# BridgeWay Release Notes

**Part No.**    AB7605
**Revision**    2.05.01
**Date**        October 9, 2019

## Files Included
The following files are included with this release.

| | |
|---|---|
| AB7605_Update_2.05.01.nvs | NVS script file for use with ControlFlash or BWConfig. |
| AB7605_Exec_2.05.01.bin | BridgeWay carrier board executive firmware image. |
| AB7605.eds | EDS file for use with DeviceNet configuration tools. |
| AB7605.ico | Icon file referenced by the EDS file. |
| PYRA0718.gsd | GSD file for use with PROFIBUS configuration tools. |
| AB7605.dib | Bitmap file referenced by the GSD file. |

## Upgrade Instructions
The BridgeWay firmware upgrade requires the following steps.

Updating the Module Using BWConfig
1. Disconnect any PROFIBUS master.
2. Connect the PC running BWConfig to the BridgeWay with a Null-Modem serial cable.
3. Start BWConfig and verify that the status bar reads "ONLINE".
4. Select 'Update' from the 'Flash' menu.
5. Select the *.nvs* script file.
6. Complete the update; the BridgeWay will reset.

## Revision 2.05.01 – October 9, 2019

### Other Changes

- Updated flash memory interface to support both old and new flash hardware.

## Revision 2.04.01 – October 16, 2013

### Bug Fixes

- Fixed an issue where the ADR configuration download of a changed configuration may be skipped on slave devices supporting CCV. The CCV value was not being handled correctly when the configuration was updated and the old CCV value was being used for comparison when the slave came online. (CR 6295)

- Fixed issues with the configuration save and module reset logic so that a reset cannot occur when a configuration save is in progress. This caused issues if the DeviceNet MAC ID was changed and the module attempted to reset before the configuration store was complete, typically causing the configuration to be factory defaulted.

### Other Changes

- Improved the configuration storage functionality so that DeviceNet connections will be maintained during the most save operations. (CR 6460)

## Revision 2.03.01 – February 23, 2010

### Other Changes

- Removed the change made in v2.02 that set the PROFIBUS Static Diagnostic bit on a DeviceNet slave error. The Static bit is now only set on DeviceNet network errors. (CR 6304)

### Bug Fixes

- Fixed an issue where the DeviceNet Module Status LED remains flashing red after a recoverable fault is cleared. (CR 6262)

## Revision 2.02.01 – May 8, 2009

### Important Notes

- This version of the BridgeWay firmware is compatible with all versions of RSNetworx and NetTool-DN. Versions of RSNetworx prior to v7.0 and all versions of NetTool-DN-D as of v3.3.1 do not support ADR data space larger than 64K bytes. When using early versions of the configuration tools the BridgWay will report an ADR limit of 65024 bytes. The module will be configured correctly by the tools but the amount of ADR data that can be stored will be limited. RSNetworx v7.0 and later will support the full 128K of ADR data space.

### Other Changes

- The PROFIBUS Static Diagnostic bit is now set when there is a DeviceNet slave error. Previously the Static bit was only used to indicate DeviceNet network errors.

### Bug Fixes

- Changed the ADR configuration interface so that it was compatible with configuration tools that only support up to 64K of ADR data space. See the Important Notes section above for more details.


## Revision 2.01.01 – March 31, 2009

### Important Notes

- Due to changes in the Automatic Device Replacement configuration, previous ADR configurations stored in the module will be cleared when updating to this release. Make sure that the module's ADR configuration is saved with RSNetworx prior to updating the module to this release. Once the update is complete, use RSNetworx to reload the saved configuration.

### New Features

- Added CCV Mismatch trigger type to Device Configuration Recovery. If a slave is configured to use CCV Mismatch (the default for RSNetworx), the CCV value will be compared against the value saved in the master and the slave's configuration will be downloaded only if the value differs.

- Added the Configuration Consistency Value (CCV) attribute to the Identity object. This is instance attribute 9.

- Added Quick Connect client capability. The DeviceNet scanner now supports Quick Connect and can be configured to use this type of connection establishment for DeviceNet slaves that support it.

- Added configurable input safe state behavior. The DeviceNet slave input data may be configured to either retain the last state or zero the data when the associated slave I/O connection faults. The default behavior is to retain the last state which makes it backward compatible with previous firmware revisions.

- Added the option to put DeviceNet scanner status data at the front of the input table. This is the same structure that is used for the PROFIBUS Diagnostic data. This was done for the applications using PROFIBUS masters that cannot read the Diagnostic data; it provides the same information in the input table. This option defaults to off, making it backward compatible with previous firmware revisions.

- Updated EDS file to include parameters for Status In Input and Input Safe State features so that they may be configured using NetTool-DN.

