
Liebert® IntelliSlot™ RDU101 Card

Version 1.4.0.1_000001 Firmware

Release Notes

December 7th, 2020

This document outlines:

1. Version and Compatibility Information
2. What's New
3. Security Issues Addressed
4. Upgrade Instructions
5. Known Issues

1. Version and Compatibility

This release contains the following firmware version:

RDU101_1.4.0.1_000001

This release is compatible with the following Liebert IntelliSlot communication cards:

RDU101

This release is compatible with the following power and thermal management equipment:

Liebert GXT5 Liebert TFX
 Liebert RXE

This release is compatible with the following sensors:

Liebert SN-T Liebert SN-Z01
 Liebert SN-TH Liebert SN-Z02
 Liebert SN-2D Liebert SN-Z03
 Liebert SN-3C Liebert SN-L

This release supports the following features:

Communication Card	LIFE™ Services Support	Sensor Support	Communication Protocol							
			HTTP/HTTPS	Velocity Protocol	Email	SMS	Third-Party Protocols			
							SNMP v1,v2c,v3	BACnet IP/MSTP	Modbus TCP/RTU	YDN23
RDU101	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
Sensor Support			✓	✓	✓	✓	✓	-	-	-

*Please note that **BACnet MSTP** and **Modbus RTU** require **P/N USB485I**; a USB to RS-485 adapter.*

This release supports the following browsers:

- Microsoft Internet Explorer®
 - IE10 - 10.0.9200.17457
 - IE11 - 11.557.17763.0
 - Edge - 44.17763.831.0
- Mozilla Firefox® - ver. 59.02
- Google Chrome™ - ver. 84.0.4147.89

2. What's New

This release contains the following enhancements:

- Adjust scaling factor for several current data points in the DPM - Power Distribution monitoring system (TFX, RXE, etc.)

3. Security Issues Addressed

The following highly publicized security vulnerabilities have already been addressed in this release:

Name	Description
"ShellShock"	The appropriate version of <i>bash</i> is implemented
"Poodle"	SSLv3 is disabled
Cross-Scripting	Cross-Scripting entries via the Web user Interface are restricted
"Clickjacking"	Clickjacking is addressed in this release.
"Beast" and "Logjam"	The "Beast" and "Logjam" vulnerabilities are addressed
"Sweet 32 Birthday Attack"	Vulnerability Birthday attacks against TLS ciphers with 64bit block size vulnerability (Sweet32) is addressed.
California IoT Security Law; SB-327	User must now configure unique administrator credentials to access the card. This was addressed in the 1.2.2.0 release.
CVE-2004-0583 Lack of Account Lockout	This vulnerability could allow a brute force ID/Password attack. This was addressed in the 1.4 release. The account lockout time is 15 minutes. If login is attempted during the timeout period, the timeout period will restart.
Password Complexity	8-30 case-sensitive, printable ASCII characters (excluding: \ : ' < > ~ ? # , double quote and space) Must contain a combination of upper and lower case, digit, and special characters. The password cannot contain the User Name.

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4. Update Instructions

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The RDU01 cards may be updated to this firmware version using the web-based Firmware Upload feature. Please refer to the Firmware Updates and Card Configuration sections of the [Liebert-Intellislot-RDU101-communications-card-installeruser-guide.pdf](#) and the [Mass Firmware and Configuration Update Tool](#)

1) Connecting to the card

After installing the card, allow time for the card to boot. Connect an Ethernet cable from the card to a PC or Laptop. A link local connect can be established. This is a direct PC-to-card Ethernet connection. The PC acquires a local address and the card is accessed at 169.254.24.7. Please consult the Quick Start Guide and User Guide for further details if needed.

2) Open a web browser (such as Chrome) and enter 169.254.24.7 in the address bar.

3) Update the card firmware.

