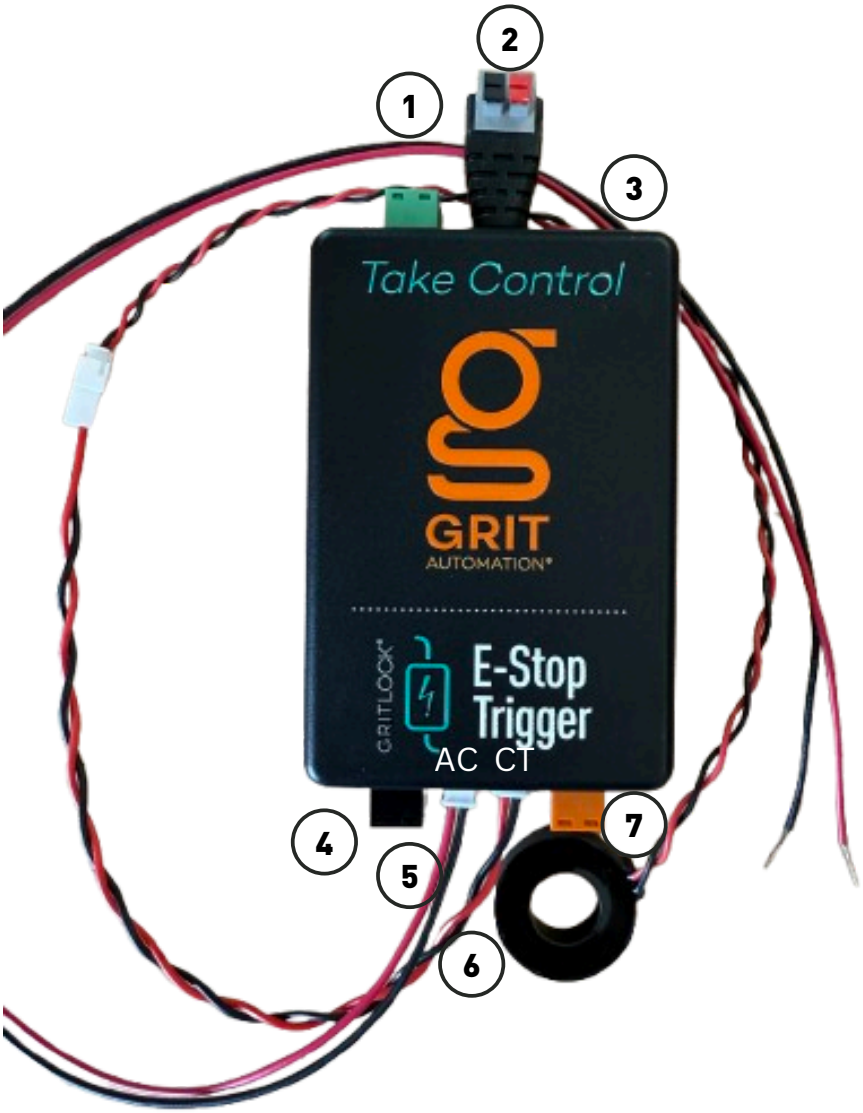
GRIT E-Stop Trigger

The **GRIT E-Stop Trigger** detects when a tool is running and reports that status back to the GRIT Hub over the mesh network — enabling automated dust collection, blast gate control, and RFiD-based access control at the tool level. The device senses tool activity using either a Current Transformer (CT) that is placed around a motor power wire, or an external tool running signal input that accepts 3V–24V AC/DC from a relay or PLC output. It gets wired directly into the tool's cabinet or contactor, putting it as close to the source as possible.

The E-Stop includes a 5VDC 1A output to power a RFiD reader directly from the device, an orange emergency stop contact that wires in line with the tool's existing e-stop button for emergency lock capability, and flexible power options — low-voltage DC (5V–24V) or AC mains (120V–240V). A lock/unlock status LED confirms the device state at a glance. The GRIT E-Stop is part of the GRIT ecosystem and requires a GRIT Hub to operate.



