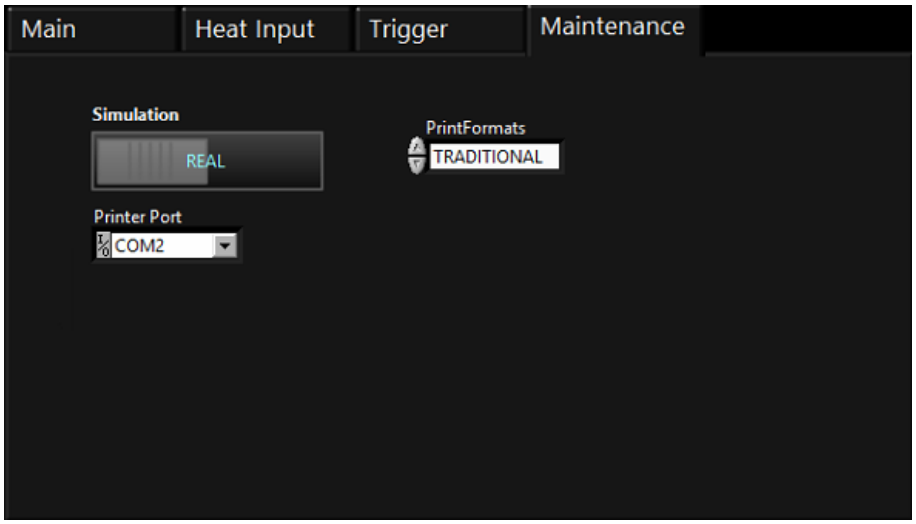
2.4.3.1 Trigger values

Once the voltage and current values are 'seen' by the AMV it considers a welding arc is on. If either drops below the value the arc is considered off. One or both can be set to zero (if both are set to zero the AMV will always see a welding arc – this condition is to be avoided)

Slope up and Slope down times can be set – these are removed from the arc time and heat input calculations. If the welding arc is shorter than both the slope up plus slope down value an error is detected, and the arc discarded.

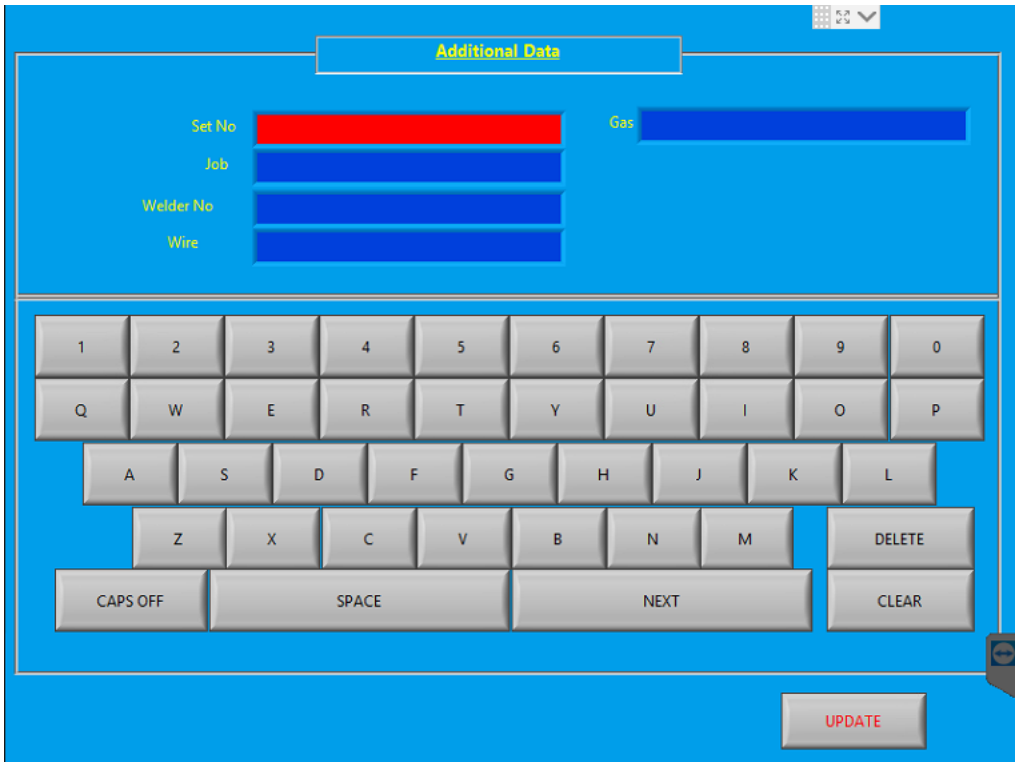
Min arc time is the shortest arc time needed for an arc to be considered "real". Particularly for manual metal arc welding if the electrode is struck to just prove there is contact or "warm" the electrode this is ignored if below the min arc time.

2.4.4 Maintenance



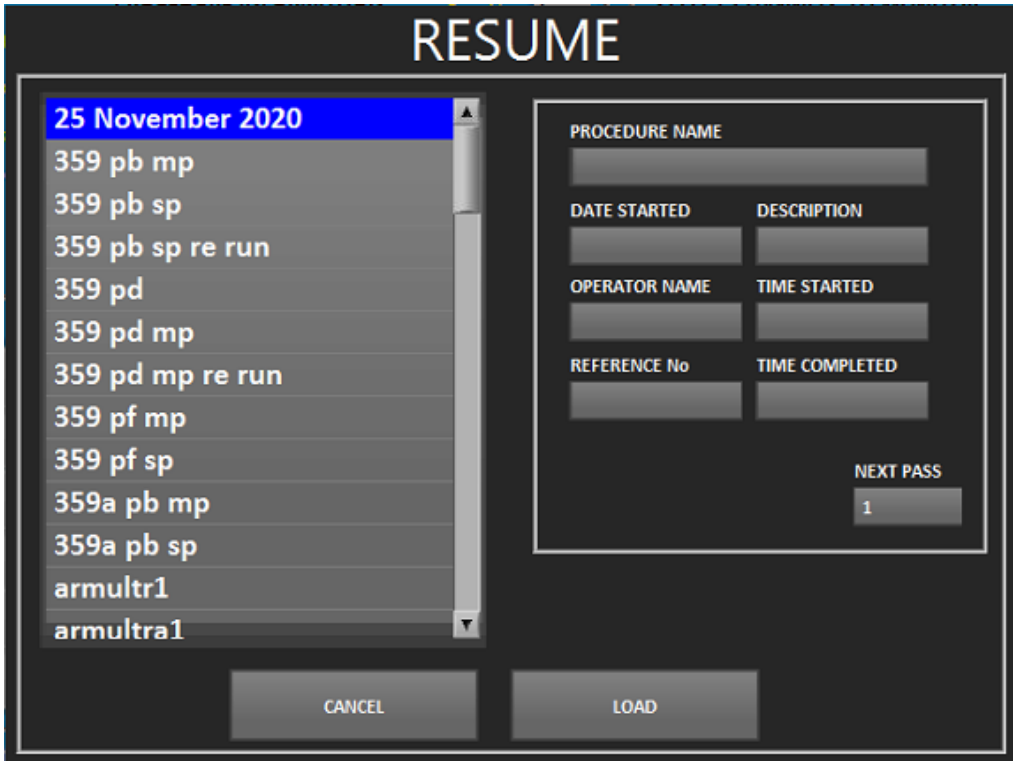
These settings are just for basic setup or fault finding only and should not be altered.

2.5 Additional



This screen can be used to store additional procedure information. Please speak to Triton Electronics Ltd.

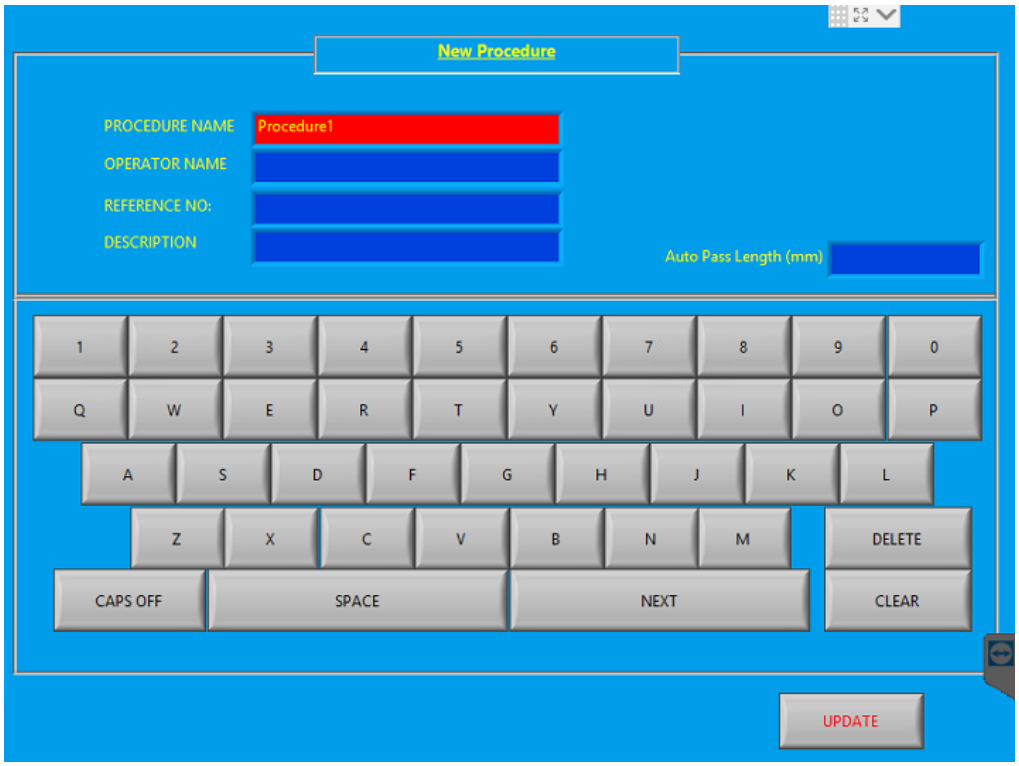
2.6 Resume



The resume screen shows the available data files that can be resumed. Press the file name and the data should be loaded into the display boxes along with the next pass number.

Press LOAD to return to the configuration screen. This returns to the Configuration Screen.

2.7 New Procedure



To clear the current flashing text box press the CLEAR button. Then start to type in the new information.

The other buttons on the screen are:

NEXT – use this button to move to the next text box.

DELETE – deletes the last entry in the current box being edited.

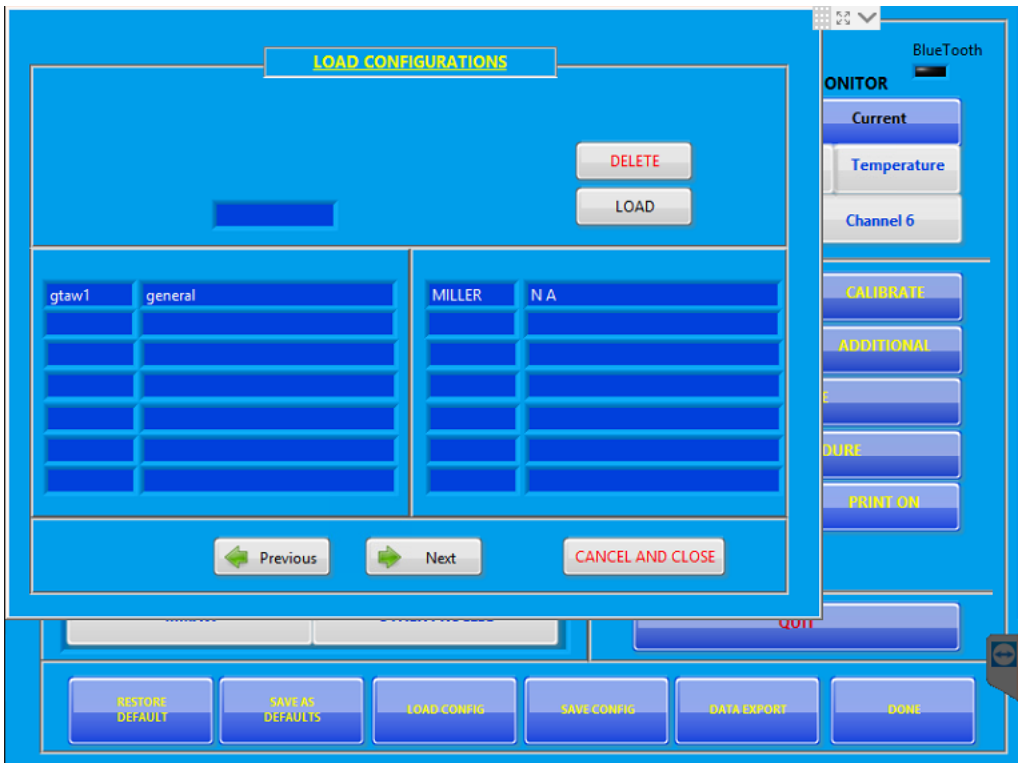
UPDATE – When the new data has been entered press the UPDATE button to return to the configuration screen. This will return to the Configuration Screen.

2.8 About

The about screen shows the current software version. When connected to a network the IP address is also displayed.

2.9 Stud Welding

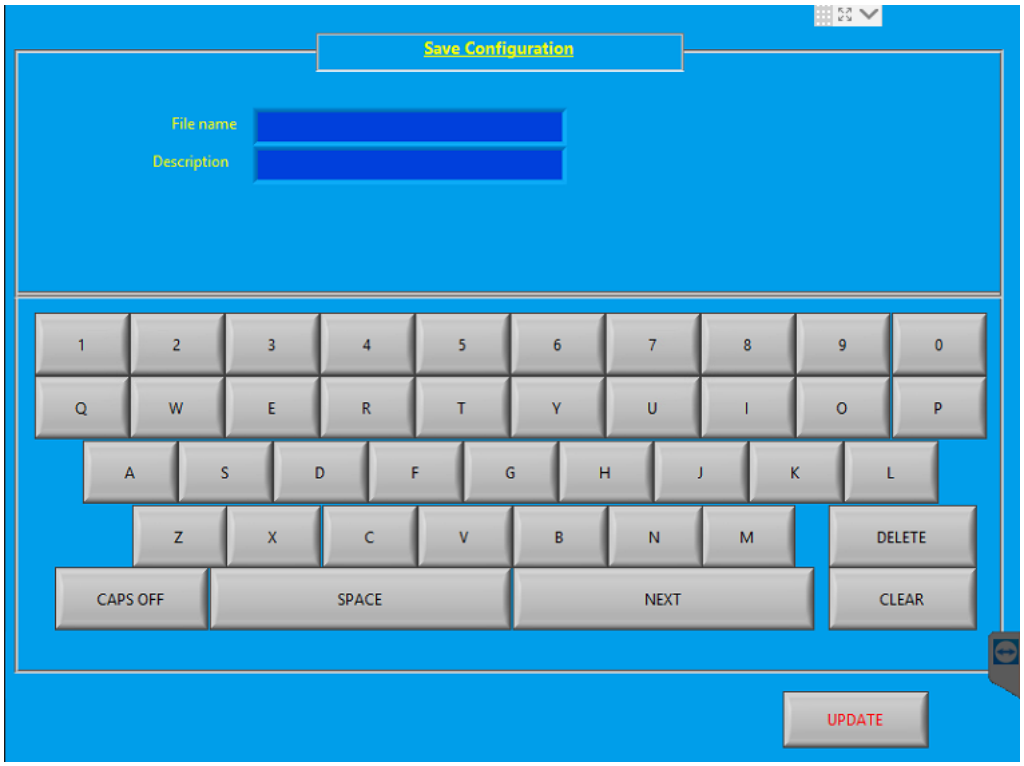
2.10 Load Configuration



To use this screen, select the configuration name and press LOAD. Configurations include alarms settings, welding process and logging channels.

