Eaton PredictPulse™ User Help

Revision 1.3.4 October 7, 2019

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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.

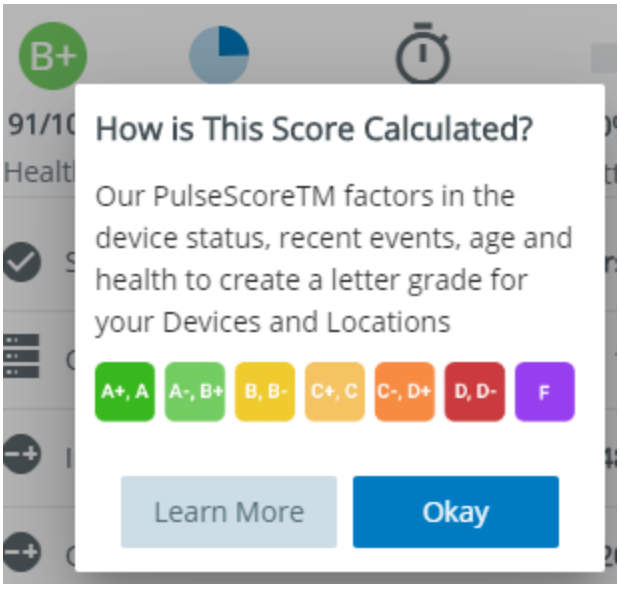
Note: you may need to clear your browser cache or click your reload button to refresh the PredictPulse app occasionally. New features and updates will be released over time and clearing the browser cache often corrects login or data visibility issues.

Note: browsers supported include Chrome, Firefox, Edge and Safari. Do not use Microsoft Internet Explorer 11 or older.

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

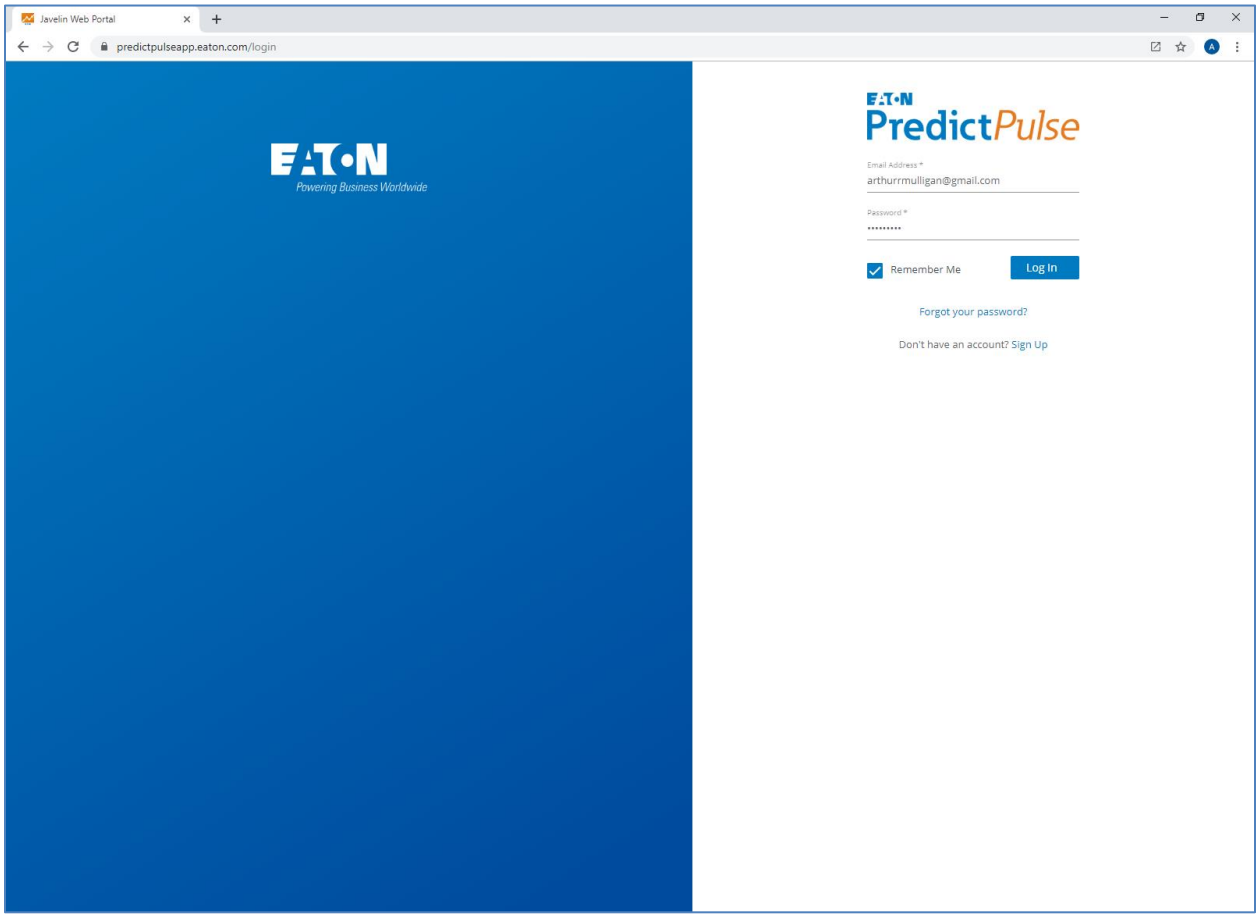
1. Login screen (new enrollment, password reset)
2. Overview page (at-a-glance of all devices)
    a. Preferences, activate devices, invite users
3. Device list view
    a. Navigation buttons (overview, invite-user, user, devices, help)
4. Device detail view
    a. More details views (expand/collapse)

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

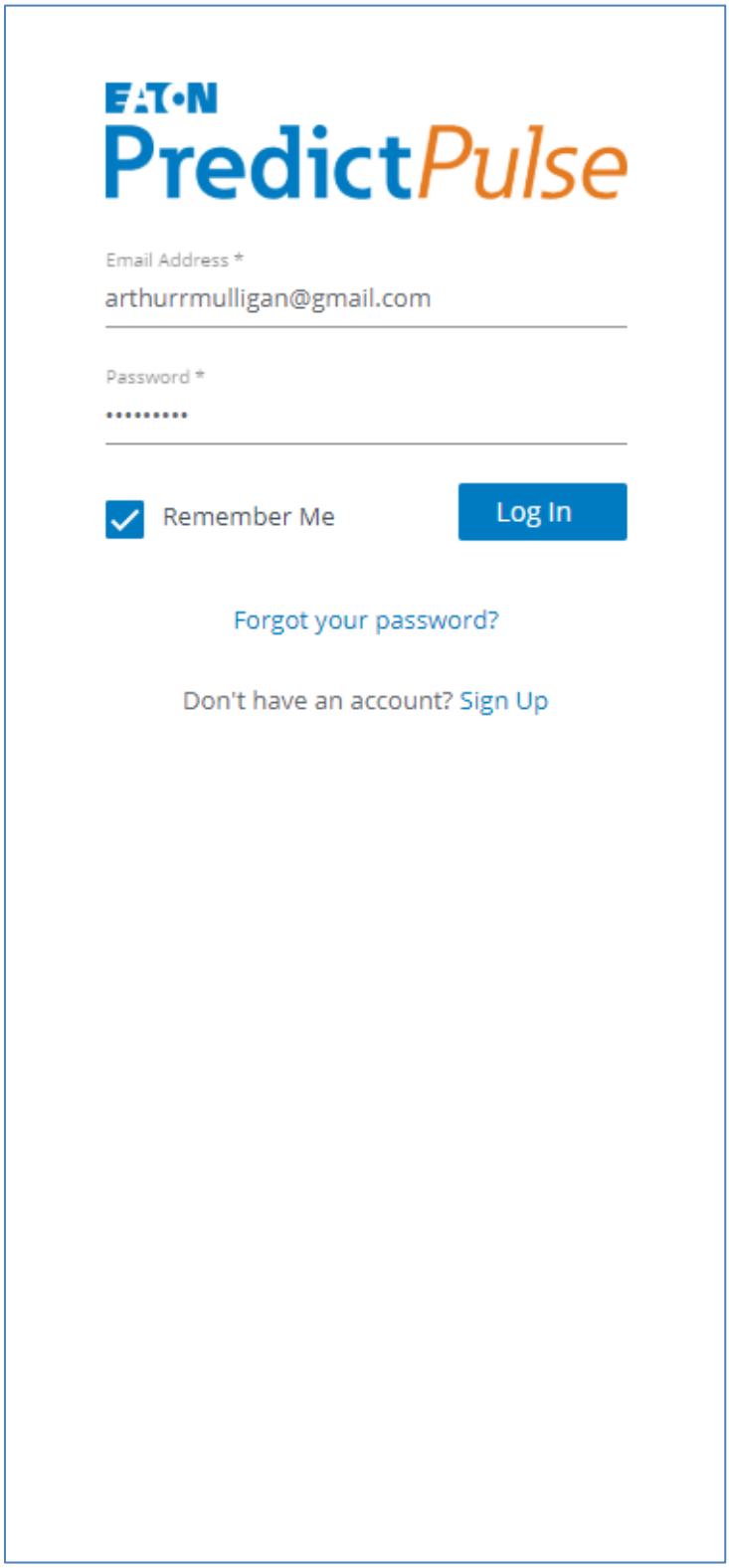


Many of the icons include **pop-up tool-tip** explanations by clicking. Above example can be viewed by clicking the PulseScore letter grade (B+ in the illustration above).

