BridgeWay Release Notes

Part No. AB7645
Revision 2.12.01
Date December 10, 2015

Files Included

The following files are included with this release.

AB7645_Update_2.12.01.nvs	Firmware update script file for use with BWConfig.
AB7645_Exec_2.12.01.bin	BridgeWay carrier board executive firmware image.
AB7645_DC_2.14.01.bin	BridgeWay daughter card firmware image.
AB7645.eds	EDS file updated for new revision.
AB7645.ico	Icon file to be used with EDS file.
AB7645_FileSystem_1.05.zip	Web file system for the BridgeWay.
WebFileLoader.exe	Web file system update utility.

Upgrade Instructions

Updating the Carrier Board Using BWConfig

1. Connect the PC running BWConfig to the BridgeWay with a Null-Modem serial cable.
2. Select 'Update' from the 'Flash' menu.
3. Select the *.nvs* script file.
4. Complete the update. **The BridgeWay will reset several times during the update. Wait until BWConfig indicates that the update is complete before disconnecting or powering off the module**.

Updating the Web Server File System

Note: This is only required if the module does not have file system v1.05. To determine the version of the file system, launch a web browser and view the BridgeWay home page (access the BridgeWay IP address); the version is at the bottom of the page.

1. Unzip the FileSystem zip file into an **empty** temporary directory.
2. Start the WebFileLoader utility.
3. Set the root directory path to where the files were unzipped.
4. Set the IP address to the IP address of the BridgeWay module to be updated.
5. Enter the web security username and password for the BridgeWay module in the login section (the default username and password is 'admin' and 'admin' respectively).
6. The Status display will indicate 'Directory Structure Successfully Transferred' when the download has completed successfully.

Revision 2.12.01 (Web Update Only) – December 10, 2015

- Fixed Java applet issues that caused the data on some pages to not update when using the latest Java releases.

- Cleaned up I/O Table and Assembly web pages so that they display consistently across all browsers.

Revision 2.12.01 – January 31, 2014

Bug Fixes

- Fixed and issue where large J1939 messages over 32 bytes long would not be copied in or out of the input and output tables completely. (Issue #1390)

- The unused portion of the input data point buffer is now cleared to 0 if the received PGN message is shorter than the space configured for the input data point. This fixes issues with receiving variable length PGNs when the message length shrinks from one receipt to the next. (Issue #1391)

- The entry count in the Diagnostics Table header may indicate that there are more entries in the table than there are. An Active (DM1) or Previously Active (DM2) diagnostic table may only have 1 or 2 entries in it, but the header may indicate that there are many more. (Issue #1404)

Revision 2.11.01 – September 30, 2013

Other Changes

- I/O connection sizes are now fixed based on the configured I/O size. Previously the module would allow connection sizes smaller than the configured size; that is no longer allowed.

- The module now passes EtherNet/IP conformance test CT10.

Bug Fixes

- Fixed an issue in the J1939_IO where data was being pulled from the message buffer, as defined in configuration, with no regard to the actual amount of data in the buffer. This left open a possibility for data corruption, or misinterpretation.

- Fixed an issue in the J1939_IO where user configurations passed the 20 data points per PGN limit were causing crashes and reboots when the BridgeWay was placed in RUN mode. Now data points over 20 are ignored.

- Corrected EDS file connection parameters for the T-O connection format.

- Corrected the Status Assembly size in the EDS file.

- The Ethernet configuration is now correctly set to out-of-box settings when an Identity Reset(1) is received.

- The Identity Status (attribute 5) now reports the correct status information.

Revision 2.10.01 – October 5, 2012

New Features

- CAN interface reset control was added to the command register. Bit 5 of the command register in the output data will cause the J1939 CAN interface to be reset when it is set. The reset occurs on the rising edge of the bit.

Revision 2.09.01 – March 21, 2012

Bug Fixes

- Fixed an issue in the J1939 communications where incoming large messages could cause cyclic output message transmissions to be held off. This caused the cyclic transmission times to randomly have very large delays.

Revision 2.08.01 – August 15, 2011

New Features

- 125K baud is now supported on J1939.

Revision 2.07.01 – February 15, 2011

New Features

- Made the J1939 baud rate configurable. It may now be set to 250K or 500K baud.