Return the configuration details to the Configuration Screen.

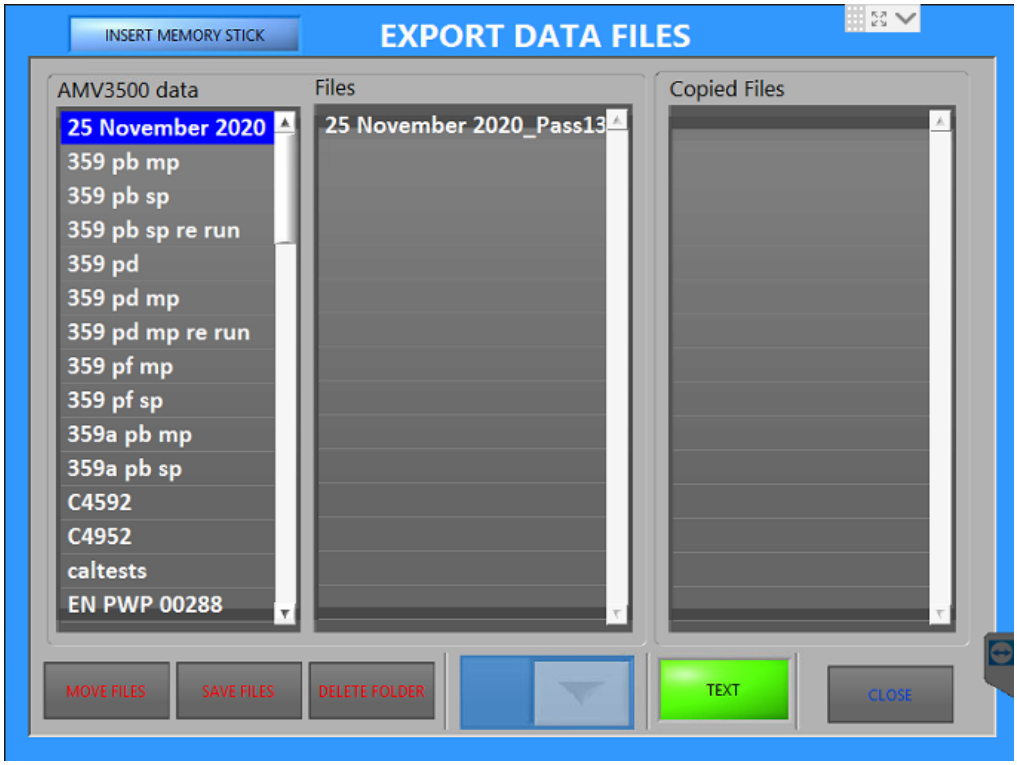
2.11 Save Configuration



To store the current configuration use the Save Configuration screen. Use the screen keypad to enter a file name and description.

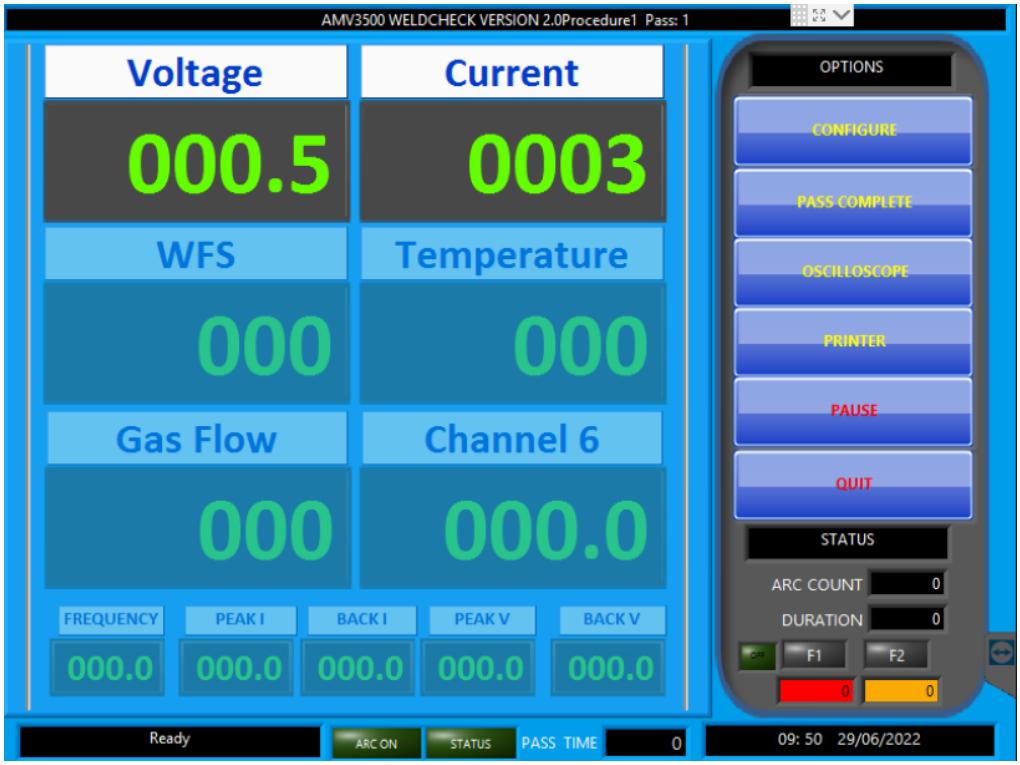
Press UPDATE to save the configuration and return to Configuration Screen

2.12 Data export



1. Select the procedure to be either copied or moved to a USB.
2. Make sure the USB has been detected and that the correct drive letter is selected.
3. Decide if TEXT or ALL data is required
4. Select to wither MOVE files or SAVE files. SAVE files copies the files to the USB stick, MOVE removes them from the AMV and onto the USB stick.
5. To DELETE a folder ALL files must first have been moved to the USB stick.
6. Press CLOSE to complete and return to the Configuration Screen.

2.13 Monitor Screen

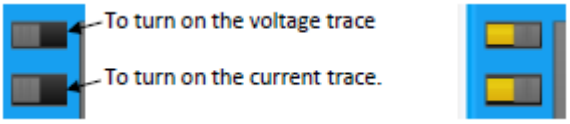


The main monitoring screen shows the values recorded during welding. If a pulse process has been chosen the pulse values are displayed along the bottom of the screen.
The options are:

- CONFIGURE – takes the software back to the Configuration Screen.
- PASS COMPLETE – finishes this pass (collection of arcs) and moves to the PASS COMPLETE screen
- OSCILLOSCOPE – changes the display to a graph of the welding waveforms.
- PRINTER – sets the printer options.
- QUIT – close the software and the AMV3500

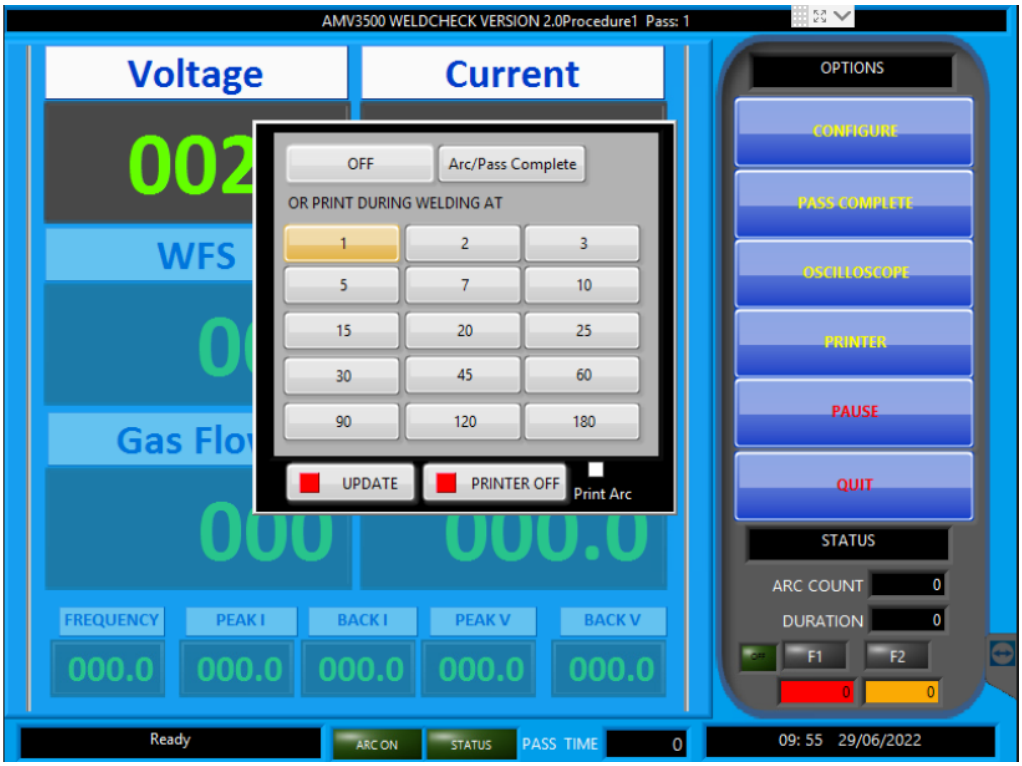
2.13.1 Oscilloscope Mode

This changes the main display so that the welding waveform can be analysed. Use the button at the top right-hand side of the screen to view current and voltage values:



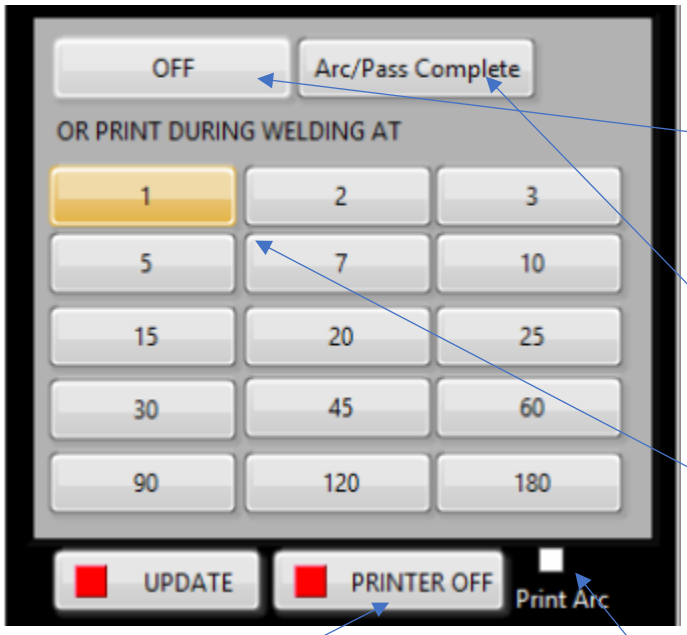
If the transient file option has been set in the CONFIGURE screen the transient file will be recorded for future examination. However, please note these files will become large very quickly.

2.13.2 Printer options



The AMV prints out the recorded data as the weld progresses. It simultaneously saves a text file containing the same information.

The options are:



OFF turns the printer off completely for this run only. Resets to ON after pass complete. This also stops a text file being saved.

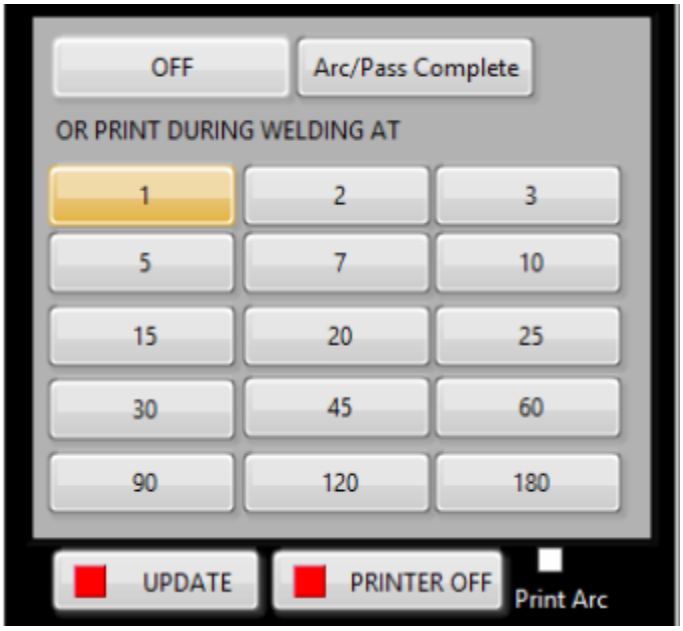
ARC/PASS prints out the averages of the pass and every arc.

If a time is selected the AMV prints out averages at these second intervals and the average arc and pass values

Print Arc. If this option is selected the AMV prints Arc averages, if unticked they are stored in the text file, similarly second averages are saved but not physically printed (need to select the period).

PRINTER OFF turns the printer off but allows a printer text file to be generated as if the printer was on. This option is remembered and once set it is the default value.

For example, this setting:



Means a text file will be generated, producing averages every second of the weld and at the end of an arc and pass. However, physically all that will be printed is the pass summary.

This is a good starting point as the paper generated acts as a good physical summary of the welding and the text file contains more detail, that if printed would use much of the paper roll.

