

verifEye™ Submetering Solutions Product Guide*



VERIFEYE™ METER KITS

SMARTer Metering. SMARTer Control. REAL Savings.

VerifEye™ delivers a comprehensive line of leading-edge submeters, communication products and software solutions as the key building blocks to help you better manage costs and conserve energy.

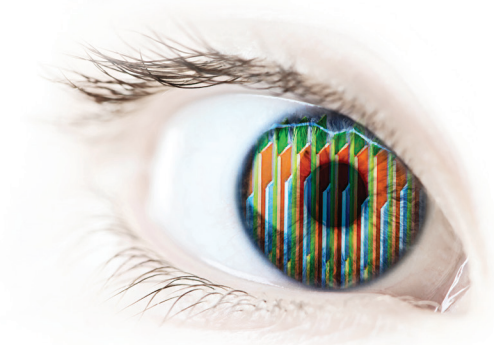
From tenant billing to energy measurement & verification (M&V) software solutions, VerifEye offers cost-effective scalability and integration to provide you with the solution you need today that can be expanded in the future

VerifEye Delivers Accurate Information For:

- Load profiling & benchmarking
- Tenant billing/cost allocation
- Measurement & Verification (M&V)
- Energy conservation programs
- Building codes and standards
- Green initiatives including LEED certification
- Government energy programs
- Building management systems AMR/BMS/EMS) integration



verifEye™
Submetering Solutions



Specifications	Residential		Residential / Commercial			Commercial				
	Mini Meter™ Kits	Mini Meter Kits with AMR	Series 8000 Multiple Point High Density Meter	Series 7000/7100 Advanced Branch Circuit Monitor	EMH+ All-In-One Meter and Hub	Series 1000 Single Phase Meter Kits		Series 2000 Three Phase Meter Kits	Series 3500 Multi-Function Ethernet Meter Kits	Series 4000 & 4100 Industrial ModBus Meter Kits
	kWh Meter	kWh Meter	kWh Meter			kWh Meter w/Optional Demand				kWh Meter
Phase/Wiring	1PH 2W, 1PH 3W	1PH 2W, 1PH 3W	1PH 2W 1PH 3W WYE 3PH 3W Delta 3PH 4W WYE	1P/2W 2P/3W 3P/4W 3P/3W Delta	3PH 3W Delta 3PH 3W WYE 1PH 2W 3PH 4W WYE	1PH 2W	1PH 3W	3PH 4W WYE	3PH 3W Delta 3PH 4W WYE	3PH 3W/4W
Voltage Configurations	120/208/240	120/208/240	120/208 120/240 240/416 277/480 480**	90-346 Volts AC Line-to-Neutral, 600V Line-to-Line	208-480V AC 3 Phase, 120, 240, 277V AC Single Phase 50/60 Hz	120 277	120/208 120/240 277/480	120/208 277/480	Universal Voltage (120-480)	Universal Voltage (90-600)
Amperages	100-200A	200A	100-5000A	50-4000A	100-5000A	100-800A		100-1200A 100, 200, 400, 800, 1200	100-5000A	Split Core: 100, 200, 400, 800A Rogowski: 50-5000A
Measuring Parameters	kWh	kWh	KWh	Volts, Amps, kW, kVAR, kVA, aPF, dPF, kW demand, kVA demand, Import (Received), kWh, Export (Delivered), kWh, Net kWh, Import (Received) kVAh, Export (Delivered) kVAh, Net KVAh, Import (Received), kVARh, Export (Delivered), kVARh, Net kVARh, THD Theta, Frequency	kWh, kVARh, kW, kVAR, kVA, Voltage L-L, L-N, Current, Power Factor, Frequency Per Phase: Voltage L-L, L-N, Current, Power, Power Factor	kWh Optional kW (peak demand reset)	kWh Optional kW (peak demand reset)	kWh kW (peak demand reset) Meter Totals: kVARh, kW, kVAR, kVA, Power Factor & kW By Phase: Volts, Watts, Amps, Power Factor Interval Data	Series 4000: kVARh, kW, kVAR, kVA, Voltage L-L, L-N, Current, Power Factor, Frequency Series 4100: kW, kVA and kVAR Power factor: 3 phase average & per phase Present power demand: Real (kW), reactive (kVAR) and apparent (kVA). Parameters are both delivered and received for the S4100 Meter	
Communications Protocol	Isolated Pulse Output	Embedded line powered AMR equipment, wireless network	ModBus TCP ModBus RTU (RS-485) BACnet IP	ModBus RTU ModBus TCP BACnet MS/TP BACnet	ModBus/RTU, ModBus/TCP, TCP/IP, PPP, HTTP/HTML, FTP, NTP, XML, SNMP-Trap, Optional BACnet/IP	Isolated Pulse Output, 10WH or 100WH pulse	Isolated Pulse Output, 10WH or 100WH pulse	Isolated Pulse Output ModBus TCP/IP BACnet IP	Series 4000: ModBus/RTU, Isolated Pulse Output Series 4100: ModBus/RTU w/Pulse Output or BACnet IP with Pulse Input	
Current Transformers Options	Split Core Solid Core	Solid Core	Split Core Solid Core	Split Core Solid Core Rogowski Coil	Split Core 333V secondary output only	Split Core Solid Core	Split Core Solid Core	Split Core Solid Core	Split Core Solid Core	Split Core .333V secondary output only, Rogowski Coil lengths available 12, 18, 24"
Enclosure Options	OEM Module Indoor Plastic Flush Mount NEMA 1 Outdoor NEMA 4X MMU NEMA 4X	Indoor Flush Mount Indoor Surface Mount	Indoor JIC Steel NEMA (MMU)	Indoor Plastic NEMA 1 Panel Mount - no enclosure	Indoor Plastic Surface Mount	Indoor JIC Steel NEMA 1 Outdoor NEMA 4X	Indoor JIC Steel NEMA 1 Outdoor NEMA 4X MMU JIC Steel NEMA 1	Indoor JIC Steel NEMA 1 Outdoor NEMA 4X	Indoor JIC Steel NEMA 1 Outdoor NEMA 4X	Indoor DIN Rail Mount Outdoor NEMA 4X
Display Type	LCD or Mechanical Counter	LCD	Local LCD, Scroll	Local LCD, Scroll Buttons	LCD Touch Screen	Local LCD	Local LCD	Local LCD, Scroll Button	LCD, Scroll Buttons	
Accuracy	C12.20 +/- 0.5% with paired CTs	C12.20 0.5% with paired CTs	C12.20 +/- 0.5%	C12.20	C12.10 1% from 2% to 100% of full scale	C12.10 and C12.20 +/- 0.5%	C12.10 and C12.20 +/- 0.5%	C12.10 +/- 0.5%	C12.20 / 0.5%	
Multiple Meter Unit (MMU) Configurations	Medium, 2-4 Meters Large, 5-8 Meters Extra-Large, 9-19 Meters	—	3PH: 8x3 1PH 3W: 12x2, 9x2, 6x2, 3x2 1PH: 24x1	—	—	—	Medium, 2-4 Meters Large, 5-8 Meters/ Extra-Large, 9-16 Meters	—	—	
Data Storage	Last Reading - Cumulative	Last Reading - Cumulative	Last Reading - Cumulative Data in 15 min Intervals	Last reading — user selectable	Last reading — 1 to 60 minutes, User Selectable (default 15 minutes)	Last Reading - Cumulative, Peak Demand with Key Reset (optional)	Last Reading - Cumulative, Peak Demand with Key Reset (optional)	Last Reading - Cumulative, Peak Demand with Key Reset, Data in 15 minute Intervals	Last Reading - Present and Peak Demand for kW and kVAR	



