Plus-X GSC Adapter

Installation and Operation Manual

BURK
TECHNOLOGY

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Introduction

The Plus-X GSC Adapter connects directly to existing GSC/VRC Command Relay and Wiring Interface panels to allow a fast, easy upgrade from the GSC or VRC to the ARC Plus Remote Control. The Plus-X GSC Adapter communicates with the ARC Plus via LAN/WAN, allowing installation anywhere a network connection is available.

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

Installation Note

Even though you may operate the ARC Plus and Plus-X GSC Adapter on different subnets, Burk Technology strongly recommends installing the Plus-X GSC Adapter on the same LAN as the ARC Plus. In a network failure, an ARC Plus can only continue to monitor and control a Plus-X device 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 Plus-X device.

Before You Begin

Before installing the Plus-X GSC Adapter, please have the following network settings ready:

- A static IP address for the Plus-X GSC Adapter
- The IP address of your ARC Plus
- The subnet mask and gateway address for your LAN

If you will be importing your GSC/VRC settings, be sure to save your settings in AutoLoad GSC or Lynx 5 (this will create a .set file). If you will be manually configuring your channels, make careful note of the following for each channel:

- Meter label
- Units label
- Decimal places
- Meter calibration type
- Meter limits
- Status labels
- Status alarm settings
- Status pull-up/pull-down settings
- Command latching modes
- Command A/B labels
- Dialout phone numbers
- User account names, passwords and access levels

Compatibility

Before installing the Plus-X GSC Adapter, please verify that the ARC Plus firmware, AutoPilot software and AutoLoad Plus software versions are current. Updates are available at www.burk.com/downloads. The following are minimum software and firmware requirements

Software	Version
ARC Plus firmware	2.1.0 or higher
AutoLoad Plus software*	2.0.0 or higher
AutoPilot® software	2.5.0 or higher

* If using any version of AutoLoad Plus earlier than 2.4.0, you will need to download the Plus-X GSC Adapter AutoLoad definition XML file from www.burk.com.

Unpacking

The Plus-X GSC Adapter ships with the following:

- Plus-X GSC Adapter unit
- Power cord
- 10' shielded CAT5 cable

Front Panel Indicators

Front panel of the Plus-X GSC Adapter

Indicator	State	Description
Power LED	Off	Power is off
Power LED	Green	Power is on
Power LED	Amber	No firmware loaded (contact Customer Support)
Power LED	Flashing Green	Resetting to factory default settings
Link LED	Green	Connected to ARC Plus
Link LED	Off	No connection to ARC Plus
Link LED	Flashing Green, Red	Maintenance Mode
Link LED	Flashing Red	No connection to ARC Plus, unit is in maintenance mode

Before you start, you will need to use a standard Cat5 cable (included) to connect the Plus-X GSC Adapter to your network.
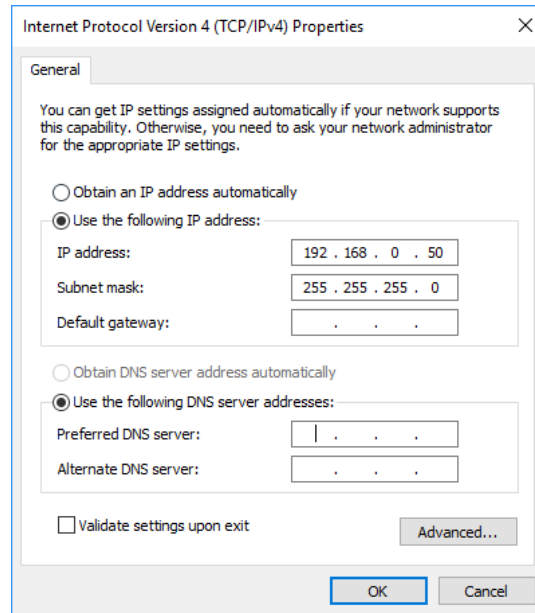
Initial Connection Using DHCP

Plus-X GSC Adapter units running firmware 1.0.10 or higher support Dynamic Host Configuration Protocol (DHCP) as an easy way to do initial setup. Connect the Plus-X GSC Adapter to your LAN and apply power. If this is the first power-up for a new unit or the first network connection after execution of a master-initialization, the Plus-X GSC Adapter will issue a DHCP request for an IP address. If the network supports DHCP functionality, a dynamic IP address will be assigned to the unit. To access the Plus-X GSC Adapter, launch a web browser and enter the hostname "PLUSXGSC/" in the browser's address field. (Be sure to include the forward-slash symbol at the end of the hostname.)

