This tutorial will demonstrate how to update the firmware of PM5XXX meter using DLF3000 software and serial communication.

You will need:

- PM5xxx meter
- A computer with a serial port / Ethernet port
- RS485 serial port adapter (if serial port is used)
- Cables for connectins
- Firmware (.fw) file
- DLF3000 PC software

BEFORE YOU BEGIN THE DOWNLOAD PROCESS, ENSURE THAT WHILE THE DOWNLOAD AND FIRMWARE UPDATE ARE IN PROGRESS, THERE ARE NO INTERRUPTIONS TO THE COMMUNICATIONS, OR THE POWER SUPPLY TO THE METER, THE RS485 ADAPTER OR THE COMPUTER

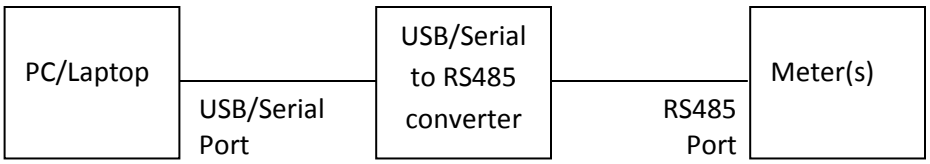
DANGER: HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

USE EXTREME CAUTION WHILE CONNECTING THE COMMUNICATIONS WIRES TO A LIVE METER. WEAR PROPER PERSONNEL PROTECTION EQUIPMENT (PPE) AND MAKE SURE YOU DO NOT TOUCH/SHORT-CIRCUIT ANY LIVE LINES.

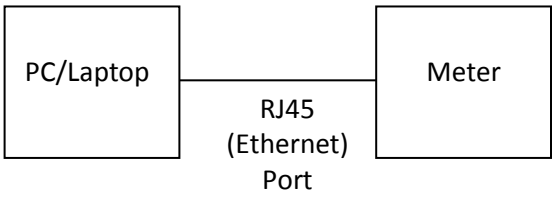
Performing a proper download and update process requires a level of competency on working with hardware and software tools. If you believe you are not confident in performing the update by yourself, please contact Schneider technical support for help.

The firmware update process will take typically around 35 minutes for OS file and 15 minutes for Language file, but may vary. During this update, the meter will not record any energy data. After the update, the meter will retain the previously accumulated energy data and will continue measurements once it is up and running.

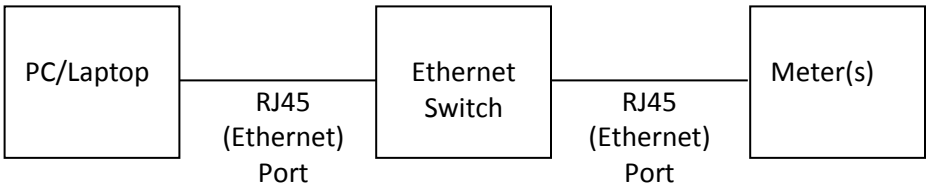
Quick wiring diagram:



OR



OR



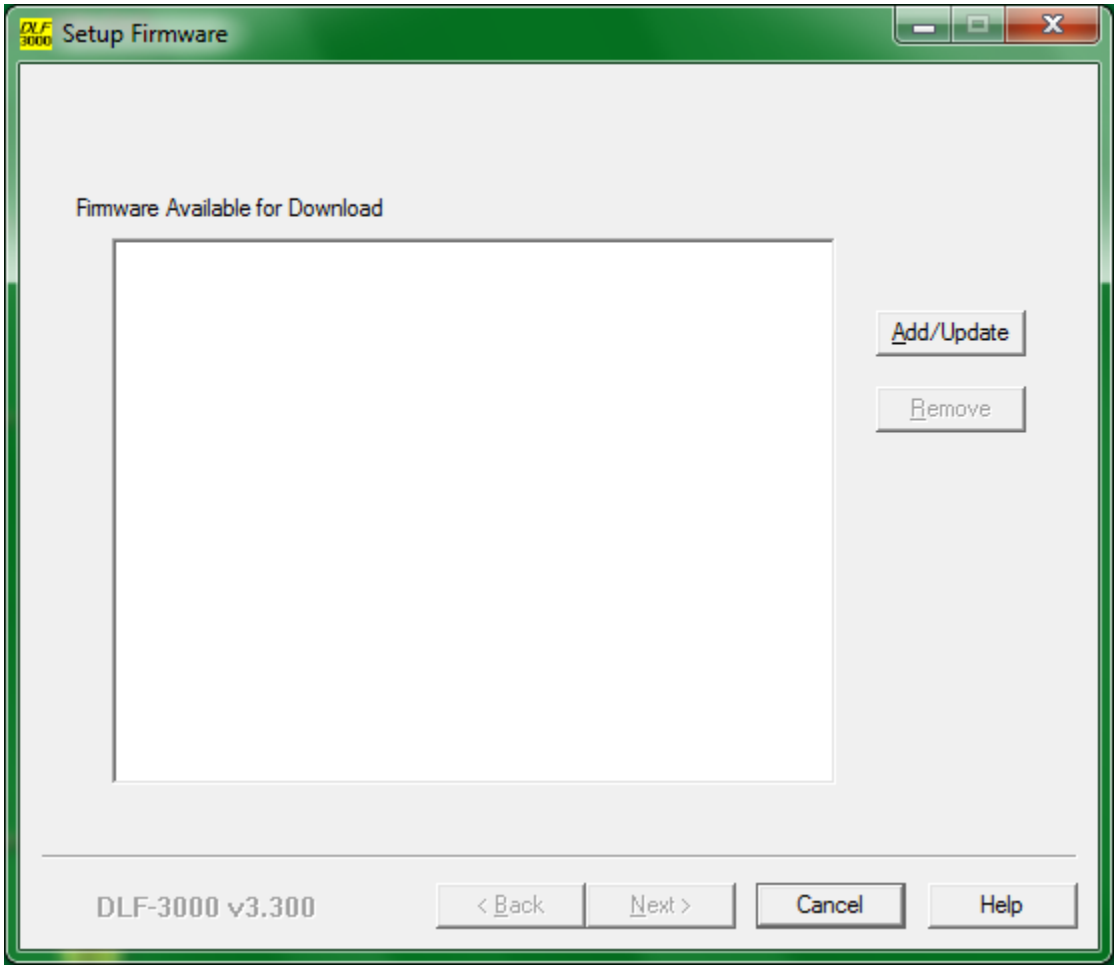
DLF3000 installation steps:

It is essential that your meter has a tested and verified RS485 serial or ethernet connection (via EGX Gateway) to a computer prior to running this procedure. If your device does not have this setup, you must obtain this before proceeding.

1. Unzip DLF3000 (.zip) file into an empty directory
2. It will create a folder called "DLF3000", Go into this folder and locate the filenamed "DLF-3000 v3_3 v2.exe". Double click this file to begin the software installation.
3. The software will propt you to Select a location. Complete the selection and Allow thesoftware to completely install. You must reboot the computer after installation.
4. After install a new directory will be created in the location you selected. Navigate tothis folder and click the "DLF3000.HLP" file.
5. DLF3000 help file has a complete step by step procedure for downloading the meter device.You only need to select the option corresponding to how your device is conneceted. On thestart page, There are (2) buttons each one is a complete separate tutorial walkthru foran ethernet connected device as well as serial device.
6. Follow these instructions to complete your download OR you may follow the below tutorial to download through serial communication.

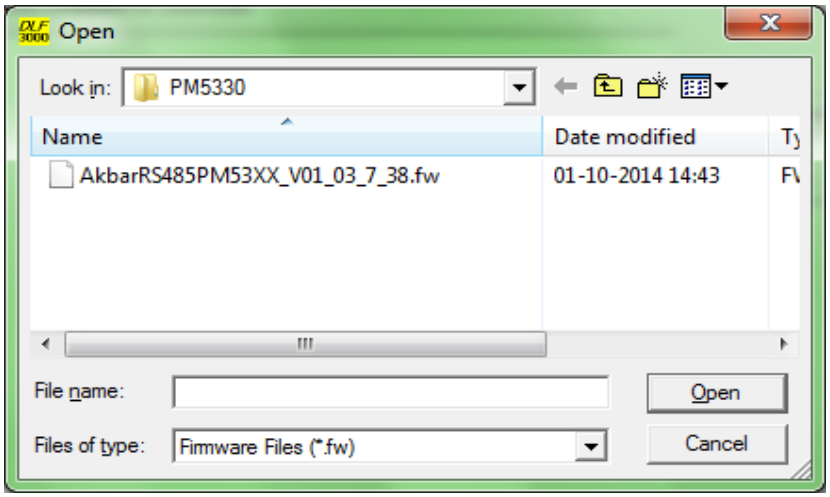
Connect the PM5XXX meter communications port to the RS485 serial adapter. Connect the RS485 adapter to appropriate serial port of your computer and power on the meter and the adapter.

On your computer, open the DLF3000 program. The following window appears:

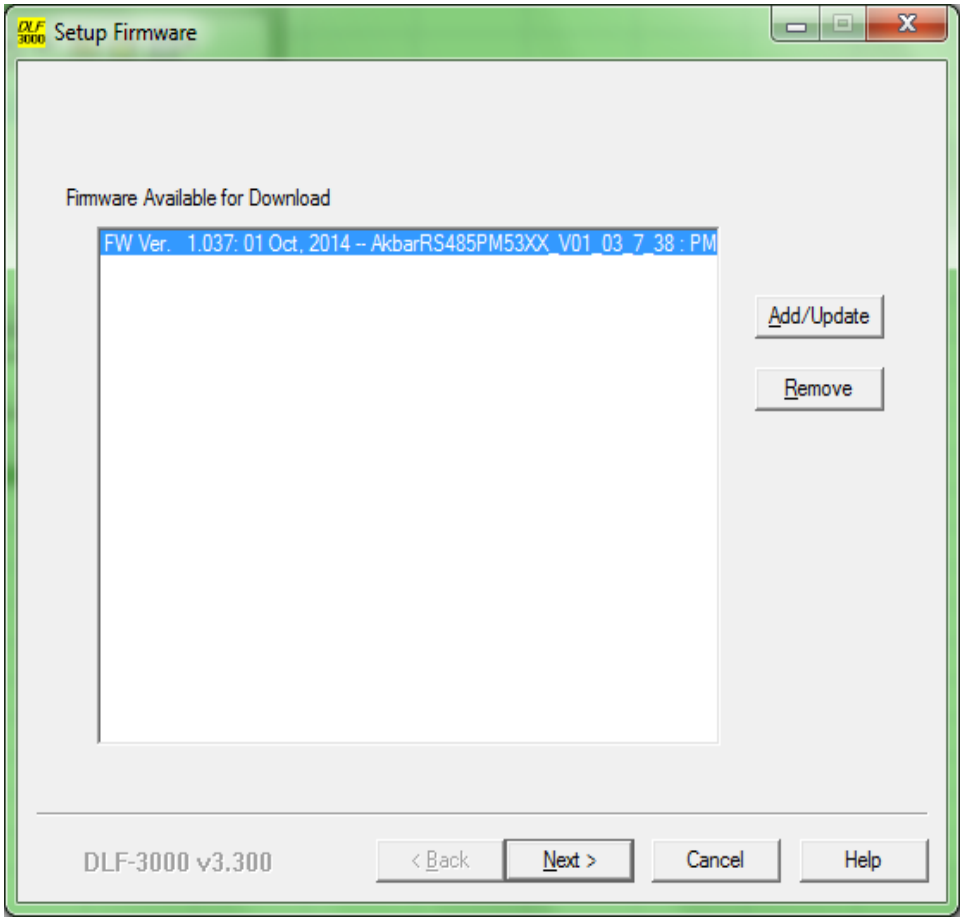


Click on the “Add/Update” button.

In the window that pops up, locate and select the OS or Language firmware (.fw) file and click on “Open”

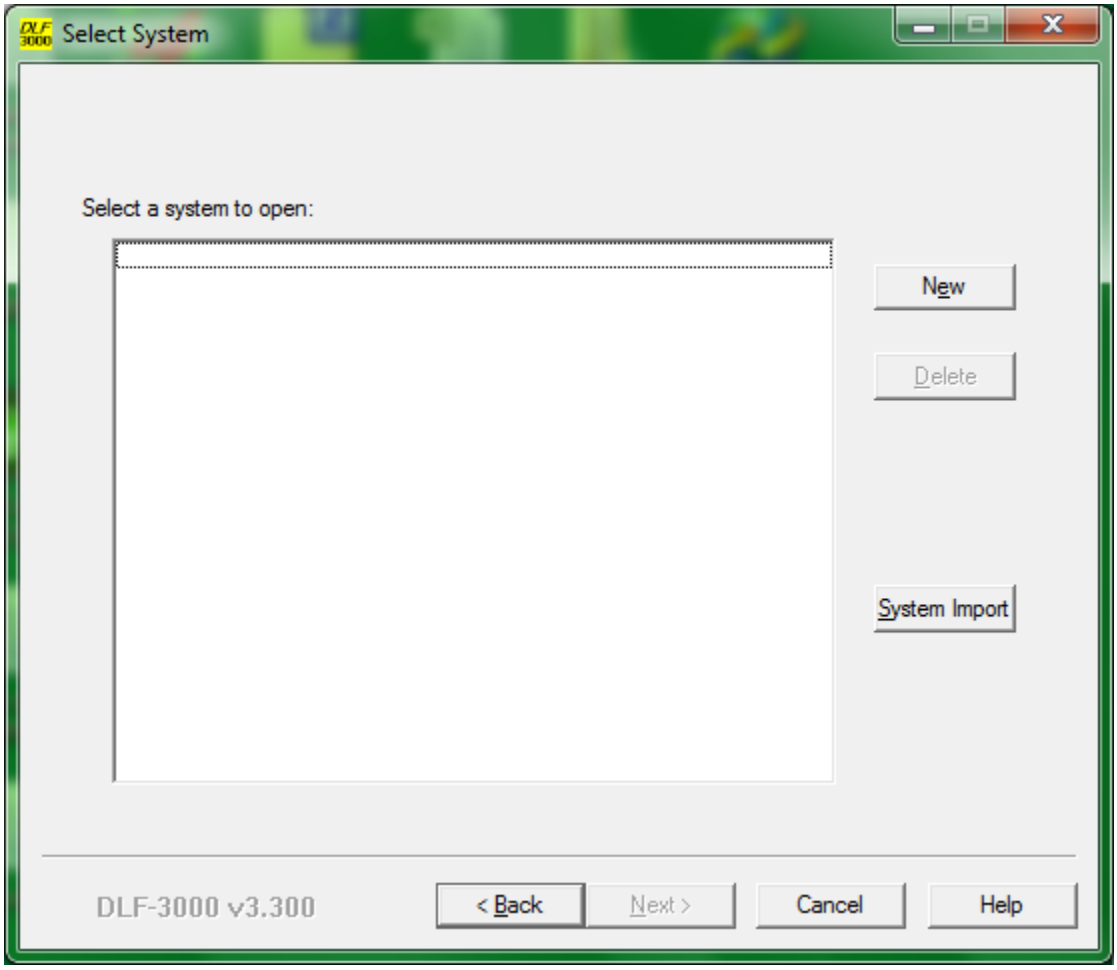


The firmware gets added in the list as shown below:

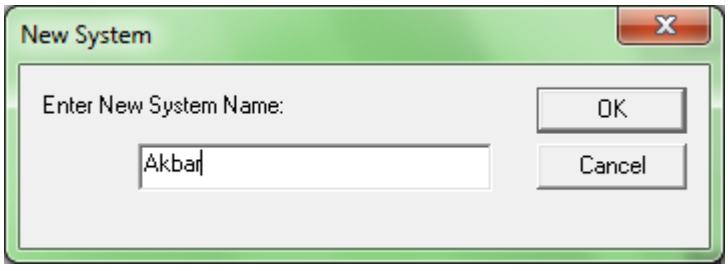


Now click on “Next”

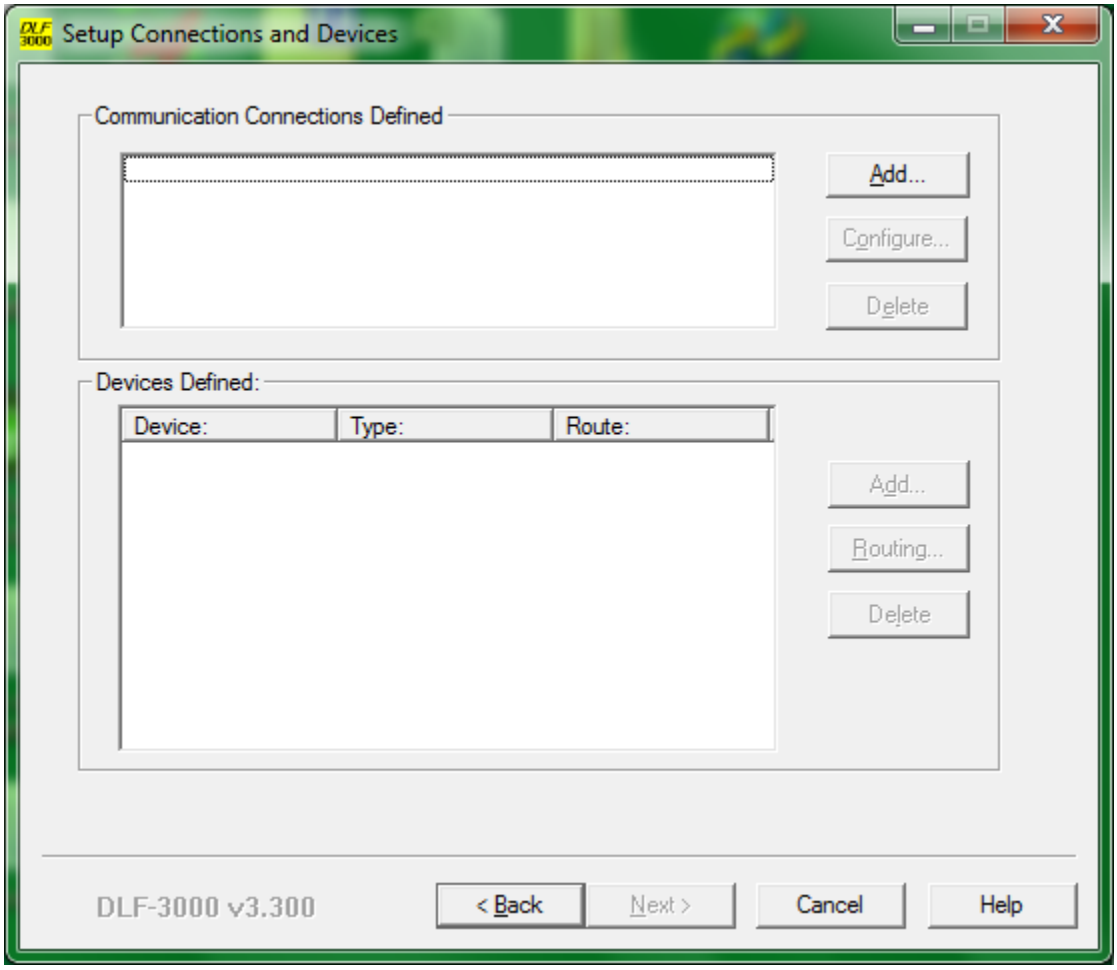
In the next window, click on “New”



Under *Enter New System Name*, type a name of choice and click “OK”



In the following window, click on “Add”



Now, there are two ways to upgrade meter firmware, depending on the mode of communication available/chosen:

1. Through serial RS485 (MODBUS)
2. Through Ethernet (TCP)

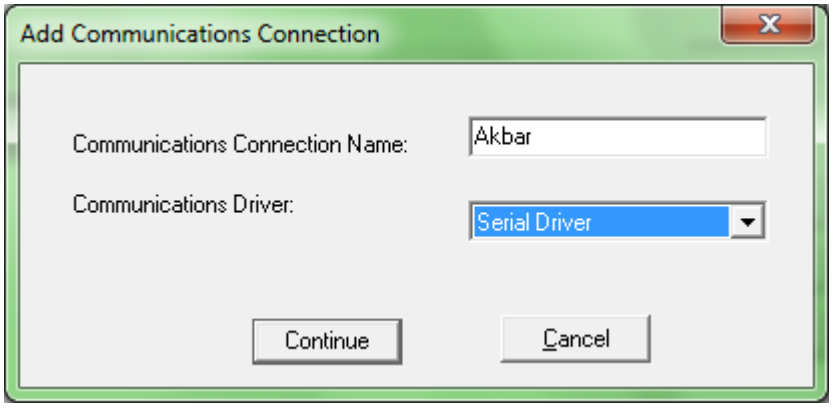
1. Through serial RS485:

Make sure the meter's communication is configurated as under:

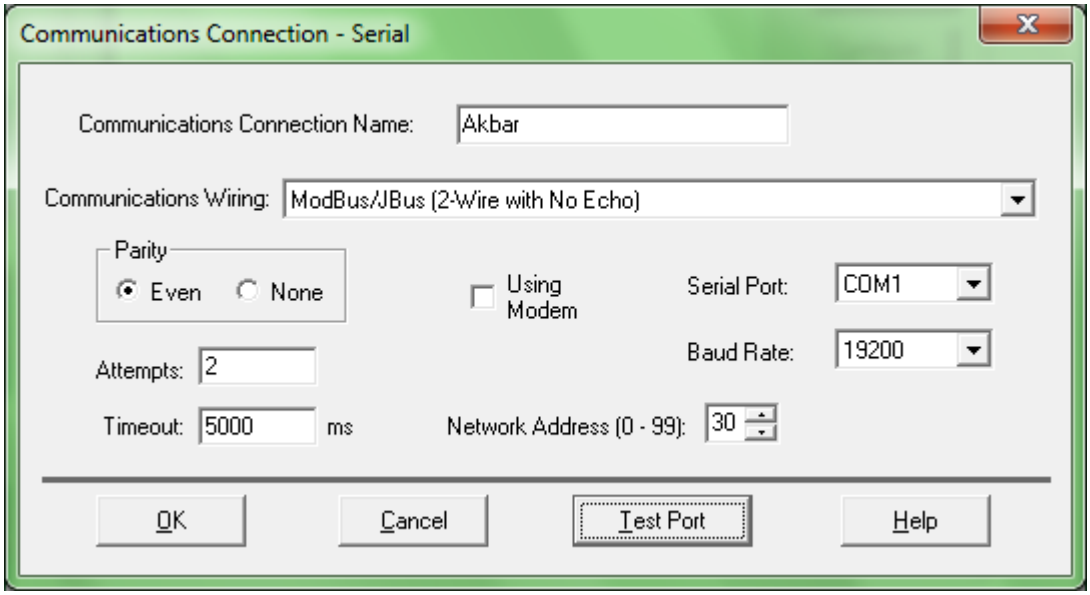
```
Protocol: Modbus
Address: <Respective device address>*
Baud Rate: 19200
Parity: Even
```

* For every device that is daisy-chain connected for simultaneous firmware download, make sure each of them has a unique "Address" in its communication configuration. For our example, we will connect a single meter and set its "Address" as 1.

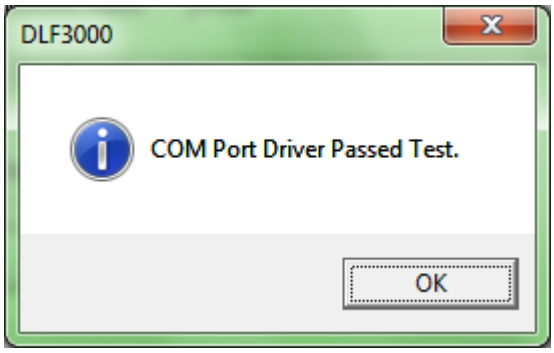
Enter a *Communications Connection Name* of choice, for *Communications Driver* select "Serial Driver" and click "Continue"



In the next window, set the fields as shown below, selecting the appropriate *Serial Port* according to your configuration:



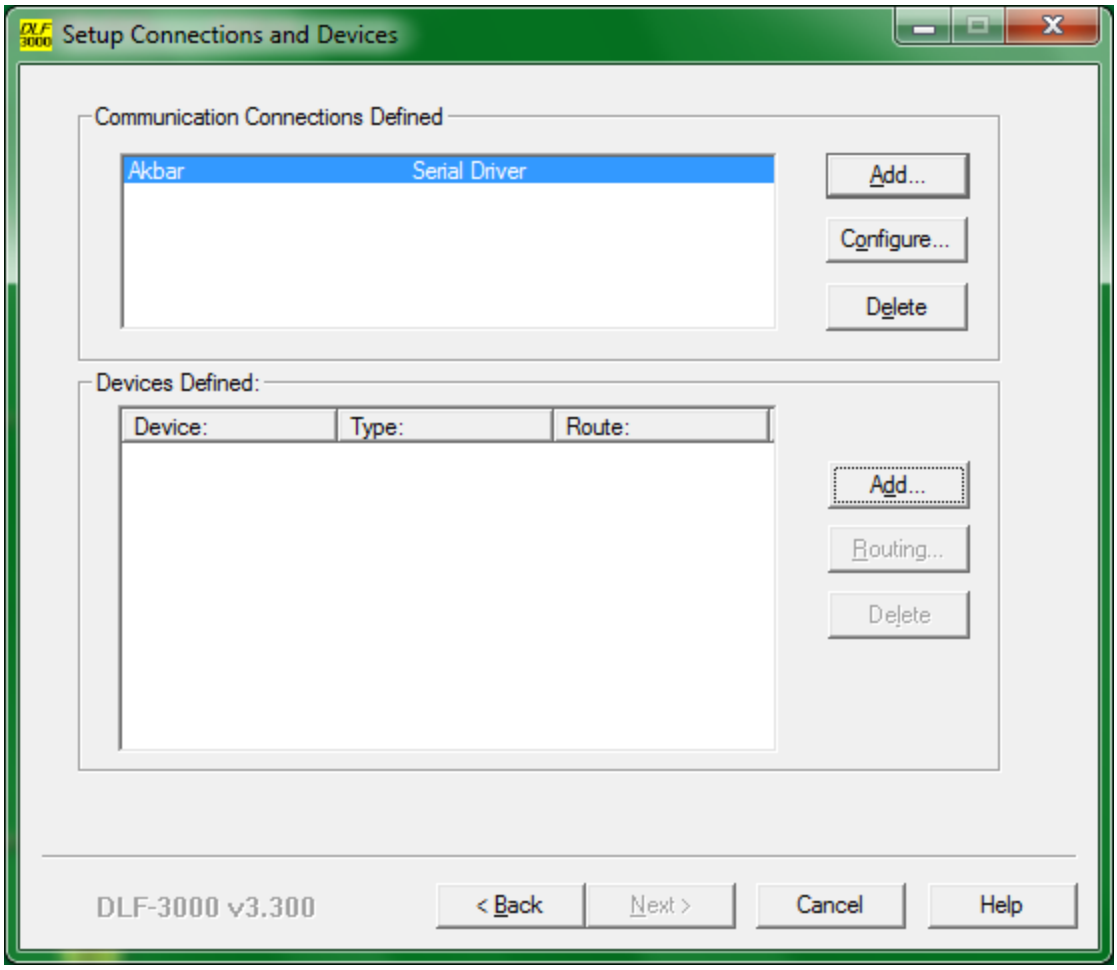
Once the fields are set as required, click on “Test Port”



If a message as above is displayed, then your serial port configuration is correct. If not, select the correct serial COM port and try again.

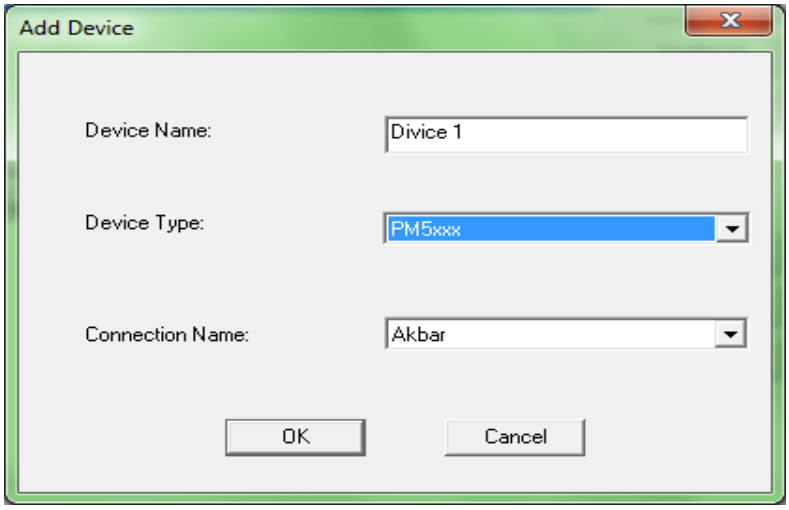
When you get the right COM port, click on “OK”

In the window that follows, in the *Devices Defined* section select “Add”

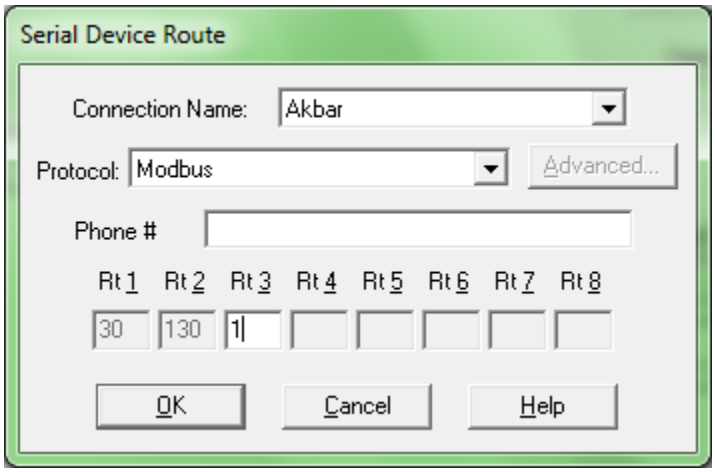


In the pop-up, type a device name of choice, set the "*Device Type*" as per below rule and click "OK":

- Select "PM5xxx"



In the next window, under “Rt 3” set the “Address” of the connected device, select other values as shown and click “OK”:

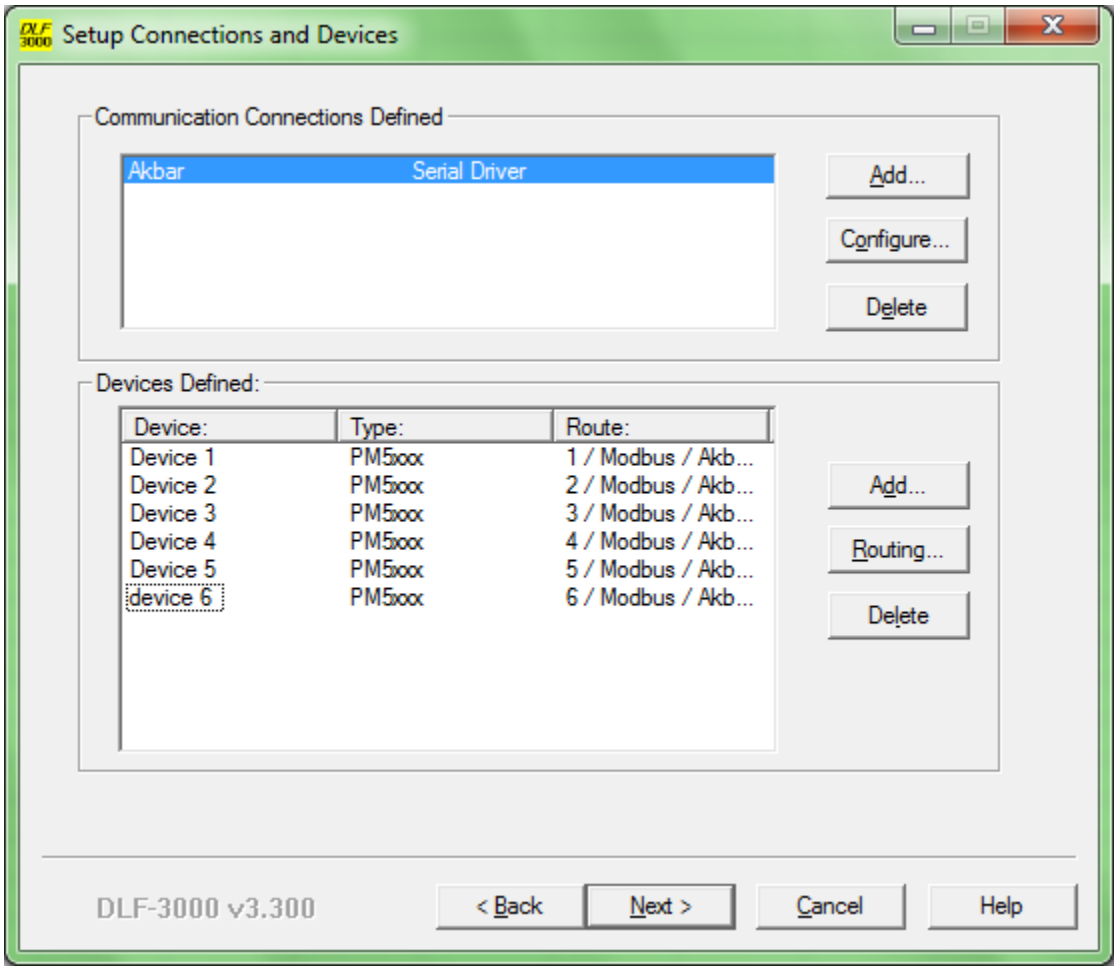


Repeat the above three steps for every device that is daisy-chain connected for simultaneous firmware download. Make sure each of them gets a unique “Device Name” & respective “Address” according to the configuration of meters connected.

For example, if you have daisy-chained 3 meters together with unique addresses 1, 2 & 3; repeat the above three steps 3 times, each time setting values as under:

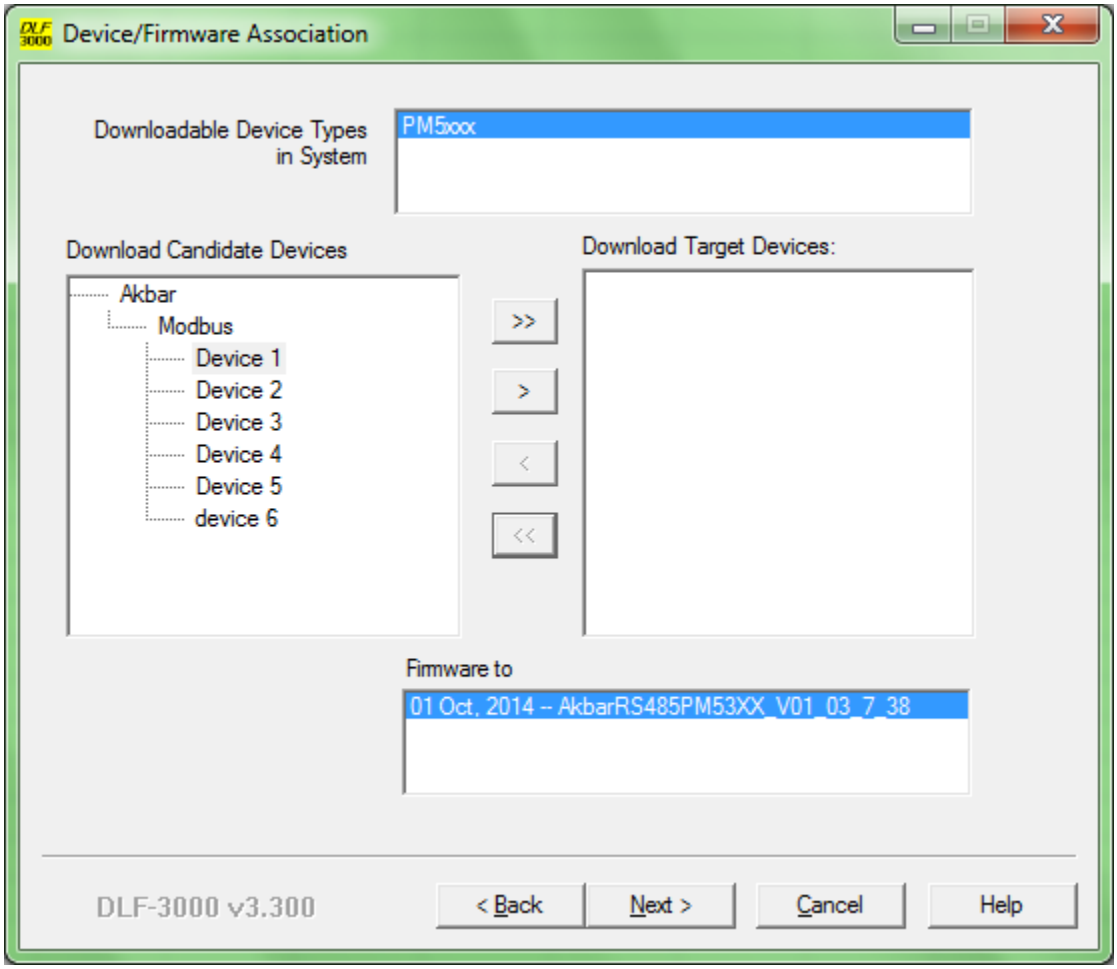
Device Name: Device 1; Rt 3: 1
Device Name: Device 2; Rt 3: 2
Device Name: Device 3; Rt 3: 3

In this example, we have configured 6 devices. All the configured devices will be listed under the “Devices Defined” section shown below.

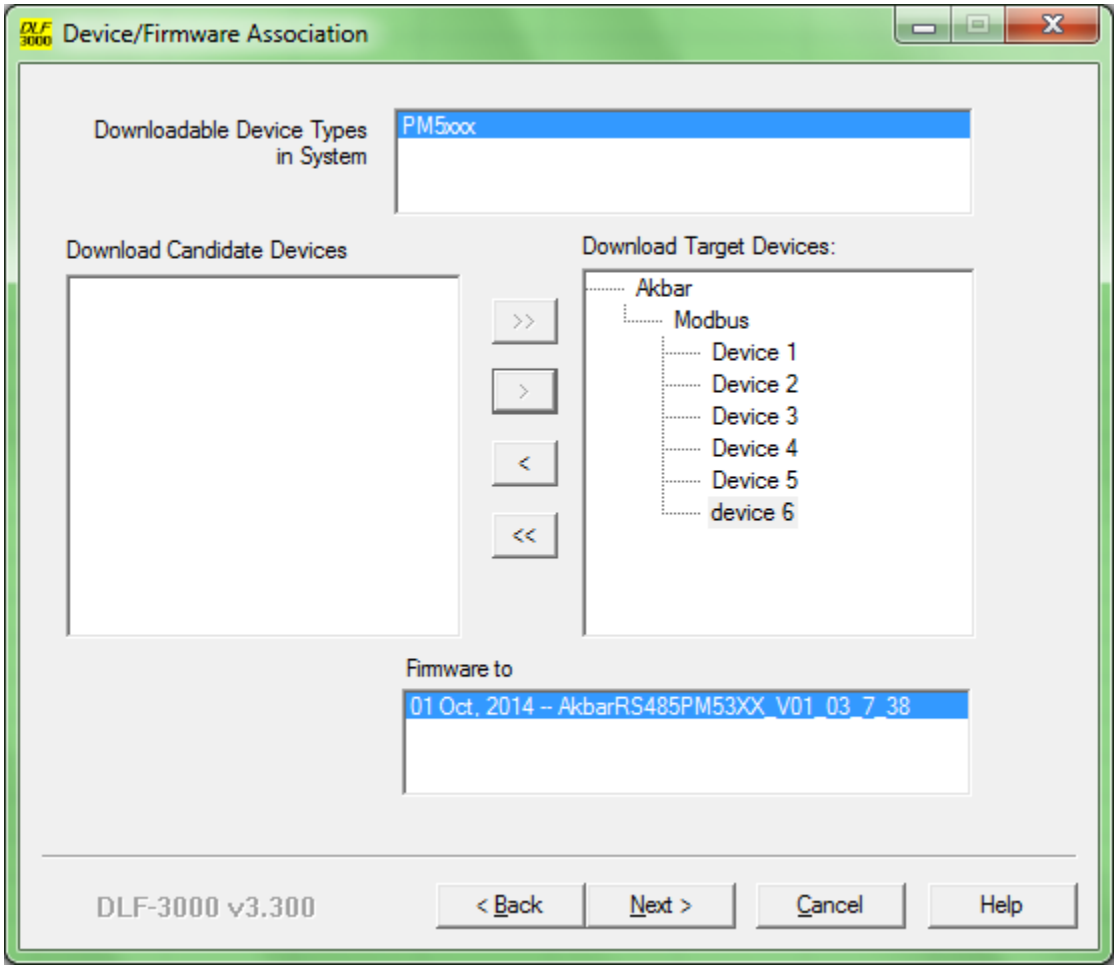


Now click on “Next”

In the following window, under *Download Candidate Devices* select your Communications Connection Name (which was set as “COMM” earlier in this tutorial) and then click on the “>>” button

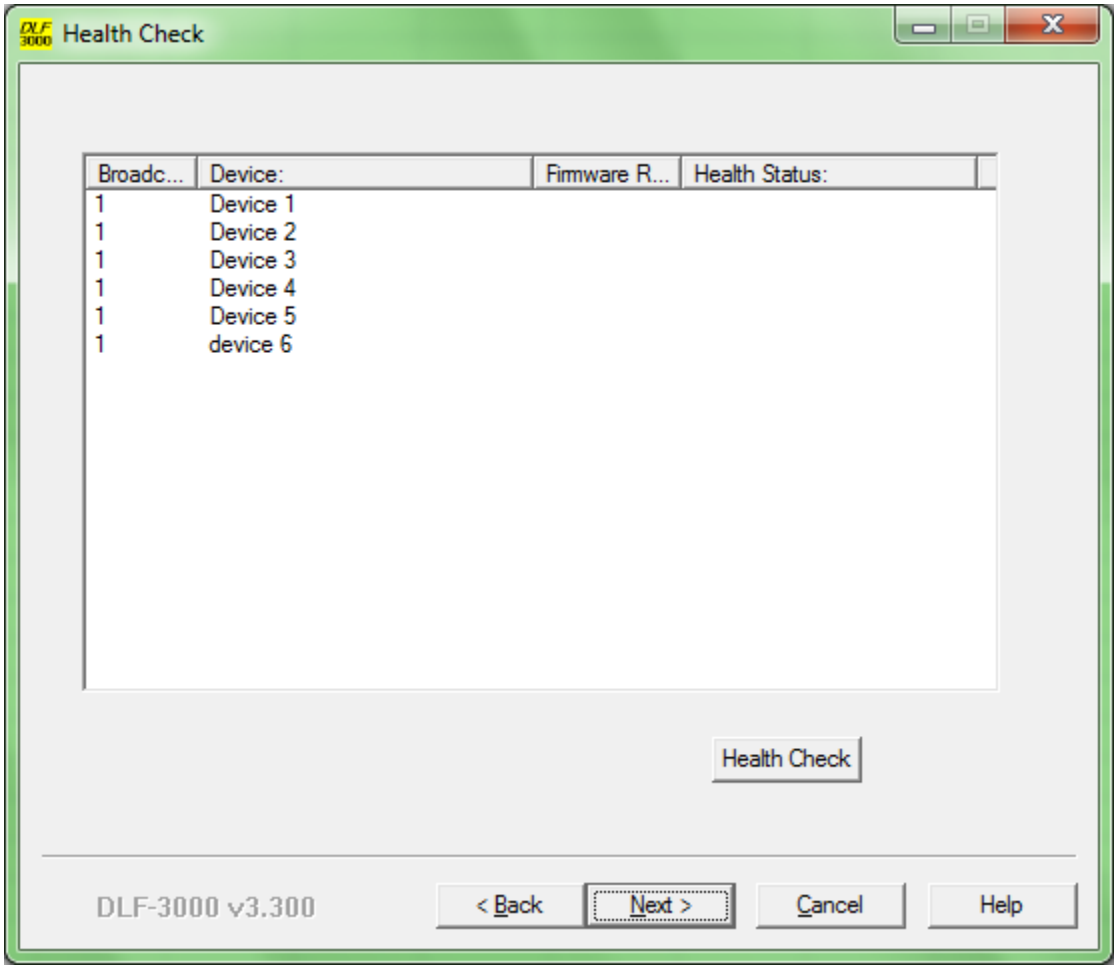


The contents should move to the *Download Target Devices* section now, as shown below:

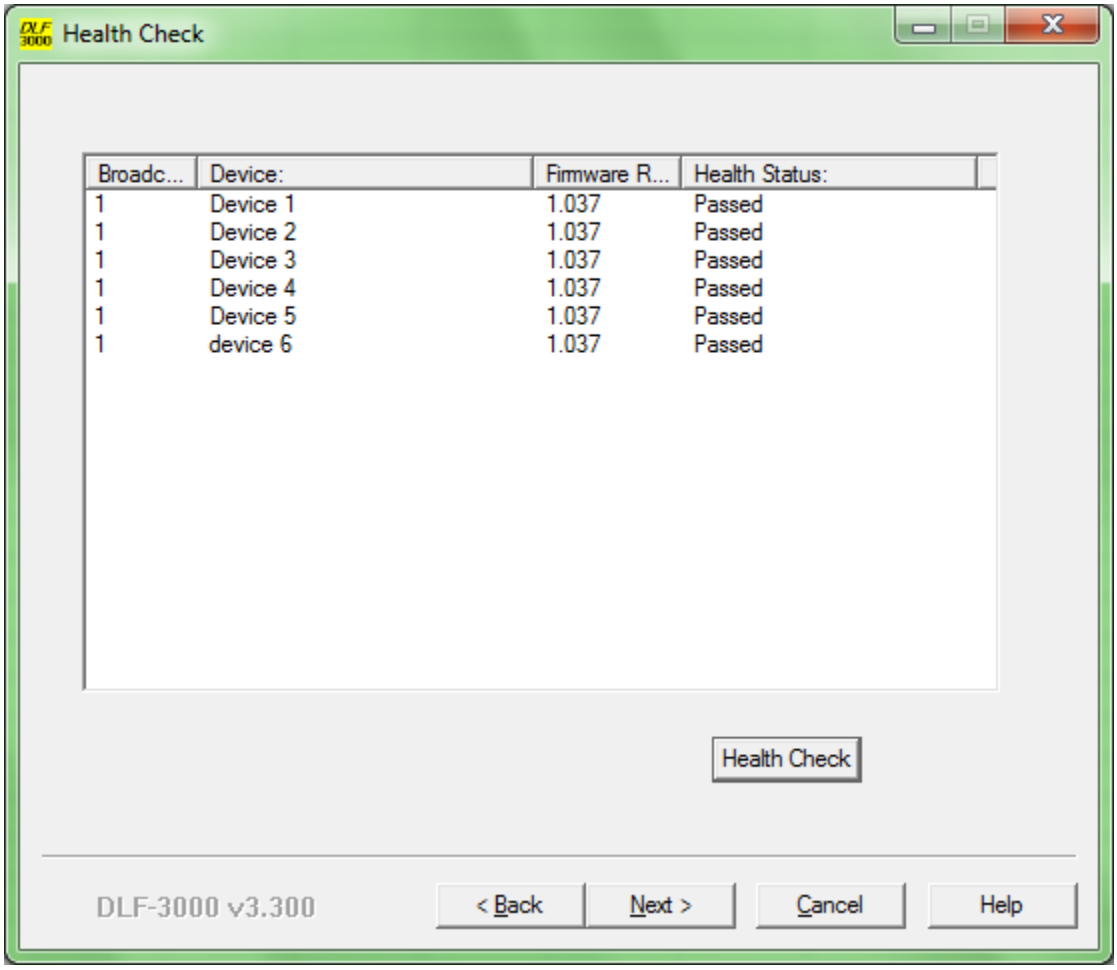


Click on “Next” to go ahead

In the health check window that appears, click on the “Health Check” button



If everything has been configured correctly, the communications is running and the meter is responding as expected, you should get the currently installed Firmware Revision number (not necessarily the same as shown in below picture) and a *Passed* message in the *Health Status*, as shown below:

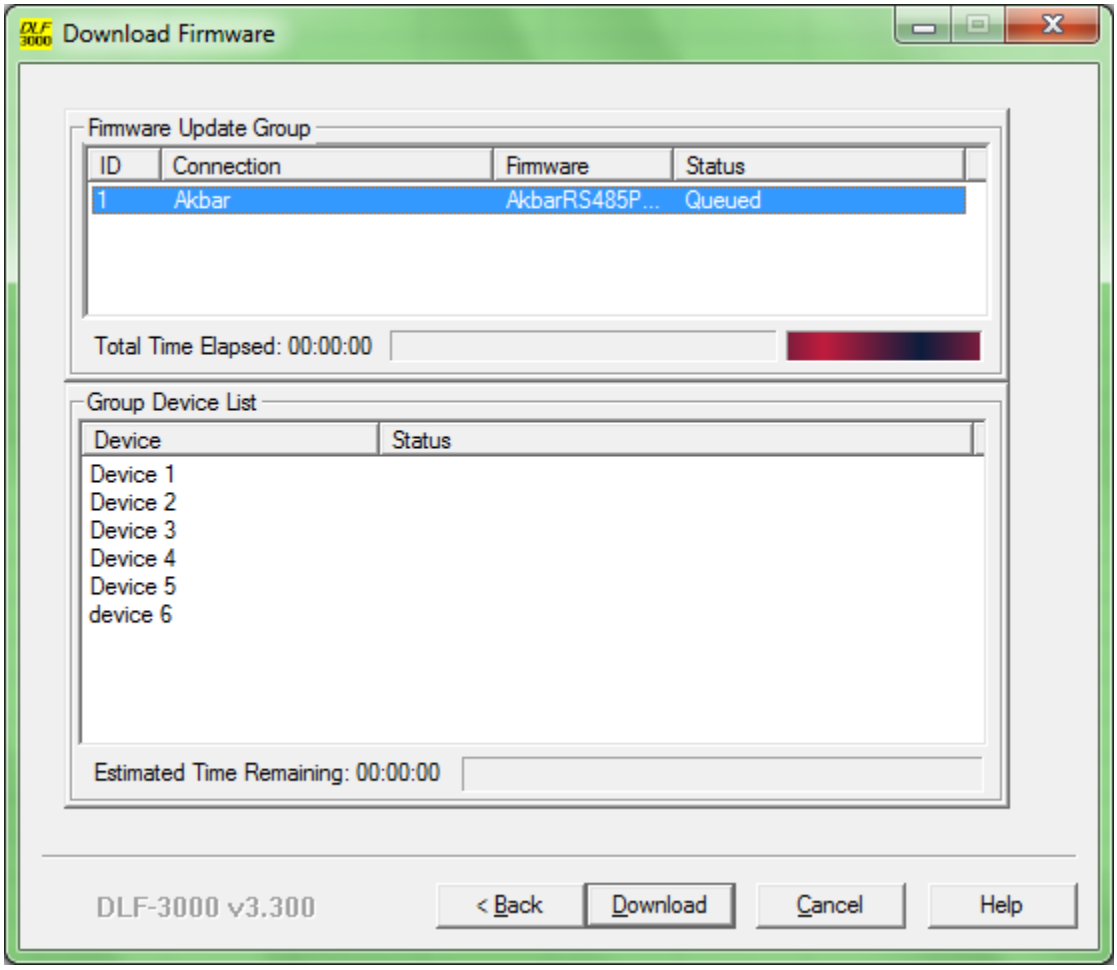


If you get an error in this stage, please go back to previous steps to check for incorrect configurations and/or check the wiring and the supply to the meter and the adapter

Once the health check is passed, the meter is ready to accept the firmware update

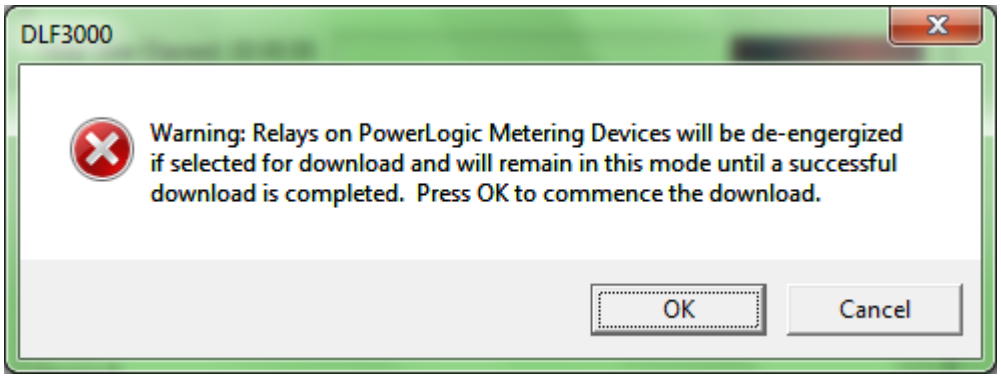
Click on “Next” to continue

The download window is described below:



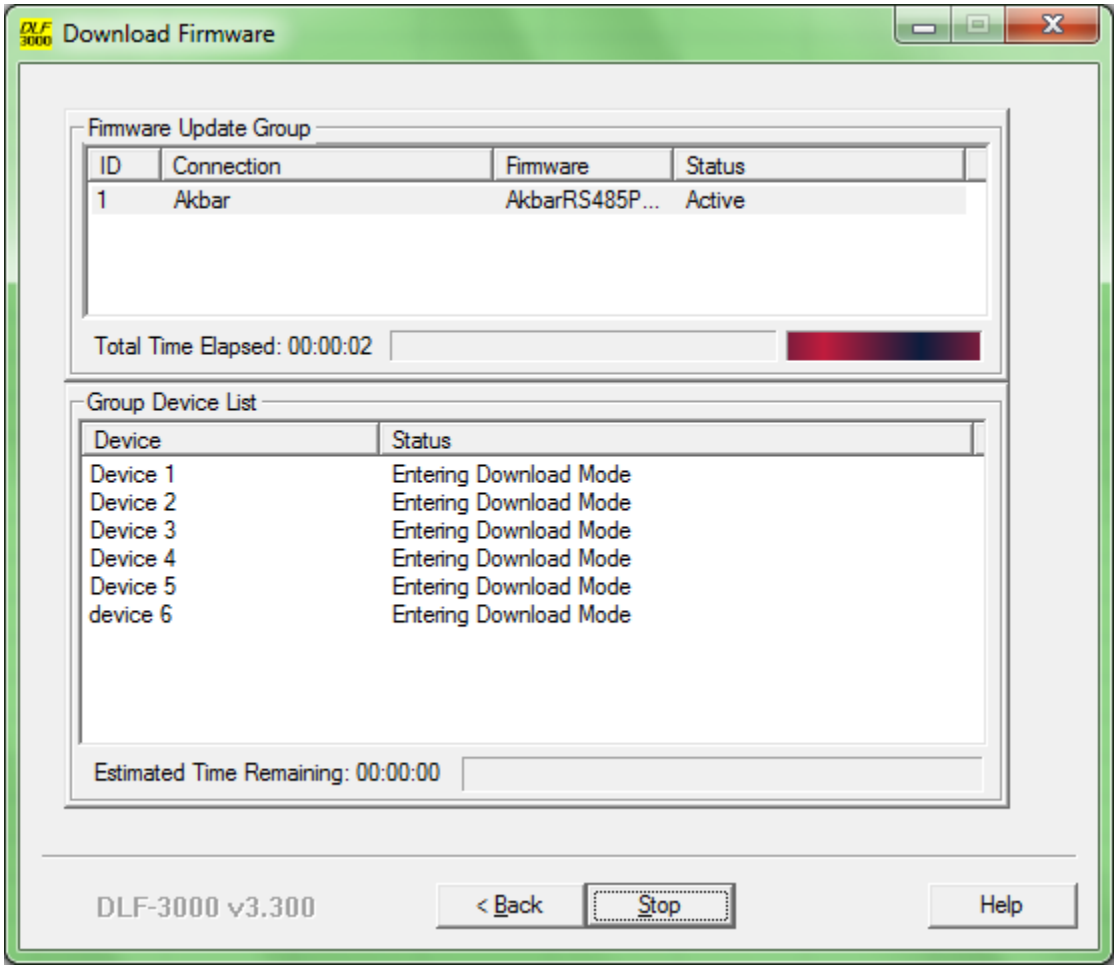
Click on the “Download” button to initiate download process

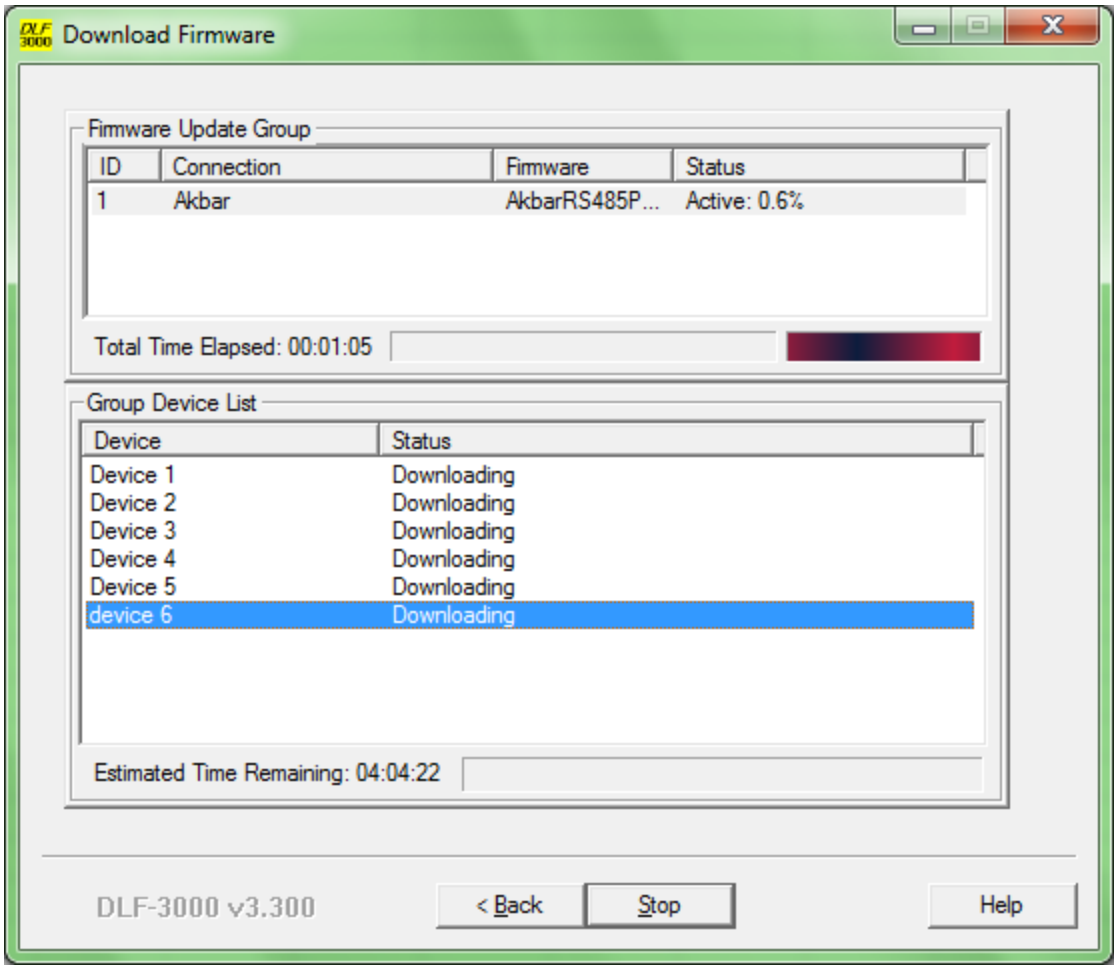
A warning as described below appears which tells you about the de-energized status of relays