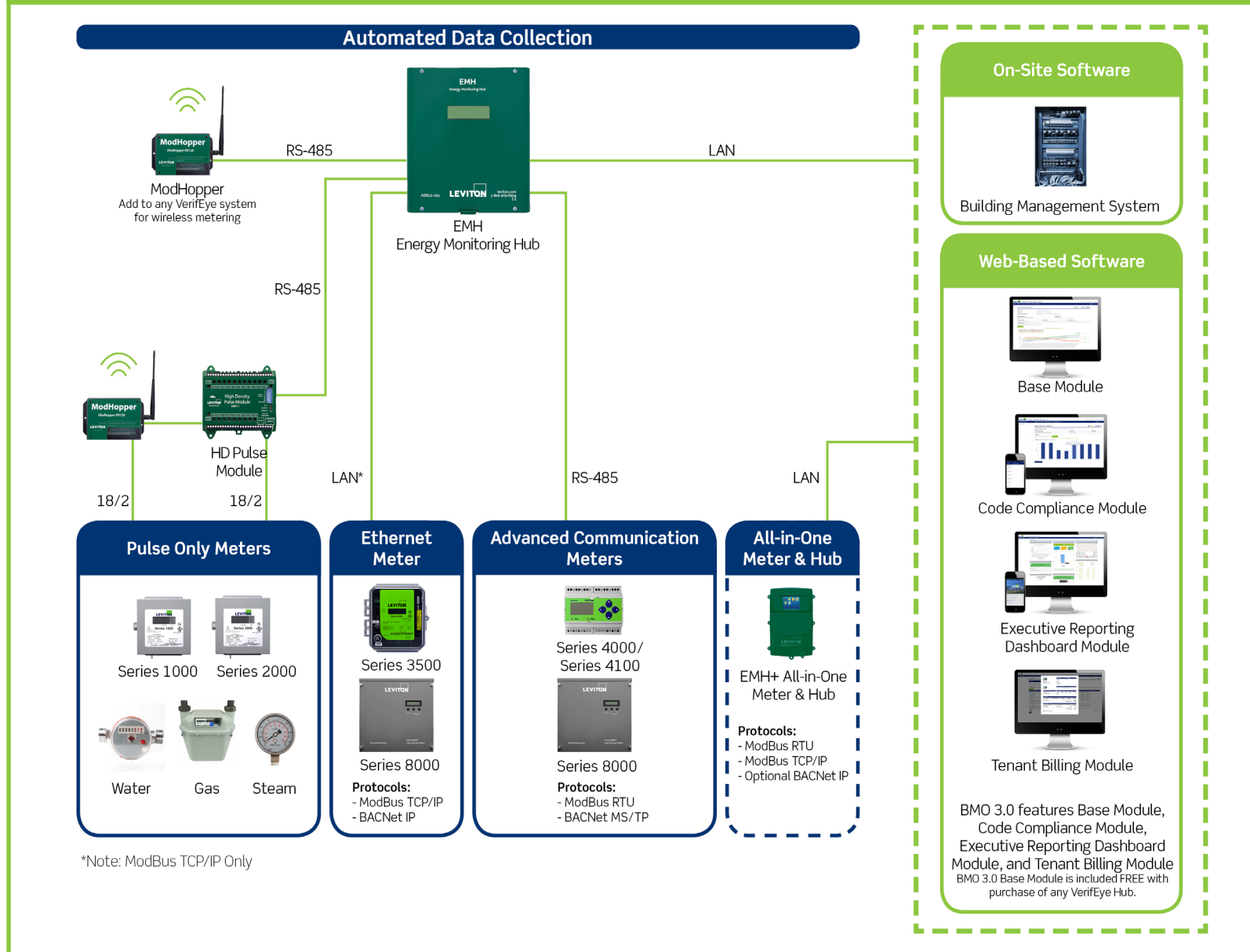
* Reference Product Selection Guide and Data Sheets for complete information
** With potential transformer - consult factory for availability

