

PlusConnect™ Nautel GV  
PlusConnect™ Nautel NV  
PlusConnect™ Nautel NVLT  
PlusConnect™ Nautel NX  
PlusConnect™ Nautel VS  
PlusConnect™ Nautel XR

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*Installation and Operation Manual Rev. F*



## Contents

Introduction .....	1
Compatibility.....	2
Transmitter Compatibility.....	2
ARC Plus Compatibility.....	2
Unpacking .....	2
Front Panel Indicators.....	3
Hardware Configuration .....	3
Additional SNMP Parameters .....	5
Setting the Password .....	5
Uploading New Firmware .....	5
Installation .....	6
Software Configuration.....	6
Adding the PlusConnect Unit to the ARC Plus Site .....	7
Manually Mapping PlusConnect Parameters.....	8
Setting up Labels, Limits and Alarms .....	9
Creating a PlusConnect Custom View in AutoPilot.....	9
Operation .....	11
Troubleshooting.....	11
Connection Errors .....	11
Getting Help .....	11
Warranty .....	12

## Introduction

This manual describes the PlusConnect™ Nautel GV, PlusConnect™ Nautel NV, PlusConnect™ Nautel NVLT, PlusConnect™ Nautel NX, PlusConnect™ Nautel VS and PlusConnect™ Nautel XR.

The PlusConnect is part of the Plus-X family of Ethernet I/O products designed for the ARC Plus.

The PlusConnect provides a connection between the Nautel GV, NV, NVLT, NX, VS or XR transmitter series and the ARC Plus transmitter remote control system. The PlusConnect reads transmitter parameters using SNMP (Simple Network Management Protocol) over an existing LAN, WAN, or Internet connection, then forwards real-time data to the ARC Plus, also via LAN, WAN, or Internet. Monitor and control of PlusConnect channels is possible via:

- The front panel of the ARC Plus
- A web browser, using the built-in web interface on the ARC Plus
- Web-enabled mobile device, using the built-in mobile web interface on the ARC Plus
- PC, using optional AutoPilot® software
- Telephone, using the optional ESI or RSI Speech Interface for the ARC Plus

***Important! The PlusConnect operates in conjunction with an ARC Plus system. Be sure to complete configuration of the ARC Plus before adding the PlusConnect to the system.***

### Installation Note

Even though you may operate the ARC Plus and PlusConnect on different subnets, Burk Technology strongly recommends installing the PlusConnect on the same LAN as the ARC Plus. In a network failure, an ARC Plus can only continue to monitor and control a PlusConnect on the same LAN. If the network link between the units is not available, ARC Plus macros, alarm monitoring and telephone control will be unavailable for the PlusConnect unit.

## Compatibility

### Transmitter Compatibility

Model	Compatible Transmitters
<b>PlusConnect Nautel GV</b>	Nautel GV3.5, GV5, GV7.5, GV10, GV15, GV20, GV30, GV40, GV60, GV80
<b>PlusConnect Nautel NV</b>	Nautel NV Series
<b>PlusConnect Nautel NVLT</b>	Nautel NVLT Series
<b>PlusConnect Nautel NX</b>	Nautel NX Series
<b>PlusConnect Nautel VS</b>	Nautel VS300, VS300HD, VS1, VS1HD, VS2.5, VS2.5HD
<b>PlusConnect Nautel XR</b>	Nautel XR3, XR6, XR12, XR25, XR50 (Nautel NxLink must not be installed <sup>1</sup> )

<sup>1</sup> The Nautel NxLink and the Burk PlusConnect Nautel XR cannot both be connected to the transmitter. It is necessary to remove the NxLink from the serial port before connecting the PlusConnect Nautel XR.

*Transmitter models, firmware versions and options are subject to change. Visit [www.burk.com](http://www.burk.com) for current information.*

### ARC Plus Compatibility

Before installing the PlusConnect, please verify that the ARC Plus firmware, AutoPilot software and AutoLoad Plus software versions are current. Updates are available at [www.burk.com](http://www.burk.com).