Note: If the login page is not displayed or the browser indicates that the page cannot be found, it is possible the connected network does not support DHCP. In this case follow the steps outlined below for "Initial Connection Without DHCP". Otherwise, continue to "Set the Admin Password".

Initial Connection Without DHCP

If your network does not support the DHCP protocol, the Plus-X GSC Adapter's request for a dynamic IP address will fail. If this happens, the Plus-X GSC Adapter will assign itself the default static IP address of 192.168.0.100. To access the unit, it will be necessary to connect your PC directly to the Plus-X GSC Adapter using a crossover LAN cable or using a simple Ethernet switch.

In addition, your PC's internal network interface must be set to a static IP address of the form 192.168.0.x. In the Windows Control Panel, search for *Network Connections*, then select *View network connections* then *Local Area Connection*. Navigate to the Internet Protocol Version 4 (TCP/IPv4) Properties dialog box as displayed below.

To configure the Plus-X GSC Adapter, start by logging in to the unit by entering the IP address in your web browser and entering the username and password. The default IP address is 192.168.0.100. The default user is **admin** and default password is **password** unless prompted to set the administrator password.

Set the Admin Password

The default username is **admin** and you will be prompted to set the **admin** password upon first connection to the Plus-X GSC adapter.

Once the password has been set you can log in and set a static IP address.

Set a Static IP Address

Select the *Network* menu option to display this page showing the current IP address.

Current DHCP IP address: 10.10.0.163

IP Address: [   ]

[Save]

Enter a static IP address for this unit as assigned by your network administrator in the *IP Address* box and click *Save*.

Note: It is important that the assigned static IP address be outside the DHCP address range used by the router to avoid potential conflicts with other DHCP devices.

If your initial connection was made without DHCP, your PC should now be restored to its prior network settings, and both the PC and the Plus-X GSC Adapter should be connected to the normal LAN.

Hardware Configuration

The Plus-X GSC Adapter is configured via its onboard web interface. Open a web browser and navigate to the Static IP set in the previous section. The web page will prompt you for a username and password. Enter the username **admin** and the previously created password .

Note: The default non-DHCP IP address is 192.168.0.100 and the default password is "password". If either of these values have been changed and you do not know what they are, you need to perform a master initialization. Press and hold the MASTER INIT button on the rear panel for three seconds. This will reset the Plus-X GSC Adapter to its factory default settings.

Settings

Click the **Settings** link on web page header to access the Plus-X GSC Adapter settings. Fill out the following fields:

- IP Address
- Subnet Mask
- Gateway
- ARC Plus IP Address

You may optionally change the HTTP and Plus-X ports of the Plus-X GSC Adapter. The default settings are recommended.

Burk Technology recommends changing the Plus-X GSC Adapter password. The password is used to log on to the onboard web interface. To change the password, check the **Change Password** box and enter the new password in the **Password** and **Confirm** fields.

When you are finished, click **Save**.

Note: If you are unsure what network settings to use, contact your network administrator.

Plus-X GSC Adapter Settings

Status Configuration

Each status input on the Plus-X GSC Adapter can be configured as pull-up or pull-down. To configure the status channels, use the **Status Configuration** link on the Plus-X GSC Adapter's onboard web page.

For each channel, select either **Pull-up** or **Pull-down**. Click **Save** when you are finished.

Status Configuration

Relay Configuration

This setting determines which of the GSC Adapter's relays (A or B) will be controlled by the ARC Plus "Raise" command and which will be controlled by the ARC Plus "Lower" command. To configure the status channels, use the **Relay Configuration** link on the Plus-X GSC Adapter's onboard web page.

