



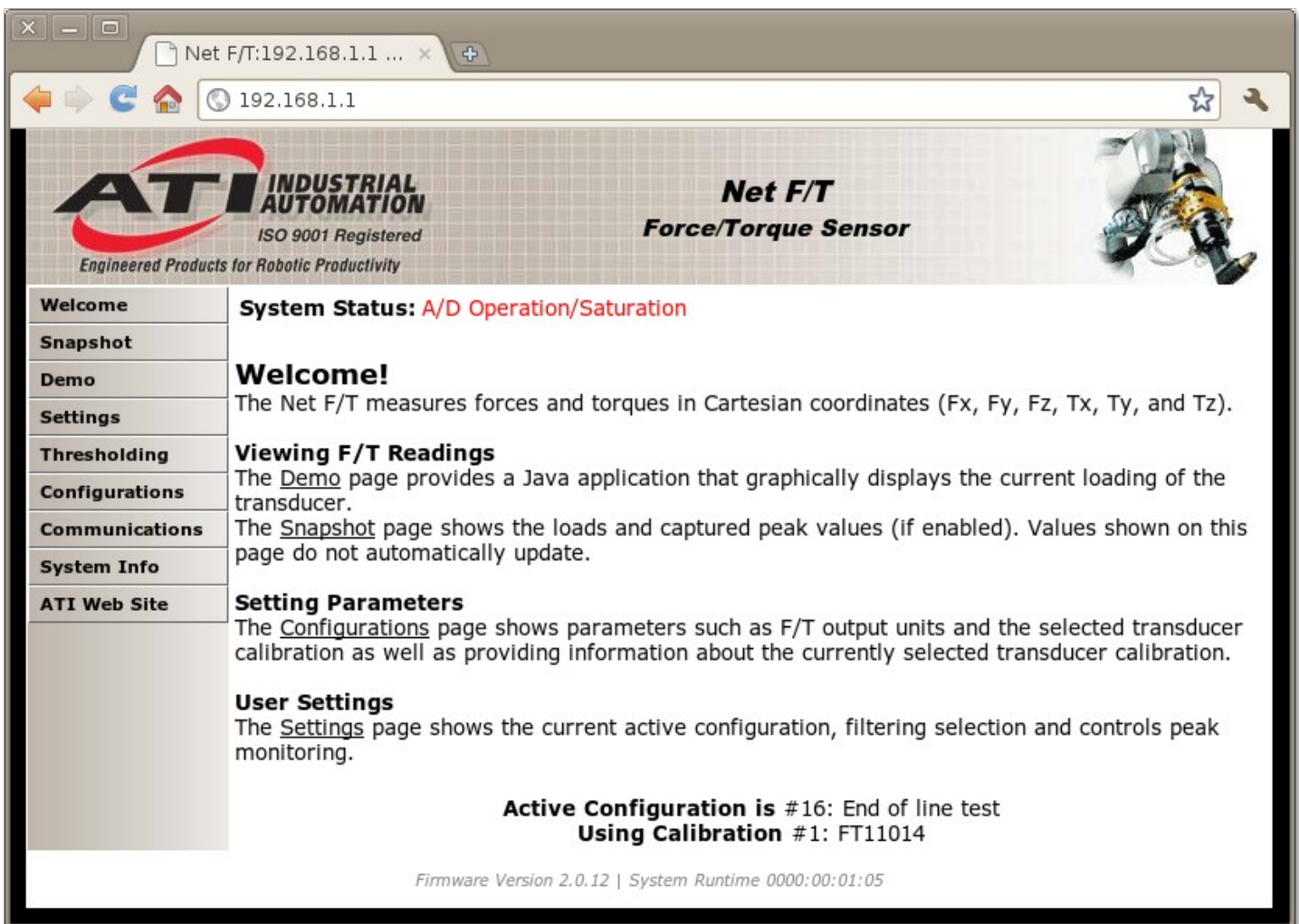
Installing NetFT on PR2  
June 29, 2011

# NetFT Configuration

1. Before putting NetFT on PR2, get it working first with wall power supply and desktop computer.
2. By default NetFT tries to get a IP address using DHCP after first powering up. However, when its gets an address from DHCP the question of what IP address it got assigned arises. If NetFT does not get a DHCP address after about 10 seconds, it will fall-back to using a static IP address of 192.168.1.1. On my computer, I have an extra NIC (eth1). I connect NetFT directly to NIC and assign it a static address on same subnet as NetFT:  

```
sudo ifconfig eth1 192.168.1.100
```
3. The NetFT has a web browser, so it should be possible to view NetFT status information with browser by using <http://192.168.1.1> (Fig2)
4. You can also the ROS netft\_node to read and publish force/torque data from the sensor. The is a tutorial for the node available here : "  
[http://www.ros.org/wiki/netft\\_rdt\\_driver/Tutorials/RunningNetFTNode](http://www.ros.org/wiki/netft_rdt_driver/Tutorials/RunningNetFTNode)

