

**CTI 2500P-Jxxx CTI 2500C-Jxxx  
Janus Programmable Automation Controller  
Product Revision History**

NOTE: The Product Revision for the Janus processors is marked on a white label affixed to the board near the battery holder. It is also marked on the outside of the original shipping box.

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**Release: 2024-09-30  
ECO# 891 - Product Revision 14 (2500P-J750)  
ECO# 891 - Product Revision 2 (2500P-J450)  
ECO# 892 - Product Revision 7 (2500C-J750)  
Firmware V1.28**

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Integrated Development Environment (IDE) Requirement: Janus Workbench V2.17 or later for full functionality.

**Enhancements:**

- IEC-336 Support text buffers in Online Change
- IEC-673 Add ability to get a list of locked variables to a SCADA
- IEC-693 Expand some 32bit web statistic counters to 64bits
- IEC-727 Improve runtime messages and error checking during online change
- IEC-742 Support port configuration on J350 PLC
- IEC-843 Add OLC\_DataMap version compatibility check
- IEC-852 Add Online Change data mapping support for unions (Straton V12)

**Issues Resolved:**

- IEC-674 Outputs on Remote I/O "glitch" during Online Change
- IEC-694 Ctrl+C doesn't stop AbramsFalls anymore (internal issue only)
- IEC-695 System exception error - watchdog - invalid FB index after Online Change
- IEC-755 Failed Online Change causes problems in reporting of locked variables in IEC-673
- IEC-777 Online Change issues with nested structures
- IEC-786 Online Change crash when disabling/deleting programs
- IEC-839 Online Change does not handle arrays of built-in function blocks that are members of structures or UDFBs
- IEC-848 Problem when defining Primary IP and Alternate Subnet 3, leaving the other configurations blank
- IEC-853 Online change does not allow for bits to be added to a bitfield
- IEC-859 Implement measures in Janus runtime and/or Workbench to mitigate problems with multiple Workbench connections
- IEC-865 Fix coding errors that occur in v12.2 ARM compiler
- IEC-867 Restart causes E310 and produces core dump
- IEC-868 Product Information web page contains reference to "Profinet"
- IEC-870 Profibus statistics are incorrect when application is stopped

- IEC-875 Clear Error button does not clear some errors
- IEC-887 CLONE - Locked \_CTI\_xxx Reserved variables not functioning properly after adding variables to Program
- IEC-888 CLONE - Web page "Application Information" "Locked Variables" table format needs larger horizontal space
- IEC-894 Overlapping subnets should be detected by the webserver
- IEC-915 Online change adding a new Remote Base in Configuration creates a glitch in the Existing Remote Base Discrete I/O

**Internal Changes:**

- IEC-842 Tag and Integrate OLC\_DataMap v1.19
- IEC-646 Implement <bfvar> and<bftype> tag support in OLC\_DataMap

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**Release: 2023-09-12**  
**ECO# 859 - Product Revision 13 (2500P-J750)**  
**ECO# 859 - Product Revision 1 (2500P-J450)**  
**ECO# 860 - Product Revision 6 (2500C-J750)**  
**Firmware V1.27**

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Integrated Development Environment (IDE) Requirement: Janus Workbench V1.91 or later for full functionality.

**Enhancements:**

- IEC-507 Improve web page statistic title text to "Last General Status" and "Last Ext Status"
- IEC-656 Add support for both Zynq 7020 (J750) and 7010 (J450 models)

**Issues Resolved:**

- IEC-686 Remove old firmware for Janus PLC from web site (no 7010 processor support)
- IEC-713 Getting Error 490 when Host PLC goes from Program to Run mode
- IEC-713 Getting Error 490 when Host PLC goes from Program to Run mode
- IEC-717 Error E610 & E610 should clear when battery is replaced
- IEC-721 Fix VMDB heap corruption during online change with TXBMANAGER function block
- IEC-737 Display of locked values not working properly when data source is a fieldbus
- IEC-739 System exception error 310 on power up with V1.26 and customer PLC13\_117 program
- IEC-743 Update code for 2500C-J350 to support 4 physical ports / 4 subnets
- IEC-750 CAMP Server stops working after power loss and restart
- IEC-752 Janus PLC not handling default gateway when receiving requests from outside subnet

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**ECO# 855 / 2023-07-18**  
**Product Revision 5 (2500C-J750)**

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Changed front panel overlay design to fit with new 7 segment displays on Compact Janus PLC. This is a manufacturability change only, there is no customer impact.