### Unpacking

The PlusConnect ships with the following:

- PlusConnect unit
- Power cord
- 10' shielded CAT5 cable

## Front Panel Indicators



Front panel of the PlusConnect unit

Indicator	State	Description
Power LED	On	Power is on
Power LED	Off	Power is off
Link LED	On (solid)	ARC Plus and transmitter connections are good
Link LED	Blinking	Transmitter connection is down
Link LED	Off	ARC Plus connection is down

## Hardware Configuration

This step will link the PlusConnect to a specific ARC Plus unit and will identify the transmitter to which the unit will be connected.

*Important! This procedure will reset the PlusConnect to its default IP address: 192.168.0.100.*

1. Connect your PC and the PlusConnect together using a cross-over Ethernet cable or network Hub.
2. Assign your PC to an available IP address on subnet 192.168.0.xxx (other than 192.168.0.100) with the subnet mask set to 255.255.255.0.
3. Connect the PlusConnect AC power cord and wait for the green Power LED to illuminate.
4. Use a paper clip or similar small object to press and hold the **Config** button on the rear panel of the PlusConnect unit. Hold the button in until the Power LED begins to blink. The Power LED will stop blinking when the unit has completed restoring default settings.
5. Enable Telnet on your Windows 7 or Windows 8 computer, if not already enabled, using the following steps:
  - Click **Start > Control Panel**
  - Click **Programs and Features**
  - Click **Turn Windows features on or off**
  - In the Windows Features dialog box, check the **Telnet Client** check box
  - Click **OK**. The system installs the appropriate files. This will take a few seconds to a minute to complete.
6. Open a Telnet session to the PlusConnect at the address 192.168.0.100 (port 23). Using Windows, you can launch Telnet by typing "telnet 192.168.0.100" from a command prompt.

- When prompted, enter the default password for the PlusConnect: *password*.

```
Burk Technology
PlusConnect Nautel XX v1.0.0

Password:
```

- Telnet will display the main menu.

```
1. Log Off
2. Help
3. Set IP Address:                192.168.0.100
4. Set Subnet:                   255.255.255.0
5. Set Gateway:                  192.168.0.1
6. Set Telnet Port:              23
7. Set Transmitter IP Address:   192.168.0.102
8. Set Transmitter SNMP Port:    161
9. Set SNMP Read Community String: public
10. Set SNMP Write Community String: private
11. SNMP Polling period:         3 seconds
12. SNMP Timeout:                30 seconds
13. ARC Plus IP Address:         192.168.0.101
14. Plus-X Port:                 45000
15: Set Password
16: Diagnostics
17. Update Firmware.

99. Save Configuration and Reboot.
```

To change a setting, enter the menu number for that setting and the press <Enter>.

- Enter the appropriate configuration settings for the following parameters:

#	Setting	Description
<b>3</b>	IP Address	The IP address you want to assign to the PlusConnect unit
<b>4</b>	Subnet	The subnet mask for your LAN
<b>5</b>	Gateway	The gateway for your LAN
<b>7</b>	Transmitter IP Address	The IP address of your Nautel transmitter
<b>13</b>	ARC Plus IP Address	The IP address of your ARC Plus unit
<b>14</b>	ARC Plus Plus-X Port	The Plus-X port number configured on your ARC Plus (typically 45000)

- Enter 99 and press <Enter> to save your changes and reboot the PlusConnect.

Once the settings have been saved, the PlusConnect can be connected to the target LAN. All future Telnet sessions should use the newly configured IP address.

### Additional SNMP Parameters

The main menu allows configuration of additional parameters beyond those described in the table above. The default values for these entries are appropriate for most installations. If you have made specific changes to the SNMP functionality of your transmitter, you should change the corresponding parameters using the PlusConnect telnet configuration tool.

### Setting the Password

Changing your password is strongly recommended. The PlusConnect password is used to access the telnet configuration menu. To change the password, use option #15: Set Password.

### Uploading New Firmware

To upload new firmware to the PlusConnect, use option #17: Upload Firmware. When prompted to start the firmware upload, enter “Y” for yes. The system will respond with the following message:

Use the Burk Firmware Loader to upload new firmware.