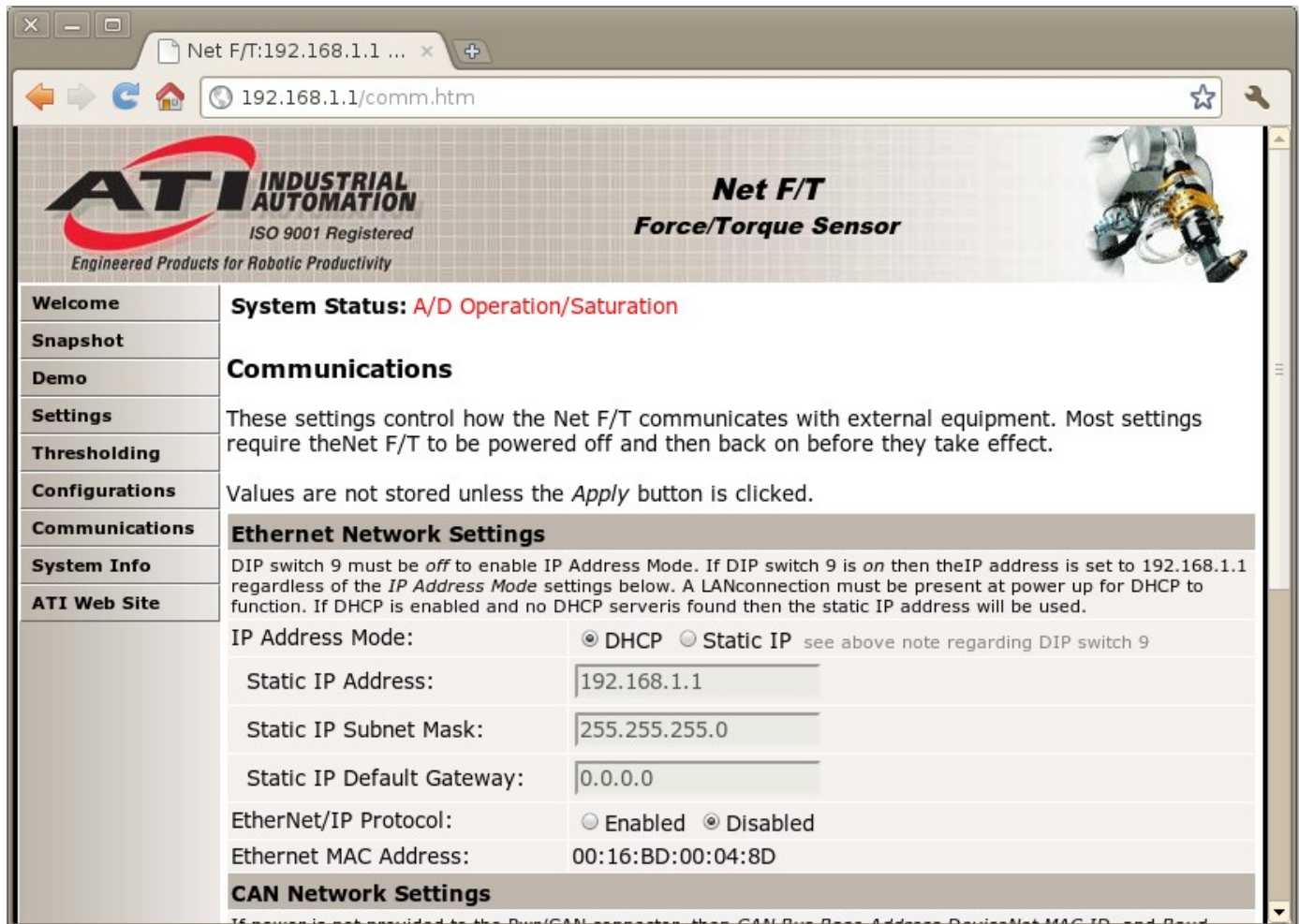
Fig 1



# NetFT Configuration

1. When using NetFT on PR2 we assign it a static IP address of 10.68.0.60 . Before putting NetFT on PR2 it might be useful to assign a static IP of 10.68.0.60 using NetFT 'Communications' webpage (Fig1)

Fig 1



The screenshot shows a web browser window with the address bar displaying "192.168.1.1/comm.htm". The page header features the ATI Industrial Automation logo and the text "Net F/T Force/Torque Sensor". A sidebar on the left contains a menu with options: Welcome, Snapshot, Demo, Settings, Thresholding, Configurations, Communications (selected), System Info, and ATI Web Site. The main content area displays the "System Status: A/D Operation/Saturation" and the "Communications" section. It explains that these settings control communication with external equipment and that values are not stored until the "Apply" button is clicked. The "Ethernet Network Settings" section includes a note about DIP switch 9 and provides input fields for Static IP Address (192.168.1.1), Static IP Subnet Mask (255.255.255.0), and Static IP Default Gateway (0.0.0.0). It also shows radio buttons for "Enabled" and "Disabled" for the EtherNet/IP Protocol, and the Ethernet MAC Address (00:16:BD:00:04:8D). The "CAN Network Settings" section is partially visible at the bottom.

**ATI INDUSTRIAL AUTOMATION**  
ISO 9001 Registered  
Engineered Products for Robotic Productivity

**Net F/T**  
**Force/Torque Sensor**

**Welcome**  
**Snapshot**  
**Demo**  
**Settings**  
**Thresholding**  
**Configurations**  
**Communications**  
**System Info**  
**ATI Web Site**

**System Status: A/D Operation/Saturation**

**Communications**

These settings control how the Net F/T communicates with external equipment. Most settings require the Net F/T to be powered off and then back on before they take effect.

Values are not stored unless the *Apply* button is clicked.

**Ethernet Network Settings**

DIP switch 9 must be *off* to enable IP Address Mode. If DIP switch 9 is *on* then the IP address is set to 192.168.1.1 regardless of the IP Address Mode settings below. A LAN connection must be present at power up for DHCP to function. If DHCP is enabled and no DHCP server is found then the static IP address will be used.

IP Address Mode: ☒ DHCP ☐ Static IP see above note regarding DIP switch 9

Static IP Address:

Static IP Subnet Mask:

Static IP Default Gateway:

EtherNet/IP Protocol: ☐ Enabled ☒ Disabled

Ethernet MAC Address: 00:16:BD:00:04:8D

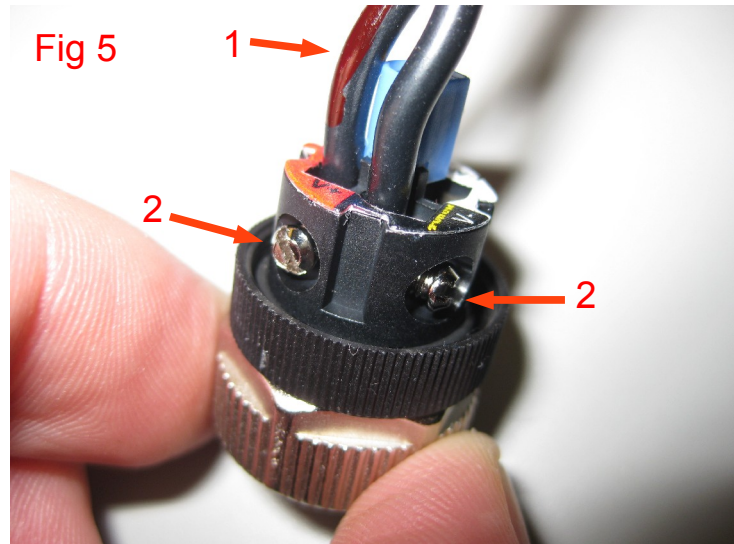
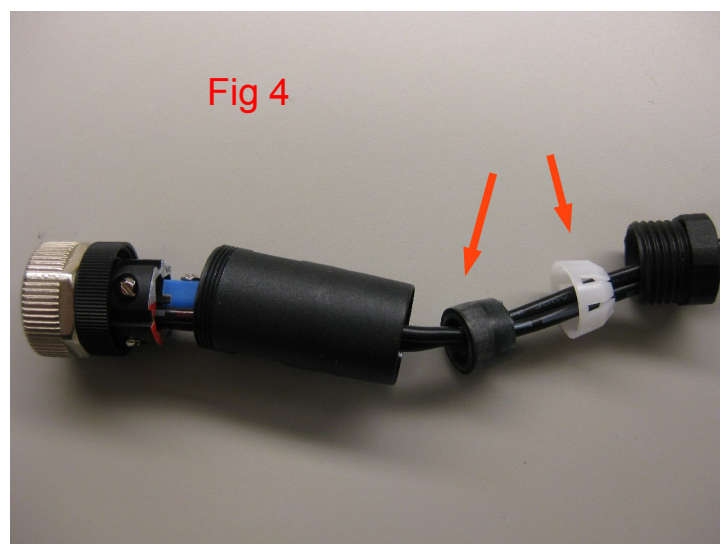