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**Release: 2023-05-17**  
**ECO# 841 - Product Revision 12 (2500P-J750)**  
**ECO#842 - Product Revision 4 (2500C-J750)**  
**Firmware V1.26**

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Integrated Development Environment (IDE) Requirement: Janus Workbench V1.xx or later for full functionality.

**Enhancements:**

- IEC-576 Profibus DP web statistics- Add baud rate / re-evaluate other removed settings
- IEC-588 Display All Pages on Janus PLC does not display the "Configuration" pages
- IEC-617 Set status manager error 250 in addition to error 370 for missing SD card
- IEC-647 Online change does not preserve state of LOCKed variables
- IEC-671 Customer reports "Unknown TIC Instruction" as runtime error
- IEC-679 Provide "Master Clear" to reset ALL web counters in Janus and JACP
- IEC-711 Add Configured Items by Data Type table to the CAMP Server Statistics web page

**Issues Resolved:**

- IEC-371 Doing a File Mgt Copy to a full external SD Card does not produce an error
- IEC-404 If the user is on the File Management web page and the PLC goes through a reset then file operations may say "Operation Succeeded" even though nothing is copied
- IEC-440 Refresh button on File Management page should say "Refresh File List"
- IEC-451 Copy to SD card reported as Success even though SD card was pulled
- IEC-452 On File Management page, SD card file list is not handled properly when removing/inserting SD card
- IEC-487 CTI\_PLC\_STATUS reports Profibus error when module inserted but not configured
- IEC-493 Add prompts and validation on for IP address on Configuration>Clock Settings web page
- IEC-494 Current Operational Mode on application info web page displays as UNDEFINED after doing a "Reset Configuration Settings - then Reset the Product"
- IEC-498 PLC Security should prevent creation of Duplicate Users
- IEC-506 Task Code 9E should return an error when data types don't match
- IEC-526 On Configuration>Network Settings, invalidate IP's if the user puts in leading zeroes in octets
- IEC-538 Compact PLC network ports C & D may not initialize properly on powerup
- IEC-564 Profibus diagnostic data counts incorrect after "Clear Statistics"
- IEC-586 Webserver app page "Ether/IP FlexIO Error" not checked with error 575
- IEC-587 Error in display of "Gen Status" and "Ext Status" on Ethernet/IP Tag Client statistics
- IEC-595 Janus PLC randomly stops communicating over Ethernet Ports when using OPC-UA
  
- IEC-615 File Management copy operation reports success with write protected SD card, but no files copied
- IEC-618 Task code 01, incorrect error message when requesting a non-existent item

- IEC-622 Errors 355 and 360 not correctly displayed when internal SD card is 90% full
- IEC-632 Online change DataMap does not handle multi-dimensional arrays
- IEC-634 OPC-UA Server Setting "Max Subscriptions per session" not functioning properly
- IEC-635 Online change does not correctly handle complex segment pointers
- IEC-636 Support Enumerated values in Online change
- IEC-637 Support Bitfield values in Online change
- IEC-651 OPC-UA Server configuration "Max. Monitored Item per Subscription" does not correspond to the way the driver is working
- IEC-654 Profibus-DP Module Status variables and Error 455 is not being set/cleared correctly
  
- IEC-657 Slow Profibus recovery after disturbing the RS485 communications
- IEC-658 OPC-UA Tag Variable intermittent variable write via WorkBench (see CDF-51)
- IEC-659 Reading bad values from 505-6108(A/B)
- IEC-660 "Ethernet Ports Active" event in event log is being reported oddly sometimes
- IEC-665 Straton PID function block resets during Online Change
- IEC-668 Clearing Event Log Takes about 1 Minute
- IEC-674 Glitch on RIO during Online Change
- IEC-676 Locking structure variables does not work in runtime V1.24
- IEC-678 Profibus Master Failing to Always Set Master State OK After Disturbed Bus Error Clears
  
- IEC-681 Communications with CAMP server cause LONG scan times
- IEC-712 Arrays and Structures fail Online Change test