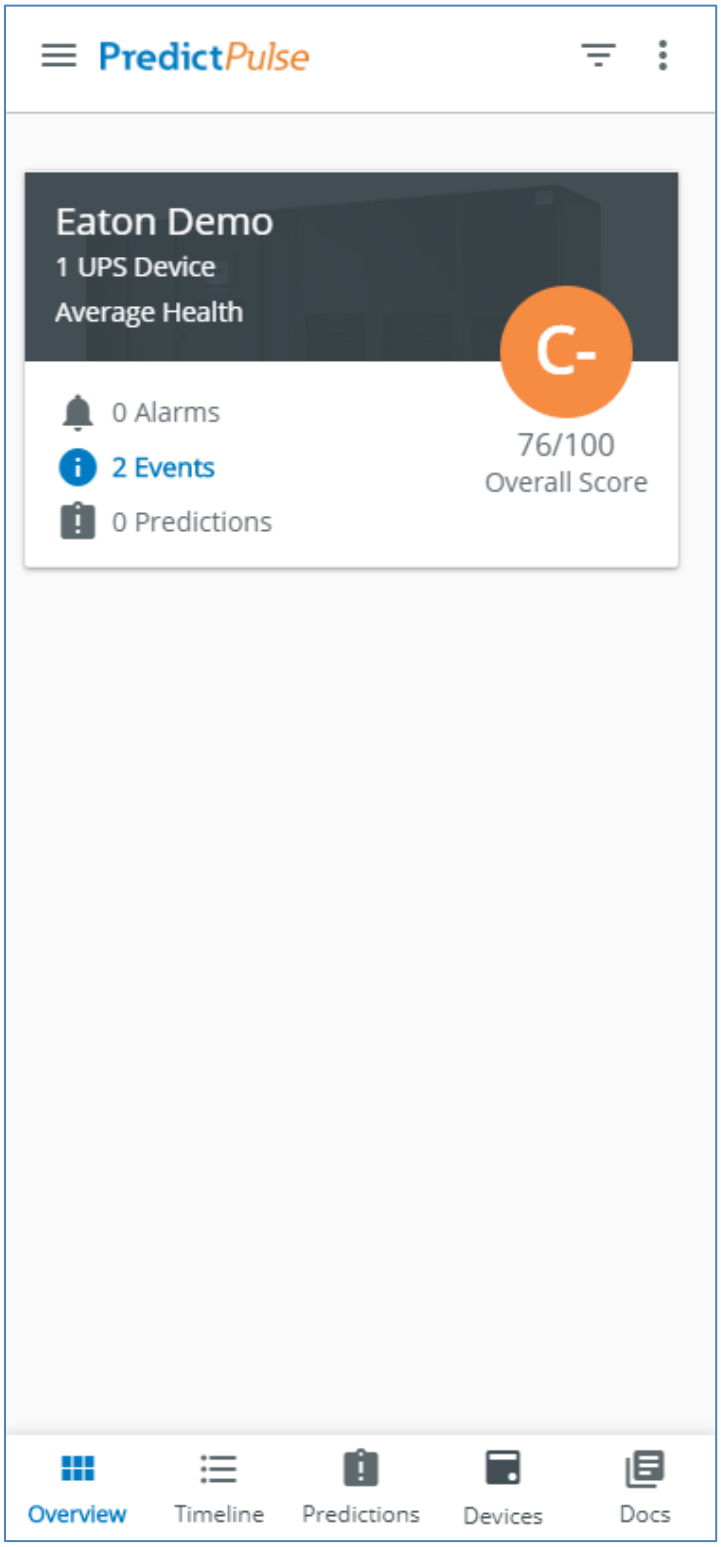
Login screen from browser (new enrollment, password reset), enroll or login to open overview page