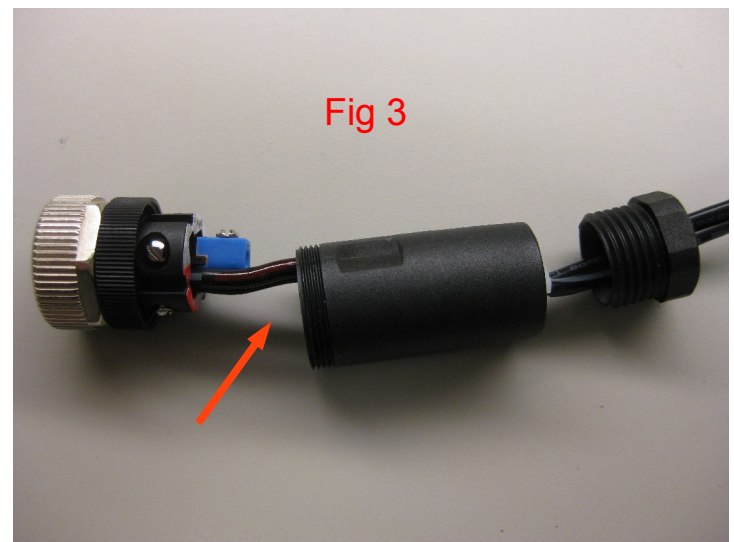
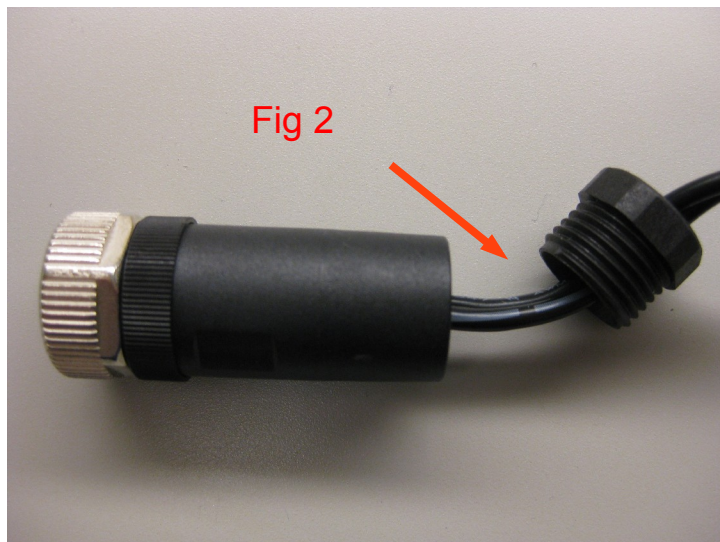
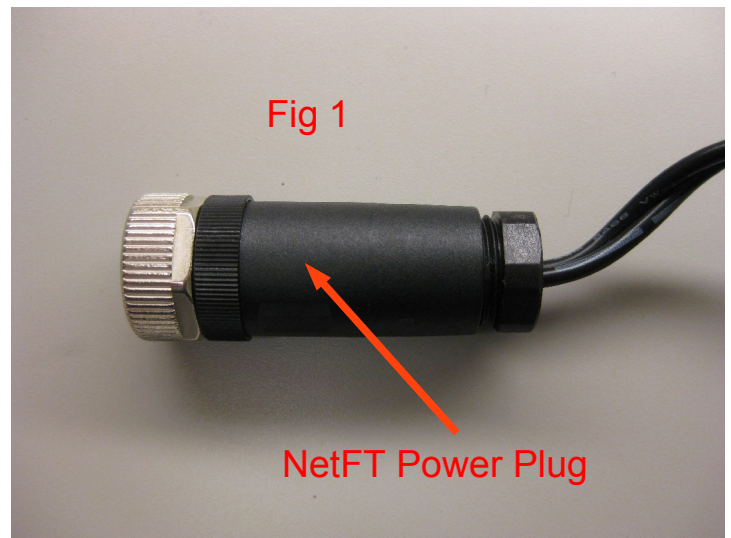
**CAN Network Settings**

