



Monitor and Control  
Off-Grid Power Systems



**Ferntech enables**

**Low-maintenance, Robust and Scalable**

**Off-Grid Power Systems by applying**

**Monitoring and Control technologies.**



## Off-Grid Power Systems are:



**Not Optimized**  
No proper control



**Maintenance is expensive**  
O&M is 50% of Variable costs



**Disconnected**  
Unplanned Maintenance is 25% of Variable Costs

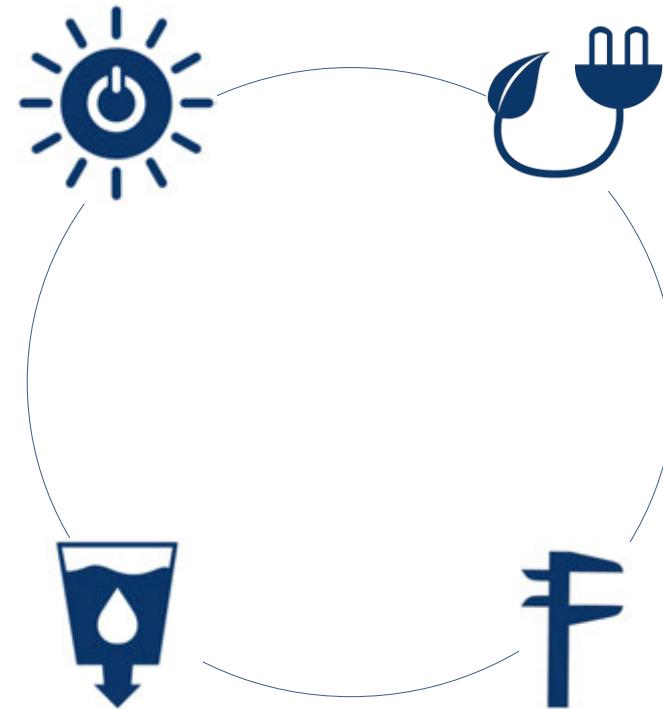


**Not Scalable**  
Can't be deployed in large amounts

These problems are found in:



Energy-Access



Hybrid Power



Industrial  
& Commercial  
applications

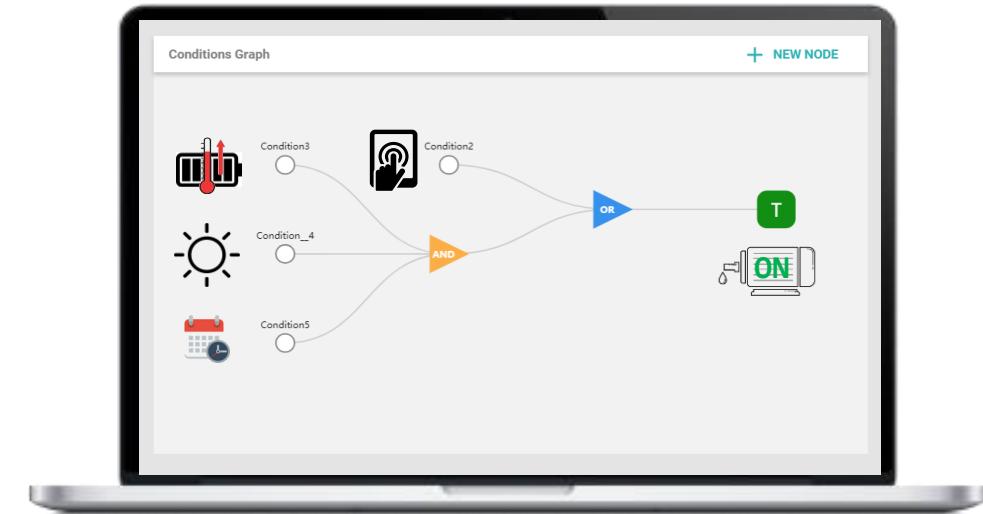
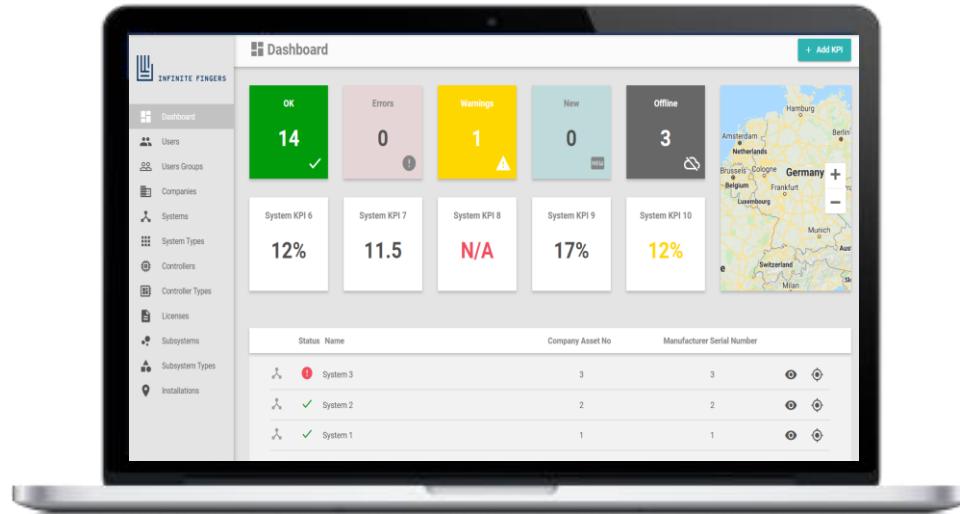
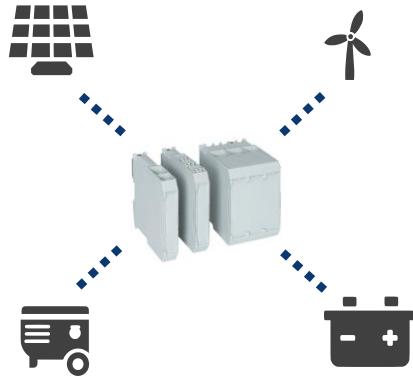


Small Systems

# Our Solution: UMC

(Universal Monitor and Control)

1min Portal DEMO

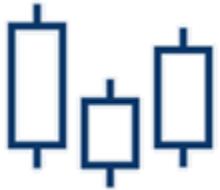


**Universal Controller**  
Off-the-shelf.

**MONITORING**  
Customizable dashboards  
allowing visualization of  
selected variables and  
configuration of parameters

**CONTROL**  
Customized control module to  
reduce down-time  
and increase profits

# Competitive advantage



**Universal**  
Compatible with  
any component



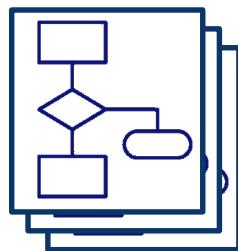
**Full Control**  
to increase efficiency  
and avoid faults



**Fleet Management**  
enabling scalability



**Affordable**  
Based on IoT hardware



**Logic Loops**  
Library of open source  
control algorithms



**Easy to Use**  
User-driven

# The Controller: UMC

(Universal Monitor and Control)



## POWER ELECTRONICS



## BATTERIES



## DIESEL GENSET



## SENSORS



## OTHERS



# Dashboards: UMC

(Universal Monitor and Control)

Quick Search

Systems

FERNTECH

- Systems
- System Types
- Users
- Users Groups
- Companies
- Controllers
- Controller Types
- Licenses
- Subsystems
- Subsystem Types
- Installations
- Notification Channels

OK 3 ✓

Warning 1 ▲

Error 2 !

