Bringing Together Leading Brands in Industrial Automation

Setting up an IP Address on a PowerFlex Drive

Overall Description

This document serves as a supplement to the PowerFlex '4' and '7' class range of drives, and the communication adapter user manuals. The EtherNet IP address and subnet mask for a PowerFlex drive, can be set by a number of different methods, dependant on the drive type and what peripherals you have available.

The table below lists the drive type and method, in order of your most likely peripheral from left to right etc

Drive Type	HIM on Drive	AnaCanDa Serial	RSLogix 5000 v16.x	External HIM	BOOTP server
PowerFlex 40 / 40P / 400	No	Yes	Yes if IP set	Yes	Yes
PowerFlex 70 / PF70EC / 700std / 700H	Yes	Yes	Yes if IP set	Yes	Yes
PowerFlex 700VC	Yes	Yes	Yes if IP set	Yes	Yes
PowerFlex 700S	Yes	Yes	Yes if IP set	Yes	Yes

N.B. The AnaCanda is a serial interface, and is either a 1203-SSS, 22-SCM-232, or a 1203-USB

The EtherNet/IP communication adapters 22-COMM-E for the '4' class drives, and 20-COMM-E for the '7' class drives, require that specific IP address and subnet is assigned to each adapter, so that it can be exclusively allocated to a PLC for control. When adapters are new, they are defaulted to BOOTP enabled. Although BOOTP is widely used in the IT world, drive users in the industrial control world often are not familiar with BOOTP servers, and so this is the least preferred method. Therefore this application note details how we can use different types of peripheral, to set the IP address and subnet mask.

So looking at the table above, often the easiest method is the HIM on the front of the drive. This is great for say a PF70, but the built-in keypad of the PF40 will not access the EtherNet card, so the AnaCanDa is the next likely method. If the IP address has been previously set and is known, then you can use RSLogix5000 v16.x, to force a new IP address. If you don't have an AnaCanda, then maybe you can use an external HIM plugged into the drive. However if you don't have any of these peripherals, then your last resort is a BOOTP server.

The application note provides the procedure for BOOTP, and each of the peripherals and drive types.

N.B. Ensure that the EtherNet/IP adapters are already installed before putting power on the drives.

PowerFlex '7' class drive – using the HIM on the drive

The PowerFlex '7' class EtherNet adapter 20-COMM-E resides inside the drive.
Assuming we intend to change the IP address = 192.168.100.10, and subnet = 255.255.0.0

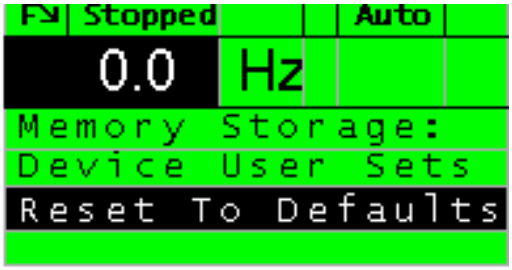
PowerFlex70 drive

Adapter fitted inside the drive as DPI port 5

20-COMM-E EtherNet Adapter

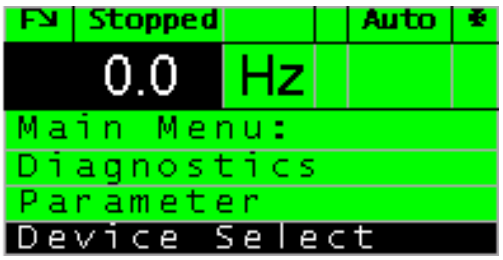
1. We will use the top row of keys on the HIM: ESC, Sel, Up arrow, Down arrow, & Enter

2. Reset the drive to defaults as follows:

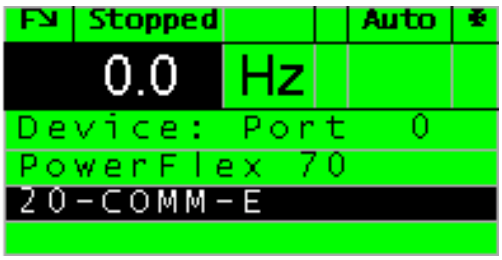


- 1. Press Esc to return to the Main Menu.
- 2. Press ▲ or ▼ to choose "***Memory Storage***" from the list.
- 3. Press ↵ to see a list of items within Memory Storage.
- 4. Press ▲ or ▼ to find "***Reset to Defaults***".
- 5. Press ↵ to request a reset.
- 6. Press ↵ to confirm and execute a reset to defaults.
- 7. Press ○ to clear the fault. Notice how the STS led changes from a flashing red to a flashing green. A pop-up message also appears informing you that the loading of factory defaults is complete.

