

INNOVATION

PowerLogic™ ION9000 series

Discover the world's most accurate, most advanced power quality meter



지금까지 이런 전력량계는 없었다!

The PowerLogic ION9000은 필요한 최고의 성능을 제공합니다.

- 세계에서 가장 정확한 전력량계
- 모듈식, 고객 맞춤형 디자인 설계 가능
- ION programmability
- 전문적인 전력 품질 분석이 가능
- 산업 또는 의료 시설, 데이터 센터 및 유틸리티 네트워크에 완벽히 대응 가능





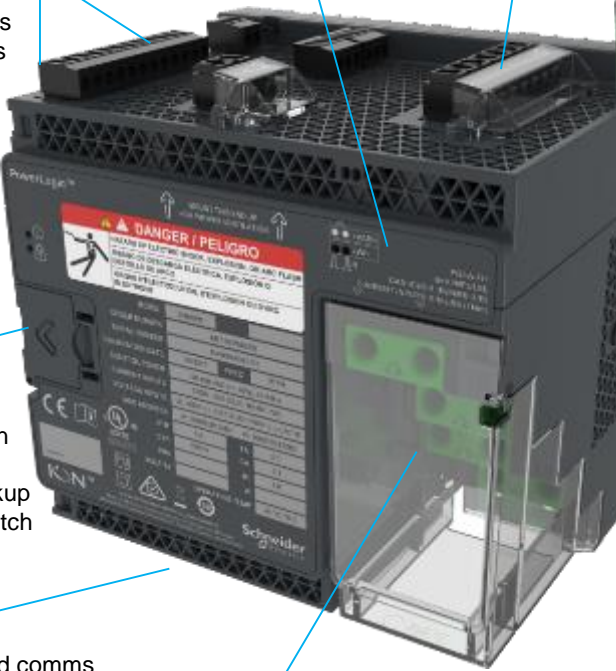
Calibration pulses
 • kWh and kVARh

Sealable covers for
 voltage, current, and
 control power connections

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

High quality
 touchscreen display

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



Sealable door
 • Memory expansion (soon)
 • Clock battery backup
 • Hardware lock switch

