

Eaton PredictPulse™ User Help

Revision 1.4.1, May 7, 2020

- **Welcome to PredictPulse remote monitoring service**
- **How to contact Eaton**
- **User interface**
- **Monthly report**
- **Alarms, notifications**
- **User roles, preferences**
- **Inviting other users**
- **Adding connected loads**
- **Activating Devices**
- **Troubleshooting**
- **Glossary of terms**

Welcome to PredictPulse remote monitoring service

Eaton PredictPulse is a cloud-based subscription service for data center power infrastructure devices (Eaton UPS's) that allows Eaton to remotely monitor and manage system health 24x7, as well as notify users to events and critical alarms with an expedited response. This document will introduce you to this innovative application interface, key features and a glossary of terms.

Note: PredictPulse is an Eaton service offered with and without advanced features like predictive analytics (PredictPulse Insight). This document describes PredictPulse remote monitoring service without predictive capabilities. Advanced features will be described in future documentation.

How to contact Eaton

Getting started with PredictPulse is quick and easy, and Eaton is ready to help you with any questions **24x7 (USA call 800-843-9433, option 2, option 5 or email predictpulseoperations@eaton.com).**

User interface

PredictPulse includes a simple set of summary and detailed views of your connected devices. You can view PredictPulse with either a laptop browser, like Chrome, or any mobile device. Eaton uses a progressive web application (PWA) technology instead of native apps, so the same application can run on most browsers and mobile devices and adapt based on your device and screen size. Most features will work on either laptop browsers

and mobile with two exceptions: phone calls can only be made from mobile devices and device activation (wizard) can only be run from a laptop on the device's network.

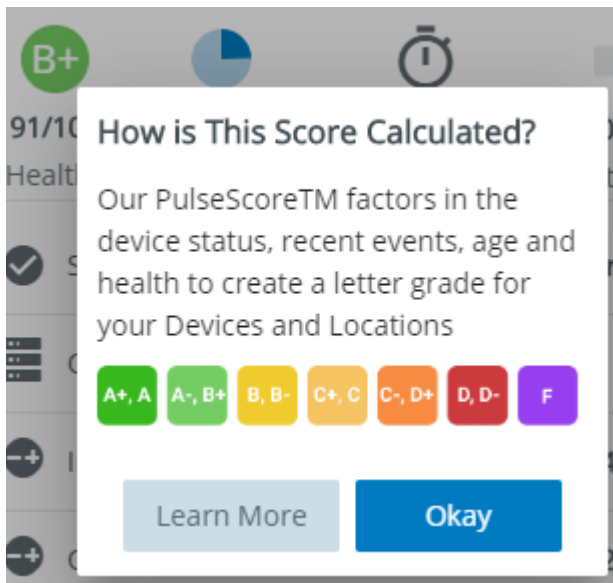
Note: you may need to occasionally clear your browser cache, click your reload button to refresh the PredictPulse app, or adjust your browser resolution settings. New features and updates will be released over time and clearing the browser cache or adjusting the browser resolution settings often corrects login or data visibility issues.

Note: browsers supported include Chrome, Firefox, Edge and Safari. Do not use Microsoft Internet Explorer.

The layout of information will adapt to your device's screen. PredictPulse uses scrolling to view more information and expanding/collapsing menu selections.

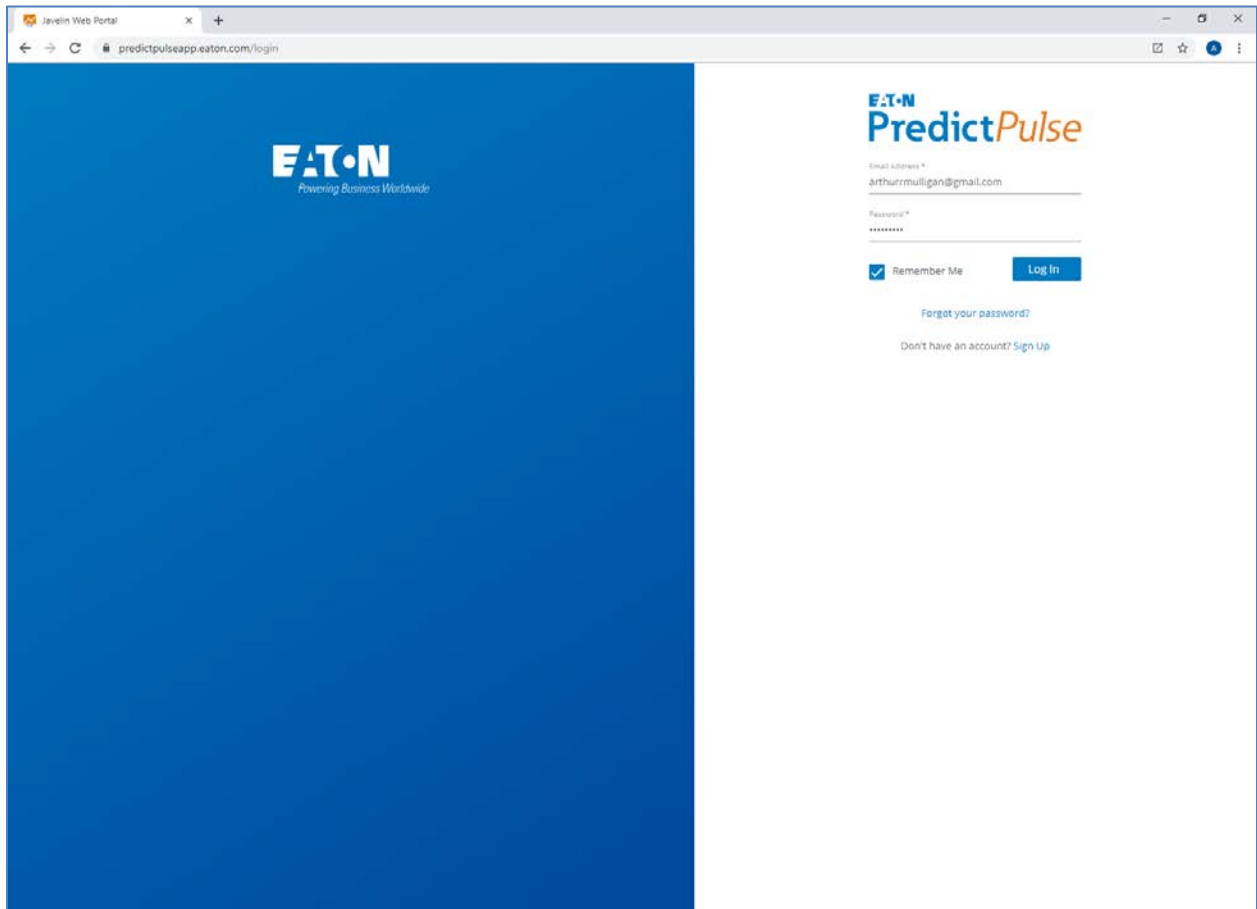
1. Login screen (new enrollment, password reset)
2. Overview page (at-a-glance of all devices)
 - a. Preferences, activate devices, invite users
3. Device list view
 - a. Navigation buttons (overview, invite-user, user, devices, help)
4. Device detail view
 - a. More details views (expand/collapse)