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VerifEye™ System Architecture



VERIFEYE™ COMMUNICATIONS PRODUCTS

Metering Communication Systems transmit data from meters to end systems to create a data network between Leviton meters and stakeholders (BAS, VerifEye Building Manager Online (BMO) 3.0, third party billing, etc.). Easily share data through open protocols such as ModBus and IP-based data transfer. This enables facilities to create metering systems that can accommodate future expansion with data made accessible from any internal or external location.

VERIFEYE COMMUNICATION PRODUCTS						
	Energy Monitoring Hub (EMH)	EMB Hub	EMB HubLite	High Density Pulse Module	Flex I/O Module	ModHopper
	Data Acquisition Hubs Building Manager Online (BMO) 3.0 is included at no cost with purchase of a Hub			Input/Output Module	Input/Output Module	Wireless Modbus/Pulse Transceiver
	A8812	A8810	A7810	A8911	A8332	R9120
SPECIFICATIONS	Energy Monitoring Hub (EMH)	EMB Hub	EMB HubLite	High Density Pulse Module	Flex I/O Module	ModHopper
Protocols	ModBus/RTU ModBus TCP TCP/IP PPP HTTP/HTML FTP NTP XML SNMP-Trap	ModBus/RTU ModBus TCP TCP/IP PPP HTTP/HTML FTP NTP XML SNMP-Trap	ModBus TCP TCP/IP PPP HTTP/HTML FTP NTP XML SNMP-Trap	ModBus/RTU	ModBus/RTU	ModBus/RTU
Applications	Use with an Ethernet (LAN) connection to push-or-pull data via HTTP, XML, FTP, or any custom protocol Connect to web-based (IP-based) software dashboards, energy information management systems and demand response systems			Use with EMH to take advantage of plug-in communication Use with ModHopper for wireless communication Push-or-pull meter data to VerifEye kiosks and software applications		Designed specifically for wireless submetering Collect meter data from multiple buildings over long distances "Self-managed" mesh network keeps system functioning with high reliability

VERIFEYE™ SOFTWARE PRODUCTS

BUILDING MANAGER ONLINE (BMO) 3.0

Energy information and management is the key to smart energy usage and cost control. Building owners can benefit significantly from a seamless solution that enables smart metering, code compliance requirements, and simplifies the complexities of allocating energy costs and billing tenants. BMO 3.0 gives decision makers the tools to implement smart, informed strategies to achieve their unique energy goals, reduce energy waste, optimize operating costs, and increase their bottom line.