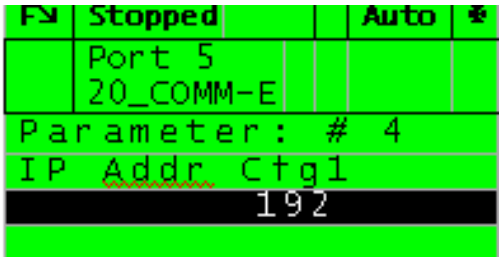
3. Changing the IP address of the drive as follows:



- 1. Press Esc to return to the Main Menu.
- 2. Press ▲ or ▼ to choose "***Device Select***" .
- 3. Press ↵ to see a list of items within the drive.
- 4. Press ▲ or ▼ to find "***20-COMM-E***".
- 5. Press ↵ to select the adapter, and ↵ to select parameters



- 6. Press ▲ or ▼ to select the parameters from the list.
- 7. Press ↵ to select ***IP Addr Cfg 1***
- 8. Press Sel and then the numeric keys to change the address to a value of ***192***. Then press ↵
- 9. Press ▼ and then repeat ***for IP Addr Cfg 2,3 & 4***
- 10. Press ▼ and then repeat for ***SubNet Cfg 1,2,3 &4***
- 11. ***The IP address = 192.168.100.10, and subnet = 255.255.0.0***
- 12. Now power down the drive and ensure EtherNet patch cable is plugged into the 20-COMM-E card. Now power up the drive



PowerFlex '4' & '7' class drive – using the AnaCanda serial interface

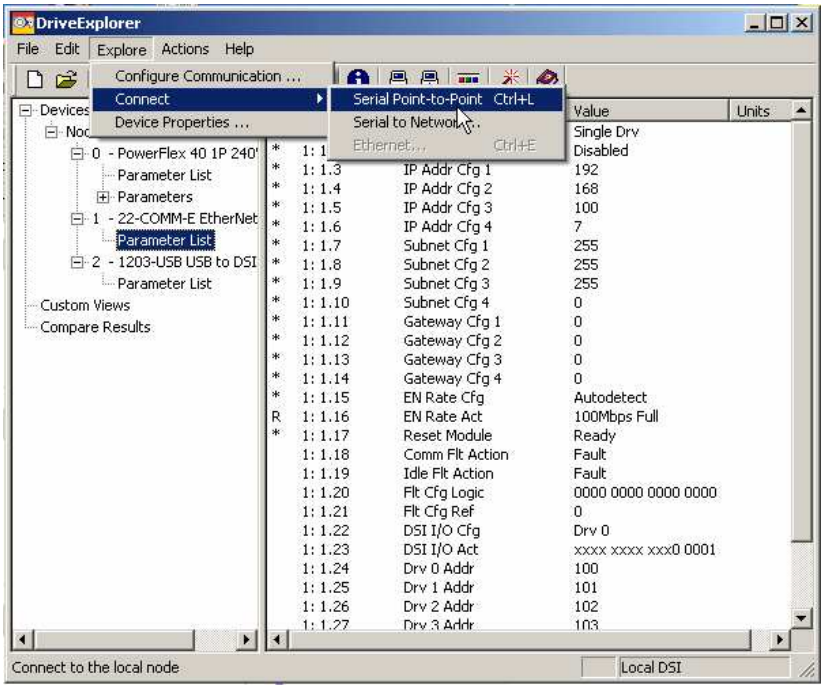
An AnaCanda (22-SCM-232 or 1203-USB) connects to the PowerFlex '4' class drive, using the RJ45 connector on the motherboard of the drive. Do NOT mistake the Ethernet connector on the 22-COMM-E as the AnaCanda connection.

An AnaCanda (1203-SSS or 1203-USB) connects to the PowerFlex '7' class drive using the DPI mini DIN connector on the bottom plate of the drive, just behind the front cover.

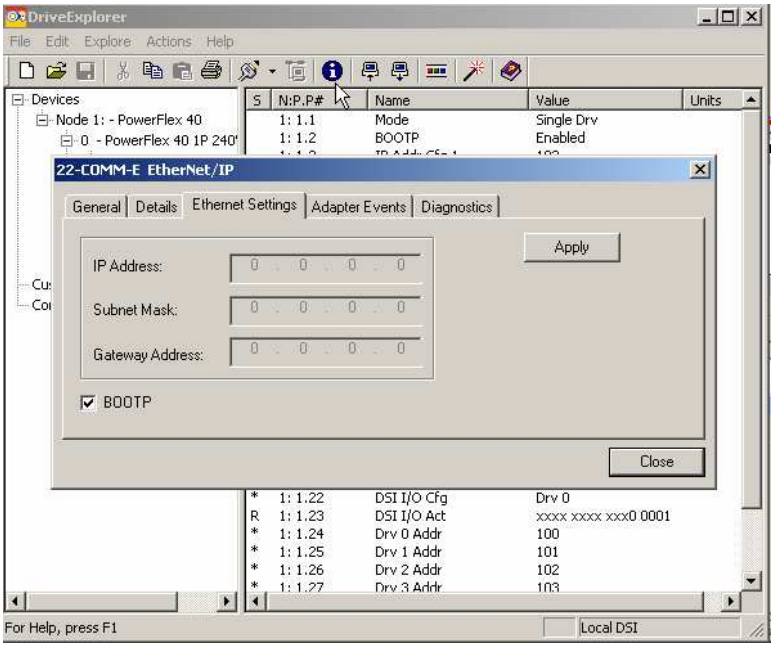
All AnaCanDa's can be inserted / removed under power.