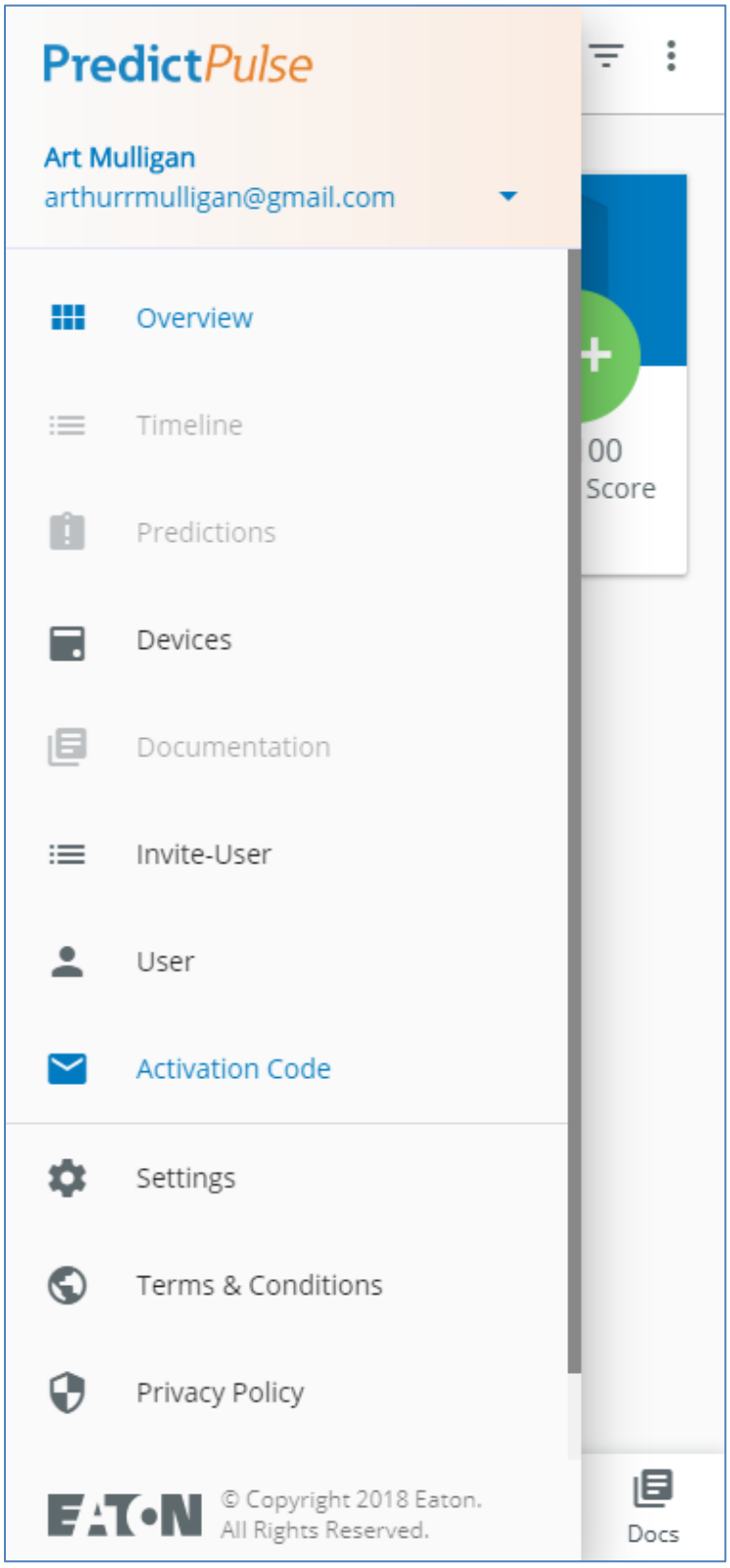
Login screen from mobile device



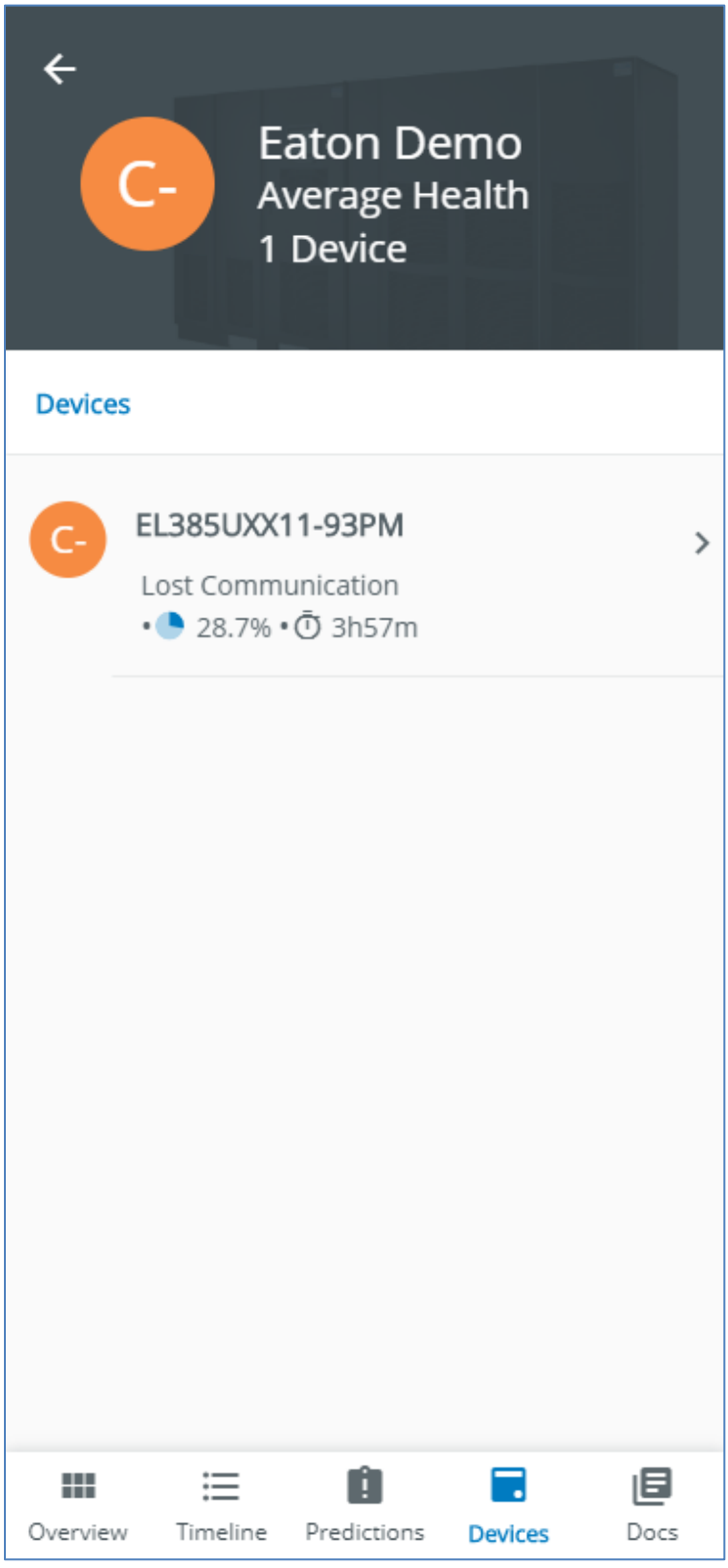
Overview page with at-a-glance of all devices (click on card to open device list)



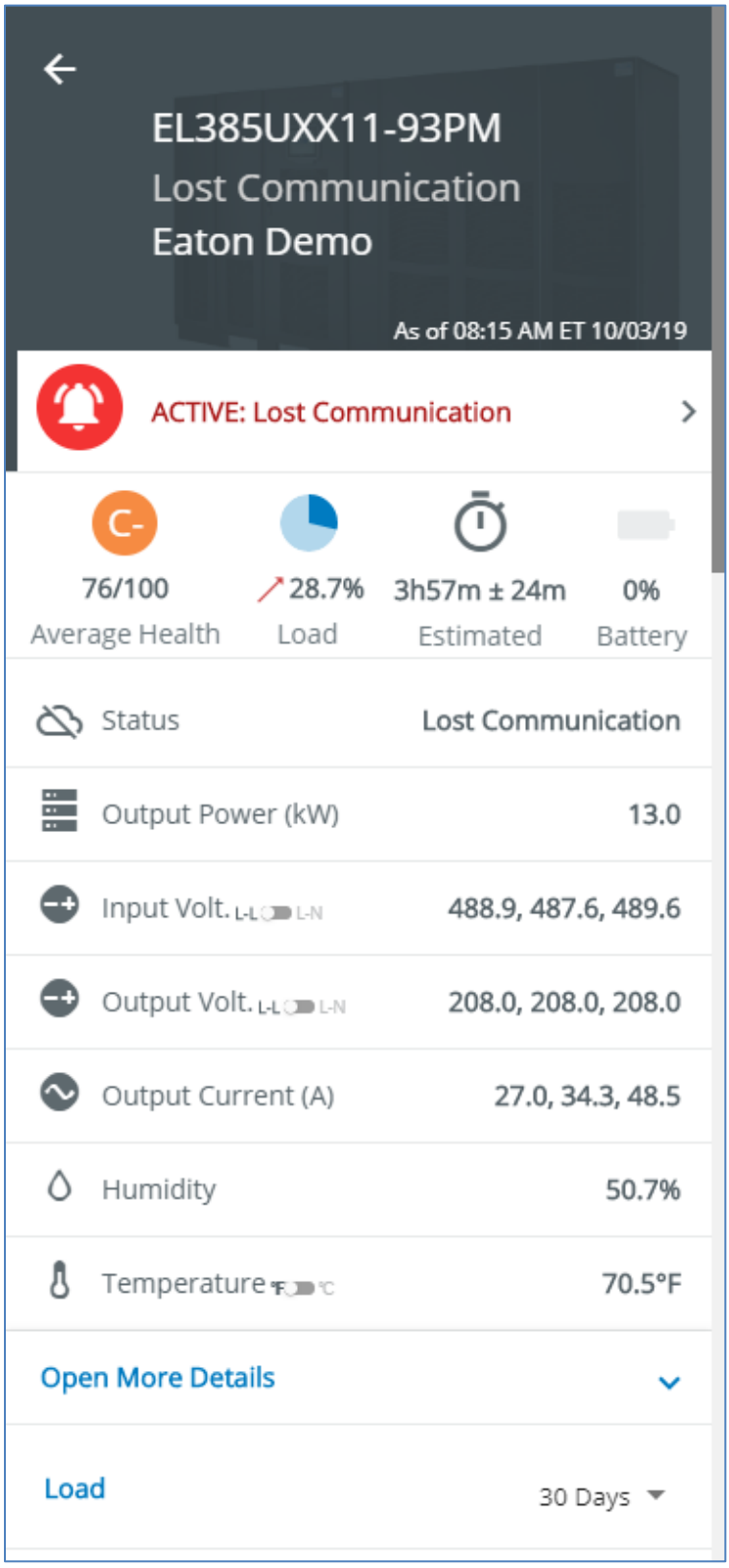
Sidebar menu > access user actions like notification preferences (settings), invite users



