



MONNET 2M

Quickstart Installation Manual

Version 2.1 – April 22 2016

Statement of Conformity

FCC Class A Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Modifications: Any modifications made to this device that are not approved by Teletics Inc. may void the authority granted to the user by the FCC to operate this equipment.

ICES-003 Class A Notice

This Class A digital apparatus complies with Canadian ICES-003.



Industry
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Terminology

POTS – **P**lain **O**ld **T**elephone **S**ervice. This is the type of phone line you get from a phone company at your house as a one line connection.

Modem – Dial up device used to transmit digital data over phone lines.

Radio – Device used to transmit digital data over any kind of wireless network, including cellular, wifi, satellite, or private licensed frequencies.

Main Office – This is the “Head Office” location. This is typically where the program that gathers information is located.

Field Device – This is the device that typically contains or gathers remote data at a remote location(s).

Technical Support

Support can be obtained from your Teletics distributor, or by calling Teletics Technical Support at:

800 314 5010

Warnings



The Teletics MoNet may be used over extended temperature ranges, but must be used in a dry environment. An enclosure is required for outdoor use.



The Teletics MoNet is designed to use +5VDC. Third party power supplies may be used, provided they can supply at least 2A.

The 5VDC power adapter uses a special “twist lock” barrel connector to ensure the barrel connector stays in place during operation. Please do not remove the barrel connector without twisting it to allow proper removal.

! IMPORTANT !

Ensure that you **remove power** from this unit before plugging or unplugging Ethernet or telephone connections on the RJ45 or RJ11 ports. Failure to comply with this may cause unreliable operation.

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Introduction

The Teletics MoNet allows regular modems to communicate with each other over any IP network, including cellular, wifi, private radio, satellite, landline, cable, or DSL. The IP network can be either private or public.

A single MoNet at a Head Office location can dial multiple remote site MoNets in a “one to many” basis.

Box Contents

The Teletics MoNet box contains the following:

- MoNet
- Ethernet cable
- Power Adapter
- Mounting kit for both wall/cabinet mount or DIN rail

Getting Started

If this is your first time using the MoNet, it is recommended that you spend some time in a bench environment to familiarize yourself with the setup and programming required prior to a first field installation.

The MoNet ships as a DHCP client, so it will ask for an IP address from whatever LAN it is plugged into. If it does not receive an IP address from your LAN, it will eventually wind up at 169.254.1.1 by default.

To find which IP address your new MoNet has, run the ShowMeTheMoNet utility, available from the support section of the Teletics website:



```
interface 10.0.0.54 ...
-----
url=http://10.0.0.87
type=U0IP Device
hostname=TELETICS_AT0_002201800003
descriptor=U0IP Device
-----
enter q to quit, any other key to search again <n toggles min mode>
_
```

Teletics ShowMeTheMoNet utility is available on the Teletics website at www.teletics.com/support, under the MoNet Manuals section.

Activation

When you receive your MoNets, they will be already activated on the Teletics MoNet service. You will receive information on the telephone numbers that are assigned to each MoNet RJ11 port.

For example, a typical MoNet may be given the phone number (212) 555-1212 and (212) 555-1213 for the first RJ11 port, and second RJ11 port, respectively.

For one MoNet to dial a second MoNet, all that is required is that both MoNets be attached to a LAN that has internet access, and to know the number assigned to the MoNet you are dialing. When testing two MoNet devices on the bench, both devices should be connected to the internet, similar to what is show in the MoNet Test System Diagram, below.

Setting Up a Trial System

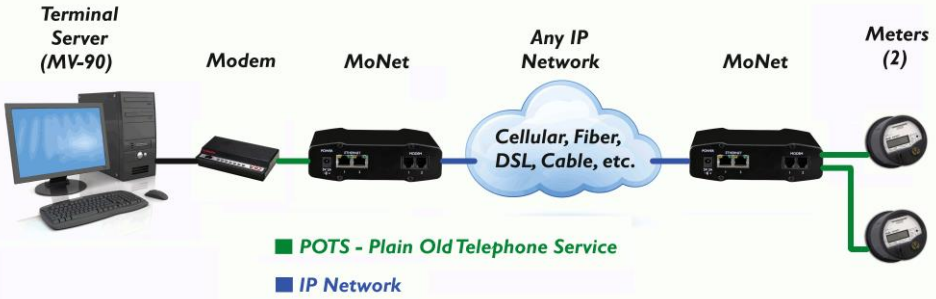
A suitable first bench trial system for MoNet testing consists of:

- Two MoNets (one for field location, one for main office).
- Two RJ45 LAN connections with access to the internet.
- A main office computer running the customers software used to gather information from the field devices. It may help to have a separate modem on this system for use with MoNets.
- A modem inside the field device.
- Phone and networking cables.

MoNet Test System Diagram

To perform initial testing on two MoNets, it is recommended that you connect them as follows:

Teletics MoNet System Diagram



This configuration allows a quick check that the Main Office computer can dial the Field Devices through a MoNet network, prior to introducing outside internet connections.

If you setup the MoNets as follows, you should be able to make a simple call from your main computer application, out to the field devices to demonstrate how the MoNet works.

MoNet # 1 (Main Office)

Phone Number (Modem 1 Port) (212) 555-1212

Phone Number (Modem 2 Port) (212) 555-1213

MoNet # 2 (Field Device)

Phone Number (Modem 1 Port) (212) 555-1214

Phone Number (Modem 2 Port) (212) 555-1215

If your Field devices operate at speeds higher than 14400 bps, plug all the modems in the system into the MoNet Modem jacks that are labeled **Modem 1**. If your Field Devices operate at 14400 bps or lower, plug all the modems into the MoNet **Modem 2** Ports.

In our bench test configuration, to have the Main Office computer dial the Field Device MoNet, the Main Office computer modem should be told to dial ATDT12125551214 (If using **Modem 1** Port) or ATDT12125551215 (**Modem 2** Port).

You should hear the two modems connect and you should be able to communicate between the two ends exactly like you would if there were a phone line in between.

Any data transfers required by the Main Office to the Field Devices should be tested prior to field deployment.

Next Steps

Once the trial system is proven successful, these next steps are typically performed:

- Introduce the communications device that will service the field sites. This might be a cellular radio, or a private network connection, or a wifi router.
- Decide on the network integration with the main office. Teletics can assist you with this step, as well as your IT department or communications provider.
- A field trial of a complete working system using a MoNet at each end.

Again, the MoNet does not care about the type of IP network used between the two ends, as long as there is a public internet connection available.

Differences between Modem Ports

The default factory config between the two modem ports are that the Modem 2 port is optimized for 14400 or lower baud rate devices, such as Power Meters. Port 1 is set for up to 33.6 kbps operation.

Once you have completed initial bench testing, Teletics can remotely configure both ports to be optimized for any baud rate, or full data speed. Contact Teletics support for more information.

Call Progress Tones

The MoNet “off hook” tone is slightly higher pitch than a typical phone line. When a call is progressing, you will hear “escalator tones”, in 4 levels.

Busy signals are identical to regular POTS phone lines.

LED Status Indications

The LEDs labeled Modem 1 and Modem 2 on the MoNet will emit 4 flashes when they are connected or connecting to another MoNet. When the Modem port is idle, they will not be lit.

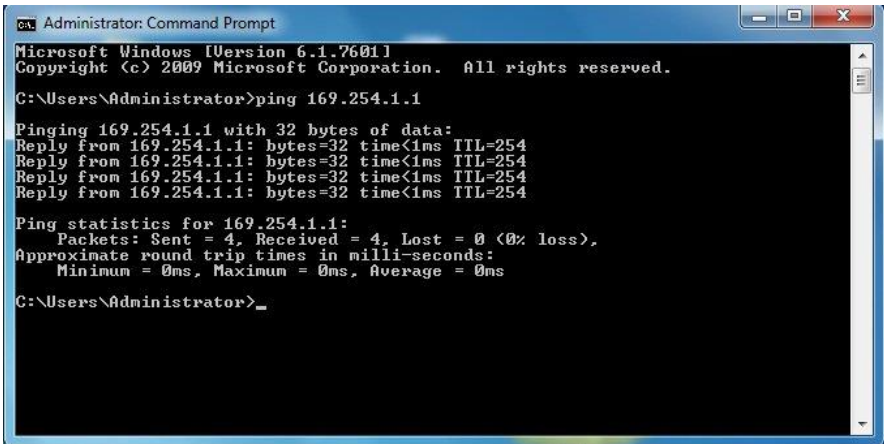
Hidden Reset Button

The Reset button on the MoNet is accessed through the front panel, by pushing a non-conductive pointed object through a very small hole. The hole is located between the two right front panel screws, and left of the Teletics logo.

Please do not press this reset button without first contacting Teletics technical support.

Basic Troubleshooting

Check to see if you can “ping” the MoNet. Type “ping” and the IP address shown by ShowMeTheMoNet and hit enter. You should see replies, like below:



```
Administrator: Command Prompt
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

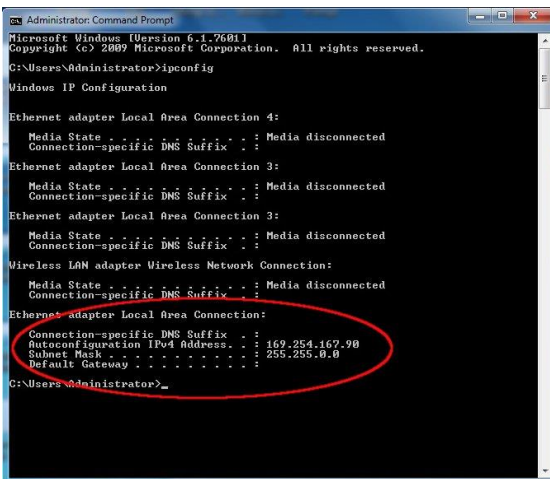
C:\Users\Administrator>ping 169.254.1.1

Pinging 169.254.1.1 with 32 bytes of data:
Reply from 169.254.1.1: bytes=32 time<1ms TTL=254
Reply from 169.254.1.1: bytes=32 time<1ms TTL=254
Reply from 169.254.1.1: bytes=32 time<1ms TTL=254
Reply from 169.254.1.1: bytes=32 time<1ms TTL=254

Ping statistics for 169.254.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\Administrator>
```

If you cannot ping the MoNet, you should check if your network adapter in your Computer is correctly set up. Type ipconfig and compare your output to the one below. Generally, the first 9 digits of the IPv4 address needs to be the same as the IP address shown by ShowMeTheMoNet:



```
Administrator: Command Prompt
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection 4:
    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . :

Ethernet adapter Local Area Connection 3:
    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . :

Ethernet adapter Local Area Connection 3:
    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . :

Wireless LAN adapter Wireless Network Connection:
    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . :

Ethernet adapter Local Area Connection:
    Connection-specific DNS Suffix . :
    Autoconfiguration IPv4 Address . . : 169.254.167.90
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . :

C:\Users\Administrator>
```

If the first 9 digits are different than those shown in ShowMeTheMoNet, then you need to set the network on the computer to obtain the correct IP address automatically.

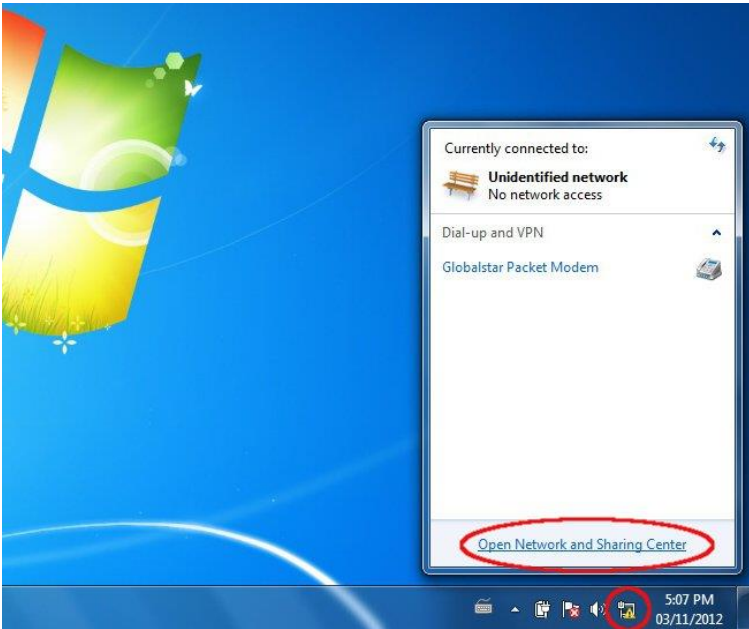
Changing your computers IP address settings

Most office computer networks provide the IP addresses that the computers use automatically. In some very rare cases, your computer may be set up with a static IP address.

