Premium TSXETY5103 Firmware Release Notes

Schneider Electric

Exec Revision History

		Problem fixed / Enhancement	**Details**
V6.0	8/12/2015	• Upon bootup, the first write always fails with an error 12FF.	The write was attempted before the connection was complete and an error was returned. The NOE will not attempt a write until completion of the connection.
		• Java 8 issues	The problems with the signing applet were corrected.
V5.9	6/30/2014	• Cyber Security vulnerablities with FTP and HTTP	Cyber Security - Option added to prevent FTP/HTTP access
		• In HTTP using directory traversals an attacker can bypass the basic authentication mechanism. Security Alert - ICS-VU-529542	Checks have been put in so that this is no longer possible.
		• Web page issue with Java Version 1.7. Files did not have security signature. The Java dialog box provides a warning indicating that this is a unsigned application. See Web Designer Release Notes	The files all have been properly signed.
V5.8	12/15/2013	• An NTP request causes the Server service to crash. The Client resets the connection and opens a new one resulting in Server service to begin normal operation until next NTP request.	The call to NTP was corrected with no effect on the Server task.
V5.7	11/7/2013	• SNMP webFailedAttempsts(1.3.6.1.4.1.3833.1.5.4) and webSuccessfulAccess (1.3.6.1.4.1.3833.1.5.4) do not increment	The MIB and MIG agent have been corrected.

		• Unity allows the user to select the checkbox for 'Automatically adjust clock for Daylight Savings change.' When Daylight Savings Time (DST) was selected for for New Zealand, the clock did not get adjusted.	The DST date was corrected for New Zealand.
V5.6	**3/1/2013**	**Problem fixed / Enhancement**	**Details**
		• Standalone will not start if no link is present on Monitored ETY at start. CPU goes to off line when it realizes it does not have link. This is correct but after the link comes up it will never go on line until it is power cycled again with the switch up first.	A flag was added to check link status on bootup. This corrected the improper behavior
		• Each line of an I/O scanner issues its own ARP prior to establishing a connection. This can cause excessive traffic for a router or gateway.	The I/O scanner will issue an ARP for each IP address rather than for each line of the scanner. This will eliminate multiple ARPs to the same device.
V5.5	**9/1/2013**	**Problem fixed / Enhancement**	**Details**
		• If you entered a new password as 17 characters in the http password web page, the NOE returned a page saying that the password change was successful. When you try to use the new password, it fails.	The password field was corrected to limit the user to 16 characters.
		• Two copies of FDR .prm files should be created in both RAM and FLASH. The FLASH version of the PRM files in the patch is not created.	A more specific string comparing function was used allowing specifying number of bytes to compare. The FLASH files are now created.
	Enhancement	• Increase performance with serial gateways. Serial gateways are slower to respond that ordinary devices.	Enhanced to work more efficiently with gateways. There is now an option in Unity 7 to enable a different retransmission algorithm for gateways.
		• Response to ICS-ALERT-12-020-03. The NOE is vulnerable to HTTP server buffer overflows.An Http GET request with too-long filename causes overflow, device crash.	The Get Request will be rejected if the number of characters is excessive.

		• Security issues with this device Cyber Security changes required. 1) Remove Telnet service 2) Remove Wind River debug service port 3) Remove unused logins/passwords from firmware	Removed Telnet, Wind River debug, and user login/password services.

V5.2	12/11/2011	**Problem fixed / Enhancement**	**Details**
		• Downloading via Ethernet using Unity 6.0, under some conditions, Unity returns an error, '*Send message action failed. PLC is busy or request is invalid*' error.	The handling of new downloaded configurations in the device have been resolved to prevent Unity Pro TCP disconnections when updating the controller through the Ethernet module IP address.
		• Fix for loss of web connection. Repeated access to the diagnostic statistics web page causes web server connection to break.	Corrected a race condition that lead to a endless loop.
		• I/O Scanning using a specific combination of Repitition Rate and Health Timeout was not supported. The combination of a 30ms repetition rate and 50ms Health Timeout leads to triggering Health Timeout in less than 50ms. This is due to a slight delay in the CPU while it is handling FDR synchronization.	The priority of the task controlling the Health timeout was raised eliminating the problem.
		• I/O Scanner operation does not always trigger fast retransmission in target device. Fast Retransmission is triggered by three KEEP ALIVE messages. Under some circumstances, only two would be issued.	The ETY will now issue three KEEP ALIVE messages in order to insure that the target device will follow the fast retransmission algorithm.