Critical 0 ✗

Offline 2 🌐

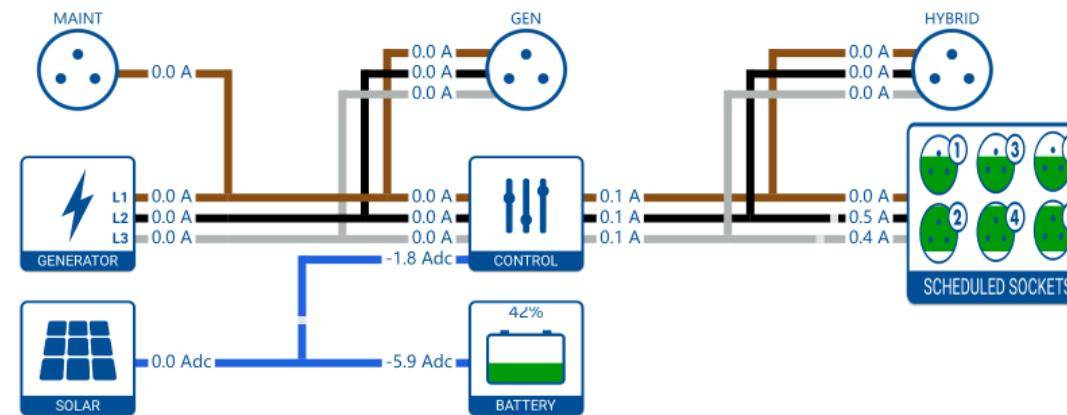


Status	Company	Name	Type	Company Asset No	⋮
Filter	Filter	Filter	Filter	Filter	<span>CLEAR</span>
<span>!</span> Ferntech		CYG4/24/48/LI/S80 - 1	CYG4/48/65/LI/S80	5111117	<span>⋮</span> <span>⋮</span> <span>✎</span>
<span>✓</span> Ferntech		PowerPlus Demo Unit	PP-60-30-55-LFP	PP1218001	<span>⋮</span> <span>⋮</span> <span>✎</span>
<span>cloud</span> Ferntech		A_0001		FRES_0001	<span>⋮</span> <span>⋮</span> <span>✎</span>
<span>✓</span> Ferntech	om	_TEF72656	CCL Comms Backup System	TEF72656	<span>⋮</span> <span>⋮</span> <span>✎</span>
<span>cloud</span> Ferntech		System 1		1	<span>⋮</span> <span>⋮</span> <span>✎</span>
<span>✓</span> Ferntech				LA_00001	<span>⋮</span> <span>⋮</span> <span>✎</span>
<span>!</span> Ferntech				W_000001	<span>⋮</span> <span>⋮</span> <span>✎</span>