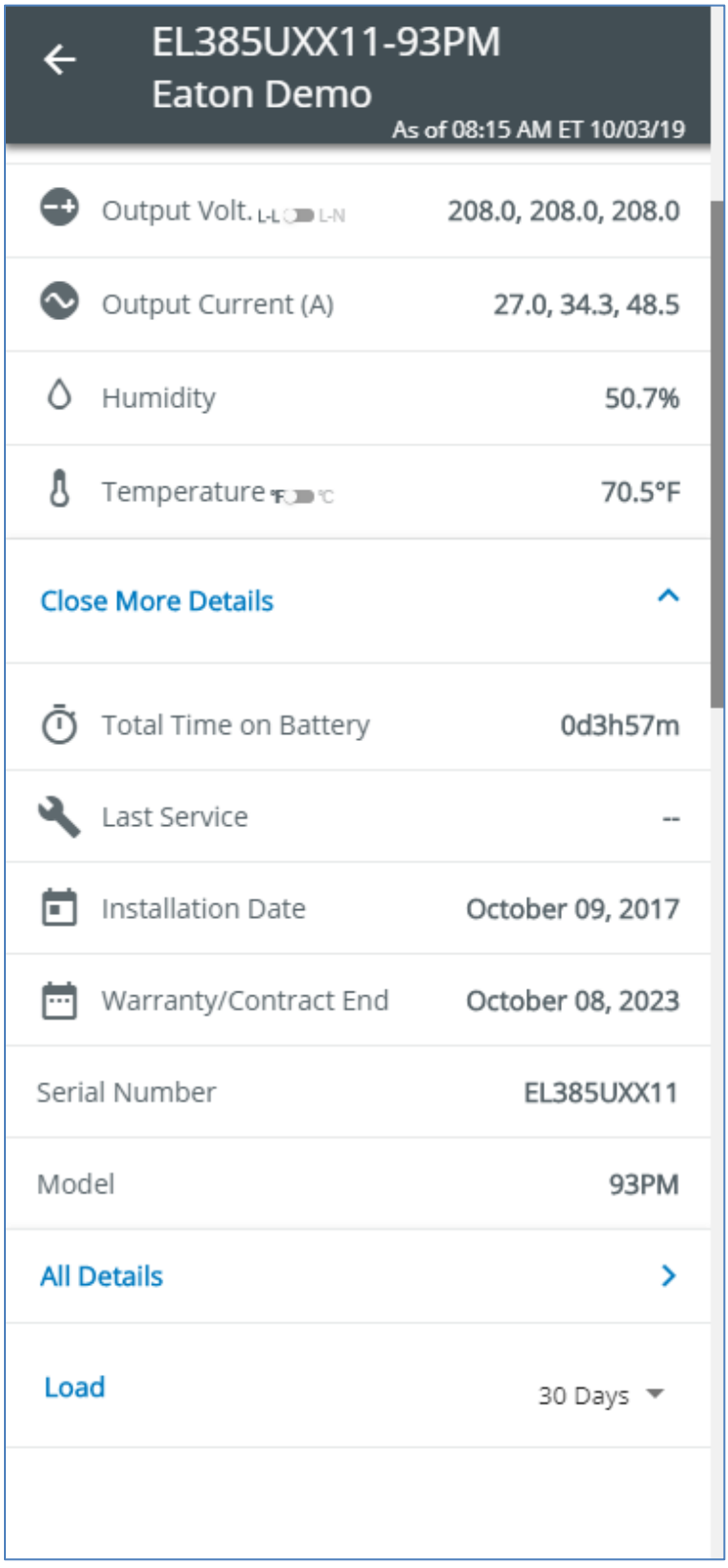
Device list view (click on a specific device to open device detail view)