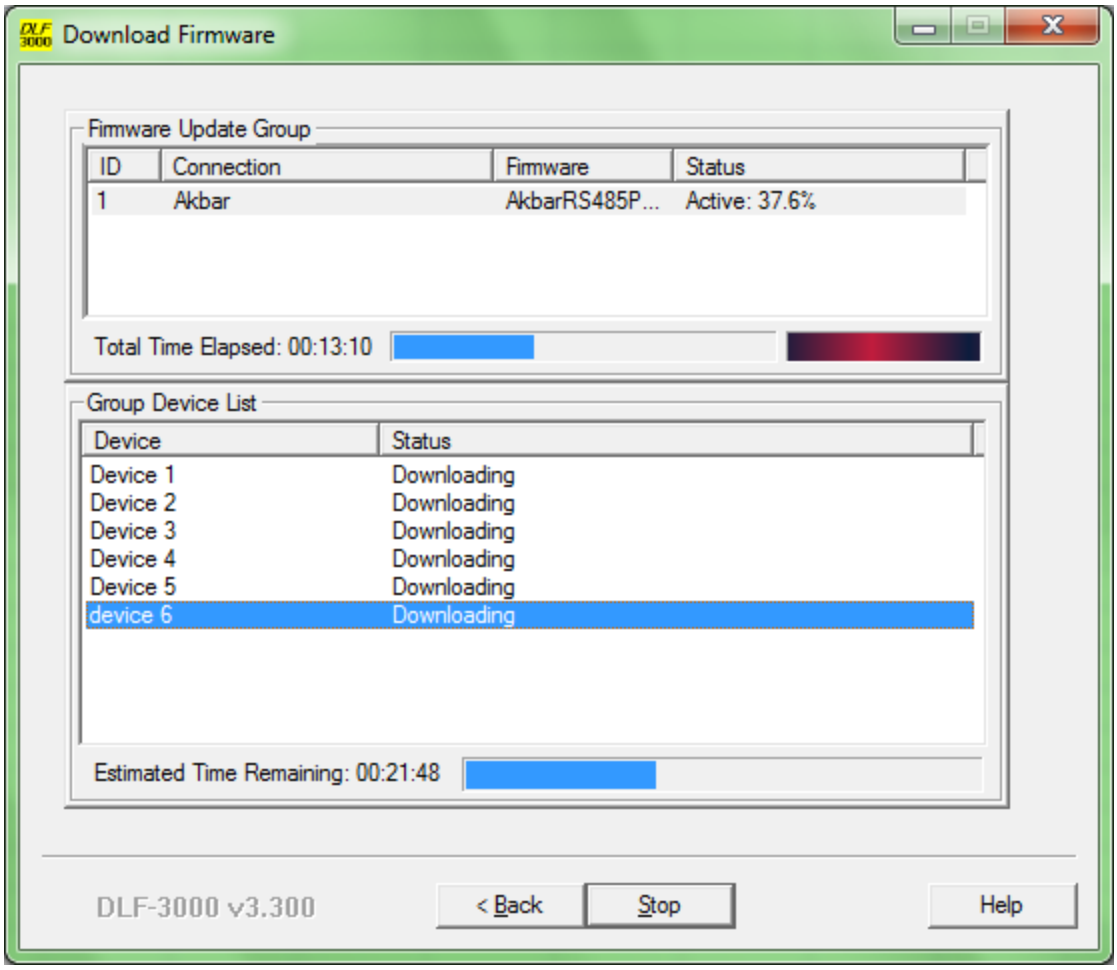


Click “OK” to begin the download

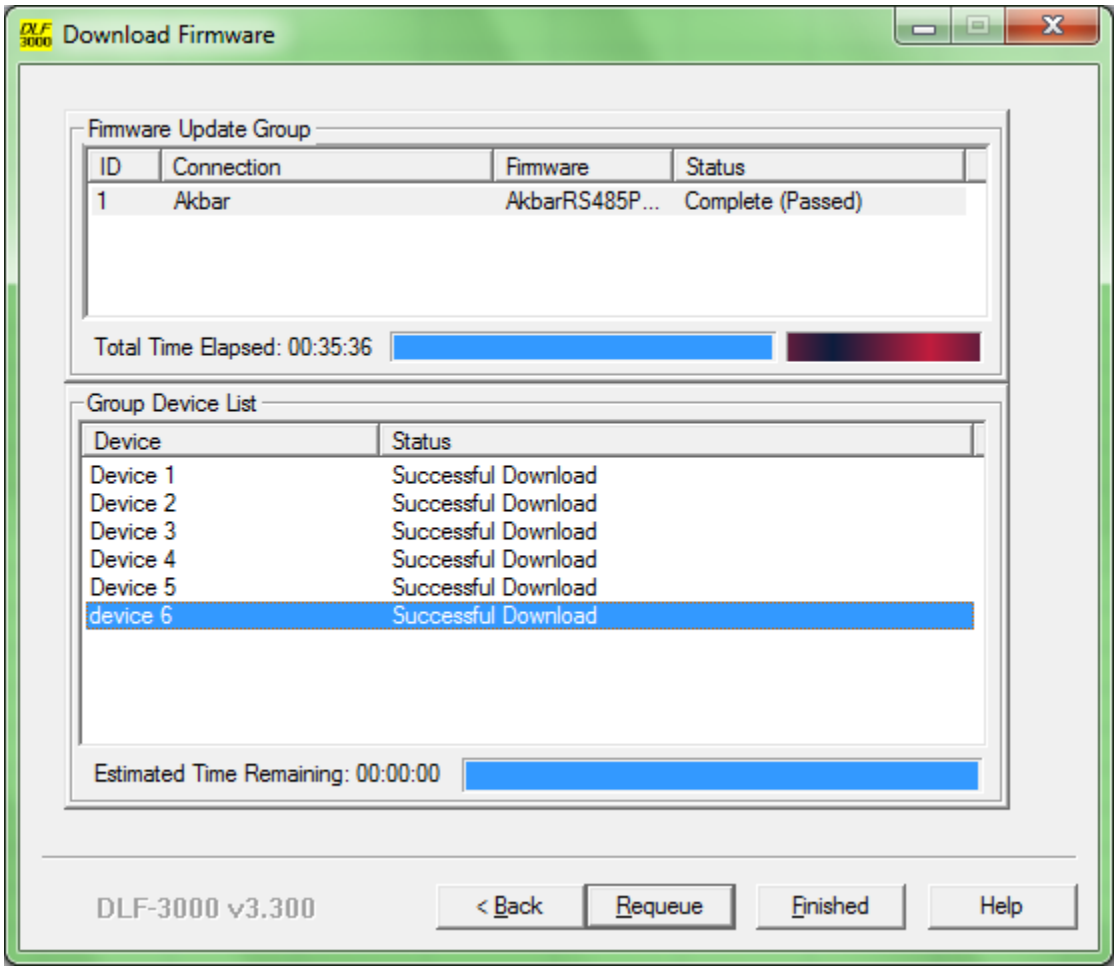
As the download starts, the PM5XXX meter will go into OS download mode and information regarding the ongoing download can be seen on the screen of the meter, as well as in the window below:




Download Firmware
Firmware Update Group
ID
Connection
Firmware
Status
1
Akbar
AkbarRS485P...
Active: 0.6%
Total Time Elapsed: 00:01:05
Group Device List
Device
Status
Device 1
Downloading
Device 2
Downloading
Device 3
Downloading
Device 4
Downloading
Device 5
Downloading
device 6
Downloading
Estimated Time Remaining: 04:04:22
DLF-3000 v3.300
< Back
Stop
Help


Download Firmware
Firmware Update Group
ID
Connection
Firmware
Status
1
Akbar
AkbarRS485P...
Active: 37.6%
Total Time Elapsed: 00:13:10
Group Device List
Device
Status
Device 1
Downloading
Device 2
Downloading
Device 3
Downloading
Device 4
Downloading
Device 5
Downloading
device 6
Downloading
Estimated Time Remaining: 00:21:48
DLF-3000 v3.300
< Back
Stop
Help

After the downloading is finished, the meter will self-restart. Wait for the following status in the download window:



When you get the above status in the Download Firmware window, the meter has been successfully updated with the selected firmware and is ready for use

You may connect another meter and click on “Re queue” to repeat the update process, or you may click on “Finished” and exit the program

The DLF3000 can be accessed again to repeat the download process.

Once you have used the DLF3000 on a computer and created a download profile using the above steps, you can run the DLF3000 anytime and select the same profile to repeat the firmware update process for PM5XXX. This way you do not need to go through setting all the parameters every time you run the software.

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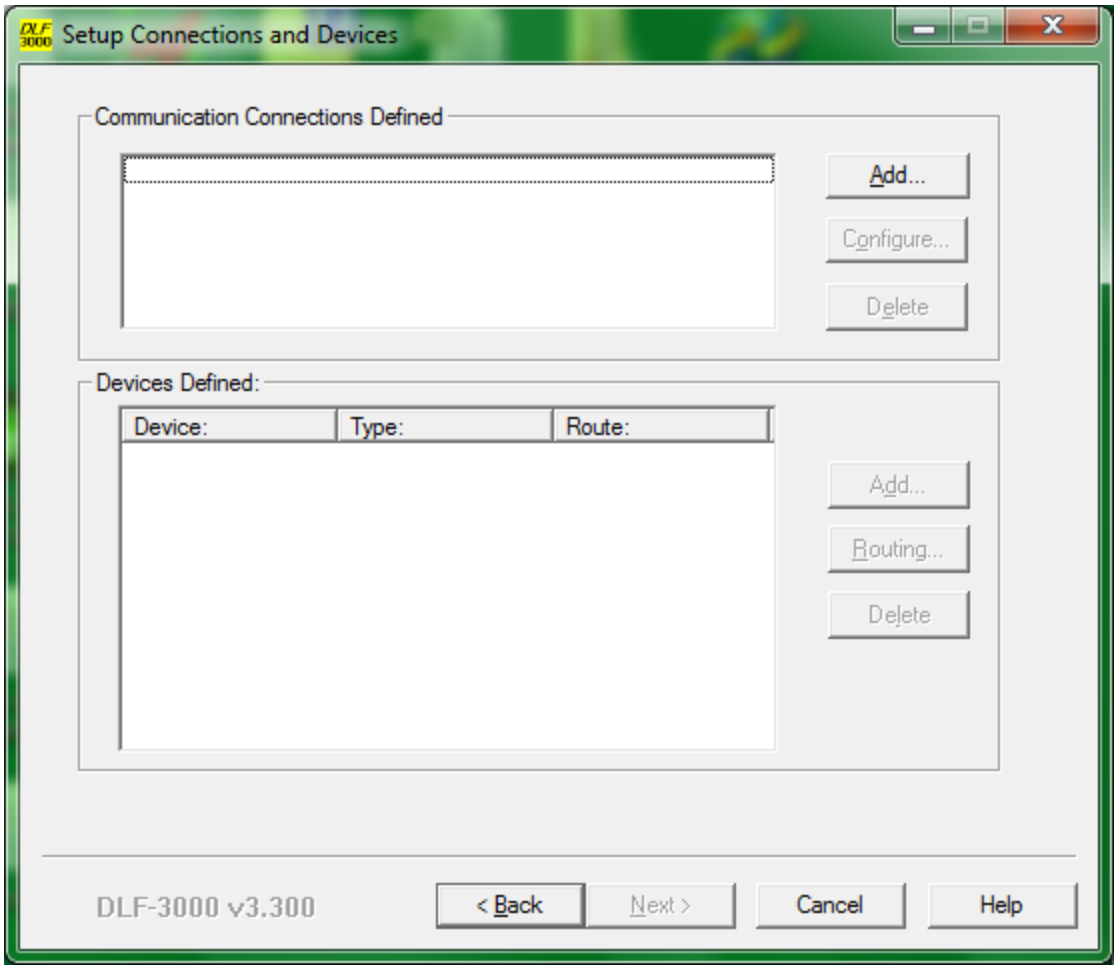
2. Through Ethernet :

For wiring connection, refer the Wiring diagram in the 2nd page of this document.

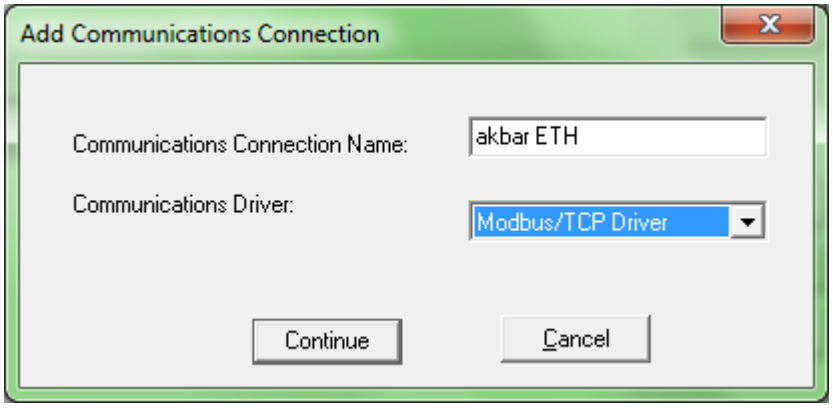
Make sure the meter’s communication is configured as under:

Protocol : TCP/IP
IP Method: Default or DHCP
IP Address: As shown in the meter (Should start from 10.xxx.xxx.xxx (For DHCP) and 169.254.xxx.xxx (For default)).

When you are at the below screen, click on “Add”:

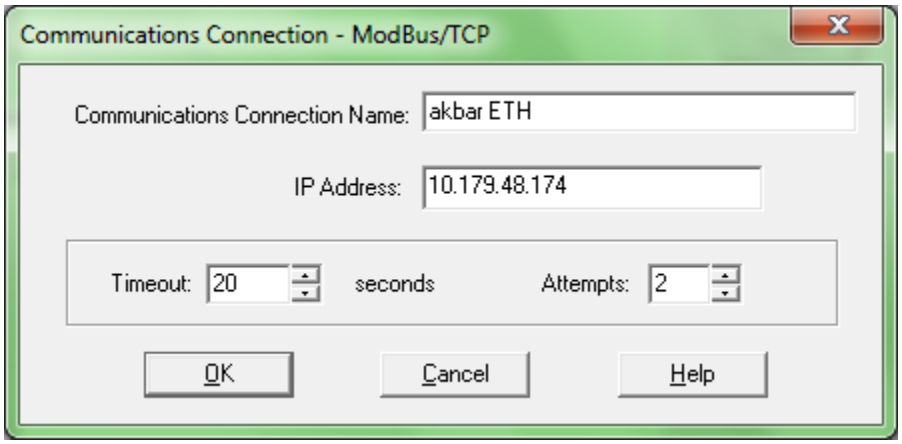


Enter a *Communications Connection Name* of choice, for *Communications Driver* select “Modbus\TCP driver” and click “Continue”

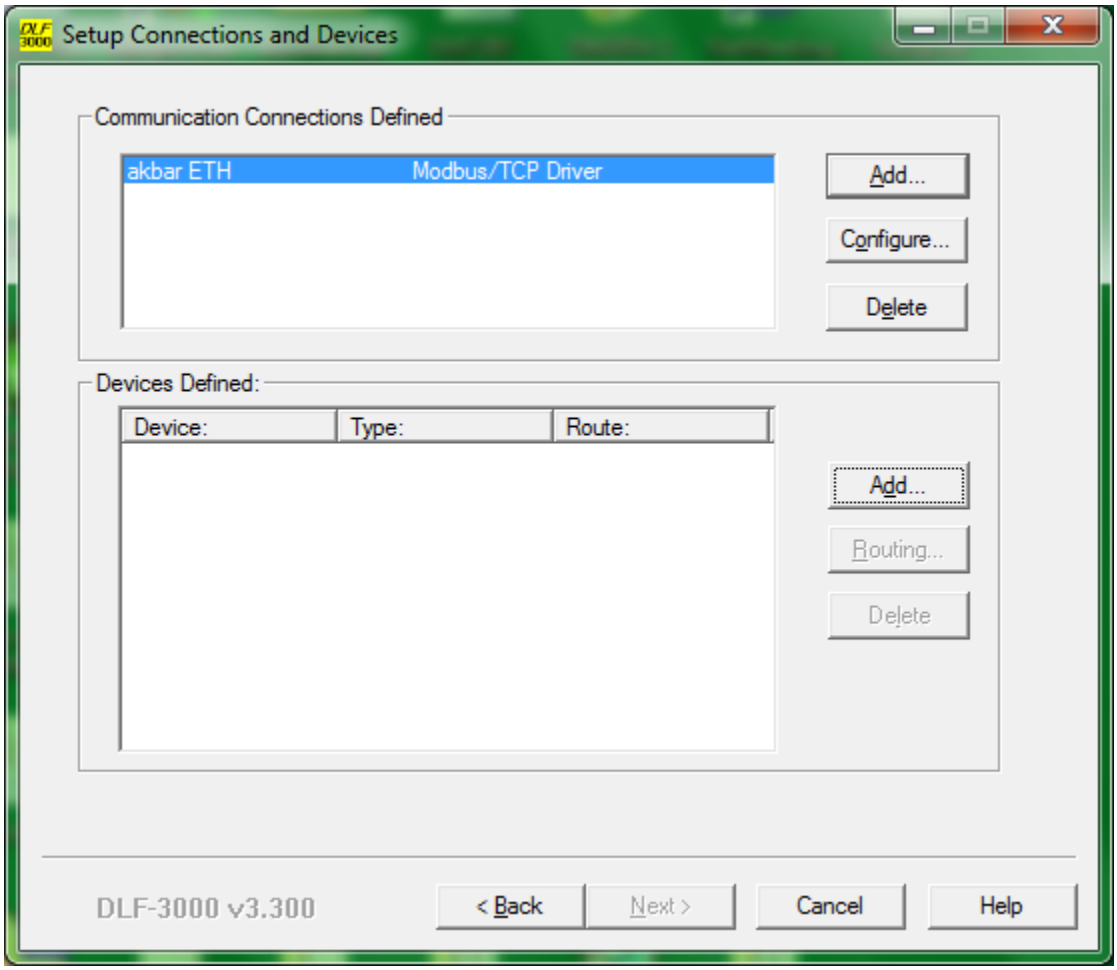


In the next window, Enter the IP address in IP Address field as shown in the picture.