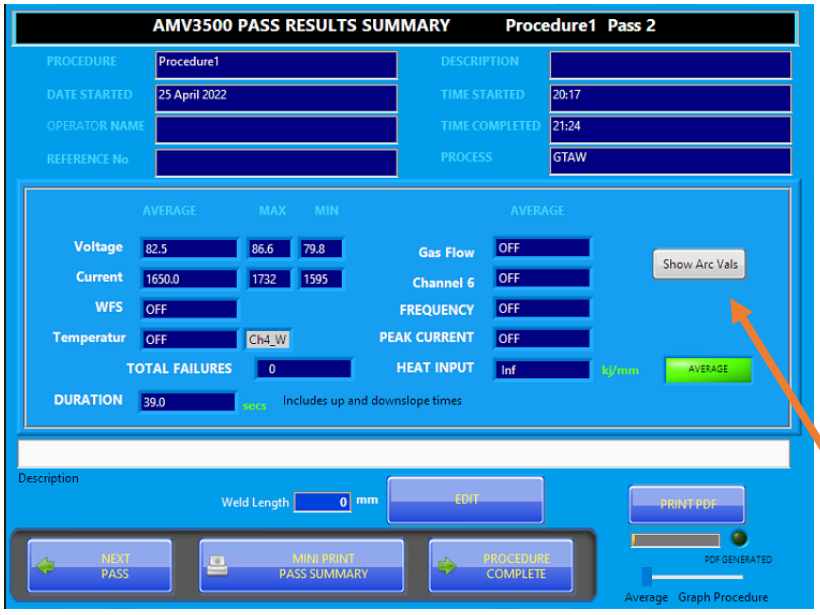
For more information see the section on PRINTER CONTROLS

2.14 Pass Complete

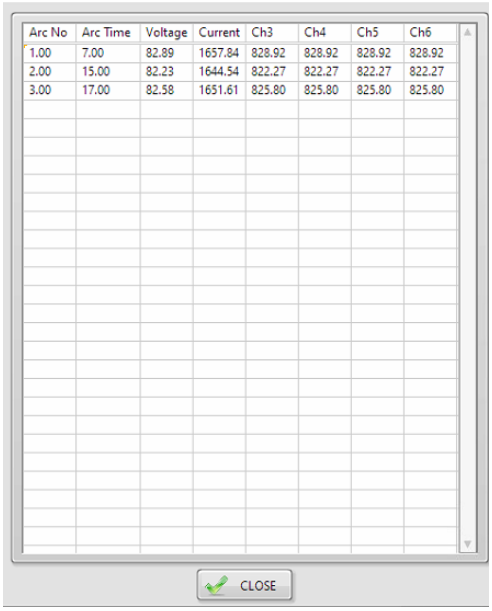
The PASS COMPLETE screen summarises the welding record. The options are:

- NEXT PASS this returns to the monitoring screen having increased the pass number
- MINI-PRINT PASS SUMMARY – prints out a copy of the pass averages if required.
- PROCEDURE COMPLETE – takes the software to the PROCODURE COMPLETE screen.
-

2.14.1 Arc values



If there are a number of arcs in the pass these can be viewed through the Show Arc Vals:



2.14.2 Enter Pass Length

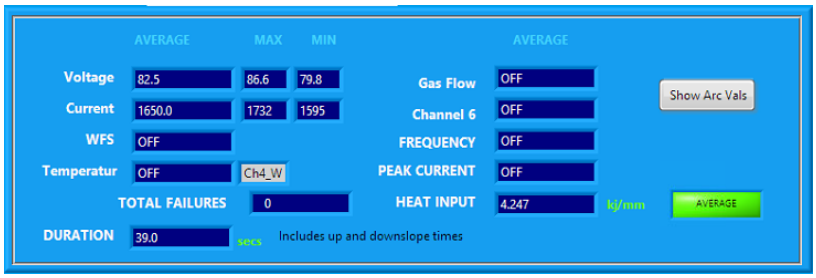
By default the previous pass length is entered or the default pass length. To add a new weld length

Press the EDIT button

This brings up the keypad to enter the pass length. Enter the length in mm and press ENTER

A heat input will be calculated.

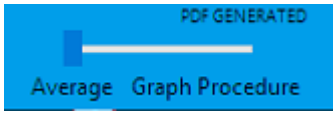
2.14.3 Pass summary values



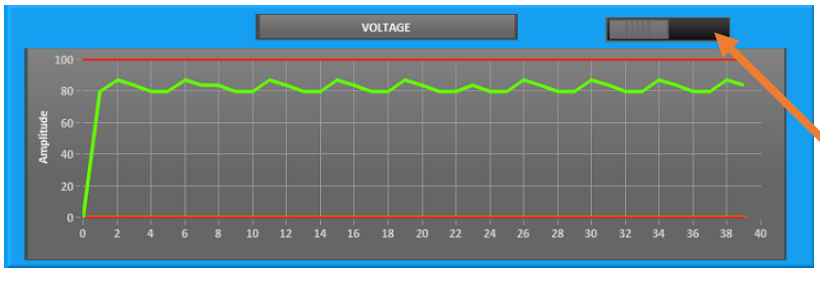
The average values are shown along with max and min record values. These are the maximum and minimum second values, they are only shown if the second print options is chosen for the printer.

In this case the screen shows the Average value for calculating heat input is used.

Moving the slider at the bottom of the screen shows 2 further options:

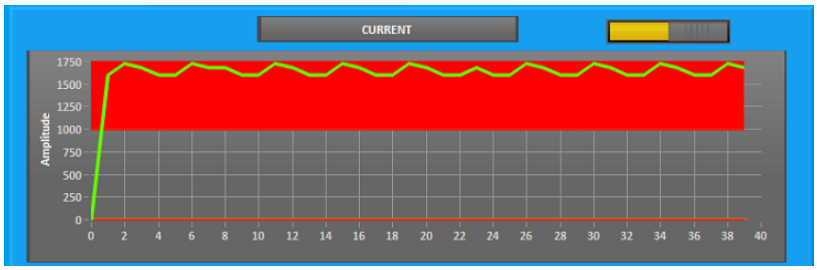


2.14.4 Graph



The average values are shown, the averages depend on the print seconds interval set. Use the selection button to change between voltage and current.

If alarm values are set they are displayed on the chart as well:



2.14.5 Procedure

Move the slider to the Procedure position:

Currently this has been set to record parameters for a specific orbital procedure, but we can change this to suit another application – let me know!

2.14.6 Summary PDF

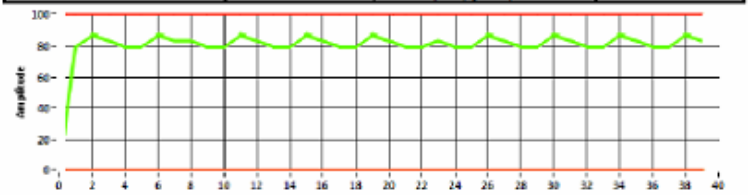
Use the Print to PDF button on the bottom right hand of the screen:

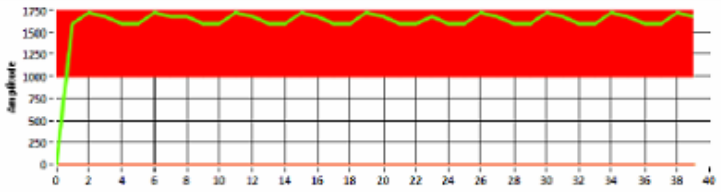
This generates a summary PDF of the pass:

Triton Electronics Ltd

WELD REPORT MEASURED PARAMETERS

Project		Job	
Procedure	Procedure1	Pass	2
Weld No	0		
Welder		Rod / Wire	
Welder No		Gas	
Set No		Process	GTAW
Voltage (V)	82.5	Ch 5	OFF
Current (A)	1650.0	Ch 6	OFF
Travel Speed	OFF	Pulse Duration (msec)	OFF
Torch Gas FLow	OFF	Duty Cycle (%)	OFF
Duration	39.0	Heat Input (kj/mm)	4.247

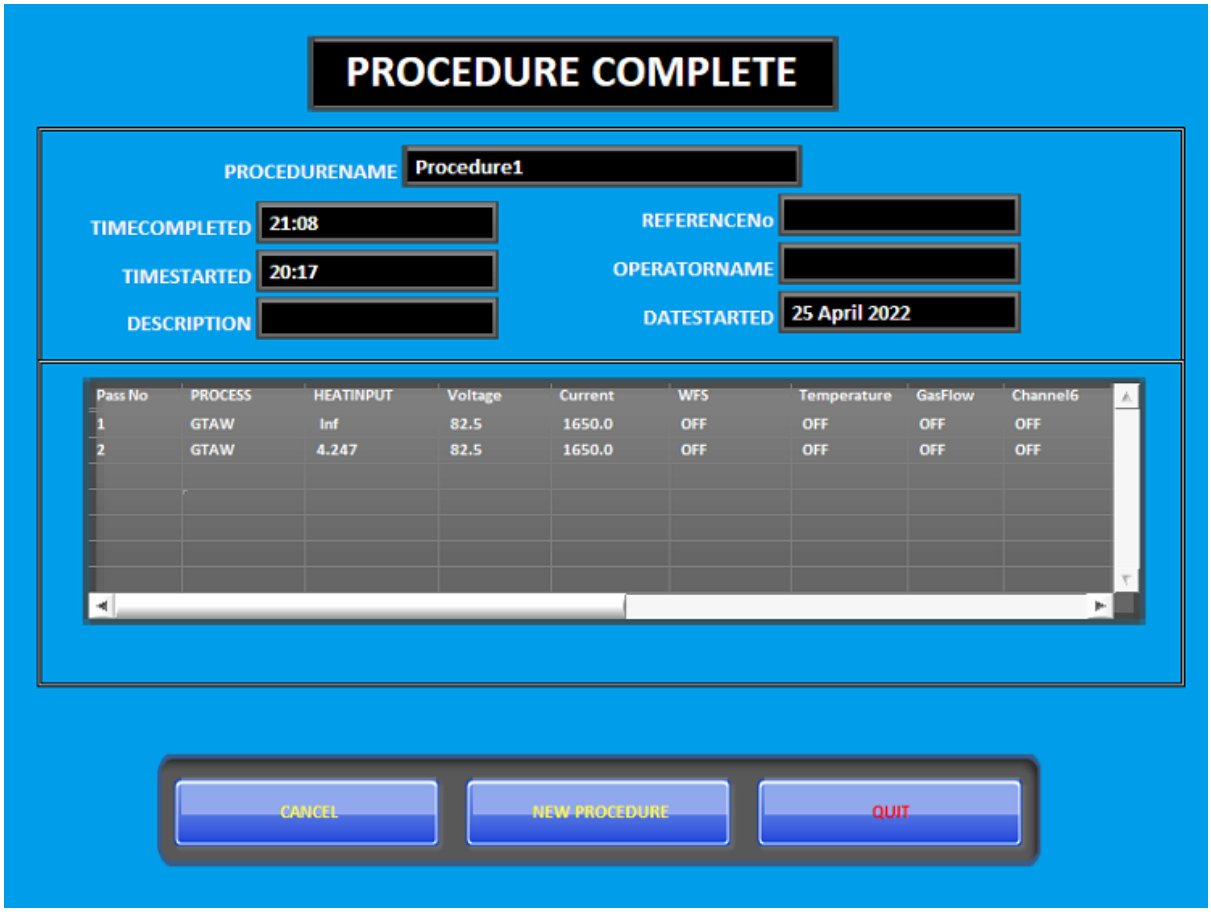




Data Produced using AMV3500 Weld Monitoring System
Manufactured by Triton Electronics Ltd

25/04/2022 21:55:24

2.15 Procedure Complete



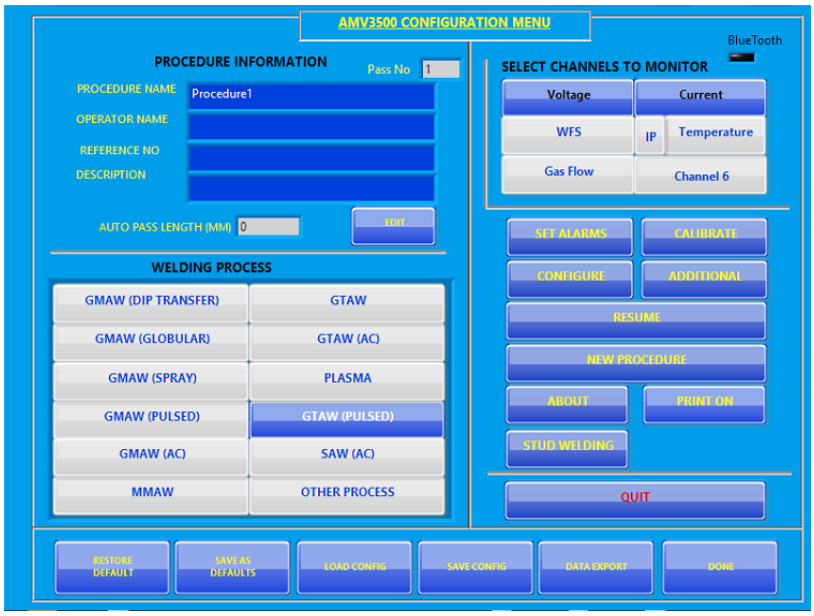
This shows a summary of the procedure,

- Press CANCEL to return to the previous PASS COMPLETE SCREEN.
- Press NEW PROCEDURE if ready to go back to the main config screen.
- Press QUIT to close the AMV software.

2.16 Printer Controls

There are 2 places to control the printer.

2.16.1 Configure Screen



The printer can be turned off from the configure screen. Turning off the printer here means that the header will not be printed when DONE is pressed to go to the monitoring screen.

The AMV will still save the print values as a text file.

To have any output to the printer the print must be on:

2.16.2 Monitor screen

There are more options from the PRINTER button on the monitor screen:

2.16.2.1 Turn off all external printing

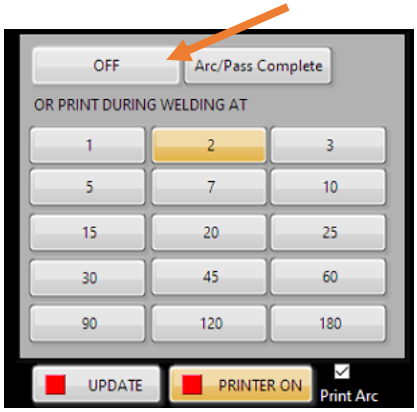
This button controls the printer on/off

On – output sent to external printer 

Off – no output to external printer 

If the printer is turned off a text file is still saved using the second interval outputs.