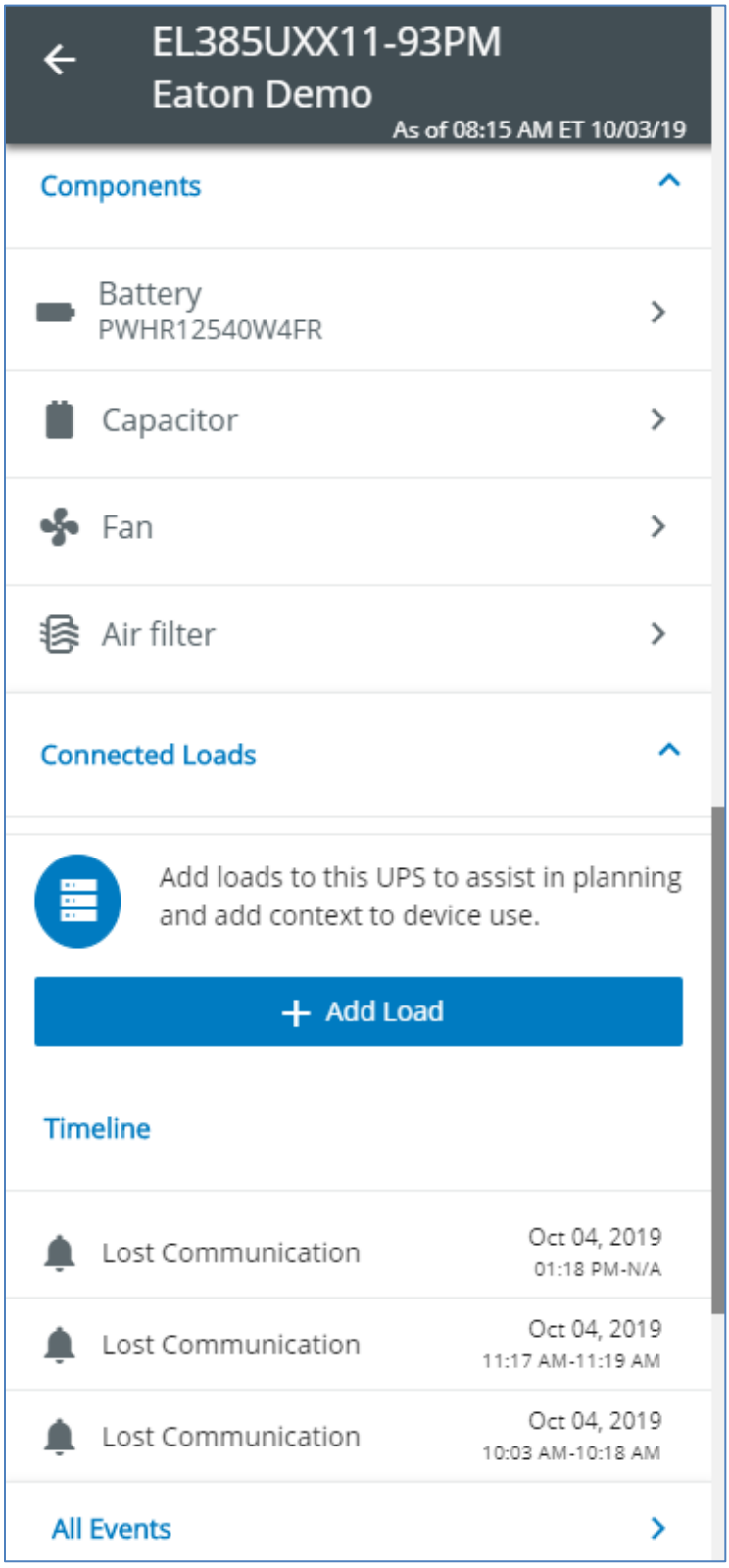
Device detail view



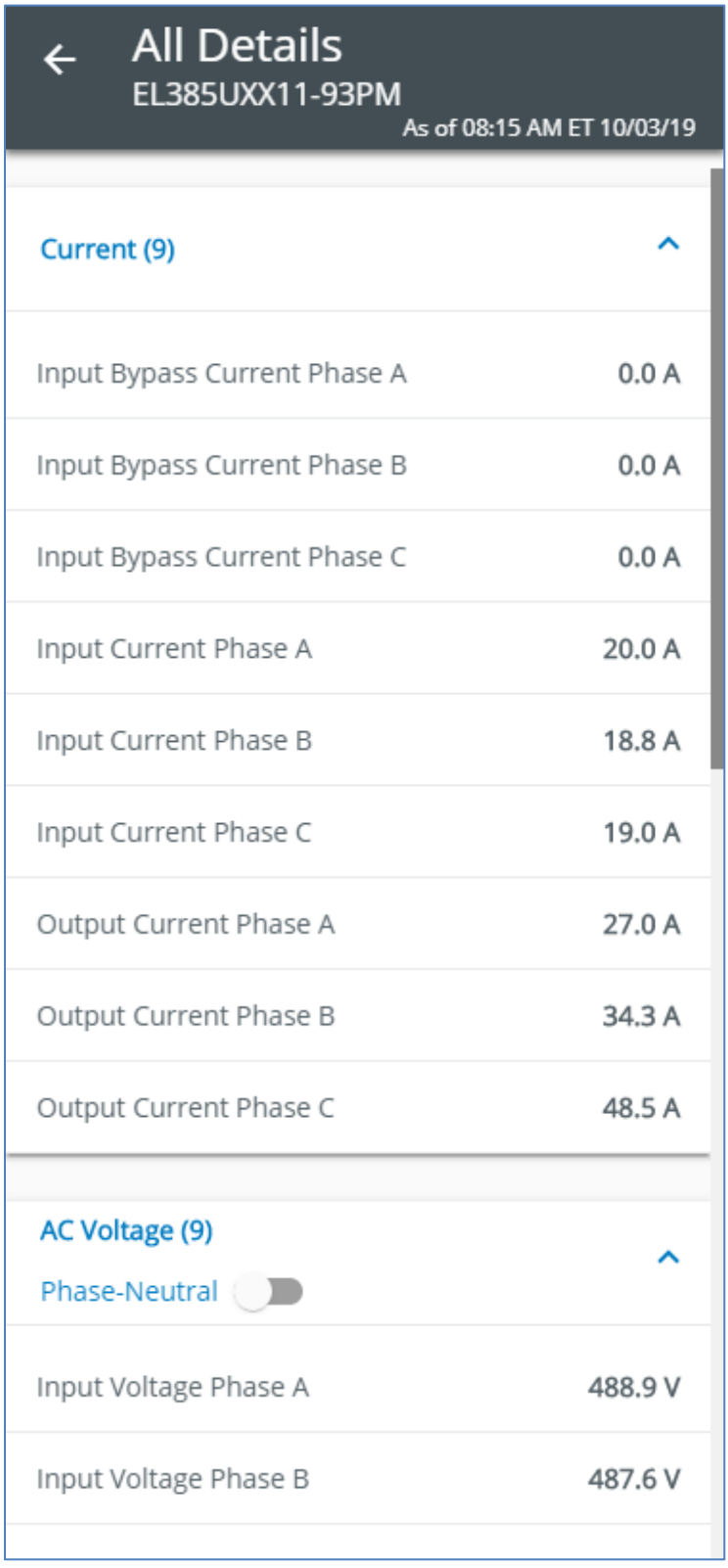
Device detail view > More details



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



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



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 and include critical and urgent alarms, 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 scale is 1 -100 with extra points offered for best practices (core can exceed 100 points). This health score is dynamic and can change at any time.

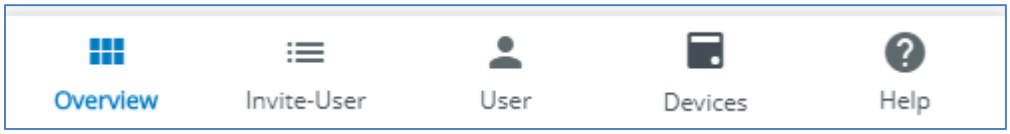
Letter Grade		**Value**	**Points**
Healthy		A+	101+
Healthy		A	96-100
Healthy		A-	93-95
Healthy		B+	90-92
Healthy		B	87-89
Healthy		B-	84-86
Average Health		C+	81-83
Average Health		C	78-80
Average Health		C-	75-77
Poor Health		D+	72-74
Poor Health		D	69-71
Poor Health		D-	66-68
Poor Health		F	65 or 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**	**5 Points**
Parallel redundant		NOT	-2
Battery cabinet		<2	-1
MBP (Maintenance bypass panel)		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**	**5 Points**
ESS/VMMS mode		ON	1
UPS PM's completed within last year		> 1	2
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

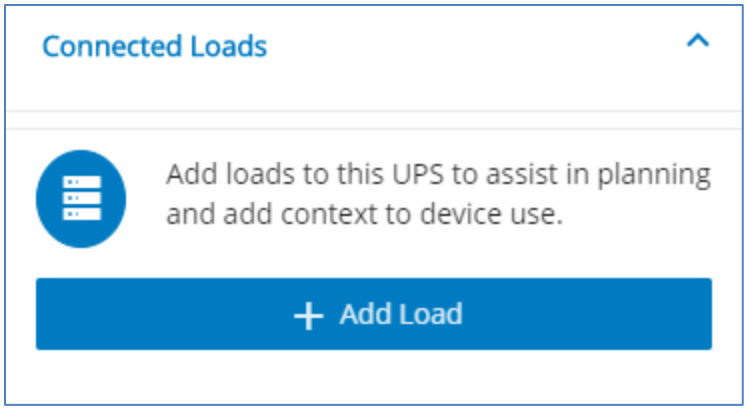
Navigation within PredictPulse includes scrolling up and down (mobile) to view more information, clicking on a device or icon to drill down to a specific device, and the back arrow or side menu icon for preferences.

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



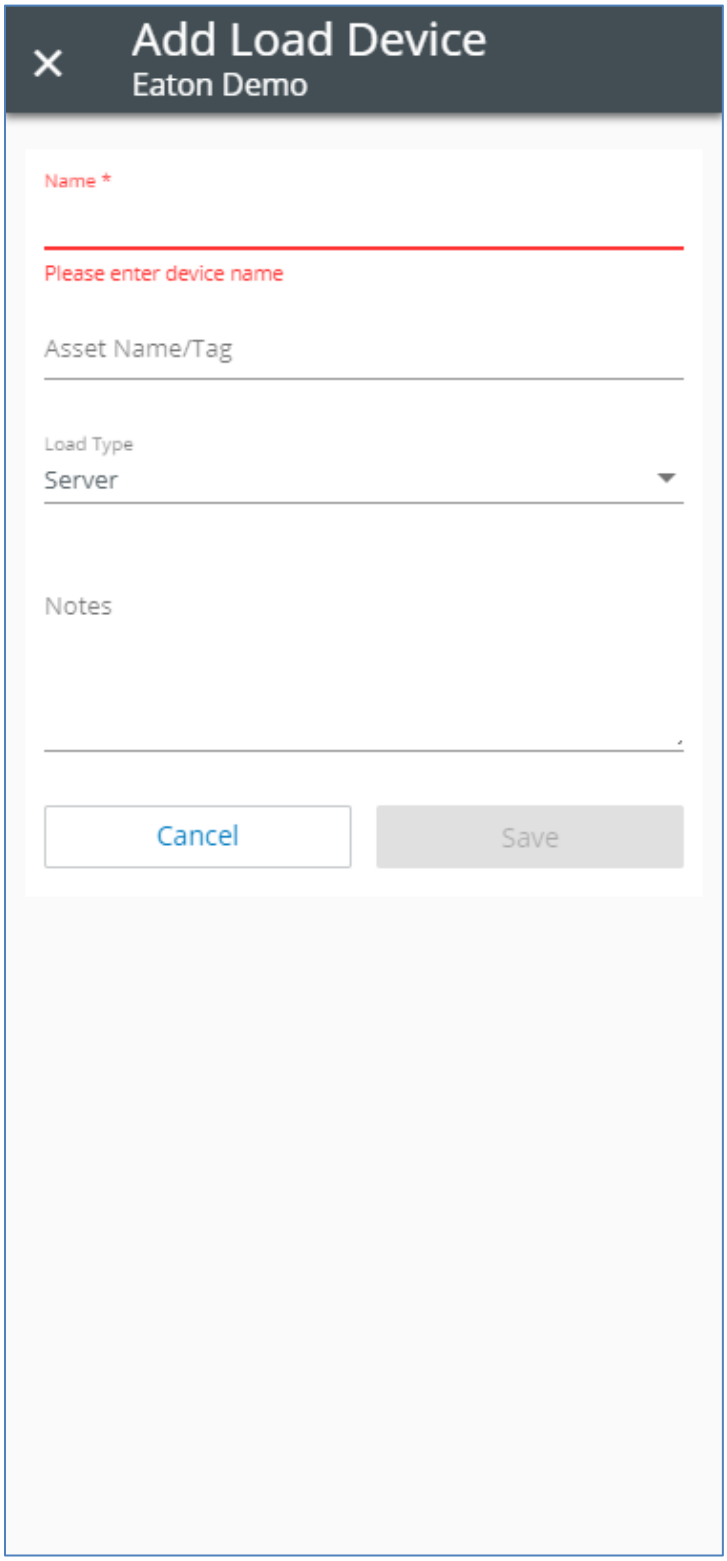
Navigation buttons

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.