Pop-up tool-tip (click on PulseScore icon to view) > Learn more (to view more details)

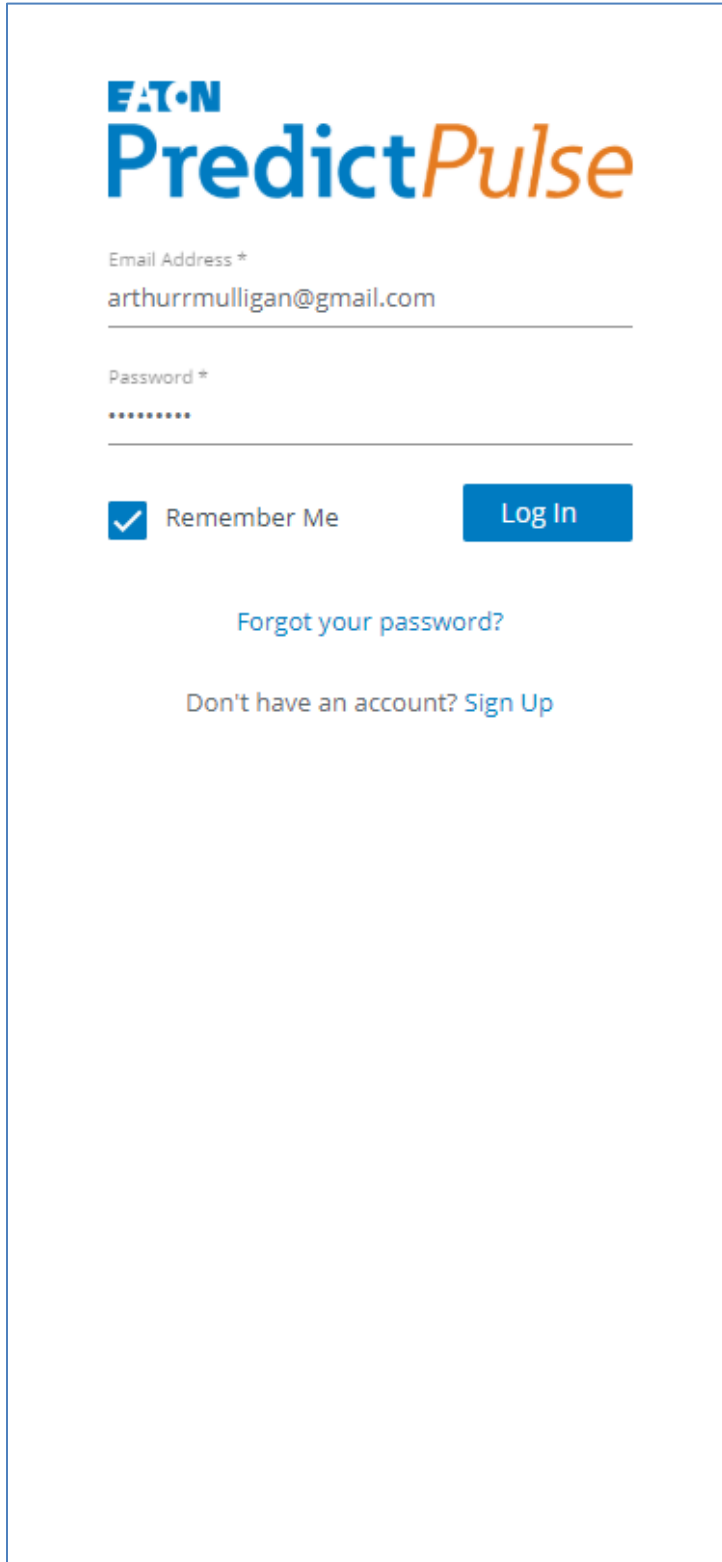


Many of the icons include **pop-up tool-tip** explanations by clicking. The above example can be viewed by clicking the PulseScore letter grade (B+ in the illustration above).

Login screen from browser (new enrollment, password reset), enroll or login to open overview page