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

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

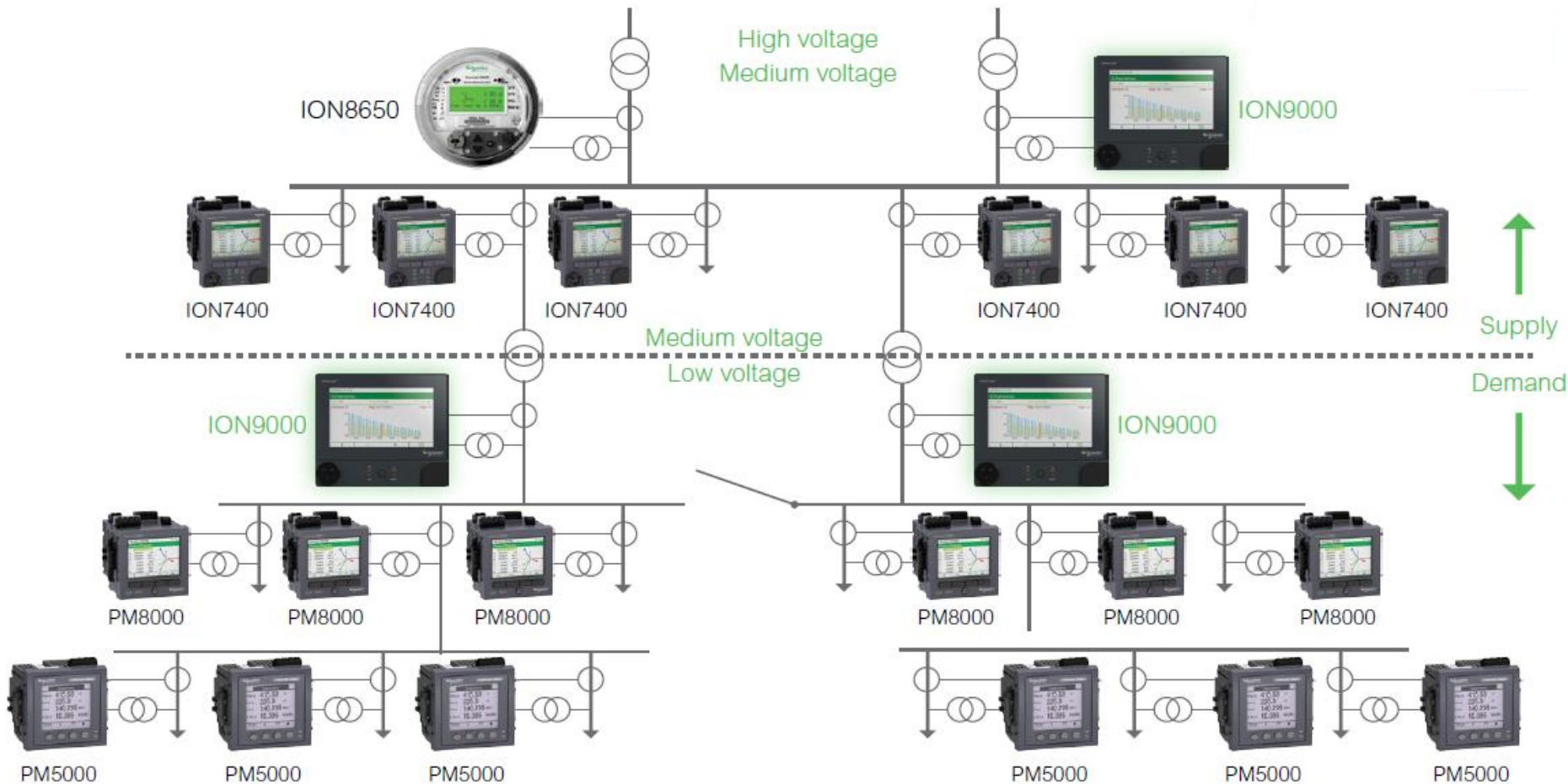


Two USB comm ports
 • USB Type A Host (soon)
 • USB Mini Slave

IEC or ANSI
 adaptable optical port

Calibration pulses
 • kWh and kVARh





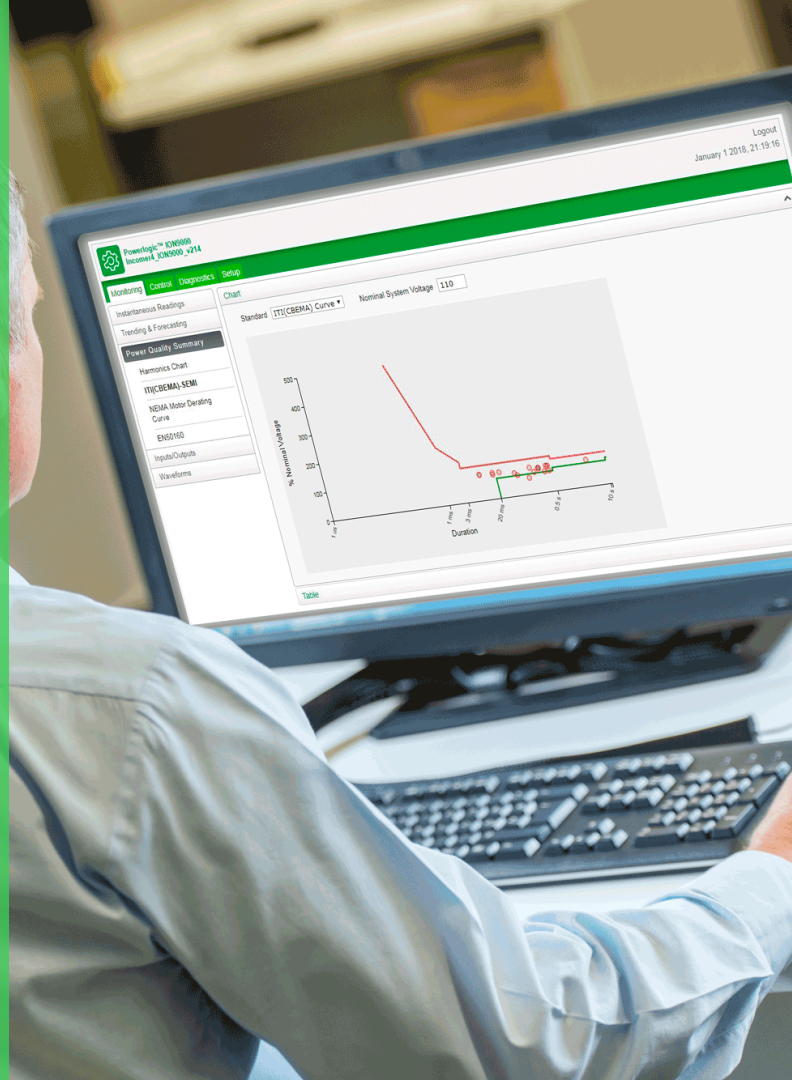
세상에서 가장 정확한 전력량계

- Class 0.1S 인증 완료
(현재 표준의 두배에 달하는 정밀도)
- 보다 정확한 데이터를 통해 새로운 에너지 절감 효과를 누릴 수 있습니다.
- 악조건의 환경에서도 견고한 설계로 늘 안정적인 정밀도를 보장합니다.
(-25C ~ 70C 및 3000m)



온보드 PQ 분석

- ION9000는 전력 품질 데이터를 모니터링 및 분석하여 만족할 만한 정보를 제공합니다.
- 인정된 전력 품질 모니터링 표준을 준수합니다:
IEC61000-4-30 class A, IEC62586-1 / IEC62586-2, verified by **third-party lab certifications**
- PQ분석을 웹 브라우저를 통해 연결하고 EN50160(PQ) 및 IEE519(고조파) 표준에 따라 분석하고 나타냅니다.

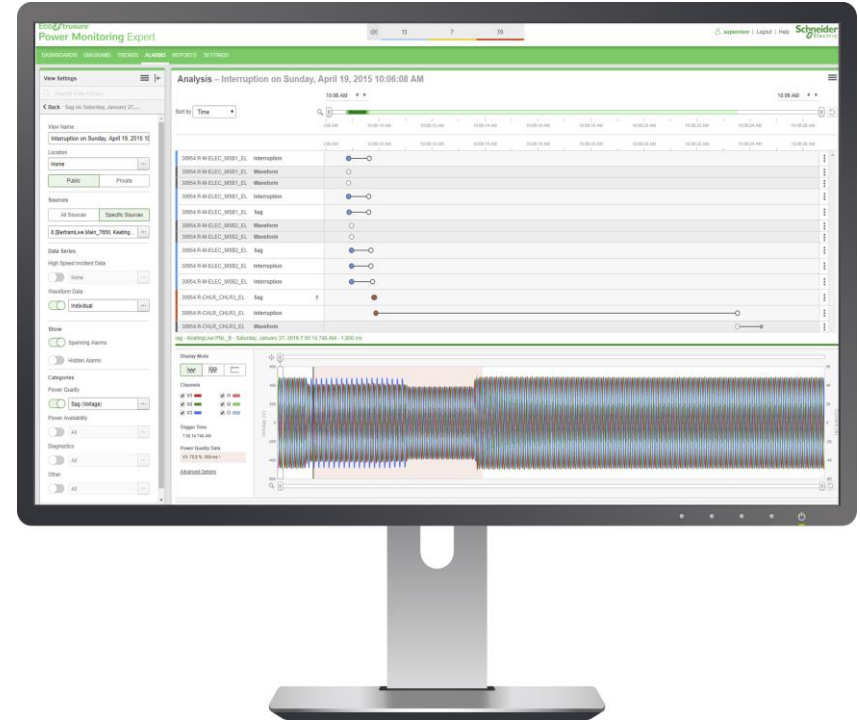


Scope Comparison:

Type Test	61000-4-30	62586-2	62586-1
IEC61000-4-30 PQ measurement methods	X	X	X
IEC61000-4-30 Accuracy of PQ measurements	X	X	X
IEC61000-4-30 Mixed influence quantities	X	X	X
IEC61000-4-30 Aggregation and Flagging	X	X	X
IEC61000-4-30 Clock drift test	X	X	X
IEC61000-4-30 Influence of voltage transients and fast transients	X	X	X
Standardized (not proprietary) PQ test waveforms and test points		X	X
Single power system influence quantities: voltage magnitude, frequency, harmonics		X	X
Influence of external quantities: temperature, power supply voltage		X	X
Thermal drift of PQ measurements accuracy			X
Product Safety (IEC 61010-1)			X
Mechanical (IK, IP, shock, vibrations, earthquakes, drop) tests in operation;			X
Environmental (cold, dry heat, damp heat, temp. variation, salt mist) ;			X
EMC emissions (CISPR 22) and immunity (IEC61000-6-5, interface type 3, "substations")			X
Routine (manufacturing) tests: protective bonding, dielectric, voltage uncertainty (100% coverage)			X