**Internal Changes:**

- IEC-355 Profibus subsystem goes to "Offline" in V1.08 RC2 after running for an hour
- IEC-479 Event message missing for file management "Download Files to Computer"
- IEC-535 Firmware upgrade uses boot.bin instead of zip file to upgrade
- IEC-563 Possible soldering problem in Zynq processor on some boards
- IEC-596 Integrate New v11.0 Straton Runtime Release
- IEC-597 Change Product Requirements Document to correctly define how Profibus Slave status is displayed
  
- IEC-608 No OPCUA section in 2500-Cxxx-IEC-PC-Design Software Design Document
- IEC-612 Online Change DataMap should handle new function blocks more gracefully
- IEC-613 Ensure that all Errors that Require an Associated Event Actually Log an Event
- IEC-616 Testing error makes PLC appear to return wrong response to task code
- IEC-619 Error in test when writing REAL to K Memory
- IEC-621 Upgrade to latest json.hpp in Online Change DataMap
- IEC-623 OPC-UA Server URI field creates failure when using Straton OPC-UA Client
- IEC-624 Power cycling test on 2500P-Jxxx causes "System was not properly shutdown (50004)"
  
- IEC-625 Profinet Controller in user program with V1.24 RC5 (no Profinet) causes product reset

- IEC-627 Problem when testing OPC-UA Server Level 1 Authentication Setting "Certificate" - doesn't seem to be supported by Clients
- IEC-638 Review OLC\_DataMap's handling of UDFB changes
- IEC-645 Update Online Change test suite to include test cases for OLC\_DataMap v1.14
- IEC-652 Upgrade to Straton V11.0b2 repair release
- IEC-655 Upgrade Janus PLC firmware to include updated OPU-UA stack for OPC UA server
  
- IEC-669 Review OPC-UA limits and build checks
- IEC-672 Segfault in OPC UA DDK when running Attribute Write Values conformance test
- IEC-685 Re-enable realtime patch in Petalinux OS
- IEC-689 Application Information Web Page Does Not Show All Locked Variables
- IEC-690 Profibus subsystem startup fails to bring up the master (psak\_start\_profistack() error)
- IEC-691 File Upgrade from zip file Fails (E260, File did not unzip)
- IEC-692 Tag and integrate Online Change DataMap v1.17
- IEC-729 Add watch dog to restart the Profibus subsystem if no poll cycles ends occur for 5 seconds
- IEC-731 Remote I/O scan time increased compared to V1.24

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**ECO# 833 / 2023-04-10**  
**Product Revision 11 (2500P-J750)**

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Changed PCB for Rev D to Rev E to create more space between 7-segment displays and edge of board. This is a manufacturability change only, there is no customer impact.

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**ECO# 809 / 2023-02-02**  
**Product Revision 10 (2500P-J750)**

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Removed C213-C217, C122. This is a manufacturability change only. There is no customer impact.

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**Release: 2022-05-18**  
**Product Revision 9 / Firmware V1.24**

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Integrated Development Environment (IDE) Requirement: Janus Workbench V1.82 or later for full functionality with OPCUA Server and new capabilities.

**Enhancements:**

- IEC-558 Added support for OPCUA Server.
- IEC-574 Reordered components on the Application Information Webpage to preserve alphabetical order
- IEC- 594 Added reference and link to OPCUA server on the Statistics/Communication Sessions web page.

**Issues Resolved:**

- EC-368 No event is logged when the SD card exceeds 80% full.
- IEC-369 File Management web functions do not return an error when the SD card is 90% full as required.
- IEC-571 INTERNAL: Resolved problem affecting manufacturing test
- IEC-577 EIP Tag server fails to work if a tag name contains a period "." (for instance My.Tagname).
- IEC-579 INTERNAL: Improvements to OPCUA Server
- IEC-589 EIP FlexIO statistics are not included in "Display All Statistics" web pages.
- IEC-601 Cannot change a Tag in EIP Tag server or client using Online Change facility.
- IEC-602 File Management web page - Copying Core Dump to Removable User SD card causes controller to crash.
- IEC-604 When embedded Ethernet switch is configured to forward between ports A/B and between ports C/D, this does not work properly