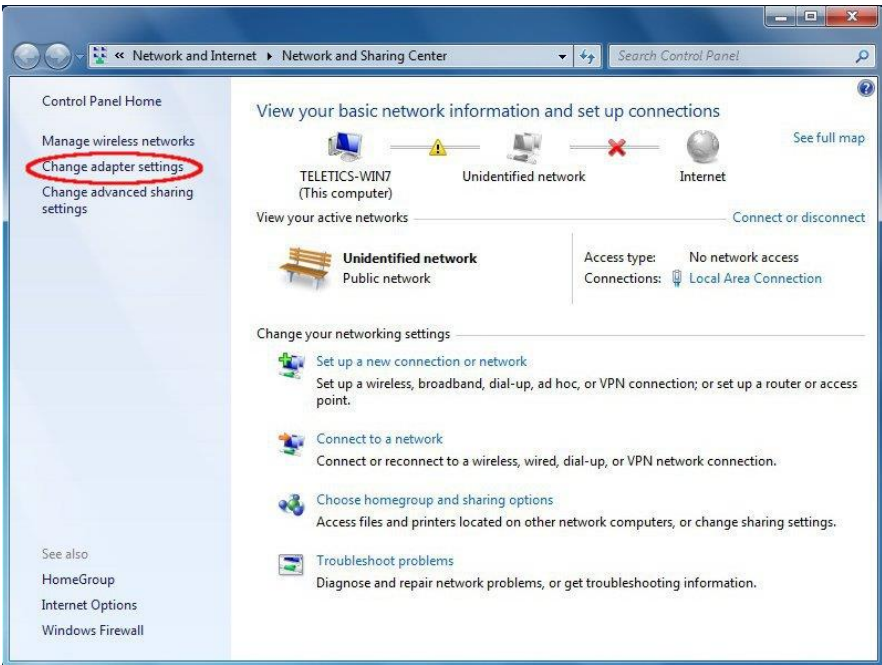
Generally, to configure a MoNet, you need to have your computer use an IP address that is assigned automatically.

Here are the steps to do this:

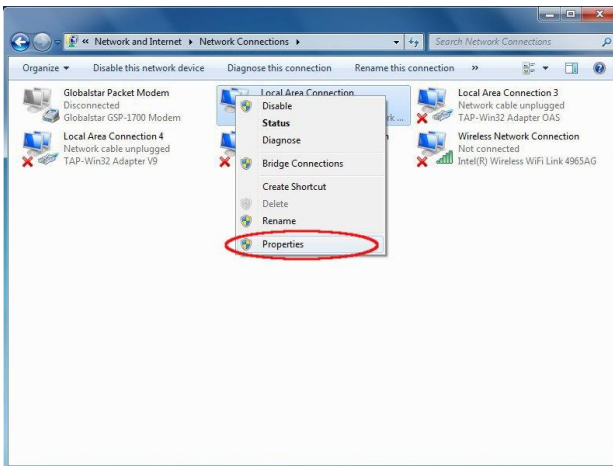
Open up the network center by clicking on the little picture of the computer screen in the lower right of the windows screen. Then click on “Open Network and Sharing Center”:



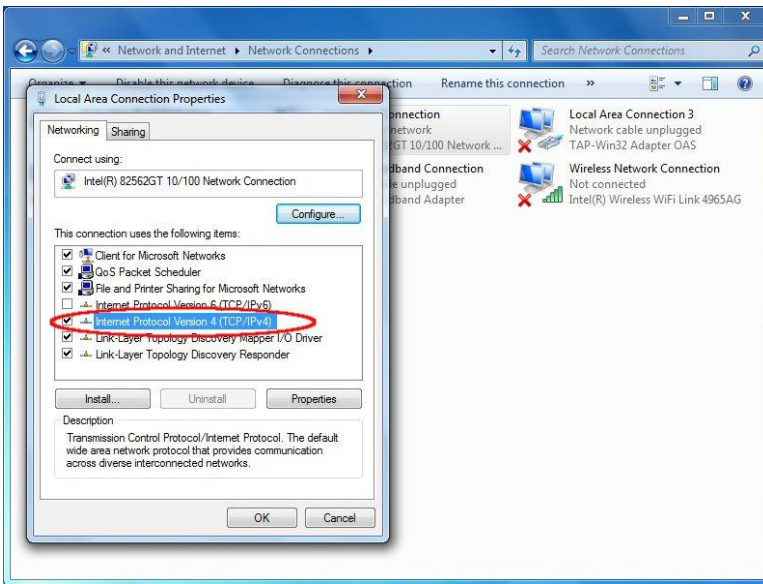
Next, click on “change adapter settings”:



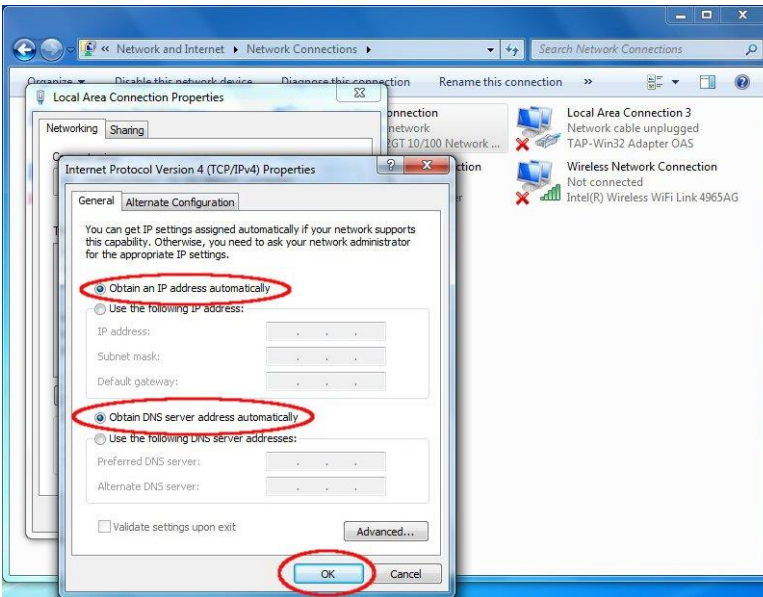
Then, click on the icon for the “Local Area Connection”. Click on “Local Area Connection” and Choose “Properties”:



Next, you need to click on “Internet Protocol Version 4 (TCP/IPv4)”:



Finally, choose the following two settings, and click “OK”:



Can't Dial one end to the other

Since the MoNet Modem ports simulate a standard phone line, you can use a regular telephone to make calls to see if the network settings are correct.

The first thing you will notice is that the dial tone is not exactly like a regular phone line. It is a bit higher pitch. However, you can still plug in a phone, and dial a number like 12125551214 to see what happens.

If you get a busy signal, instead of a ring tone, you should check that the phone number you are dialing is the same as the MoNet that is at the destination you are trying to call.

Updating the Firmware

The MoNet automatically checks for firmware whenever you power it on.

If you have just purchased your MoNet, and wish to make certain that it has the latest firmware, simply plug it into your computer network, and power it up. Please be patient, updates can take up to two minutes to complete. If you are having any setup issues, please contact Teletics technical support, as we would be pleased to provide assistance.

If the MoNet already has the most recent firmware, it simply initializes during power up, connects to the Teletics MoNet Server, and is ready to operate.

Warranty

Teletics warrants the MoNet for one year from date of purchase by the original owner.

Teletics will replace or repair, at its option, any MoNet that fails to perform under normal use, provided that the system is returned, at the cost of the owner, to Teletics. Items that are returned for warranty repair must be accompanied by a copy of the original invoice or proof of purchase. For further details about how to receive warranty or after warranty service information, please contact your Teletics distributor, or visit the Teletics website at www.teletics.com

Any operation of the MoNet outside of specified temperatures, power, environment, or in a manner specified in this manual as harmful to the device will void any warranty. Additionally, any attempted repair or dismantling of any Teletics product, in any way, will void all warranties.

In no event shall Teletics liability exceed the original purchase price of the product from direct, indirect, special, incidental, or consequential damages resulting from the use, or misuse, of this product.

Disclaimer

Installation of this equipment must be in strict accordance with the instructions included in this documentation.

Any changes or modifications made to this device that is not expressly approved by Teletics may void the user's authority to operate the equipment.

Specifications

POTS (Modem) Lines	2 analog (POTS)
Max Modem Speed Supported	33,600 V.42 bis
Ethernet Ports	2 x RJ45 / 100BT
Operating Temperatures	-40C to +70C -40F to +155F
Power Required	5 VDC @ 2A (Wall adapter included)
Mounting Options Included	Desktop Vertical Mounting Brackets Din Rail Mount
Certifications	FCC Part B IC RSS-210 UL Canada/US