Navigate to:

- a. "Communications" tab
- b. "Support" folder
- c. "Firmware Update" folder
- d. Click "Enable"
- e. Click "Web"

The screenshot shows the Vertiv Liebert web interface. The top navigation bar includes the Vertiv logo, the device model 'GXT5-2000LVRT2UXL', the 'Communications' menu (highlighted with a red box), and the Liebert logo. Below the navigation bar, the 'Firmware Update' page is displayed, showing the current firmware version (1.1.0.0) and alternate firmware version (1.3.0.0). The 'Commands' section includes 'Run Alternate Firmware' and 'Firmware Update' (highlighted with a red box), with 'Enable' and 'Web' buttons (also highlighted with red boxes) next to them. On the left sidebar, the 'Support' menu item is highlighted with a red box, and its sub-items 'Active Networking' and 'Firmware Update' are also highlighted with red boxes.

- 4) The Firmware Update page will appear.
 - a. Use the “Choose File” button to select the firmware file via Windows File Explorer.
 - b. Click the “Update Firmware” button.

The screenshot shows the 'Web (HTTP) Firmware Update' page. The page title is 'Web (HTTP) Firmware Update'. Below the title is a table with two columns: 'Parameter' and 'Description'.

Parameter	Description
File	Directory and name of the firmware update file. Click the Browse button to navigate and select a valid firmware update file. Note: The maximum length of a file specification is 250 characters including spaces and punctuation.
Update Firmware	Click this button to initiate the firmware update.

Below the table, there is a 'File:' label followed by a 'Choose File' button and the text 'No file chosen'. At the bottom of the page, there is an 'Update Firmware' button.

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- 5) Following the firmware update, the “**Please Create an Administrator Level Account**” dialogue will appear in the browser.
 - a. The customer will provide the credentials.
-or-
 - b. The installer can choose/create the credentials. The credentials must be communicated to the end customer.

User Name – Allowable characters

Min 2 to Max 30 case-sensitive, printable ASCII characters (excluding: \ '<>~?#, double quote, and space).

Minimum of 2 to a maximum of 30 case-sensitive, printable characters (excluding: \ '<>~?#, double quote and space).

Password – Allowable characters

Min 8 to Max 30 case-sensitive, printable ASCII characters (excluding: \ '<>~?#, double quote, and space). Must contain a combination of upper and lower case, digit and special characters, but not User Name.

Minimum of 8 to a maximum of 30 case-sensitive, printable characters (excluding: \ '<>~?#, double quote and space. Also, must contain a combination of upper and lower case, digit and special characters. The password cannot contain the User Name.

- 6) Create an Administrator account as shown in the **example** below:

Username = admini123

Password = mySecret\$789



Please Create an Administrator Level Account

Please hover over tool tips () to see Username and Password rules.

Username 

Password 
 

Confirm Password

The card security has been updated to align with current best practices.

7) Take careful note of the **actual credentials** that are entered in the dialogue shown above.

Note: If the Administrator credentials are lost or forgotten, the card must be reset to a Factory Default state to regain access. Please reference the User Guide for instructions to reset the card.

8) Click **“Add User”**.

9) The dialogue will briefly indicate - **“Waiting on response from server.....”**

10) Next, the dialogue will briefly indicate – **“Applying Updates....”**

Note: Do not click the “Back” button in the web browser

If the card appears to be unresponsive in the web browser at any point, please re-enter the 169.154.24.7 in the address bar.

11) A second dialogue – **“Recommended Security Updates”** may appear. If it does, just click the **“Save”** button at the bottom to continue.



Recommended Security Updates

The card security has been updated to align with current best practices.

Please add a User Level Account (optional)

An existing default User Level account will be deleted.

Username

Password 

Confirm Password

Please add an SNMP Access Community String (optional)

Any existing default SNMP Community string will be deleted.

Community String

Password Protect Site

Password Protected Site mode is **strongly recommended**. This mode requires a user login to access the web pages.