V5.0	5/11/2011	**Problem fixed / Enhancement**	**Details**

		Special Note This ETY5103 v5.0 is a premium hot-standby only release to support the multirack feature. The minimum Hot-standby firmware versions to support multirack are:
		  - ETY5103 V5.0
		  - CPU V2.83
		  - CoPro V2.81	

• Enhancements and fixes to resolve *synchronous* Power cycle issues in Hot-Standby systems.
(*Simultaneously powering off/on both system A and B*)
  - The monitored ETY RUN and STS LED's blinking during synchronous power cycles
  - The monitored ETY I/O scanner enters a faulted condition during synchronous power cycles
  - The hot-standby system remains in Offline/Offline condition during synchronous power cycles

There were various bug fixes relating to improper management of the HSBY Status of the local CPU and remote ETY during the boot sequence of the ETY. These were identified during extensive power cycle testing.

• Enhancements and fixes to resolve *asynchronous* Power cycle issues in Hot-Standby systems.
(*Power OFF/ON Primary System only*)
  - The I/O scanner service of the monitored ETY enters a fault condition during asynchronous power cycles
  - The hot-standby system swaps abnormally after stopping asynchronous power cycle cut test
  - The hot-standby system remains in Primary/Offline mode during asynchronous power cycles
  - The non-monitored ETY crashed with both RUN and STS LEDs blinking during asynchronous power cycles
  - The Modbus server (port 502) of the non-monitored ETY is not available during asynchronous power cycles

Resolved memory management issues which, at times, caused improper protection of shared memory between tasks. This sometimes initiates exceptions to occur causing a crash. Resolved backplane interrupt handler issues during boot up and swap sequence which affected the Modbus Server.

• Enhancements and fixes to resolve both CPU and Ethernet cable disconnect/reconnect issues.
  - The monitored ETY module errors after disconnecting the hot-standby CPU sync link cable and a COLD start (push reset button on CPU) on Standby CPU
  - The monitored ETY doesn't start (all LEDs off) when powered on with ETY Ethernet cable disconnected
  - Both hot-standby CPU's act as Primary during disconnection of hot-standby CPU sync link cable and power cycle of the Standby system
  - The non-monitored ETY remains in error after disconnect/reconnect of monitored ETY Ethernet cable
  - The monitored ETY reboots after disconnecting hot-standby CPU sync link cable
  - The Primary and Standby systems swap when removing the hot-standby CPU sync link cable

Improved: ·
  - ETY-to-ETY data exchange mechanism.
  - Management of link status in the monitored ETY.
  - Server response time for servicing an explicit request
    (Example: Read_VAR, Write_VAR, etc.)

	• With a Stand-alone hot-standby system (single Primary system only), stopping the CPU causes the Unity Programming connection to disconnect. • The CPU communications fails when connecting via TCP/IP and opening ETY web page debug screen on the monitored ETY. • The IP address of the monitored ETY within standby system reports IP address in ETY debug screen (should report IP+1). • Under continuous excessive traffic conditions, the Modbus port502 server of the monitored ETY may become inoperable. • After an online modification is made to a hot-standby system, the hot-standby system enters Primary/Offline condition. • Both system A and B CPU's act as Primary after removing the Primary PCMCIA card from CPU. • ETY IO scanner service sometimes not operational after application download via CPU USB port.	Resolved: - IP status that was incorrectly returned from the ETY. - Improved Modbus server connection management.
Information	• Integration of new Flash Memory component causes restriction of Exec firmware versions in ETY5103 only. (*Information only. No action required*)	Obsolescence of the current flash memory device in the ETY requires a new replacement flash memory component. ETY5103's manufactured with this new component also requires the Exec firmware to be modified. This condition now restricts backward compatibility of downloading old firmware versions into new ETY's. These limitations are described as follows: -ETY5103's Less than or equal to PV09 are compatible with all ETY Exec versions -ETY5103's Greater than or equal to PV10 are only compatible with ETY Exec versions 4.9 and higher.

V4.9	**12/20/2010**	**Problem fixed / Enhancement**	**Details**
		Special Note For Premium Hotstandby customers: ETY5103 firmware v4.9 is only intended for use with CPU (TSXH57xxM) OS v2.5	

Problem fixed / Enhancement	Details

• I/O scanner not scanning at configured rep-rate.
  - The I/O Scanner may not operate at the configured Rep Rate if its configured rate is greater than 1 second.
  - If the Rep Rate is configured for a value of 5 msec, the actual rep rate will vary between 1ms and the configured rate of 5 msec.
	Modified I/O Scanner task priorities. The Rep rate is correct.

• Function code 23 not supported in server mode	The ETY will now respond to FC23 requests with a FC23 response which will decrease the response time from the PLC.
• TSXETY5103 will lockup if another device on the network is present at ip address 192.168.2.1	Suppressed ARPing for IP address 192.168.2.1 at bootup
• I/O scanning can take 4-6 seconds to start after a Hot Standby swapover	After a HSBY swap, the number of retries were reduced and the RST algorithm was modified so client connections would close quicker.
• Sometimes after power cycling a TesysPort, the respective I/O Scanner health bits in the ETY changes to a state value of zero (0) and never changes back to a value of one (1) after power is re-applied to the TesysPort.	If a response is not received within 3x times the configured health timeout, then the IO scanner connection is re-initialized.
• If the device being IO scanned has a slow response time (110-120ms), then the IO scanner will not be able to open a connection.	Round Trip time algorithm for retransmission was corrected.

V4.8	5/1/2010	Problem fixed / Enhancement	Details
		• An ETY5103 will not go into run mode if the link is not established on an operational network.	The issue was resolved by increasing the size of the status buffer.

• If an I/O Scanner is configured for 'Hold Last Value' in a Premium HSBY system, the ETY5103 I/O scanner did not always hold the last value on a swap over. The PLC will sometimes read I/O scanner information in the middle of the ETY I/O scanner update. Therefore, only the health has been updated while the data is still in the process of being updated

The issue was resolved in the ETY firmware by writing the data first and then setting the health values.

• I/O Scanning to devices with varying response times may stop if it receives a reset (RST) from the device. If a RST is received by the ETY on a connection it can cause the I/O Scanner entry to stop communicating.

The firmware was changed so that when the ETY5103 receives a RST from the server on an established connection, it closes the existing connection and tries to establish a new connection on a different port.

• I/O Scanning client stops communicating when a gateway device (i.e, TesysT, Exemys, Emerson Fieldbus Gateway) loses a packet. The loss of a packet results in a packet with an incorrect sequence number, thus stopping communications.

ETY I/O Scanning a gateway. The gateway may occasionally drop a packet (query). The gateway waits a period of time, and then re-transmits the previous response. The ETY ACKs the response and continues ACKing (set of 6), based on the round trip time, but never retransmits the query. In the code, the timer responsible for the retransmission was canceled thus stopping the retransmission from triggering. The code to cancel the retransmit timer was modified.

• The following conditions will cause a 921 Crash code:
 1. The CPU sends an incorrect Modbus response message to the ETY.
 2. The CPU sends an invalid packet across the Premium backplane to the ETY.
 3. The ETY will reset if it detects that a new Modbus message received from a device on the network contains the same Modbus message transaction ID as a message already being processed within its internal buffers.

Changes have been incorporated into the CPU and the ETY to enhance the communications between the modules across the backplane. In the event that one of these conditions occurs, the ETY will discard the incorrect or invalid message and continue to operate without resetting.

• ETY5103 can take up to 25 seconds to close a connection.The ETY sends a set of 6 ACKS or Keep-alives followed by a RST. This can take up to 25 seconds before the connection is closed and allowing a new one to open.
In the code, the timer responsible for the retransmission was canceled thus stopping the retransmission from triggering.

The code to cancel the retransmit timer was modified.