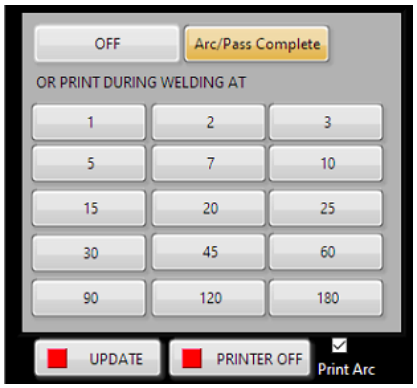
To turn off both saved text file and external printer use the OFF button:



2.16.2.2 To print and save Arc/Pass Complete

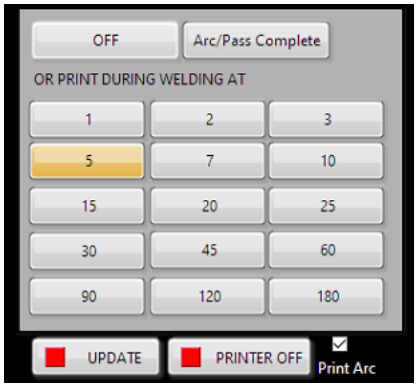
Select this button

Pressing this button clears the seconds.



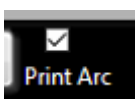
2.16.3 To print an average at a specific second interval

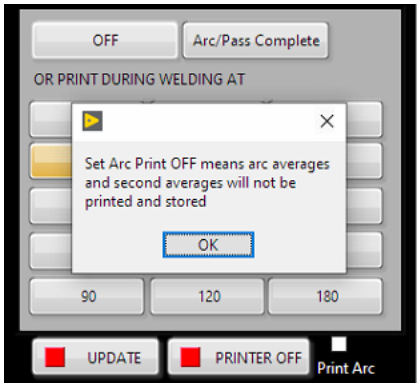
Select the required interval:



The Arc/Pass is always included as well as the second interval.

It is possible to set a print interval and have the seconds averages and arc averages saved to text file only. To do this untick the Print Arc option:





To have the output directed to text file and external printer tick the box again.

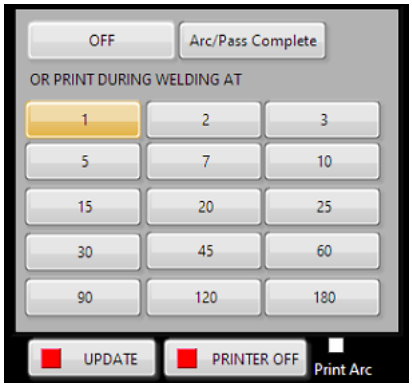
2.16.4 Saving the values

Once the values are set as required, press UPDATE.

This closes the screen and saves the values as default.

2.16.5 Suggested setting

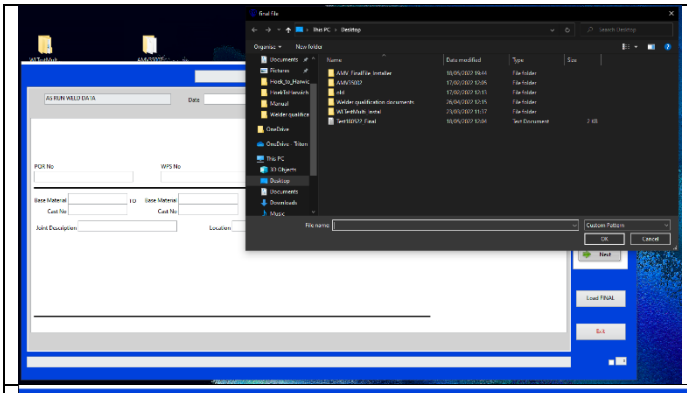
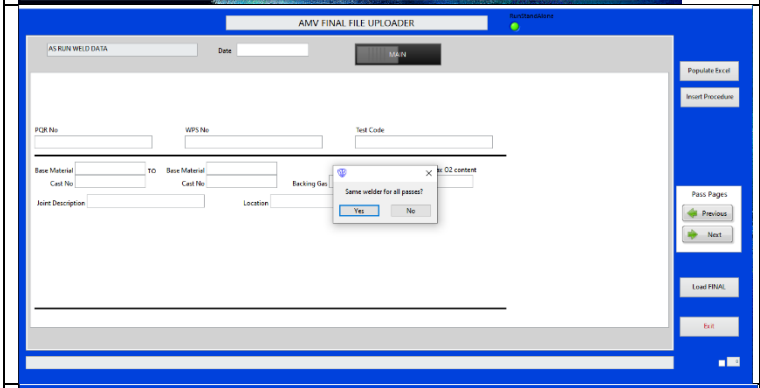
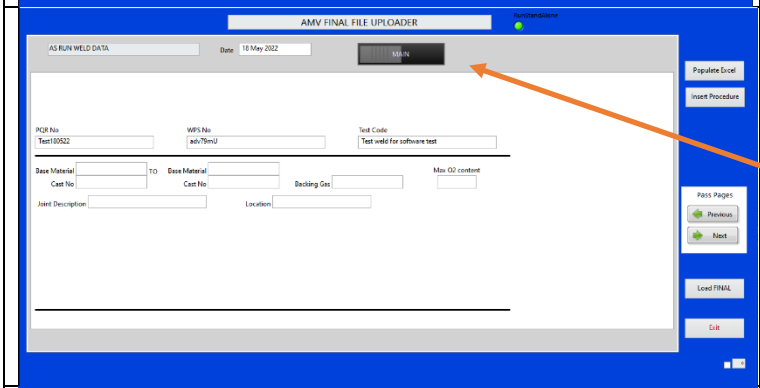
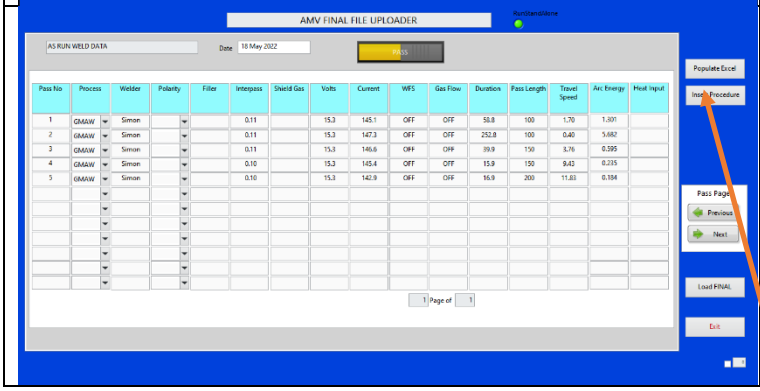
The suggestion is that the print screen should be set like this:

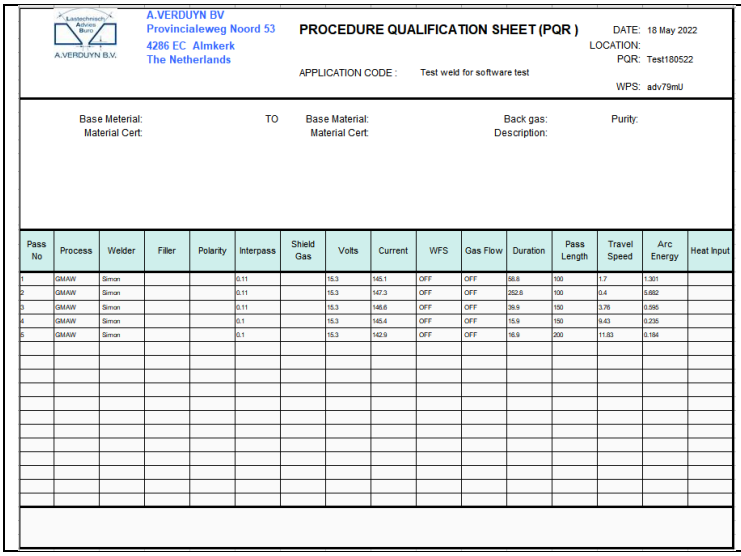


The text file will store an average value every second and the arc average, only the pass values will be sent to both the external printer and stored in the text file.

2.17 AMV Final File Uploader

After taking the text files off the AMV3500 you can install the AMV Final File Uploader (Windows only) and use the text files to generate As Run records.

	Open AMV_FinalFile It will open a file explorer window, locate the final text file and select it.
	The software asks if every pass had the same welder, select yes
	The header details are filled in Select the PASS info slider
	This shows the pass summary data. Complete any additional information on either the pass or procedure screen When ready press POPULATE EXCEL



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PROCEDURE QUALIFICATION SHEET (PQR)

DATE: 18 May 2022
LOCATION:
PQR: Test180522
WPS: adv79mU

APPLICATION CODE : Test weld for software test

Base Meterial: TO Base Material: Back gas: Purity:
Material Cert: Material Cert: Description:

Pass No	Process	Welder	Filler	Polarity	Interpass	Shield Gas	Volts	Current	WFS	Gas Flow	Duration	Pass Length	Travel Speed	Arc Energy	Heat Input
1	GMAW	Simon			0.11		15.3	145.1	OFF	OFF	58.8	100	1.7	1.301	
2	GMAW	Simon			0.11		15.3	147.3	OFF	OFF	252.8	100	0.4	5.682	
3	GMAW	Simon			0.11		15.3	146.6	OFF	OFF	39.9	150	3.76	0.595	
4	GMAW	Simon			0.1		15.3	145.4	OFF	OFF	15.9	150	9.43	0.235	
5	GMAW	Simon			0.1		15.3	142.9	OFF	OFF	16.9	200	11.83	0.184	

This brings up the excel sheet.

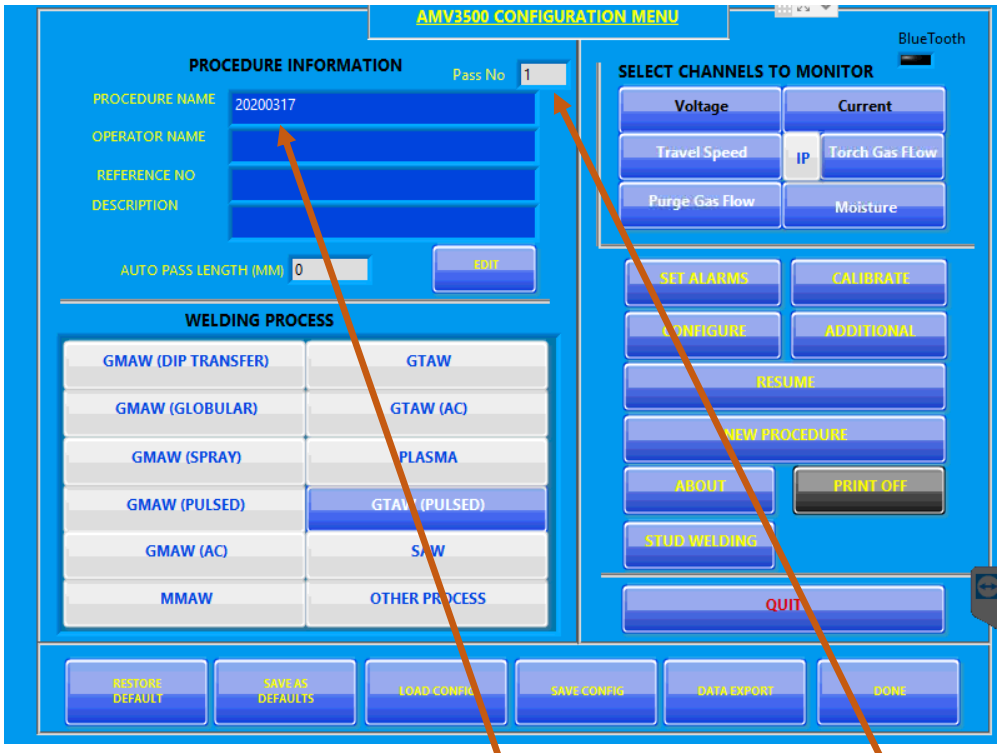
Press EXIT to close the programme

3 How to guides

3.1 Monitor a GTAW, GMAW or MMAW procedure

This setup is based on a version of the AMV3500 software built to monitor welded cans on an automated welding lathe. The text uses CAN in the same meaning as PASS in the standard software settings.

On boot-up the configuration screen loads

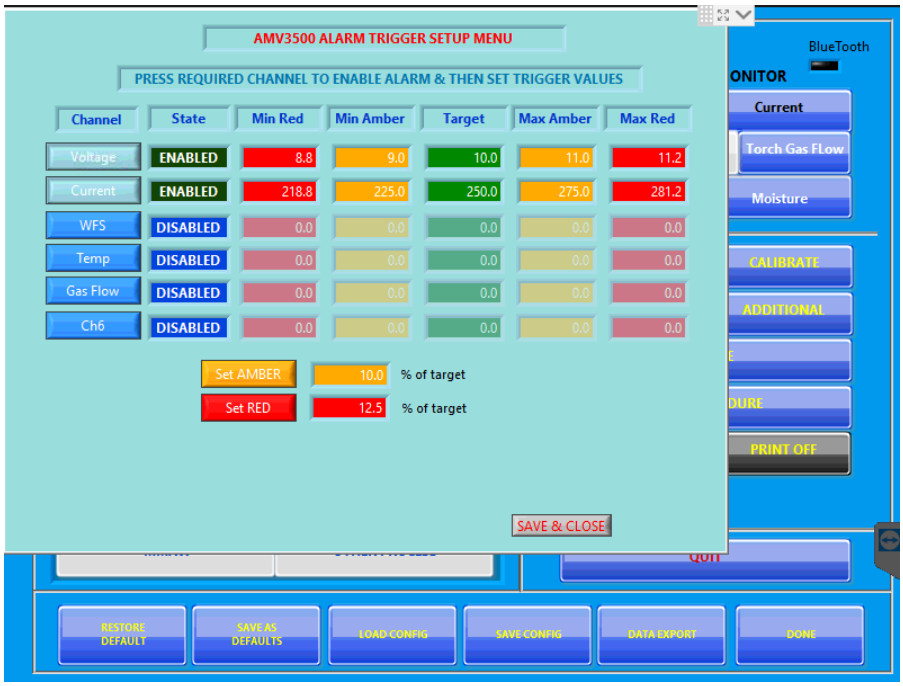


The PROCEDURE NAME defaults Procedure1 with Pass or pass number set to 1

Check the following setting:

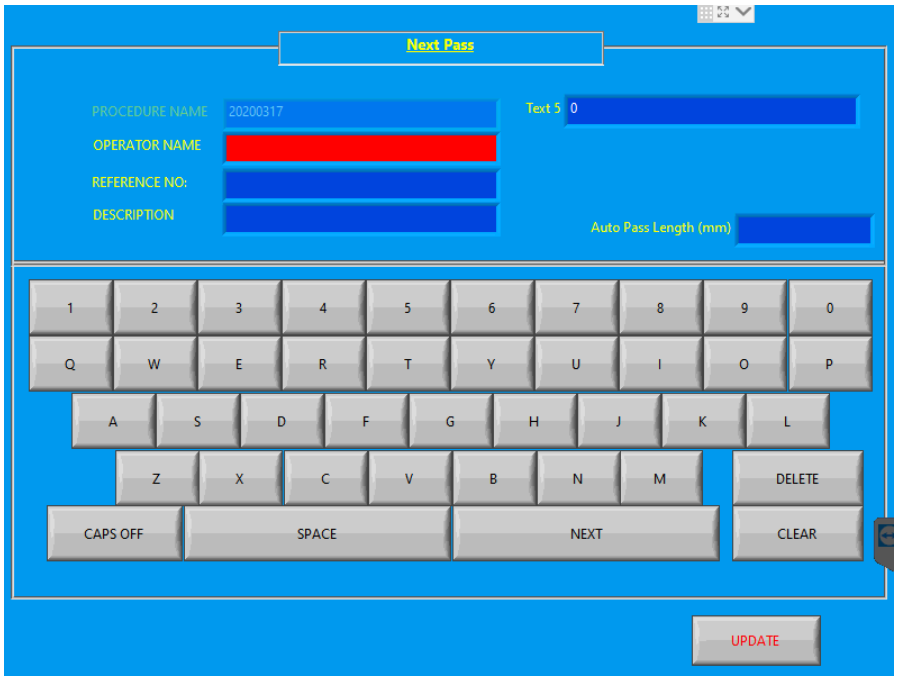
1. WELDING PROCESS is set to GTAW (PULSED)
2. CHANNELS TO MONITOR shows channels you are expecting

To check the ALARM setting press the SET ALARMS button



Press SAVE & CLOSE to return.

