

# Eaton PredictPulse™

Predict power component failure with cloud-based analytics.



- ✓ **24x7 expert remote monitoring** of your IT infrastructure power quality equipment
- ✓ **Stay connected** with PredictPulse app, gives you access to real-time status updates
- ✓ **Predict power component failure** with cloud-based analytics
- ✓ **Cloud-based, outbound-only data for cybersecurity** that is easy to enroll and activate
- ✓ **Leverages Eaton UPS service expertise** and expedites field technician response and repair

*"This is awesome: gives you score, battery life, time remaining. This is the kind of detail that I expect."*

*Senior IT director, electronics manufacturer*

**EATON**

Powering Business Worldwide

# Real-time data

## HARNESS THE POWER OF PREDICTABILITY WITH TWO OPTIONS:

### PredictPulse remote monitoring service

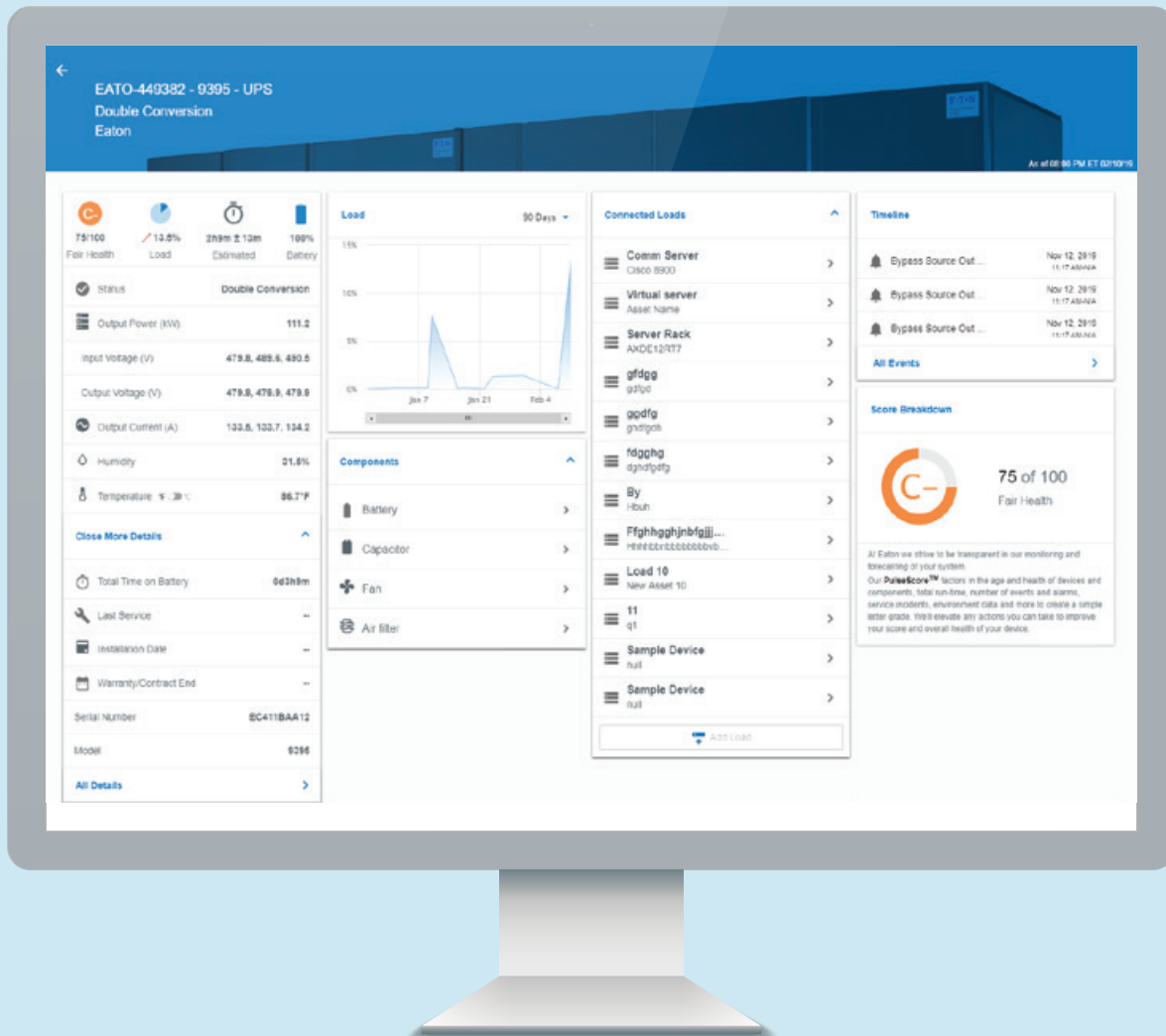
**PredictPulse remote monitoring** includes 24x7 remote monitoring of subscribed devices and critical alarm phone notification/dispatch, mobile and browser dashboard access to subscribed devices, trended and event data, monthly summary reporting and integration with Eaton's field service technicians and technical analysts for remote diagnostics.

