AQTRONIC SF53 CNC PLASMA Torch Height Controller Instructions

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Contents

Safety P-recautions

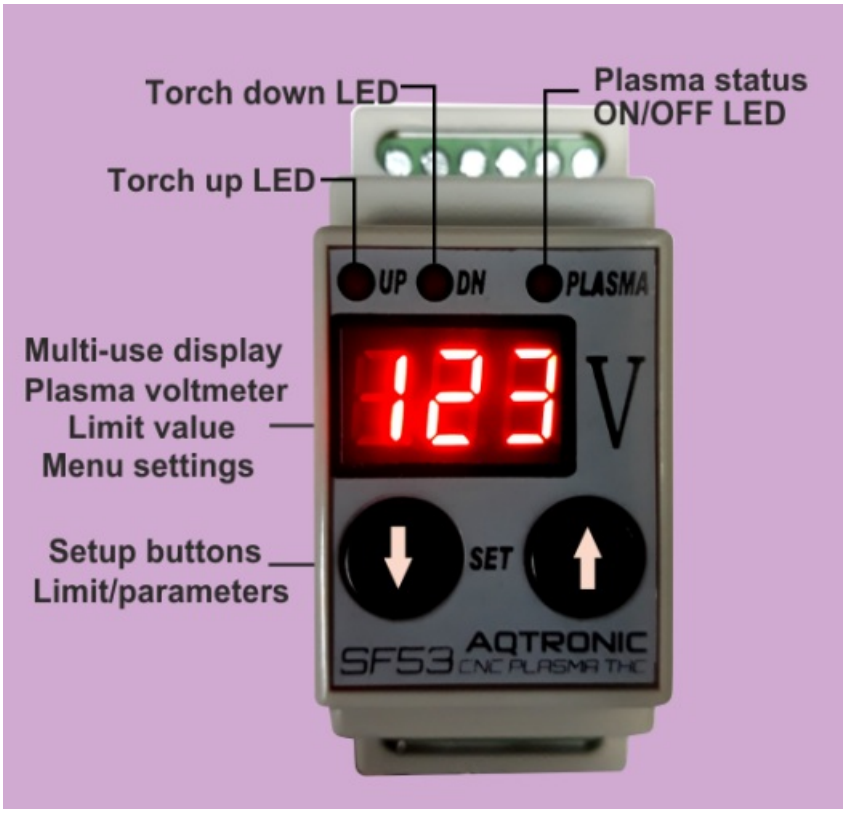
Enviroment cannot contain any explosive gas.
It must be wired by professional wiring staff. Otherwise, it may cause electronic shock.
Cut off the power supply before wiring. Otherwise, it may cause electronic shock.
Do not touch any control port, internal boards and their electronic componets while the electricity is turned on. Otherwise, it may cause electronic shock.

Device information

The unit is a modern analogue – microprocessor plasma torch height controller that operates by analyzing voltage changes in the plasma source due to variations in height between the torch tip and the material being cut. The microprocessor makes determinations to raise or lower the torch based off of the strength of the voltage signal being read. It is equipped with an easy to read LED display and two user friendly keys making operation simple and does not require any additional measuring instruments. The device has patented solutions made with the highest quality components to ensure a safe, durable, and reliable longterm operation.

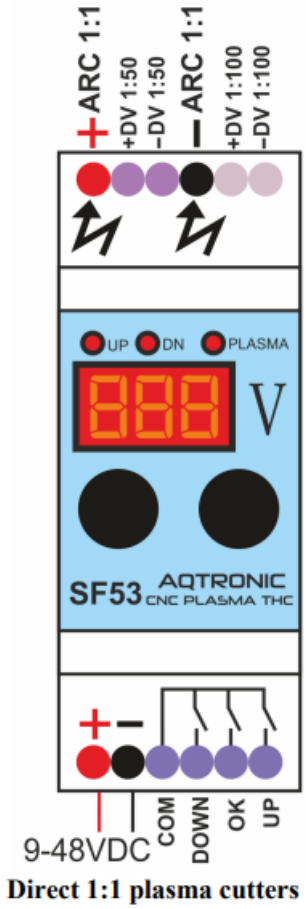
External view:

Control panel:



Characteristics:	Typical	Max
Supply voltage (V)	9-36VDC	48VDC
Plasma volatge input	0-350V	450V
Plasma voltage threshold	40V	250V
Plasma interface	Optical Isolated	–
I/O interface	Active Low Optical Isolated	–
Supported plasma ratio	1:1 / 1:50 / 1:100	–
Display	3 bit 7 Segments	–
Weight	100g	–
Dimensions L*W*H (mm)	87*36*59	–

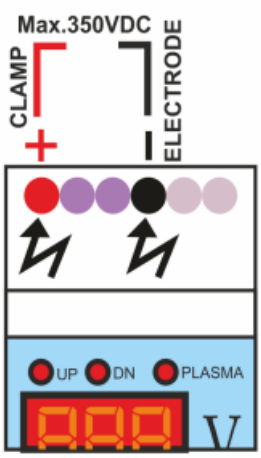
Terminal details:



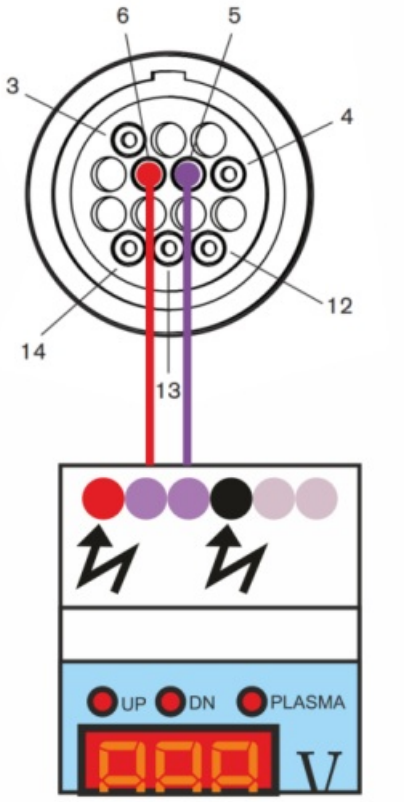
Direct 1:1 plasma cutters

ATTENTION:When connecting directly, use the shortest possible cables for connecting the plasma source with THC controller – it is recommended the THC controller to be located directly at the plasma source.

1:1 Plasma Ratio input:

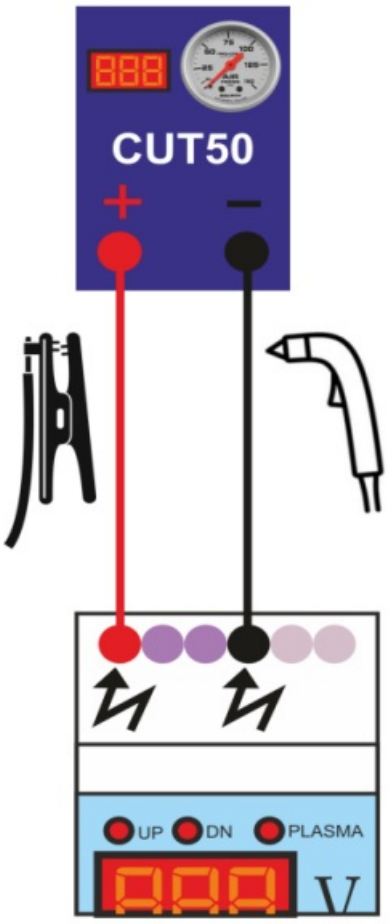


Hypertherm Powemax45 1:50 DV'



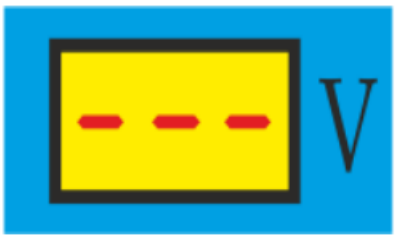
While being a universal THC, accepting full raw arc voltage for most any plasma cutter on the market, an exciting new standard feature of this unit is the addition of a 1:50 divider for an extremely fast, simple installation on most major brands. There will most likely be a direct connection for this on the outside of the plasma cutter's unit. Please refer to your plasma cutter owner's manual.

An example of how to connect the THC controller's measurement input withthe output of the very popular Hypertherm Powermax45 ®- The THC comesstandard equipped with a low voltage output of 1:50 divider. This ratio is the most commonly used division in most major brands and there will most likely be a plug for this connection on the outside of the cutter's unit.