It is possible to use either of the software drive tools, DriveExecutive or DriveExplorer. The following screenshots detail DriveExplorer.

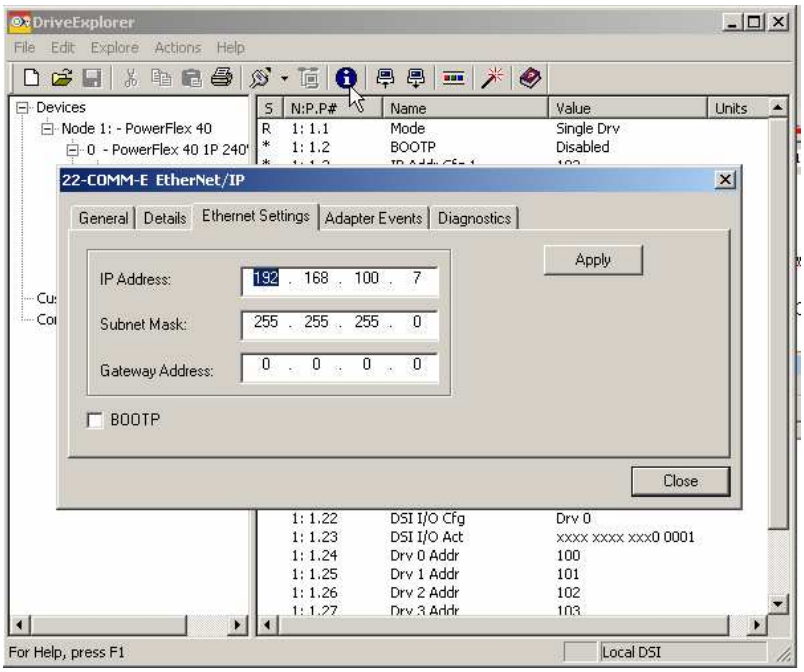
1. Make a connection via the serial point to point connection, and select the 22-COMM-E parameter list



2. Click on the information icon ⓘ, and then the EtherNet Settings tab.



3. Uncheck the BOOTP box, so that the EtherNet Settings are not greyed out and can be adjusted



4. Enter the correct EtherNet/IP address and subnet, then click Apply.

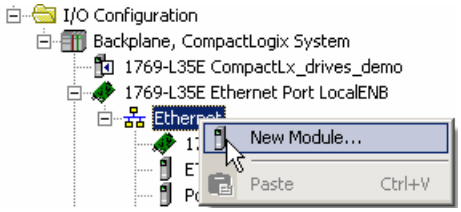
5. Now we need to reset the adapter for the changes to take effect. This can be done with parameter 17, or just power cycle the drive.

PowerFlex ‘4’ and ‘7’ class drive – using the RSLogix5000 v16.x

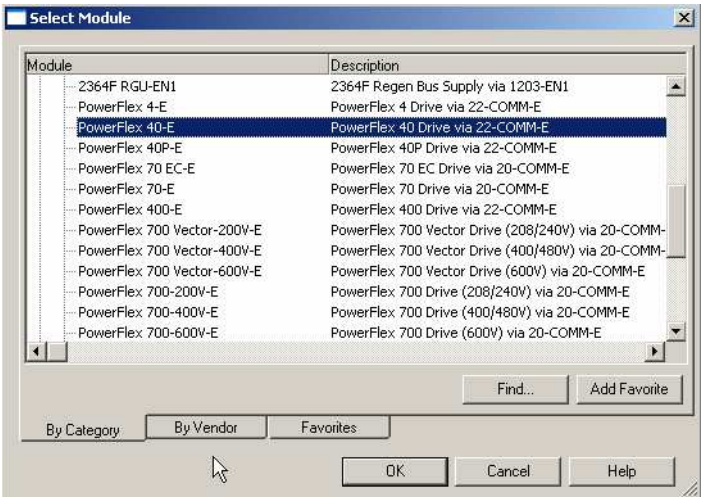
If a drive has a fixed IP address and is known to you, then you can use RSLogix5000 v16.x programming software, to force a new IP address.

