



Release Notes

ARC Plus firmware version 5.0.14.1

Scope

This document describes the changes in ARC Plus firmware from version 5.0.12.7 to version 5.0.14.1. This version of ARC Plus firmware requires use of AutoLoad Plus version 3.1.123 or higher and AutoPilot® version 4.1.29 or higher.

Changes from firmware version 5.0.12.7 to version 5.0.14.1

New Features and Enhancements

Timer Channels are now available:

The ARC Plus Touch and SL now support 64 independent timer channels in addition to the 256 meter, status and command channels. These timer channel can be referenced in virtual channels and macros for calculating elapsed time, accumulated run-time and other parameters.

Note: *Use of timer channels requires AutoPilot 4.1.29 or greater and AutoLoad Plus version 3.1.123 or greater.*

Actions can now be initiated based on offline and online state changes:

The ARC Plus now supports offline and online actions for meter and status channels. This new feature allows the system to take action in the event of a channel going offline and to take the same or a different action when the channel comes back online.

ARC Plus now rejects invalid http requests:

The ARC Plus now ignores invalid http requests and continues normal operation without reinitializing the system.

Plus-X device handshake has been enhanced:

The ARC Plus now completes a handshake process to confirm receipt of commands sent to Plus-X Units and enters an error in the event log if a command is not confirmed.

Note: *This feature requires a firmware update to the Plus-X unit. Contact Burk Technology Technical Support for the corresponding Plus-X unit firmware update.*

Increased security added to HTTP logins:

The HTTP protocol used for web page logins now includes password hashing for added security when accessing the ARC Plus web page.

Virtual channels have been enhanced to accommodate offline channel references:

Meter and status virtual channels now provide 2 options for handling references to channels that are offline. Virtual channels referencing Meter channels labelled M1-M256 and/or Status channels labelled S1-S256 operate as before, potentially changing state when a referenced channel goes offline. Virtual channels which reference the new Meter labels MM1-MM256 and/or the new Status labels SS1-SS256 monitor not only the value but the state of each referenced channel, declaring the virtual channel to be offline if one or more of its input channels are offline.

The ARC Plus SNMP Agent port is now set to 0 by default:

An ARC Plus factory reset now sets the SNMP Agent UDP port to 0. As a result, it is now necessary to use AutoLoad Plus version 3.1.123 or higher to configure the SNMP port value in the ARC Plus network settings before operating the ARC Plus as an SNMP agent.

Additional SNMP data types are now supported:

The ARC Plus SNMP manager has been updated to support an expanded list of data types including Counter64, UInteger32 and Octet String.

Status channels using SNMP now support special characters when matching to a string:

When using the *Match to a String* option for an SNMP status channel, users can now include special characters and control characters to match against SNMP data.

Longer email addresses and passwords are now accepted:

The character limit for email addresses and passwords when configuring email server settings for alarm notifications has been increased from 32 to 64.

Commands are now tracked in the event log by default:

Commands have been added to the default list of events for tracking in the event log.

Resolved Issues

Virtual channels based on averaged meter channels now update correctly:

Virtual channels that include inputs derived from meter channels with averaging enabled now correctly respond to variations in input values.

Changes from firmware version 5.0.12.6 to version 5.0.12.7

New Features and Enhancements

Invalid SNTP time server messages are now rejected:

When configured to synchronize with an SNTP time server, the ARC Plus now examines received SNTP messages and rejects invalid packets.

Changes from firmware version 5.0.10.4 to version 5.0.12.6

New Features and Enhancements

Diagnostic data can now be transmitted to a Burk Technology server for analysis:

Diagnostic data collected by the ARC Plus in response to firmware exceptions can now be transmitted to a Burk Technology server for analysis. The debug data does not include channel data or user information. This feature is disabled by default and can be enabled by an admin-level user.

The Robots Exclusion Protocol is now used to deny web robots access to the ARC Plus web interface:

A robots.txt file is now included in the ARC Plus web server to disallow access to web crawlers, search engines and other web robots.