Smart 전력 분석

- 이벤트를 분석하여 자동으로 관련 있는 알람 및 이벤트를 그룹화 합니다.
(EcoStruxure Power Monitoring Expert 9.0)
- 효율성과 최적화를 위해 정확하고 실행 가능한 정보를 제공합니다
- ION9000는 다음 내용의 전력 이벤트 분석을 지원합니다:
 - 특히 받은 DDD(방해 방향 감지), 파형 캡처 확대하기 (1s pre-event data / 3s event data @1024 s/c) 그리고 high speed RMS 데이터 캡처로 전기 시스템의 PQ 방해에 대한 심층 분석



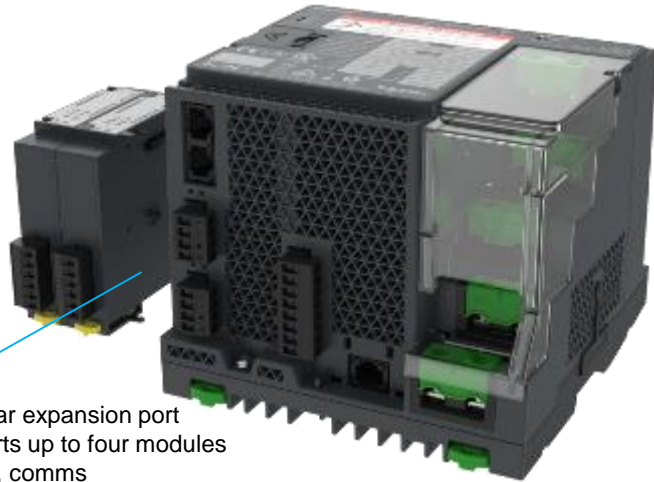
사이버 보안

- 작년의 거의 54% 기업이 사이버 공격을 받았습니다.
- ION9000은 그리드 사이버 보안 정책에 부합되도록 설계하였습니다.
- 보안 기반의 Architecture에 부합합니다.
- 주요 전력 자산 및 시스템에 대한 취약성을 최소화 하였습니다.
- 보안 전력을 강화하였습니다.



Modular, flexible, and adaptable

- 다양한 장착 및 통신 옵션을 갖춘 고객 맞춤형 플랫폼
- 빠르게 변화하는 IoT 전기 네트워크의 요구 사항을 충족하도록 적응



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).

ION programmability

ION9000는 단순한 전력량계가 아닙니다.

- 모든 전력량계는 ION Architecture과 함께 제공됩니다.
- 새로운 규정과 장치에 맞게 구성 할 수 있습니다.

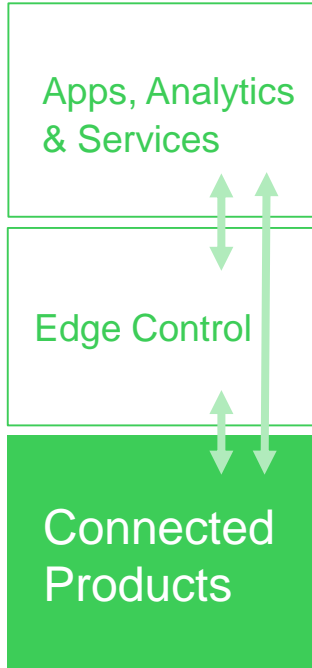
Examples:

- 다양한 장치들로부터 에너지 데이터 합산
- 알람과 제어를 위한 복잡한 Logic 구성
- 데이터 시각화 및 보고서 작성
- Load shedding