## Other Changes

- Expanded Device Configuration Recovery memory by 64K bytes. The previous memory size was 65024 bytes; the new size is 130,560 bytes.

- Initialization changes for compatibility with the latest version of the PROFIBUS-DP daughter card.

## Bug Fixes

- Fixed an issue in the group 2 only proxy handling where fragmented messages could leave the proxy record in an invalid state. This would manifest itself in the inability to proxy or send explicit messages to the target slave for approximately 10 seconds.

- Fixed an issue where having more than 20 proxied group 2 only devices simultaneously may cause the module to reset.

- Fixed an issue where large explicit responses could become corrupted and return an incorrect error code.

- Fixed an issue where DeviceNet explicit requests may incorrectly time out early.

- Fixed an issue where a DeviceNet explicit request to a group 2 only device that is in the scan list may never timeout. This could cause the module to eventually run out of messaging resources.

- Fixed an issue where the module may reset during a DeviceNet scan list save.

- Fixed an issue where if the DeviceNet scan list was cleared the BridgeWay status LED would indicate a PROFIBUS I/O size error (4 Green / 2 Red flash sequence).

## Revision 1.09.01 – October 6, 2008
- Resolved internal timer issue that could impact long term contiguous operation of the module.

## Revision 1.08.01 – June 22, 2006
- Fixed an issue that limited the DeviceNet ADR data table to 32K bytes. Although the module would accept up to 64K bytes as documented, devices with configuration data past 32K would not be configured correctly.

- 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.

- Fixed an issue where DeviceNet automatic baud rate detection did not work correctly if DeviceNet network power was lost during auto baud detection.

- Updated the Assembly object on the DeviceNet side to report revision 2 and support class attributes 1 and 2. This had no affect on functionality of the module, it was only a conformance test issue.

- Fixed a problem where DeviceNet I/O data is not updated correctly in certain configurations. The affected DeviceNet configurations are:
  - A DeviceNet slave's input data is mapped completely within one of the following byte ranges: 60-63, 124-127, 188-191, 252-255, 316-319, 380-383, 444-447. Note that the entire device mapping must be within the range for the problem to occur.
  - A DeviceNet slave's output data for a COS connection is mapped completely within one of the following byte ranges: 56-63, 120-127, 184-191, 248-255, 312-319, 376-383, 440-447. Note that the entire device mapping must be within the range for the problem to occur. Note also that this only affects change of state (COS) connections.

## Revision 1.07.01 – March 15, 2005

- The I/O table may now be byte swapped on 16-bit boundaries for easier use with Profibus controllers. This option is configured using BWConfig by checking the *Swap I/O Bytes* check box in the DeviceNet interface frame.

- DeviceNet configuration may now be done using the BWConfig tool through the serial port. This feature allows the module to be commissioned on DeviceNet using BWConfig prior to connecting it to the network. This requires BWConfig v1.05 or later.

- Fixed a problem which could cause the module crash and become unrecoverable. If an I/O map of less than 8 bits in length was configured within the first 7 bits of the I/O table, the module would reset when the configuration was downloaded, then fail to boot.

- Fixed a problem where the status data was not being updated correctly. This caused the Profibus diagnostic data to be incorrect.

- The I/O buffer is now initialized to 0. Previously it was initialized to 0xFF.

## Revision 1.06.01 – September 18, 2003

- Added sub-minor revision. This is accessible through Identity instance attribute 100.

- Fixed some problems with DeviceNet autobaud that caused the module to interfere with the CAN network during baud rate detection, and possibly never detect the baud rate.

- Fixed a problem with the dual port handshaking between the carrier board and daughter card. This problem could cause I/O transmission between the two networks to stop.

- Removed non-standard data from the end of the Get_Attributes_All response for the Identity object.

- Fixed an issue where the input change indication flags may get cleared without transferring the input from DeviceNet to the AnyBus card. This would cause a loss of input state change in the I/O transfer.

- All values besides 0 and 1 now cause an invalid attribute value error response when setting the autobaud enable attribute in the DeviceNet object.

- The baud rate attribute returns an attribute not settable error response if autobaud is enabled.

- The slave mode configuration was being lost if the MAC ID changed. The configuration is now retained through a MAC ID change.

- The dup-mac sequence was started during initialization, which caused an extended delay for the second dup-mac message transmission. The sequence is now started after initialization is complete.

- The network status LED was being set to flashing red on any slave connection error. This has been changed so that if the connection error is caused by configuration, the module status LED is flashed red.

- Nodestatus in the Node Status Table (in the status assembly and the node status table attribute of the Scanner Configuration object) values are now 0 for OK. Previously they were being set to 1.

- Fixed timer routines to maintain correct timing on a loaded system.

- Optimized COS output handling and balance between output and input handling to provide more responsive messaging on DeviceNet.

- Changed the behavior of the DeviceNet Network Status LED. Previously the LED would remain solid green if there was at least 1 active slave I/O connection, and display flashing green if no I/O connections were active. It did not indicate connection time outs. The new behavior is as follows:

| | |
|---|---|
| Solid Green | Connections are active and all I/O connections are OK. |
| Flashing Green | No connections active. |
| Flashing Red | 1 or more I/O connections are in a faulted state. |
| Solid Red | Offline due to bus-off or duplicate MAC ID error. |

- Added Auto Verify Failure Table to DeviceNet diagnostics. This is a 64-bit bitstring that indicates the slave nodes that have failed device type and I/O data size verification. The table can be access through Class 90h, Instance 1, Attribute 15h. This table is also viewable from the web server.

- Added an attribute to allow the DeviceNet scanner status to be retrieved using a CIP request. The scanner status is accessed through Class 90h, Instance 1, Attribute 22. The value returned in the same as the Node Status Table entry for the Scanner's MAC ID.

- Made some performance improvements in the DeviceNet I/O and I/O gateway functionality between Ethernet and DeviceNet.

- The BridgeWay Status LED now flashes green when the module is in Idle mode; it is solid green when in Run mode.

- The Module Status LED now flashes red during a firmware update.

- The module now reports a single identity instance. Previously, more than 1 instance was reported.

- Added a check to the NVS object to verify the instance number in a request.

## Revision 1.05 – February 18, 2003

- If the configured I/O size is not valid for the PROFIBUS interface, the module will set the I/O size to 1 byte output and 0 bytes input and come online with the diagnostic data indicating an I/O size configuration fault. (The diagnostic static bit will be set.)

- The module's Run/Idle mode is now controlled by the PROFIBUS data exchange. If the module is not online exchanging data, the module, and hence the DeviceNet scanner, will remain in Idle mode. The module will be placed into Run mode when it is online and exchanging data with a PROFIBUS master.

- Removed system halt behavior from AnyBus interface faults. Previously, if there was an error in the AnyBus interface, the system would halt and display the LED flash sequence. Now the LEDs will be flashed to indicate the fault, but the module will continue to operate. This will allow configuration and firmware changes to be made through the DeviceNet or serial interface.

- Fixed a problem that would not allow zero input or output size. Although it is invalid to have zero total I/O size, it is allowable to have either of the input or output sizes set to 0.

**Note:** It has been brought to our attention that the total I/O size is limited to 400 bytes, not 416 as was previously documented. The input and output sizes may be up to 244 bytes; however, the sum of the input and output sizes must be no larger than 400 bytes.

## Revision 1.04 – December 20, 2002

- Added an attribute to allow the DeviceNet scanner status to be retrieved using a CIP request. The scanner status is accessed through Class 90h, Instance 1, Attribute 22. The value returned in the same as the Node Status Table entry for the Scanner's MAC ID.

- Fixed an issue that would not allow I/O table sizes larger than 216 bytes total (input and output combined). The full 416 bytes (as documented) is now supported.

- Fixed an issue in the DeviceNet explicit messaging that may cause corrupted explicit responses if the service processing for the request is delayed due to processing time.

## Revision 1.03 – December 11, 2002

- Changed the handling of the diagnostic Static bit. Previously the bit was set when there was a faulted slave or a network error. Now the bit is only set if there is a network error which prohibits the BridgeWay from communicating on the DeviceNet network. If a slave is faulted, the corresponding bit will be set in the diagnostic data, but the static bit will not be set, allowing communication with the other slaves to continue.

- Changed the behavior of the DeviceNet Network Status LED. Previously the LED would remain solid green if there was at least 1 active slave I/O connection, and display flashing green if no I/O connections were active. It did not indicate connection time outs. The new behavior is as follows:

| Solid Green | Connections are active and all I/O connections are OK. |
| --- | --- |
| Flashing Green | No connections active. |
| Flashing Red | 1 or more I/O connections are in a faulted state. |
| Solid Red | Offline due to bus-off or duplicate MAC ID error. |

- Added Auto Verify Failure Table to DeviceNet diagnostics. This is a 64-bit bitstring that indicates the slave nodes that have failed device type or I/O data size verification. The table can be access through Class 90h, Instance 1, Attribute 15h. This table is also viewable from the web server.

## Revision 1.02 – October 4, 2002

- Changed the PROFIBUS ID number to the correct value.

- Added production test functionality.

- Fixed a problem in the DeviceNet Automatic Address Recovery that could change the MAC address of a device at MAC 63 to that of a faulted slave when the devices' identities did not match correctly.

- Added DeviceNet automatic baud detection.  Autobaud is an option that can be enabled or disabled using DeviceNet object attribute 100 (Class 3, Instance 1, attribute 100).  This option is disabled by default.