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SIGNATURES

|  |  |  |  |  |  |  |
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Revision History

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Rev.** |  | **Date** |  | **Initials** |  | **Description** |
| 0.1 |  | 06-FEB-2019 |  | DAT |  | Initial creation from 15000317 DII CONDOR Interface Protocol Verification Rev A |
| 0.2 |  | 08-APR-2019 |  | MAJ |  | Updates after review and execution |
| 0.3 |  | 15-APR-2019 |  | DAT |  | Addition of serial number testing and updates after dry run |
| 0.4 |  | 19-APR-2019 |  | DAT |  | Additional Remote Control Testing |
| 0.5 |  | 22-APR-2019 |  | DAT |  | Updates after review |
| 0.6 |  | 25-APR-2019 |  | DAT |  | Updates after execution |
| 0.7 |  | 03-MAY-2019 |  | DAT |  | Add Sagittal Saw test, Update title |
| 0.8 |  | 12-JUL-2019 |  | DAT |  | Update INITELLIO Link Version to be version under test |
| 0.9 |  | 26-AUG-2019 |  | DAT |  | Update communication setup |
| 1.0 |  | 28-AUG-2019 |  | DAT |  | Removed use of testing using prototype tablet for verification. |
| A |  | 26-SEP-2019 |  | DAT |  | Updated to Revision A |

Glossary

CD = Command Data portion of a message

CMD = Command

CS = Checksum an 8 bit hexadecimal value equal to the 2’s complement of the sum of n bytes bit anded with 0xFF i.e. CS= ((~(Sum(X1..Xn) + 1) & 0xFF)

DII = Reference in tests for DYONICS POWER II Control Unit

LTC = Reference in tests for Linux Test Computer running console application

MDU = Motor Drive Unit

MEB = Message End Byte, the last byte of a message

Powered Instrument = Saw or Drill

Console application = ***BDM Emulation Software***

References

15007915 DYONICS POWER II INTELLIO Link Interface Protocol

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Equipment required for verification

| **Description** | **Reference Number** | **Serial Number** | **Software Version** |
| --- | --- | --- | --- |
| DYONICS POWER II Control Unit | 72200873 |  |  |
| DYONICS POWER II Footswitch | 72201092 |  |  |
| DYONICS POWERMAX™ ELITE Handpiece | 72200616 |  |  |
| POWERMINI™ Small Joint Handpiece | 72201500 |  |  |
| POWERMINI™ Small Joint Handpiece without Hand Controls | 72201503 |  |  |
| DYONICS Mini-Motor Handpiece | 7205357 |  |  |
| DYONICS POWER Pistol Grip Drill &  Power Cable | 7205785  7205788 |  |  |
| DYONICS POWER Inline Sagittal Saw &  Power Cable | 7205786  7205788 |  |  |
| Blade Simulator | 2052919 |  |  |
| Small Joint MDU Blade Simulator | 20600889 |  |  |
| DYONICS 25 Fluid Management Control Unit | 7211010 |  |  |
| DYONICS 25 Inflow/Outflow Tube Set, single suction | 7211005 |  |  |
| Shaver Interface Cable | 91000268 |  |  |

Additional Test Equipment

|  |  |  |  |
| --- | --- | --- | --- |
| **Description** | **Model Number** | **Operating System** | **Program and Version** |
| Personal Computer |  |  |  |
| Sniffer Computer (May be same as above) |  |  |  |
| RS-232 Sniffer |  |  |  |

# Overview

The purpose of this document is to verify the DYONICS POWER II Control Unit support for the DYONICS POWER II INTELLIO Link Protocol through the following:

* + Show the traceability of the verification procedures against the DYONICS POWER II INTELLIO Link Protocol
  + Provide a summary of the Verification procedures
  + Provide a summary of the Verification results
  + Provide a link to more detailed internal engineering verification reports when required

Verification is defined as the process by which the design output meets the design input requirements. The results of the design verification, including identification of the design, method(s), the date, and the individual(s) performing the verification, shall be documented in the DHF. Design verification shall be traceable to product specifications.

Verification is traceable by reference to section number in the following functional requirement and specification documents:

DYONICS POWER II INTELLIO Link Protocol – Document # 15007915

# DYONICS POWER II-INTELLIO Link Protocol Verification

The verification of requirements for the DYONICS POWER II-INTELLIO Link Protocol covers Device Discovery, Heart Beat, Port Status, Setting Device Specific Information, Lavage Trigger, SCD Command Functions, Getting and Setting Configuration Data, and Serial Number data.

## General Instructions

To setup for the DYONICS POWER II-INTELLIO Link Protocol verification:

Ensure that only the power cable is connected to the DYONICS POWER II.

Power On the DYONICS POWER II.

Set the DYONICS POWER II to default mode by executing the button sequence on the DII of   
Settings > System Information > System Reset > Yes > Done > Done

On the INTELLIO Link set the switch above the serial port to the right.

Power on the INTELLIO LINK.

Connect the RS 232 sniffer monitoring cable to a Personal Computer (PC) running the Sniffer software.

Start a Terminal Monitoring application on the Sniffer Computer. Configure the application for 115200 baud, 8N1 (8 bit data, no parity, 1 stop bit)

Connect an RS 232 serial cable from the RS 232 Serial Sniffer to the DYONICS POWER II INTELLIO Link.

Connect a USB cable from the INTELLIO LINK to a PC.

On the PC open Device Manager and Select Ports (COM & LPT)

Record the COM Port assigned to Silicon Labs CP210x USB to UART Bridge(COMx) x =\_\_\_\_\_\_\_

Start a second Terminal Session on the PC.

Set the Terminal the COM Port assigned to Silicon Labs, Baud 115200, Data Bits 8, Stop Bits 1, Parity None, Flow Control None.

To Open a console window on the INTELLIO Link.

Login as root no password.

Change the directory to sn, cd /sn

Execute runbdm

Unless otherwise indicated record values from the serial string in the form of a single or series of 2 digit Hexadecimal numbers from 00 through FF.

All time measurements are to be recorded as decimal values.

The INTELLIO Link application first verifies that the SHAVER is hooked up by sending it a Discovery Request Message (DR\_MSG). If no DYONICS II shaver is found, it loops waiting for a shaver to be connected. Pressing any key at this point will quit the application. If a DYONICS II shaver is found, it periodically pings the shaver with SRV\_UPD requests, and updates the console screen with its interpretation of the INTELLIO Link packets emitted by the shaver, by scrolling the screen and displaying new information. Although the emulator console looks different, it does contain the same logical information as the shaver display.

The following table lists LTC commands that can be asynchronously typed into the console window to emulate key presses from INTELLIO Link. Each command causes a the INTELLIO Link (BDM) to send a command to the Shaver Control Device (SCD). Refer to section 2.8 in this document for test details.

|  |  |
| --- | --- |
| LTC Command | Effect |
| 6 | BDM sends GET\_PORT\_STATUS\_MSG |
| 7 | BDM sends SCD\_CMD\_MSG with the SCD\_CMD cycles through values 1 through 8 |
| 8 | BDM sends CONFIGURATION\_GET\_MSG\_PKT to initiate getting the Blob from the SCD to the BDM |
| 9 | BDM send the CONFIGURATION\_SET\_MSG\_PKT to initiate sending the Blob from the BDM to the SCD |
| q | Quit – exit the program |