COM terminal is a common input terminal connected to the ARC, UP and DOWN optocoupler contacts inside the device, according to the diagram located on the cover.
OK output is activated when plasma ignition is detected and after the end of the preset delay.Route and configure for a software input. Not required to operate.
UP output is activated when the measured voltage is lower than the Limit voltage setpoint, reduced by entire the hysteresis voltage. Route and configure for a software input.
DOWN output is activated when the measured voltage is higher than the Limit voltage setpoint, reduced by entire the hysteresis voltage. Route and configure for a software input.Note: No output signals are activated in case when only the pilot arc is detected and when the main arc is broken.
Signal outputs should be connected to the CNC system in accordance with the documentation of the CNC electronic system controlling the machine. For this, we use inputs of outermost connectors HOME or LIMIT – THC control outputs should be connected to the terminals the same way as limit switches connectors.
At the same time, the common COM terminal should be connected to the CNC system to a common terminal for limit switches (it is usually a GND terminal).
To reduce the possibility of the short-circuit entering the CNC system, the connection should be made with a shielded cable – the shielding must be connected to grounding on the CNC system side. Do not connect the shielding to the THC controller side.

Start-up and operation:
The device is pre-configured at the factory and after the correct connections are made, it immediately works properly with most plasma devices.
After switching power on, the THC controller's display shows an "animated" "Aqtronic"message, and then show Limit value is presented for 1 second. When the device is ready for operation it displays "- – – " which means it is



presentthere is no input voltage.
In this mode, by pressing the up/down keys, the threshold value can be modified and thus set the height of the lens above the material.
To specify other parameters, hold both keys at the same time until you see the HYS (hysteresis) parameter on the display. When you release the keys, you can navigate through the menu parameters. In this state, by pressing the up/down keys you can enter the value of the current parameter and change it by pressing the up/down keys. Once the value is set, you can store the value by holding both keys at the same time until you see the value flashing.

“HYS” (Hysteresis see image 15 page 5) – The hysteresis voltage – a range in which the voltage is measured, in which there are signals controlling UP/DOWN is deactive.1-15V.Factory setting “1”

“dLy” (delay) – delay time of output OK when the system detects the main (cutting) arc 1 – 15 seconds. factory setting: 1s

“CAL” (Calibration) – Due to material deviation the recorded plasma voltage may need adjustment.
According to an external reference, such as the simple voltmeter, you can modify the Plasma voltage reading.
-35V to +35V.Factory 0V

“LCU” (Low Voltage cut) – value of the off load voltage detection in the plasma cutter – used to detect the main (cutting) arc.Minus the preset value any control outputs are disable.0-99V.Factory 40V

“HCU” (High Voltage cut) – value of the off load voltage detection in the plasma cutter – used to detect the main (cutting) arc.Over the preset value any control outputs are disable.200-350V.Factory 350V

“tSt” (Test) – Simulation of the controller’s work – the system simulates the appearance of “floating” Torch within a countdown timer.By pressing any keys you can exit from test mode or just wait a few seconds for auto exit.

“ESC” (Escape) – by pressing the up/down keys you can exit of menu or just wait a few seconds for auto exit.

