

# EM4x Energy Manager



## DC POWER MANAGEMENT

## DC CONTROL

### Key Features

- Cybersecurity Compliant SL1
- SNMP V2c, V3
- HTTPS TLS1.3
- Advanced Graphing based site analysis
- Full language support
- Modbus south and north bound
- DC and AC Energy Metering
- Analogue and Digital inputs and outputs through inbuilt and expansion IO
- Web over USB
- Rectifier, DCDC Converter, Solar and Wind module control
- 12, 24, 48, and 110VDC control
- VRLA and Li-Ion battery integration

### Smart Power Management

The Enatel EM4x Energy Manager is an industry leading industrial and communication site manager that can monitor, manage and control critical infrastructure at all installations from micro sites to centralised power plants.

The key to the EM4x's versatility and advantage is its ability to integrate Enatel and 3rd party site elements with ease, then aggregate all collected data into a powerful and easily interpreted set of information through the embedded web UI, or via northbound open SNMP or Modbus communications.

Security forms an important focus for Enatel as it is critical that our products help our customers secure their sites, so the EM4x is designed to comply with the Cybersecurity requirements of the internationally accepted standard IEC 62443-4.

Whether it is control of a small DC power system, or a multi source hybrid site with solar, wind, generators, Li-Ion batteries or more, we've got it covered.

# EM4x Applications and Benefits



- Public Safety systems
- Hybrid sites
- Renewable energy solutions
- Fibre nodes
- Cellular sites
- Industrial controls and communication sites
- Secondary energy generation

CORE BENEFITS	In-built features that bring considerable value to site management, site control and energy management
AC ENERGY METERING	When integrated into the EM4x the ACM (AC Module) enables reporting and monitoring of an AC circuit including surges. Supports star or delta AC networks, measuring voltage, current, frequency, energy, with a surge event counter.
LITHIUM ION BATTERY CONTROL <sup>Ⓜ</sup>	Integration of modular lithium-ion batteries via Modbus over RS485/USB, together with a core interface for communicating with Modbus based devices. Simplifies the total site design particularly ensuring that communications are integrated into a single northbound connection toward the customer's management platform. More critically it ensures the charging approach is tailored to ensure safety and reliability of the connected battery.
3-PHASE BALANCING <sup>Ⓜ</sup>	Enatel's unique, patented Phase Balancing measuring the output of 3 phases and then dynamically balances the power across each. Used to offset the effect of a large consuming load such as an air-conditioner. Limits the AC input current: <ul style="list-style-type: none"> <li>• Preventing in-coming AC circuit breakers tripping</li> <li>• Avoiding the need for costly truck rolls to site</li> <li>• Costly upgrades of the site AC infrastructure such as AC cable and AC distribution board</li> <li>• Protect a 3-phase generator engine due to imbalanced phases</li> </ul>
SINGLE PHASE BACKOFF <sup>Ⓜ</sup>	AC current limiting for single phase systems, used to prevent in-coming AC circuit breakers tripping, avoiding the need for costly truck rolls to site.
MODBUS INTEGRATION <sup>Ⓜ</sup>	Permits the mapping of Modbus communications (RTU/serial or TCP/IP) from other infrastructure devices at site into the EM4x. Simplifies communication and control at sites providing the ability for one single northbound communication from site via the EM4x controller.
INVERTER INTEGRATION <sup>Ⓜ</sup>	Integration of data and alarms from inverter systems* utilising Modbus RTU (serial) communications. Simplifies the management of all energy sources at site as well as northbound alarms and data, through the presentation of a single site controller at each site.
GRID TARIFF OPTIMISATION <sup>Ⓜ</sup>	Select periods of the day where the DC system can be 'turned down' to draw power from the batteries instead of the AC grid. Control the use of grid energy, avoiding peak charging points, through maximising the battery asset to reduce operational running costs.
SYNERGI HYBRID CONTROL <sup>Ⓜ</sup>	The industry's most advanced hybrid solution, maximising uptime and generator efficiency as it dynamically optimises generator loading. It intuitively and intelligently blends multiple energy inputs including solar and wind; energy optimization made simple. The field results and related patents prove it.
LUA SCRIPTING <sup>Ⓜ</sup>	EM4x firmware editor which permits adaption of the controller function. Provides expert users the ability to deeply customise the available functionality from the EM4x energy manager in order to meet specific end user needs.

<sup>Ⓜ</sup> Features that are available under license

\*Available with CE+T systems with Inview S controller