ION9000 is fully integrated in EcoStruxure Power Platform

EcoStruxure
Innovation At Every Level



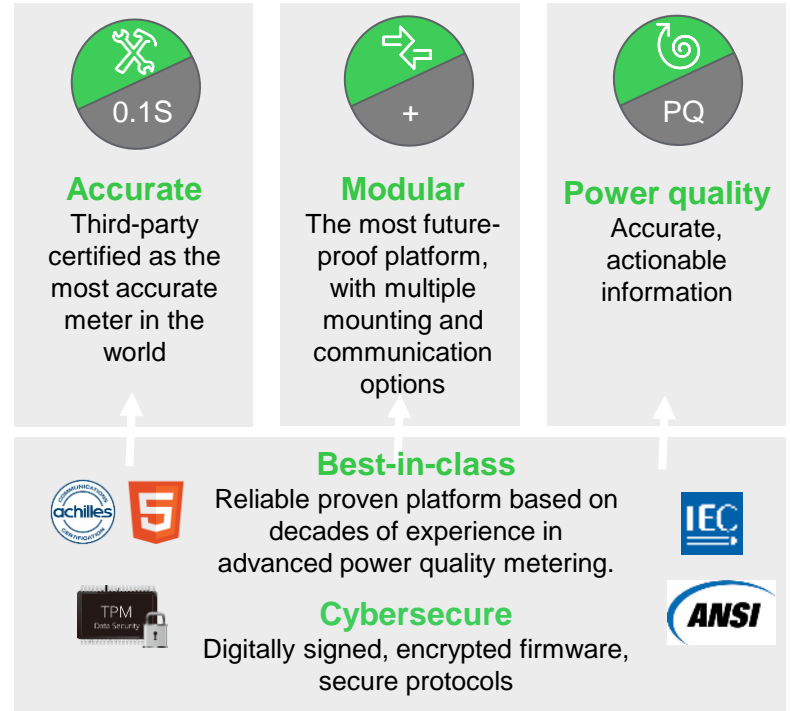
EcoStruxure Power Advisor



EcoStruxure Power Monitoring Expert /
Power SCADA Operation



PowerLogic ION9000 series

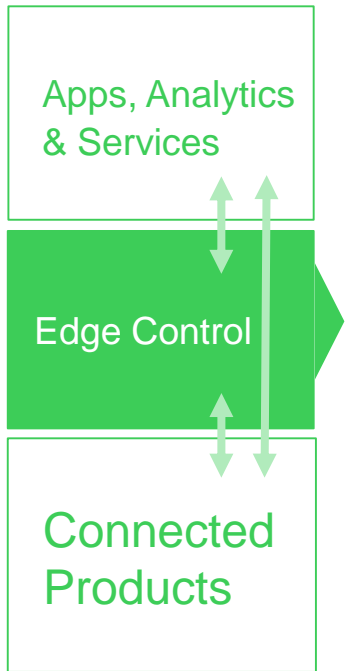


Life Is On

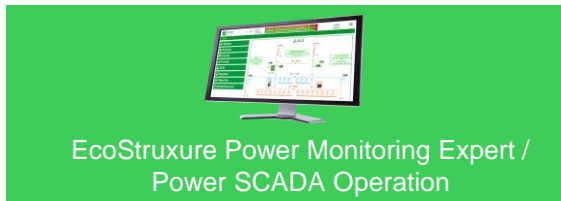


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ION9000 series

Accurate
Third-party certified as the most accurate meter in the world

Modular
The most future-proof platform, with multiple mounting and communication options