Image15

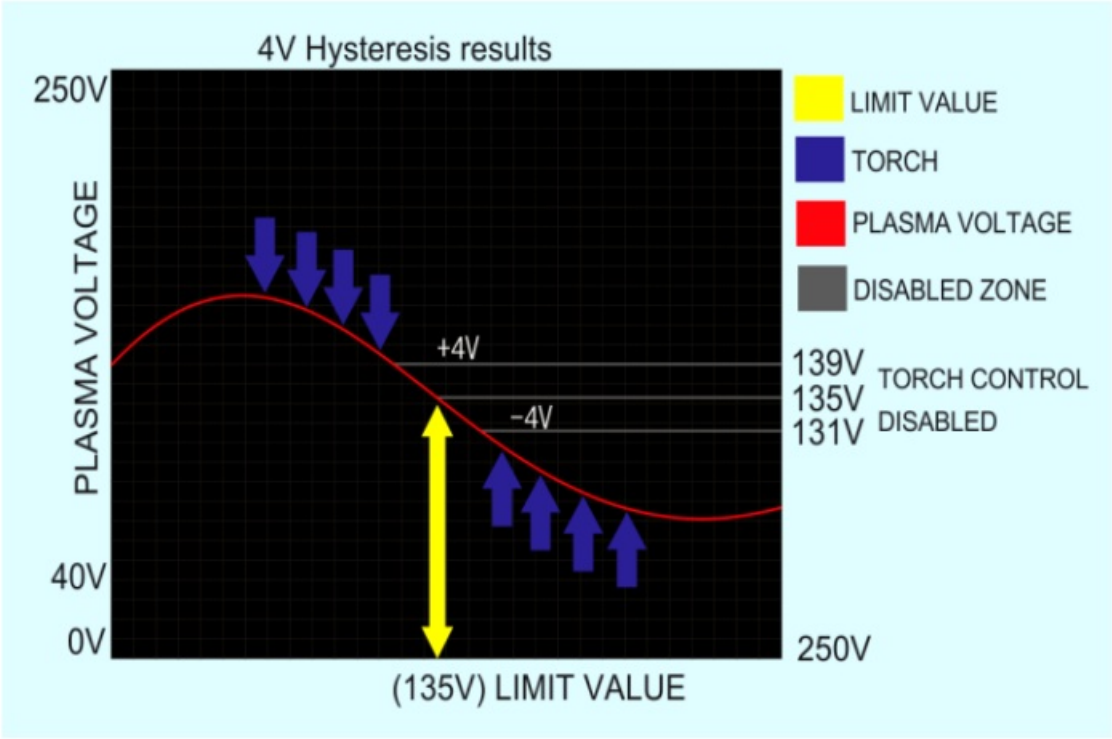
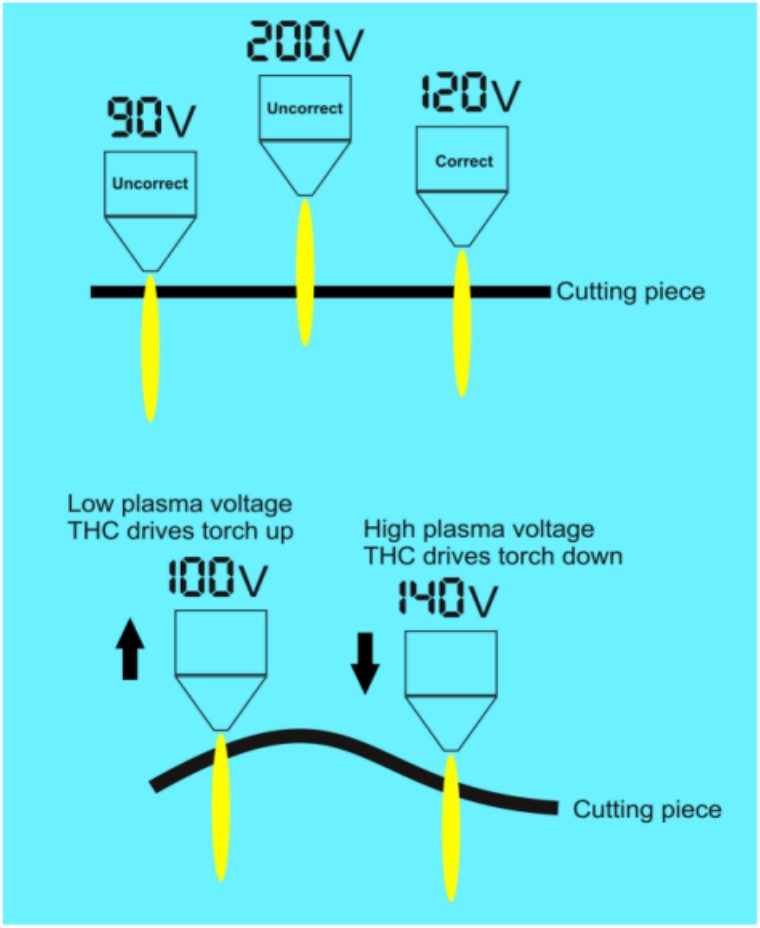


Image16



Documents / Resources

	AQTRONIC SF53 CNC PLASMA Torch Height Controller [pdf] Instructions SF53 CNC PLASMA Torch Height Controller, SF53, CNC PLASMA Torch Height Controller, PLASMA Torch Height Controller, Torch Height Controller, Height Controller, Controller