## Device Connect

| **Trace to Section Number** | **Procedure** | **Expected Results** | **Actual Results**  **or “SAME”** | **Pass / Fail** |
| --- | --- | --- | --- | --- |
| 4.1 – 4.5, 6 | After completion of setup per 2.1.  Observe serial communication settings. | The terminal application is able to interpret the sniffer output when configured as  Baud Rate 115200,  Data Bits 8,  Parity None,  Stop Bits 1. |  | P / F |
| Start a serial capture of message data | The INTELLIO Link transmits the Discovery Request message (DR\_MSG).  The message is 6 bytes long.  PID 35,  CMD 31,  RN > 80,  LEN 01,  CD <Version Number>,  CS Checksum (PID through CD),  MEB FC | DR\_MSG  PID = \_\_\_\_\_\_\_\_\_\_\_\_  CMD = \_\_\_\_\_\_\_\_\_\_\_\_  RN = \_\_\_\_\_\_\_\_\_\_\_\_  LEN = \_\_\_\_\_\_\_\_\_\_\_\_  CD = \_\_\_\_\_\_\_\_\_\_\_\_  CS = \_\_\_\_\_\_\_\_\_\_\_\_  MEB = \_\_\_\_\_\_\_\_\_\_\_\_ | P / F |
| The INTELLIO Link repeatedly resends the Discovery Request message in a maximum interval of 100-125 ms | Interval \_\_\_\_\_\_ to \_\_\_\_\_ ms | P / F |
| Examine 10 RN values. All RN values are within the range of 81 and FF. | RN = \_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_ | P / F |
| The INTELLIO Link only resends the Discovery Message, no other messages are sent at this time. |  | P / F |
| Disconnect the RS 232 cable from the INTELLIO Link and connect the RS 232 Sniffer to the DII’s CONDOR Serial Connector. | The DII does not attempt to send any messages since it is waiting for a Discovery Request from the INTELLIO Link. |  | P / F |
| The INTELLIO Link Icon does not appear on the DYONICS II display. |  | P / F |
| Start a serial capture. Reconnect the RS 232 cable to the INTELLIO Link. Review the serial capture data. | After connection the DII responds to the INTELLIO Link Discovery Request Message with the Discovery Request Reply message (DR\_MSG\_RPLY)  PID 53,  CMD 31,  RN (DR\_MSG RN – 80 ),  LEN 04,  CD <Version Number>, 01, 01, 01,  CS Checksum (PID through CD),  MEB FC. | DR\_MSG\_RPLY  PID = \_\_\_\_\_\_\_\_\_\_\_\_  CMD = \_\_\_\_\_\_\_\_\_\_\_\_  RN = \_\_\_\_\_\_\_\_\_\_\_\_  LEN = \_\_\_\_\_\_\_\_\_\_\_\_  CD = \_\_\_, \_\_\_\_, \_\_\_, \_\_\_\_  CS = \_\_\_\_\_\_\_\_\_\_\_\_  MEB = \_\_\_\_\_\_\_\_\_\_\_\_ | P / F |
| The recorded Version Number matches the version under test. |  | P / F |
| 8.1 |  | The DII sends a Port Status Message (PORT\_STATUS\_MSG) to the INTELLIO Link  PID 53,  CMD 33,  RN > 80,  LEN 06,  CD XX, XX, XX, XX, 00, 18  CS Checksum (PID through CD),  MEB FC. | PORT\_STATUS\_MSG  PID = \_\_\_\_\_\_\_\_\_\_\_\_  CMD = \_\_\_\_\_\_\_\_\_\_\_\_  RN = \_\_\_\_\_\_\_\_\_\_\_\_  LEN = \_\_\_\_\_\_\_\_\_\_\_\_  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6  CS = \_\_\_\_\_\_\_\_\_\_\_\_  MEB = \_\_\_\_\_\_\_\_\_\_\_\_ | P / F |
| 8.2 |  | After reception of the Port Status Message the INTELLIO Link sends a Port Status Message Reply message (PORT\_STATUS\_MSG\_RPLY).  PID 35,  CMD 33,  RN (PORT\_STATUS\_MSG RN – 80),  LEN 01,  CD 00,  CS Checksum (PID through CD),  MEB FC. | PORT\_STATUS\_MSG\_RPLY  PID = \_\_\_\_\_\_\_\_\_\_\_\_  CMD = \_\_\_\_\_\_\_\_\_\_\_\_  RN = \_\_\_\_\_\_\_\_\_\_\_  LEN = \_\_\_\_\_\_\_\_\_\_\_\_  CD = \_\_\_\_\_\_\_\_\_\_\_\_  CS = \_\_\_\_\_\_\_\_\_\_\_\_  MEB = \_\_\_\_\_\_\_\_\_\_\_\_ | P / F |
| 15 |  | The DII sends a SN\_MSG (CMD=3A)  LN -> 0C  The COMMAND DATA consists of 11 character Serial number starting with 41,41,58  The last byte of the COMMAND DATA is 00 | SN\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6,  \_\_\_\_7, \_\_\_\_8, \_\_\_\_9,  \_\_\_\_10, \_\_\_\_11, \_\_\_\_12, | P / F |
|  |  | The INTELLIO Link responds with a SN\_MSG\_RPLY(CMD=3A)  LN -> 01  CD -> 00 |  | P / F |
|  |  | The DII sends a SN\_MSG (CMD=3A)  LN -> 0C  CD -> 00, 00, 00, 00, 00, 00, 00, 00, 00, 00, 00, 01 |  | P / F |
|  |  | The INTELLIO Link responds with a SN\_MSG\_RPLY(CMD=3A)  LN -> 01  CD -> 00 |  | P / F |
|  |  | The DII sends a SN\_MSG (CMD=3A)  LN -> 0C  CD -> 00, 00, 00, 00, 00, 00, 00, 00, 00, 00, 00, 02 |  | P / F |
| 7.1 |  | After reception of the Discovery Request Reply message the INTELLIO Link initiates sending the Heart Beat Status message (HB\_MSG).  PID 35,  CMD 32,  RN > 80,  LEN 01,  CD 00,  CS Checksum (PID through CD),  MEB FC. | HB\_MSG  PID = \_\_\_\_\_\_\_\_\_\_\_\_  CMD = \_\_\_\_\_\_\_\_\_\_\_\_  RN = \_\_\_\_\_\_\_\_\_\_\_\_  LEN = \_\_\_\_\_\_\_\_\_\_\_\_  CD = \_\_\_\_\_\_\_\_\_\_\_\_  CS = \_\_\_\_\_\_\_\_\_\_\_\_  MEB = \_\_\_\_\_\_\_\_\_\_\_\_ | P / F |
| 7.2 |  | The DII responds to the INTELLIO Link Heart Beat Status message with the Heart Beat Status Reply message (HB\_MSG\_RPLY)  PID 53,  CMD 32,  RN (HB\_MSG RN – 80 )  LEN 01,  CD 01,  CS Checksum (PID through CD),  MEB FC. | HB\_MSG\_RPLY  PID = \_\_\_\_\_\_\_\_\_\_\_\_  CMD = \_\_\_\_\_\_\_\_\_\_\_\_  RN = \_\_\_\_\_\_\_\_\_\_\_\_  LEN = \_\_\_\_\_\_\_\_\_\_\_\_  CD = \_\_\_\_\_\_\_\_\_\_\_\_  CS = \_\_\_\_\_\_\_\_\_\_\_\_  MEB = \_\_\_\_\_\_\_\_\_\_\_\_ | P / F |
|  |  | The INTELLIO Link Icon appears on the DYONICS II display. |  | P / F |