Power quality
Accurate, actionable information

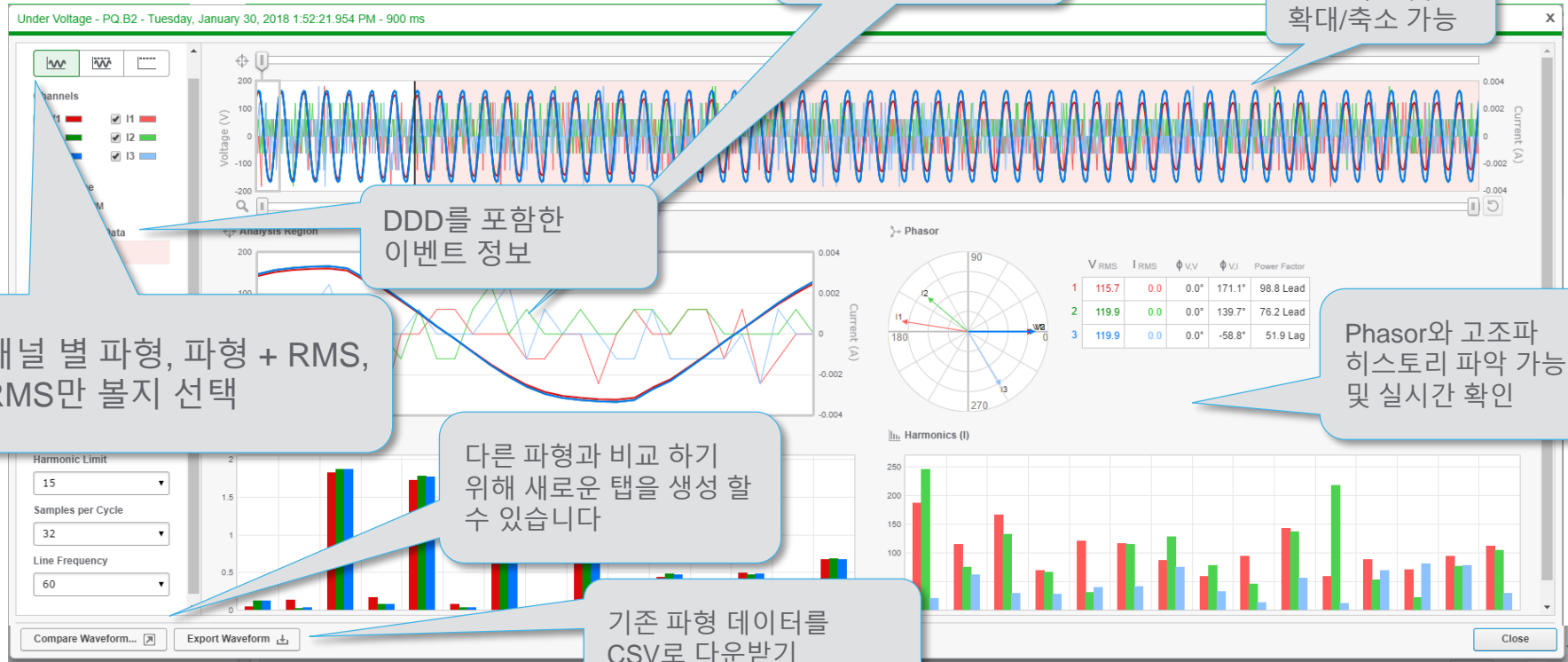
Best-in-class
Reliable proven platform based on decades of experience in advanced power quality metering.

Cybersecure
Digitally signed, encrypted firmware, secure protocols

Life Is On



Web Waveform Viewer



New report

Short Term Current Distortion Compliance - 99th Percentile						
Isc/IL=40	Individual Harmonic Order (Odd)					TDD (%)
Ratio Window Limit (20-50)	<11	11<=h<17	17<=h<23	23<=h<35	35<=h<=50	
IEEE 519 Limit (%)	10.5	5.3	3.8	1.5	0.8	12.0
Non-compliant 10-minute Weeks	2					1
Total Days	20					
%Days out of Compliance	10.00%					5.00%
Recommendation	WARNING					PASS

Short Term Current Distortion Non Compliant Weeks - 99th Percentile		
Date	Individual Harmonic	TDD - Limit 12.0%
Jan 15 2018	98.99%	99.90%
Feb 5 2018	99.30%	94.50%
Mar 28 2018	96.37%	93.40%

Short Term Current Distortion Compliance - 95th Percentile						
Isc/IL=40	Individual Harmonic Order (Odd)					TDD (%)
Ratio Window Limit (20-50)	<11	11<=h<17	17<=h<23	23<=h<35	35<=h<=50	
IEEE 519 Limit (%)	7.0	3.5	2.5	1.0	0.5	8.0
Non-compliant 10-minute Weeks	1					1
Total Days	20					
%Days out of Compliance	5.00%					5.00%
Recommendation	PASS					PASS

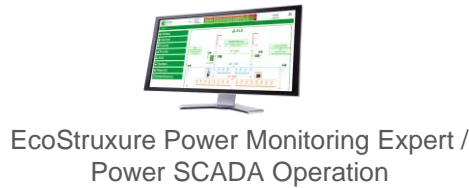
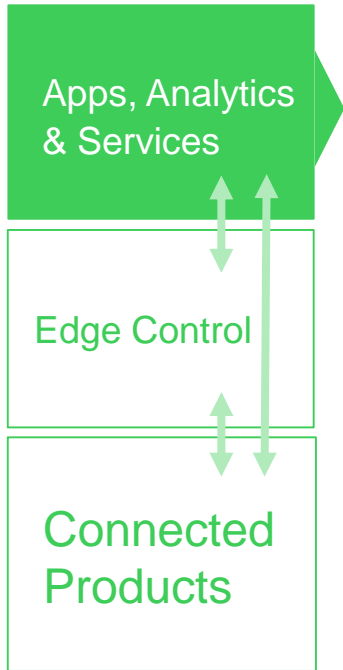
Short Term Current Distortion Non Compliant Weeks - 95th Percentile		
Date	Individual Harmonic	TDD - Limit 8.0%
Mar 28 2018	91.20%	90.10%