After entering IP address click “OK”.

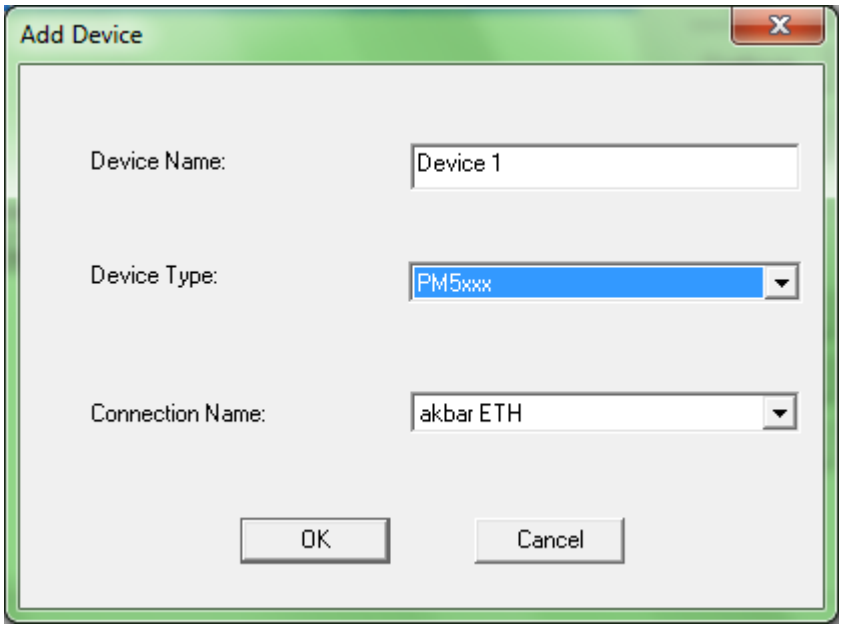


In the window that follows, in the *Devices Defined* section select “Add”

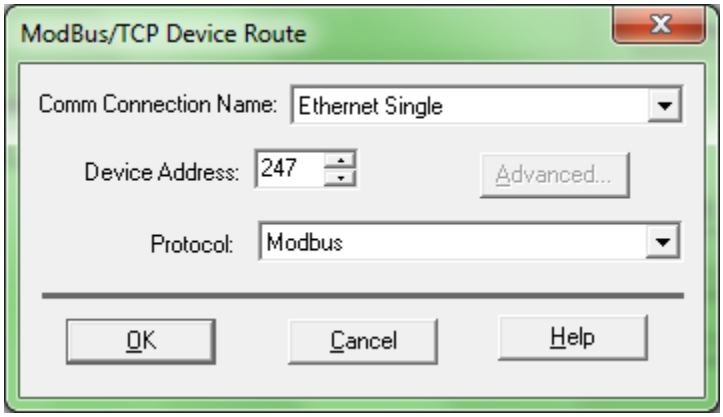


In the pop-up, type a device name of choice, set the "*Device Type*" as per below rule and click "OK":

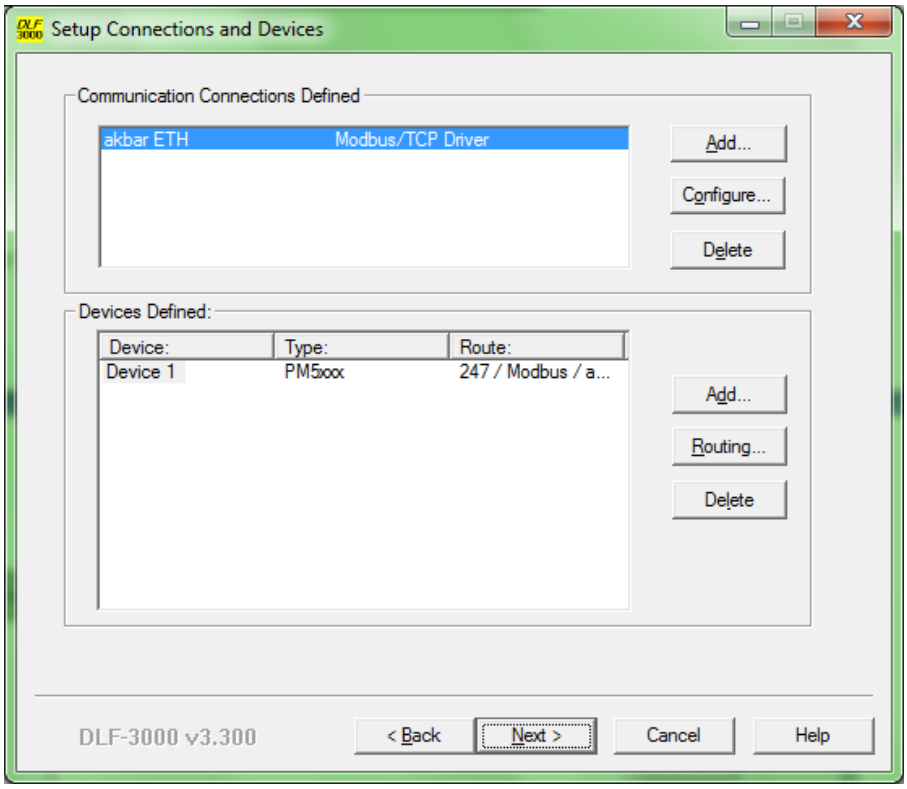
- Select "PM5xxx"



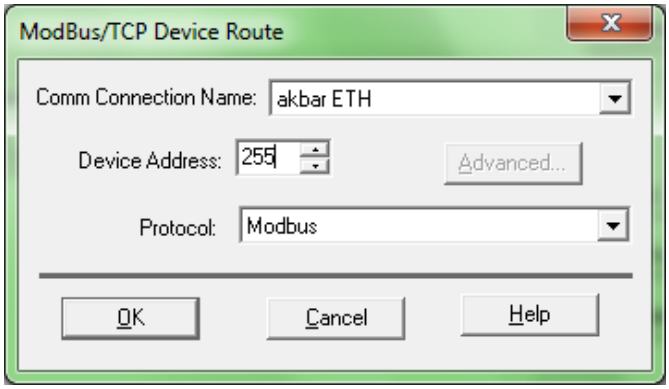
In the next window, in Device address field, set the "247" and click "OK":



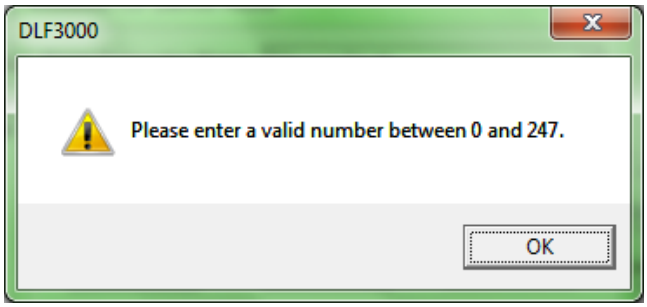
You should see the below screen:



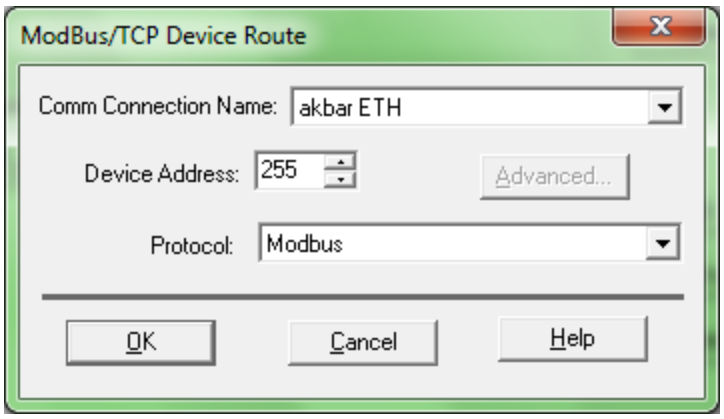
Select “Device 1” and Click on “Routing”. The below window appears again. Now enter the value “255” under Device Address and click “OK”:



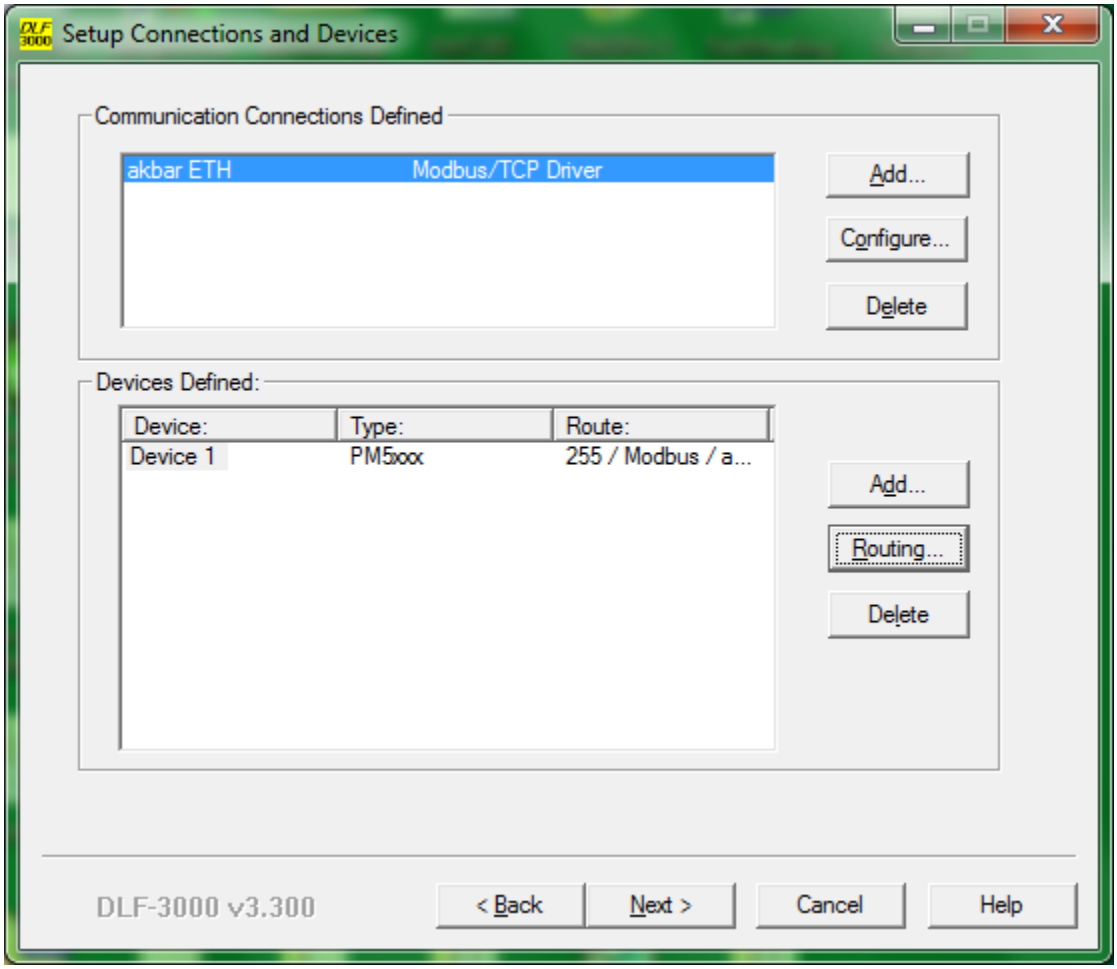
You will see the following error screen:



Click on OK again to make this message go away. You will return to the previous window (where the value will still be “255”. Now click on “Cancel”

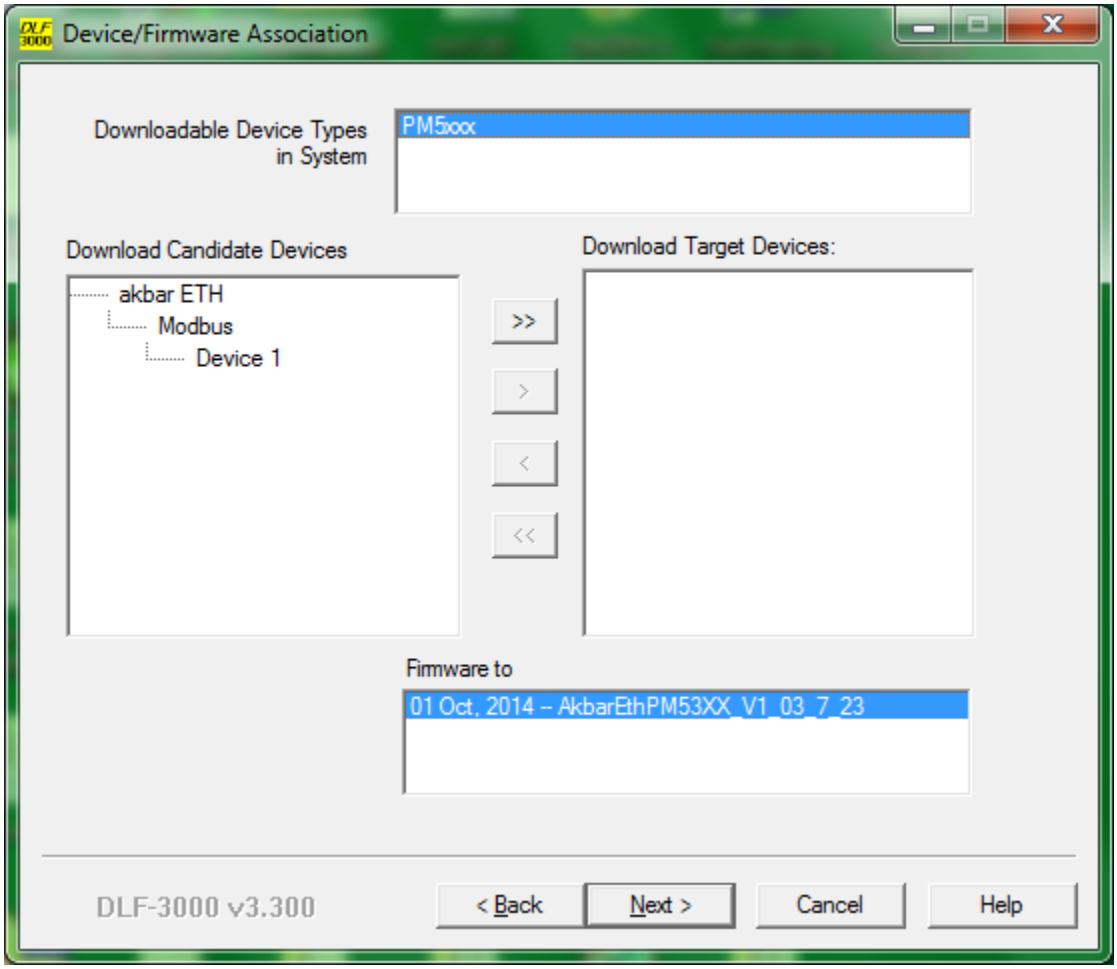


You will return to the main window, and the Address value under the “Route” column would now be “255” as visible in below screen shot:

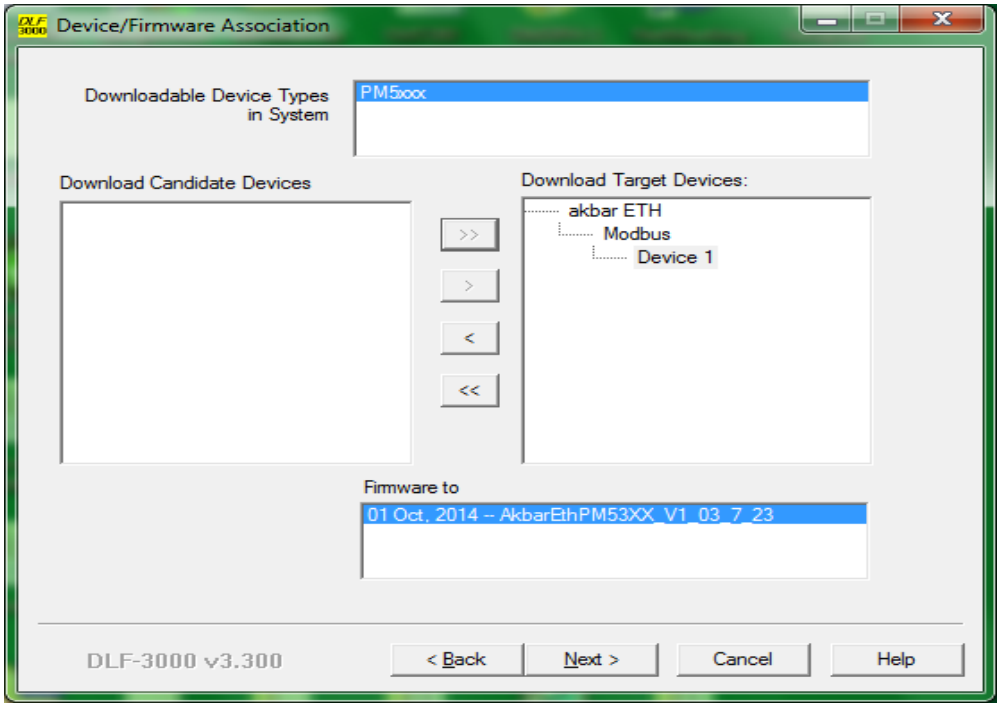


Now click on “Next”

In the following window, under *Download Candidate Devices* select your Communications Connection Name (which was set as “COMM” earlier in this tutorial) and then click on the “>>” button

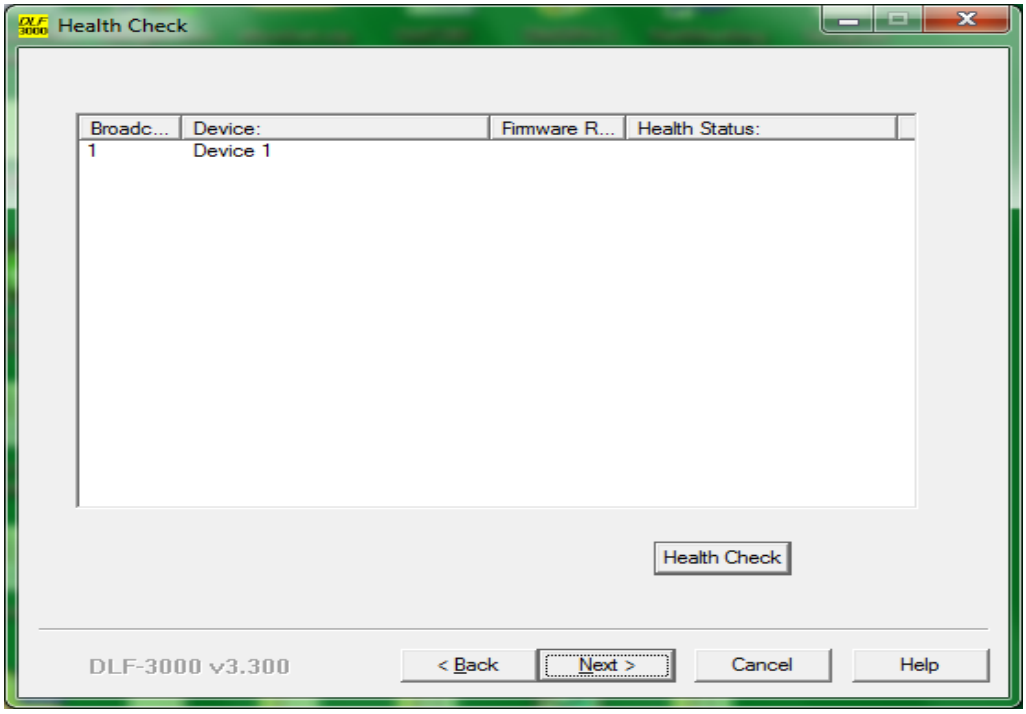


The contents should move to the *Download Target Devices* section now, as shown below:

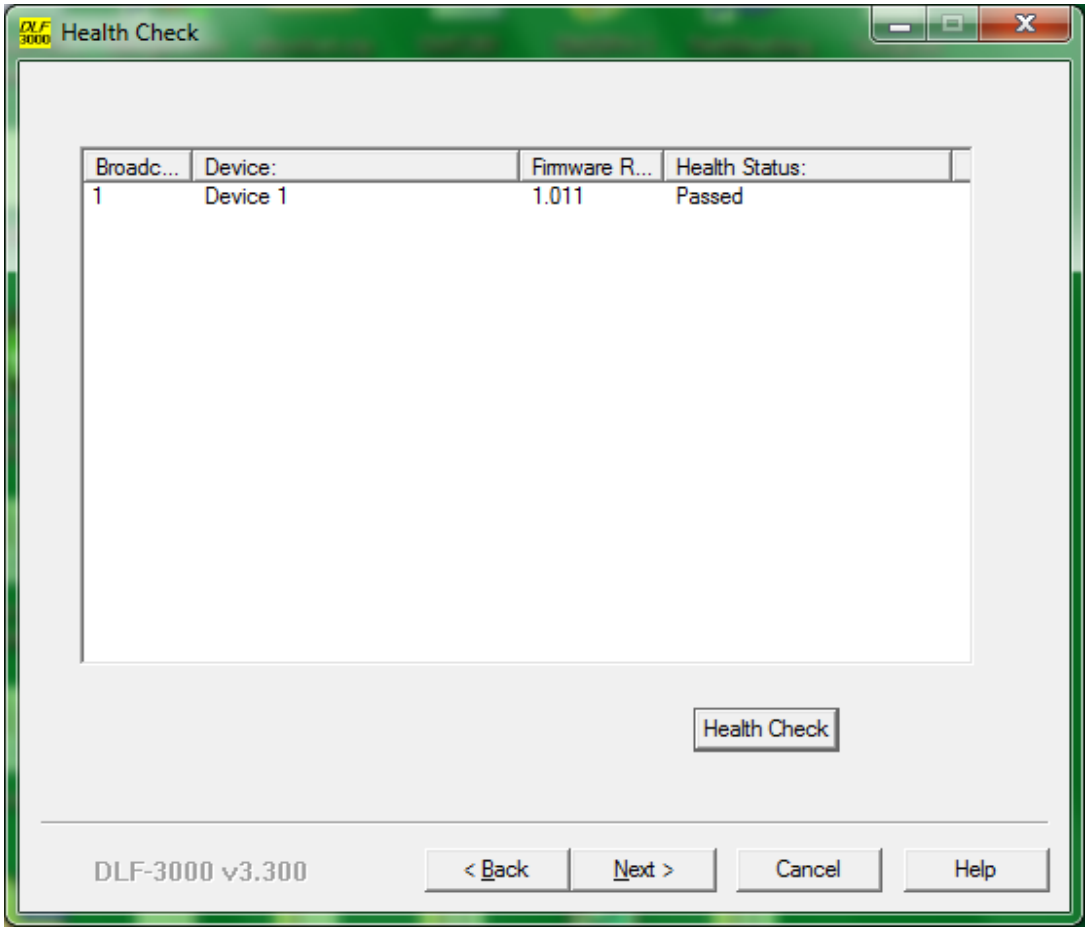


Click on “Next” to go ahead.

In the health check window that appears, click on the “Health Check” button.



If everything has been configured correctly, the communications is running and the meter is responding as expected, you should get the currently installed Firmware Revision number (not necessarily the same as shown in below picture) and a *Passed* message in the *Health Status*, as shown below:

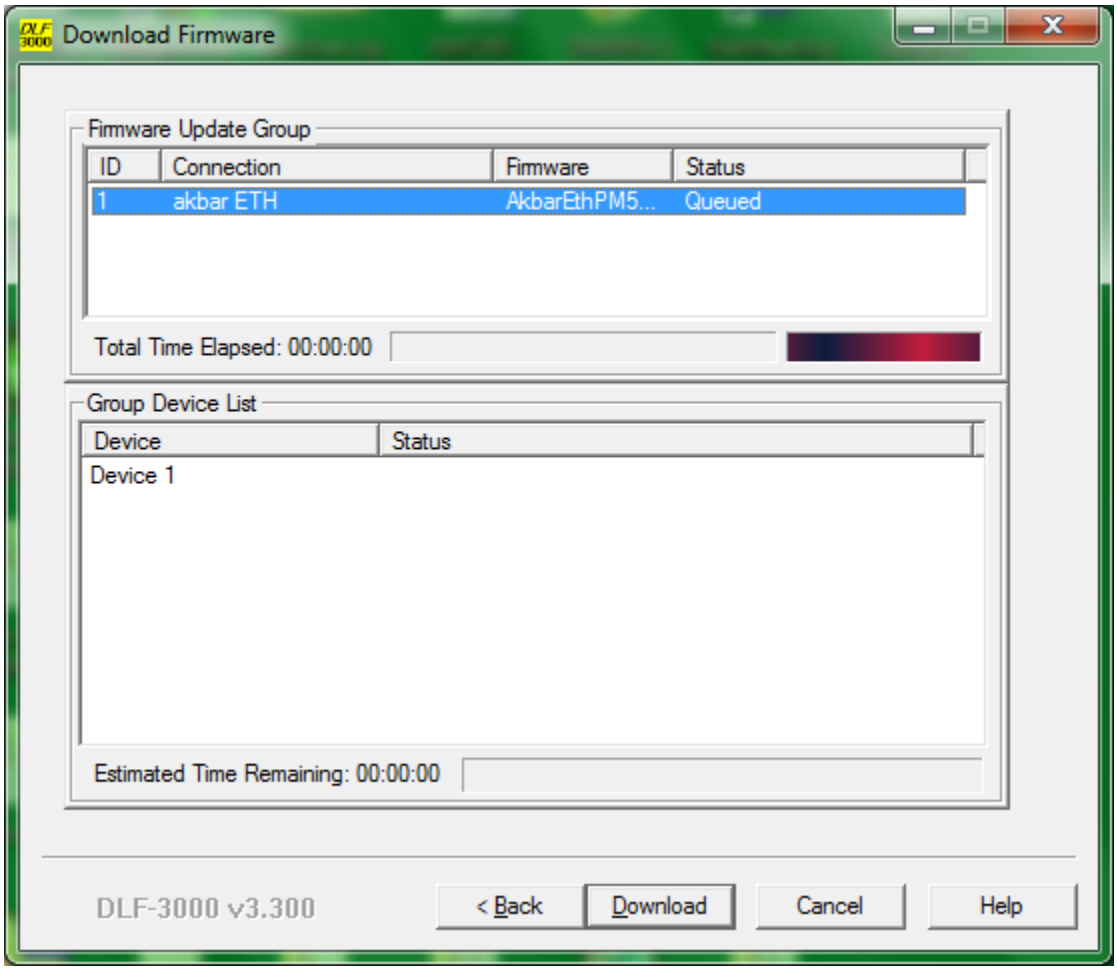


If you get an error in this stage, please go back to previous steps to check for incorrect configurations and/or check the wiring and the supply to the meter and the adapter

Once the health check is passed, the meter is ready to accept the firmware update

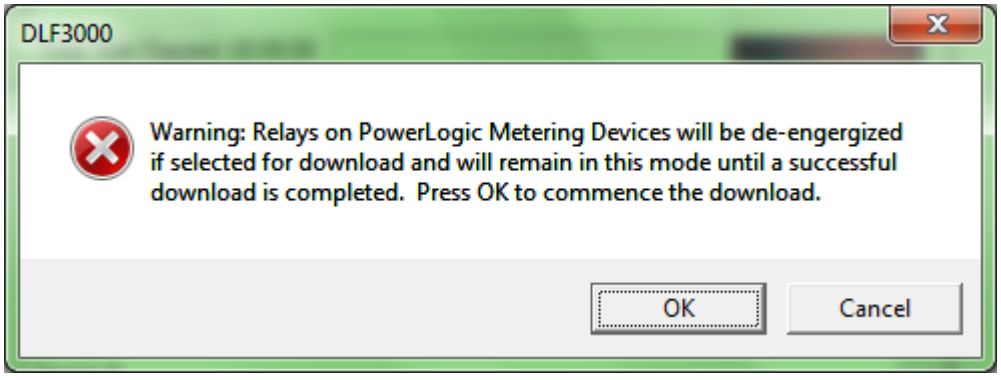
Click on “Next” to continue

The download window is described below:



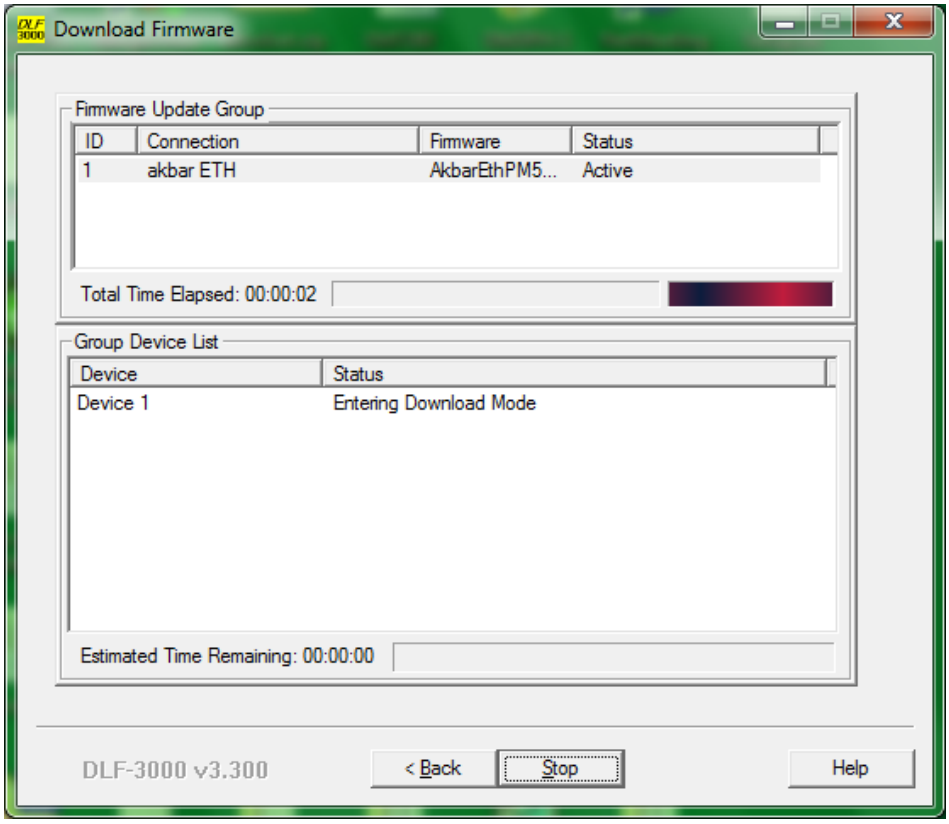
Click on the “Download” button to initiate download process