## Device Disconnect

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Trace to Section Number** | **Procedure** | **Expected Results** | **Actual Results**  **or SAME** | **Pass / Fail** |
| 7.1, 7.2 | Ensure the DII is in default mode by executing this button sequence on the DII:  Settings-System Information-System Reset-Yes-Done-Done. |  |  |  |
| Connect the DII and the INTELLIO Link through the RS232 Serial and RS 232 sniffer. Complete a device connect sequence and then start a serial capture. Capture several seconds of data and then review the serial capture log. | The data shows a series of HB\_MSG from the INTELLIO Link with matching replies of HB\_MSG\_RPLY from the DII.  The Interval between each message pair is nominally 100ms and is less than 125ms.  The RN value increments by 1 with each message pair. | Max Interval \_\_\_\_\_ ms | P / F |
| 7.1 | Start a serial capture. Disconnect the DII from the RS 232 sniffer. Capture several seconds of data after the disconnecting the DII. | The INTELLIO Link continues to send the HB\_MSG every at the 100ms nominal interval after the DII stops responding to the HB\_MSG. | Max Interval \_\_\_\_\_ ms | P / F |
| Within 1 second of the first missed DII reply the INTELLIO Link suspends periodic retransmission of the HB\_MSG. |  | P / F |
| The INTELLIO Link reverts to sending the DR\_MSG at a nominal 100ms interval. | Max Interval \_\_\_\_\_ ms | P / F |
| The INTELLIO Link Icon disappears from the DYONICS II display. |  | P / F |

## Device Reconnect

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Trace to Requirement** | **Procedure** | **Expected Results** | **Actual Results**  **or SAME** | **Pass / Fail** |
| 6 | Disconnect the RS 232 sniffer from the DII and connect the RS 232 cable between the INTELLIO Link and the sniffer.  Start a serial capture, reconnect the DII to the RS 232 sniffer. Capture several seconds of data and then review the serial capture log. | Prior to the reconnection of the DII the INTELLIO Link is repeatedly resending the DR\_MSG at a nominal 100ms interval. No other messages appear in the log. | Max Interval \_\_\_\_\_ ms | P / F |
| The first message from the DII is the DR\_MSG\_RPLY. The message contains the following parameter values  CD <Version Number>, 01, 01, 01 | DR\_MSG\_RPLY  CD = \_\_\_1, \_\_\_2, \_\_\_3, \_\_\_4 | P / F |
| The recorded Version Number matches the version under test. |  | P / F |
| 8.1 8.2 | The DII sends a PORT\_STATUS\_MSG (CMD = 33) and the INTELLIO Link responds with a PORT\_STATUS\_RPLY\_MSG | PORT\_STATUS\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6, | P / F |
| 15 | The DII sends a SN\_MSG (CMD=3A)  LN -> 0C  The COMMAND DATA consists of 11 character Serial number starting with 41,41,58  The last byte of the COMMAND DATA is 00 | SN\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6,  \_\_\_\_7, \_\_\_\_8, \_\_\_\_9,  \_\_\_\_10, \_\_\_\_11, \_\_\_\_12, | P / F |
| The INTELLIO Link responds with a SN\_MSG\_RPLY(CMD=3A)  LN -> 01  CD -> 00 |  | P / F |
| The DII sends a SN\_MSG (CMD=3A)  LN -> 0C  CD -> 00, 00, 00, 00, 00, 00, 00, 00, 00, 00, 00, 01 |  | P / F |
| The INTELLIO Link responds with a SN\_MSG\_RPLY(CMD=3A)  LN -> 01  CD -> 00 |  | P / F |
| The DII sends a SN\_MSG (CMD=3A)  LN -> 0C  CD -> 00, 00, 00, 00, 00, 00, 00, 00, 00, 00, 00, 02 |  | P / F |
| The INTELLIO Link responds with a SN\_MSG\_RPLY(CMD=3A)  LN -> 01  CD -> 00 |  | P / F |
| 7.1 7.2 | After receiving the DR\_MSG\_RPLY the INTELLIO Link stops sending the DR\_MSG |  | P / F |
| INTELLIO Link resumes sending the HB\_MSG at the 100ms nominal interval and is less than 125ms. | Max Interval \_\_\_\_\_ ms | P / F |
| The DII sends a HB\_MSG\_RPLY to each HB\_MSG |  | P / F |
| The INTELLIO Link Icon reappears on the DYONICS II display. |  | P / F |

