

# ***FLASHCUT CNC***

CONTROL MADE SIMPLE

## **ATHC Ohmic Disconnect Installation**



## Notices

Revised May 25, 2017

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## Disclaimer

FlashCut CNC and its affiliates are not responsible for the safe installation and use of this product. You and only you are responsible for the safety of yourself and others during the operation of your CNC machine tool. FlashCut CNC supplies this product but has no control over how it is installed or used. Always be careful!

FlashCut CNC is not responsible for damage to any equipment or workpiece resulting from use of this product.

If you do not understand and agree with all of the above, please do not use this product.

## Safety and usage guidelines

When running an automated machine tool, safety is of utmost importance. For proper and safe use of the FlashCut CNC program and your CNC machine, the following safety guidelines must be followed:

Never let the machine tool run unattended.

Require any person in the same room as a running machine tool to wear safety goggles, and to stay a safe distance from the machine.

Allow only trained operators to run the machine tool. Any operator must have:

- Knowledge of machine tool operation
- Knowledge of personal computer operation
- Knowledge of Microsoft Windows
- Good common sense

Place safety guards around the machine to prevent injury from flying objects. It is highly recommended that you build a safety shield around the entire tool envelope.

Never place any part of your body within the tool envelope while the machine has power, since unexpected machine movement can occur at any time.

Always keep the tool envelope tidy and free of any loose objects.

Be on alert for computer crashes at all times.

## About this document

Certain of the screen captures in this document may differ in minor ways from the actual FlashCut application. Those differences are used to make sure what you see is clear and help you understand the descriptions.

## Technical support

We provide expert technical support for all of our products. We have many resources dedicated to helping you resolve your problems quickly. Please use these resources in the following order:

### Website

<http://www.flashcutcnc.com/>

Our website has product specifications, documentation, videos and support information.

### Dealer support

If you purchased FlashCut CNC from a dealer or other machine tool manufacturer (OEM), please contact them as they will have the best knowledge of your complete system.

### Email

[support@flashcutcnc.com](mailto:support@flashcutcnc.com)

Email is the most organized way to convey your issues to our support staff. In your e-mail, please state your problem completely. Include your FlashCut version, the processor and speed of your computer, your version of Windows and your signal generator serial number. Attach your Setup and Tooling files (usually found in a folder named `c:\flashcut data`) and, when appropriate, the G-code file with which you are having problems. Alternatively, you can attach a single FlashCut support file generated by the **Build Support File** command on the **Error! Reference source not found.** tab. The support file is in ZIP format and contains all relevant files needed by technical support to resolve your issue. Please see **Build Support File** for more details.

### Phone/fax support

If email is unavailable to you, please call our telephone support number. We will normally respond to your call within 24 hours.

Phone: (847) 940-9305 (9:00 AM-5:00 PM, CST, M-F)

Fax: (847) 940-9315

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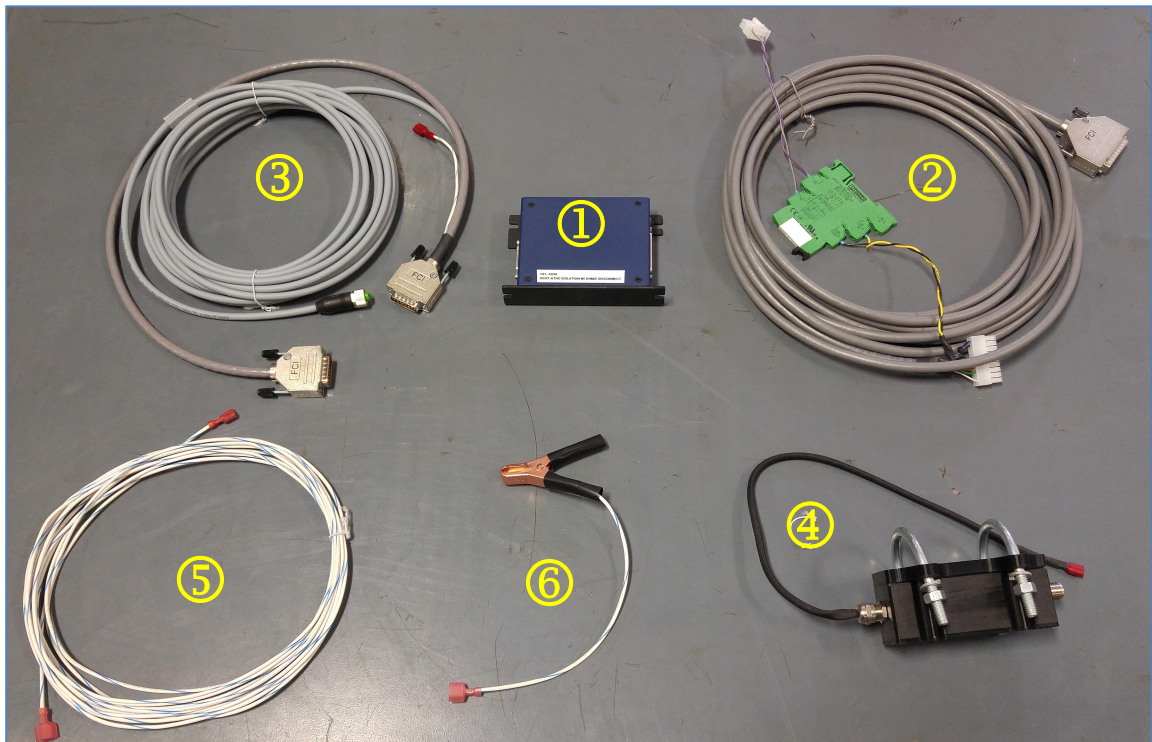
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**THC Kit Includes:** (Before you get started familiarize yourself with all the parts/cables)

- 1) THC Isolation Box with Ohmic Disconnect support (included with Stingray Kit)
- 2) Controller to THC Box Cable (DB25 to Minifit) with relay
- 3) Torch to THC Box (DB15 to DB15) with Ohmic Disconnect
- 4) Ohmic Disconnect – 15KV Isolation
- 5) Ohmic Return Cable (included with Stingray Kit)
- 6) Ohmic Return Clamp (included with Stingray Kit)

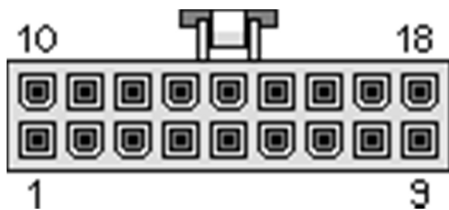


## Cable Pinouts:

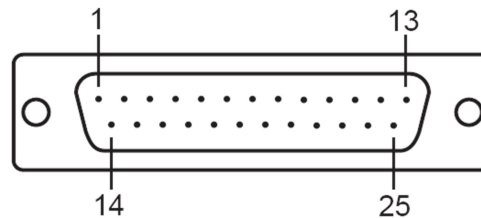
### Controller to THC

18 Pos. Minifit (Mini I/O Board)	Function	Discrete Wires	Relay Socket	10 Pos. Minifit (Output)	DB-25 (THC)
4	GND	-	-	-	19
5	GND	-	-	-	14,18
8	Shield	-	-	-	Shell
9	GND	-	-	-	15
10	Input 19	-	-	-	1
12	Input 20	-	-	-	2
13	+5V	-	-	-	6
18	Analog Input 1	-	-	-	3
-	Start+	Yellow	14	-	10
-	Start -	Black	11/13	-	23
-	Output 1	Violet	A1+	1	-
-	GND	Gry	A2-	10	-

18 pin Minifit Jr. (front View)



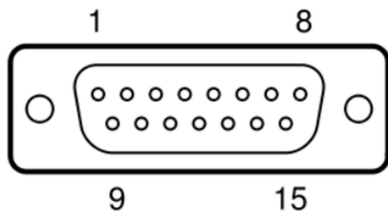
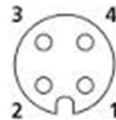
18 Position Minifit(fro



**Torch to THC Box**

DB-15 (THC)	Function	DB-15 (Voltage Divider)	4 position M12 (Ohmic Disconnect)	White/Blue Wire (Ohmic Return)
1	Varc (+)	8	-	-
2	Varc (-)	15	-	-
4	Ohmic Disconnect GND	-	1	-
5	Start (+)	2	-	-
6	"OK to start" (+)	4	-	-
7	Ohmic Sensor	-	3	-
12	Ohmic Disconnect Control	-	2	-
13	Start (-)	10	-	-
14	Arc Transfer	12	-	-
15	Ohmic Return	-	-	white/blue wire
shell	Shield	shell	-	-

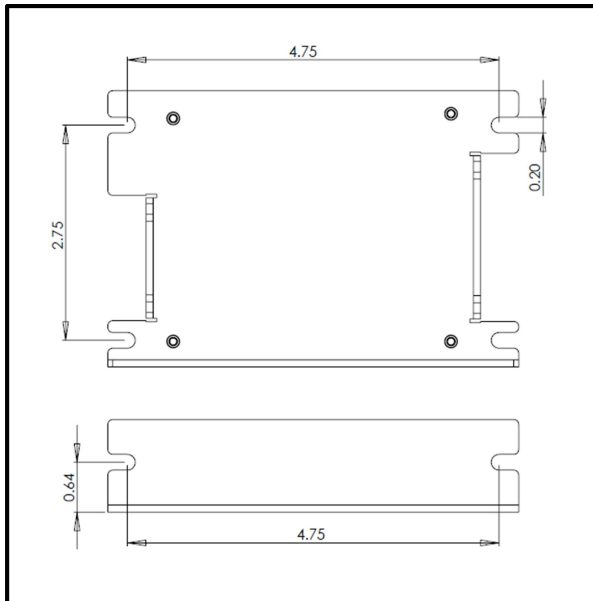
View)

**DB-15 (front View)****4 pole****M12 (front View)**

**Installation:** (Please read through instructions carefully prior to installing the kit)

- 1) **Mount the THC Isolation Box:** The THC Isolation box can be mounted to the torch or to the machine by fastening it down from one of the bolt patterns.

THC Mount Layout



Example of THC Isolation Box Mounted to the Torch



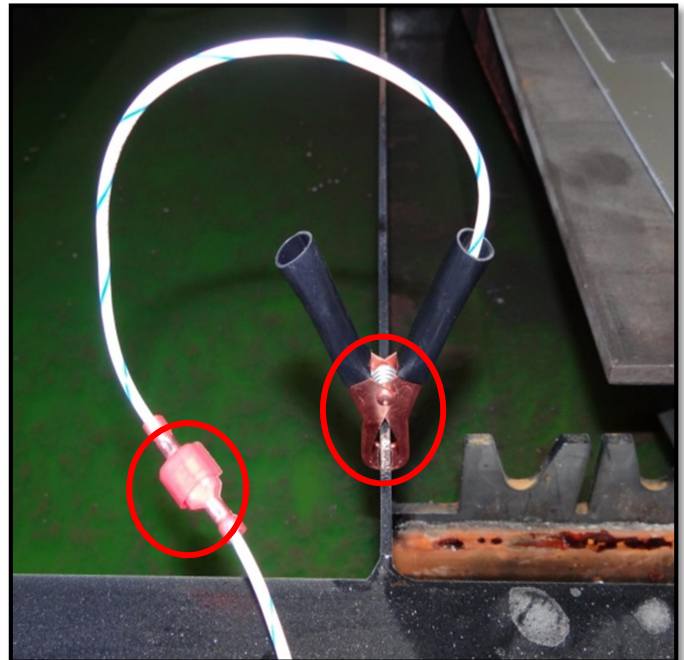
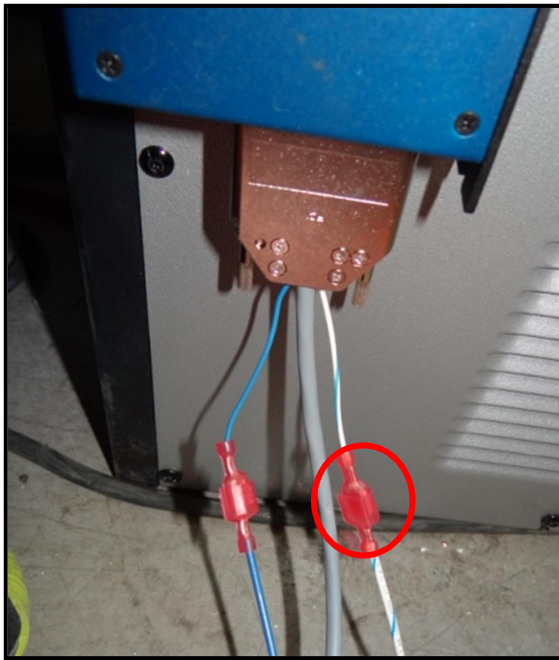
- 2) Mount and connect the Ohmic Disconnect enclosure to the torch.
  - a. Using the provided hardware mount the Ohmic Disconnect enclosure to the torch body.
  - b. Connect the Ohmic Disconnect sense lead to the shield of the torch.





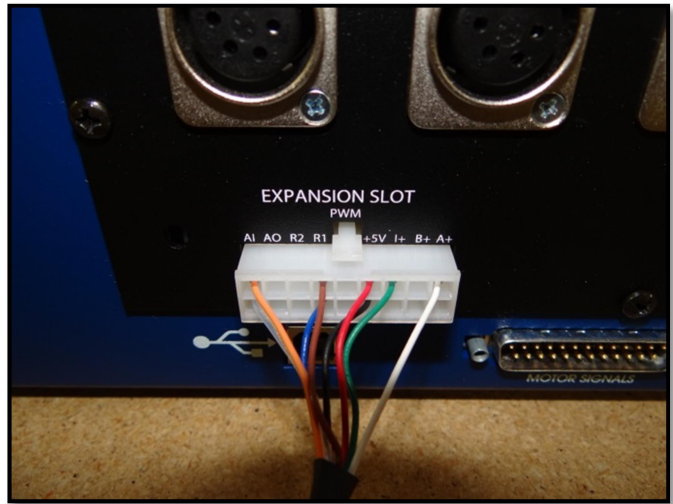
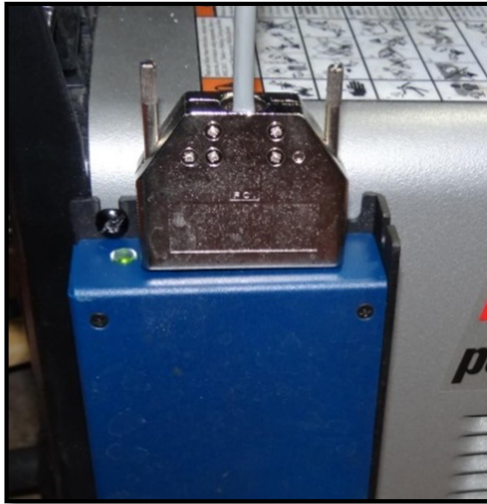
**3) Connect the Torch to THC Box cable as follows:**

- a. Connect the DB-15 connector marked “TO ATHC” to the ATHC box.
- b. Connect the DB-15 connector marked “TO VOLTAGE DIV” to the voltage divider of the torch.
- c. Route and connect the M12 connector to the Ohmic Disconnect enclosure.
- d. Route and connect the male quick connect of the white striped Ohmic Return Lead to the female quick connect on the white/striped wire on the DB-15 connector on the ATHC Isolation Box. Attach the other end of the white/striped wire to the table or workpiece using the Ohmic Return Clamp. Make sure the return clamp is out of the way of moving parts and acts successfully as the return line for the ohmic sensor.



**4) Install the “Controller to THC Box cable”.**

- a. Connect the DB25 connector to the Isolation Box.
- b. Connect the 18 position Molex Minifit connector to the Expansion Connector on the Controller.
- c. Connect the 10 position Molex Minifit connector to the Output Connector on the controller.



## Verification

- 1) **Ohmic sensor operation:**
  - a. Touch the white/striped wire to the sensing lead of the Ohmic Disconnect.
  - b. On the System Status screen of the software, observe the activation of input 19.
- 2) **Ohmic Disconnect operation:**
  - a. Turn off the torch power supply.
  - b. Disconnect the DB15 connector at the voltage divider in the torch.
  - c. On the CNC Panel of the software, use the torch button to activate the “torch on” output signal.
  - d. Touch the white/striped wire to the sensing lead of the Ohmic Disconnect and verify that the input 19 does NOT activate.

## Revision History

Revision	Date	Description of Revision
A	02/17/2015	Initial Release
B	03/30/2017	Misc grammar and identified what is included in kit.