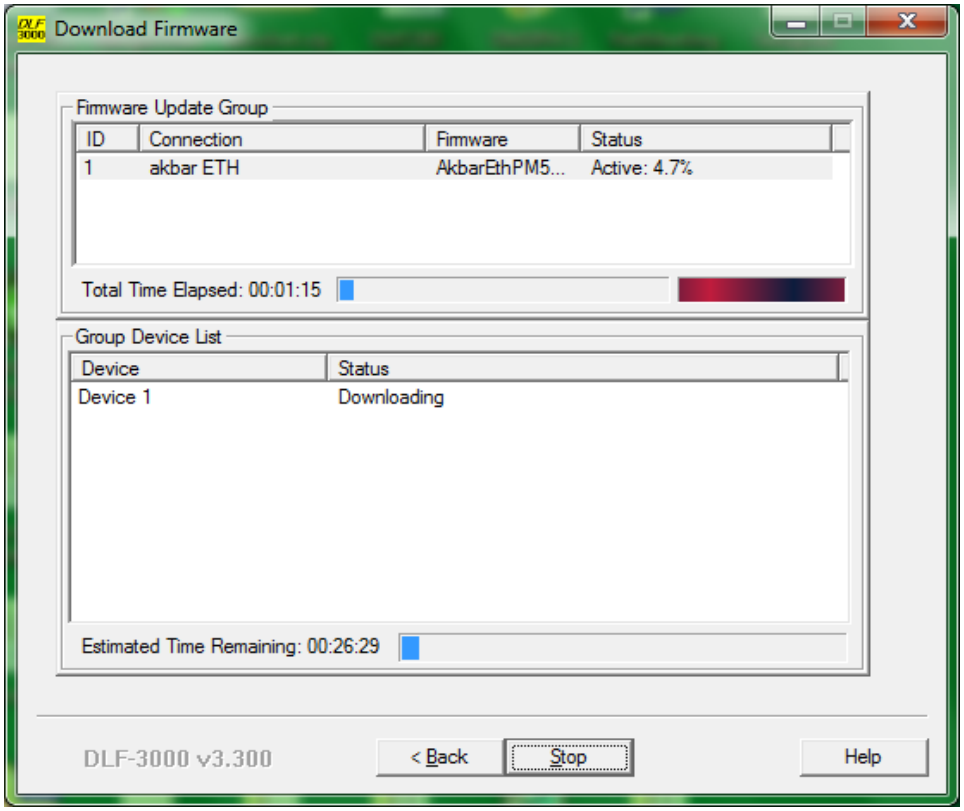
A warning as described below appears which tells you about the de-energized status of relays

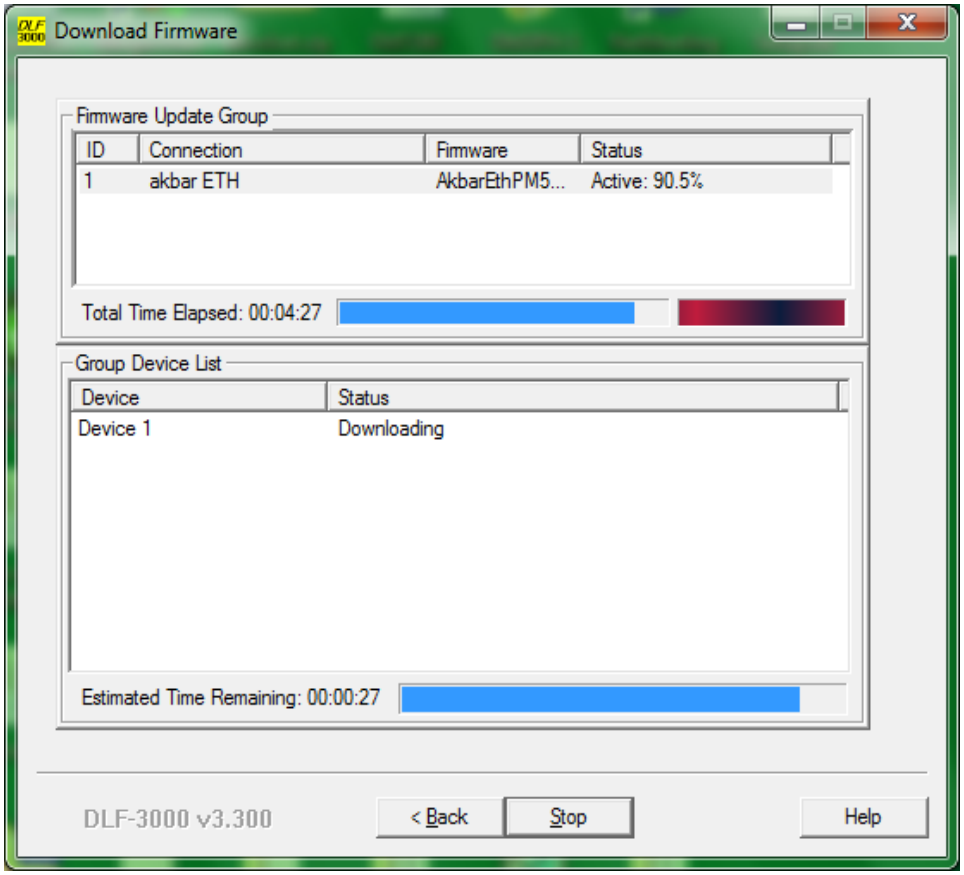


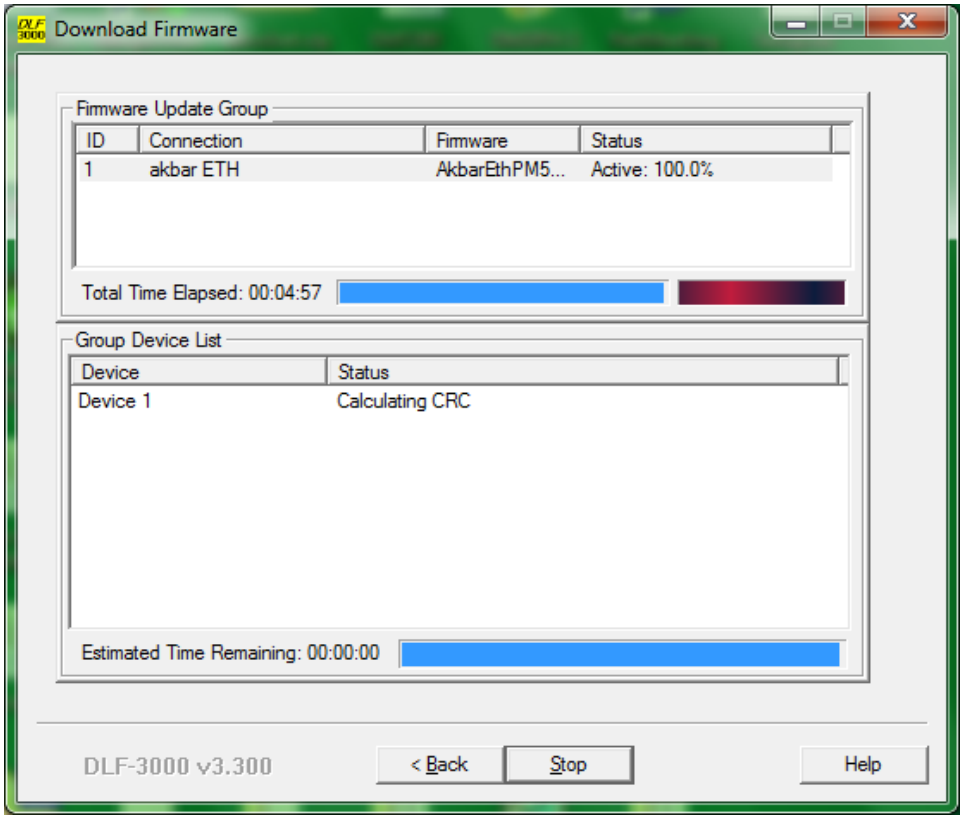
Click “OK” to begin the download

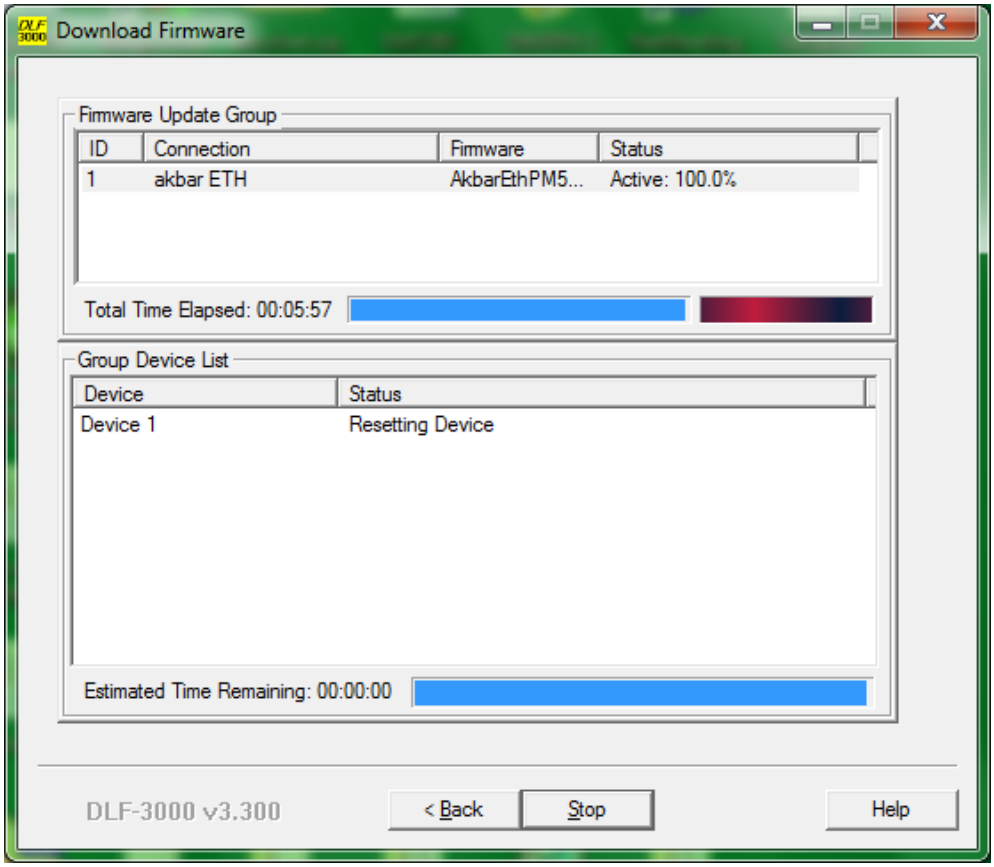
As the download starts, the PM5XXX meter will go into OS download mode and information regarding the ongoing download can be seen on the screen of the meter, as well as in the window below:

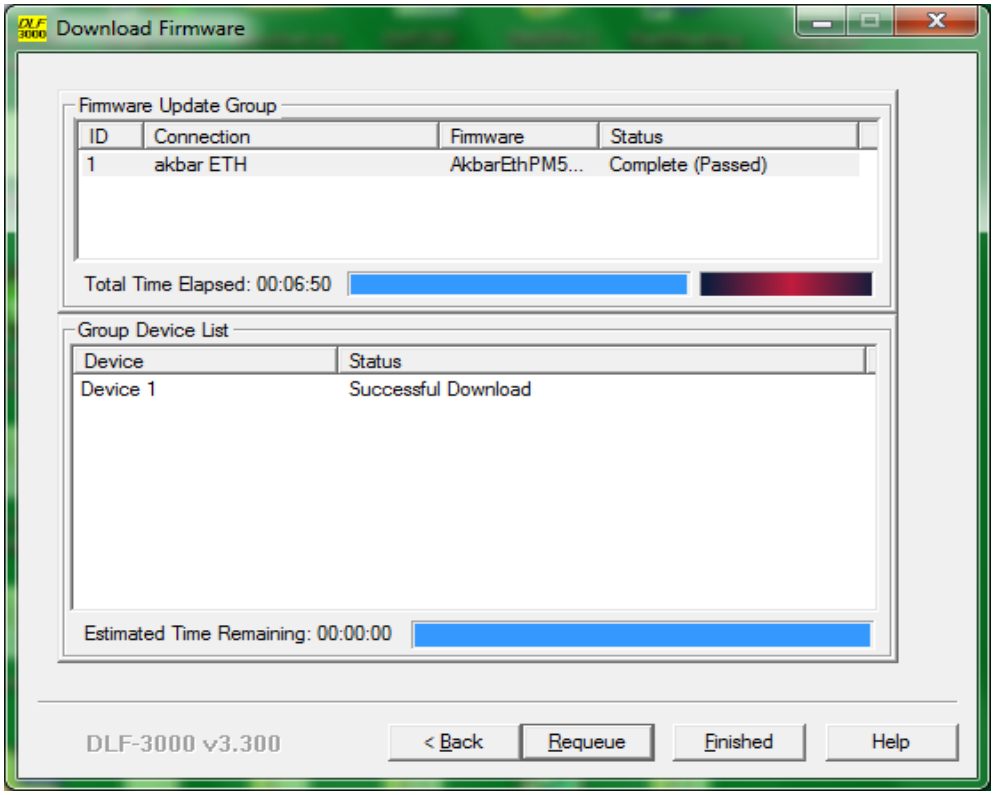





Download Firmware
Firmware Update Group
ID
Connection
Firmware
Status
1
akbar ETH
AkbarEthPM5...
Active: 90.5%
Total Time Elapsed: 00:04:27
Group Device List
Device
Status
Device 1
Downloading
Estimated Time Remaining: 00:00:27
DLF-3000 v3.300
< Back
Stop
Help


Download Firmware
Firmware Update Group
ID
Connection
Firmware
Status
1
akbar ETH
AkbarEthPM5...
Active: 100.0%
Total Time Elapsed: 00:04:57
Group Device List
Device
Status
Device 1
Calculating CRC
Estimated Time Remaining: 00:00:00
DLF-3000 v3.300
< Back
Stop
Help





When you get the above status in the Download Firmware window, the meter has been successfully updated with the selected firmware and is ready for use

You may connect another meter and click on “Re queue” to repeat the update process, or you may click on “Finished” and exit the program

The DLF3000 can be accessed again to repeat the download process.

Once you have used the DLF3000 on a computer and created a download profile using the above steps, you can run the DLF3000 anytime and select the same profile to repeat the firmware update process for PM5xxx. This way you do not need to go through setting all the parameters every time you run the software.