Plus-X 600

Installation and Operation Manual

BURK
TECHNOLOGY

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Introduction

The Plus-X 600 is a versatile I/O solution for the ARC Plus, providing 16 status inputs, 8 metering inputs and 6 raise/lower command pairs. The Plus-X 600 communicates with the ARC Plus via LAN/WAN, allowing installation anywhere a network connection is available.

The Plus-X 600 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 600 on different subnets, Burk Technology strongly recommends installing the Plus-X 600 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 600, please have the following network settings ready:

- A static IP address for the Plus-X 600
- The IP address of your ARC Plus
- The subnet mask and gateway address for your LAN

Compatibility

Before installing the Plus-X 600, please verify that the ARC Plus firmware, AutoPilot® 2010 software and AutoLoad Plus software versions are current. Updates are available at www.burk.com. 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

* Depending on your version of AutoLoad Plus, you may need to download the Plus-X 600 AutoLoad definition XML file from www.burk.com. Further instructions are available online.

Unpacking

The Plus-X 600 ships with the following:

- Plus-X 600 unit
- Power cord
- 10' shielded CAT5 cable
- Six (6) 6-pin "Phoenix"-type plugs
- Four (4) 9-pin "Phoenix"-type plugs

Front Panel Indicators

Front panel of the Plus-X 600

Indicator	State	Description
Power LED	Off	Power is off
Power LED	Green	Power is on
Power LED	Amber	No firmware loaded (contact Technical 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

Hardware Configuration

The Plus-X 600 is configured via its onboard web interface. Open a web browser and navigate to **192.168.0.100**. (The network interface on your PC must be set to operate on IP network 192.168.0.xxx.to make this connection.)

The web page will prompt you for a username and password. Enter the username **admin** and password **password**.

*Note: The default 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 600 to its factory default settings.*

Settings

Click the **Settings** link on web page header to access the Plus-X 600 settings. Fill out the following fields:

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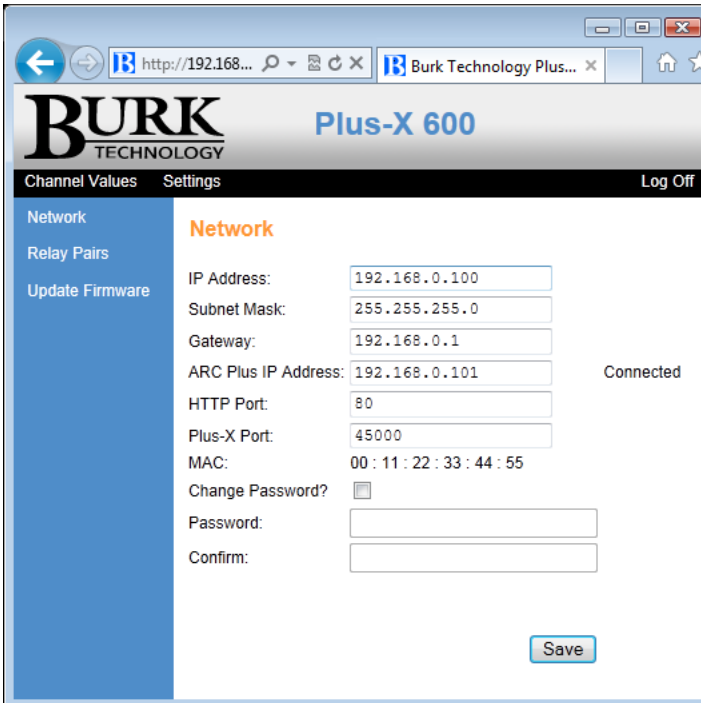- Gateway
- ARC Plus IP Address

You may optionally change the HTTP and Plus-X ports of the Plus-X 600. The default settings are recommended.

Burk Technology recommends changing the Plus-X 600 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**.

If you changed the Plus-X IP address to a network other than 192.168.0.xxx, it will be necessary to change the settings of the network interface on your PC to operate on that same network.

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

Plus-X 600 Settings

Installation

Status Input Wiring

The Plus-X 600 status inputs are organized into two 2x6 "Phoenix"-type headers (four mating 6-pin plugs are included). Pins for each channel and ground are labeled.