- IEC-609 Clicking on “Clear Statistics” on the Profibus DP Statistics page erroneously clears an active Profibus error.
- IEC-500 Remove unused errors from Error Descriptions & Status web page.
- IEC-562 EIP Adapter subnet IP address management problem causes a timeout with the EIP scanner.
- IEC-569 Remove extraneous event logging for Camp Server since the Communications Sessions web page lists the reason a connection has been closed.
- IEC-570 Improve Profibus RBC module status diagnostics on the Profibus DP Statistics web page.
- IEC-572 Logging comma separated variable data to a file on the SD card using LOGFILECSV() was not triggering an update to the file.
- IEC-581 Modified the wording of File Manager web page to generically reference the user SD card.
- IEC-582 The EIP scanner was not connecting to the adapter properly for instances with a size of 250 bytes. Additional corrections also required to the ethernet interface handling.
- IEC-583 The EIP scanner sends an incorrect forward open request when the instance ID is greater than 255.
- IEC-584 INTERNAL: The OPCUA server will not allow “tag discovery” when a security policy of NONE is not included in the security policies enabled in level 2 of the OPCUA server configuration.
- IEC-585 EIP Flex IO client will not connect to a FlexIO servers after power is cycled.
- IEC-590 INTERNAL: Changes to File Management web page for OPCUA server
- IEC-591 INTERNAL: Modify OPCUA server driver to ignore Certificates Path entry, preventing a potential user error.
- IEC-592 INTERNAL: Enabling OPCUA Server Level-1 Debug trace causes a watchdog reset.
- IEC-598 EIP Tag Server does not respond to tags whose length exceeds 30 characters.
- IEC-606 INTERNAL: An event is not logged when an OPCUA Server start error occurs.
- IEC-620 INTERNAL: Remove web pages for protocols not available at this time.
- IEC-626 Profibus I/O driver does not clear (set to 0) discrete and analog inputs for a slave that is offline.

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**Release: 2022-03-08**  
**Product Revision 8 / ECO# 758**

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Replaced Power Supply chip 006-00866 with 006-00877 and replaced Oscillator chip 006-00845 with 006-00878. Change PCB revision from “C” to “D”. This is a manufacturability change only, there is no customer impact.



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**Release: 2021-12-20**  
**Product Revision 7 / Firmware V1.21**

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Integrated Development Environment (IDE) Requirement: Janus Workbench V1.76 or later for full functionality with Ethernet/IP FLEX™ IO interface.

Minimum IDE Requirement: Janus Workbench V1.59 or later

**Enhancements:**

IEC-501 Added support for Rockwell 1794 FLEX™ I/O via Ethernet/IP. Requires Rockwell

IEC-513 Communication Adapter (Catalog Number: 1794-AENT)

IEC-565

IEC-568

**Issues Resolved:**

IEC-437 CTI internal issue

IEC-469 Updated Janus PAC Installation and Operation Guide (V1.11) to clarify PLC startup operation following a reset caused by pressing the front panel 'Clear Exception' button.

IEC-476 Corrected issue to allow Janus PAC to startup correctly when configured for 'Auto-Run Hot Restart'.

IEC-484 CTI internal issue

IEC-485 Corrected Profibus Statistics webpage to properly display 'Diagnostic Data Received' and 'Fail Safe' properties for all Profibus slaves.

IEC-559 CTI internal issue

IEC-567 CTI internal issue

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**Release: 2021-09-23**  
**Product Revision 6 / Firmware V1.20**

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Integrated Development Environment (IDE) Requirement: Janus Workbench V1.59 or later

**Enhancements:**

IEC-486 Upgrade controller runtime to Straton V10

IEC-489 Added Eclipse Public License V1.0 and Eclipse Distribution License V1.0 used in MQTT library to open-source license list on web server Acknowledgements page.

IEC-432 Added support for next series of Janus CPU models: 2500P-J750 (released 06/20), 2500P-J450, 2500C-J350, and 2500C-J750.

**Issues Resolved:**

IEC-304 Modify firmware to ensure core dumps are saved when Janus PAC is reset by the Linux watchdog timer.

IEC-389 Corrected issue where Configuration Reset intermittently failed to obtain IP address via DHCP. Increased number of retries to connect to DHCP server.

