

POWERLOGIC ION 9000

Advanced Power Quality Monitoring

Life Is On

Schneider
Electric

ION9000

Intro
EcoStruxure

Discover ION9000
Unique Benefits

Meet ION9000
More Than a Meter



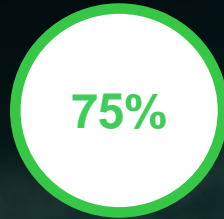
Power Distribution is changing as the world gets more digital

Always On



The digital economy
demands always-on power

Digitized



Digital generation to be
75% of workforce by 2025

+

10x

more connected devices
than people by 2025

Decentralized



70%

of new energy production capacity
will be renewable by 2040

Life Is On

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Large power consumers and critical facilities are the most impacted...



...and the implications are real.

22% of fires in a facility are due to electrical failures, and **50%** of electrocutions occur within facilities

Power interruptions cost the US economy **\$110 billion** per year

There is a **15%** potential reduction in project costs during the CAPEX phase of a project

70% of Power Quality disturbances originate within facilities leading to 30-40% of downtime incidents.

There is an average **10%** potential reduction in energy cost in critical facilities and an additional **15%** savings in maintenance OPEX

Compliance to energy efficiency standards can improve energy intensity by up to **10%** and add up to a **15%** premium in building price

Leading to 100% electric power uptime requirements

Cost of disruption

Semiconductor production	€ 3,800,000 per event
Financial trading	€ 6,000,000 per hour
Data center	€ 750,000 per event
Telecommunications	€ 30,000 per minute
Steel works	€ 350,000 per event
Glass industry	€ 250,000 per event

Source: Copper Development Association, Allianz Global Corporate & Specialty

EcoStruxure™ Power

Innovation At Every Level

EcoStruxure™ Architecture



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Discover ION9000 – 3 Unique Benefits

1

World's most accurate meter

2

Meaningful PQ analysis

3

Flexible and adaptable

1 - World's most accurate meter

A reliable device you can trust

Power Quality Accuracy:

PQ Algorithms

IEC61000-4-30 class A

PQ Testing

IEC62536-2

PQ in Real World

IEC62586-1

PQI-A



1 - World's most accurate meter

A reliable device you can trust

Energy Accuracy:

Class 0.1S

Third party Verified (ANSI and IEC)

Extended Mission Profile

Less accuracy drift over time

Ready for modern networks

Accurate under harmonics influence



2 - Meaningful PQ Analysis

On Board

- Connect via web browser for full PQ analysis
- Easy-to-read Pass / Fail analysis according to EN50160 and IEEE519 standards

Power Event Analysis (w/ PME)

- Comprehensive system-wide view
- Automatic correlates, groups network-wide alarms and events into incidents



2 - Meaningful PQ Analysis

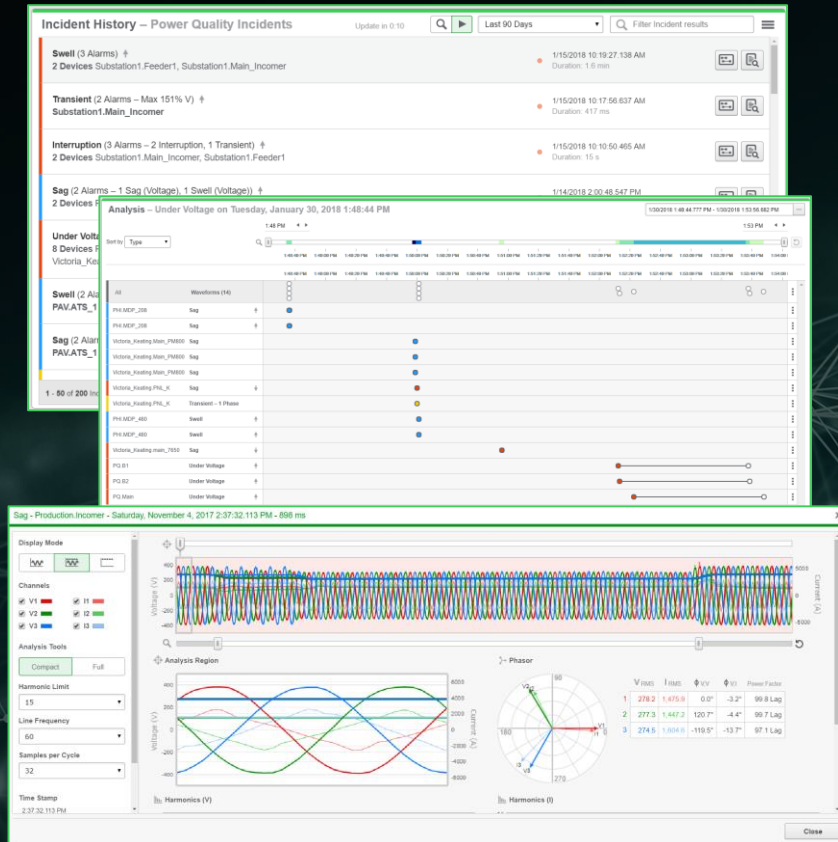
Power event analysis



- “I need to quickly see the impact of incidents that affect my facility. I have too many alarms to understand what is really going on. I don't want to be distracted by irrelevant information when I am trying to restore operations”