1	⏚	2	3	⏚	4

5	⏚	6	7	⏚	8

9	⏚	10	11	⏚	12

13	⏚	14	15	⏚	16

Metering Input Wiring

Metering inputs are available on a 2x6 "Phoenix"-type header (two mating 6-pin plugs are included). Pins for each channel and ground are labeled.

1	⏚	2	3	⏚	4

5	⏚	6	7	⏚	8

Command Relays

Relay Pairing

The Plus-X 600 includes 12 relays. Relays may be used individually, or in raise/lower pairs (for up to 6 pairs). Use the onboard web interface to configure relay pairing. Log on to the web interface, select **Settings** from the menu, then **Relay Pairs** from the list on the left hand side. Follow the onscreen instructions to continue.

Paired Relay Example

Plus-X 600 relay #1 is paired with relay #7 and the ARC Plus has mapped the Plus-X 600's channels starting at ARC Plus channel #1.

In this scenario, ARC Plus Channel 1 Raise will use Plus-X 600 relay #1, and ARC Plus Channel 1 Lower will use Plus-X 600 relay #7. Note that ARC Plus Channel 7 Raise and Lower are not used.

Relay Pairing

Plus-X 600 relay #1 is not paired and the ARC Plus has mapped the Plus-X 600's channels starting at ARC Plus channel #1.

In this scenario, ARC Plus Channel 1 Raise uses Plus-X 600 relay #1, and ARC Plus Channel 7 Raise uses Plus-X 600 relay #7.

Relay Wiring

The Plus-X 600 relays are organized into two 2x9 "Phoenix"-type headers (four mating 9-pin plugs are included). Pins for common, normally open and normally closed are indicated for each relay.

1			2			3			4			5			6		
C	NO	NC	C	NO	NC	C	NO	NC	C	NO	NC	C	NO	NC	C	NO	NC

C	NO	NC	C	NO	NC	C	NO	NC	C	NO	NC	C	NO	NC	C	NO	NC
7			8			9			10			11			12		

Software Configuration

Now that the Plus-X 600 is installed on the network, you are ready to add the unit to the ARC Plus using AutoLoad Plus. Please download AutoLoad Plus from www.burk.com if you have not done so already.

Note: For more information on configuring channels on the ARC Plus, refer to the ARC Plus Installation and Operation Manual.

Adding the Plus-X 600 to the ARC Plus
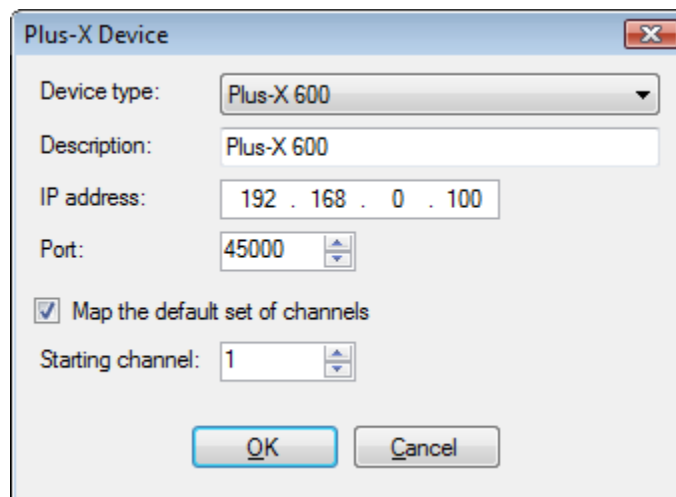
Adding a Plus-X device in AutoLoad Plus

In order for the ARC Plus to recognize the Plus-X 600, the Plus-X 600 must be added to the site:

- Open AutoLoad Plus and connect to the ARC Plus site to which you are adding the Plus-X 600.
- From the **Edit** menu, select **Plus-X Devices** to open the Plus-X device configuration dialog.
- Click **Add** to add the Plus-X 600 to the site.
- AutoLoad Plus will prompt you to select the device type. Select **Plus-X 600**. You may optionally change the description for the Plus-X device. The description appears in AutoLoad Plus to identify each Plus-X device.
- Enter the IP address and port number of the Plus-X 600. These should be the same settings you used when you configured the Plus-X 600 via the web.
- Check the Map default set of channels box if you wish to automatically add the Plus-X 600 channels to the ARC Plus (recommended). The ARC Plus must have 16 consecutive unused channels, including the starting channel.
- 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 600 Channels