Lets assume that the IP address of a PF40 = 192.168.100.102, and subnet = 255.255.255.0, but we need the address changed to 192.168.100.8

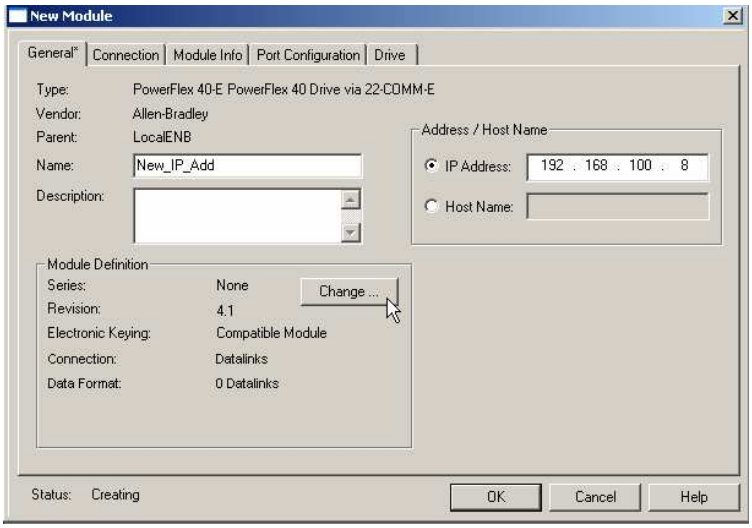
1. Open RSLogix5000 v16.x and either copy and paste an instance of the drive, or create a new drive instance. Goto the I/O configuration tree and right click on the ***EtherNet*** and select ***New Module***



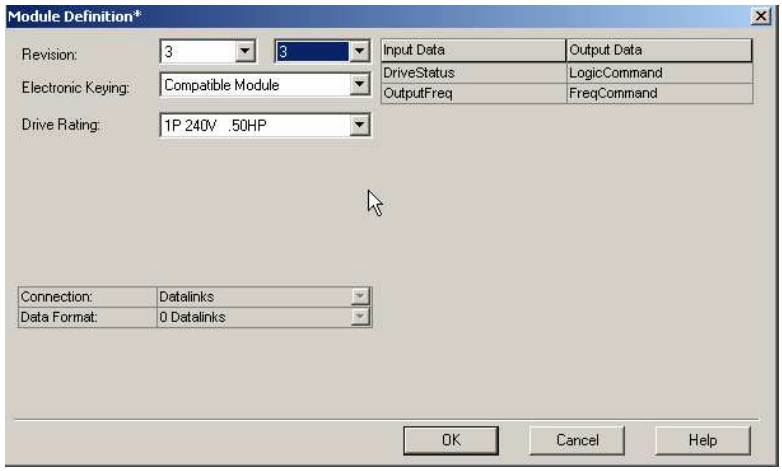
2. Expand the Drives selection, and select the correct drive type, we will choose a PF40 in this case



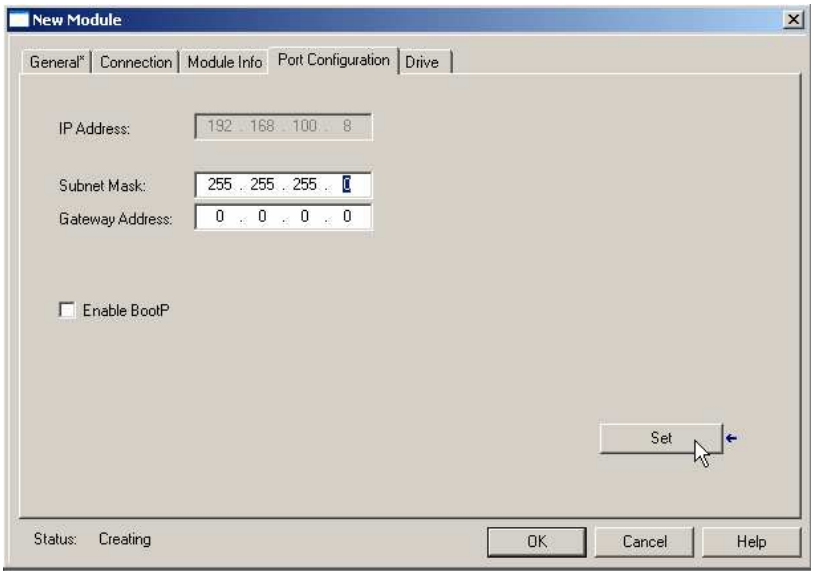
3. Type in a name for the new drive, and type in the IP address you wish to change it to. i.e. the new IP Address.