Revision 2.06.01 – November 22, 2010

New Features

- Added offline detection to the J1939 interface. The module is now able to detect when it is no longer connected to the network or is the only node on the network. See the user manual for complete details. (CR 6454)

Other Changes

- Increased the status assembly size from 10 bytes to 12 bytes. The 10 byte size did not allow ControlLogix connections to be configured as “DINT data with status”. (CR 6436)

- Added support for the new daughter card hardware. (CR 6457)

Bug Fixes

- Fixed an issue where the module status may indicate that it is online on J1939 after it has booted when it is not connected to the network or is the only node on the network. (CR 6435**)**

- Fixed an issue with the input timeout mechanism where input datapoints with non-zero update rates may not correctly indicate a timeout (FFh value) when the module is not connected to the J1939 network or is the only node on the network. (CR 6281)

- Improved cyclic message transmission performance on a loaded system. Previous releases (v2.02-v2.05) had issues with large latency and jitter in the cyclic transmission rates when the module was used in a loaded system. (CR 6337)

Revision 2.05.01 – September 23, 2010

Bug Fixes

- Run/Idle mode can now be controlled correctly when using Class 3 Connected Messaging to control and monitor the I/O data. This issue was found in MicroLogix applications. (CR 6423)

Revision 2.04.01 – September 23, 2009

Bug Fixes

- Fixed an issue where J1939 PGNs that are periodically transmitted (non-zero Update Rate) may stop being transmitted. When the transmission stops, a module reset is required to restart the transmission. This is especially likely on a loaded system with a lot of network activity. (CR 6225)

- Fixed an issue where the module may be switched into Run mode inadvertently when an EtherNet/IP connection has timed out and the Ethernet link status is changed. (CR 6226)

Revision 2.03.01 – July 9, 2009

Important Notes

- The Occurrence Count field in the J1939 diagnostic table entries now contains the SPN Conversion Method Flag in the high bit. The Occurrence Count value must be masked from the lower 7 bits. See the user manual for details on use of the Conversion Method Flag.

New Features

- The module now supports up to 35 incoming J1939 Transport Protocol (large message) sessions. Previously the module was limited to a single BAM and RTS/CTS session. (CR 6153)

- The module can now monitor up to 120 different PGNs in the Input data point configuration and transmit up to 100 different PGNs in the Output data point configuration. The previous limitation was 50 and 50. (CR 6160)

- The J1939 Transport Protocol (large message) handler now rejects incoming session requests (both BAM and RTS/CTS) for PGN/Address pairs that are not configured as input data points. Previously all large message sessions were accepted and the messages were filtered after they had been completely received. (CR 6152)

- The SPN Conversion Method Flag is now included in the high bit of the Occurrence Count field in the J1939 diagnostic table entries. See the important notes section above and the user manual for more details. (CR 6154)

Revision 2.02.01 – June 2, 2009

Bug Fixes

- Fixed an issue in the timer logic that may cause the module to hang and reset if there are a lot of I/O data points with small update rates. (CR 6128)

- Fixed an issue with cyclic messages that may cause a transmit queue overflow if the module is overloaded or offline. (CR 6130)

- Fixed an issue where messages may be transmitted before the J1939 address is claimed in the case where the module is powered up offline then is connected to the J1939 network. (CR 6131)

- The size of the Status Assembly is now 10 as documented. The Status Assembly was previously incorrectly returning 128 bytes of data, although on the first 10 bytes were being used. (CR 6048)

- Fixed an issue where the module would continue to response to address claim messages for the previous address after it has lost the address due to a higher priority claim from another module. (CR 6137)

Revision 2.01.01 – March 31, 2009

Important Notes

- Due to the change in the Input-Only and Listen-Only connection points, EtherNet/IP I/O connections (with ControlLogix or other scanners) may need to be reconfigured when updating to this revision. The output heartbeat connection point for Input-Only connections to the Input or Status assemblies must now be set to 198 rather than 3 as used in previous revisions.

New Features

- Added support for Change of State trigger type for EtherNet/IP I/O connections.

Other Changes

- Changed EtherNet/IP Input-Only and Listen-Only heartbeat connection points to 198 and 199 respectively. This change was required to pass the profile verification requirements of latest EtherNet/IP conformance test.

- Added 0 length Assembly instances to correspond to the Input Only and Listen Only connection points. (instances 198 and 199 respectively)

- Changed valid I/O table size range to 4-500 bytes. The previous limit of 508 bytes was too large for most applications and the conformance test software.

- Added attribute 8 (TTL) and 9 (Multicast Configuration) to the TCP/IP Interface object.

- IP settings changed through the TCP/IP Interface object are now applied immediately rather than waiting for a module reset.

- Added IP address validation for TCP/IP Interface object attribute 5 and to IP addresses set through the web page to comply with the EtherNet/IP specification.

- Changed the EtherNet/IP encapsulation sequence number check to allow duplicate class 1 packets per the EtherNet/IP specification.

- Changed RPI range supported for EtherNet/IP class 3 connections to 2-10000ms.

- The Ethernet PHY now re-establishes the link every time the Ethernet Speed or Duplex is changed.

- Added the ability to close timed out EtherNet/IP connections with a Forward_Close request.