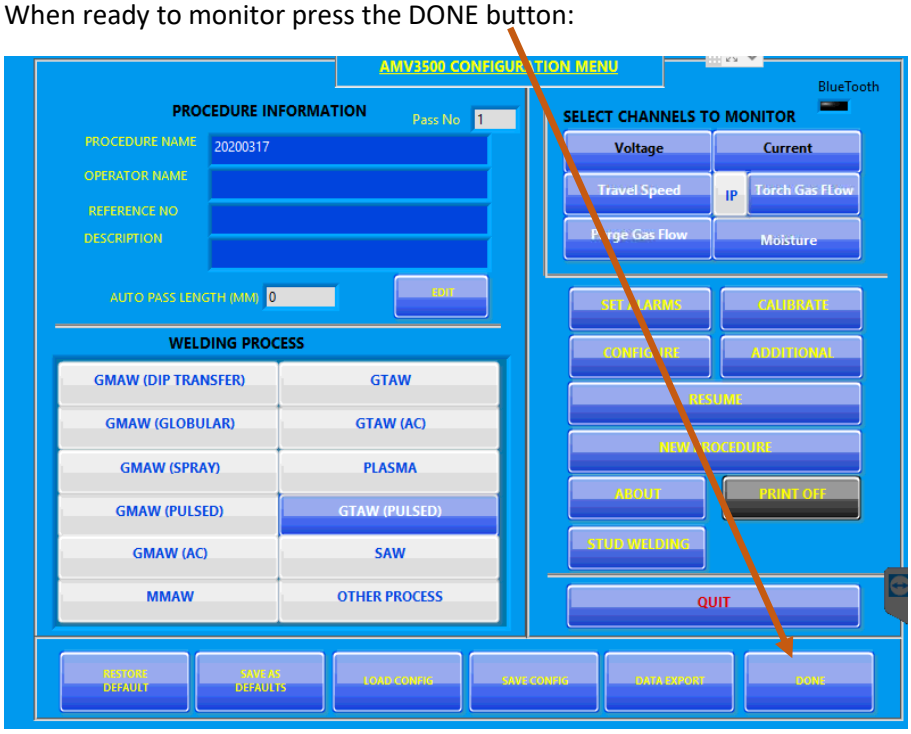
To add some procedure details, press the EDIT button in the PROCEDURE INFORMATION area. This loads the information screen:



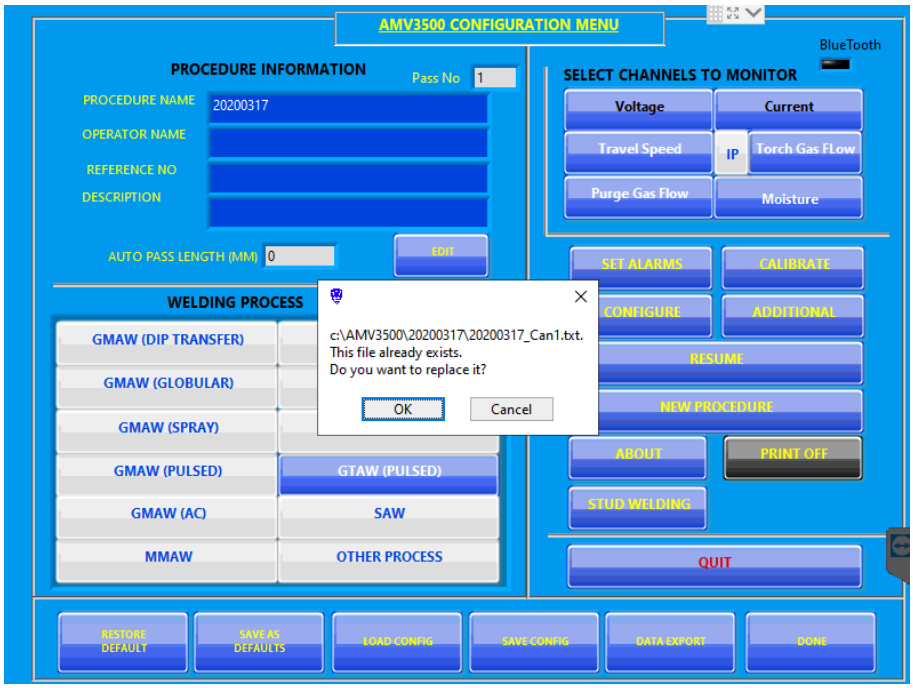
The RED box shows where the typed data will be entered. Use the NEXT button to cycle through the boxes (touch screen does not select the box)

When happy press the UPDATE button

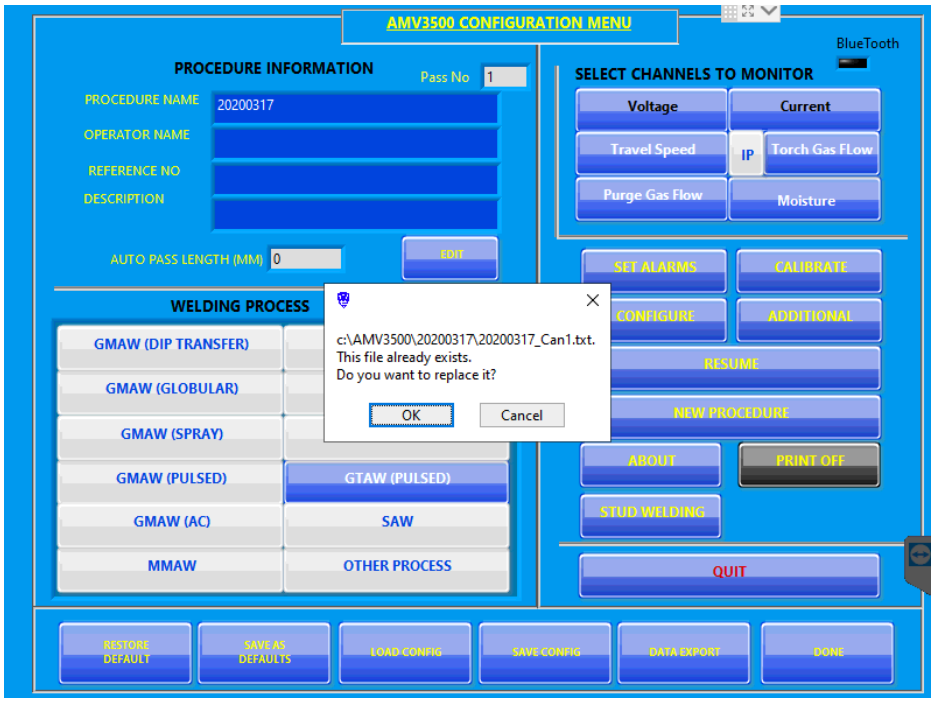
When ready to monitor press the DONE button:



If slope values are set this warning is shown:

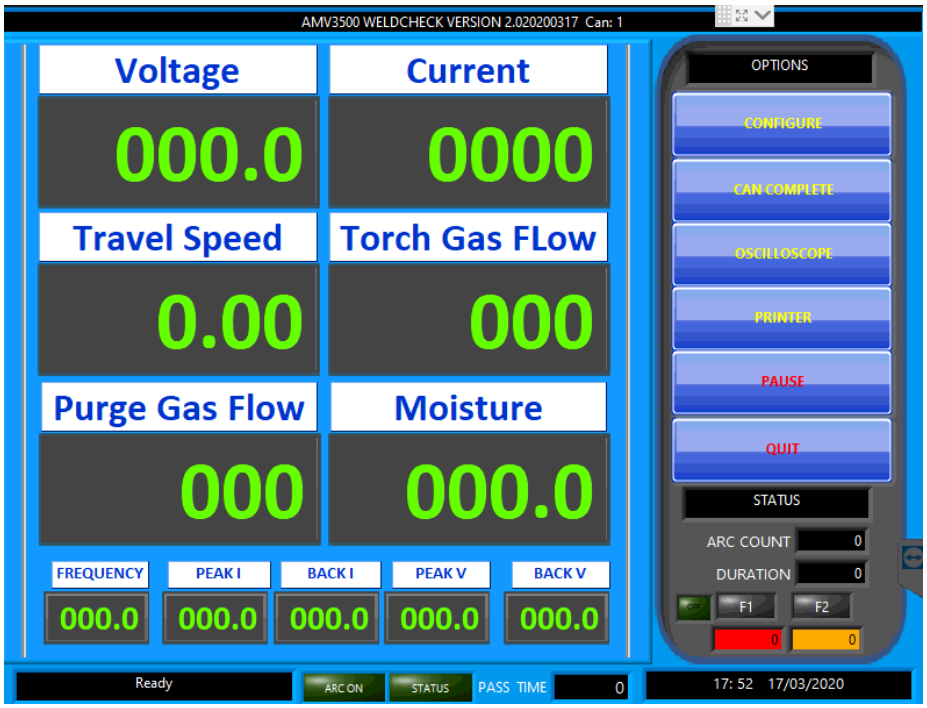


And / Or this warning if data has already been stored using this PROCEDURE NAME:

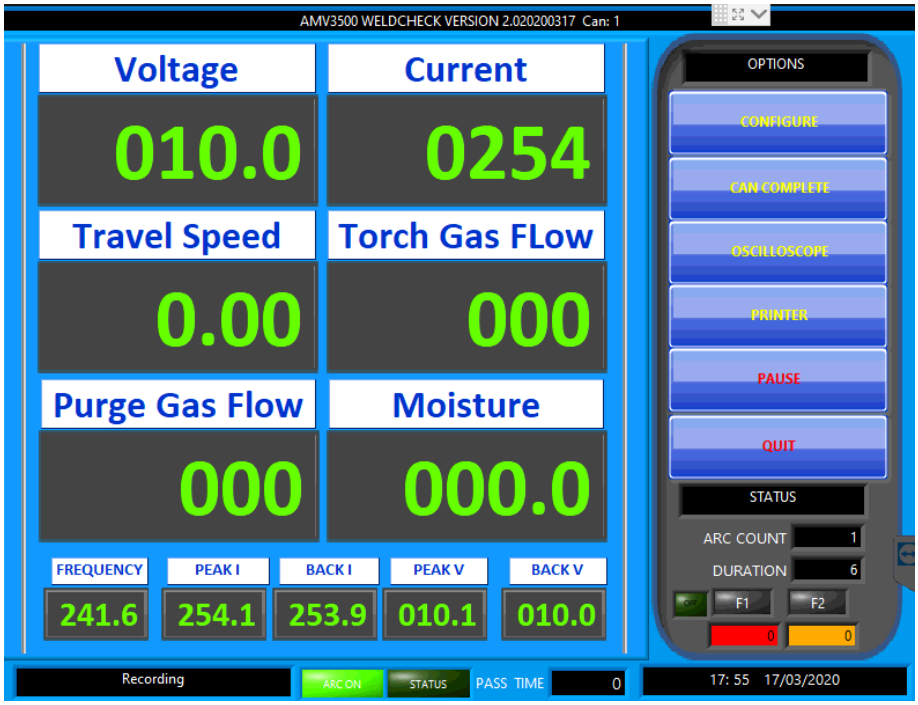


If you do not want to overwrite the procedure press CANCEL and then NEW PROCEDURE to setup a new welding procedure – this screen looks like the EDIT screen but also allows access to the PROCEDURE NAME.

Having pressed DONE and accepted any warnings the MONITORING SCREEN is loaded:



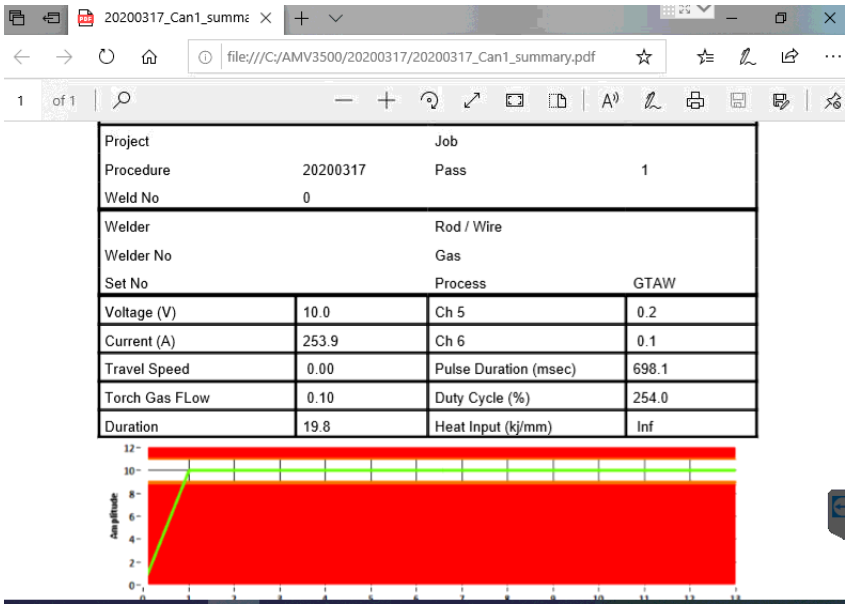
Once the trigger point for voltage and current has been measured the AMV will start to monitor the welding process.