- IEC-444 Controller reports 'Unsupported File System' if SD card operation is triggered when a NTFS-formatted SD card is inserted into front panel slot.
- IEC-488 Properly display the entire 'Last Erroneous Packet Received' in CAMP Server webpage.
- IEC-502 Beta test for TCP/IP support for Zenon HMI driver (CTI internal use only)
- IEC-505 Corrected issue with two-channel data transfer between Janus PACs when both are configured as EIP Tag Client and EIP Tag Server.
- IEC-508 CAMP Server causes System Exception (Fatal Error) when invalid word code is received in CAMP command packet.
- IEC-509 CAMP Server response violates the CAMP specification when 'Address Class' of TT=00 is included in CAMP command. Corrected by always echoing received 'Address Class'.
- IEC-510 Corrected buffer overflow condition in Profibus driver by preventing access of invalid Slave Address.
- IEC-514 Corrected issue in Local I/O configuration that caused a Kernel Instruction Alignment Exception when setting the Local Base to 'unconfigured'.
- IEC-515 Corrected Profibus 'Configuration Structure Mismatch' error logged after each controller startup.
- IEC-520 CTI internal issue
- IEC-525 Modified Manufacturing Test process for manufacturing data file (internal use only)
- IEC-531 Corrected issue that intermittently reported 'Startup Mode Unavailable' (Error 085) on power-up even when battery is good.
- IEC-532 Corrected issue with EIP I/O Scanner toggling 'Connection Status' variables TRUE/FALSE if blank EIP Adapter IP address is entered in Level 1 configuration.  
NOTE: This condition still occurs if invalid EIP Adapter IP address is entered.
- IEC-533 Corrected issue with EIP Tag Client toggling 'General Status' and 'Extended Status' values when Tag Server response status is not OK.
- IEC-543 Corrected issue with EIP Tag Client 'General Status' and 'Extended Status'
- IEC-544 displaying incorrect values.  
NOTE: Workbench status variables report information for the associated tag and will not be overwritten by other tag status values. The EIP Tag Client Statistics webpage displays information on each EIP Server and status values will be overwritten when the next tag is accessed.
- IEC-547 Found problem with battery monitoring circuit incorrectly reporting 'Battery Low' and 'Battery Unavailable' errors and ESD failure on 15kv air gap to the front panel SD card. The fix includes component changes and will be corrected when Rev C hardware is released.
- IEC-549 Added code to force an Event Log message to be generated on each startup when an invalid battery status is detected.
- IEC-551 Issue with intermittent External SD card operation was found to be unsoldered pins on SD card holder. Improved manufacturing inspection/test procedures for this part.

**Janus Compact PAC:**

- IEC-534 Added code to ensure only firmware V1.20 and higher can be downloaded to Janus Compact models.
- IEC-538 Modified Janus Compact PAC firmware to advertise only 10/100 Mbit support for Network Ports C-D. Network Ports A-B support 10/100/1000 Mbit operation.

IEC-552 Changed manufacturing visual inspection process to detect solder issues with Janus Compact model battery holder, SD card holder, and front panel LEDs.

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**Release: 2021-06-02**  
**ECO#736**  
**Product Revision 5**

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Changed to an insulated battery cap to prevent ESD damage when discharging at the battery.

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**Release: 2021-04-29**  
**ECO#734**  
**Product Revision 4 / Firmware V1.14**

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Integrated Development Environment (IDE) Requirement: Janus Workbench V1.59 or later.

**Enhancements:**

- IEC-339 Improve PLC boot time and product security by removing serial port console and key repeat delay.
- IEC-425 Increase size limit for accessing single variable array to 2000 bytes for both EIP Tag Client and EIP Tag Server.
- IEC-438 Add capability to Read Local I/O Module Configuration from Janus Workbench when application running on Janus PAC does not include Local I/O configuration.
- IEC-457 Add 'Historical Data' item to web server menu that provides a means of displaying and/or saving statistical data from previous runs of Janus PAC. This provides a useful tool for operational analysis and debug since all other web server statistics are reset each time the power is cycled.

**Issues Resolved:**

General Operation

IEC-428 Modified format of 'cti.ini' file read from external SD card during 'SD Card Ethernet Port Setup' operation to simplify validation of Network Settings.

CTI Enhanced Data Cache

- IEC-202 Reduce processing times required for Data Cache driver 'open' and 'data exchange'.
- IEC-383 Add descriptions for the 'Connection Status' field on the Data Cache Client Statistics web page.
- IEC-421 'CTI Data Cache Client: Host PLC Link Inactive' (Error 490) not cleared when Ethernet connection to Host PLC is lost and restored.