Select either **A is Raise / B is Lower** or **B is Raise / A is Lower**. Click **Save** when you are finished.

Relay Configuration

Installation

After entering the configuration settings, you are ready to install the Plus-X GSC Adapter in its permanent location. Simply move the DB37 cables from the GSC/VRC to the Plus-X GSC Adapter. Connect the Plus-X GSC Adapter to the LAN/WAN, if it is not connected already.

Note: Readings on Unused Channels

You may notice unexpected readings on unused channels. This is normal, and does not impact the operation of the Plus-X GSC Adapter.

The GSC Adapter uses capacitors to filter unwanted AC noise on meter channels, with a 100K Ohm resistor to provide a known load. If there is no voltage present on a channel, the capacitor discharges through the resistor. This will cause an unused channel to display a reading of approximately 33% of the reading of the previous channel. With an input voltage present, a meter channel will display a normal, accurate reading.

You can safely ignore values on unused channels. If preferred, you can ground unused channels to display a stable reading at or near zero.
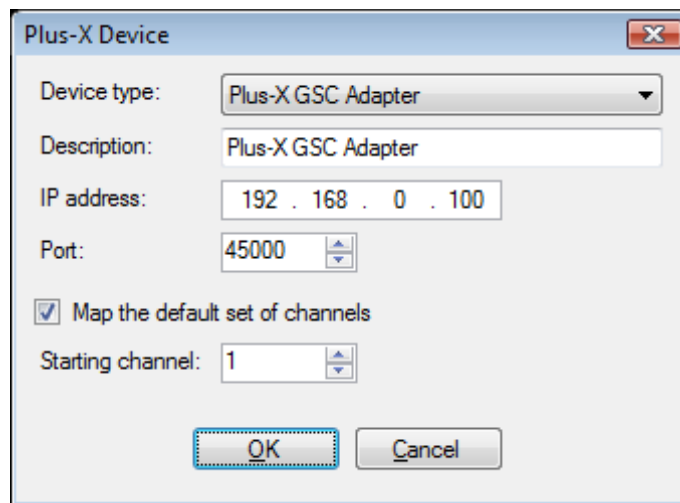
Software Configuration

Now that the Plus-X GSC Adapter is installed on the network, you are ready to add the unit to the ARC Plus using AutoLoad Plus. AutoLoad Plus is included with the ARC Plus, and may also be downloaded from www.burk.com.

Configuration involves:

- Adding the Plus-X GSC Adapter unit to the ARC Plus
- Mapping Plus-X GSC Adapter channels to unused ARC Plus channels
- Importing settings from your GSC/VRC (optional)

Adding the Plus-X GSC Adapter to the ARC Plus

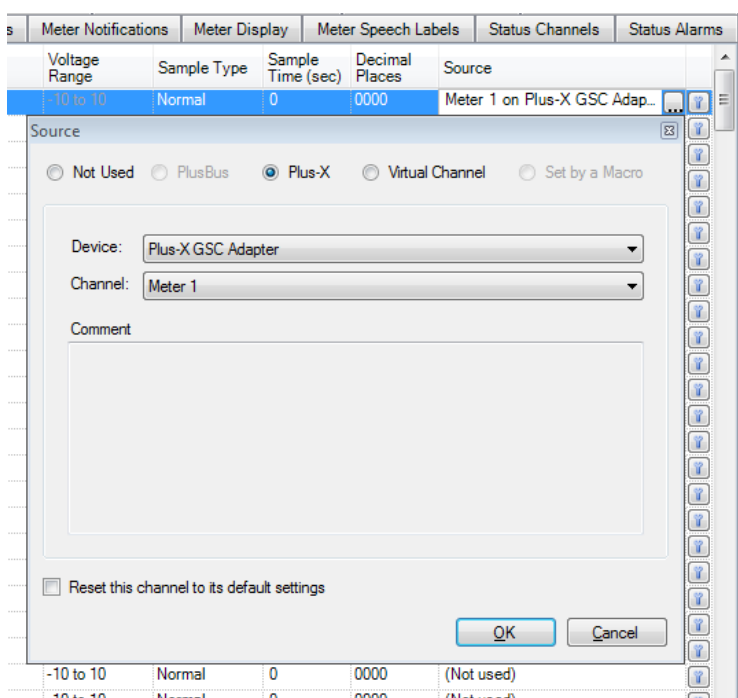Adding a Plus-X device in AutoLoad Plus

In order for the ARC Plus to recognize the Plus-X GSC Adapter, the Plus-X GSC Adapter must be added to the site:

1. Open AutoLoad Plus and connect to the ARC Plus site to which you are adding the Plus-X GSC Adapter.
2. From the **Edit** menu, select **Plus-X Devices** to open the Plus-X device configuration dialog.
3. Click **Add** to add the Plus-X GSC Adapter to the site.
4. AutoLoad Plus will prompt you to select the device type. Select **Plus-X GSC Adapter**. You may optionally change the description for the Plus-X device. The description appears in AutoLoad Plus to identify each Plus-X device.
5. Enter the IP address and port number of the Plus-X GSC Adapter. These should be the same settings you used when you configured the Plus-X GSC Adapter via the web.

6. Check the **Map default set of channels** box if you wish to automatically add the Plus-X GSC Adapter channels to the ARC Plus (recommended). **The ARC Plus must have 16 consecutive unused channels, including the starting channel**.
7. Click **OK**.

Note: The above instructions are for AutoLoad version 2.3 or above. Earlier versions vary slightly in appearance and labeling only.

Manually Mapping Plus-X GSC Adapter Channels

Overriding channels in AutoLoad Plus

If desired, you may manually map Plus-X GSC Adapter channels to ARC Plus channels in AutoLoad Plus by selecting the **Meter Channels, Status Channels** or **Commands** tab, as appropriate:

1. Within any of these tabs, click the **[…]** button in the source column to configure a channel to use a Plus-X device channel as its source.
2. When the Source dialog appears, select **Plus-X channel** and choose the Plus-X device from the list.
3. Select the Plus-X GSC Adapter channel you wish to use.
4. Click **OK**.

Once mapped, each Plus-X GSC Adapter 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.
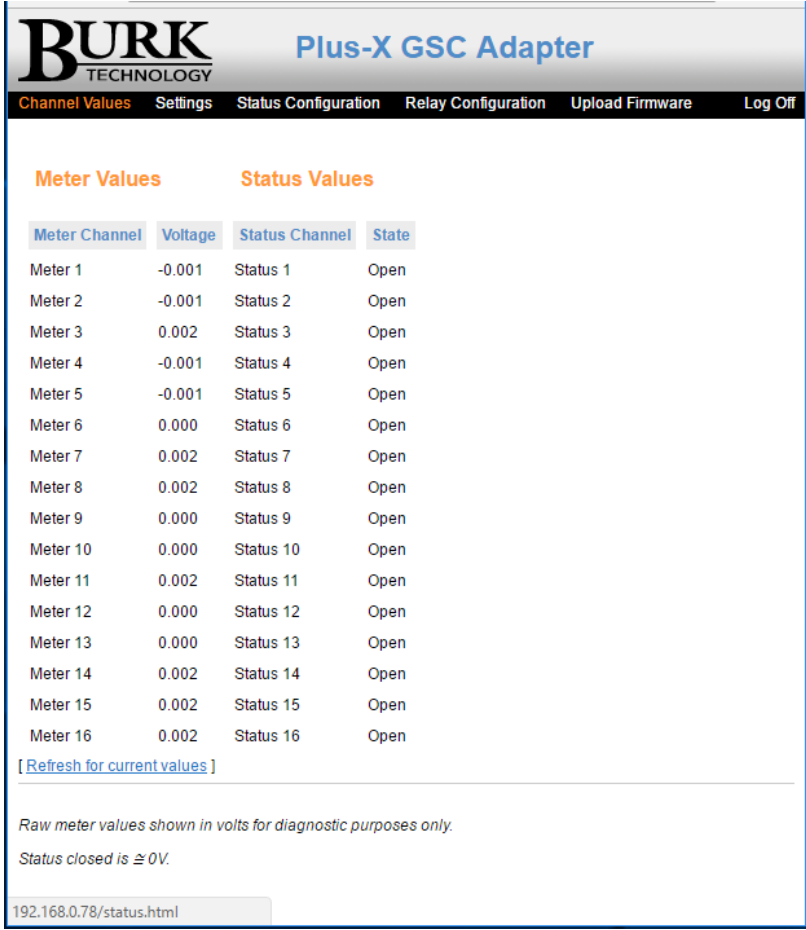
Importing GSC/VRC Settings