An alarm message reporting a link failure between two networked ARC Plus systems now identifies the disconnected unit:

When an ARC Plus loses communication with a networked ARC Plus unit, the site-name of the disconnected ARC Plus is now included in the reported alarm message.

New Features and Enhancements (ARC Plus Touch only)

The Recordable Speech Interface now reports the OFF state as well as the ON state for status channels:

In response to a Status Report request (350), the Recordable Speech Interface now reports the state of all status channels, both ON and OFF.

The Recordable Speech Interface now provides a descriptive error message when an administrative change is attempted by an operator-level user:

If an operator-level user attempts to modify a system setting on the Recordable Speech Interface, the system now speaks: "ERROR: NOT SYSTEM LEVEL".

Resolved Issues

The ARC Plus now provides consistent rapid response time to external communications requests:

The ARC Plus now allocates system resources to ensure fast response to all IP communications including web page requests, AutoLoad Plus sessions and AutoPilot connections.

Resolved Issues (ARC Plus Touch only)

The Recordable Speech Interface now suppresses alarm dialout on lost SNMP devices when the "System alarm dialout list" is set to "None":

Selecting "None" in the "System alarm dialout list" in AutoLoad Plus now disables RSI alarm dialout for all system alarms, including lost connections to SNMP devices.

Changes from firmware version 5.0.10.1 to version 5.0.10.4

New Features and Enhancements:

SNMP Plus now accommodates SNMP devices that require direct length encoding:

The SNMP Plus manager now uses direct length encoding for all GET Requests and SET Requests, enabling control of SNMP devices that do not support indirect encoding of the length field.

Resolved Issues

Virtual channels configured for averaging now update properly:

Virtual channels set to average over time now update properly in response to changes on Meter and Status channel inputs.

Changes from firmware version 5.0.9.4 to version 5.0.10.1

New Features and Enhancements

Meter channels now provide user-selections for configuration of both Meter Actions and Meter Alarm Actions:

Meter channels can now be configured for Meter Actions that execute immediately when a threshold value is crossed, and Meter Alarm Actions that execute only if the specific alarm is enabled and the threshold crossing for that alarm persists after time-out of the corresponding alarm delay.

Status channels now provide user-selections for configuration of both Status Actions and Status Alarm Actions:

Status channels can now be configured for Status Actions that execute immediately when the Status channel goes On or Off, and Status Alarm Actions that execute only if the On or Off state for that Status channel has been selected as an alarm condition and the alarm condition persists after time-out of the corresponding alarm delay.

A user-configurable de-bounce filter can now be applied to Status channels:

Status channels can now be individually configured to respond instantaneously to changes on the input signal or to have a de-bounced response to input signal changes based on a user-programmable sample time.

SNMP Plus now uses direct encoding for Variable and Value bindings in SNMP Object Identifiers (OIDs):

Direct encoding of Variable and Value bindings for SNMP OIDs is now used by SNMP Plus, enabling compatibility with a broader range of SNMP-managed devices.

Resolved Issues

Scheduled macros now restore properly from saved configuration files:

Scheduled macros restored by AutoLoad Plus to an ARC Plus system that has been reset to factory defaults now load properly.

Long ARC Plus user names can now be saved using AutoLoad Plus:

User names up to 32 characters in length can now be saved to the ARC Plus system using AutoLoad Plus.

ARC-16 Speech labels are now properly imported:

When importing an ARC-16 configuration file into an ARC Plus system, the ARC-16 speech labels are now correctly integrated in the ARC Plus configuration.

New user names are now created as entered:

The trailing asterisk for user names with weak passwords is no longer stored as part of the name.

AutoLoad Plus now uses Plus-X command channel relay pairings for Plus-X 300 and Plus-X 600 units:

AutoLoad Plus default settings for Plus-X 300 and Plus-X 600 relay pairings now match the default settings of the Plus-X devices (all paired) instead of mapping all relays as unpaired.