1. Green removable low-voltage terminal for **OUTGOING 5VDC 1A** (used to power RFiD device in access control systems)
2. Pushdown low-voltage jack for optional **INCOMING 5V-24V DC** (used to power the e-stop device with low-voltage)
3. Lock/unlock status indicator LED
4. Black removable tool running signal **INPUT accepts 3V-24V AC/DC** (used to capture whether the tool is running when the CT isn't used)
5. AC Mains power wires for optional **INCOMING 120V-240V AC** (used to power the e-stop device when low-voltage DC is not available)
6. Current Transformer (CT) (used to capture whether the tool is running when the tool running signal isn't used)
7. Orange removable emergency stop contact (wires in line with tool's emergency stop button for Emergency Lock and Access Control features)

Installation and Configuration

Installation consists of three primary steps:

Step 1: Power the GRIT E-Stop Trigger Device

- use the **AC** Mains power wires from the bottom of the GRIT device, or;
- use the low-voltage **DC** input through the pushdown jack at the top of the device

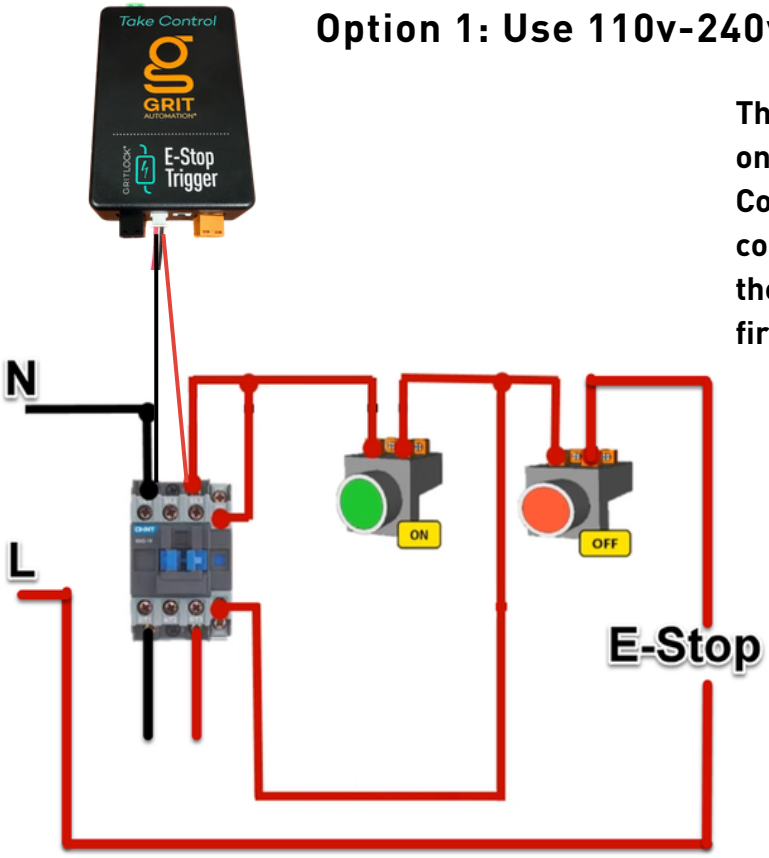
Step 2: Measure Whether the Tool is Running

- Option 1: use the CT from the GRIT device to measure the tool's current, or;
- Option 2: wire the Removable Tool Running Signal from the GRIT device inline with the tool's running signal.

Step 3: Control the Tool's Power

- wire the Removable Orange E-Stop Contact from the GRIT device inline/ in series with the tool's emergency stop button or anywhere in line with the tool's off button

Step 1: Power the GRIT E-Stop Trigger Device



Option 1: Use 110v-240v AC

The GRIT E-Stop Trigger can run on 110v-240v AC.
Connect the AC Mains leads that come with your GRIT device into the contactor's terminals with the first two incoming hot wires.