If power is not provided to the Bus/CAN connector, then CAN Bus Base Address, DeviceNet MAC ID, and Base



# NetFT Power Cable Teardown

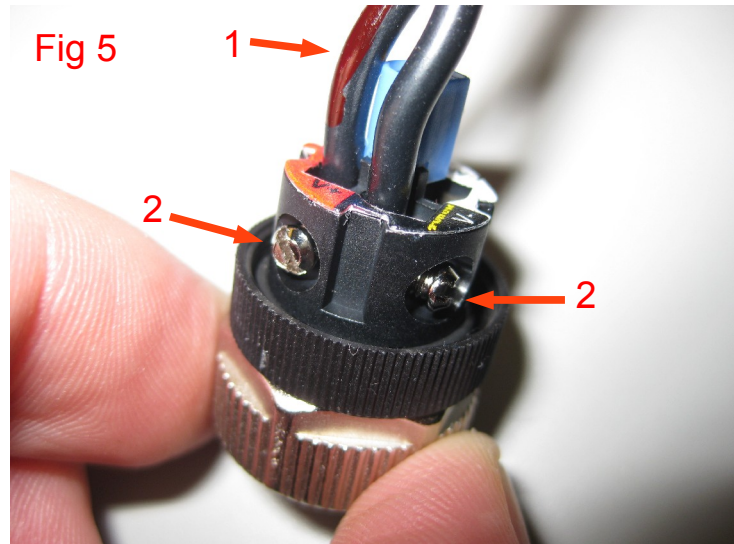
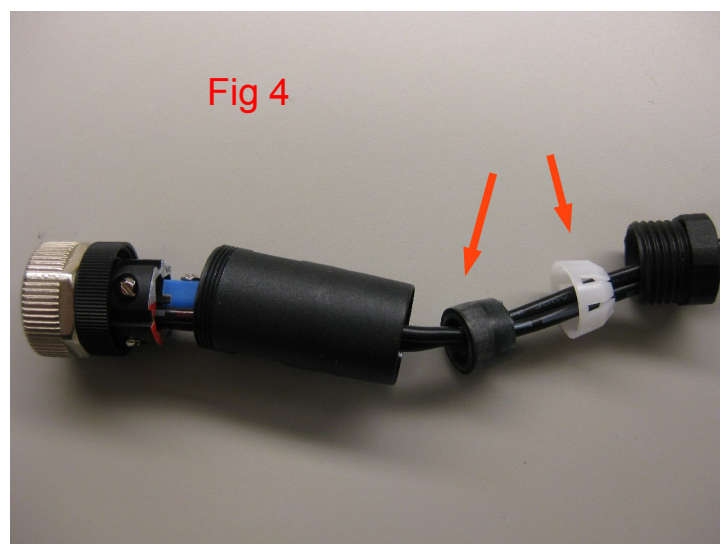
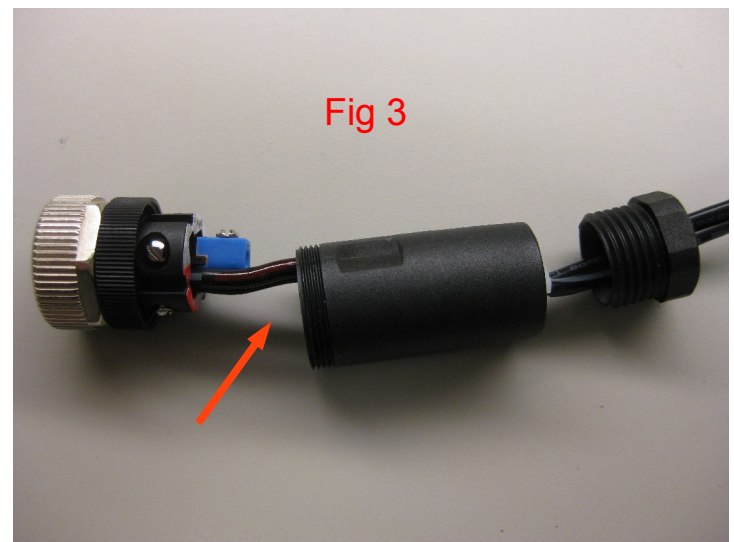
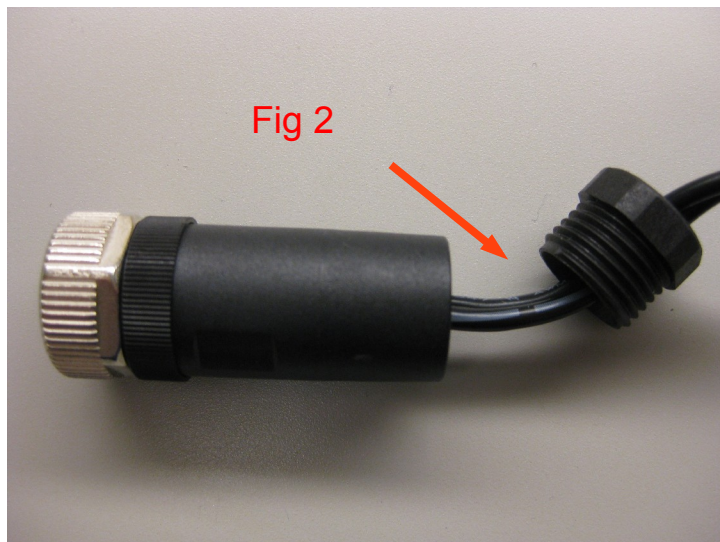
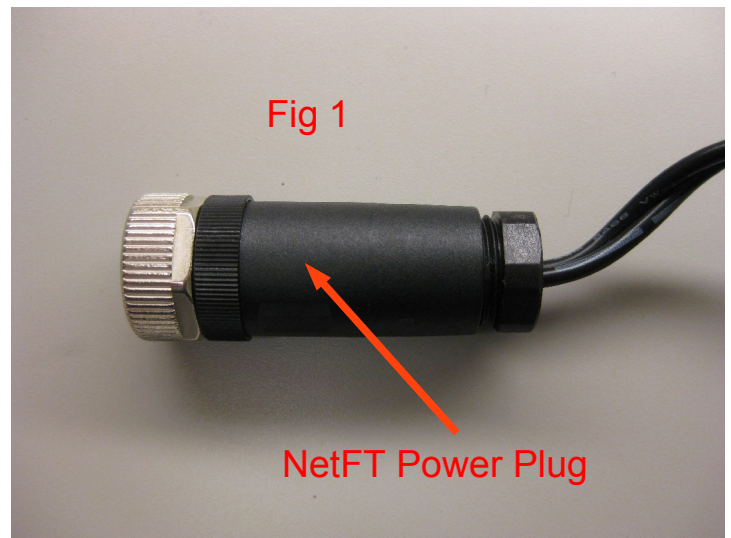
1. Before modifying power cable for PR2 (Fig 1), get NetFT to working when plugged into wall outlet.
2. After proper NetFT operation has been verified, unplug power converter and wait for a few minutes for capacitors to discharge.
3. Unscrew rear part of plug (Fig 2)
4. Unscrew center part of plug (Fig 3)
5. There a couple of parts hidden inside center part of plug (Fig 4)
6. Use red marker to mark positive wire (Fig 5.1)
7. Use screw driver to loosen terminal screw and remove power wires (Fig 5.2)