### PredictPulse Insight predictive analytics service

**PredictPulse Insight predictive analytics** includes all the same features as PredictPulse remote monitoring. PredictPulse Insight adds predictive analytics to predict the risk of component failure plus a verification site visit to confirm/replace components. Let the power of predicting critical component risks and Eaton service experts manage your power reliability.

*"Wow, this is a lot of data. I mean, this is one stop shopping. I don't have to go anywhere else, it's all here. And the fact it's got the button to schedule service, that's great."*

*Operations manager, transportation company*



# The power of predictive

## How does Eaton predict capacitor health?

**When a capacitor fails, you might not see any visible effects, but other capacitors will have to take over the workload,** which will, in turn, shorten their remaining lives. In many cases, a capacitor failure triggers the UPS to switch to bypass mode, during which it can't protect downstream loads.

Over time capacitors degrade and require replacement. Power filtering capacitors require periodic inspection or PredictPulse Insight predictive analytics to insure proper operation.

The primary predictive data include:

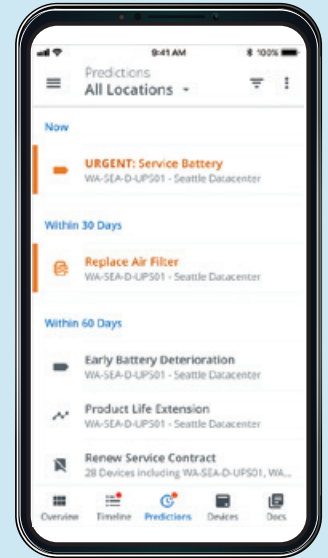
- Type of capacitor (AC, DC)
- Make and model of capacitor and manufacturer's MTBF, supplemental Eaton test data (typical large UPS has over 30 capacitors of various types)
- Age and remaining useful life (RUL) of a capacitor (newer capacitors behave differently than older)
- Temperature sensors near capacitors (heat has a significant impact on capacitor life)
- Frequency of the ripple current, voltage and current
- Other UPS sensor data relevant to capacitor performance, events
- Service history with specific UPS capacitors
- Comparison of a specific UPS component data with all similar UPS component data



## What happens if Eaton sees a predictive alert on capacitors?

**Once PredictPulse Insight's algorithm sends you a predictive health alert,**

Eaton will arrange a no-cost verification site visit where an Eaton technician tests the capacitors using industry standard methods to confirm if one or more components need to be proactively replaced.



## Enhance your service experience

- Remote diagnostic for faster on-site repairs
- Eaton experts manage critical alarm events
- Complements self-monitoring tools



Can you tell which of these capacitors is good or bad? Actually, all three have failed and need to be replaced.

## Predict the risk of component failure with cloud-based predictive analytics

- Mitigate downtime risks associated with battery, capacitor, fan and air filter failures
- Proactively replace components before failure
- Extend asset life using data

# Peace of mind

## Intuitive reports

Easy, at-a-glance reports summarize what's happened, where and when.

Eaton PredictPulse UPS power quality remote monitoring makes your job of managing data center reliability easier, saves money and recommends future service needs.