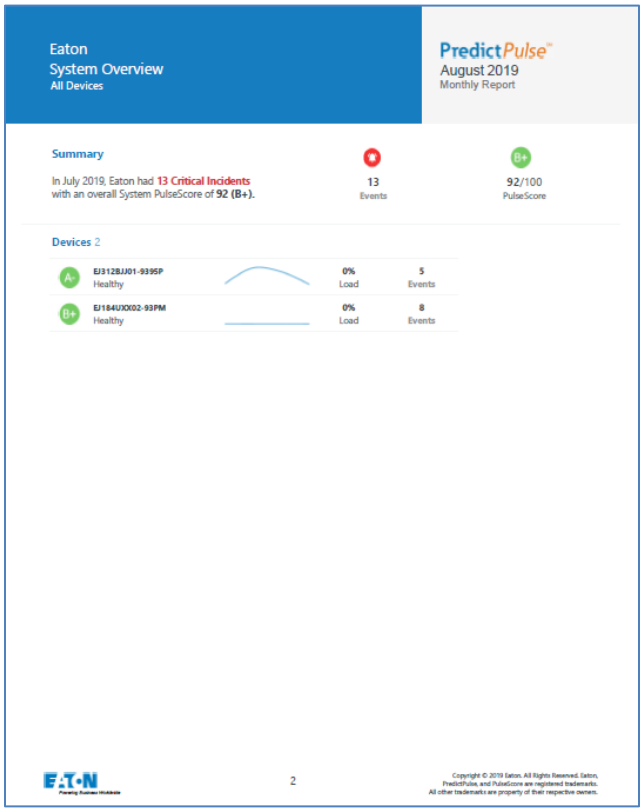
Connected Loads > click to add loads

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



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

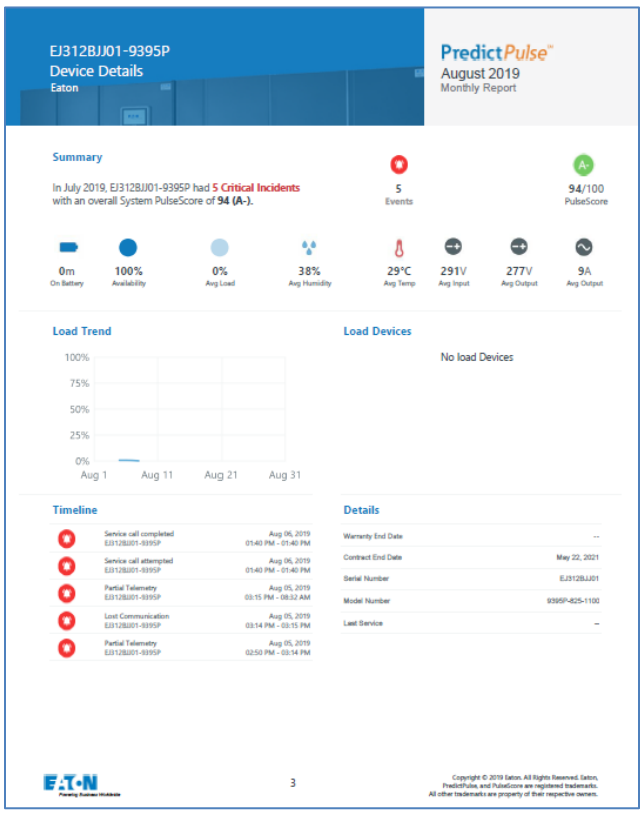
92/100 PulseScore

Devices 2

EJ312BJJ01-9395P Healthy — 0% Load — 5 Events

EJ184UXK02-93PM Healthy — 0% Load — 8 Events

2


EJ312BJJ01-9395P
Device Details
Eaton

PredictPulse
August 2019
Monthly Report

Summary

In July 2019, EJ312BJJ01-9395P 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

100% 75% 50% 25% 0%

Aug 1 Aug 11 Aug 21 Aug 31

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 03:15 PM - 08:32 AM

Lost Communication — Aug 05, 2019 03:14 PM - 03:15 PM

Partial Telemetry — Aug 05, 2019 02:50 PM - 03:14 PM

Details

Warranty End Date --

Contract End Date May 22, 2021

Serial Number EJ312BJJ01

Model Number 9395P-825-1100

Last Service --

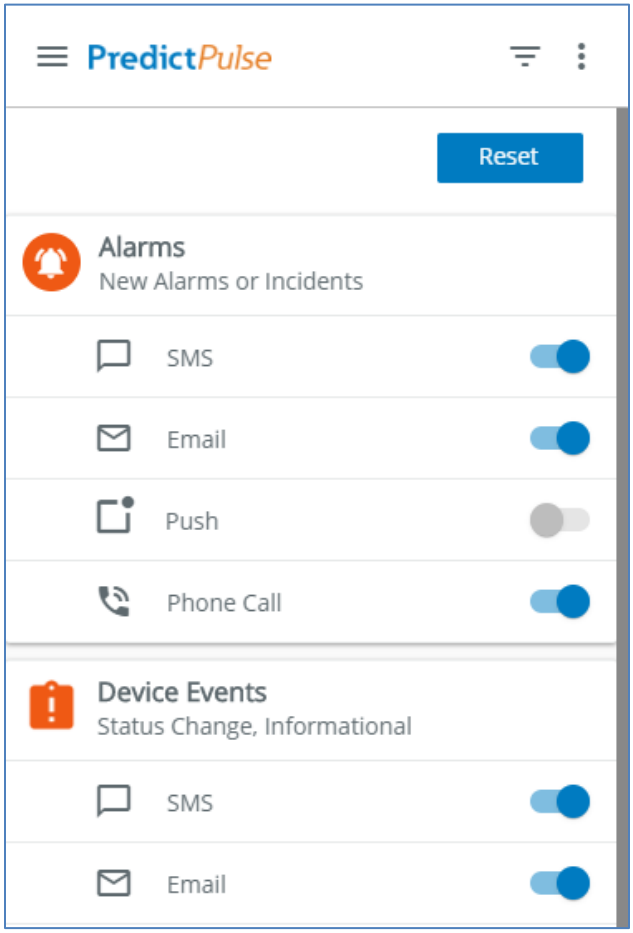
3

Alarms, notifications

Alarms are defined by the device and include critical and urgent alarms, 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.

EventDesc	*Customer Call*	*Customer Message*	*Notes*
MAJOR: Ambient OverTemperature	*Yes*	*Ambient OverTemperature*	*The Room is hot, have the customer check*
MAJOR: Battery Over Temperature	*Yes*	*Battery Over Temperature*	*The battery is above recommned temperature*
CRITICAL: Low Battery Shutdown	*yes*	*Battery Totally Discharged*	*The Inverter was shutdown 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 oerating 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.*
CRITICAL: Configuration Error	*Yes*	*Internal Fault Detected*	*Typically occurs during servicing.*
CRITICAL: DC Link Over Voltage	*Yes*	*Internal Fault Detected*	*This alarm could occur during transient condition or could be an indication of failure.*
CRITICAL: DC/DC Converter Tripped	*yes*	*Internal Fault Detected*	*The DC/DC converter shutdown due an alarm*
CRITICAL: Internal Communication Failure	*Yes*	*Internal Fault Detected*	*CAN Communications failed*
CRITICAL: Inv AC Over Voltage	*Yes*	*Internal Fault Detected*	*Could be due to a transient or failure*
CRITICAL: Inverter AC Over Voltage	*Yes*	*Internal Fault Detected*	*Duplicate*
CRITICAL: Inverter Output Failure	*Yes*	*Internal Fault Detected*	*The Inverter cannot generate output voltage*
CRITICAL: Inverter Startup Failure	*Yes*	*Internal Fault Detected*	*The Inverter could not start*
CRITICAL: Inverter Tripped	*yes*	*Internal Fault Detected*	*The inverter shutdown due an alarm*
CRITICAL: Inverter Under Or Over Frequency	*Yes*	*Internal Fault Detected*	*This should never happen unless there is a failure*
CRITICAL: Loss Of Sync Bus	*Yes*	*Internal Fault Detected*	*Internal digital signal failure*
CRITICAL: MBB Failure	*Yes*	*Internal Fault Detected*	*This alarm is undocumented*
CRITICAL: Output DC Over Voltage	*Yes*	*Internal Fault Detected*	*The Inverter AC voltage has a large DC component.*
CRITICAL: Program Stack Error	*Yes*	*Internal Fault Detected*	*Board Failure Powerware Plus*
External Communication Failure	*Yes*	*Internal Fault Detected*	*A failure in the external CAN network was detected*
MAJOR: Check Charger	*Yes*	*Internal Fault Detected*	*The charger is not working as expected*
MAJOR: Check Fan	*Yes*	*Internal Fault Detected*	*A Fan has failed*
MAJOR: Check Inverter Temperature Sensor	*Yes*	*Internal Fault Detected*	*The sensor reading is out of range.*
MAJOR: Check Rectifier	*Yes*	*Internal Fault Detected*	*The rectifier has locked out. This could be due to many outages or a failure*
MAJOR: Check Rectifier Temperature Sensor	*Yes*	*Internal Fault Detected*	
MAJOR: Selective Trip Of Module	*Yes*	*Internal Fault Detected*	