During welding the ARC ON is displayed, ARC COUNT and DURATION increment. The buttons are disabled except for the OSCILLOSCOPE button. Pressing this shows the waveform:

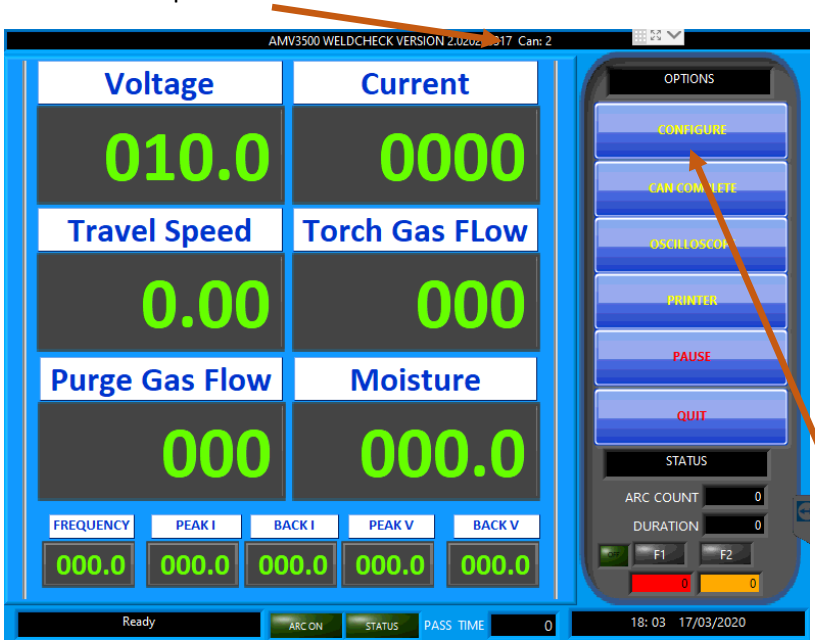
When finished press the CAN COMPLETE button.

Press PRINT PDF to generate a PDF of the average run values.



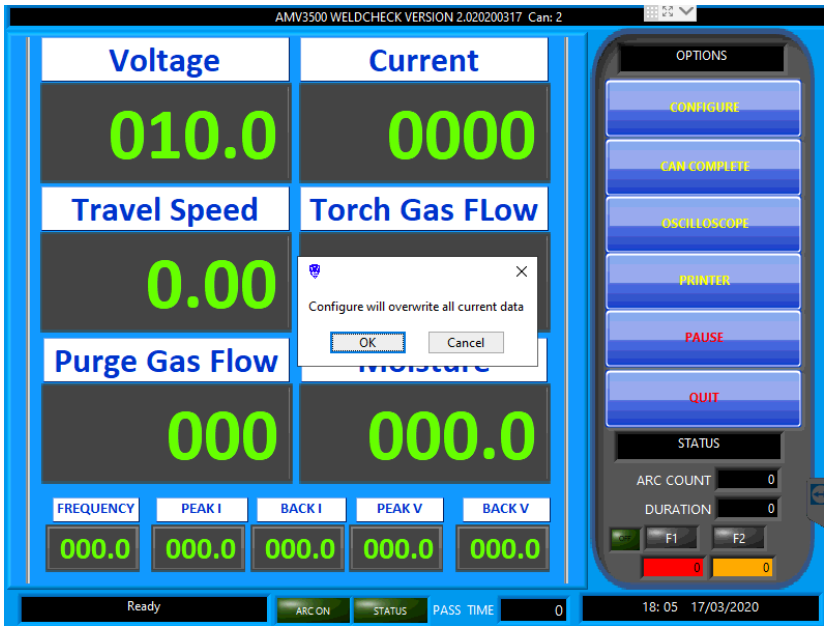
Close the PDF and press NEXT CAN. This return to the MONITORING SCREEN with the CAN number incremented. Or press SET COMPLETE to go to the completion screen.

Can number updated

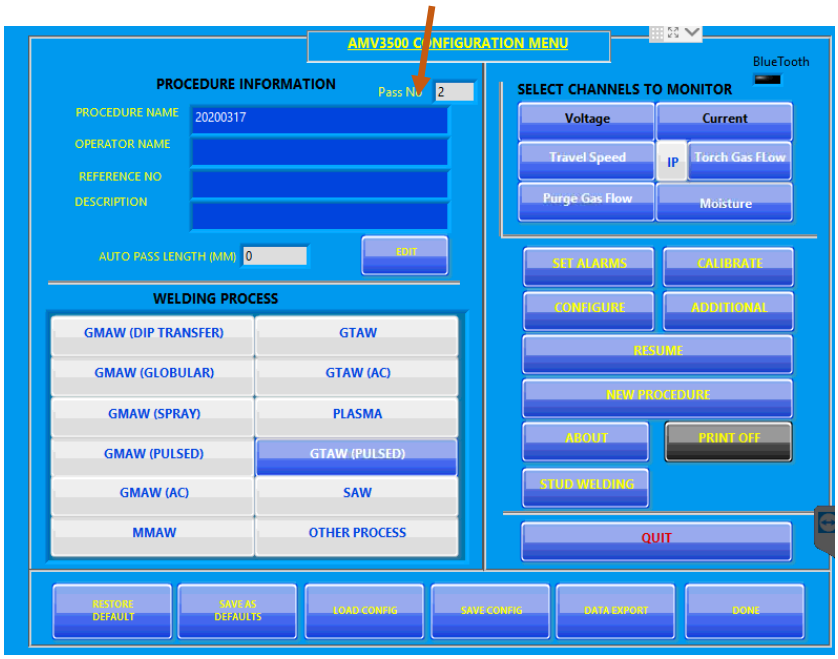


If you want to start a new procedure or edit this CAN of this set press CONFIGURE.

There is this warning just to make sure you want to change the setup data:



The configure screens shows the CAN number:

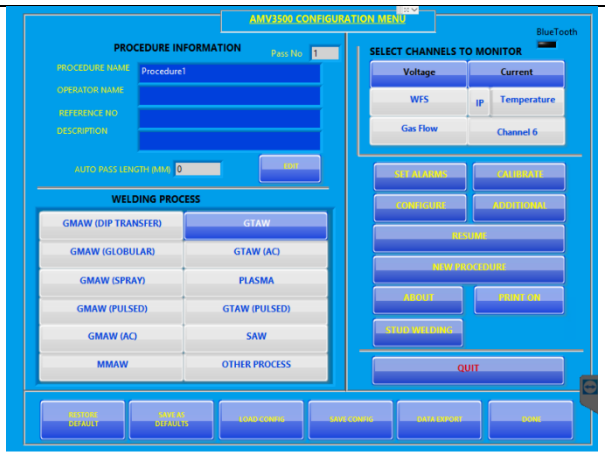
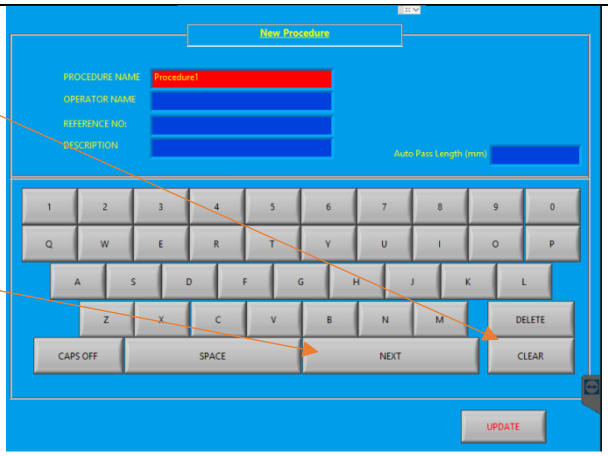
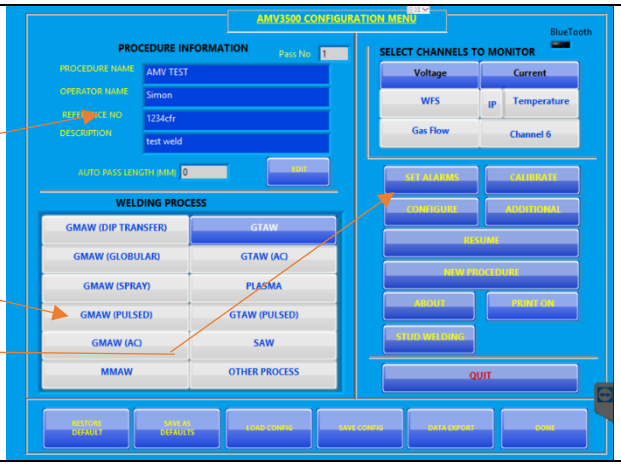


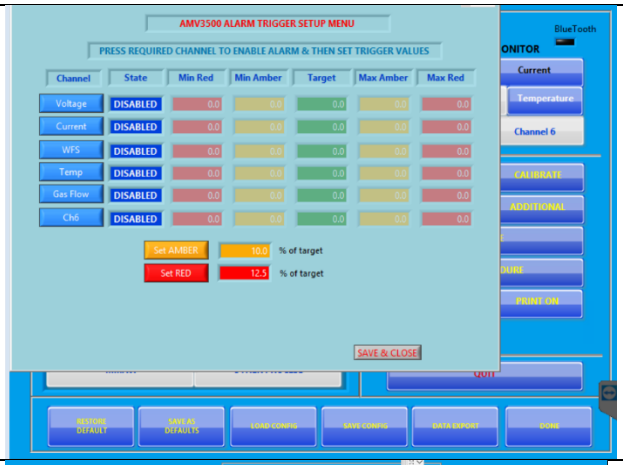
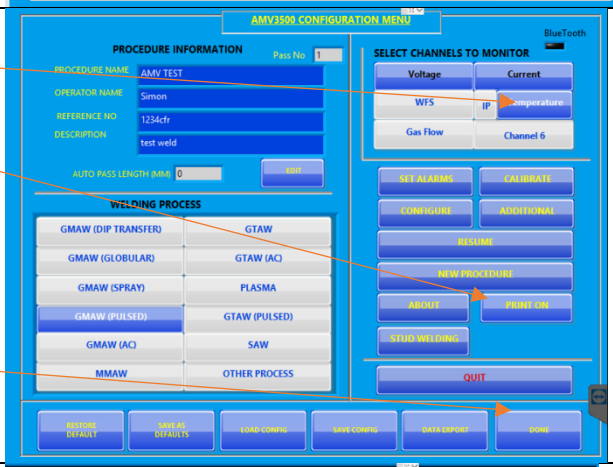
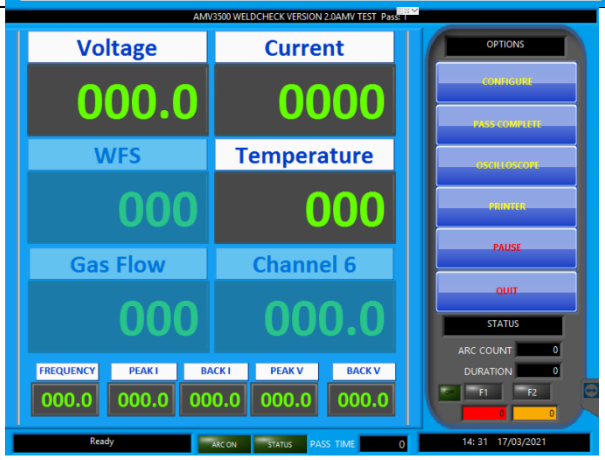
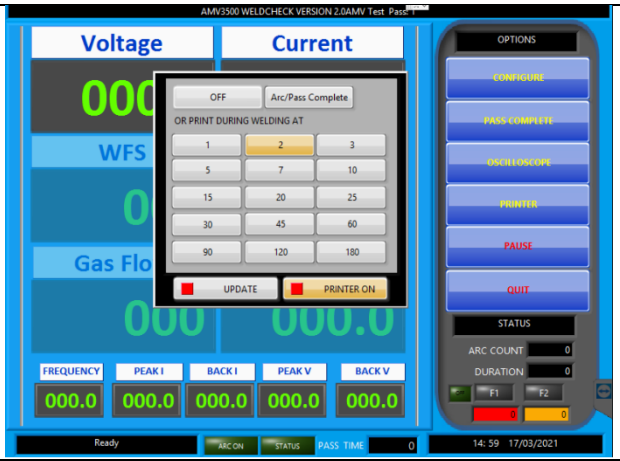
To change this CAN's details, press EDIT.