- IEEE 519-201 기준으로 고조파 적합성 제공
- 통계 자료 제공
- Focus on:
 - 고조파 측정
 - 전압 및 전류 왜곡에 대한 권장 고조파 제안
 - 모든 참고 자료는 IEC 표준을 참조

Requirements: ION device (ION9000, PM8000 / ION7400) requires compatible framework loaded onto to device so measurement data is available as historical data logs in the database.

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Innovation At Every Level



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Power quality
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Power Advisor Report Example

System Score:
영향을 받고 있는
시스템의 비중

Executive Summary System Report Page 1 of 2
Power Advisor

Report Summary
Date: 08-August-2017

System Affected
65%
This number indicates the total percentage of your system load affected by one or more chronic system issue(s).

Health Check
Date Range: 15 Aug 2016 - 15 Sep 2016

! Based on Power Advisor's advanced analytics technology, we have detected issues within your Power Monitoring system that could cause inaccurate data, unreliable data or both to be presented to you and saved in the system. Making decisions based on this data is not recommended. Please refer to the report for a deeper understanding of the possible causes and recommendations for each of these issues. We recommend contacting your Schneider Electric Technical Support Engineer for more details on how to improve your Power Monitoring system.

System Issues Checked (Issue/Total)	Issue Description
! No Data in Query Period (10/168/168)	Device(s) missing data. Unable to perform some diagnosis.
! All Zero Values (5/155/168)	Device(s) logged consistently zero values over query period.
! Energy Balance Violation (13/155/168)	Sum of children devices' energy consumption more than parent device's energy consumption.
! Negative Values Present (1/155/168)	Device(s) logged a mix of negative and positive values.
✓ Unchanging Value (0/155/168)	Logged values did not change over query period.
! Meter Underreporting or Overreporting Consumption (1/155/168)	Device(s) suspected of either under or over reporting energy consumption.
✓ Consistently Negative Values (0/155/168)	Device(s) logged exclusively negative values in query period.
✓ Device Not in Hierarchy (0/171/171)	Device(s) not in known hierarchy. Unable to perform some analysis until placed in hierarchy.
✓ Meter Detection Threshold Too High (0/73/168)	Device(s) unable to detect low enough readings for this device.

Detailed Report Voltage Report Page 14 of 17
Power Advisor

Potential Issue: Voltage Imbalance Condition

! Device 101
Threshold: 2% outside of nominal System Load Affected: 0.40 %

Measurement	Worst As %	Average	Minimum	Maximum
Voltage Imbalance	33.27 %	12.98V	0.97V	37.37V

Device 101 Voltage Imbalance

Device 2
Device 29 PM650
Device 37 PM620

Evidence Snapshots:
특정 문제의 원인에 대한 증거를 별도의 레포트로 제공

! **Potential Issue: Under Voltage Condition**
Based on industry standard practices, voltage measurements below allowed threshold reported.
Source: External and Internal System Load Affected: 13.57 %

Potential Consequences

- Decreased light output on some fixture/lighting types.
- Erratic equipment or system performance.
- Excessive heating and stressing of components and equipment.
- Increased operating current and decreased starting torque, slip, speed, and efficiency in standard induction motors.
- Reduced effectiveness of power factor correction capacitors.
- Reduced life expectancy or equipment failure.
- Unexpected equipment trips and motor contactor dropouts leading to unplanned interruptions of facility operations.

Device Name	Device Type	Comment
Device 101	PM650	
Device 117	PM620	
Device 118	PM650	
Device 129	PM650	
Device 19	PM650	
Device 6	PM650	
Device 55	PM650	

Issue Impact:
문제가 해결되지 않을 경우 미치는 영향을 설명

Issue Summary:
확인된 모든 이슈들의 상태 및 영향을 받은 영역의 수 표기

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Schneider
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