MINOR: Inverter A/D Converter Self-Test Failed	*Yes*	*Internal Fault Detected*	*Board Failure Powerware Plus*
MINOR: Inverter Control Board Failed Self-Test	*Yes*	*Internal Fault Detected*	*Board Failure Powerware Plus*
MINOR: Inverter CPU Self-Test Failed	*Yes*	*Internal Fault Detected*	*Board Failure Powerware Plus*
MINOR: Non-Volatile Memory Failure	*Yes*	*Internal Fault Detected*	*The NVRAM battery requires replacement*
MINOR: Program Checksum Failure	*Yes*	*Internal Fault Detected*	
MINOR: Software Incompatibility Detected	*Yes*	*Internal Fault Detected*	*This should only occur when flashing the code*
Network Not Responding	*Yes*	*Internal Fault Detected*	*The internal network has lost communications*
CRITICAL: Battery Voltage High	*Yes*	*Internal Fault Detected*	*Possible Sensing failure, Indicates something may be wrong.*
CRITICAL: Check Battery Ground	*Yes*	*Internal Fault Detected*	*This alarm indicates that Battery acid may have leaked and is creating a path to ground.*
CRITICAL: Check Fuse	*Yes*	*Internal Fault Detected*	*A blown fuse has been detected.*
MAJOR: Charger Tripped	*Yes*	*Internal Fault Detected*	*The Charger shutdown due an alarm*
MAJOR: Unable To Charge Batteries	*Yes*	*Internal Fault Detected*	*An fault was detected and the battery cannot be charged*
MAJOR: Rectifier Tripped	*Yes*	*Internal Fault Detected*	*The Rectifier shutdown due an alarm*
MAJOR: Charger Over Voltage Or Current	*Yes*	*Internal Fault Detected*	
MAJOR: CRITICAL: Charger Over Temperature	*Yes*	*Internal Over-Temperature*	
MAJOR: Inverter Over Temperature	*Yes*	*Internal Over-Temperature*	
MAJOR: Inverter Over Temperature Trip	*Yes*	*Internal Over-Temperature*	
MAJOR: Rectifier OverTemperature	*Yes*	*Internal Over-Temperature*	
MAJOR: Rectifier Over-Temperature Trip	*Yes*	*Internal Over-Temperature*	
MAJOR: Static Switch Over Temperature	*Yes*	*Internal Over-Temperature*	
MAJOR: Transformer OverTemperature	*Yes*	*Internal Over-Temperature*	
MAJOR: UPS Cabinet OverTemperature	*Yes*	*Internal Over-Temperature*	
CRITICAL: ***Load Dumped (Load Power Off)***	*Yes*	*Load Power Off*	
MINOR: L1 Overload	*Yes*	*Output Overload*	

MINOR: L1 Overload (Extreme Level)	*Yes*	*Output Overload*	
MINOR: L1 Overload (High Level)	*Yes*	*Output Overload*	
MINOR: L2 Overload	*Yes*	*Output Overload*	
MINOR: L2 Overload (Extreme Level)	*Yes*	*Output Overload*	
MINOR: L2 Overload (High Level)	*Yes*	*Output Overload*	
MINOR: L3 Overload	*Yes*	*Output Overload*	
MINOR: L3 Overload (Extreme Level)	*Yes*	*Output Overload*	
MINOR: L3 Overload (High Level)	*Yes*	*Output Overload*	
MINOR: Output Overload	*Yes*	*Output Overload*	
MINOR: Output Watts Overload	*Yes*	*Output Overload*	
MINOR: Output Load Over 100%	*Yes*	*Output Overload*	
MINOR: Inverter Overload	*Yes*	*Output Overload*	
CRITICAL: Shutdown Imminent	*Yes*	*Shutdown Imminent*	
MAJOR: Ambient UnderTemperature	*yes*	*Ambient UnderTemperatur e*	*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, escalation preferences (who should get notification calls first) 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.

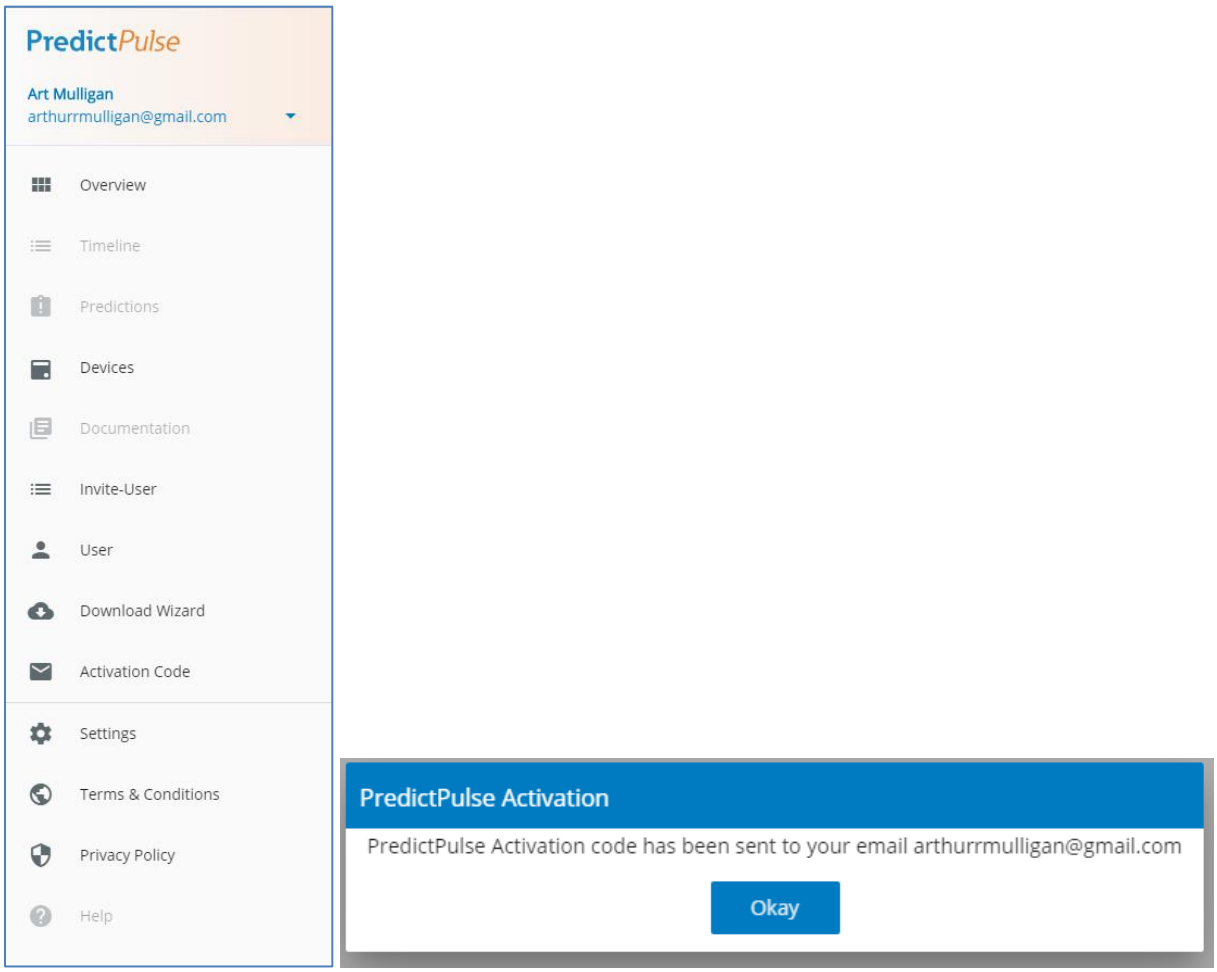
Inviting other users

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”.