Step 1: Power the GRIT E-Stop Trigger Device

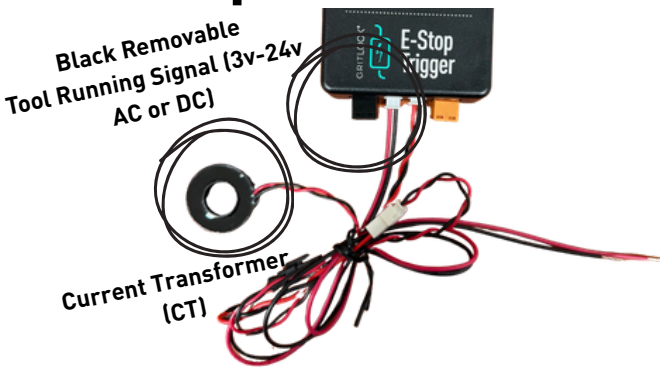
Option 2: Use 3v-24v DC

The GRIT E-Stop Trigger can run on 3v-24v DC.
Connect the available DC power in the tool's cabinet to the pushdown low-voltage jack on the top of the E-Stop device.

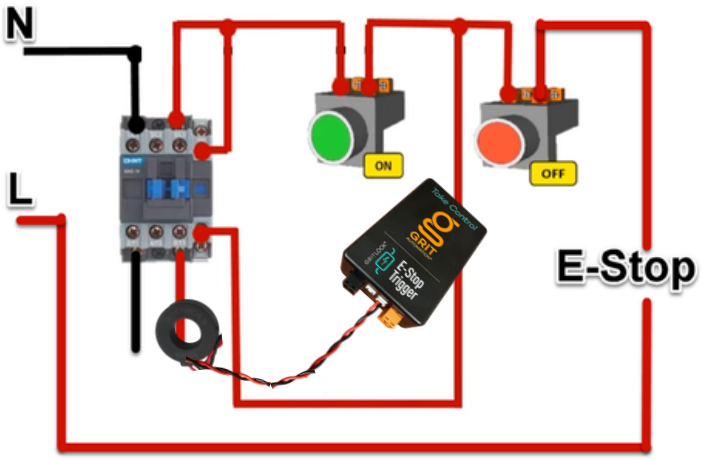
Remember that polarity matters for DC power:

Red=Positive.
Black=Negative.

Step 2: Measure Whether the Tool is Running

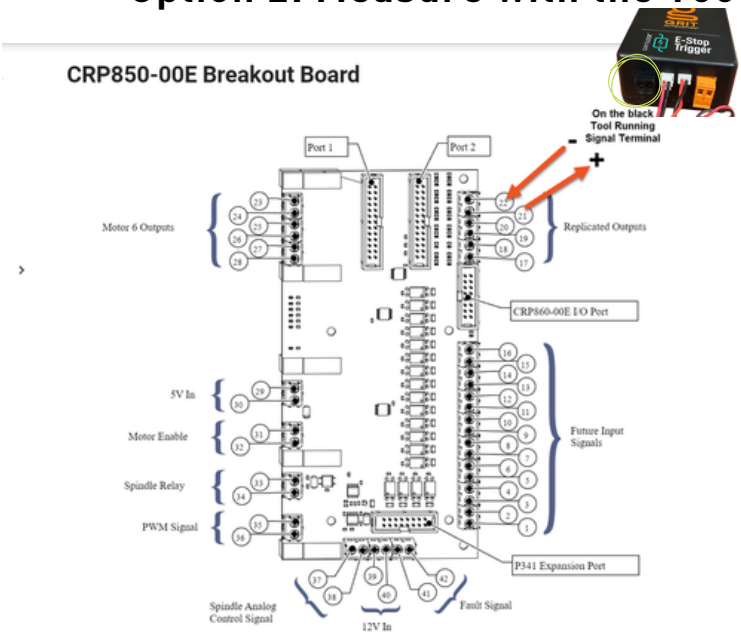


Option 1: Measure with the CT



Unscrew one of the load wires leading to the motor.
Insert it through the middle of the CT, then re-secure the wire in its terminal.