## Port Status

| **Trace to Section Number** | **Procedure** | **Expected Results** | **Actual Results**  **or SAME** | **Pass / Fail** |
| --- | --- | --- | --- | --- |
| 8.2 | Disconnect any accessories from the DII Front Panel. Ensure that the Port window is displayed on the DII.  Start a serial capture.  Connect the RS 232 serial capture and RS 232 cable between the DII and INTELLIO Link.  Connect a PowerMax Elite MDU to Port A  Stop the serial capture and review the log. | The DII sends a PORT\_STATUS\_MSG (CMD = 33) to the INTELLIO Link when the MDU is attached.  The PORT\_A\_DISPLAY and PORT\_A\_SPEED\_RUN values (CD 1 and 2) are updated to reflect the insertion of the MDU. | PORT\_STATUS\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6, | P / F |
| The PORT\_B\_SPEED\_RUN, PORT\_A\_B\_ERR\_WARN, and SETTINGS\_POPUPS values (CD 4, 5; and 6) are not changed by the insertion of the MDU |  | P / F |
| 8.1 | On the DII ensure Port A is in Oscillate Mode 1 RPM, use the DII △ Mode button to select Mode 1 if needed.  Start a serial capture.  Use the DII front panel to adjust the MDU Set Speed to 500, 600, 1500, 2900 and 3000.  Stop the capture and review the serial data | The PORT\_A\_SPEED\_RUN byte transmitted to the INTELLIO Link for Port A corresponds to the MDU Running with a Set Speed:  RPM HEX  500 05  600 06  1500 0F  2900 1D  3000 1E | PORT\_A\_SPEED\_RUN value at RPM  500 - \_\_\_\_\_\_,  600 - \_\_\_\_\_\_,  1500 - \_\_\_\_\_\_,  2900 - \_\_\_\_\_\_,  3000 – \_\_\_\_\_\_, | P / F |
| The PORT\_A\_DISPLAY byte transmitted to the INTELLIO Link for Port A reports  Port A Units RPM,  Port A Blade Medium Speed,  Port A Mode Oscillate Mode 1  Set Speed:  RPM Up Arrow Down Arrow Hex  500 Enabled Disabled 65  600 Enabled Enabled E5  1500 Enabled Enabled E5  2900 Enabled Enabled E5  3000 Disabled Enabled A5 | PORT\_A\_DISPLAY value at  RPM  500 - \_\_\_\_\_\_,  600 -\_\_\_\_\_\_,  1500 - \_\_\_\_\_\_,  2900 - \_\_\_\_\_\_,  3000 – \_\_\_\_\_\_, | P / F |
| The DII sends at least one PORT\_STATUS\_MSG (CMD = 33) for each Set Speed adjustment. |  | P / F |
| The INTELLIO Link responds to each PORT\_STATUS\_MSG with a PORT\_STATUS\_MSG\_RPLY |  | P / F |
| PORT\_A\_B\_ERR\_WARN indicate that there are no warnings or errors. | PORT\_A\_B\_ERR\_WARN value  \_\_\_\_\_\_, | P / F |
| Use the 3K CURVED blade simulator  Start a Serial Capture.  On the DII use the △ Mode Button to select Mode 2. | The PORT\_A\_DISPLAY byte transmitted to the INTELLIO Link for Port A reports  Port A Units RATE,  Port A Blade Low Speed,  Port A Mode Oscillate Mode 2  Set Speed:  RATE Up Arrow Down Arrow Hex  8 Disabled Enabled B2 | PORT\_A\_DISPLAY value at  RATE  8 - \_\_\_\_\_\_, | P / F |
| Use the DII Port A Arrow Buttons to decrease the Set Speed to 1 and then raise it back to 8. | The PORT\_A\_SPEED\_RUN byte transmitted to the INTELLIO Link for Port A corresponds to the MDU Running with a Set Speed:  RATE HEX  1 01  2 02  7 07  8 08 | PORT\_A\_SPEED\_RUN  RATE  1 - \_\_\_\_\_\_,  2 - \_\_\_\_\_\_,  7 - \_\_\_\_\_\_,  8 - \_\_\_\_\_\_, | P / F |
|  | The PORT\_A\_DISPLAY byte transmitted to the INTELLIO Link for Port A reports  Port A Units RATE  Port A Blade Low Speed  Port A Mode Oscillate Mode 2  Set Speed:  RATE Up Arrow Down Arrow Hex  1 Enabled Disabled 72  2 Enabled Enabled F2  7 Enabled Enabled F2  8 Disabled Enabled B2 | PORT\_A\_DISPLAY value at  RATE  1 - \_\_\_\_\_\_,  2 - \_\_\_\_\_\_,  7 - \_\_\_\_\_\_,  8 - \_\_\_\_\_\_, | P / F |
|  | PORT\_A\_B\_ERR\_WARN indicate that there are no warnings or errors. | PORT\_A\_B\_ERR\_WARN value  \_\_\_\_\_\_, | P / F |
| Press the Forward Button on the MDU twice to start and stop the MDU. | The PORT\_A\_DISPLAY byte (CD 1)transmitted to the INTELLIO Link for Port A reports  Port A Units RPM  Port A Blade Low Speed  Port A Mode Forward  Port A Up Arrow Enabled  Port A Down Arrow Enabled | PORT\_STATUS\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6, | P / F |
|  | The PORT\_A\_SPEED\_RUN byte transmitted to the INTELLIO Link for Port A corresponds to the MDU stopped with Set Speed matching the DII Display. | PORT\_A\_SPEED\_RUN value at  RPM = \_\_\_\_\_\_\_, \_\_\_\_\_\_\_ | P / F |
| Start a serial capture.  Remove the Blade Tool from the MDU and insert the 8K BURR Blade.  Review the serial log | The PORT\_A\_DISPLAY byte (CD 1) transmitted to the INTELLIO Link for Port A reports  Port A Units RPM  Port A Blade High Speed  Port A Mode Forward  Port A Up Arrow Enabled  Port A Down Arrow Enabled. | PORT\_STATUS\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6, | P / F |
|  | The PORT\_A\_SPEED\_RUN byte transmitted to the INTELLIO Link for Port A corresponds to the MDU stopped with Set Speed matching the DII Display. | PORT\_A\_SPEED\_RUN value at  RPM = \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_, | P / F |
| Start a serial capture.  Connect a Drill to Port B.  Set Drill direction to Forward.  Start and Stop the Drill  Stop the serial capture and review the log. | The DII sends a PORT\_STATUS\_MSG (CMD = 33) to the INTELLIO Link when the DRILL is attached.  The PORT\_B\_DISPLAY and PORT\_B\_SPEED\_RUN values (CD 3 and 4) are updated to reflect the insertion of the DRILL. | PORT\_STATUS\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6, | P / F |
| After the Drill starts, a PORT\_STATUS\_MSG is sent with Bit 7 of the PORT\_B\_SPEED\_RUN (CD 4) reporting that the Drill is running. | PORT\_STATUS\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6, | P / F |
|  | After the Drill stops, a PORT\_STATUS\_MSG (CMD = 33) is sent with Bit 7 of the PORT\_B\_SPEED\_RUN (CD 4) reporting that the Drill has stopped. | PORT\_STATUS\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6, | P / F |
|  | The PORT\_A\_DISPLAY, PORT\_A\_SPEED\_RUN, PORT\_A\_B\_ERR\_WARN, and SETTINGS\_POPUPS values (CD 1, 2, 5; and 6) are not changed by the insertion of the DRILL |  | P / F |
|  | The INTELLIO Link sends a PORT\_STATUS\_MSG\_RPL for each PORT\_STATUS\_MSG |  | P / F |
| Start a serial capture  Use the DII front panel to adjust the Drill Set Speed to 10, 20, 50, 90 and 100%.  Review the Terminal Log file after each adjustment. | The PORT\_B\_SPEED\_RUN byte transmitted to the INTELLIO Link for Port B corresponds to the MDU Running with a Set Speed:  % HEX  10 0A  20 14  50 32  90 5A  100 64 | PORT\_B\_SPEED\_RUN value at  10% - \_\_\_\_\_\_\_,  20% - \_\_\_\_\_\_\_,  50% - \_\_\_\_\_\_\_,  90% - \_\_\_\_\_\_\_,  100% – \_\_\_\_\_\_, | P / F |
|  | The PORT\_B\_DISPLAY byte transmitted to the INTELLIO Link for Port B reports  Port B Units %,  Port B Blade Other,  Port B Mode Forward.  Set Speed:  % Up Arrow Down Arrow HEX  10 Enabled Disabled 4F  20 Enabled Enabled CF  50 Enabled Enabled CF  90 Enabled Enabled CF  100 Disabled Enabled 8F | PORT\_B\_DISPLAY value at  10% - \_\_\_\_\_\_\_\_,  20% - \_\_\_\_\_\_\_\_,  50% - \_\_\_\_\_\_\_,  90% - \_\_\_\_\_\_\_,  100% – \_\_\_\_\_\_\_, | P / F |
| 8.1 | Start a serial capture.  Disconnect the Drill from Port B.  Connect a Sagittal Saw to Port B.  Review the serial log. | The DII sends a PORT\_STATUS \_MSG (CMD = 33) for the disconnection of the Drill and the insertion of the Sagittal Saw.  PORT\_B\_DISPLAY (CD 3) = AF:  Port B Units %,  Port B Blade Other,  Port B Mode Oscillate Mode 1.  PORT\_B\_SPEED\_RUN (CD 4) = 64:  Set Speed 100. | PORT\_STATUS\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6, | P / F |
| Start a serial capture.  Start and stop the Sagittal Saw  Review the serial log. | The DII sends a PORT\_STATUS \_MSG (CMD = 33) for the start of the Sagittal Saw.  PORT\_B\_SPEED\_RUN (CD 4) = E4. |  | P / F |
| The DII sends a PORT\_STATUS \_MSG (CMD = 33) for the start of the Sagittal Saw:  PORT\_B\_SPEED\_RUN (CD 4) = 64. |  | P / F |
| Start a serial capture  Use the DII front panel to adjust the Sagittal Saw Set Speed to 10, 20, 50, 90 and 100%.  Review the Terminal Log file after each adjustment. | The PORT\_B\_SPEED\_RUN byte transmitted to the INTELLIO Link for Port B corresponds to the MDU Running with a Set Speed:  % HEX  10 0A  20 14  50 32  90 5A  100 64 | PORT\_B\_SPEED\_RUN value at  10% - \_\_\_\_\_\_\_,  20% - \_\_\_\_\_\_\_,  50% - \_\_\_\_\_\_\_,  90% - \_\_\_\_\_\_\_,  100% – \_\_\_\_\_\_, | P / F |
|  | The PORT\_B\_DISPLAY byte transmitted to the INTELLIO Link for Port B reports  Set Speed:  % Up Arrow Down Arrow HEX  10 Enabled Disabled 6F  20 Enabled Enabled EF  50 Enabled Enabled EF  90 Enabled Enabled EF  100 Disabled Enabled AF | PORT\_B\_DISPLAY value at  10% - \_\_\_\_\_\_\_\_,  20% - \_\_\_\_\_\_\_\_,  50% - \_\_\_\_\_\_\_,  90% - \_\_\_\_\_\_\_,  100% – \_\_\_\_\_\_\_, | P / F |
| 8.1 | Disconnect the Sagittal Saw from Port B.  Disconnect the PowerMax Elite from Port A and connect the MDU to Port B, with the blade simulator 10K Burr inserted.  Start a serial capture.  Press the Reverse button on the MDU twice to start and stop the MDU.  End the serial capture. | After the MDU starts, a PORT\_STATUS\_MSG (CMD = 33) is sent with Bit 7 of the PORT\_B\_SPEED\_RUN (CD 4) reporting that the MDU is running. | PORT\_STATUS\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6, | P / F |
| After the MDU starts, a PORT\_STATUS\_MSG is sent with Bit 7 of the PORT\_B\_SPEED\_RUN (CD 4) reporting that the MDU has stopped. | PORT\_STATUS\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6, | P / F |
| The PORT\_B\_DISPLAY byte (CD 3) transmitted to the INTELLIO Link for Port B reports  Port B Units RPM  Port B Blade High Speed  Port B Mode Reverse  Port B Up Arrow Enabled  Port B Down Arrow Enabled |  | P / F |