- Faster incident analysis by automatic grouping of related alarms.
- Make faster decisions, with key alarm information - such as disturbance direction - available at a glance
- Ensure important information is not lost in a flood of data with intuitive and powerful alarm filtering, searching, and categorization.
- See what you've missed with alarm counters



Connected Devices



Time Synchronization



Smart Alarms, Timeline and waveform analysis

2 - Meaningful PQ Analysis

New Web Alarm Viewer simplifies and speeds up analysis of incidents impacting the facility

View Library | Search View Library... | Back System Views

- Active Alarms
- All Alarms
- AV_SystemView_ClutterIncidents
- Power Availability Incidents
- Power Quality Incidents**
- Recent Alarms
- Recent Events
- Recent Incidents
- System Alarms
- Unacknowledged Alarms

Incident History – Power Quality Incidents

Update in 0:06 | Last 90 Days | Search Incident Display

Sag, Swell (186.7% Nominal Voltage – 2 Alarms) ↑ 2 Devices PHI.MDP_208, PHI.MDP_480	6 days 20 hr ago Duration: 1 min 25 sec	Chat Search
3 Under Voltages, 3 Sags, 2 Unclassified Disturbances, 1 Transient (71.7% Nominal Voltage – 9 Alarms) ↑ 6 Devices PQ.B1, PQ.B2, PQ.Main, Victoria_Keating.main_7650, Victoria_Keating.Main_PM800, Victoria_Keating.PNL_K	6 days 20 hr ago Duration: 3 min 49 sec	Chat Search
2 Sags, 2 Swells (149.2% Nominal Voltage – 4 Alarms) ↑ 2 Devices PHI.MDP_208, PHI.MDP_480	6 days 20 hr ago Duration: 1 min 25 sec	Chat Search
2 Swells PAV.ATS_1	6 days 21 hr ago Duration: 1 min 17 sec	Chat Search
2 Sags PAV.ATS_1	7 days 1 hr ago Duration: 3 hr 9 min	Chat Search
Unclassified Disturbance N_Sub.EHNA	7 days 7 hr ago Duration: 2,000 ms	Chat Search
Unclassified Disturbance N_Sub.EHNA	7 days 8 hr ago Duration: 14.0 sec	Chat Search
Interruption, Sag (6.7% Nominal Voltage – 2 Alarms) ↑ PAV.ATS_7	7 days 9 hr ago Duration: 84.0 ms	Chat Search
7 Sags, 1 Transient (83.7% Nominal Voltage – 8 Alarms) 3 Devices Victoria_Keating.main_7650, Victoria_Keating.Main_PM800, Victoria_Keating.PNL_K	8 days 8 hr ago Duration: 1 min 0 sec	Chat Search

1 - 50 of 200 Incidents (Max records: 200) | Lines/page: 50 | 1 2 3 4 >

2 - Meaningful PQ Analysis

New Web Alarm Viewer simplifies and speeds up analysis of incidents impacting the facility

View Settings

Search View Library...

Back Under Voltage on Tuesday, Ja...

View Name: Under Voltage on Tuesday, January 30, 2018

Location: Home

Public Private

Sources: All Sources Specific Sources

8 [PHI.MDP_208, PHI.MDP_480, P...]

Data Series: High Speed Incident Data: None

Waveform Data: Summary

Show: Spanning Alarms Hidden Alarms

Categories: Power Quality: 4 [Under Voltage, Sag (Vol...)]

Power Availability: Cancel Save

Analysis – Under Voltage on Tuesday, January 30, 2018 1:48:44 PM

1:48 PM 1:53 PM

Sort by Type

All	Waveforms (14)		
PHI.MDP_208	Sag	↑	●
PHI.MDP_208	Sag	↑	●
Victoria_Keating_Main_PM800	Sag		●
Victoria_Keating_Main_PM800	Sag		●
Victoria_Keating_Main_PM800	Sag		●
Victoria_Keating.PNL_K	Sag	↓	●
Victoria_Keating.PNL_K	Transient – 1 Phase		●
PHI.MDP_480	Swell	↑	●
PHI.MDP_480	Swell	↑	●
Victoria_Keating.main_7650	Sag	↓	●
PQ.B1	Under Voltage	↑	●
PQ.B2	Under Voltage	↑	●
	Under Voltage	↑	●

Integrate **NEW ION9000** high speed RMS measurements

Extended waveform capture (0.5s pre-event data / 2.5s event data @ 1024 s/c)

Extreme precise time sync protocols (incl. PTP)