- Flexible, intuitive and easy to use online or via a mobile app
- Affordable options provide top industry value
- Full energy management and tenant billing capabilities



Download Our Energy Code Apps, go to:
www.leviton.com/apps

* Reference Product Selection Guide and Data Sheets for complete information.

VERIFEYE SOFTWARE — BUILDING MANAGER ONLINE (BMO) 3.0

Measurement & Verification (M&V) Software			Tenant Billing Software
Base Module	Code Compliance Module	Executive Reporting (Dashboard) Module	Tenant Billing Module
Web-Based Software	Web-Based Software and App	Web-Based Software and App	Web-Based Software
	BMSW-XXX	BMSW-COD	BMSW-EXE
	BMSW-XXX	BMSW-COD	BMSW-BIL
SPECIFICATIONS	Base Module	Code Compliance Module	Executive Reporting (Dashboard) Module
Primary Functions	Provides a summary of energy profiles to help identify high and low consumption as well as energy usage patterns for user defined intervals; FREE with the purchase of any VerifEye Hub	Allows end users to meet the growing requirements of local municipal codes such as Seattle Energy Code and California Title 24 as well as versions of ASHRAE 90.1 in development	Allows executive stakeholders to readily access, understand and display energy usage and cost data specific to their facilities and portfolios in a configurable graphical dashboard
Key Features	<ul style="list-style-type: none"> • Provides a summary of energy profiles to help identify high and low consumption as well as energy usage patterns for user defined intervals • View building status, consumption and alarms • Export energy usage data • Display energy usage graphs 	<ul style="list-style-type: none"> • Allows a single building to meet code compliance requirements for energy information • Create virtual meters to report aggregated loads for lighting, HVAC, etc. • View data summarized in a bar or line graph format • Generate date-based reports for whole building energy sources such as electric, gas and steam as well as end use category energy users such as lighting, plug load, HVAC and more • Compare energy cost information • Provides a summary of energy profiles to help identify high and low consumption as well as trending patterns for user defined intervals • Export energy usage data • Display energy usage data 	<ul style="list-style-type: none"> • Link multiple building profiles and view multiple buildings and portfolios in multiple hubs • Configure graphical Dashboard to display user-defined data and periods using a wide array of graphical options • View building information updated in 15-minute intervals—energy usage, measured parameters, cost metrics and more • Set goals for energy usage at the building portfolio level • Receive alerts and alarms via e-mail or SMS • Upload weather information to aid in understanding energy usage patterns • Create virtual meters to report aggregated loads for lighting, HVAC, etc. • Receive push notifications via the Dashboard mobile app • Compare energy cost information
Primary Functions	Allows for tenant billing functionality for multi-unit buildings/facilities all across the commercial MDU market or any multi-space facility where individual tenant invoice creation is required	Allows for tenant billing functionality for multi-unit buildings/facilities all across the commercial MDU market or any multi-space facility where individual tenant invoice creation is required	Allows for tenant billing functionality for multi-unit buildings/facilities all across the commercial MDU market or any multi-space facility where individual tenant invoice creation is required
Key Features	<ul style="list-style-type: none"> • Allows multiple buildings portfolios to be managed from one application • Create virtual meters to locate common area costs • Establish tenant portfolio and assign any meter to any tenant • Create tariffs for future use at the entire building level—simple, tiered or time of use (TOU) • Generate tenant invoices for any user selected data range • Upload company logo to the system to be used on tenant bills • View management summary reports for each billing period • Export invoices as PDFs • Provides a graphical representation of energy usage data to support tenant bills 	<ul style="list-style-type: none"> • Allows multiple buildings portfolios to be managed from one application • Create virtual meters to locate common area costs • Establish tenant portfolio and assign any meter to any tenant • Create tariffs for future use at the entire building level—simple, tiered or time of use (TOU) • Generate tenant invoices for any user selected data range • Upload company logo to the system to be used on tenant bills • View management summary reports for each billing period • Export invoices as PDFs • Provides a graphical representation of energy usage data to support tenant bills 	<ul style="list-style-type: none"> • Allows multiple buildings portfolios to be managed from one application • Create virtual meters to locate common area costs • Establish tenant portfolio and assign any meter to any tenant • Create tariffs for future use at the entire building level—simple, tiered or time of use (TOU) • Generate tenant invoices for any user selected data range • Upload company logo to the system to be used on tenant bills • View management summary reports for each billing period • Export invoices as PDFs • Provides a graphical representation of energy usage data to support tenant bills

verifEye™
 Submetering Solutions



Smart Energy Management

Accurate Measurement and Verification
 VerifEye accurately allocates costs and bills tenants. Revenue grade real-time reporting through leading edge hardware and software - the submetering solution for every application. www.leviton.com/verifeye

Contact your Leviton representative for additional smart energy saving solutions to expand and upgrade your system.