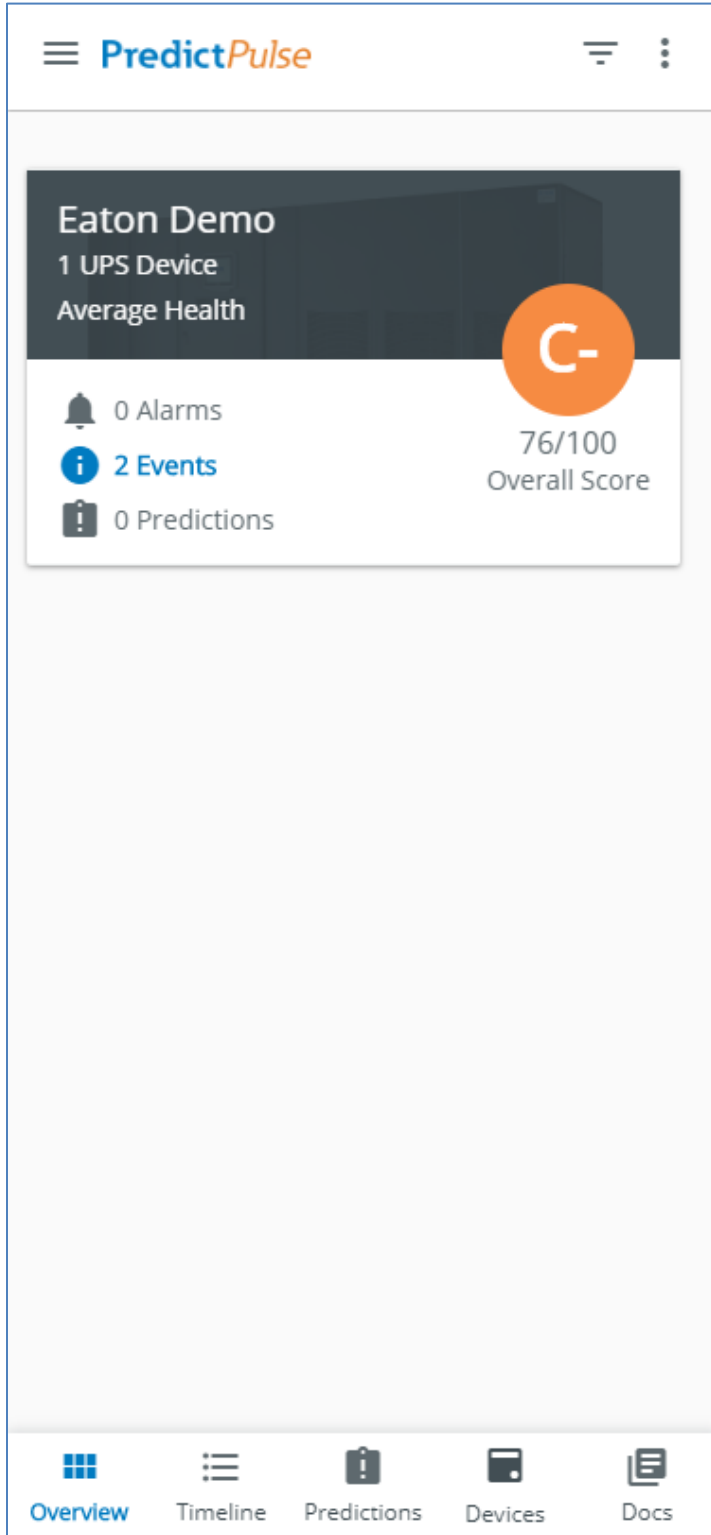


Login screen from mobile device



The image shows a mobile login screen for Eaton PredictPulse. At the top left is the Eaton logo (EAT•N) in blue, followed by the text "PredictPulse" where "Predict" is in blue and "Pulse" is in orange. Below the logo is a form with two input fields. The first field is labeled "Email Address *" and contains the text "arthurrmulligan@gmail.com". The second field is labeled "Password *" and contains seven dots. Below the password field is a checkbox with a checkmark and the text "Remember Me". To the right of the checkbox is a blue button with the text "Log In". Below the "Log In" button is a link that says "Forgot your password?". At the bottom of the form is a link that says "Don't have an account? Sign Up".

Overview page with at-a-glance of all devices (click on card to open device list)



Sidebar menu > access user actions like notification preferences (settings), invite users

The image shows a screenshot of the PredictPulse application's sidebar menu. The sidebar is a vertical list of navigation items on the left side of the page. At the top of the sidebar, there is a header area with the PredictPulse logo and the user's name, Art Mulligan, with the email address arthurrmulligan@gmail.com. Below this, the sidebar menu items are listed with corresponding icons: Overview (grid icon), Timeline (list icon), Predictions (info icon), Devices (device icon), Documentation (document icon), Invite-User (list icon), User (person icon), and Activation Code (envelope icon). Below these items, there is a section for Settings (gear icon), Terms & Conditions (globe icon), and Privacy Policy (shield icon). At the bottom of the sidebar, there is the Eaton logo and copyright information: © Copyright 2018 Eaton. All Rights Reserved. To the right of the sidebar, a portion of the main content area is visible, showing a blue header, a green plus sign in a circle, and a score of 00.

PredictPulse

Art Mulligan
arthurrmulligan@gmail.com

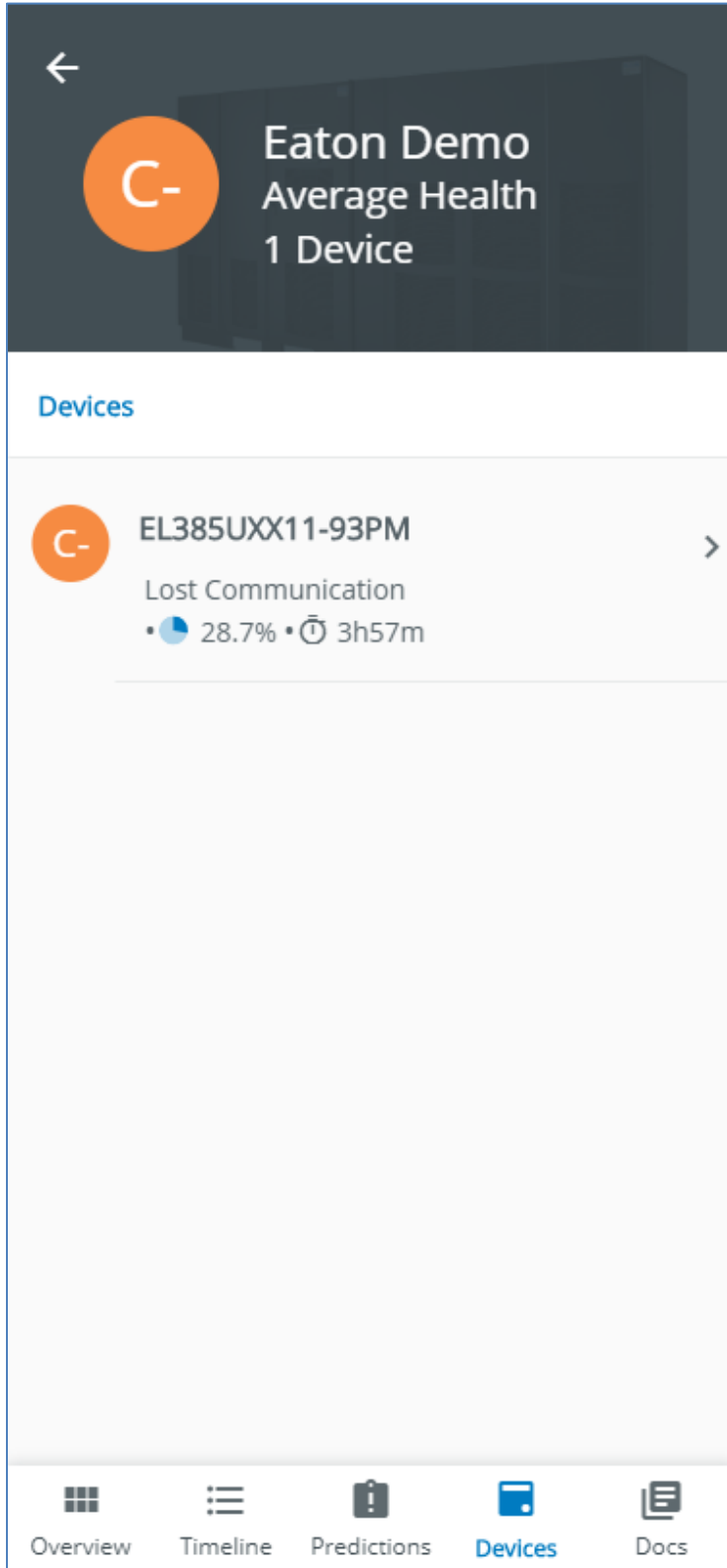
- Overview
- Timeline
- Predictions
- Devices
- Documentation
- Invite-User
- User
- Activation Code
- Settings
- Terms & Conditions
- Privacy Policy

EAT•N © Copyright 2018 Eaton. All Rights Reserved.

00
Score

Docs

Device list view (click on a specific device to open device detail view)



Device detail view

←

EL385UXX11-93PM
Lost Communication
Eaton Demo

As of 08:15 AM ET 10/03/19

ACTIVE: Lost Communication >

76/100 Average Health	28.7% Load	3h57m ± 24m Estimated	0% Battery
--------------------------	---------------	--------------------------	---------------

Status **Lost Communication**

Output Power (kW) 13.0

Input Volt. L-L L-N 488.9, 487.6, 489.6

Output Volt. L-L L-N 208.0, 208.0, 208.0

Output Current (A) 27.0, 34.3, 48.5

Humidity 50.7%












Temperature F C 70.5°F

[Open More Details](#) ▾

Load 30 Days ▾

Device detail view > More details





← **EL385UXX11-93PM**
Eaton Demo
As of 08:15 AM ET 10/03/19

 Output Volt. <small>L-L L-N</small>	208.0, 208.0, 208.0
 Output Current (A)	27.0, 34.3, 48.5
 Humidity	50.7%
 Temperature <small>F C</small>	70.5°F
Close More Details 	
 Total Time on Battery	0d3h57m
 Last Service	--
 Installation Date	October 09, 2017
 Warranty/Contract End	October 08, 2023
Serial Number	EL385UXX11
Model	93PM
All Details 	
Load	30 Days 


Device detail view > Components, Connected Loads, Timeline, All Events

← EL385UXX11-93PM
Eaton Demo
As of 08:15 AM ET 10/03/19

Components ^




-  Battery PWHR12540W4FR >
-  Capacitor >
-  Fan >
-  Air filter >

Connected Loads ^

 Add loads to this UPS to assist in planning and add context to device use.