- Changed the Ethernet interface so that DHCP is run every time the cable is plugged into the module rather than only at module startup. The benefit of this is that if the cable is unplugged and another module goes online with the same IP address, the module will get a new IP address when the cable is plugged in instead of going offline due to an address conflict.

Bug Fixes

- Fixed an issue that prohibited the module from being put into Run mode if the Modbus Timeout was enabled in the Ethernet configuration through BWConfig.

- Fixed an issue where the module may not consistently revert to Idle mode when the EtherNet/IP connection times out.

- Fixed an issue where J1939 messages longer than 8 bytes were not getting set correctly on a receive timeout indication.

- Fixed an issue where if the I/O table size was configured to a non-default value (below 500 bytes), the web pages displayed corrupted data.

- Fixed an issue which may cause the module to hang when an EtherNet/IP class 3 connection is established with an RPI of 0.

- Added a response delay when Ethernet Speed or Duplex is set through the Ethernet Link object to prevent multiple resends on the network.

- Fixed an issue that could cause an invalid Forward_Open or Forward_Close response on EtherNet/IP.

- The Negotiation Status bits in the Ethernet Link object instance attribute 2 will now indicate if the Auto Negotiation process failed due to the remote link partner not supporting Auto Negotiation.

- Fixed an issue which prevented EtherNet/IP multicast I/O production with the TTL value was set to a non-default value and no default gateway address was configured.

- Fixed the net broadcast initialization. Previously only subnet broadcast was supported. This only caused an issue in network environments where the subnet broadcast address differs from the net broadcast address.

- Fixed an issue where the gateway address was cleared and DHCP was turned off if the DHCP routine timed out immediately after receiving a DHCP offer.

- Fixed an issue that could cause a module crash when an EtherNet/IP I/O connection timed out during heavy network load.

- Fixed an issue where EtherNet/IP class 1 output data changes may be missed.

- Fixed an issue where an input data point's entire input data may not get transferred to the Ethernet I/O if the mapping overlapped a 64 byte boundary.

- The Bus-Off Reset option was not being set on a reset to factory default operation, the last configuration setting was being maintained.

- The J1939 status now indicates "Offline" correctly if the module is unable to claim an address on the J1939 network.

- Fixed an issue where cyclically transmitted PGNs would continue to be transmitted if the module lost its J1939 address due to address contention on the network.

- Fixed an issue in the J1939 large message transport protocol where re-sent packets where not being handled correctly and could cause message data to be mapped incorrectly.

- The J1939 large message transport protocol now recognizes missed data packets correctly rather than waiting for a timeout on the transaction if not enough packets are sent.

Revision 1.06.01 – October 6, 2008

- Resolved internal timer issue that could impact long term contiguous operation of the module.

- Fixed an issue that would cause the module to hang during initialization after a flash update reset.

- Added the ability to configure the I/O table sizes from BWConfig. Some EtherNet/IP devices, such as MicroLogix and SLC controllers, that have limitations on the size of assemblies that they can read and write. The configurable table size allows the user to configure an I/O table smaller than 508 bytes to allow these devices to read the I/O assemblies.

- Allow Class3 support for update of Run/Idle control.

- Fixed an issue where PGN's with DP=1 were not being handled correctly.

Revision 1.05.01 – Internal Release

Revision 1.04.01 – Internal Release

Revision 1.03.01 – June 22, 2006

- Updated the daughter card watchdog interface to allow the latest version of the daughter card firmware to be used. The daughter card firmware changed the way that it was implementing the watchdog interface.

- Fixed an issue with the daughter card interface handshaking that could cause I/O transfer to stop. The issue allowed the main and daughter cards to get out of synch. When in this mode, the module would not transfer I/O data.

- Fixed an issue in the daughter card interface handshaking that would cause the daughter card to miss interface commands. This issue did not cause any noticeable problems in the module; the firmware retried the command. No I/O or messaging issues resulted from this issue.

- Added range checking in the fwd_open and fwd_close service handling in the Connection Manager for EtherNet/IP.

- Fixed explicit message handling for the case where the EtherNet/IP encapsulation header gets split up into two TCP frames.

- Improved random generation for unique transaction IDs in DHCP requests.

- DHCP now uses an exponential back off algorithm as stated in RFC2131.

- Removed A-B legacy service ListTargets from EtherNet/IP encapsulation protocol.

- Fixed the algorithm used to calculate multicast addresses; it was producing addresses that where offset by 32.

- Added IPv4 Address Conflict Detection based on the ODVA EtherNet/IP Workshop guidelines.

- Corrected the handling of EtherNet/IP input only connections when the exclusive owner connection time outs.

Revision 1.02.01 – April 22, 2005

- Added configurable message priority for transmitted J1939 messages. The message priority of output data points can now be configured. Previously all messages were transmitted with priority 6.

Revision 1.01.01 – March 17, 2005

- Initial release of the module.