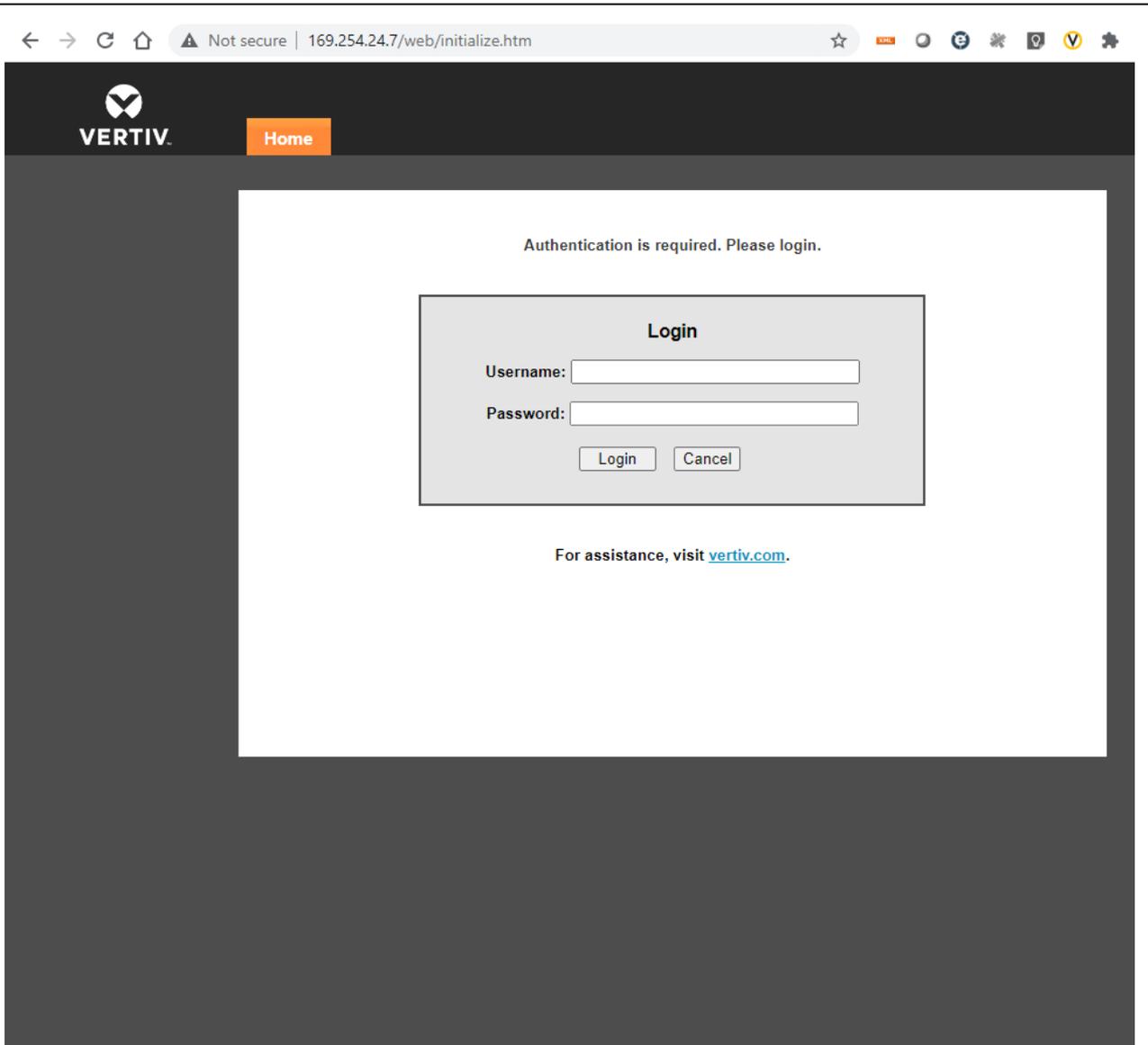
Site Protection

Saves all changes and restarts the card

- 12) The dialogue will briefly indicate - "Waiting on response from server....."
- 13) The Password Protected Site login screen is presented. Please login with the administrator credentials created p above. Please reference step 7)

Username = xxxxxxxxxxxx

Password = xxxxxxxxxxxx



14) Communications Status = **Normal with Warning** may appear as shown in the example page below.