+ Add Load

Timeline

-  Lost Communication Oct 04, 2019 01:18 PM-N/A
-  Lost Communication Oct 04, 2019 11:17 AM-11:19 AM
-  Lost Communication Oct 04, 2019 10:03 AM-10:18 AM

All Events >

Device detail view > All details (scroll to view all values)

All Details	
EL385UXX11-93PM	
As of 08:15 AM ET 10/03/19	
Current (9) 	
Input Bypass Current Phase A	0.0 A
Input Bypass Current Phase B	0.0 A
Input Bypass Current Phase C	0.0 A
Input Current Phase A	20.0 A
Input Current Phase B	18.8 A
Input Current Phase C	19.0 A
Output Current Phase A	27.0 A
Output Current Phase B	34.3 A
Output Current Phase C	48.5 A
AC Voltage (9) 	
Phase-Neutral	<input type="checkbox"/>
Input Voltage Phase A	488.9 V
Input Voltage Phase B	487.6 V

The **key performance indicator (KPI)** icons at the top of the device detail screen all include a pop-up tool-tip aid, or direct to the detailed information, to explain what each icon represents.

The default **overview (home) screen** view shows the overall number of **devices, alarms, events, predictions** and overall health score (PulseScore).

- **Devices** are UPS systems actively subscribed and sending data to PredictPulse. A parallel UPS would equal two devices since each UPS can be monitored separately.
- **Alarms** come from the device, which may be informational or urgent. PredictPulse assigns alarms to categories like “On Battery”, “Internal Fault Detected”, etc. and a call to the customer point of contact for urgent alarms requiring an Eaton field technician site visit or advanced exchange will be conducted by the Monitoring team.
- **Events** are informational and do not come from a device. Lost communications, partial telemetry and high temperature are events.
- **Predictions** are predictive alerts for PredictPulse Insight subscribers. This will indicate one or more components health conditions need attention and an Eaton analyst will be in contact to discuss or arrange a site verification visit.

PulseScore is a summary of device conditions including operational status, recent alarms (taking into consideration the alarm criticality), component health, age, and service history. When viewing multiple devices, the average of all devices is displayed as an overall score and letter grade (A+ to F). The health score scale is 1 -100, is dynamic and can change at any time.

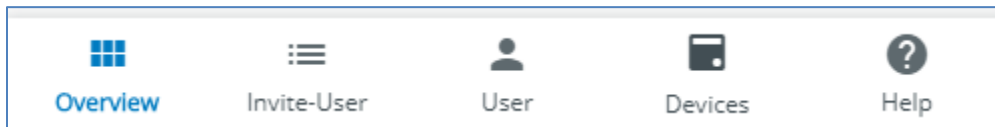
Letter Grade		Value	Points
Healthy		A+	100
Healthy		A	96-100
Healthy		A-	93-95
Healthy		B+	90-92
Healthy		B	87-89
Healthy		B-	84-86
Average Health		C+	81-83
Average Health		C	78-80
Average Health		C-	75-77
Poor Health		D+	72-74
Poor Health		D	69-71
Poor Health		D-	66-68
Poor Health		F	65 or below

Device parametric data		Value	20 Points
Load % overall		> 81%	-10
Load % overall		> 91%	-15
Temperature		< 64 F (18 C)	-5
Temperature		> 79 F (27 C)	-2
Temperature		> 84 F	-4
Temperature		> 89 F	-6
Temperature		> 95 F	-12
Humidity		< 40% rH	-5
Humidity		> 60% rH.	-5
Service history		Value	15 Points
Battery age		< 3yrs	0
Battery age		4 yrs	-2
Battery age		5 yrs	-5
Battery age		6 yrs +	-6
Capacitor age		> 5 years	-3
Capacitor age		NA	0
Capacitor age		> 7 years	-6
Emergency SR's in last year		> 0	-5
Emergency SR's in last year		0	0
Configuration		Value	2 Points
Parallel redundant		NOT	-2
Device age		Value	5 Points
less than 5 years			0
Between 5 and 10 years			-1
Between 11 and 15 years			-2
Between 16 and 20 years			-4
Best practices - extra credit		Value	3 Points
ESS/VMMS mode		ON	1
OEM Service		Eaton	1
Load less than 90%		< 90%	1
Device status		Status	30 Points
Status must be one state		Shutdown/ Offline	-20
		On Battery	-5
		Online VMMS	0

	Online ESS	0	
Default	Online - Double Conversion	0	
	On Bypass	-5	
	Lost Communications	-15	
Alarms/events within last 24 hours		Severity	25 Points
Default		Null	0
1 or more		Critical	-10
1 or more		Major	-5
1 Critical + 3 > Minor		Critical + Minor	-12
1 Critical + 1 Major		Critical + Major	-15
1 Major + 3 > minor		Major + Minor	-10
3 or more		Minor	-3
		Informational	0

Navigation within PredictPulse includes scrolling up and down (mobile) to view more information, clicking on a device or icon to drill down to a specific device, and the back arrow or side menu icon for preferences.


Screens may include navigation buttons on the bottom for common screens.



Navigation buttons

Connected Loads on the device detail screen displays your downstream loads like servers associated with a specific (UPS) device. This is user entered optional information. Click the Add Load button to add new information and click the saved connected load name to edit or delete a previously entered connected load. Once saved, all users can view this information.

Connected Loads ^

 Add loads to this UPS to assist in planning and add context to device use.

[+ Add Load](#)

Connected Loads > click to add loads

Add Load Device screen > enter load name, asset tag, load type and notes (optional)

Add Load Device
Eaton Demo

Name *

Please enter device name

Asset Name/Tag

Load Type
Server

Notes

Cancel Save

To view specific devices, click on the main home screen to see the **device list screen**. Each device associated with an organization's account will be displayed based on the health or alarms, in descending order of worst health to best health. Clicking on any device will open its **device detail screen**.

Monthly reports are automatically sent to all users (summary, detail report)

Eaton
System Overview
All Devices

PredictPulse™
August 2019
Monthly Report

Summary

In July 2019, Eaton had **13 Critical Incidents** with an overall System PulseScore of **92 (B+)**.

13
Events

92/100
PulseScore

Devices

Device ID	Status	Load	Events
EJ312BJ01-9395P	Healthy	0%	5
EJ184U002-93PM	Healthy	0%	8

Copyright © 2019 Eaton. All Rights Reserved. Eaton, PredictPulse, and PulseScore are registered trademarks. All other trademarks are property of their respective owners.