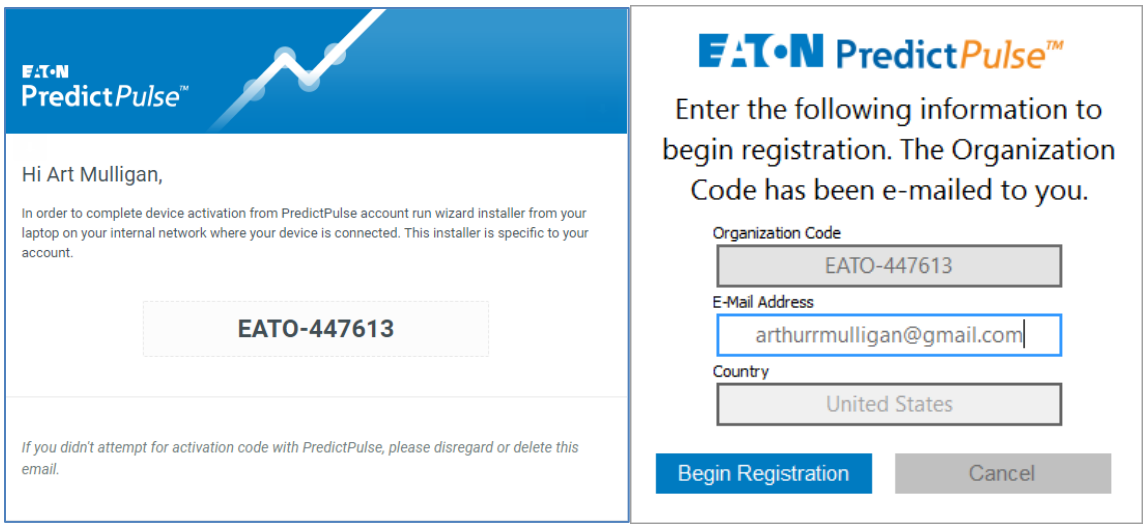
Activating devices

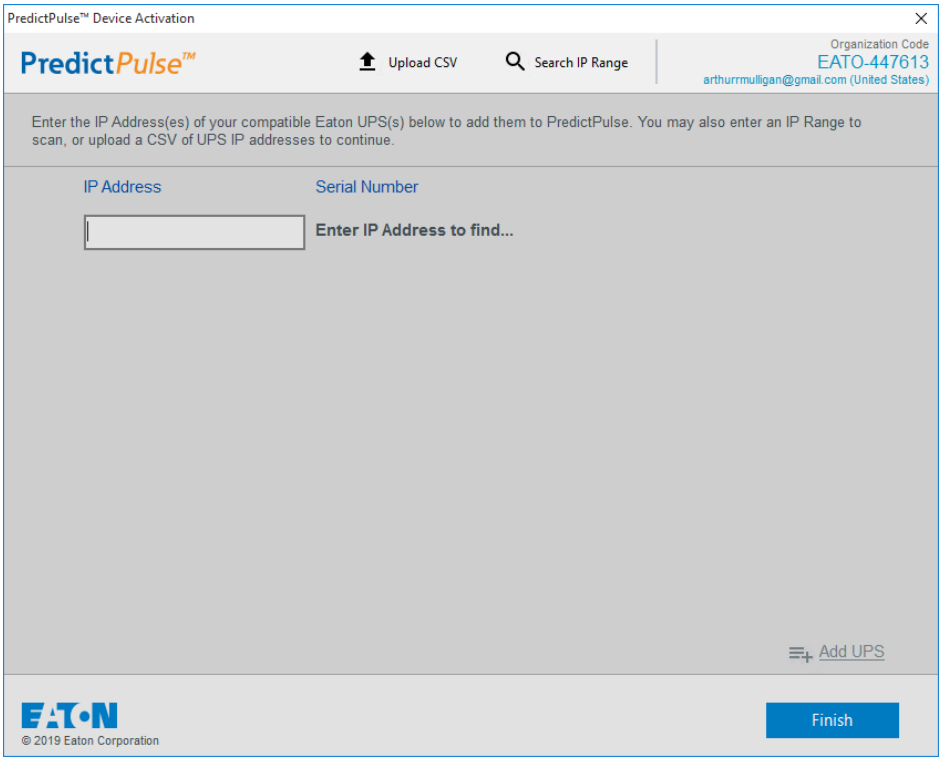
A new account may have devices previously activated or, typically, no devices will be displayed. From a non-mobile device (laptop) on the same internal network as the device ready for PredictPulse, click the “activate device” button from the side menu. *Note: this cannot be done on a mobile device.*

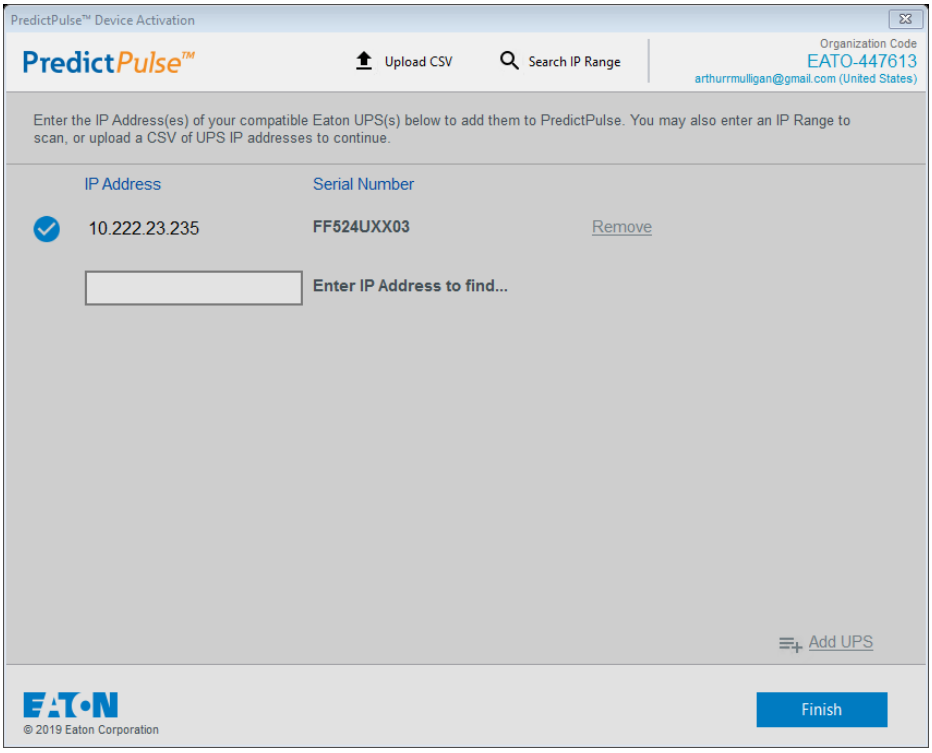
Follow the prompts by entering the device IP address, your email address, and submit. The activation wizard will configure the network card and start sending outbound emails to PredictPulse. For help contact Eaton support.

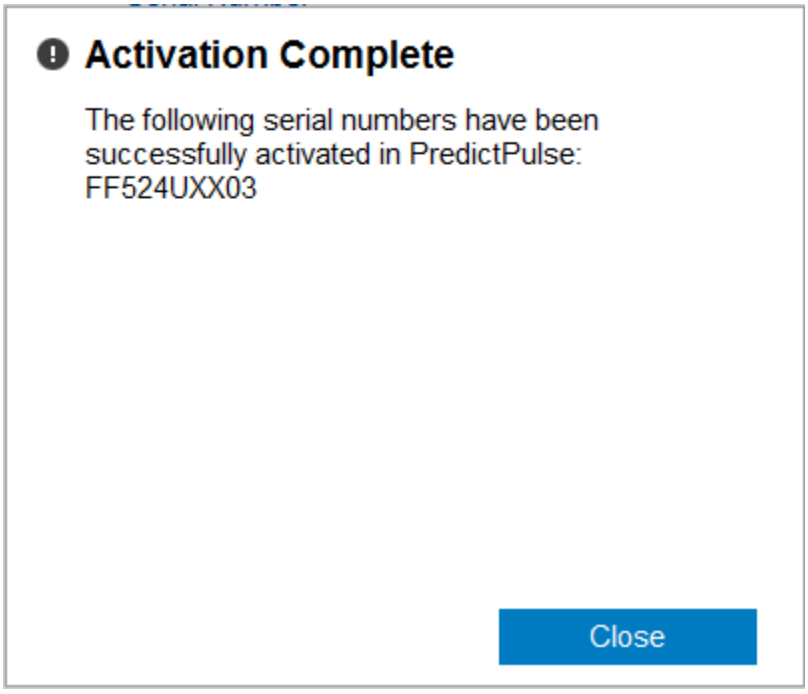


(Upper left) Sidebar > Download Wizard > screen confirmation, (lower left) email with Activation code, pop-up screen for Oragnization Code and email address > Wizard tool with prefilled Organization and user info,. ready for IP address


PredictPulse™
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.
PredictPulse™
Enter the following information to begin registration. The Organization Code has been e-mailed to you.
Organization Code
EATO-447613
E-Mail Address
arthurrmulligan@gmail.com
Country
United States
Begin Registration
Cancel


PredictPulse™ Device Activation
PredictPulse™
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
Enter IP Address to find...
Add UPS
© 2019 Eaton Corporation
Finish


PredictPulse™ Device Activation
PredictPulse™
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
10.222.23.235
FF524UXX03
Remove
Enter IP Address to find...
Add UPS
© 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

Login or not getting updates - you may need to clear your browser cache or click your reload button to refresh the PredictPulse app occasionally. New features and updates will be released over time and clearing the browser cache 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 and include critical and urgent alarms, 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.

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