VERTIV

GXT5-2000LVRT2UXL

Communications

Welcome admin (Administrator) [Logout](#)

Liebert®

Summary:
Updated: October 7, 2020 08:08:43PM

Identification

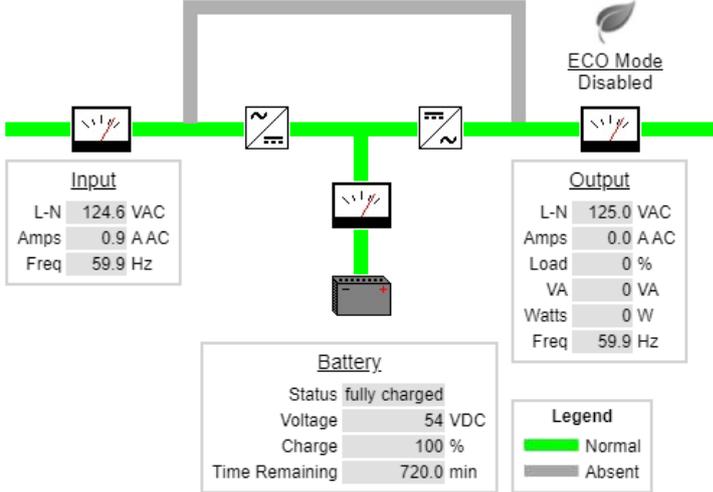
Uninitialized
Uninitialized
Uninitialized

Status

GXT5-2000LVRT2UXL
Normal Operation
Communications
Normal with Warning

GXT5-2000LVRT2UXL

- 📁 Summary >>
- 📁 Active Events
- 📁 Downloads
- 📁 File Transfer
- 📁 Input
- 📁 Bypass
- 📁 Battery
- 📁 Output
- 📁 Outlet Group (4)
- 📁 ECO Mode
- 📁 System



Input

L-N 124.6 VAC
Amps 0.9 AAC
Freq 59.9 Hz

Output

L-N 125.0 VAC
Amps 0.0 AAC
Load 0 %
VA 0 VA
Watts 0 W
Freq 59.9 Hz

Battery

Status fully charged
Voltage 54 VDC
Charge 100 %
Time Remaining 720.0 min

ECO Mode Disabled

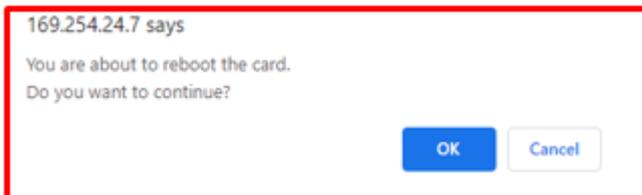
Active Events:
Updated: October 7, 2020 08:08:43PM

No Active Events

15) The **Normal with Warning** message can be cleared by **Restarting** the card.

Navigate to:

- a. "Communications" tab
- b. "Support" folder
- c. Click "Enable"
- d. Click "restart"
- e. Click "OK" in the browser pop-up dialogue



Status	Value	Uni
Agent Date and Time	2020-07-29 21:26:55	
Agent Model	RDU1xx Platform	
Agent App Firmware Version	1.3.0.0	
Agent App Firmware Label	RDU101_1.3.0.0_0000005	
Agent Boot Firmware Version	20190613164719	
Agent Boot Firmware Label	Boot 20190613164719	
Agent Serial Number	004F	
Agent Manufacture Date	2019-11	
Agent Hardware Version	0	
Agent GDD Version	130850	
FDM Version	1086	
Product Sequence ID	11.1	
Device-Assigned Label	Not assigned	

Commands	Buttons
Restart Card	Restart
Reset Card to Factory Defaults	Reset to Factory Defaults

Diagnostics	Buttons
Generate and download diagnostic file	Get File

16) Following the card restart, login to the card again (same as step 10) above.