EJ312BJ01-9395P
Device Details
Eaton

PredictPulse™
August 2019
Monthly Report

Summary

In July 2019, EJ312BJ01-9395P had **5 Critical Incidents** with an overall System PulseScore of **94 (A-)**.

5
Events

94/100
PulseScore

0m On Battery

100% Availability

0% Avg Load

38% Avg Humidity

29°C Avg Temp

291V Avg Input

277V Avg Output

9A Avg Output

Load Trend

Load Devices

No load Devices

Timeline

Service call completed	Aug 06, 2019 01:40 PM - 01:40 PM
Service call attempted	Aug 06, 2019 01:40 PM - 01:40 PM
Partial Telemetry	Aug 05, 2019 03:11 PM - 08:32 AM
Lost Communication	Aug 05, 2019 03:14 PM - 03:15 PM
Partial Telemetry	Aug 05, 2019 02:53 PM - 03:14 PM

Details

Warranty End Date	--
Contract End Date	May 22, 2021
Serial Number	EJ312BJ01
Model Number	9395P-625-1100
Lead Service	--

Copyright © 2019 Eaton. All Rights Reserved. Eaton, PredictPulse, and PulseScore are registered trademarks. All other trademarks are property of their respective owners.

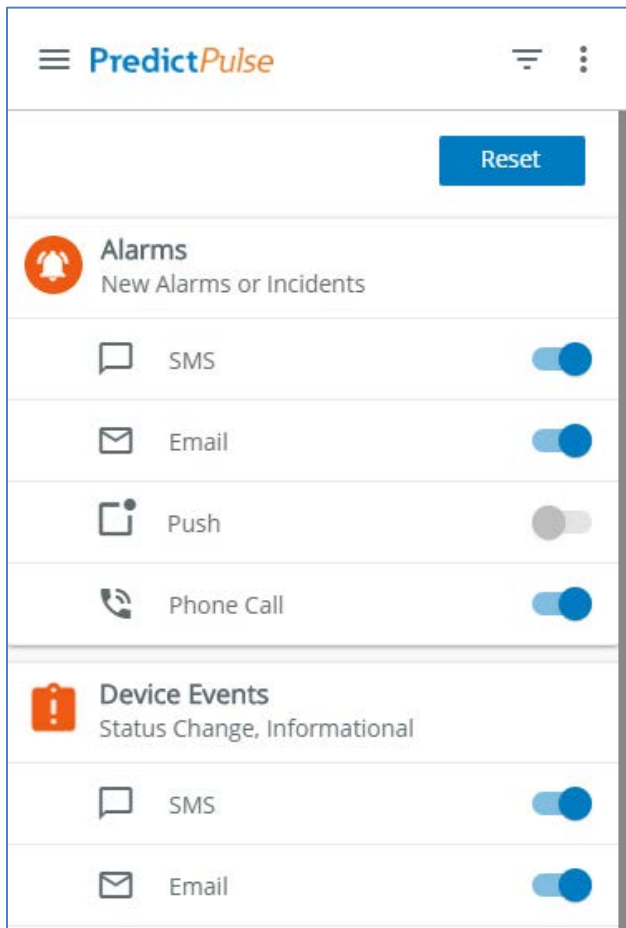
Alarms, notifications

Alarms are defined by the device, which may be informational or urgent. PredictPulse assigns alarms to categories like “On Battery”, “Internal Fault Detected”, etc. and a call to the customer point of contact for urgent alarms requiring an Eaton field technician site visit or advanced exchange will be conducted by the Monitoring team. Alarms are sent with approximately a one-minute latency.

Events are non-critical alerts, status change events and informational notices.

Notifications can be self-managed via the side menu **Settings** button. Default setting is every notification ON.

Note: SMS text messages may result in charges per text message.



Alarm table with specific critical, urgent alarms, and events. Eaton notifies customers via phone calls on alarms below.

Event Description	Customer Call	Customer Message	Notes
MAJOR: Ambient Over Temperature	Yes	Ambient Over Temperature	The Room is hot, have the customer check
MAJOR: Battery Over Temperature	Yes	Battery Over Temperature	The battery is above recommended temperature
CRITICAL: Low Battery Shutdown	Yes	Battery Totally Discharged	The Inverter was shut down when on battery due to totally discharging the battery
MAJOR: Check Battery	Yes	Check Battery	The battery should be checked.
CRITICAL: Site Wiring Fault	Yes	Check Neutral Connection	The Neutral wire may be disconnected
Check Parallel Board	Yes	Internal Fault Detected	Board Failure Powerware Plus
CRITICAL: Abnormal Output Voltage At Startup	Yes	Internal Fault Detected	Possible STSW short
CRITICAL: Check Backfeed Switchgear	Yes	Internal Fault Detected	The backfeed contactor or breaker did not close or open as expected.
CRITICAL: Check Battery Switchgear	Yes	Internal Fault Detected	The battery contactor or breaker did not close or open as expected.
CRITICAL: Check Bypass	Yes	Internal Fault Detected	The Bypass is not operating as expected.
CRITICAL: Check Bypass Switchgear	Yes	Internal Fault Detected	The bypass contactor or breaker did not close or open as expected. Most UPS's do not have this device.
CRITICAL: Check Heatsink Temperature Sensor	Yes	Internal Fault Detected	A temperature sensor is reading invalid temperatures.
CRITICAL: Check Input Switchgear	Yes	Internal Fault Detected	The Input contactor or breaker did not close or open as expected.
CRITICAL: Check Inverter	Yes	Internal Fault Detected	The Inverter cannot re-start.
CRITICAL: Check Inverter Switchgear	Yes	Internal Fault Detected	The Inverter contactor or breaker did not close or open as expected.
CRITICAL: Check Logic Power Supply	Yes	Internal Fault Detected	A logic power supply has failed.
CRITICAL: Check Parallel Board	Yes	Internal Fault Detected	Board Failure Powerware Plus
CRITICAL: Check Power Supply	Yes	Internal Fault Detected	A logic power supply has failed.
CRITICAL: Check Precharge	Yes	Internal Fault Detected	The pre-charge circuit did not charge the DC Link as expected.
CRITICAL: Check Static Switch	Yes	Internal Fault Detected	The static switch is not operating as expected.