Patented disturbance direction detection

3 - Flexible and adaptable

The ION9000 is more than a meter

Modular Architecture

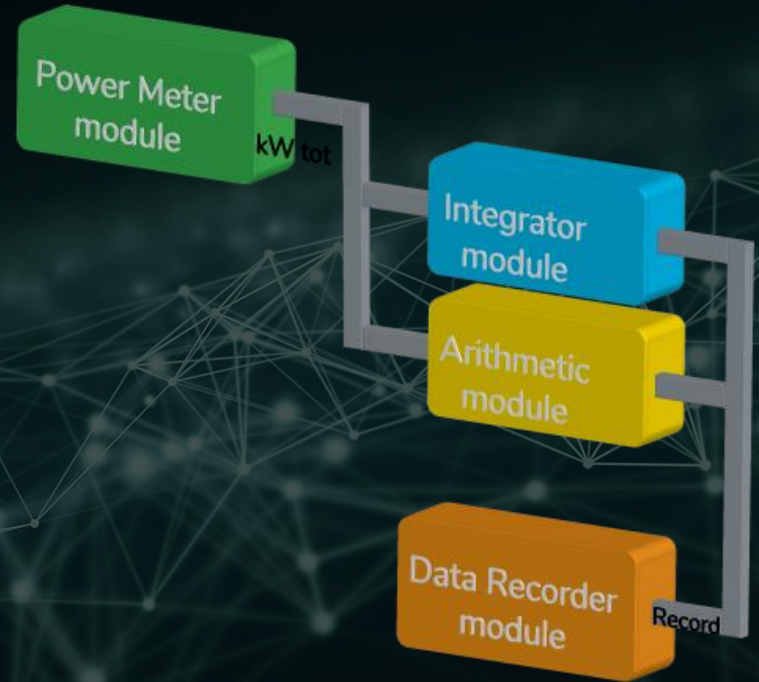
With expansion modules, memory upgrade (future), different display options

Patented ION Technology

Customize your power meter to meet your unique needs

Future Proof

Adaptable architecture allows for changes to adapt to evolutions in the business environment



3 - Flexible and adaptable

The ION9000 is more than a meter

ION Module	PM8000		ION7400		ION9000	ION760 <i>(for comparison)</i>
	1.4.x	2.0.x	1.4.x	2.0.x	2.0.x	
AND/OR Module	50	50	50	50	100	50
Arithmetic Module	70	100	70	100	100	70
Convert Module	80	80	80	80	100	80
Counter Module	50	50	50	50	100	50
Data Recorder Module	50	50	50	50	100	50
Digital Output Module	10	10	10	13	16	9
Digital Input Module	27	27	27	27	32	16
External Boolean Module	75	75	75	75	100	75
External Numeric Modules	40	40	40	40	100	40
Mains Signaling Evaluation Module	0	0	0	5	5	5
Pulse Merge Modules	80	80	80	80	128	50

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Calibration pulses
• kWh and kVARh

Onboard I/O
• 8 Digital Inputs
• 4 Digital Outputs
• 2 Relay Outputs

Sealable covers for
voltage, current, and
control power connections

High quality
touchscreen display
with wide viewing
angles



Sealable door
• Memory
expansion
(soon)
• Hardware lock
switch

Two USB comm
ports
• USB Type A Host
(soon)
• USB Mini Slave

Onboard comms
• 2 Ethernet
• 2 serial (RS-485)

Current inputs
• Captured screws support spade and ring
terminals
• Faster installation, no more dropped screws

IP65-certified resistance
• Water and dust
UL50-certified resistance
• Oils, flame

Flexible and adaptable

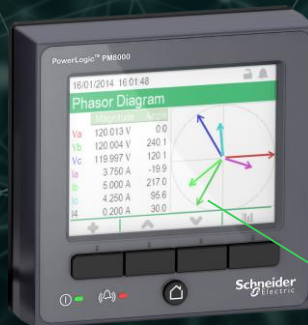
Modular Architecture

- Multiple mounting and communication options
- Adaptable to meet the needs of rapidly changing, IoT-enabled electrical networks



Modular expansion port supports up to four modules for I/O, comms

192mm (7") color touchscreen display, works with PPE gloves
Simple installation with a 30mm pushbutton hole (reduces arc flash exposure)



96mm (3.5") color display
• Simple installation with a 30mm pushbutton hole (reduces arc flash exposure).



Conclusion



World's most accurate meter



Meaningful PQ analysis



Flexible and adaptable

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54%

of companies have suffered a
cyber attack in the last year

Comm protocols

- HTTPs
- Enable / Disable any comm port or protocol
- SFTP and HHS (Coming)

User management

- Strong password implementation (8 digits or 6 ASCII characters, alpha numeric, case sensitive)
- Up to 50 user accounts (with administrator definable roles)

Event logging

- Event log includes security events
- Syslog protocol support

Future ready

- TPM (trusted platform module) chip
- Encrypted and digitally signed firmware