Setting the Channel Source in AutoLoad Plus

If desired, you may manually map Plus-X 600 channels to ARC Plus channels in AutoLoad Plus by selecting the **Meter Channels, Status Channels** or **Commands** tab, as appropriate:

- Within any of these tabs, click the **Source** button to configure a channel to use a Plus-X device channel as its source.
- When the Source dialog appears, select **Plus-X channel** and choose the Plus-X device from the list.
- Select the Plus-X 600 channel you wish to use.
- Click **OK**.

Once mapped, each Plus-X 600 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.

Uploading New Firmware

If your Plus-X 600 unit is currently running firmware version 1.0.10 or higher, use the firmware upload procedure detailed below in *Using the Burk Firmware Loader.* If your unit is currently running firmware at a revision lower than 1.0.10, first upgrade to 1.0.10 with the procedure described as follows in *Using the Web Interface to Upload Firmware.*

Using the Web Interface to Upload Firmware

Direct your browser to the IP address of the Plus-X 600, log on, navigate to the **Settings** page and select **Update Firmware** in the menu at the left side of the screen. If the web page has a "Browse" button and an "Upload" button as shown on the screen below, continue with this procedure. If not, skip to the procedure in the next section, Using the Burk Firmware LoaderVisit www.burk.com/downloads and select the Plus-X 600 support page. Download the zip folder *Plus-X 600 1.0.10 With Bootloader.* Extract the file *PlusX600_1_0_10_WithBootloader.bin* and place it in an accessible directory on your PC.
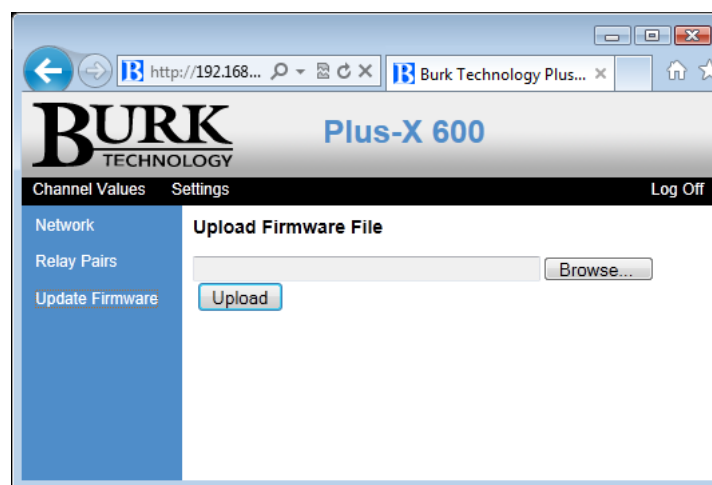
Screen appearance on Plus-X 600 units with firmware version lower than 1.0.10

Click the **Browse** button shown above to select the firmware file you just saved, then click **Upload** to load the new firmware. The Plus-X 600 will reboot after the firmware upload is complete. When you have completed this procedure, go on to the next section to load the most current firmware revision using the Burk Firmware Loader.

Using the Burk Firmware Loader

Direct your browser to the IP address of the Plus-X 600, log on, navigate to the Settings page and select **Update Firmware** in the menu at the left side of the screen. If the web page has an "Enable Upload" button as shown on the screen below, continue with this procedure. If not, return to the procedure in the previous section *Using the Web Interface to Upload Firmware.*

Visit www.burk.com/downloads and select the Plus-X 600 support page. Download and run the Burk Firmware Loader executable file. This will install the Burk Firmware Loader on your PC.