Changes from firmware version 5.0.8.1 to version 5.0.9.4

New Features and Enhancements

SNMP Plus now accepts SNMP v1 Traps and SNMP v2 Informs:

SNMP Plus can now be configured to accept SNMP v1 Traps or SNMP v2 Informs from managed SNMP devices. A user-identified trap or inform will initiate an ARC Plus System Alarm with a specified alarm message string, alarm severity and optional Email list and Dial Out List.

When dialing out for an alarm notification, the RSI now speaks the phrase “System Alarm” rather than the phrase “System Error”:

When the Recordable Speech Interface on the ARC Plus dials out to report an alarm, the ARC Plus now says "System Alarm". The phrase “System Alarm” is also included in the Alarm Report.

Resolved Issues

Meter, Status and Command channels associated with an offline Plus-X device are now displayed as OFFLINE:

The front panel interface for channels assigned to offline plus-X devices now display the message OFFLINE. This applies to Meter, Status and Command channels.

Ethernet throughput is now dynamically adjusted:

During periods of high Ethernet traffic, the communications throughput is now dynamically adjusted to ensure timely execution of critical tasks.

Meter and status actions on virtual channels now properly initiate macros:

A Meter or Status action on a virtual channel configured to run a macro now executes correctly when the virtual channel's value changes.

A meter or status channel that was previously configured as an SNMP channel now operates correctly when reconfigured for use with a different source:

When the source dialog box in AutoLoad Plus is used to change a meter or status channel from SNMP to another source such as Plus-X, Virtual Channel or Set by a Macro, the change now executes correctly and remains in effect.

The ARC Plus Touch serial number now displays correctly on the front panel interface:

The front panel interface on the ARC Plus Touch now displays the serial number correctly every time the system information screen is selected.

Changes from firmware version 5.0.5.1 to version 5.0.8.1

New Features and Enhancements

Captures are now available on Version 5 ARC Plus Touch and SL:

The Captures feature, available on ARC Plus Touch and SL units with firmware 5.0.8.1 or newer, stores months of channel values and alarm states on the ARC Plus. Captures can be downloaded online to your PC anywhere, anytime using AutoPilot version 2.10.61 or higher. Flexible reporting options allow trend analysis over long periods of time and pre-fault analysis over intervals of interest. The ARC Plus can be configured to capture a specific range of channel values at a programmable interval. Captures include timestamp, site, channel number, meter values, status values and associated alarm states. The Captures feature requires use of AutoLoad Plus version 3.1.97 or higher, and AutoPilot version 2.10.61 or higher. The Captures feature is included with ARC

Plus Touch and SL units manufactured in January 2017 or later and is available as an optional upgrade for existing V5 ARC Plus Touch and SL units. Operation of Captures is described in ARC Plus Touch Version 5 User Guide rev 11 or later, available for download at http://www.burk.com/assets/burk/products/ARC_Plus_Touch_Version_5_User_Guide.pdf.

Meter Actions and Status Actions now execute after their corresponding alarm delays:

Each Meter Action is now executed after its corresponding Meter Alarm Delay as configured on the Meter Alarms tab. Each Status Action is now executed after its corresponding Status Alarm Delay as configured on the Status Alarms tab.

The SNMP Polling interval can now be configured by the user:

The time interval at which the SNMP Plus manager in the ARC Plus polls connected SNMP devices can now be configured from 1 to 255 seconds. The default rate of 1 second is recommended to maintain accurate ARC Plus channel data but a longer interval can be selected, if desired, to reduce network traffic.

Momentary SNMP command functions are now supported:

The SNMP Plus manager in the ARC Plus now supports Momentary command channels. A Raise or Lower command executed on a Momentary command channel configured for SNMP now sends an “On” OID, waits for the user-configured Command Duration, then sends an “Off” OID.

WARP Engine™ now reports active alarms:

Active alarms are now reported by WARP Engine in V5 ARC Plus Touch and SL rather than uncleared alarms.

Resolved Issues

Virtual channels now update immediately on detection of a change in input value:

Virtual channel equations with Plus-X inputs now recalculate immediately when a change of input value is detected.