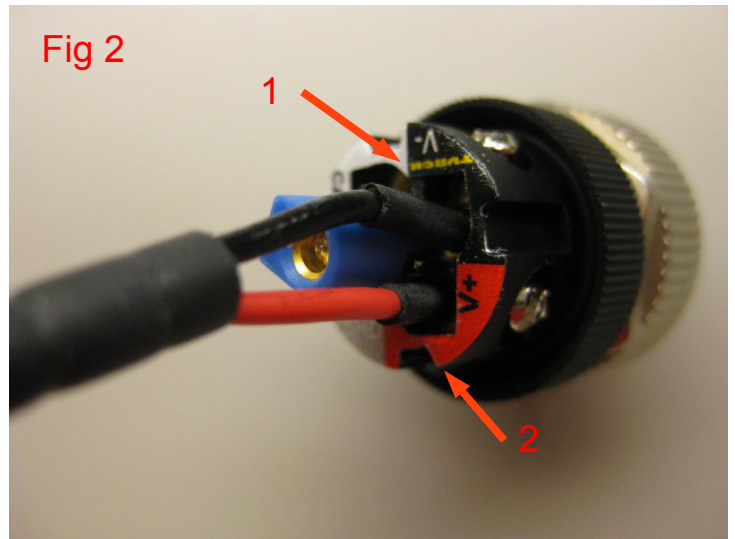
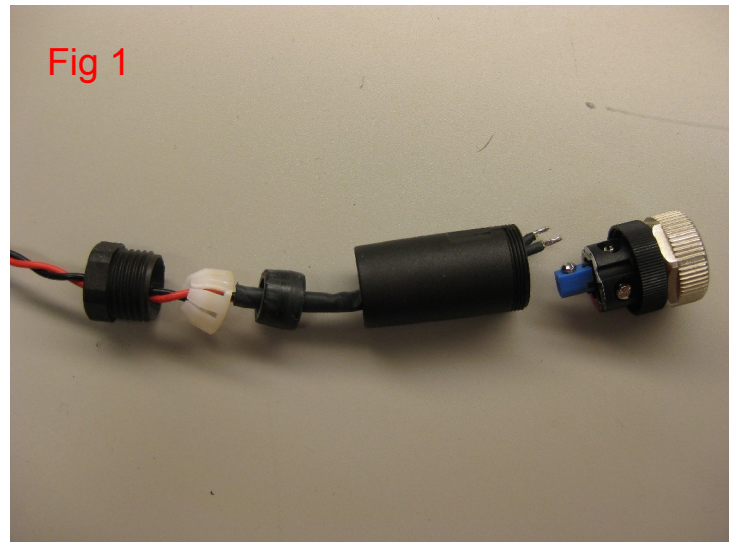
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# NetFT Power Cable Assembly

1. Put NetFT power connector components on to cable for PR2. (Fig 1)
2. Use terminal screws to secure wires in terminal. Black wire goes to black V- hole (Fig 2.1). Red wire goes to red V+ hole (Fig 2.2).
3. Screw connector pieces back together. Your final cable should look something like (Fig 3)





# NetFT PR2 Mount

1. We used a single bolt to mount the NetFT to the side mounting plates of the PR2.



# Take off PR2 Rear Top Panel

1. Use the 'Rear Top Panel R/R' instructions here:

<http://www.scribd.com/doc/34939615/PR2-Top-and-Rear-Spine-Cover-Removal-and-Replacement>



# Connect NetFT

1. Once the cover is removed locate the power breakout board (1), and 'Ethernet Head Aux Lower' cable (2).
2. Plug NetFT power connector into empty 12V power port on power breakout board (1).
3. Use Ethernet coupler and extra Ethernet cable to connect "Ethernet Head Aux Lower" cable to NetFT (2).