AutoLoad Plus version 3.1 or later can import your GSC/VRC settings using the .set file created by AutoLoad GSC or Lynx 5. To import your settings, choose **Import GSC3000/VRC2500…** from the **File** menu in AutoLoad Plus.

The wizard will prompt you for your GSC/VRC settings file, and then allow you to choose which settings to import. For each setting, use the **Import** checkbox to indicate that AutoLoad should import that setting. Follow the onscreen instructions to complete the wizard. For more information, consult the AutoLoad Plus Manual or help file.

Viewing Channel Values

Click the **Channel Values** link on the web page header to display the GSC Adapter's Meter and Status values. To refresh the page, click the **Refresh for current values** link at the bottom of the page.
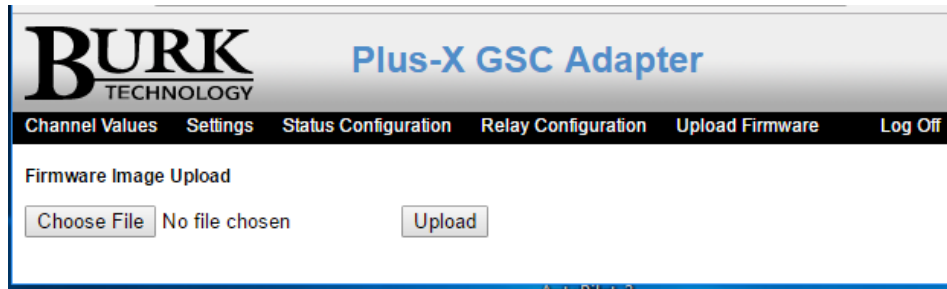

Plus-X GSC Meter and Status Values

Uploading New Firmware

You can load new firmware to the Plus-X GSC Adapter using its onboard web interface. Navigate to the IP address of the Plus-X GSC Adapter, log on and click the **Upload Firmware** link. Click the **Browse** button to select the firmware file, then click **Upload** to load the new firmware. The Plus-X GSC Adapter will reboot after the firmware upload is complete.

For the latest firmware updates, visit www.burk.com.

Troubleshooting

If the network connection between the Plus-X GSC Adapter and ARC Plus is lost, the ARC Plus will log an alarm after three minutes of network failure. The Plus-X GSC Adapter Link LED will also turn off. Check your network settings on both the ARC Plus and Plus-X GSC Adapter.

Note: Plus-X GSC Adapter 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 customer support, please email support@burk.com or call our direct customer support line at 978-486-3711. We will be glad to assist you. The customer support office is open Monday – Friday, 9AM to 5PM Eastern time.

Warranty

Burk Technology, Inc. warrants the Plus-X GSC Adapter 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.

Appendix A: Specifications

Dimensions:
1.75" (4.45cm) H
19" (48.26cm) W
12" (30.48cm) D

Operating Temperature:
0° to 40°C, 5 to 85% RH

Power Requirements:
100 to 240VAC, 47-63Hz, 1A; power entry module with standard, grounded power cord supplied; 1A fuse protection

Connectivity:
Ethernet connection to ARC Plus

Channel Capacity:
16 metering and 16 status inputs per unit; metering channels may be used as status inputs for a total of 32 status channels.

Metering Input Range:
-10 to +10VDC

Metering Input Accuracy:
>99.75% accuracy, full scale

Status Input Range:
>0 to +5VDC or switch closure
>Pull-Down toggle threshold 5.0VDC
>Pull-Up toggle threshold 1.5VDC

>Output Types:
32 open collector outputs
(16 raise, 16 lower);
Maximum 250mA, 28V