*Download and install the Burk Firmware Loader (if not already installed)*

1. If the Burk Firmware Loader is already installed on your computer, proceed to “Download the PlusConnect Nautel Firmware.”


*NOTE: By default, only members of the Administrators group on a computer can install new software. If you do not have the rights to complete all steps of this process, please contact your system administrator.*

2. Go to [www.burk.com/downloads](http://www.burk.com/downloads), select the ARC Plus tab, then scroll down to the PlusConnect section.
3. Download and install the Burk Firmware Loader.

*Download the PlusConnect Nautel firmware*

4. Go to [www.burk.com/downloads](http://www.burk.com/downloads) and select the ARC Plus tab, then scroll down to the PlusConnect section.
5. Download and save the PlusConnect Nautel firmware file that applies to your transmitter:

*Allow Burk Firmware Loader through Windows Firewall*

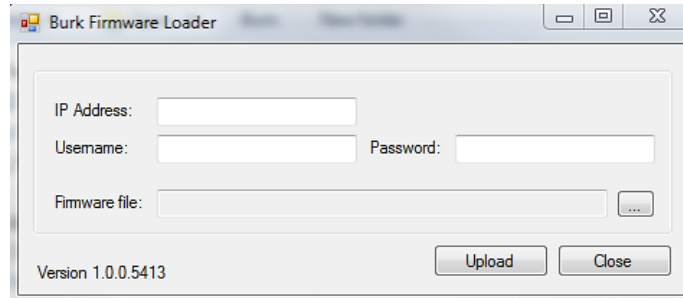
6. Click **Start**  > **Control Panel** and select **Windows Firewall**
7. Select **Allow a Program or feature through Windows firewall**
8. Select **Allow another program**

*NOTE: If the **Allow another program** button is un-selectable, click the **Change Settings** button first to unlock this.*

9. Now click browse and search for the file C:\Program Files(x86)\Burk Technology\Burk Firmware Loader.
10. Select **BurkFirmwareLoader** and click **Open** and then click **Add**

### Run Burk Firmware Loader

11. Click **Start >All Programs>Burk Technology>Burk Firmware Loader** and launch the program. The dialog below will open.



12. Enter the IP Address, User Name and Password of the PlusConnect unit. Select the PlusConnect firmware file that you previously saved.
13. Click **Upload**.
14. A notification window will open when the upload is complete. Click **OK**.

### Verify upload of firmware

To verify the firmware version, open a new Telnet session to the PlusConnect unit and observe the revision number that precedes the Telnet password prompt.

## Installation

After entering the configuration settings, you are ready to install the PlusConnect in its permanent location. Simply connect the PlusConnect unit to your LAN and power it on. The PlusConnect will automatically begin reading data from the transmitter.

## Software Configuration

Now that the PlusConnect is installed on the network and connected to the transmitter, you are ready to add the PlusConnect to the ARC Plus using AutoLoad Plus. AutoLoad Plus is included with the ARC Plus, and may also be downloaded from [www.burk.com](http://www.burk.com).

Configuration involves:

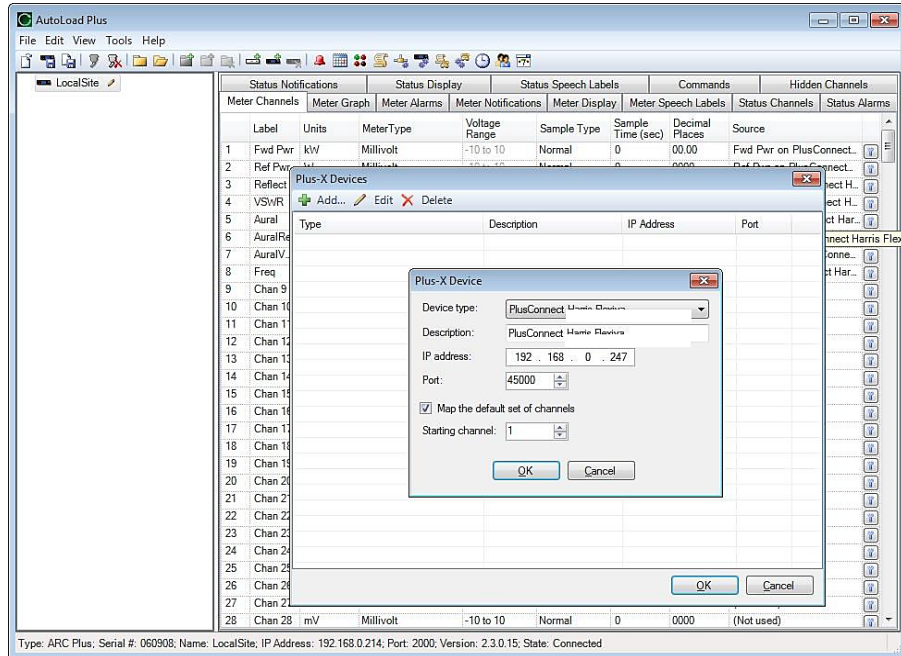
- Adding the PlusConnect unit to the ARC Plus site
- Mapping PlusConnect parameters to unused ARC Plus channels