Changes from firmware version 5.0.3.5 to version 5.0.5.1

New Features and Enhancements

Extended length text labels can now be assigned to meter and command channels:

Each meter channel label can now include up to 20 characters. Each command channel label can now include up to 24 characters, displayed as three lines of eight characters each.

Network Settings now accommodate longer TCP acknowledgement delays:

An Advanced Network Setting selection is now available on the Network Settings dialog box in AutoLoad Plus version 3.1.91 or newer. This setting enables selection of longer TCP timeouts allowing the ARC Plus to communicate over TCP/IP networks with longer than typical network delays.

The alarm for an IP network outage between the ARC Plus and a connected Plus-X device now more clearly identifies the link failure:

When the communications link fails between an ARC Plus and a connected Plus-X device, the ARC plus alarm message now states “Link Down: xxxx”, where xxxx is the assigned name of the Plus-X device. The

corresponding message placed in the ARC Plus event log now states: “Link Down: Plus-X Device [IP Address]: xxxx”.

Resolved Issues

The SNMP interface is now enhanced to enable communication with a broader range of devices:

The SNMP Plus option in the ARC Plus now uses only positive integers as outgoing SNMP Request-ID's, enabling communication with devices that do not support the entire allowable Request-ID range.

The SNMP Plus authorization code is now maintained in the ARC Plus when a new configuration is uploaded to the unit:

When an ARC Plus configuration is restored from a saved file, the SNMP authorization code in the ARC Plus is not overwritten. This enables a common configuration file to be restored to multiple ARC Plus units without invalidating the authorization codes which are unit-specific.

Command label character count now excludes trailing blank characters:

Command labels can now be edited without first deleting blank characters at the end of each row of text in the label.

IP addresses of the form [x.x.128.x] are now allowed:

The ARC Plus can now communicate over IP networks with the value “128” in the third octet of the IP address.

The AutoLoad Plus installer now executes correctly on Windows 10 computers:

AutoLoad Plus 3.1.91 or newer now installs correctly on Windows 10 computers.

Long SNMP OIDs are now supported:

The channel source dialog in AutoLoad Plus 3.1.91 or newer now supports entry of extended length SNMP OIDs.

RF Scout Plus now appears as a selection when adding Plus-X devices:

RF Scout Plus can now be selected in the Device Type drop-down box when adding a Plus-X device in AutoLoad Plus 3.1.91 or newer.

Plus-X RP-8 Adapter now appears as a selection when adding Plus-X devices:

Plus-X RP-8 Adapter can now be selected in the Device Type drop-down box when adding a Plus-X device in AutoLoad Plus 3.1.91 or newer.

Changes from firmware version 5.0.2.6 to version 5.0.3.5

New Features and Enhancements

Warp Engine™ polling using AutoPilot® software is now supported:

Warp Engine polling enables fast, efficient, real-time monitoring of up to 100 sites per second, with each site reporting as many as 32 status and/or meter values. Larger networks just take a little longer, for example polling up to 500 sites in 5 seconds. Warp Engine polling uses very small packets, sending only required data and minimizing communications overhead. If communications bandwidth is at a premium cost, it can be further reduced by selection of a slower polling rate. AutoPilot version 2.10.50 or greater must be used for Warp Engine operation.

The alarm for communications network failure between the ARC Plus and a connected Plus-X device can now be suppressed:

The system alarm which normally occurs when communication is lost between the ARC Plus and a connected Plus-X device can now be disabled by the user. However, it is highly recommended that the alarm remain enabled so that any network failure between the ARC Plus Touch and its connected Plus-X devices can be quickly identified and corrected.

Resolved Issues

The inversion flag is now properly accounted for on virtual status channels:

Virtual status channels are now properly inverted based on the settings of their corresponding 'Invert' checkboxes in AutoLoad Plus. The inversion, if selected, is applied as the final calculation step for each virtual status channel.