## Systems Summary

### Status of the Fleet

## System Electric Layout

General System Details 

System State  
**OK** ✓

Inverter State  
**On**

SOC  
(%)  
**42**

Batt Amperes  
(A)  
**5.91**

Hybrid Runtime  
(%)  
**100**

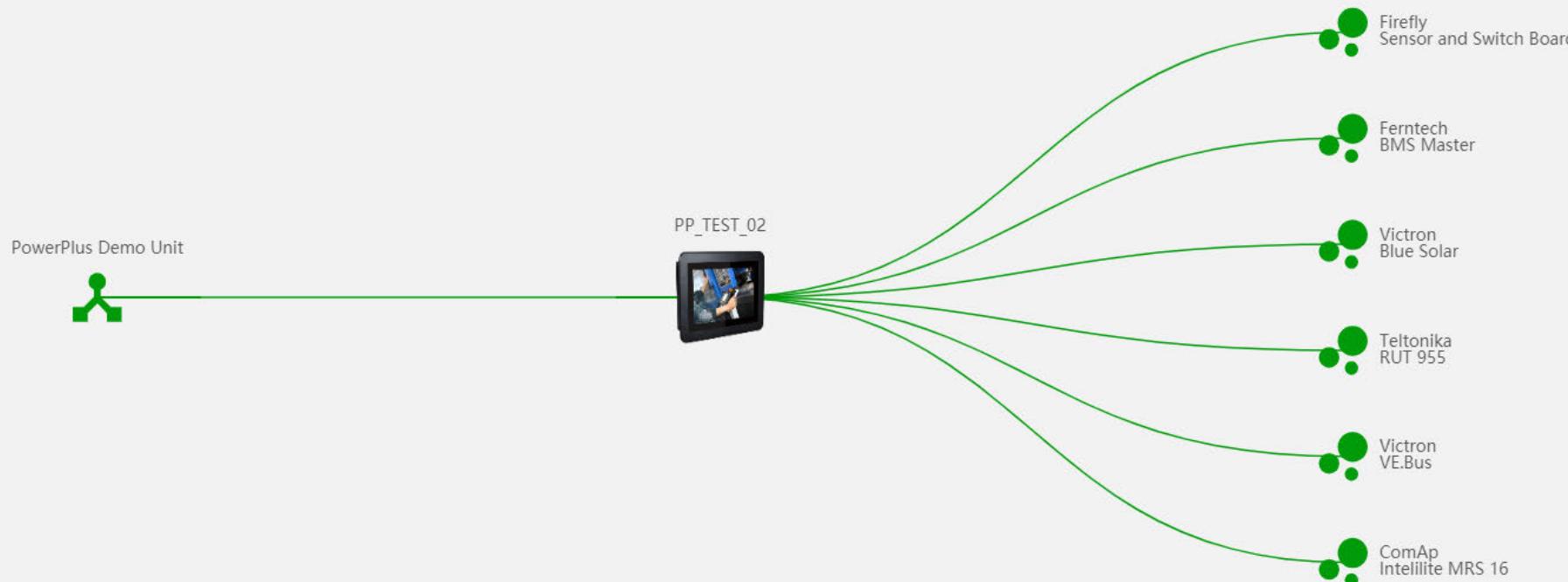
Hybrid Runtime  
(h)  
**24**

CO<sub>2</sub> Saved  
(Tonnes)  
**0.3**

Fuel Saved  
(l)  
**101**

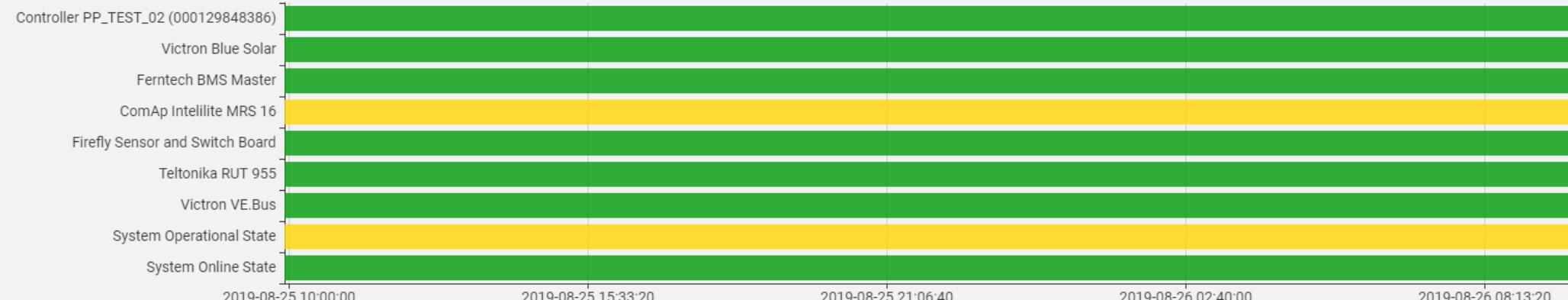
**System Page**  
Status of the System

## System Layout



**System config**  
Change set-up parameters