|  | Start a serial capture.  Use the DII front panel Arrow keys to adjust the MDU Set Speed down to 500, up to 10000 and down to 5000. Review the Terminal Log file after each adjustment. | The PORT\_B\_SPEED\_RUN byte transmitted to the INTELLIO Link for Port B corresponds to the MDU Running with a Set Speed:  RPM HEX  500 05  600 06  5000 32  9900 63  10000 64  . | PORT\_B\_SPEED\_RUN value at  500 - \_\_\_\_\_\_,  600 - \_\_\_\_\_\_,  5000 - \_\_\_\_\_\_,  9900 - \_\_\_\_\_\_,  10000 – \_\_\_\_\_\_, | P / F |
|  |  | The PORT\_B\_DISPLAY byte transmitted to the INTELLIO Link for Port B reports  Port B Units RPM  Port B Blade High Speed  Port B Mode Reverse.  Set Speed:  RPM Up Arrow Down Arrow HEX  500 Enabled Disabled 59  600 Enabled Enabled D9  5000 Enabled Enabled D9  9900 Enabled Enabled D9  10000 Disabled Enabled 99 | PORT\_B\_DISPLAY value at RPM  500 - \_\_\_\_,  600 - \_\_\_\_,  5000 - \_\_\_\_,  9900 - \_\_\_\_,  10000 - \_\_\_\_, | P / F |
|  |  | Observe that the DII sends at least one PORT\_STATUS\_MSG (CMD = 33) for each Set Speed adjustment. The INTELLIO Link responds each PORT\_STATUS\_MSG with a PORT\_STATUS\_MSG\_RPLY |  | P / F |
|  |  | PORT\_A\_B\_ERR\_WARN indicate that there are no warnings or errors. | PORT\_A\_B\_ERR\_WARN value  \_\_\_\_\_\_, | P / F |
|  | Press the MDU Oscillate Button twice to start and stop the MDU. | The DII sends a PORT\_STATUS\_MSG (CMD = 33) to the INTELLIO Link when the MDU is started and again when the MDU is stopped.  The INTELLIO Link sends a PORT\_STATUS\_MSG\_RPLY to each PORT\_STATUS\_MSG. |  | P / F |
|  | Start a Serial Capture.  On the DII use the △ Mode Button to select Mode 2. | The PORT\_B\_DISPLAY byte transmitted to the INTELLIO Link for Port B reports  Port B Units RATE  Port B Blade High Speed  Port B Mode Oscillate Mode 2  Set Speed:  RATE Up Arrow A Down Arrow  9 Disabled Enabled | PORT\_B\_DISPLAY value at  \_\_\_\_\_\_\_, | P / F |
|  | Start a Serial Capture.  Use the DII Port B Arrow Buttons to decrease the Set Speed to 1 and then raise it back to 9. Review the Terminal Log file after each adjustment. | The PORT\_B\_SPEED\_RUN byte transmitted to the INTELLIO Link for Port B corresponds to the MDU Running with a Set Speed:  RATE HEX  1 01  2 02  8 08  9 09 | PORT\_B\_SPEED\_RUN  RATE  1 - \_\_\_\_\_\_,  2 - \_\_\_\_\_\_,  8 - \_\_\_\_\_\_,  9 - \_\_\_\_\_\_, | P / F |
|  |  | The PORT\_B\_DISPLAY byte transmitted to the INTELLIO Link for Port B reports  Port B Units RATE  Port B Blade High Speed  Port B Mode Oscillate Mode 2.  Set Speed:  RATE Up Arrow Down Arrow HEX  1 Enabled Disabled 7A  2 Enabled Enabled FA  8 Enabled Enabled FA  9 Disabled Enabled BA | PORT\_B\_DISPLAY value at  RATE  1 - \_\_\_\_\_\_,  2 - \_\_\_\_\_\_,  8 - \_\_\_\_\_\_,  9 - \_\_\_\_\_\_, | P / F |
|  |  | PORT\_A\_B\_ERR\_WARN indicate that there are no warnings or errors. | PORT\_A\_B\_ERR\_WARN value  \_\_\_\_\_\_, | P / F |
|  | Start a serial capture.  Press the Forward Button on the MDU twice to start and stop the MDU.  Review the serial log. | The PORT\_B\_DISPLAY byte transmitted to the INTELLIO Link for Port B reports C9  Port B Units RPM,  Port B Blade High Speed,  Port B Mode Forward,  Port B Up Arrow Enabled,  Port B Down Arrow Enabled. | PORT\_B\_DISPLAY value at  \_\_\_\_\_\_\_, | P / F |
|  |  | The PORT\_B\_SPEED\_RUN byte transmitted to the INTELLIO Link for Port B corresponds to the MDU stopped with Set Speed matching the DII Display. | PORT\_B\_SPEED\_RUN value at RPM  \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_, | P / F |
|  | Start a Serial Capture.  Remove the Blade Tool from the PowerMax Elite MDU in Port B and insert a 3KCURVED Blade simulator.  Press the MDU forward button twice to start and stop the MDU.  Review the Serial Log. | The PORT\_B\_DISPLAY byte transmitted to the INTELLIO Link for Port B reports  Port B Units RPM,  Port B Blade Low Speed,  Port B Mode Forward,  Port B Up Arrow Enabled,  Port B Down Arrow Enabled. | PORT\_B\_DISPLAY value at  \_\_\_\_\_\_\_, | P / F |
|  |  | The PORT\_B\_SPEED\_RUN byte transmitted to the INTELLIO Link for Port B corresponds to the MDU stopped with Set Speed matching the DII Display. | PORT\_B\_SPEED\_RUN value at  RPM \_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_, | P / F |
|  | Start a Serial Capture.  Set the Drill direction switch to Forward, and connect the Drill to Port A.  Set the Drill direction to Reverse.  Review the Serial Log. | The DII sends a PORT\_STATUS\_MSG (CMD = 33) for the connection of the Drill to the DII and for the change of direction from Forward to Reverse. |  | P / F |
|  | Start and Stop the Drill | The DII sends a PORT\_STATUS\_MSG (CMD = 33) when the Drill is started and again when the Drill stops running. |  | P / F |
|  | Start a Serial Capture.  Use the DII front panel Arrow Buttons to adjust the Drill Set Speed down to 10%, up to 100% and back down to 50%. Review the Serial Log file after each adjustment. | The PORT\_A\_SPEED\_RUN byte transmitted to the INTELLIO Link for Port A corresponds to the Drill with a Set Speed:  % HEX  10 0A  20 14  50 32  90 5A  100 64 | PORT\_A\_SPEED\_RUN value at  10% - \_\_\_\_\_\_\_\_,  20% - \_\_\_\_\_\_\_\_,  50% - \_\_\_\_\_\_\_,  90% - \_\_\_\_\_\_\_,  100% – \_\_\_\_\_\_\_, | P / F |
|  |  | The PORT\_A\_DISPLAY byte transmitted to the INTELLIO Link for Port A reports  Port A Units %  Port A Blade Other  Port A Mode Reverse  Set Speed:  % Up Arrow Down Arrow HEX  10 Enabled Disabled 5F  20 Enabled Enabled DF  50 Enabled Enabled DF  90 Enabled Enabled DF  100 Disabled Enabled 9F | PORT\_A\_DISPLAY value at  10% - \_\_\_\_\_\_\_\_,  20% - \_\_\_\_\_\_\_\_,  50% - \_\_\_\_\_\_\_,  90% - \_\_\_\_\_\_\_,  100% – \_\_\_\_\_\_\_, | P / F |
|  |  | Observe that the DII sends at least one PORT\_STATUS\_MSG (CMD = 33) for each Set Speed adjustment.  The INTELLIO Link responds each PORT\_STATUS\_MSG with a PORT\_STATUS\_MSG\_RPLY |  | P / F |
|  |  | PORT\_A\_B\_ERR\_WARN indicate that there are no warnings or errors. | PORT\_A\_B\_ERR\_WARN value  \_\_\_\_\_\_, | P / F |
| 8.1  SETTINGS\_POPUPS | Start a Serial Log.  Ensure that the DII is in Default Mode by executing the button sequence on the DII of Settings-System Information-System Reset-Yes-Done-Done. | The SETTINGS\_POPUPS value has the value of 18. |  | P / F |
| On the DII select the Settings Button | The SETTINGS\_POPUPS value has the value of 98. |  | P / F |
| On the DII select the Settings-Footswitch. Press the Port Control Port B button press the Set Button. | The DII sends a PORT\_STATUS\_MSG (CMD = 33) with the SETTINGS\_POPUPS value of D8. |  | P / F |
| On the DII select the Settings-Footswitch. Press the Hand Control Override Off button press the Set Button. | The DII sends a PORT\_STATUS\_MSG with the SETTINGS\_POPUPS value of D0. |  | P / F |
| On the DII select the Settings-Pump Interface. Press the Port Control Port B button press the Set Button. | The DII sends a PORT\_STATUS\_MSG with the SETTINGS\_POPUPS value has the value of F0. |  | P / F |
|  | On the DII Settings Screen. Press the Select Blade Default Button.  Review the Serial Log | The DII sends a PORT\_STATUS\_MSG with the SETTINGS\_POPUPS value of E0. |  | P / F |
| 8.1.1  Ports A and B Errors and Warnings | **Test: No Error 00**  Start serial capture  Connect POWERMINI™ Small Joint Handpiece (MDU) to DII Port A    Connect Small Joint Blade Simulator blade 1 to MDU  Review capture data | PORT\_A\_B\_ERR\_WARN = 00 to indicates no errors or warnings for Ports A or B | PORT\_A\_B\_ERR\_WARN  byte = \_\_\_\_\_\_\_\_\_\_\_\_ | P / F |
|  | **Test: Error 02 Unknown Blade**  Start serial capture  Connect Small Joint Blade Simulator blade 5 to the POWERMINI in Port A  Review the serial capture | The DII displays the Yellow Warning Box on DII with text: Unknown Blade for Port A.  The DII Sends a PORT\_STATUS\_MSG (CMD = 33). | CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6, | P / F |
|  |  | PORT\_A\_B\_ERR\_WARN = 02 to indicate Unknown Blade in Port A | PORT\_A\_B\_ERR\_WARN  byte = \_\_\_\_\_\_\_\_\_\_\_\_ | P / F |
|  | Start serial capture  Remove the POWERMINI from Port A.  With the Blade Simulator still attached, insert the MDU into Port B.  Review the serial capture | The DII sends several PORT\_STATUS\_MSGs as the MDU is removed from Port A and inserted into Port B.  The DII erases the Unknown Blade warning from Port A.  The DII displays the Yellow Warning Box on DII with text: Unknown Blade for Port B.  The PORT\_A\_B\_WARN in the last capture message is 20 to indicate Unknown Blade in Port B. | PORT\_A\_B\_ERR\_WARN  byte = \_\_\_\_\_\_\_\_\_\_\_\_ | P / F |
|  | **Test: Error 05 Blade Stall**  Leave the POWERMINI in Port B.  Connect a PowerMax Elite Handpiece (MDU) to DII Port A  Start serial capture  Using a screwdriver block the blade from turning  Run the blocked blade forward until a yellow message appears on the Control Screen: Blade Stall | PORT\_A\_B\_ERR\_WARN indicates Blade Stall | PORT\_A\_B\_ERR\_WARN  byte = \_\_\_\_\_\_\_\_\_\_\_\_ | P / F |
|  | **Test: Error 0F Footswitch Required**  Remove the PowerMax Elite from Port A.  Ensure Footswitch is disconnected from the DII  Start serial capture  Connect a POWERMINI MDU without Hand controls to DII Port A | Observe on DII there is no Footswitch icon displayed  Observe on DII a Yellow Warning Box with text: Footswitch required  PORT\_A\_B\_ERR\_WARN = 0F to indicate Footswitch Error | PORT\_A\_B\_ERR\_WARN  byte = \_\_\_\_\_\_\_\_\_\_\_\_ | P / F |
|  | Connect a Footswitch to Port A | Observe on DII the Yellow Warning Box is removed, and the Footswitch Icon is displayed  PORT\_A\_B\_ERR\_WARN = 00 indicates no error | PORT\_A\_B\_ERR\_WARN  byte = \_\_\_\_\_\_\_\_\_\_\_\_ | P / F |