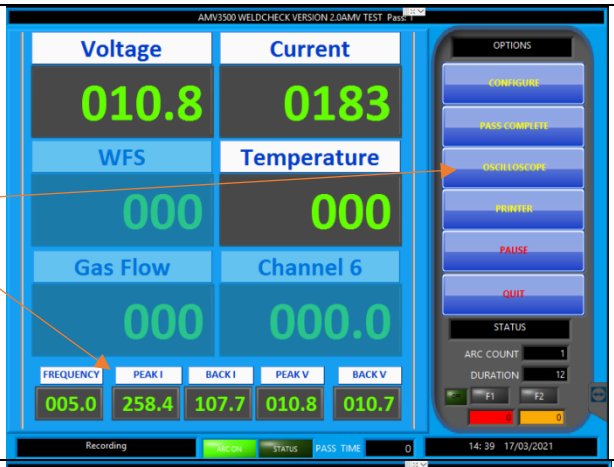
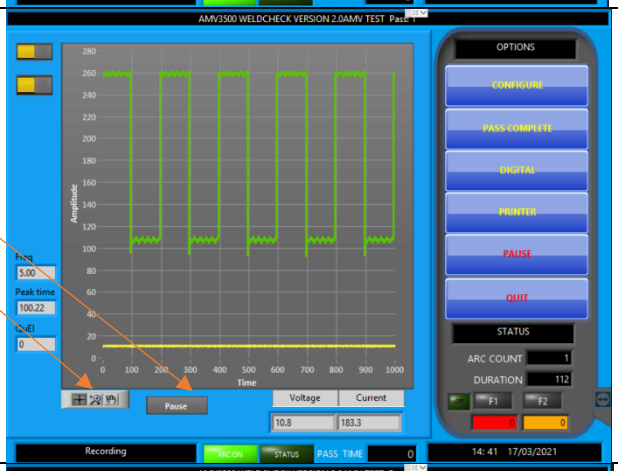
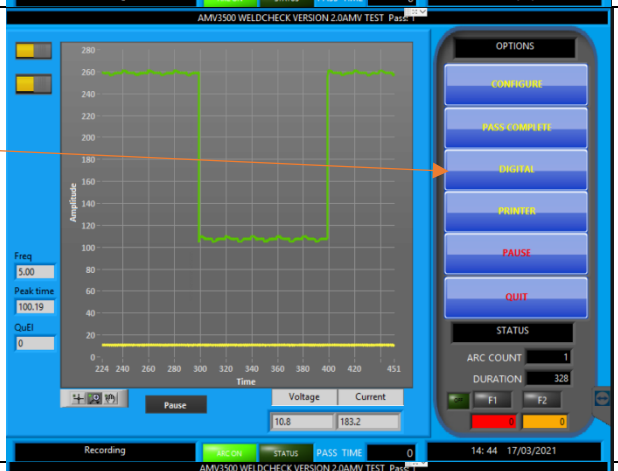
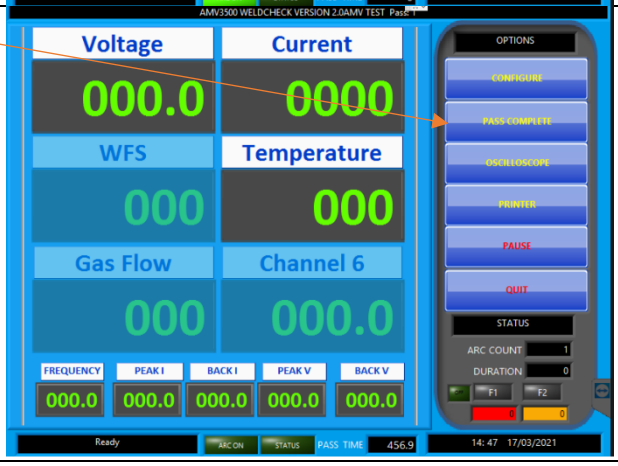
To start a new set of cans, press NEW PROCEDURE

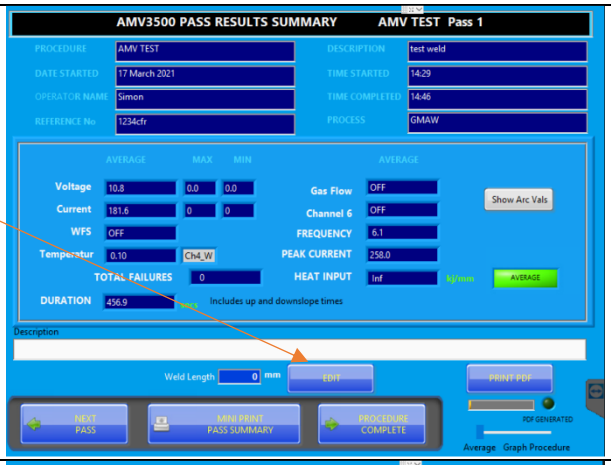
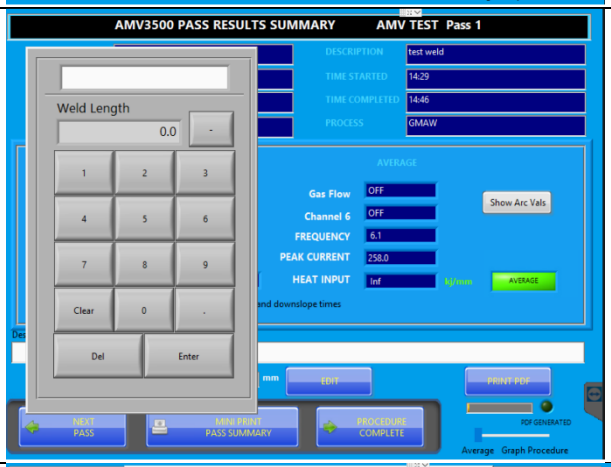
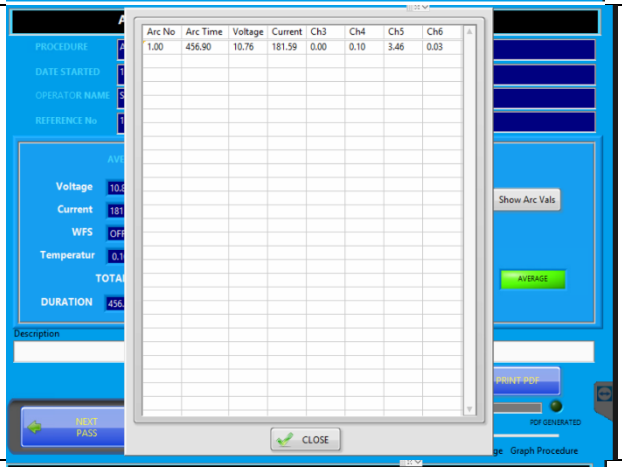
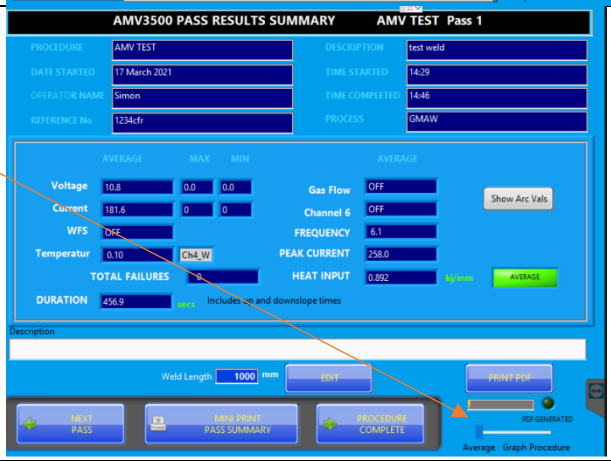
When ready press DONE to start welding.

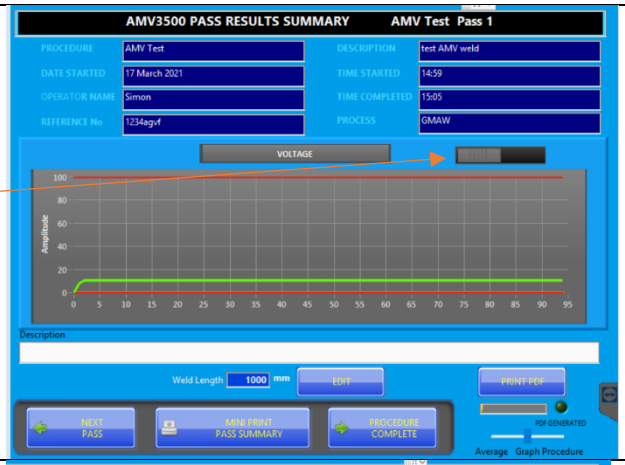
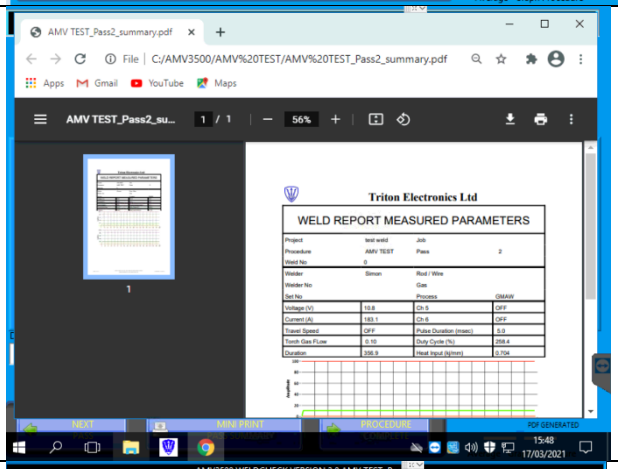
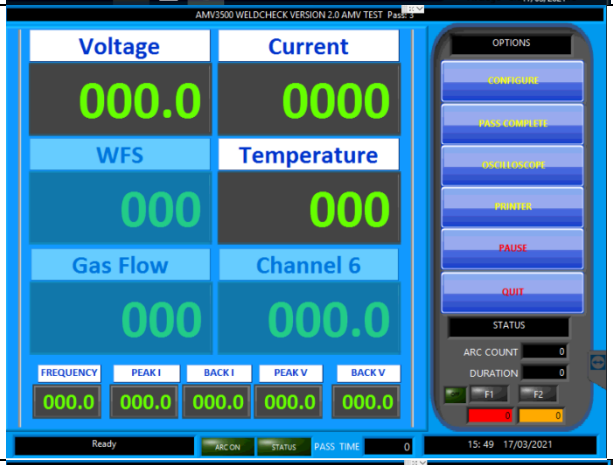
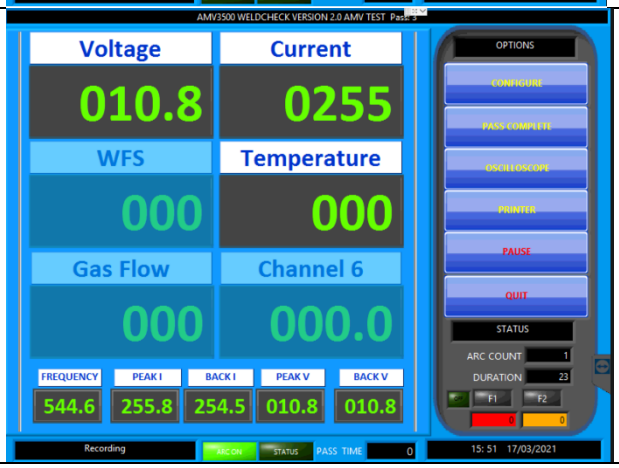
3.2 Setup to monitor an AC SAW procedure

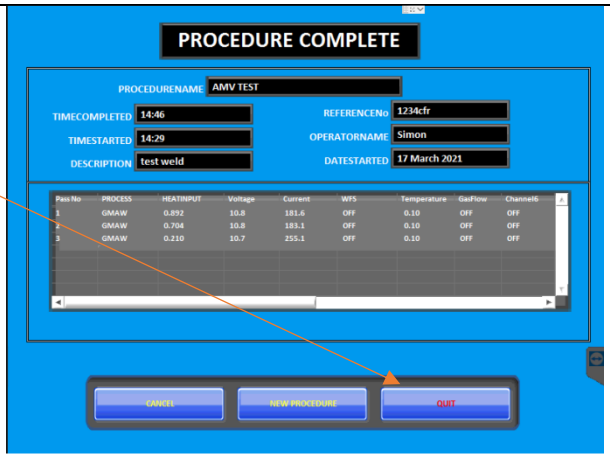
1	Turn on the AMV3500 should boot to the configuration screen Press NEW PROCEDURE	
2	Press the CLEAR button This clears the procedure name, now use the keyboard to type in a new procedure – this case AMVTEST Press the NEXT button when happy to move to the OPERATOR NAME	
3	When happy press UPDATE to return to the configuration screen This time the new procedure information is shown Select GMAW (PULSED) from the welding process options Press SET ALARMS	

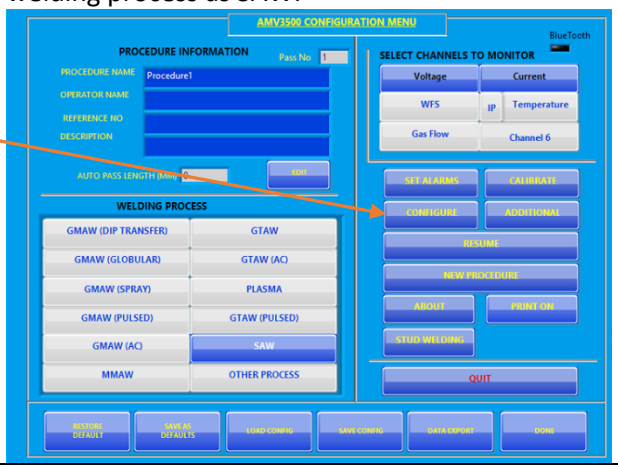
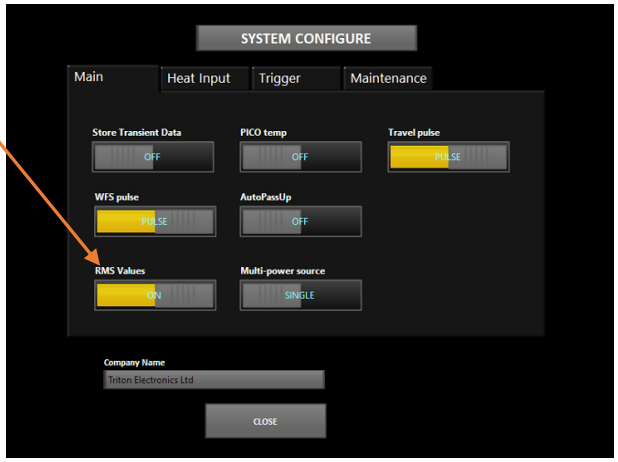
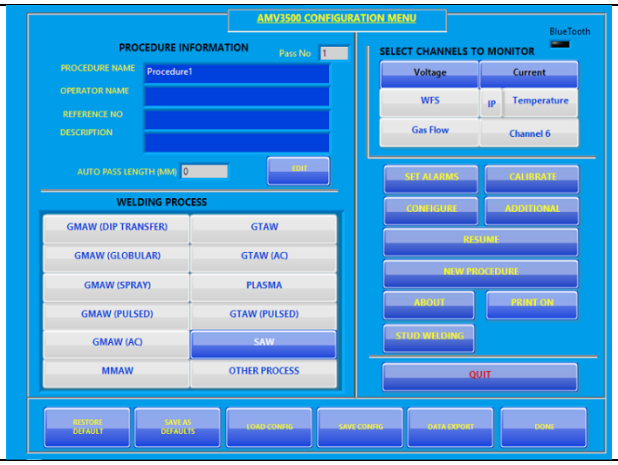
4	On the Alarms page make sure every channel has an alarm that is either ENABLED or DISABLED, if there is nothing in the State box click on the channel name until the correct state is shown. If there are no entries in the state box the pulse determination will not work. Press SAVE & CLOSE	
5	From the configuration screen Turn on the temperature channel make sure the printer is ON and press DONE	
6	This brings up the wait screen. The AMV is now waiting for an arc on to be detected.	
7	Set the print rate. Press PRINTER Then select 2 seconds Press UPDATE	