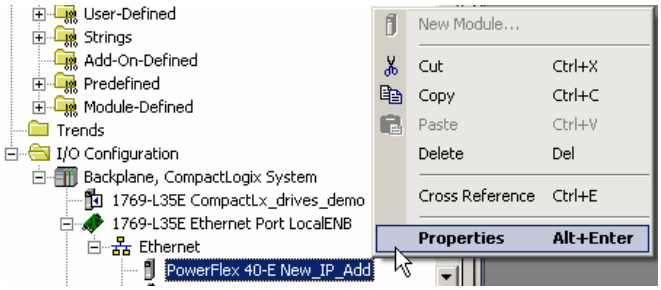
4. Click the ***Change*** button to select the correct drive type and revisions and click ok. If your drive is not listed or you get errors when downloading, you may need to create a database for your new drive. See Step 11 later.



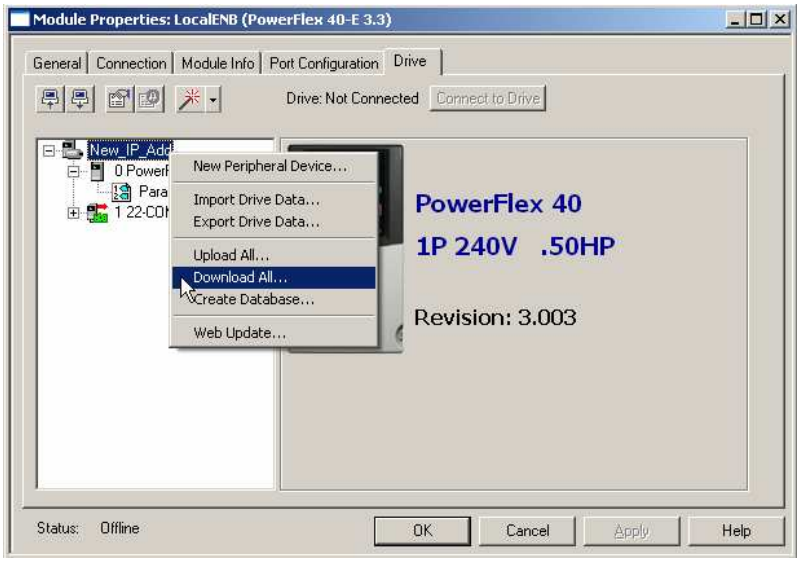
5. Goto the ***Port Configuration*** tab, and enter the Subnet mask and click the ***SET*** button. Now we can click ***OK*** to create the module.



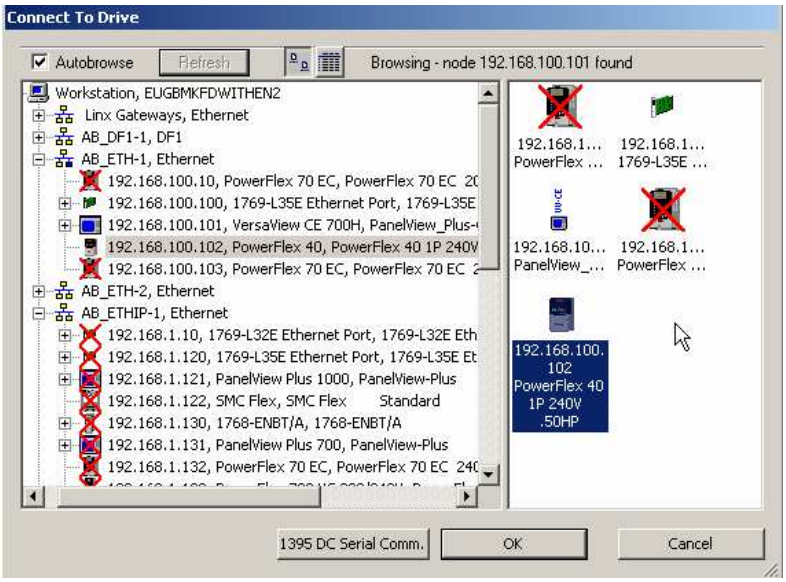
6. The new drive will now appear on the I/O Configuration tree. Double click it, or right click and select ***Properties*** and select the ***Drive*** tab



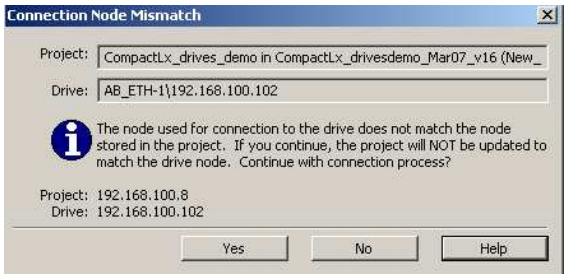
7. In the Drive I/O tree select the complete drive with adapter ***New_IP_Add*** (top line), and right click and select ***Download All.***