## System State Chart



## Filter

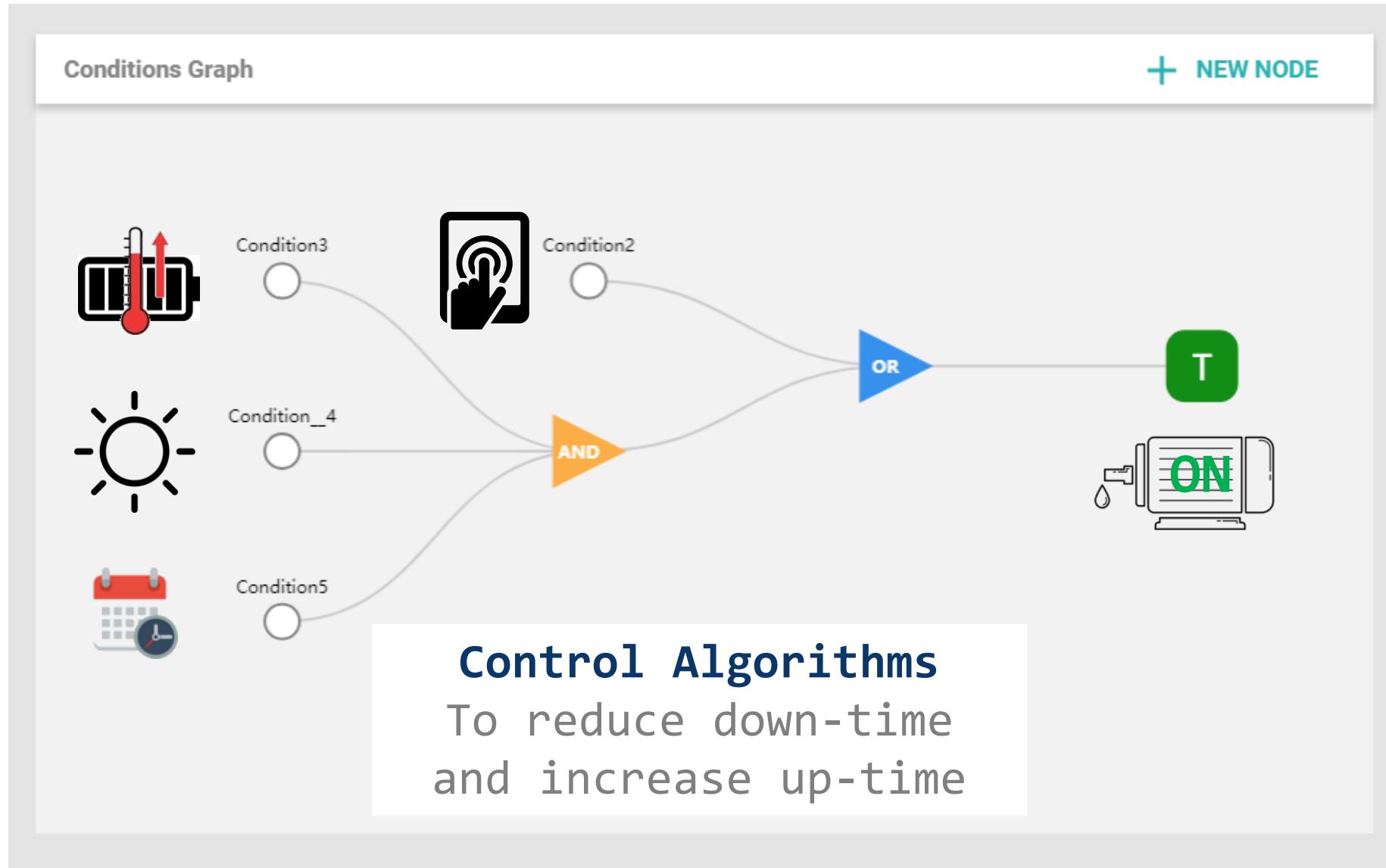
Time	Description	Other Information	Type	Controller ID	Subsystem ID	Device	Level
2019-08-26 07:38:30	Control panel message:	Wrn Fuel Level	Device	000129848386	comap01	mrs_16_1	 Alarm
2019-08-26 07:38:29	Control panel message disappeared:	Wrn Fuel Level	Device	000129848386	comap01	-	 Notification
2019-08-25 23:39:30	Co			000129848386	comap01	mrs_16_1	 Alarm
2019-08-25 23:39:29	Co			000129848386	comap01	-	 Notification