Virtual channel calculations now correctly track state changes of status variables:

Virtual channels that use status values as input variables now correctly process state changes in those variables.

Virtual channel configuration on a channel formerly assigned to a Plus-X device now takes effect without delay:

A change of assignment of a Plus-X channel to a virtual channel now takes effect immediately.

Visual indicators now identify offline status for channels associated with non-communicating Plus-X devices:

When communication is lost with a Plus-X device, AutoPilot values for the associated channels are now grayed-out, and the ARC Plus web interface shows these channels as "offline".

Email addresses on alarm notification messages are now properly separated by semicolons:

When ARC Plus sends alarm notification email messages, all email addresses including both master and current email lists are now separated by semicolons.

Delays based on Wait commands in Jet Flowcharts or Macros executing on the ARC Plus are now implemented with improved accuracy:

Delays executed on the ARC Plus within Jet Flowcharts or Macros now complete within a narrow time window of the nominal programmed delay.

Web page processing efficiency and priority are now enhanced:

IP communications processing loads are now balanced to maintain web page connectivity in the presence of high levels of competing IP network traffic.

Resolved Issues (ARC Plus Touch only)

The Recordable Speech Interface now reports status for all networked ARC Plus units when requested:

When accessing the ARC Plus Touch via the Recordable Speech Interface, it is now possible to retrieve audible channel information from all networked ARC Plus systems.

Changes from firmware version 5.0.2.3 to version 5.0.2.6

New Features and Enhancements

SNMP Plus, an optional SNMP manager inside the Version 5 ARC Plus Touch and SL is now available, supporting SNMP SET and Get commands. SNMP Trap support is slated for release in June 2016:

Now it's easier than ever to connect to remote site equipment with SNMP Plus – the powerful new SNMP Manager inside the ARC Plus Touch. With SNMP Plus, traditional and SNMP equipment can be seamlessly integrated over the same network. SNMP channels behave like any other ARC Plus channel. SNMP data can be mapped to ARC Plus meter and status channels for monitoring and alarm generation. ARC Plus command channels can initiate SNMP Set commands for control of connected SNMP equipment. And SNMP Plus enables creation of comprehensive automated functions on the ARC Plus that encompass all controlled equipment whether connected via parallel interface or SNMP. The SNMP Plus option can be added to any Version 5 ARC Plus Touch or SL. Instructions for activation and operation of the SNMP Plus option can be found in the ARC Plus Touch Version 5 User Guide, rev 7.

Changes from firmware version 5.0.2.2 to version 5.0.2.3

Resolved Issues

A muted channel is now prevented from generating SNMP traps:

SNMP traps will not be generated for an alarm condition on a muted channel. If a channel is set to mute while an alarm condition is active, SNMP trap generation for that channel will stop. If a channel is taken out of mute while an alarm condition is active, SNMP trap generation for that channel will begin.

A running macro must now complete execution or be stopped before it can be started again:

A request to run a macro which is actively executing now has no effect. To restart a running macro it is necessary to first stop then run the macro.

Changes from firmware version 5.0.2.1 to version 5.0.2.2

New Features and Enhancements (ARC Plus Touch only)

Audio playback over the Recordable Speech Interface (RSI) now times out after 30 seconds:

RSI audio monitoring of the signal applied to the real panel AUDIO IN jack is turned on using RSI command 994. The audio will now automatically turn off 30 seconds after it is enabled if it has not been manually terminated by means of RSI command 995.

Applied DTMF tones now interrupt in-progress RSI speech:

A DTMF tone received on the Recordable Speech Interface will now interrupt any in-progress RSI speech, and will be interpreted as the beginning of a DTMF command to the RSI.

ON and OFF status is now reported when a channel is selected on the RSI:

When a channel number is entered on the RSI, the system will now report the channel number, the pre-assigned ON message if the channel is on, the pre-assigned OFF message if the channel is off, or will report "status offline" if the corresponding I/O device is not responding. The status report will be followed by a report of meter information as per previous operation.