<i>CRITICAL: Configuration Error</i>	Yes	<i>Internal Fault Detected</i>	<i>Typically occurs during servicing.</i>
<i>CRITICAL: DC Link Over Voltage</i>	Yes	<i>Internal Fault Detected</i>	<i>This alarm could occur during transient condition or could be an indication of failure.</i>
<i>CRITICAL: DC/DC Converter Tripped</i>	Yes	<i>Internal Fault Detected</i>	<i>The DC/DC converter shutdown due an alarm</i>
<i>CRITICAL: Internal Communication Failure</i>	Yes	<i>Internal Fault Detected</i>	<i>CAN Communications failed</i>
<i>CRITICAL: Inv AC Over Voltage</i>	Yes	<i>Internal Fault Detected</i>	<i>Could be due to a transient or failure</i>
<i>CRITICAL: Inverter AC Over Voltage</i>	Yes	<i>Internal Fault Detected</i>	<i>Duplicate</i>
<i>CRITICAL: Inverter Output Failure</i>	Yes	<i>Internal Fault Detected</i>	<i>The Inverter cannot generate output voltage</i>
<i>CRITICAL: Inverter Startup Failure</i>	Yes	<i>Internal Fault Detected</i>	<i>The Inverter could not start</i>
<i>CRITICAL: Inverter Tripped</i>	Yes	<i>Internal Fault Detected</i>	<i>The inverter shutdown due an alarm</i>
<i>CRITICAL: Inverter Under or Over Frequency</i>	Yes	<i>Internal Fault Detected</i>	<i>This should never happen unless there is a failure</i>
<i>CRITICAL: Loss of Sync Bus</i>	Yes	<i>Internal Fault Detected</i>	<i>Internal digital signal failure</i>
<i>CRITICAL: MBB Failure</i>	Yes	<i>Internal Fault Detected</i>	<i>This alarm is undocumented</i>
<i>CRITICAL: Output DC Over Voltage</i>	Yes	<i>Internal Fault Detected</i>	<i>The Inverter AC voltage has a large DC component.</i>
<i>CRITICAL: Program Stack Error</i>	Yes	<i>Internal Fault Detected</i>	<i>Board Failure Powerware Plus</i>
<i>External Communication Failure</i>	Yes	<i>Internal Fault Detected</i>	<i>A failure in the external CAN network was detected</i>
<i>MAJOR: Check Charger</i>	Yes	<i>Internal Fault Detected</i>	<i>The charger is not working as expected</i>
<i>MAJOR: Check Fan</i>	Yes	<i>Internal Fault Detected</i>	<i>A Fan has failed</i>
<i>MAJOR: Check Inverter Temperature Sensor</i>	Yes	<i>Internal Fault Detected</i>	<i>The sensor reading is out of range.</i>
<i>MAJOR: Check Rectifier</i>	Yes	<i>Internal Fault Detected</i>	<i>The rectifier has locked out. This could be due to many outages or a failure</i>
<i>MAJOR: Check Rectifier Temperature Sensor</i>	Yes	<i>Internal Fault Detected</i>	
<i>MAJOR: Selective Trip Of Module</i>	Yes	<i>Internal Fault Detected</i>	
<i>MINOR: Inverter A/D Converter Self-Test Failed</i>	Yes	<i>Internal Fault Detected</i>	<i>Board Failure Powerware Plus</i>
<i>MINOR: Inverter Control Board Failed Self-Test</i>	Yes	<i>Internal Fault Detected</i>	<i>Board Failure Powerware Plus</i>
<i>MINOR: Inverter CPU Self-Test Failed</i>	Yes	<i>Internal Fault Detected</i>	<i>Board Failure Powerware Plus</i>
<i>MINOR: Non-Volatile Memory Failure</i>	Yes	<i>Internal Fault Detected</i>	<i>The NVRAM battery requires replacement</i>
<i>MINOR: Program Checksum Failure</i>	Yes	<i>Internal Fault Detected</i>	
<i>MINOR: Software Incompatibility Detected</i>	Yes	<i>Internal Fault Detected</i>	<i>This should only occur when flashing the code</i>

<i>Network Not Responding</i>	Yes	<i>Internal Fault Detected</i>	<i>The internal network has lost communications</i>
<i>CRITICAL: Battery Voltage High</i>	Yes	<i>Internal Fault Detected</i>	<i>Possible Sensing failure, indicates something may be wrong.</i>
<i>CRITICAL: Check Battery Ground</i>	Yes	<i>Internal Fault Detected</i>	<i>This alarm indicates that Battery acid may have leaked and is creating a path to ground.</i>
<i>CRITICAL: Check Fuse</i>	Yes	<i>Internal Fault Detected</i>	<i>A blown fuse has been detected.</i>
<i>MAJOR: Charger Tripped</i>	Yes	<i>Internal Fault Detected</i>	<i>The Charger shutdown due an alarm</i>
<i>MAJOR: Unable To Charge Batteries</i>	Yes	<i>Internal Fault Detected</i>	<i>An fault was detected and the battery cannot be charged</i>
<i>MAJOR: Rectifier Tripped</i>	Yes	<i>Internal Fault Detected</i>	<i>The Rectifier shutdown due an alarm</i>
<i>MAJOR: Charger Over Voltage Or Current</i>	Yes	<i>Internal Fault Detected</i>	
<i>MAJOR: CRITICAL: Charger Over Temperature</i>	Yes	<i>Internal Over-Temperature</i>	
<i>MAJOR: Inverter Over Temperature</i>	Yes	<i>Internal Over-Temperature</i>	
<i>MAJOR: Inverter Over Temperature Trip</i>	Yes	<i>Internal Over-Temperature</i>	
<i>MAJOR: Rectifier OverTemperature</i>	Yes	<i>Internal Over-Temperature</i>	
<i>MAJOR: Rectifier Over-Temperature Trip</i>	Yes	<i>Internal Over-Temperature</i>	
<i>MAJOR: Static Switch Over Temperature</i>	Yes	<i>Internal Over-Temperature</i>	
<i>MAJOR: Transformer OverTemperature</i>	Yes	<i>Internal Over-Temperature</i>	
<i>MAJOR: UPS Cabinet OverTemperature</i>	Yes	<i>Internal Over-Temperature</i>	
<i>CRITICAL: Load Dumped (Load Power Off)</i>	Yes	<i>Load Power Off</i>	
<i>MINOR: L1 Overload</i>	Yes	<i>Output Overload</i>	
<i>MINOR: L1 Overload (Extreme Level)</i>	Yes	<i>Output Overload</i>	
<i>MINOR: L1 Overload (High Level)</i>	Yes	<i>Output Overload</i>	
<i>MINOR: L2 Overload</i>	Yes	<i>Output Overload</i>	
<i>MINOR: L2 Overload (Extreme Level)</i>	Yes	<i>Output Overload</i>	
<i>MINOR: L2 Overload (High Level)</i>	Yes	<i>Output Overload</i>	
<i>MINOR: L3 Overload</i>	Yes	<i>Output Overload</i>	
<i>MINOR: L3 Overload (Extreme Level)</i>	Yes	<i>Output Overload</i>	
<i>MINOR: L3 Overload (High Level)</i>	Yes	<i>Output Overload</i>	
<i>MINOR: Output Overload</i>	Yes	<i>Output Overload</i>	
<i>MINOR: Output Watts Overload</i>	Yes	<i>Output Overload</i>	
<i>MINOR: Output Load Over 100%</i>	Yes	<i>Output Overload</i>	
<i>MINOR: Inverter Overload</i>	Yes	<i>Output Overload</i>	
<i>CRITICAL: Shutdown Imminent</i>	Yes	<i>Shutdown Imminent</i>	