## Events page

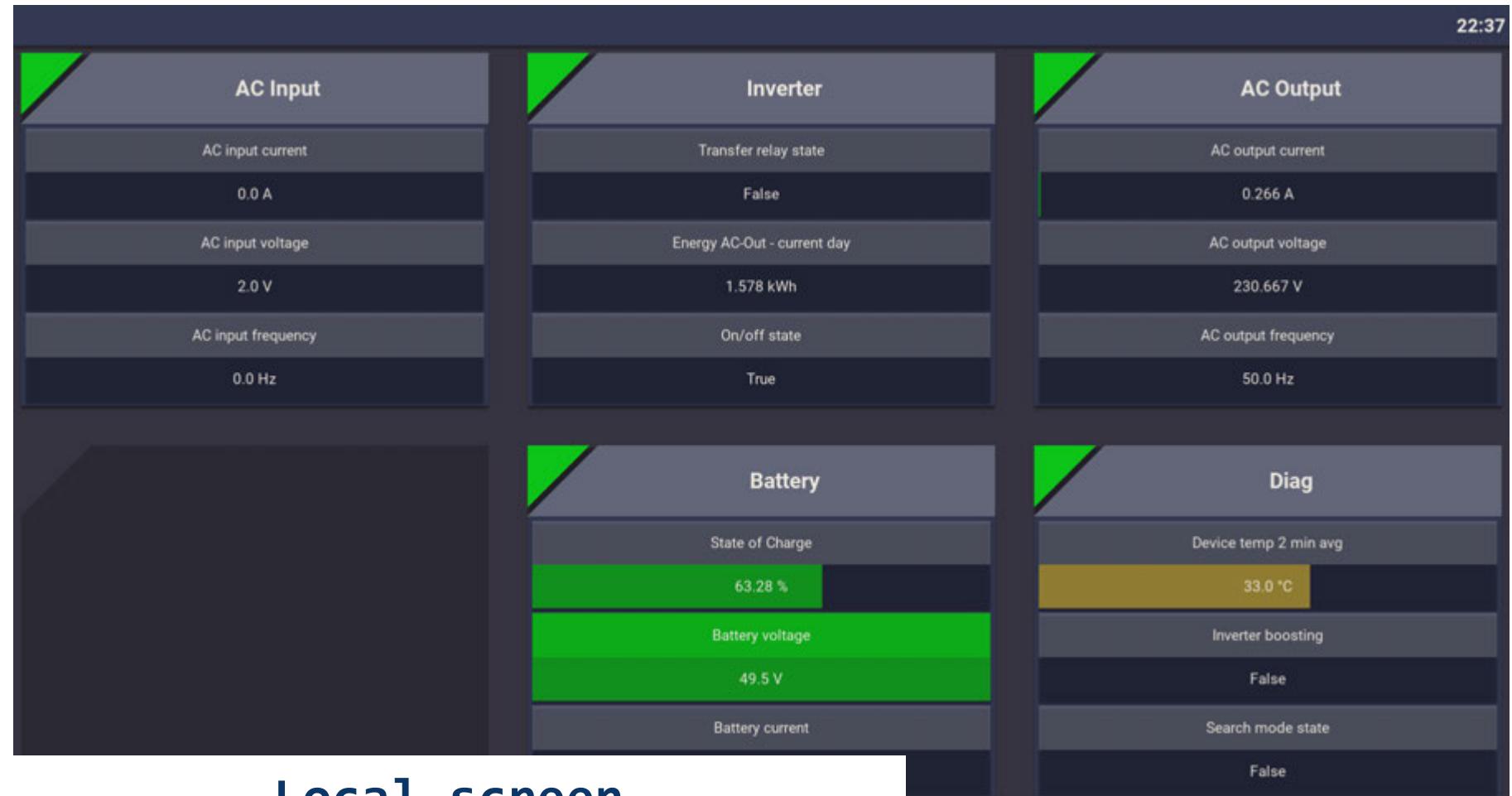
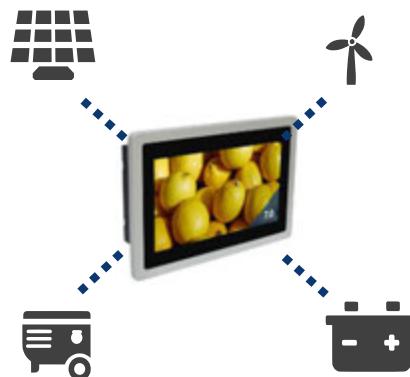
List, filter and create notifications from events

# Control tools: UMC

(Universal Monitor and Control)



# Local visualization: UMC-vision



Local screen

For visualization and config  
of main parameters

# 100+ units deployed



**Energy Access**  
**Diesel Hybrid**  
**Industry**



Supported by:

