

## Configuration Quick Start Guide

# Remote Spectrum Monitors

**MS27101A, MS27102A, MS27103A**  
**9 kHz to 6 GHz**

## 1. Introduction

To communicate with the MS2710xA Remote Spectrum Monitor or to change its IP configuration, a PC must be correctly set up to communicate with the instrument via a direct connection using a static IP. The sections in this guide explain using:

- a Windows PC to directly communicate with the Anritsu spectrum monitor
- SCPI commands for configuring the Ethernet and DNS settings
- the Anritsu Windows network discovery tool to find the instrument IP address

The spectrum monitor is shipped with the following default IP configuration:

- **DHCP:** OFF (Static IP Address)
- **Static IP Address:** 10.0.0.2
- **Static Subnet:** 255.255.255.0
- **Static Gateway:** 10.0.0.0

Read the *MS2710xA Product Information, Compliance, and Safety Guide* (PN: 10100-00064) for important safety, legal, and regulatory notices. For additional information and literature covering your product, visit the product page of your instrument and select the Library tab:

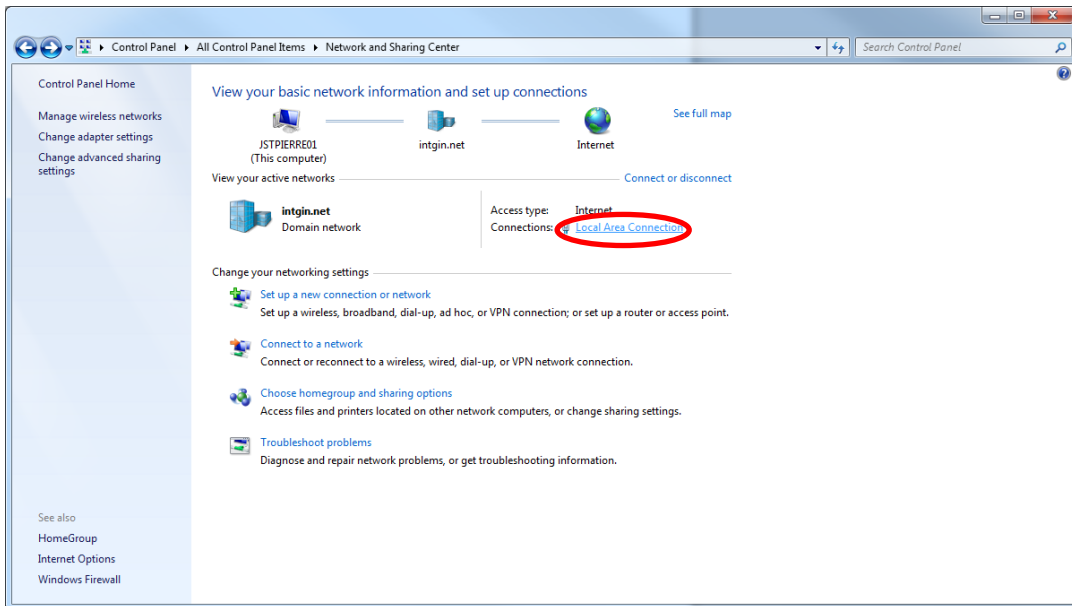
## 2. Setting Up Windows 7 for a Static IP

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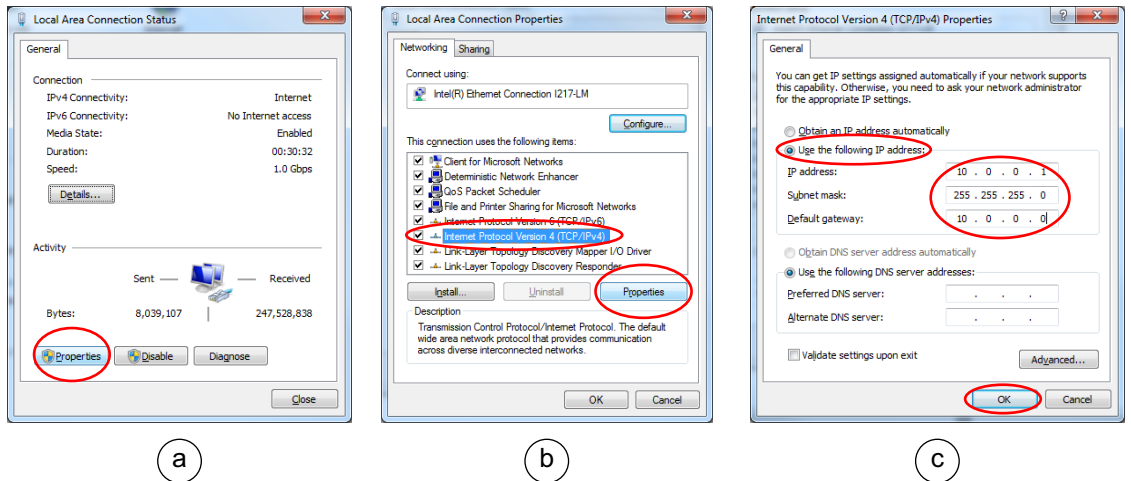
The following example illustrates how to set up Windows 7 for a static IP address. Refer to your operating system documentation or consult with your network administrator for other Windows versions or operating systems.

1. Connect an Ethernet crossover cable between a PC and the instrument.
2. Open Control Panel, Network and Internet and select Network and Sharing Center.
3. Select the Local Area Connection link as shown in Figure 1.



**Figure 1.** Local area connection link

4. Select Properties as shown in Figure 2a.
5. Highlight Internet Protocol Version 4 (TCP/IPv4) and select Properties as shown in Figure 2b.
6. Select Use the following IP address: and enter the following IP properties as shown in Figure 2c as listed:
  - **Static IP Address:** 10.0.0.1
  - **Static Subnet:** 255.255.255.0
  - **Static Gateway:** 10.0.0.0



**Figure 2.** Windows configuration steps

7. Click OK.

The PC is now configured for a direct connection to the instrument using a static IP.

### 3. Configuring for Dynamic IP through SCPI Commands

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After the PC is properly configured, the connection can be tested. After a good connection has been confirmed, either SCPI commands or the embedded instrument user interface (UI) may be used to configure the Ethernet settings on the instrument to different values. Refer to the embedded Help for details on using the UI.

<b>Caution</b>	Consult with your network administrator when configuring the network interface to avoid potential loss of access or discovery of the device.
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The following steps describe how to verify and set the Ethernet configuration through SCPI programming:

1. Using any SCPI client, send the \*IDN? query command to 10.0.0.2 on port 9001. Verify the response includes the model and serial numbers, and other instrument information.

<b>Note</b>	If a response is not returned, try switching to a cross-over Ethernet cable and send the query command again. Ensure that your SCPI client has the termination character enabled: \n Line Feed (xA).
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2. To configure the instrument for DHCP, send the following SCPI commands to 10.0.0.2 on port 9001:

```
SYSTem:COMMunicate:LAN:DHCP?
```

Queries the DHCP setting. The return value should be NO if the instrument is currently configured for static IP.

```
SYSTem:COMMunicate:LAN:DHCP ON
```

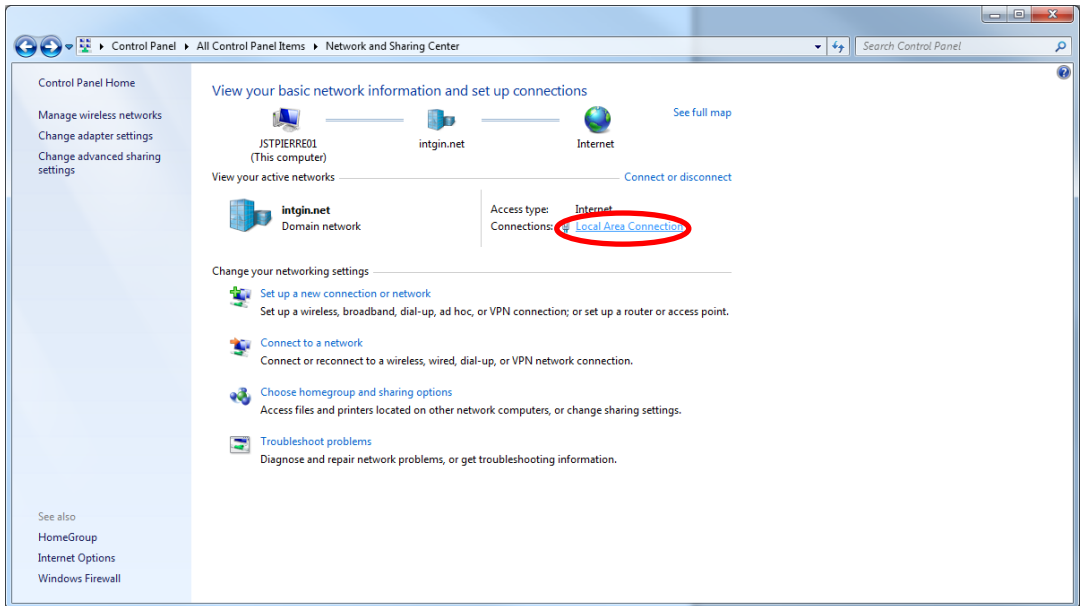
Turns the DHCP setting ON. The setting is applied immediately upon sending the command.