## Adding the PlusConnect Unit to the ARC Plus Site

In order for the ARC Plus to recognize the PlusConnect, the PlusConnect must be added to the site.

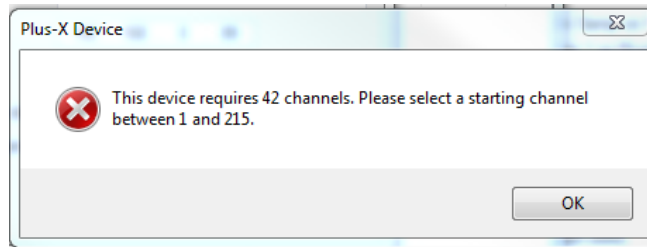
1. Open AutoLoad Plus and connect to the ARC Plus site to which you are adding the PlusConnect.
2. Select that site from the Navigator pane on the left side of the window.



### Adding a PlusConnect device in AutoLoad Plus

3. From the **Edit** menu, select **Plus-X Devices** to open the list of currently configured Plus-X Devices.
4. Click **Add...** to add the PlusConnect to the site. This opens the Plus-X Device dialog.
5. For Device type, select PlusConnect Nautel XX (substituting your Nautel transmitter model for XX). You may optionally change the description for the PlusConnect. The description appears in AutoLoad Plus to identify each PlusConnect channel. If there is no selection available for your transmitter model, visit [www.burk.com](http://www.burk.com) and select the ARC Plus Touch support page to download the most current version of AutoLoad Plus.
6. Enter the IP address and port number of the PlusConnect. These should be the same settings you used when you configured the PlusConnect using Telnet.
7. Check the **Map the default set of channels** box if you wish to automatically add the most commonly used PlusConnect parameters to the ARC Plus (recommended).
8. Set **Starting channel** to the first unused channel in the ARC Plus.
9. Click **OK** on the Plus-X Device dialog, then click **OK** on the Plus-X Devices list. This will replace unused ARC Plus channels with the default set of PlusConnect status channels, meter channels and command channels. If there are insufficient ARC Plus Touch channels available to load the default set of PlusConnect channels, the error message below will be displayed,

indicating the number of channel needed for the selected PlusConnect device:

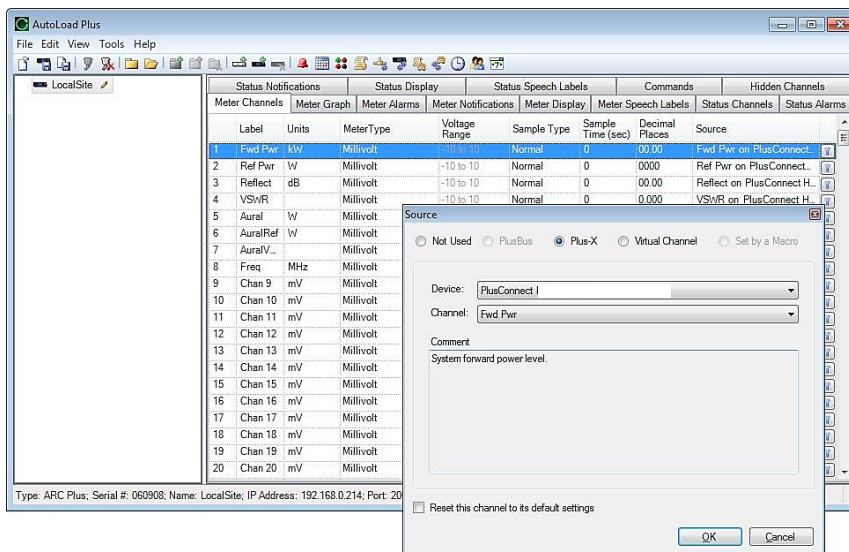


You do not need to have additional Integrated Input Units or Integrated Command Relay Units in order to use these channels.

10. Select **File>Save** to save the settings to the ARC Plus unit. Wait for the progress dialog to complete.
11. Observe that the green Link LED illuminates indicating that the PlusConnect is communicating with the ARC Plus unit.

*Important! PlusConnect channels take the place of normal I/O channels. If a metering input, status input, or command relay is connected to an ARC Plus channel and a PlusConnect parameter is subsequently mapped to that channel, the I/O channel will no longer be displayed.*

## Manually Mapping PlusConnect Parameters



Mapping PlusConnect channels using the Source dialog in AutoLoad Plus

The PlusConnect provides access to more remote control parameters than are included in the default set of channels. Even if you chose to map the default set of channels when you added the PlusConnect to the site, you may wish to map additional PlusConnect channels to the ARC Plus.

(There must be sufficient unused channel capacity.)

Mapping additional channels is accomplished in AutoLoad Plus by selecting the **Meter Channels, Status Channels** or **Commands** tab, as appropriate.

1. Within any of these tabs, click the button at the right edge of the **Source** field to change a channel's assignment from a traditional I/O channel to a Plus-X channel.
2. When the Source dialog appears, select the **Plus-X** radio button and choose the PlusConnect device from the list.
3. Select the PlusConnect channel you wish to use in place of this I/O channel.
4. Click **OK**.

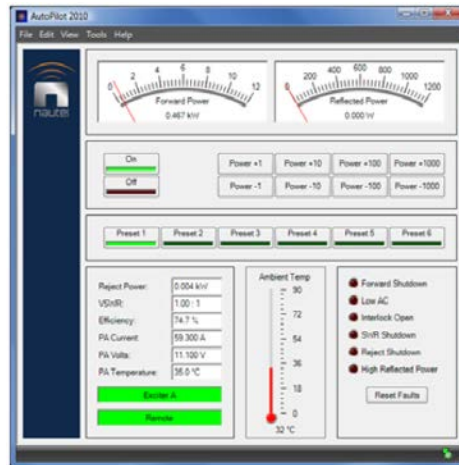
Once mapped and saved, the PlusConnect channel will appear on the front panel of the ARC Plus, in AutoPilot, on the ARC Plus web page, and will be accessible via the ESI or RSI.

## Setting up Labels, Limits and Alarms

Labels, limits and alarms for PlusConnect parameters are set up in AutoLoad Plus. The process is the same as for limits and alarms of other ARC Plus channels. Refer to the ARC Plus manual for information on channel configuration.

*Important! Because operation preferences vary so widely, no alarms are pre-configured within the PlusConnect channels. You must use AutoLoad Plus to set up alarms for the PlusConnect channels.*

## Creating a PlusConnect Custom View in AutoPilot



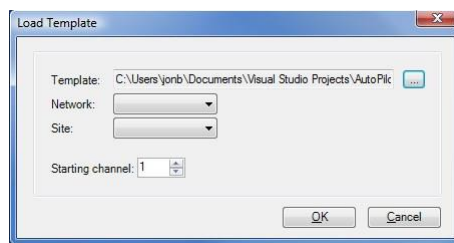
PlusConnect Custom View for the Nautel NV

The easiest way to monitor your PlusConnect parameters is by creating a Custom View in AutoPilot using a pre-built template specific to your transmitter model. In order to use templates, you must map

the default set of channels to the ARC Plus during setup. If you have mapped a custom set of channels, you can still use a Custom View to display them, but the template may not function as intended.