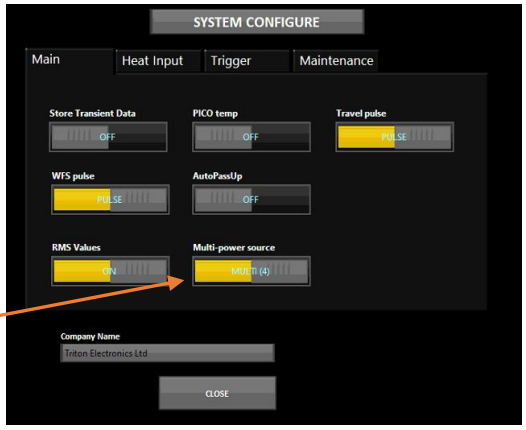
8	Start a welding arc, if there is a pulse on the current channel the values will be shown here. Press OSCILOSCOPE	
9	The AMV now displays the welding waveform To look at the waveform while recording, press PAUSE, then use the graph tools to zoom in Press DIGITAL to return to the digital screen	
10	Here you can see the display has been zoomed in to show 1 wavefrom. Press DIGITAL to return to the digital screen. Stop the welding arc	
11	To do a PASS COMPLETE press	

12	The PASS COMPLETE screen is a summary of the pass data recorded. Enter a weld length to calculate heat input. Press the EDIT button	
13	The use the keypad to enter the length in mm Press enter	
14	Press show arc value to show the individual arc values recorded In this case there is just 1 arc Press CLOSE	
15	Use the sloder to see voltage and current trand graphs	

16	The trend graph works on the print rate. If no print rate is set the grpah is blank. Go between voltage and current traces with this toggle	
17	The can also be saved as PDF records Press PRINT TO PDF	
18	Then press NEXT PASS This brings the AMV back to the wait screen	
19	Run another pass	

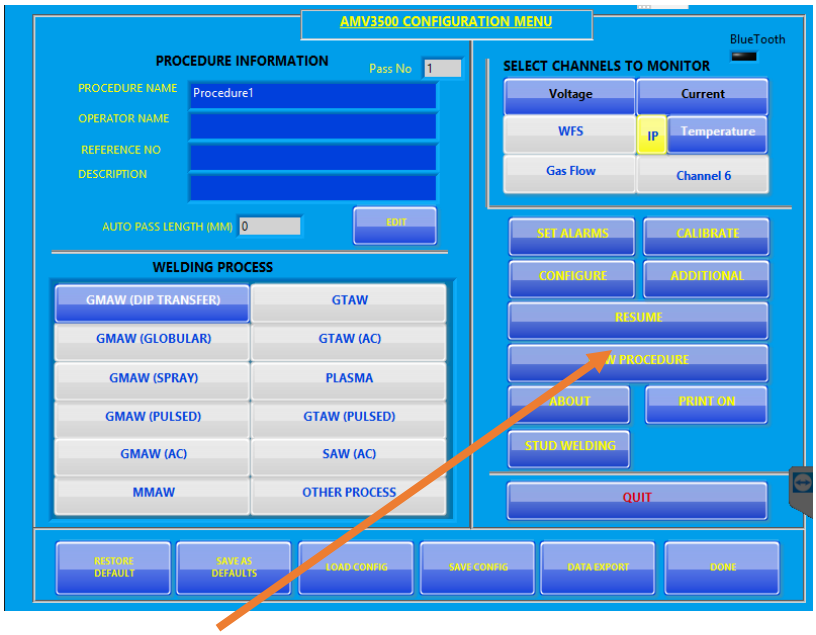
20	Press Pass Complete Press QUIT to shutdown the AMV	

	SAW Recommendations	
21	Setup for SAW welding with mutiple currents To record in RMS values press the configure button	Configure the procedure as steps 1-4 but select the welding process as SAW: 
22	By default the AMV3500 uses average values. To record in RMS values turn on RMS Press CLOSE to return to the main configuration screen	
23	Then press DONE to moitor as before in step 6. Once the pass is complete follow step 11 on	

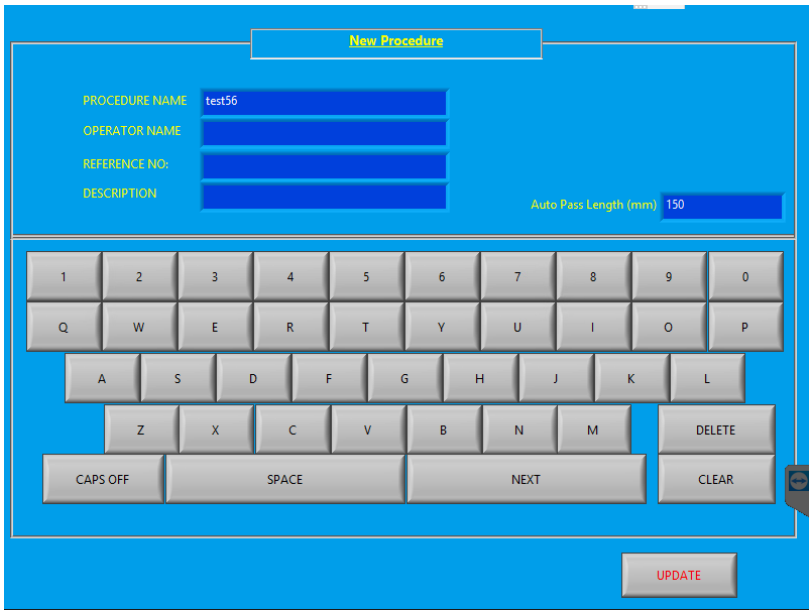
	Mutiple power sources.	
24	You can monitor 4 current sources, so long as these go into the same weld head and there is 1 voltage measurement. The AMV continues to trigger on voltage and the first current but all 4 currents are summed together to calculate the power into the weld pool. Turn on 4 channel current	

3.3 Use F1 and F2 Function buttons.

3.3.1 Start a new procedure:

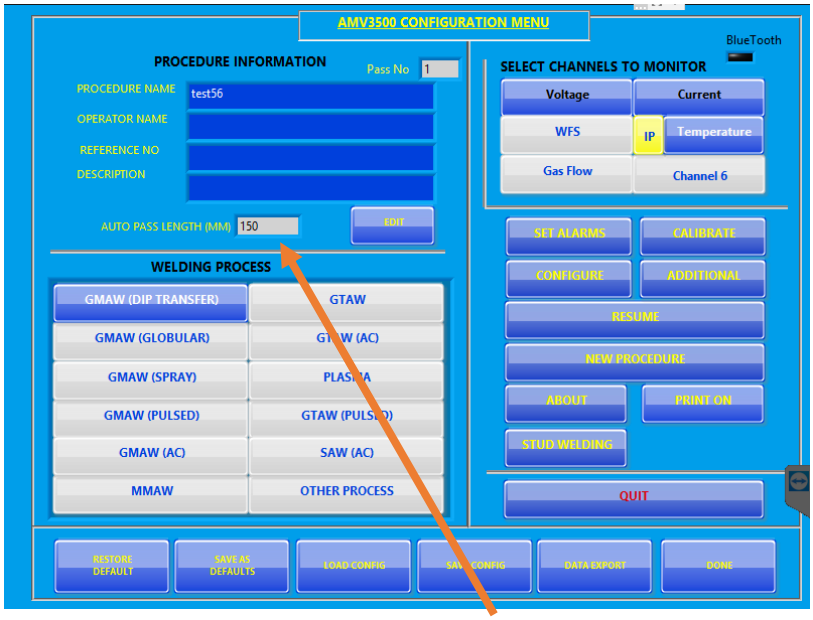


Press New Procedure



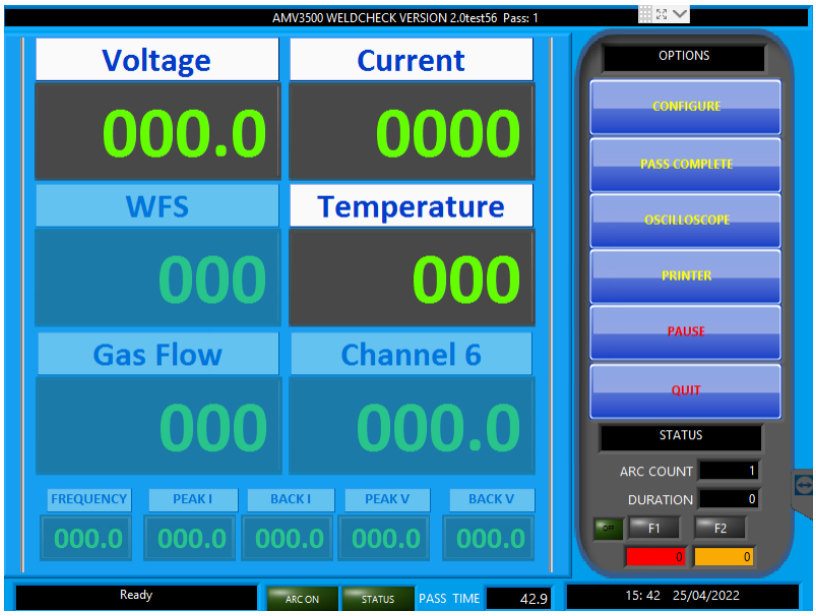
Enter the procedure names annd press NEXT enter any additional information needed and then enter a weld length in Auto Pass Length (mm)

Click UPDATE.



The weld length now appers in the auto length.

3.3.2 Record Welding – F1



Once the pass has been recorded, press F1.

The AMV will do a pass complete and use the auto pass length entered in the weld setup. This is printed out (if the printer is on) and saved in the text file:

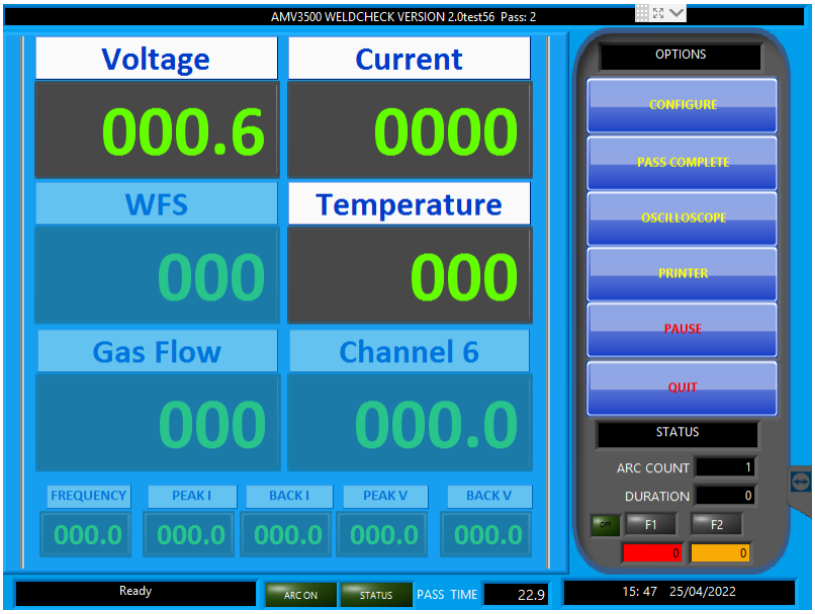
```
----------
PASS SUMMARY
PASS: 1
TIME COMPLETED: 01:00
TIME STARTED: 15:36
DESCRIPTION:
REFERENCE No:
OPERATOR NAME:
DATE STARTED: 25 April 2022
PROCEDURE NAME: test56

PROCESS:GMAW
HEAT INPUT: 0.367
PEAK CURRENT: OFF
FREQUENCY: OFF
Channel 6: OFF
Gas Flow: OFF
DURATION: 42.9
TOTAL FAILURES:    0
Temperature:  0.11
WFS: OFF
Current: 145.0
Voltage:  8.9
------------------------------
```

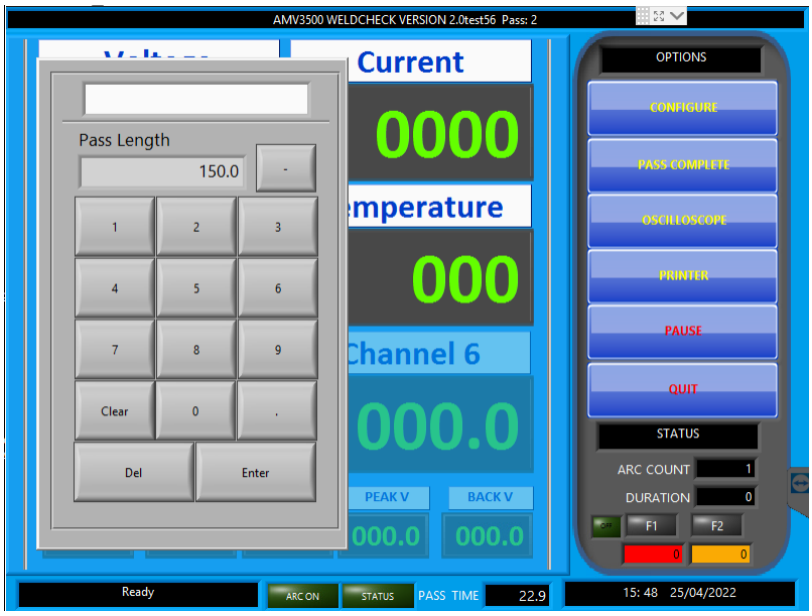
The AMV will now be ready for the next pass.

3.3.3 Record Welding F2

After recording the pass data



Press F2 and a dialog window prompts for the weld length. The default is either the pre-set value or the last pass value.



Enter the new pass length, or accept the default and the AMV performs a pass complete.

```
25/04/2022 15:45:57
Arc no:   1
Arc Time:   22.9Secs
Voltage  8.9V  Current 142A
WFS 0.00   Temperature IP
Gas Flow   0  Channel 6   0

----------
PASS SUMMARY
PASS: 2

PROCESS:GMAW
HEAT INPUT: 0.144
PEAK CURRENT: OFF
FREQUENCY: OFF
Channel 6: OFF
Gas Flow: OFF
DURATION: 22.9
TOTAL FAILURES:    0
Temperature:  0.10
WFS: OFF
Current: 142.4
Voltage:  8.9
------------------------------
```

3.3.4 Summary

- The F1 and F2 buttons speed up the pass complete process.
- The automatic pass length entry on New Procedure sets the default pass length
- Completing the pass with the F1 button uses the default pass length.
- If a new pass length is entered by F1 or Pass Complete screen this becomes the default pass length