Option 2: Measure with the Tool's Low-Voltage Running Signal



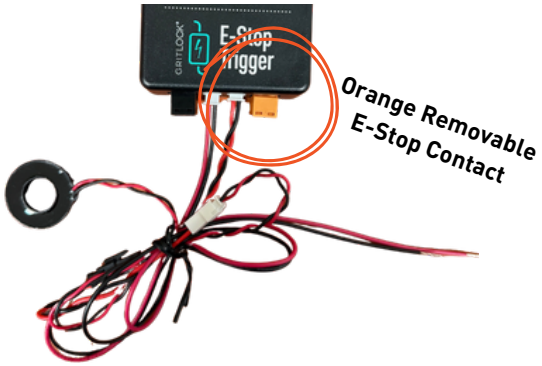
This is a schematic for an AVID CNC. Please, consult the manual for your specific tool to locate the Tool Running Signal in your machine, if applicable.

Using the Tool Running Signal (this is 5v on your AVID), insert the positive signal wire from terminal 21 into the right side of the black terminal (marked with a +) on the GRIT device.

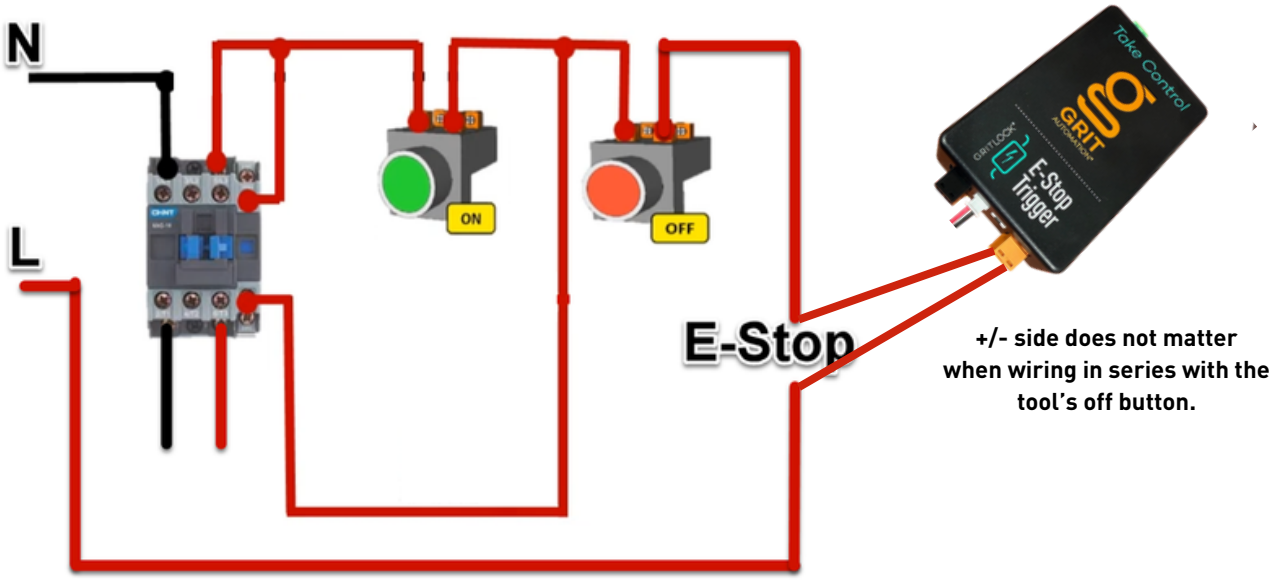
Connect the negative ground from terminal 22 to the left side of the same black terminal (marked with a -) on the GRIT device.

Plug the black terminal back into the E-Stop Trigger.

Step 3: Control the Tool's Power



Wire Inline/In Series with the Emergency Stop Button or the tool's Off Button*

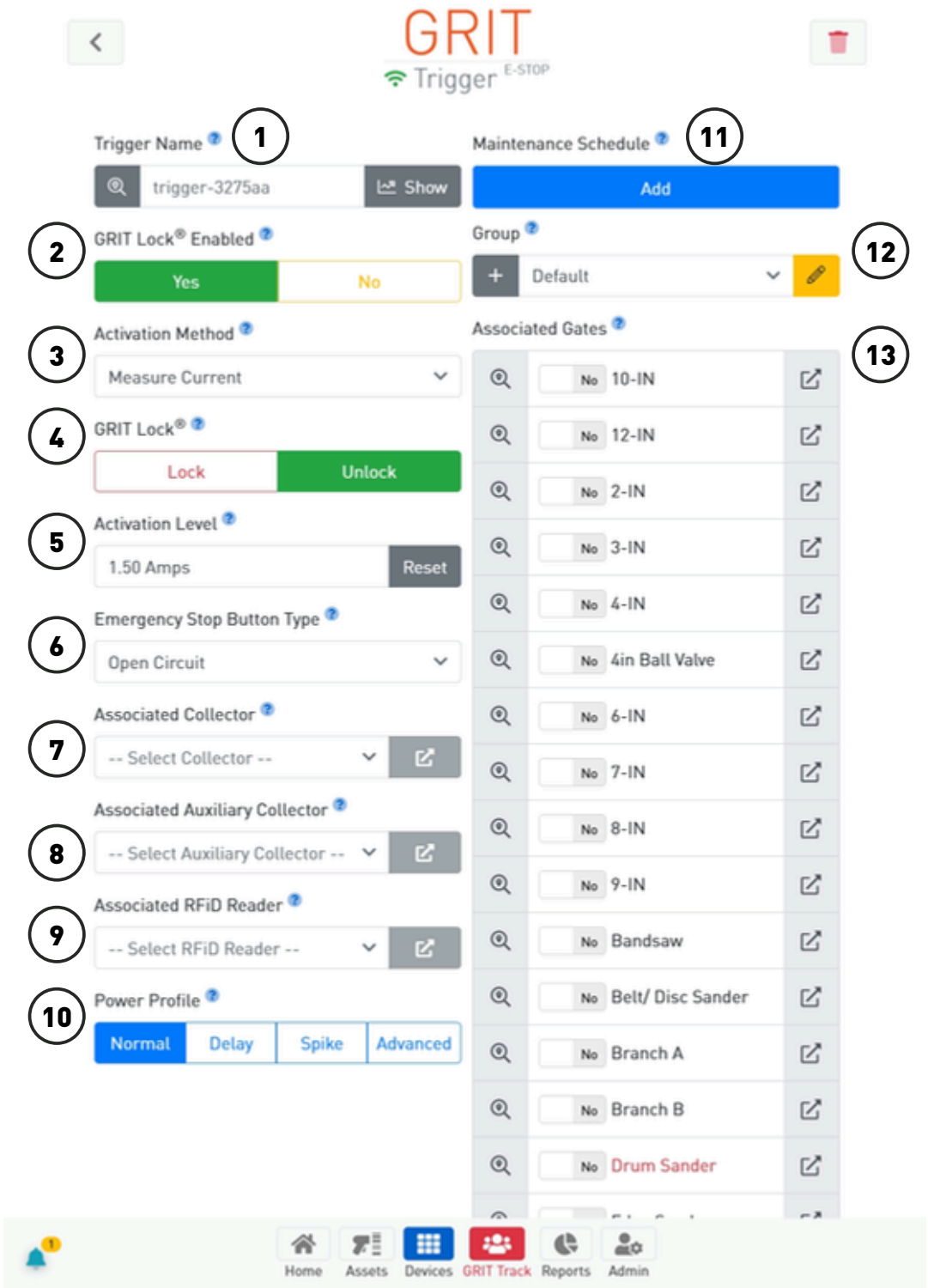


+/- side does not matter when wiring in series with the tool's off button.

*Extra wire and a wire nut are provided if an extension is required.

Configuration

Devices-->Trigger--> *select specific trigger to configure*



1. Editable name field
2. Select ‘Yes’ when the E-Stop Trigger has been wired to utilize the emergency stop functionality
3. Select whether the trigger is detecting tool run state with the CT or Tool Running Signal input
4. Lock and Unlock this tool
5. Set the power draw required for this tool to be considered ‘Running’
6. Select the circuit type for this tool’s emergency stop functionality
7. Select the associated dust collector
8. Select the associated auxiliary collector, if applicable
9. Select the associated RFiD device (only for GRIT Track Access Control)
10. Specify how the tool acts when it gets turned on to ensure GRIT Lock functions properly. See Power Profile section for more detail
11. Manage maintenance schedule reminders for this tool
12. Editable device grouping
13. Select associated gate(s) that will open when this tool is running