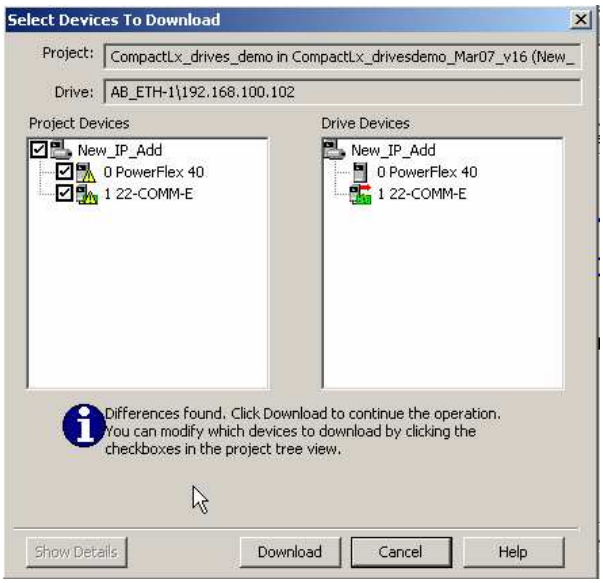


8. RSLinx will now open, so select your drive by its old IP address ***192.168.100.102*** to define the connection path to the drive.



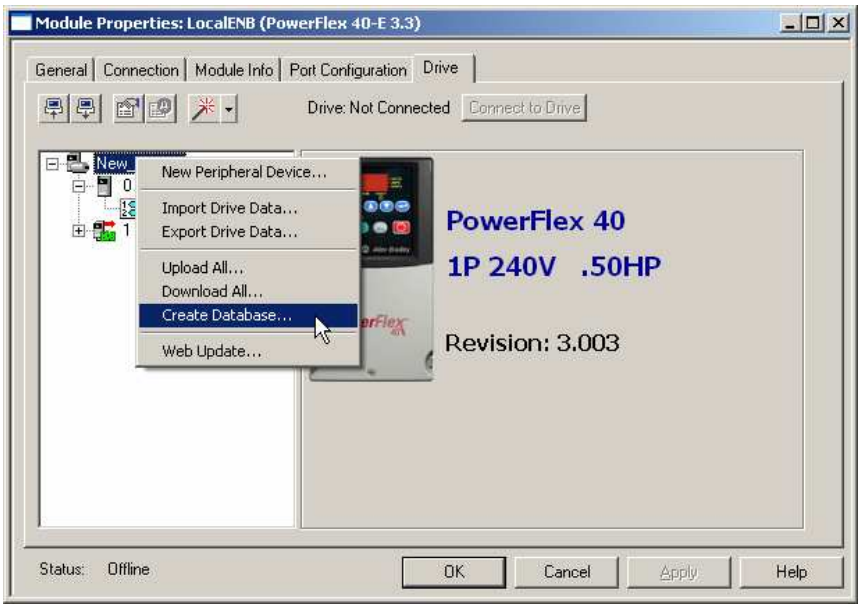
9. Click ***OK*** and you will get the following. Select Yes and we get the download screen.





10. Click the ***Download*** button, and the parameters and new IP address will be transferred to the drive. To make the new IP address active, power cycle the drive.

11. If you get an error that you have the wrong drive rating or firmware version, you may need to create a new database. This can be created from the drive, by right clicking the drive and selecting ***Create Database***. Again you will need to define the path to the drive in RSLinx. Creating a database may take a few minutes, but once completed additional drive ratings / firmware are now selectable as in Step 4.