17) The card web page will be normal as shown below

The screenshot displays the web interface for a Liebert GXT5-2000LVRT2UXL UPS. The page is titled 'Summary' and is updated as of October 7, 2020, at 08:23:31 PM. The interface includes a navigation menu on the left with options like 'Active Events', 'Downloads', 'File Transfer', 'Input', 'Bypass', 'Battery', 'Output', 'Outlet Group (4)', 'ECO Mode', and 'System'. The main content area shows a status diagram with three meters: Input, Output, and Battery. The Input meter shows L-N 125.0 VAC, Amps 0.9 AAC, and Freq 59.9 Hz. The Output meter shows L-N 125.0 VAC, Amps 0.0 AAC, Load 0%, VA 0 VA, Watts 0 W, and Freq 60.0 Hz. The Battery meter shows Status fully charged, Voltage 54 VDC, Charge 100%, and Time Remaining 720.0 min. The ECO Mode is Disabled. The Active Events section shows 'No Active Events'.

18) The administrator account setup is complete.

5. Issues Addressed

Component	Description
Web – Firmware update	Empty page after firmware image uploaded successfully on Microsoft Edge browser.
User Access	User access fails when user name is configured as “admin”.
Password Protected Site	Password Protected Site checkbox does not indicate enabled, even though the feature is enabled. Following a reboot the checkbox indicates enabled

6. Known Issues

Component	Description
None	

7. Previous Release Updates and Enhancements

Release	Description																
v1.0.0.0	<p>This release contains the following enhancements:</p> <ul style="list-style-type: none"> This is the initial release of the RDU101 in support of GXT5 																
v1.0.0.3	<p>This release contains the following enhancements:</p> <ul style="list-style-type: none"> The web bezel (power flow diagram) was enhanced to provide a more accurate UPS status. Example: Battery charging in addition to Battery discharging is now available. 																
v1.1.0.0	<p>This release contains the following enhancements:</p> <table border="1"> <thead> <tr> <th>LED</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Green On</td> <td>Full network connectivity, DHCP, static or BootP</td> </tr> <tr> <td>Green Off</td> <td>No network connectivity</td> </tr> <tr> <td>Green Blinking</td> <td>Link Local address only</td> </tr> <tr> <td>Red On</td> <td>Web pages for the monitored device (Ex. GXT5) are unavailable</td> </tr> <tr> <td>Red Off</td> <td>Web pages for the monitored device are available</td> </tr> <tr> <td>Red Blink Fast</td> <td>Web pages for the monitored device are initializing. Blink rate is 0.25 sec</td> </tr> <tr> <td>Red Blink Slow</td> <td>Device not available. Blink rate is 1.50 sec</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Modbus TCP support was added. Status LED operation per the following tables implemented 	LED	Description	Green On	Full network connectivity, DHCP, static or BootP	Green Off	No network connectivity	Green Blinking	Link Local address only	Red On	Web pages for the monitored device (Ex. GXT5) are unavailable	Red Off	Web pages for the monitored device are available	Red Blink Fast	Web pages for the monitored device are initializing. Blink rate is 0.25 sec	Red Blink Slow	Device not available. Blink rate is 1.50 sec
LED	Description																
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Red Blink Slow	Device not available. Blink rate is 1.50 sec																
v1.2.2.0	<p>This release contains the following enhancements:</p> <ul style="list-style-type: none"> BACnet/IP and MSTP support. Modbus RTU support. <p>Please note that BACnet MSTP and Modbus RTU require P/N USB485I; a USB to RS-485 adapter. This adapter will be available for order as an accessory to the RDU101 card in near the future.</p>																

Release	Description
V1.3.0.0	This release contains the following enhancements: <ul style="list-style-type: none"><li data-bbox="352 293 1150 327">• Add support for Liebert TFX – Large Power Distribution system