Also from the Plus-x 600 support page, download the zip folder *Plus-X 600 1.x.x Current* and place it in an accessible directory on your PC. It is not necessary to extract files from this zip folder. The Burk Firmware Loader will operate directly on the zip folder itself. However, you may wish to extract the Release Notes file and the firmware upload procedure for reference.
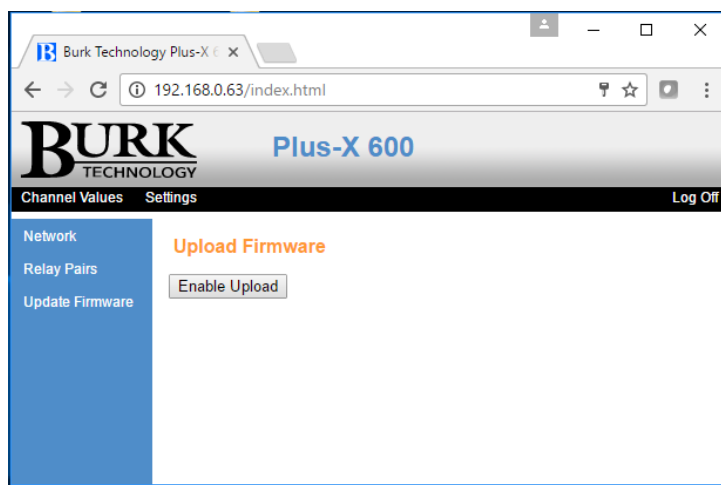
Screen appearance on Plus-X 600 units with firmware version 1.0.10 or higher

C**lick Enable Upload** on the screen above t**o** prepare the Plus-X 600 to receive the new firmware.

It may also be necessary to configure the Windows Firewall to allow the Burk Firmware Loader to communicate with the Plus-X 600. This can be done as follows:

1. Click **Start > Control Panel** and select **Windows Firewall**.

2. Select **Allow a Program or feature through Windows firewall.**

3. Select **Allow another program**.

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

4. Now click **browse** and search for the file C:\Program Files(x86)\Burk Technology\Burk Firmware Loader.

5. Select **BurkFirmwareLoader** and click **Open** and then click **Add.**

Now run the Burk Firmware Loader as follows:

1. Click **Start > All Programs>Burk Technology>Burk Firmware Loader** and launch the program. The window below will open.
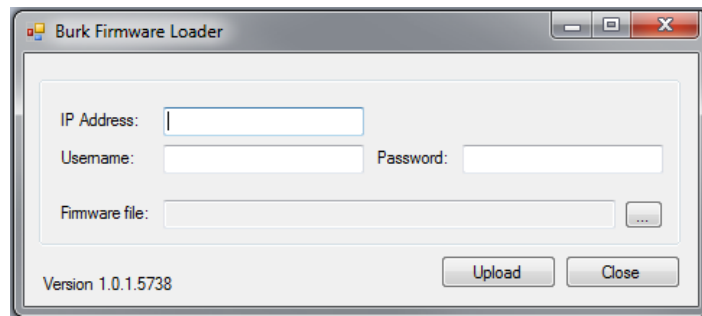
2. Enter the IP Address of the ARC Solo, the Username and the Password. Select the ARC Solo firmware folder that you previously saved and click **Upload**.

*NOTE: The Plus-X 600 firmware folder is a compressed (zipped) folder. You **do not** need to un-compress (un-zip) this folder before using it with the Burk Firmware Loader.*

3. A notification window will open when the upload is complete. Click **OK.**

Troubleshooting

If the network connection between the Plus-X 600 and ARC Plus is lost, the ARC Plus will log an alarm after three minutes of network failure. The Plus-X 600 Link LED will also turn off. Check your network settings on both the ARC Plus and Plus-X 600.

Note: Plus-X 600 events and errors are logged to the ARC Plus event list, which is accessible by the ARC Plus front panel, ARC Plus Web Interface and from AutoPilot.

Getting Help

For technical support, please email 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 Plus-X 600 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:

0º to 40ºC

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 status, 8 metering and 6 command channels

Metering Input Range:

-10VDC to +10VDC

Metering Input Accuracy:

>99.75% accuracy, full scale

Status Input Range:

>0 to 28VDC or switch closure

Output Types:

C, NO, NC relay outputs; momentary or latching; 5A, 240VAC