*"With PredictPulse, we're able to take care of problems **before** they impact the store. Now I don't have to take my managers off of the sales floor to be looking for UPS details in some data closet."*

*Elvin McLaughlin, IT manager, Ralph Lauren retail stores*



## Reduce risk: PredictPulse wireless

### Cybersecurity

**PredictPulse has a robust cybersecurity plan** and is built around outbound only SMTP email, so no firewall changes or inbound data is ever required. This also means PredictPulse has no remote-control capability, so your power infrastructure is never at risk. Further, Eaton includes a 4G wireless modem and a global wireless carrier data plan to isolate and encrypt all data. Security of your data and infrastructure is a top priority, and PredictPulse is designed for mission-critical data centers.

### Security

**Eaton's PredictPulse wireless uses centralized routing technology** that isolates each organization's traffic from other cloud or Internet traffic. This provides enterprise-grade network security for all UPS devices. Alarms and telemetry data are delivered through a multiprotocol label switching (MPLS2) private network connection, thereby decreasing the risk of DDoS attacks and similar Internet-facing threats.

### 4G wireless connectivity

**PredictPulse wireless is simple to setup**, is isolated and encrypted for greater security and avoids internal network hassles.

### Leverages Eaton's power expertise

to monitor and notify you of critical alarms 24x7, manage the field technician dispatch and onsite response to emergencies and analyze immediate needs and make future recommendations, including asset optimization.

- Eaton actively monitoring your power quality infrastructure 24x7 for increased peace of mind, power reliability and reduced downtime risk.
- Remote diagnosis of critical alarms (using real-time sensors and service history data) expedites response, shortens repair time and increases first-time fix rates (by knowing what parts to bring).

# Save time and money

## Cloud, subscription-based

No software or wiring to install.

## Unlimited flexibility for locations and users

Self-manage how co-workers can view site level devices, notifications (email, SMS, phone), with an unlimited number of users and devices.

## Integrated with Eaton's field service team

Your local field technician can see your PredictPulse information to expedite repairs.

## Easy deployment

Quick and simple, secure setup with PredictPulse using outbound-only emails.

## Which PredictPulse service is right for me?

Feature	PredictPulse remote monitoring	PredictPulse Insight predictive analytics	PredictPulse Insight Plus 3 and 6
24x7 expert remote monitoring of Eaton power quality devices	✓	✓	✓
Integrated with Eaton field service technicians, technical support and monitoring analysts	✓	✓	✓
Real-time visibility on the go — mobile and browser app display of alarms, trends	✓	✓	✓
24x7 notification call and dispatch on critical alarms	✓	✓	✓
Remote diagnostic for faster on-site repairs	✓	✓	✓
Alarm, event notification by SMS text message, email and phone	✓	✓	✓
High temperature critical alarms	✓	✓	✓
Lost communication alerts	✓	✓	✓
Intuitive reports: Monthly and on-demand summary reports	✓	✓	✓
Smart alarms, alarm log summary	✓	✓	✓
Cloud, subscription based (Microsoft Azure based)	✓	✓	✓
No VPN required; uses outbound only SMTP email	✓	✓	✓
Integrated with Eaton UPS firmware, sensors and connectivity card technology	✓	✓	✓
Unlimited number of users, devices	✓	✓	✓
Unlimited location hierarchy	✓	✓	✓
Ability to self-manage users, preferences, devices and locations	✓	✓	✓
GDPR (personal data privacy) compliant	✓	✓	✓
Eaton actively manages cyber security plan, vulnerability detection	✓	✓	✓
Can be self-installed or Eaton installed	✓	✓	✓
4G wireless connectivity (optional)	✓	✓	✓
15-minute telemetry data refresh	✓	✓	✓
Real-time alarms and events	✓	✓	✓
Service history, field activity reports, component data	✓	✓	✓
Predictive analytics to predict the risk of component failure: batteries, capacitors, fans, air filters, power train		✓	✓
Annual asset optimization report		✓	✓
Remote preventive maintenance reporting (optional replacement for UPS Performance Check)		✓	✓
Predictive risk assessment, reporting		✓	✓
Verification visit to inspect test and confirm predictive alerts		✓	✓
Proactively replace components before failure		✓	✓
Eaton installed		✓	✓
Proactive replacement coverage for capacitors, fans			✓

To learn more about PredictPulse and compatible UPS models, visit [Eaton.com/PredictPulse](https://Eaton.com/PredictPulse)

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