<b>Note</b>	Turning DHCP ON will change the IP address. The Anritsu Discovery program will need to be used to retrieve the new IP address. See <a href="#">“Discovering Instruments on the Network Using Windows”</a> for instructions on using the discovery program.
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3. Disconnect the Ethernet crossover cable between the PC and instrument.
4. Reboot the instrument.
5. Connect the instrument and the controlling PC to your main network with a regular Ethernet cable. The PC must be re-configured for dynamic IP as described in the next section.

## 4. Setting Up Windows 7 for Dynamic IP

1. Select the Local Area Connection link as shown in Figure 3.



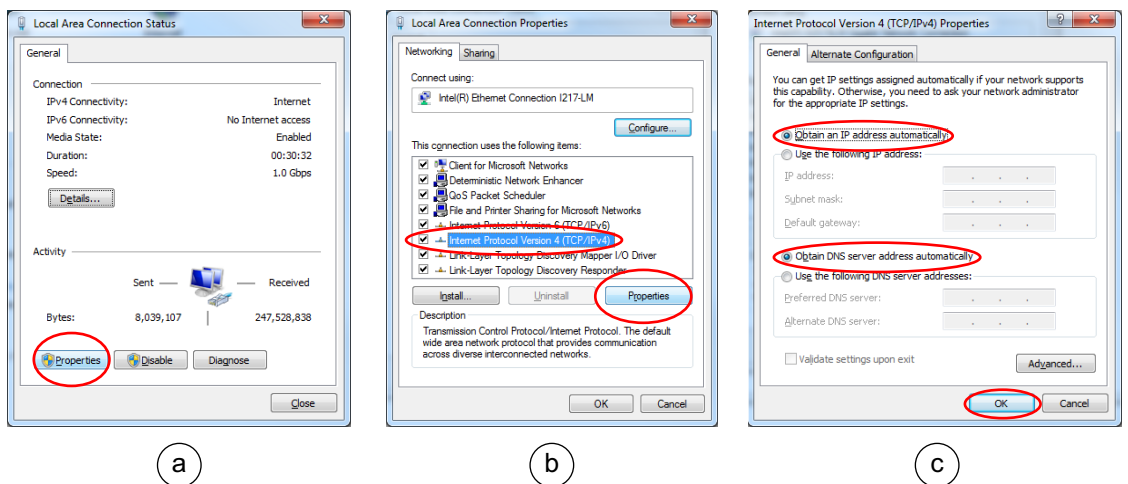
**Figure 3.** Select the Local Area Connection link