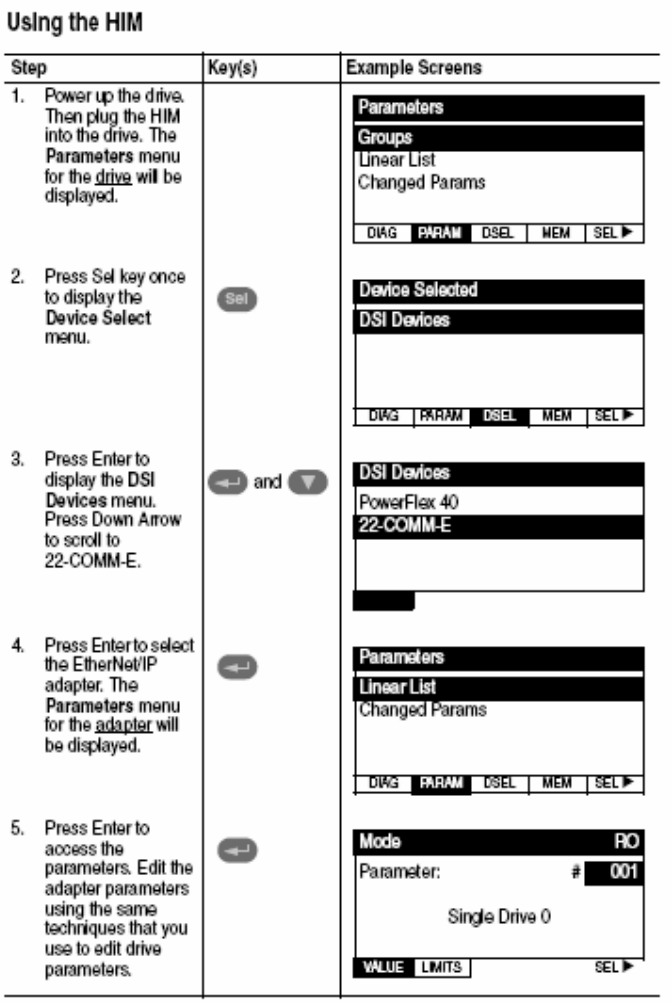


PowerFlex ‘4’ and ‘7’ class drive – using the External HIM on the drive

Using an external HIM on a PowerFlex ‘7’ class drive is identical to the earlier description of a drive mounted HIM.

An external HIM connects to the PowerFlex ‘4’ class drive, using the RJ45 connector on the motherboard of the drive. Do NOT mistake the Ethernet connector on the 22-COMM-E as the HIM connection.

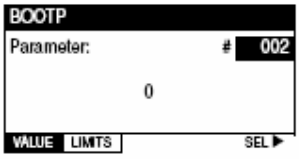
1. Select the 22-COMM-E as shown below.



Using the HIM

Step	Key(s)	Example Screens
1. Power up the drive. Then plug the HIM into the drive. The **Parameters** menu for the drive will be displayed.		**Parameters** **Groups** Linear List Changed Params DIAG PARAM DSEL MEM SEL ▶
2. Press Sel key once to display the **Device Select** menu.	Sel	**Device Selected** **DSI Devices** DIAG PARAM DSEL MEM SEL ▶
3. Press Enter to display the **DSI Devices** menu. Press Down Arrow to scroll to 22-COMM-E.	↵ and ▼	**DSI Devices** PowerFlex 40 **22-COMM-E**
4. Press Enter to select the EtherNet/IP adapter. The **Parameters** menu for the adapter will be displayed.	↵	**Parameters** **Linear List** Changed Params DIAG PARAM DSEL MEM SEL ▶
5. Press Enter to access the parameters. Edit the adapter parameters using the same techniques that you use to edit drive parameters.	↵	**Mode** RIO Parameter: # 001 Single Drive 0 VALUE LIMITS SEL ▶

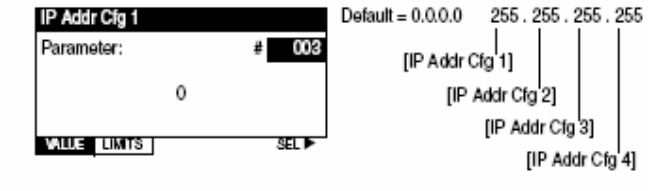
2. Use the Up / down arrows to scroll to the BOOTP parameter 002. Now select the BOOTP by pressing the enter key, and use the down arrow to put the value to 0. Now press enter to disable the adapter.



Value	Setting
0	Disabled
1	Enabled (Default)

3. Now we need to reset the adapter for the changes to take effect. This can be done with parameter 17, or just power cycle the drive.

4. Return to the 22-COMM-E parameters, and goto parameter 3 – IP address Config 1 and start inputting your IP address values. In our case the first octet was 192, so press enter on parameter 3 and press the up/down keys or enter a value, then press enter to accept.



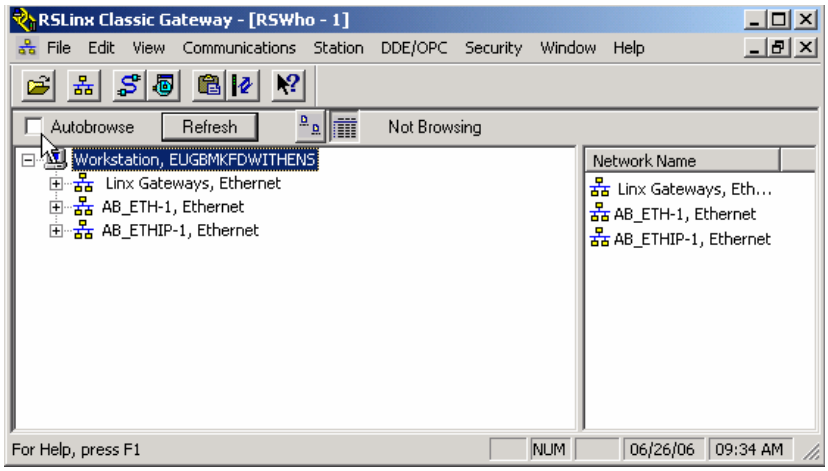
5. Continue with the IP Address Config 2 to 4 and then the Subnet Cfg 1 to 4.