MAJOR: Ambient Under Temperature	Yes	Ambient Under Temperature	The Room is cold, have the customer check
MAJOR: Batteries Disconnected	Yes	Batteries Disconnected	
MAJOR: Bypass Phase Rotation	Yes	Bypass Source Out of Tolerance	Bypass phases are rotated.
CRITICAL: Emergency Shutdown Command	Yes	Emergency Shutdown	
CRITICAL: Output Short Circuit	Yes	High Output Current	A load short was detected
MINOR: Inverter L1 Current Limit	Yes	High Output Current	This could be due to a load transient or failure
MINOR: Inverter L2 Current Limit	Yes	High Output Current	This could be due to a load transient or failure
MINOR: Inverter L3 Current Limit	Yes	High Output Current	This could be due to a load transient or failure
MINOR: Inverter Output Over Current	Yes	High Output Current	
MINOR: Input Phase Rotation Error	Yes	Input Source Out of Tolerance	Site issue, possibly sensing failure.
MINOR: Input Phase Rotation	Yes	Input Source Out of Tolerance	Site issue, possibly sensing failure.
CRITICAL: Output AC Under Voltage	Yes	Output Voltage Out of Tolerance	
CRITICAL: Output Under Or Over Frequency	Yes	Output Voltage Out of Tolerance	
CRITICAL: Output AC Over Voltage	Yes	Output Voltage Out of Tolerance	This could be a high bypass or failure
MINOR: System Not Redundant	Yes	System Not Redundant	
MINOR: Redundancy Loss Due To Overload	Yes	System Not Redundant	
CRITICAL: UPS On Bypass	Yes	UPS On Bypass	
CRITICAL: DC Link Under Voltage	Yes		On Some products this could be normal. If due to a failure, other alarms will activate.
CRITICAL: Inverter AC Under Voltage	Yes		On some products, this alarm is active when the Inverter shuts down.
CRITICAL: Inverter Off Command	Yes		User Command
CRITICAL: Load Off Command Executed	Yes		User Command
CRITICAL: Output Switchgear Open	Yes		
CRITICAL: To Bypass Command	Yes		
MAJOR: Battery Test Failed	Yes		This is a nuisance alarm on some products. It activates if battery test does not run due to light load. If the test detects a failure "Check Battery" will activate.
MAJOR: System Alarm Active	Yes		

User roles, preferences

PredictPulse users can be either **administrators** or **users**. The first customer to enroll in any organization account is the default “administrator”. **Administrators** have special privileges including ability to manage other users, adding and deleting devices, and overall account security. There can be multiple administrators, but there must always be at least one user with the role of administrator. Contact Eaton support if you need help with reassigning **administrator** roles or if an administrator has left your organization.

Users can manage their own preferences, activate new devices and edit personal contact information, but cannot invite other users or change devices.

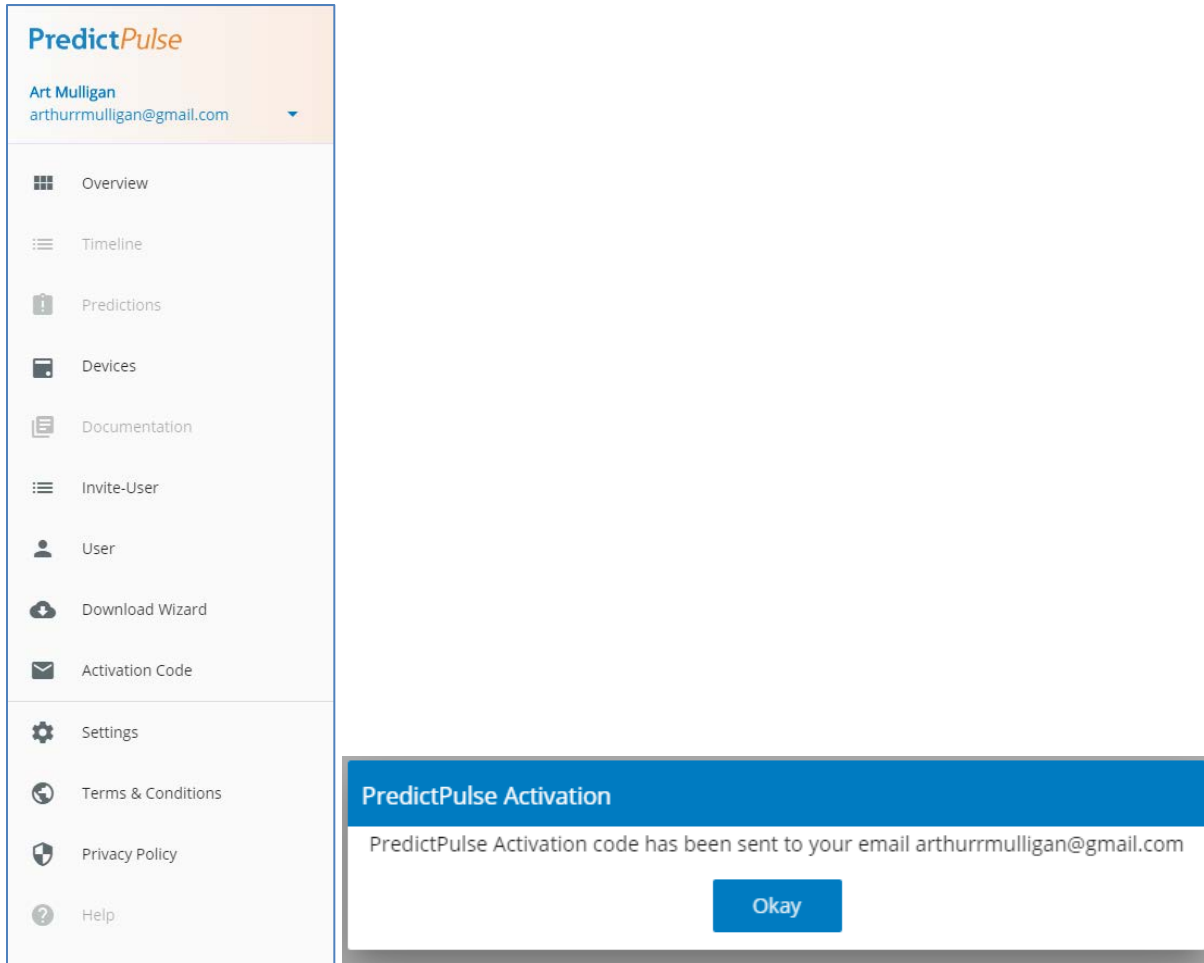
Inviting other users

Administrators can invite other users. Click the button “Invite-Users” from the bottom bar or side menu. You will be prompted for the name, email address and role type (administrator or user). Once the invited user has completed their enrollment and has access to your account, their status will display as “registered”. Users that have not completed enrollment will be displayed as “invited”.


Activating devices

A new account may have devices previously activated or, typically, no devices will be displayed. From a non-mobile device (laptop) on the same internal network as the device ready for PredictPulse, click the “activate device” button from the side menu. *Note: this cannot be done on a mobile device.*

Follow the prompts by entering the device IP address, your email address, and submit. The activation wizard will configure the network card and start sending outbound emails to PredictPulse. For help, contact Eaton support.



(Upper left) Sidebar > Download Wizard > screen confirmation, (lower left) email with Activation code, pop-up screen for Organization Code and email address > Wizard tool with prefilled Organization and user info, ready for IP address




Hi Art Mulligan,

In order to complete device activation from PredictPulse account run wizard installer from your laptop on your internal network where your device is connected. This installer is specific to your account.