## Lavage Toggle Events.

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| --- | --- | --- | --- | --- |
| **Trace to Section Number** | Procedure | Expected Results | Actual Results  or SAME | Pass / Fail |
| 10 | Test: Footswitch Lavage Port B  Disconnect the pump from the DII  On the DII Port Screen press Settings >- Footswitch -> Port Control Port B -> Set -> Done  Start a serial capture  Press Footswitch Lavage button  Press Footswitch Lavage button  Observe DII and Link messages | For each Footswitch press:  The DII sends a LAVAGE\_TOGGLE\_EVENT\_MSG (CMD = 36)  LEN = 00 |  | P / F |
|  | For each Footswitch press:  The INTELLIO Link sends a  LAVAGE\_TOGGLE\_MSG\_RPLY (CMD = 36)  Acknowledge  LEN = 01  CD = 00 |  | P / F |
|  | Test: Footswitch Lavage, Port A  On the DII Port Screen press Settings -> Footswitch -> Port Control Port A -> Set -> Done  Start a serial capture  Press Footswitch Lavage button  Press Footswitch Lavage button again  Review the serial capture | For each Footswitch press:  The DII sends a LAVAGE\_TOGGLE\_EVENT\_MSG (CMD = 36)  LEN = 00 |  | P / F |
|  | For each Footswitch press:  The INTELLIO Link sends a  LAVAGE\_TOGGLE\_MSG\_RPLY (CMD = 36)  Acknowledge  LEN = 01  CD = 00 |  | P / F |

## SCD Command Function

| **Trace to Section Number** | **Procedure** | **Expected Results** | **Actual Results**  **or SAME** | **Pass / Fail** |
| --- | --- | --- | --- | --- |
| 11 | Cycle Power to the DII.  Connect a PowerMax Elite MDU to Port A, a POWERMINI MDU (No Hand Controls) to Port B, and a Footswitch to the Footswitch Port.  Set Port A and Port B to Oscillation Mode 1  Set the Port A Set Speed to 1800 RPM  Set the Port B Set Speed to 2700 RPM  Restart the INTELLIO Link  Note: this section is command order specific. | The DYONICS POWER II displays  Port A Mode 1 Set Speed 1800  Port B Mode 1 Set Speed 2700  INTELLIO Link is running  The DYONICS POWER II displays the INTELLIO Link Icon |  | P / F |
|  | Start a serial capture  On the DII bring up the System Reset Dialog through the command  Settings->System Information->System Reset  On the INTELLIO Link select option 7 up to 7 times or until the System Reset Popup is removed from the display.  Review the capture. | The DII sent a PORT\_STATUS\_MSG (CMD = 33) indicating that the DII is In Settings Screen, prior to receiving any SCD\_CMD\_MSGs (CMD = 37) from the INTELLIO Link |  | P / F |
|  |  | The INTELLIO Link sent the SCD\_CMD\_MSG (CMD = 37) each time.  The COMMAND DATA value cycled through values 1, through 7.  The DII responded to each SCD\_CMD\_MSG with only a SCD\_CMD\_MSG\_RPLY. |  | P / F |
|  |  | The System Reset Popup was removed from the DII display and the System Information Screen is Displayed after the INTELLIO Link sent the SCD\_CMD\_MSG with a COMMAND DATA value of 7. |  | P / F |
| 11 | Start a serial capture  On the INTELLIO Link select option 7 Enter 1 time  Review the capture | The INTELLIO Link sent a SCD\_CMD\_MSG (CMD = 37).  The COMMAND DATA value is 8.  The DII responded to each SCD\_CMD\_MSG with a SCD\_CMD\_MSG\_RPLY. |  | P / F |
| The DII exits the System Information Screen.  The DYONICS POWER II displays:  Port A Mode 1 Set Speed 2000  Port B Mode 1 Set Speed 3000  Port B “Footswitch Required” |  | P / F |
| The DII sent a PORT\_STATUS\_MSG (CMD = 33) indicating that the DII is Out of Settings Screen.  The INTELLIO Link replied with a PORT\_STATUS\_MSG\_RPLY |  | P / F |
| Set Port A and Port B to Oscillation Mode 2  Set the Port A Set Speed RATE to 6  Set the Port B Set Speed RATE to 7  Set Port A and Port B to Oscillation Mode 1  Set the Port A Set Speed to 1800 RPM  Set the Port B Set Speed to 2700  Start a serial capture  On the INTELLIO Link select option 7 Enter 6 times. Confirm the DII response to each PORT\_STATUS\_MSG COMMAND DATA value.  Review the serial capture | 1: PORT A Set Speed increments to 1900 |  | P / F |
| 2: PORT A Set Speed decrements to 1800. |  | P / F |
| 3: PORT A changes to Oscillate Mode 2 Rate 6 |  | P / F |
| 4: PORT B Set Speed increments to 2800 |  | P / F |
| 5: PORT B Set Speed decrements to 2700 |  | P / F |
| 6: PORT B changes to Oscillate Mode 2 Rate 7 |  | P / F |
| The DII responded to each SCD\_CMD\_MSG with a SCD\_CMD\_MSG\_RPLY followed by a PORT\_STATUS\_MSG (CMD = 33). |  | P / F |
| On the DII press the Port B Footswitch Required to display the Warning Pop Up.  Start a serial capture  On the INTELLIO Link select option 7 Enter once.  Review the capture | The INTELLIO Link sent a SCD\_CMD\_MSG (CMD = 37) with the COMMAND DATA value set to 7 |  | P / F |
| The DII erases the Warnings Popup from the display |  | P / F |
| On the DII Press Settings -> Language -> Norsk.  Start a serial capture  On the INTELLIO Link select option 7 Enter once.  Review the capture | The DII now displays  PORT A Mode 2 RATE 6  PORT B Mode 2 RATE 7  Port B “Footswitch Required” |  | P / F |

## Getting/Restoring Configuration Data from/to the SCD

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| --- | --- | --- | --- | --- |
| **Trace to Section Number** | **Procedure** | **Expected Results** | **Actual Results**  **or SAME** | **Pass / Fail** |
| 12, 14 | **Test: Save/Restore a BLOB, changing one setting.**  At DII Control Screen:  Restore Defaults Settings by pressing:  Settings -> System Information -> System Reset -> Yes -> Done  Set language to German by pressing:  Language > Deutsch > Sprachenauswahl popup > LEFT check > Fertig > Fertig  Cycle Power to the DII | After the DII is power cycled the DII is still displays German |  | P / F |
| **To Save:**  Start a Serial capture  On the INTELLIO Link enter 8 to save the BLOB  Review the Serial Capture | The INTELLIO LINK Sends a CONFIGURATION\_GET\_MSG\_PKT (CMD =38) with a Packet Count = 1 |  | P / F |
| The DII Replies with CONFIGURATION\_GET\_MSG\_PKT\_RPLY (CMD = 38)  LEN = 18 |  | P / F |
| The First 3 bytes of the COMMAND DATA are: 01, 10, 17, |  | P / F |
| The next 2 bytes are the Length of the SETUP\_BLOB data | Length of the SETUP\_BLOB data  \_\_\_\_\_, \_\_\_\_\_ | P / F |
| The SETUP\_BLOB data contains the 16 byte string “DYONICS POWER II” |  | P / F |
| The INTELLIO Link sends additional CONFIGURATION\_GET\_MSG\_PKT (CMD =38) starting with Packet Count = 2 and incrementing each time |  | P / F |
| The DII Replies with CONFIGURATION\_GET\_MSG\_PKT\_RPLY (CMD = 38)  LEN = 31 (49 Base 10)  COMMAND DATA Packet Count equals the Packet Count of the corresponding CONFIGURATION\_GET\_MSG\_PKT |  | P / F |
| Convert the Length of the SETUP\_BLOB data  to a decimal value and add 1. Divide this value by 48 Base 10 | The SETUP\_BLOB data +1 value divides evenly by 48Base 10 | SETUP\_BLOB Base 10 = \_\_\_\_\_\_\_\_  +1 = \_\_\_\_\_\_\_\_  /48Base 10 = \_\_\_\_\_\_\_\_ | P / F |
| The Packet Count of the last CONFIGURATION\_GET\_MSG\_PKT sent by the INTELLIO Link is 1 greater than the calculated value. |  | P / F |
| Start at DII Control Screen.  Before restoring German language, set Language to English:  Control Screen > Einstellungen > Sprache > English >Language Selection popup > LEFT check > Done > Done  Power cycle the DII | Control Screen is displayed in English  Language is English, not affected by power cycle |  | P / F |
| 13, 14 | **To Restore:**  Start a Serial Capture  On the INTELLIO Link enter 9 to restore the saved BLOB.  Review the serial capture | The INTELLIO LINK Sends a CONFIGURATION\_SET\_MSG\_PKT (CMD =39) with a LEN = 18 |  | P / F |
| The First 3 bytes of the COMMAND DATA are: 01, 10, 17, |  | P / F |
| The next 2 bytes are the Length of the SETUP\_BLOB data, and is the same as recorded when the SET\_BLOB was saved above. | Length of the SETUP\_BLOB data  \_\_\_\_\_, \_\_\_\_\_ | P / F |
| The SETUP\_BLOB data contains the 16 byte string “DYONICS POWER II” |  | P / F |
| The DII Replies with CONFIGURATION\_SET\_MSG\_PKT\_RPLY (CMD = 39)  LEN = 2  COMMAND DATA = 01,00 |  | P / F |
| The INTELLIO Link sends additional CONFIGURATION\_SET\_MSG\_PKT (CMD =39) starting with Packet Count = 2 and incrementing each time |  | P / F |
| The DII Replies with CONFIGURATION\_SET\_MSG\_PKT\_RPLY (CMD = 39)  LEN = 2  COMMAND DATA Packet Count equals the Packet Count of the corresponding CONFIGURATION\_SET\_MSG\_PKT |  | P / F |
| The INTELLIO Links sends the same number of packets as were sent to Save the SETUP\_BLOB |  | P / F |
| Power cycle the DII | After the DII powers up the Control Screen is displayed in German |  | P / F |
| Set the DII Language back to English.  Power cycle the DII | After the DII powers up the Control Screen is displayed in English |  | P / F |
| 12, 13, 14 | **Test: Save/Restore a BLOB, changing multiple settings**.  Press the Settings button and ensure that the DII is In Blade Recall.  Connect a PowerMax Elite to Port A and a POWERMINI to Port B.  Set the Port A Set Speed:  Oscillate Mode 1 to 1000  Oscillate Mode 2 to 6  Set the Port B Set Speed:  Oscillate Mode 1 to 2000  Oscillate Mode 2 to 7  Cycle Power to the DII | The DII retains the Set Speed values through Power cycling. |  | P / F |
| **To Save:**  Start a Serial Capture  On the INTELLIO Link enter 8 to save the BLOB  Review the Serial Log | The INTELLIO Link Sends a CONFIGURATION\_GET\_MSG\_PKT (CMD =38) with a LEN = 1  The INTELLIO Link request the same number of packets as recorded above. |  | P / F |
| The DII responds to each CONFIGURATION\_GET\_MSG\_PKT with a CONFIGURATION\_GET\_MSG\_PKT\_RPLY (CMD =38)  LEN = 18 for Packet 1  LEN = 31 for all subsequent packets |  | P / F |
| Set the DII to In Blade Default  Cycle power to the DII | The DII powers up  The Port A Set Speed:  Oscillate Mode 1 to 2000  Oscillate Mode 2 to 8  The Port B Set Speed:  Oscillate Mode 1 to 3000  Oscillate Mode 2 to 9  The Settings Screen indicates the DII is In Blade Default |  | P / F |
| **To Restore:**  Start a Serial capture  On the INTELLIO Link enter 9 to restore the saved BLOB  Power cycle the DII | Set the Port A Set Speed:  Oscillate Mode 1 to 1000  Oscillate Mode 2 to 6  Set the Port B Set Speed:  Oscillate Mode 1 to 2000  Oscillate Mode 2 to 7  Cycle Power to the DII  The Settings Screen indicates the DII is In Blade Recall |  | P / F |
| Review the Serial Log | The INTELLIO Link Sends a series of CONFIGURATION\_SET\_MSG\_PKT (CMD =39)  LEN = 18 for Packet 1  LEN = 31 for all subsequent packets |  | P / F |
| The DII Replies to each CONFIGURATION\_SET\_MSG\_PKT with a CONFIGURATION\_SET\_MSG\_PKT\_RPLY (CMD = 39)  Length = 1 |  | P / F |
| The same number of packets is sent to Restore the SETUP\_BLOB as were sent to Save the SETUP\_BLOB |  | P / F |