6. When complete, we need to reset the adapter for the changes to take effect. This can be done with parameter 17, or just power cycle the drive.

Using the BOOTP server

In order to control the drive over the communication port (EtherNet/IP adapter 20-COMM-E or 22-COMM-E), the IP address needs to be set in the card. A new adapter defaults to BOOTP enabled, with no fixed IP address, so the following procedure assumes a new adapter is fitted.

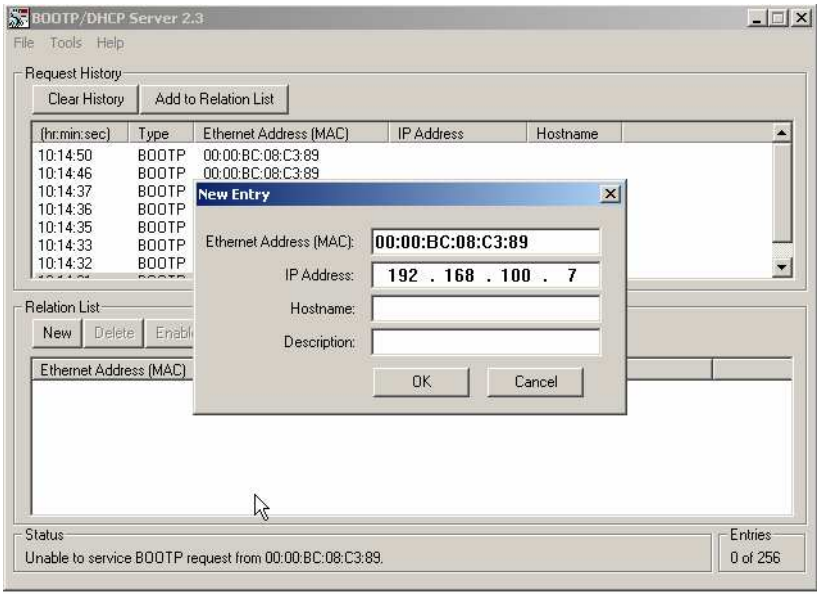
1. Stop RSLinx browsing, by un-checking the ***Autobrowse*** feature..



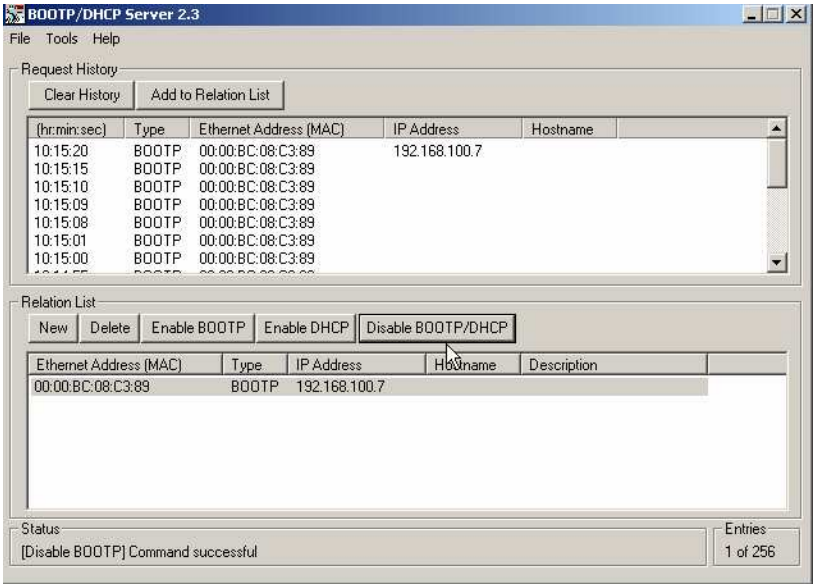
2. The BOOTP-DHCP server program is normally supplied as part of the accessories with Rockwell Software. From the ***Start menu ….. Rockwell Software …. BOOTP-DHCP Server …. BOOTP-DHCP Server***.

3. Make sure that the PowerFlex EtherNet cards 20-COMM-E or 22-COMM-E is connected to the EtherNet switch, and when the drive is powered up, the the EtherNet adapters will issue BOOTP requests. The BOOTP server will detect the hardware MAC address of the adapter. This number can be confirmed on the label on the chip of the 22-COMM-E adapter.

4. When BOOTP identifies this MAC address, double click on one of the instances, and you will be prompted to input the IP address. Type in ***192.168.100.7*** and click ***OK***.



5. Now that the adapter has been given an IP address, it appears in the relational list . Click on the adapter in the relational list, and click the ***Disable BOOTP/DHCP*** button. The BOOTP server should respond within a few seconds, that the operation was successful.



6. Cycle the power on the drive, to make sure the IP address is validated.