EATO-447613

If you didn't attempt for activation code with PredictPulse, please disregard or delete this email.




Enter the following information to begin registration. The Organization Code has been e-mailed to you.

Organization Code

E-Mail Address

Country

PredictPulse™ Device Activation
×




↑ Upload CSV
🔍 Search IP Range

Organization Code
EATO-447613
arthurrmulligan@gmail.com (United States)

Enter the IP Address(es) of your compatible Eaton UPS(s) below to add them to PredictPulse. You may also enter an IP Range to scan, or upload a CSV of UPS IP addresses to continue.

IP Address	Serial Number
<input style="width: 95%;" type="text"/>	Enter IP Address to find...

☰ Add UPS


© 2019 Eaton Corporation

PredictPulse™ Device Activation

PredictPulse™ Upload CSV Search IP Range Organization Code EATO-447613 arthurrulligan@gmail.com (United States)

Enter the IP Address(es) of your compatible Eaton UPS(s) below to add them to PredictPulse. You may also enter an IP Range to scan, or upload a CSV of UPS IP addresses to continue.

IP Address	Serial Number	
✓ 10.222.23.235	FF524UXX03	Remove

Enter IP Address to find...

≡+ Add UPS

EATON
© 2019 Eaton Corporation

Finish

! Activation Complete

The following serial numbers have been successfully activated in PredictPulse:
FF524UXX03

Close

User enrollment and administrators

New users enroll online at <https://www.predictpulseapp.eaton.com/login> using a two-step authentication process for security. Required information to get enrolled includes a valid email address, mobile (or phone) number, and unique password. After submitting the initial user enrollment request, a verification email is sent enabling you to complete your enrollment.

The first user enrolled is designated as an “administrator” for the account and can invite any number of other users. There can be an unlimited number of administrators, but every account must have at least one administrator capable of managing other approved users. If at any time an administrator leaves the company or no longer wants to be an administrator, any authorized user can contact Eaton PredictPulse support and another user can be designated as an administrator. There’s no limit on the number of users.

Inviting other users

Administrators can invite, using the sidebar, other users or coworkers to enroll in PredictPulse either as a user or as an administrator. If you’re not setup as an administrator and want other coworkers to have access to your PredictPulse account, you should contact your administrator and have them invite the user(s). You may also contact Eaton PredictPulse support and additional users can be invited. The customer’s administrators ultimately have authority to manage, control, invite and delete all users. Once a new user is enrolled they can view all device data associated with the account.

Troubleshooting

Data or visibility issues - you may need to occasionally clear your browser cache, click your reload button to refresh the PredictPulse app, or adjust your browser resolution settings. New features and updates will be released over time and clearing the browser cache or adjusting the browser resolution settings often corrects login or data visibility issues.

Cannot see Activation Wizard – this feature is only displayed on browsers (laptop) where the screen size is 1024 x 926 or higher; mobile devices cannot see this feature

Greyed out selections – in several screens, buttons may be grey and nonfunctional. Certain features will be added or turned on or off based on your subscription. Activation wizard will only appear on a laptop browser and schedule service > call Eaton will only work on a mobile device.

Missing load trend chart – new devices without any history will display a blank or “missing load trend” until data has been collected over at least 2 days. If a device stops sending data, a trend chart may have a gap indicating missing data.

Lost communication – devices will occasionally miss sending an email to PredictPulse. After two consecutive missed heartbeats, or telemetry emails, PredictPulse will automatically display a status of Lost Communication. Once a device sends an email, the status will revert to normal or its condition. Typically, this issue is due to a customer communication network change beyond the control of Eaton. A lost comms restored email will be sent upon restoration.

Partial telemetry – occasionally a device will send an email and one of the required data attachments is incomplete, incorrect or a value may be missing. PredictPulse will display valid information but certain values may be null or displayed as “—”. Check if you have the latest firmware. Go to Eaton’s web site, www.eaton.com, and search for “network connectivity card” resources to download the latest firmware.

Questions? 24x7 (USA call 800-843-9433, option 2, option 5 or email predictpulseoperations@eaton.com)

Glossary of terms

Activation wizard: executable tool downloaded from laptop sidebar to configure a UPS device to send data to PredictPulse

Administrators: Administrators can invite, using the sidebar, other users or coworkers to enroll in PredictPulse either as a user or as an administrator.

Alarms: defined by the device, which may be informational or urgent. PredictPulse assigns alarms to categories like “On Battery”, “Internal Fault Detected”, etc. and a call to the customer point of contact for urgent alarms requiring an Eaton field technician site visit or advanced exchange will be conducted by the Monitoring team.

Battery state of charge: indicator of battery charge. 100% battery indicates the batteries are fully charged.

Battery Time Remaining: estimated battery run time available based on current load and battery charge. Based on UPS data.

Devices: infrastructure equipment (Eaton UPS’s) capable of being monitored by PredictPulse, with an IP address, network card and access to a SMTP email network or wireless broadband network (4G/LTE). A parallel UPS would equal two devices since each UPS can be monitored separately.

Device list view: list view screen viewed after clicking on home page; displays all subscribed devices

Device Detail view: most detailed view of a single device, scroll to view all related information, alarms and health

EULA: end user license agreement, terms of use and terms and conditions

Events: Non-device information. Lost communications, partial telemetry and ambient high temperature are examples.

GDPR: global data privacy regulations

Load: percentage of available UPS power protecting connected loads. A 60% load percentage indicates that 60% of the UPS is being used and another 40% is available.

Lost communication – devices will occasionally miss sending an email to PredictPulse. After two consecutive missed heartbeats, or telemetry emails, PredictPulse will automatically display a status of Lost Communication. Once a device sends an email the status will revert to normal or its condition. Typically, this issue is due to a customer communication network change beyond the control of Eaton. A lost comms restored email will be sent upon restoration.

Users: can manage their own preferences and contact information but cannot invite other users or change devices.

Organization: a single account with users and devices. Enrolled and registered users will all see the same information.

Organization Code: PredictPulse assigns a unique organization code upon initial account set-up to maintain multi tenancy data privacy. Only users enrolled within the same organization code can see data from an account.

Overview page: home page or main page viewed after logging in

Partial telemetry – occasionally a device will send an email and one of the required data attachments is incomplete, incorrect or a value may be missing. PredictPulse will display valid information but certain values may be null or displayed as “—”. Check if you have the latest firmware. Go to Eaton’s web site, www.eaton.com, and search for “network connectivity card” resources to download the latest firmware.

Predictions: predictive alerts for PredictPulse Insight subscribers. This will indicate one or more components health conditions need attention and an Eaton analyst will be in contact to discuss or arrange a site verification visit.

Privacy policy: policy that defines personal data privacy rules

PulseScore: a summary of device conditions including operational status, recent alarms (taking into consideration the alarm criticality), component health, age and service history. When viewing multiple devices, the average of all devices is displayed as an overall score and letter grade (A+ to F). In most situations Eaton offers extra credit points where the score can be greater than 100. This health score is dynamic and can change at any time.

SMS: short text messaging system.

Copyright Eaton 2020

Eaton and PredictPulse are trademarks of Eaton Corp.