Startup/Shutdown Operation

IEC-285 Modify Linux Watchdog Management to prevent truncating core dump following 'System Exception' error.

- IEC-409 Improve Power-On Reset (POR) monitor to handle power cycle events during startup to ensure shutdown operation can be complete.
- IEC-414 Error 330 during brownout testing.
- IEC-415 'Battery Low' error indication is intermittent even though battery voltage level is OK. Note: This provides additional software enhancements to support Janus PAC Rev 2 hardware fixes.
- IEC-418 'Specified Startup Mode Unavailable' (Error 085) reported after loss of power event.
- IEC-424 Note: Requires battery fixes included in Janus PAC Rev 2 hardware.
- IEC-462 Logic fault error when recovering from a power cycle
- IEC-436 PLC fails to boot after firmware update. Modified code to improve validation of boot.bin file during firmware update.

### CAMP Client/Server

- IEC-219 CAMP Server intermittently returns 'CAMP\_SERVER\_NOT\_ENABLED' (Error Code 0xBC). Corrected issue where CAMP Server stops accepting new connections after application using CAMP UDP Multicast messages is stopped and restarted without cycling power to PLC.
- IEC-411 Improve CAMP Server interface to improve access to REAL variables. CAMP Server now searches for requested memory addresses in all data blocks regardless of specified data type. If data block contains variable having different data type, the data format is automatically converted to the requested data type. For example, a CAMP Server receives a command to read a REAL number starting at V10. Memory addresses V10-V11 are mapped to INTEGER variables in a data block. The CAMP Server reads values of variables assigned to V10-V11, converts those values to 32-bit REAL number, and sends the reply.
- IEC-416 Some configurations of CAMP Server can cause an infinite loop and 'System Exception' error.
- IEC-480 CAMP Server should generate actual check codes (replacing '????') when replying to a CAMP command with embedded NITP messages. This error prevented the Progea HMI from communicating with Janus CAMP Server.
- IEC-483 CAMP Client 'Source' Port number displayed in 'Communications Sessions' web page does not match Port number in the Wireshark capture file. Converted Port number from network byte order to host byte order before storing information in communications history.
- IEC-491 CAMP Server does not return NAN when command received to read REAL number from an 'unmapped' memory address. This situation equates to reading an unconfigured memory address in 505/CTI 2500 Series PLC. Since REAL number in 505 system is stored in two consecutive 16-bit memory addresses, the Janus CAMP Server requires a variable to be assigned (or 'mapped') to both address positions in order to return the actual REAL number value. If either address position is unassigned, the REAL address is considered 'unmapped' and NAN (0x00FF7F80) is returned.

### Janus Ethernet/IP (EIP) Driver

- IEC-425 Add support for CIP Fragmented Messages to support Kepware Ethernet/IP driver to communicate with EIP Tag Server.

- IEC-504 Correct EIP Tag Server response handler to properly set Response Service Code (required by some EIP drivers to access variable data sizes greater than 500 bytes).
- IEC-490 Modify Ethernet/IP driver to support communications with Rockwell 1794-AENT (Ethernet/IP Adapter for FlexIO).
- IEC-503 Add statistical data counters for CIP Fragmented Messages to EIP Tag Client/Server statistics pages.

### Web Server and File Transfer Operations

- IEC-370 'Remote Firmware Update' web page displays error when selecting [Browser Reload] IEC-379 after update. Modified status info displayed during Remote Firmware Update operation and removed [Reload Current Page] button on Firmware Update web page. Note: The Firmware Update page can still be reloaded via the [Refresh] button or by re-selecting the 'Firmware Update' web server menu option.
- IEC-372 'Replicate System to External SD Card' operation creates an 'Internal' directory folder on SD card.
- IEC-386 Anomaly in front panel display during 'SD Card Ethernet Port Setup' if SD card is not installed before power-up.
- IEC-392 File copy operation is very slow and web page times out while copying large files to/from external SD card. Web server displays "An error occurred. Sorry, the page you are looking for is currently unavailable".
- IEC-394
- IEC-395 File copy fails for 'Upload to User Area' option when file name includes spaces.
- IEC-396 Erroneous 'Overwrite' warning incorrectly displayed on web page when selected file does not exist in specified destination folder
- IEC-443
- IEC-402 Illegal file copy operations (such as overwriting existing file with folder or existing folder with file) are not detected and incorrectly set Error 370.
- IEC-405 File Management 'Delete User Area Files' option does not delete sub-folders when selected.
- IEC-406 Improve file copy operation menus to clarify selection of files to be copied.
- IEC-408 Improve error reporting related to 'Front Panel SD Card Status'. Added code to distinguish between front panel SD card not accessible and SD card inserted but formatted with an unsupported file system (e.g. NTFS).
- IEC-410 Update JavaScript (jQuery) library to improve web server performance
- IEC-429 Add jQuery license to web server 'Acknowledgements' page.
- IEC-431 Added code to prevent PLC System Exception errors during file transfer operations. Change format for data from web page to PLC for improved performance.
- IEC-447 File copy operation incorrectly reports 'Success' when destination does not have sufficient free space.
- IEC-448 Incorrect status displayed if user navigates away from web page and then returns during file copy operation. Also fixed status reporting issues when multiple browsers are accessing the File Management web page at the same time.
- IEC-450 [Upload] button on 'Upload File from Computer' web page is disabled for all file transfer operations when front panel SD card was not accessible.
- IEC-455 'Delete User Area' operation reports incorrect status on web page.
- IEC-458 Add warning message to 'Upload File from Computer' web page to inform user that web page was kept open until file transfer is complete.
- IEC-463 Intermittent 'System Exception' error during 'Download Files to Computer' operation.

### Event Log

- IEC-341 Operational Event not logged when Ethernet Port 'Link Status' changes between 'Link Active' and 'Link Inactive'. Added 'Ethernet Link Status Change' Event that is logged each time Ethernet Port 'Link Status' changes.
- IEC-357 Event message not informative when PLC inserted in wrong slot in base. Added 'PLC Inserted in Wrong Slot' event that is logged if the Janus PAC is inserted in any slot other than 'Slot 0' and application includes Local I/O. Note: The Janus PAC will operate normally in any slot as long as the application is not configured to control Local I/O over the chassis backplane.
- IEC-393 Using NTP service to synchronize Real Time Clock causes incorrect time stamps in event messages logged during startup.
- IEC-417 Event Log 'Clear Events' operation takes excessive amount of time (8-10 seconds) to complete even with a small number of event messages.
- IEC-430 Event Log repetition counter not working correctly. Increased repetition interval from 1 minute to 20 minutes to prevent flooding the Event Log with the same event.
- IEC-442 Erroneous Ethernet Port 'Link Status' changes reported in Event Log. Changed Ethernet Link Status polling routine to use the SPI interface instead of the UIO FPGA register access.
- IEC-468 Improve Event Log reporting to always display events in order by update time (most recent event first). This includes events reported via repetition counter.
- IEC-495 Add Event message when 'Restore Factory Default' operation is triggered.

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**Release: 2020-04-12**  
**ECO#732**  
**Product Revision 3**  
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**Changes:**

Changes in PCB assembly to begin building the PCB at CTI Knoxville factory using new equipment capabilities. This is a manufacturability change only. There is no customer impact. 2500P-J750 changed to Revision 3.

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**Release: 2021-02-15**  
**Product Revision 2 / Firmware V1.13**  
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Integrated Development Environment (IDE) Requirement: Janus Workbench V1.59 or later  
 Product J750 released at 901B-2500P-JXXX Revision 2 with Firmware V1.13.

**Issues Resolved:**

- IEC-438: Excessive battery leakage current was causing the battery to discharge within 5-6 months. The fix includes changes to the circuit board and firmware.  
 Janus PAC Rev 2 hardware includes the circuit board fixes and should be used with Firmware V1.13 or later.  
 Firmware V1.13 is compatible with both Janus PAC Rev 1 and Rev 2 hardware.

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**Release: 2020-07-15**  
**Product Revision 1**

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Integrated Development Environment (IDE) Requirement: Janus Workbench V1.59 or later

**Changes:**

Changed PCB revision from "B" to "C" to eliminate rework items found during first production.  
Product J750 released at 901B-2500P-JXXX Revision 1

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**Release: 2020-05-06**  
**Product Revision 0 / Firmware V1.08**

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Integrated Development Environment (IDE) Requirement: Janus Workbench V1.59 or later  
Product J750 released at 901B-2500P-JXXX Revision 0 with Firmware V1.08.