To create a custom view with a PlusConnect template:

1. Start AutoPilot and select the site and the ARC Plus unit you are using. If the site has not been created in AutoPilot, see “Adding Sites” in the AutoPilot Instruction Manual, available at [www.burk.com/downloads](http://www.burk.com/downloads).
2. Select **File>Connect**. A progress dialog will be displayed while the connection to the ARC Plus is being established.
3. Open the Custom View Editor by selecting **File>New>Custom View**.
4. When the Custom View Editor opens, select **File>New From Template**. This opens the Load Template dialog.



Load Template dialog

5. Browse for the desired template by clicking on “...” at the right side of the Template selection. The default location for templates is ProgramFiles(x86)\Burk Technology\AutoPilot\Templates\Custom Views.
6. Choose the sub-directory named **PlusConnect** then select the sub-directory for your model of Nautel transmitter. If there is no subdirectory for your transmitter model, visit [www.burk.com](http://www.burk.com) to download the most current version of AutoPilot.
7. Select the template (.cvt) file your Nautel transmitter.
8. Select the **Network** and **Site** of the ARC Plus connected to the PlusConnect.
9. Enter the **Starting channel** for the PlusConnect parameters. This starting channel must be the same as the starting channel you used when adding the PlusConnect to the ARC Plus site.
10. Press **OK**. AutoPilot will load the template in the editor and automatically populate the channels.
11. Save the Custom View using the **Save** icon in the tool bar.
12. Close the editor. You may then select the Custom View for display in AutoPilot.

For additional information on creating and editing AutoPilot Custom Views, see “Creating Custom Views” in the AutoPilot Instruction Manual.

## Operation

Once the PlusConnect parameters are mapped to ARC Plus channels using AutoLoad Plus, accessing the transmitter parameters is no different from any other ARC Plus channel. You may view channels using:

- The front panel of the ARC Plus
- The front panel of any ARC Plus configured for site-to-site operation with this site
- The built-in web interface
- A mobile device, via the built-in mobile web interface
- AutoPilot
- The ESI or RSI

For more information on using the ARC Plus to monitor and control the remote site, please see the ARC Plus Installation and Operation Manual.

Note that the PlusConnect channels are routed only through the ARC Plus unit specified during PlusConnect configuration. In order to access the transmitter by any means, the ARC Plus unit must be powered and connected to the network.

## Troubleshooting

### Connection Errors

If the PlusConnect is unable to communicate with the transmitter using SNMP, the Link LED on the front panel of the PlusConnect will blink. Check that both the PlusConnect and transmitter are connected to the network and configured properly.

If the network connection between the PlusConnect and ARC Plus is lost, the ARC Plus will log an alarm after three minutes of network failure. The PlusConnect Link LED will also turn off.

**Note: PlusConnect events and errors are logged to the ARC Plus event list, which is accessible by the ARC Plus front panel and from AutoPilot.**

### Getting Help

For technical support, please email [support@burk.com](mailto:support@burk.com) or call our direct technical support line at 978-486-3711. We will be glad to assist you. The technical support office is open Monday – Friday, 9AM to 5PM Eastern Time.

## Warranty

Burk Technology, Inc. warrants the PlusConnect to be free of defects in materials and workmanship for a period of 24 months from the date of purchase. Equipment will be repaired or replaced at the option of Burk Technology and returned freight prepaid to the customer. Damage due to abuse or improper operation or installation of the equipment or caused by fire or flood or harsh environment is not to be covered by this warranty. Damage in shipping is not the responsibility of Burk Technology. A return authorization must be obtained before returning any equipment. Materials returned under this warranty must be shipped freight prepaid and insured in the original shipping carton or suitable substitute to Burk Technology, Inc., 7 Beaver Brook Road, Littleton, MA 01460. Repairs not covered under this warranty will be made at prevailing shop rates established by Burk Technology.

THE WARRANTY SET FORTH ABOVE IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. BURK TECHNOLOGY, INC. SHALL NOT BE LIABLE TO ANY PARTY FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OF THIS EQUIPMENT.