Offline or unavailable command channels are now reported by the RSI:

If a raise or lower command is applied to a selected channel which has not been configured as a control

channel, the RSI will report “not available”. If the channel has been configured but is associated with an I/O device that is not responding, the RSI will report “command offline”.

RSI “Status On” report now identifies offline channels:

When activated by command 350, the RSI speaks the “ON” phrase for each status input which is currently on. The RSI now also reports “status offline” for any configured status input which is associated with an I/O device that is not responding.

Resolved Issues (ARC Plus Touch only)

Channels with unassigned values are now reported as “meter offline” or “status offline”:

If a channel’s value is normally determined by execution of a macro but has not yet been set, the value is now reported by the RSI as “meter offline” or “status offline” for meter and status channels respectively.

Changes from firmware version 5.0.1.21 to version 5.0.2.1

New Features and Enhancements

ARC Plus Touch and ARC Plus SL users with Version 5 firmware can now take advantage of the Burk Email Cloud Service:

The cloud service works in conjunction with your ARC Plus Touch or ARC Plus SL system to originate encrypted emails using the STARTTLS protocol extension. If your current email server does not support STARTTLS, you can open a free email account with an Internet email service provider. The Burk email cloud service is compatible with email services from a wide range of providers including Gmail, mail.com, GMX and Zoho.

Changes from firmware version 5.0.1.7 to version 5.0.1.21

New Features and Enhancements

Remote upload of custom speech files:

Custom speech files can now be uploaded to the ARC Plus Touch from any network-connected PC running AutoLoad Plus version 3.1.72 or higher. Each uploaded speech segment must be a mono, 16-bit, 8kHz WAV file. Physical access to the ARC Plus Touch unit is not required during the upload process. Speech file directories can also be saved to a network drive for off-line editing and future upload to the ARC Plus Touch.

Real-time operation optimized:

Real-time operating system (RTOS) characteristics have been restructured, yielding improvements in calculation efficiency, responsiveness and overall system performance. Specific improvements include increased macro execution speed, quicker response to input parameter changes on virtual channels, and faster alarm reporting to connected AutoPilot® computers.

Resolved Issues

Improved communication with Plus-X devices:

Traffic shaping and packet monitoring have been enhanced on communications links between Plus-X devices and their host ARC Plus systems. This results in increased data transport integrity and improved accuracy in detection of Plus-X device status.

A broken communications link between an AutoPilot computer and an ARC Plus Touch system now has no effect on communications with other connected AutoPilot computers:

A network failure or disconnected Ethernet cable on the link between a computer running AutoPilot software and a connected ARC Plus Touch system will now have no effect on and cause no delay in communications between the ARC Plus system and other connected AutoPilot computers.

Local alarm LED and alarm relay states now correctly reflect the status of connected systems:

When site settings for the alarm relay output and/or the front panel alarm LED on an ARC Plus Touch system are set to indicate alarms from all connected sites, the combined status of the connected systems is now correctly detected and reported.

Alarm detection will not cause an AutoPilot configuration update:

Alarm conditions detected by the ARC Plus Touch are now logged and reported without causing an unnecessary configuration update to connected AutoPilot computers.

Touch screen colors now update quickly when changing screens:

The Status bar colors and Raise/Lower control button colors now update immediately when switching between the Status and Control views on the front panel touch screen.

Over-range meter values received from monitored devices are now displayed as a full-scale value:

Monitored devices, typically communicating via SNMP, can report floating point values in excess of the meter channel range. When this occurs, the channel is now set to the maximum displayable value of 9999 as an indication of channel saturation or clipping.

RSI status now monitored for failsafe operation:

The Recordable Speech Interface (RSI) is now internally monitored to insure that the phone interface and phone line are in the correct state for proper dial-in and dial-out operation.

Dial-out modem connection to AutoPilot now operates without RSI option:

When connected to an external modem and configured for data calling on alarm, the ARC Plus Touch will report selected alarms to an AutoPilot-equipped computer using a dial-out modem connection. This capability is now available with or without the RSI option.