## Sending Device and Handpiece Serial Number to the BDM

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| --- | --- | --- | --- | --- |
| **Trace to Section Number** | **Procedure** | **Expected Results** | **Actual Results**  **or SAME** | **Pass / Fail** |
| 15 | Power Off the DII.  Connect a Reliant Handpiece to Port A  Connect a PowerMax Elite to Port B  Start a Serial Capture.  Power up the DII.  Review the Serial Log | After the DII and INTELLIO Link completing Discovery (CMD = 31),  The DII sends the PORT\_STATUS\_MSG (CMD = 33)  LEN -> 6 | PORT\_STATUS\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6, | P / F |
|  |  | The DII sends a SN\_MSG (CMD=3A)  LN -> 0C  The COMMAND DATA consists of 11 character Serial number starting with 41,41,58 followed by the DEVICE byte with a value 00 | SN\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6,  \_\_\_\_7, \_\_\_\_8, \_\_\_\_9,  \_\_\_\_10, \_\_\_\_11, \_\_\_\_12, | P / F |
|  |  | The INTELLIO Link responds with a SN\_MSG\_RPLY(CMD=3A)  LN -> 01  CD -> 00 |  | P / F |
|  |  | The last SN\_MSG (CMD=3A) the DII sends for Port A  LN -> 0C  The COMMAND DATA consists of 11 character Serial number of the Reliant Handpiece followed by the DEVICE byte with a value 01 | SN\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6,  \_\_\_\_7, \_\_\_\_8, \_\_\_\_9,  \_\_\_\_10, \_\_\_\_11, \_\_\_\_12, | P / F |
|  |  | The INTELLIO Link responds with a SN\_MSG\_RPLY(CMD=3A)  LN -> 01  CD -> 00 |  | P / F |
|  |  | The DII sends a SN\_MSG (CMD=3A)  LN -> 0C  CD -> 00, 00, 00, 00, 00, 00, 00, 00, 00, 00, 00, 02 |  | P / F |
|  |  | The INTELLIO Link responds with a SN\_MSG\_RPLY(CMD=3A)  LN -> 01  CD -> 00 |  | P / F |
|  | Start a Serial Capture.  Disconnect the Reliant Handpiece from Port A  Review the serial log | The DII sends a PORT\_STATUS\_MSG (CMD=33) for the removal of the Reliant Handpiece. |  | P / F |
|  |  | The DII sends a SN\_MSG (CMD=3A)  LN -> 0C  CD -> 00, 00, 00, 00, 00, 00, 00, 00, 00, 00, 00, 01 |  | P / F |
|  | Start a Serial Capture.  Disconnect the PowerMax Elite Handpiece from Port B  Review the serial log | The DII sends a PORT\_STATUS\_MSG (CMD=33) for the removal of the PowerMax Elite.  The DII does not send a SN\_MSG (CMD =3A) |  | P / F |
|  | Start a Serial Capture.  Connect the Reliant Handpiece to Port B  Review the serial log | The DII sends a PORT\_STATUS\_MSG (CMD=33) for the connection of the Reliant Handpiece. |  | P / F |
|  |  | The DII sends a SN\_MSG (CMD=3A)  LN -> 0C  The COMMAND DATA consists of 11 character Serial number of the Reliant Handpiece followed by the DEVICE byte with a value 02 | SN\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6,  \_\_\_\_7, \_\_\_\_8, \_\_\_\_9,  \_\_\_\_10, \_\_\_\_11, \_\_\_\_12, | P / F |
|  | Start a Serial Capture.  Connect the PowerMax Elite Handpiece to Port A  Review the serial log | The DII sends a PORT\_STATUS\_MSG (CMD=33) for the connection of the PowerMax Elite to Port A.  The DII does not send a SN\_MSG (CMD =3A) |  | P / F |
|  | Disconnect the RS 232 sniffer from the DII.  Start a Serial Capture  Reconnect the DII to the RS 232 sniffer.  Review the serial log | The DII sends a SN\_MSG (CMD=3A)  LN -> 0C  The COMMAND DATA consists of 11 character Serial number of the DII followed by the DEVICE byte with a value 00 | SN\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6,  \_\_\_\_7, \_\_\_\_8, \_\_\_\_9,  \_\_\_\_10, \_\_\_\_11, \_\_\_\_12, | P / F |
|  |  | The DII sends a SN\_MSG (CMD=3A)  LN -> 0C  CD -> 00, 00, 00, 00, 00, 00, 00, 00, 00, 00, 00, 01 |  | P / F |
|  |  | The last SN\_MSG (CMD=3A) the DII sends for Port B  LN -> 0C  The COMMAND DATA consists of 11 character Serial number of the Reliant Handpiece followed by the DEVICE byte with a value 02 | SN\_MSG  CD = \_\_\_\_1, \_\_\_\_2, \_\_\_\_3,  \_\_\_\_4, \_\_\_\_5, \_\_\_\_6,  \_\_\_\_7, \_\_\_\_8, \_\_\_\_9,  \_\_\_\_10, \_\_\_\_11, \_\_\_\_12, | P / F |

# SUMMARY

## Notes

## Overall Pass/Fail Status

|  |  |
| --- | --- |
| Overall Pass / Fail Status |  |
| Date |  |
| Signature |  |
| Printed Name |  |
| Department |  |
| Title |  |