2. Select Properties as shown in Figure 4a.

3. Highlight Internet Protocol Version 4 (TCP/IPv4) and select Properties as shown in Figure 4b.

4. Change the properties to match the illustration as shown in Figure 4c as listed below:

- Obtain an IP address automatically
- Obtain DNS server address automatically

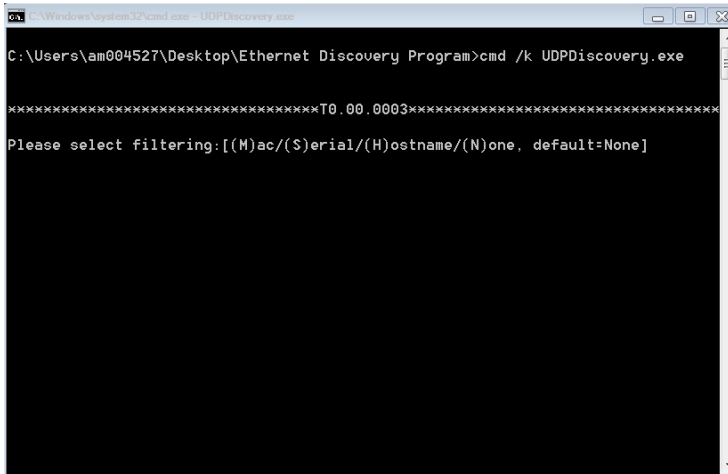


**Figure 4.** Windows configuration steps

### 5. Discovering Instruments on the Network Using Windows

Clients may execute the UDP Anritsu Discovery program on their PC to discover instruments on the same subnet as the PC. The program prints out a list of instruments with information such as the instrument host name, firmware version, MAC address, IPv4 and IPv6 addresses.

1. To start the discovery program, run the downloadable “RunDiscoveryProgram.bat” file.
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**Figure 5.** Running the UDP Anritsu Discovery program

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2. Select a filtering method. Since there could be many instruments already connected to the network, a selection filter can be used to narrow the search results. The search filter has four options:
  - (M)ac – Mac Address of the probe
  - (S)erial – Serial number of the probe
  - (H)ostname – Host name of the probe
  - (N)one – No filters selected. All instruments attached to the local area network will be listed.
3. If M, S, or H was selected in Step 2, enter a search string. The search query term is not case sensitive. The search string can be a partial match or a full match to the MAC address, serial number, or host name. For example, selecting “S” and entering “0000003” will search for the instrument with serial number 0000003.
4. The program will start listing all instruments connected on the same subnetwork that match the search criteria.

## 6. Supplemental Information

### Configuring for Static IP through SCPI Commands

To change from DHCP to Static IP, send these commands to port 9001 of the instrument's dynamic IP address:

1. Set the static values of the Ethernet configuration that are used when DHCP is OFF:

```
SYSTem:COMMunicate:LAN:CONFig <Static IP>,<Static Gateway>,  
<Static Subnet>
```

The <Static IP>, <Static Gateway>, and <Static Subnet> must be enclosed in quotes like the following example:

```
SYST:COMM:LAN:CONF "124.168.1.1","124.168.1.0","255.255.255.0"
```

2. Confirm the static IP settings by querying the static Ethernet configuration:

```
SYSTem:COMMunicate:LAN:CONFig?
```

3. Turn off DHCP and set the instrument to static IP mode:

```
SYSTem:COMMunicate:LAN:DHCP OFF
```

4. Reboot the instrument.

### FTP Access

A FTP server has been included in the instrument to allow user access to files stored on the instrument or in a USB drive connected to the instrument. To access the FTP server, use a FTP client of choice and enter the IP address of the instrument as the host. The user name is "ftp" and the password is the serial number of the instrument. The serial number can be obtained through SCPI using the "\*IDN?" command.

### System Override

In the event that the instrument does not respond to SCPI commands (due to circumstances like a long sweep used in conjunction with \*OPC?) and needs to be reset remotely, the system override feature can be used. System override can be accessed through a raw socket to port 8001 of the instrument. All commands except a password reset will require the instrument's password to be sent. The default password for an instrument is the MAC address interleaved with the word "system" between MAC address pairs. As an example, an instrument with the MAC address "1a:2b:3c:4d:5e:6f" will have a default password of "1as2by3cs4dt5ee6fm". Currently, system override only supports three commands as described below:

#### 1. Reboot the instrument:

To reboot the instrument, send the following string to the instrument through port 8001:

```
"force_reboot,<instrument_password>"
```

Replace <instrument\_password> with the password of the instrument. After the command has been sent, the instrument will respond with "ok" if the command has been successfully processed. If the password is incorrect, "password\_match\_fail" will be returned.

#### 2. Set a new password:

To set a new password for the instrument, the following string should be sent through port 8001:

```
"change_password,<old_instrument_password>,<new_instrument_password>"
```

Note that the max length of a password is 50 characters. If the new password has been successfully set, "ok" will be returned. If the password is too long, a "password\_over\_50\_characters\_fail" will be returned. If the old password does not match, a "password\_set\_fail" message will be returned.

#### 3. Reset the password:

In the case where the system override password needs to be reset to default, the following command can be sent through port 8001:

```
"reset_password"
```

Note that this command DOES NOT require the instrument password. If the password has been successfully reset, "ok" will be returned.

If an improperly formatted command is sent to the instrument, a "command\_match\_fail" will be sent back.