Partner Product

EBG 218-EN

INEA LEM MITSUBISHI ELECTRIC FACTORY AUTOMATION

Energy Control Pack

Shop Floor Energy Management

Solutions for Managing Energy Costs

for End Users and System Integrators

e-F@ctory Partner Product

ENERGY SAVING — Control power consumption to reduce costs

SIMPLER OPERATION — Parameter based set-up eliminates programming

IMPROVED COMMUNICATION — Easy connection to IT databases and other information systems

COMPLETE — Completely scalable to suit every application

Energy control made simple

The automation expertise in the industry and its flexibility enables European manufacturing organisations to cut 15 % or more from their energy bills by improving the design of their production systems and optimising energy consumption. By fully integrating energy management with other enterprise systems processes can be streamlined and potential savings realised whilst product quality, production reliability and overall productivity are enhanced.

A new way of thinking

To optimise energy usage there must be complete transparency throughout the enterprise, from shop floor to top floor. Mitsubishi Electric offers this capability through its Energy Control Pack (ECP), which collects live data from all points of energy consumption for analysis by multiple levels of management systems. Thus speeds can automatically be trimmed, loads matched and temperatures controlled in real time, to achieve significant energy savings.

ECP is based on Mitsubishi Electric's Manufacturing Enterprise System-Information Technology (MES-IT) e-F@ctory concept that has already proved itself in many industrial environments.

Mitsubishi and its partners INEA and LEM all have great expertise in Energy management, based on cutting edge technology and long experience. ECP is a third generation technology, so is well proved, highly developed, easy to use and ultra reliable.

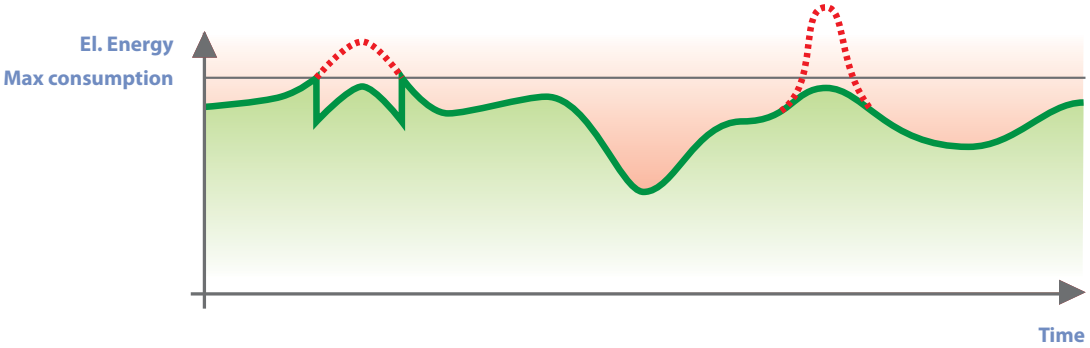
Its key features are the ability to limit power consumption over time and the ability to be aware of and manage power peaks to minimise cost. The latter make ECP particularly appropriate for organisations with irregular power consumption patterns.

Out of the box control

The Energy Control Pack is based on a series of proven control modules, which can be selected, configured and scaled to suit any given application, new or existing. It bundles together hardware, software and documentation for out-of-the-box Energy Management.

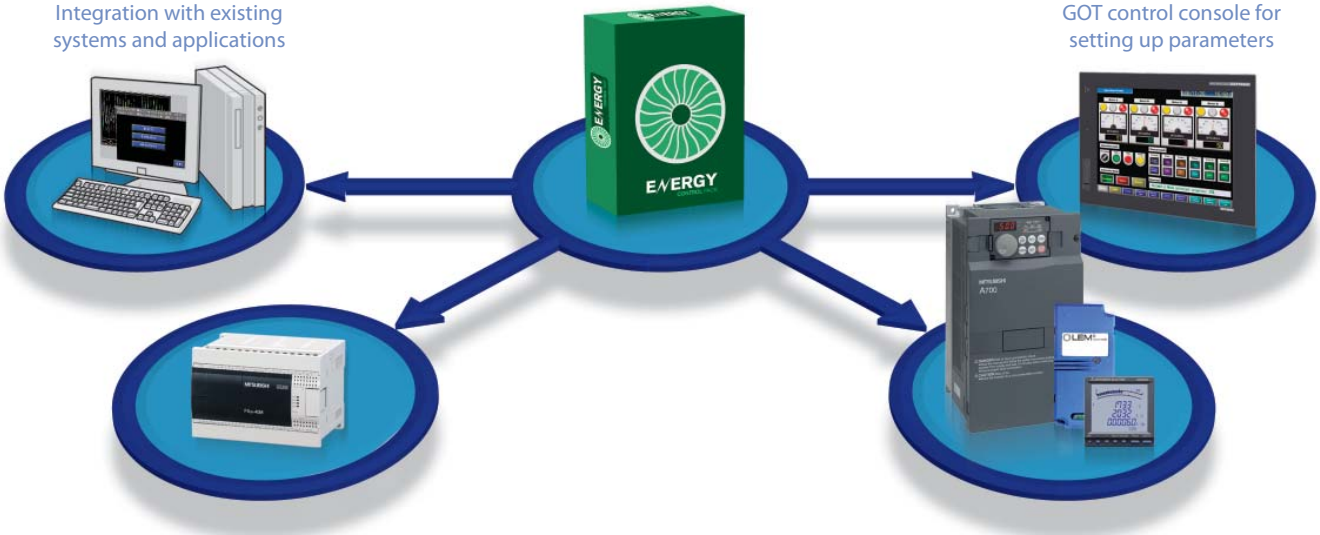
ECP is fully field-tested, which means installation and commissioning can be achieved on a right first time basis. At initial start-up, it is likely to be 80 % optimised for the host application; this can easily be enhanced to a 100 % perfect fit during the straightforward commissioning process.

ENERGY CONTROL PACK



Limit electrical energy consumption over the time and the ability to manage and cut power peaks, to minimise the costs for consumption and penalties

All in one Energy Control Pack



Hardware architecture

The Energy Control Pack consists of:

- A Mitsubishi FX3U or Q series Programmable Logic Controller (PLC) with the Energy Control algorithm
- Various loads can be connected and measured by energy meters (ME96 NSR, Wi-LEM, FR-700) connected to the PLC with pre-made Communication Function Blocks (FB)
- A user-friendly HMI or GOT (human-machine interface or graphic operator terminal) is connected to the PLC and used for setting up the application and subsequently to monitor the system
- Optionally a SCADA (Supervisory Control and Data Acquistion) web application on a separate server will enhance usability

Life-Cycle Support

ECP is optimised for easy integration into new or existing applications and will support it throughout the operating life of the plant.

The Energy Control Pack includes the following:

- Standard Tender Texts
- Standard (EPLAN) drawings for the project tender
- BOM (Bill of Materials)
- Standard programs for HMI, different Energy Meters, inverters and PLCs including the Energy Management algorithms owned by the customer
- Standard FAT and SAT documentation
- Standard Maintenance documentation
- ECP Algorithm

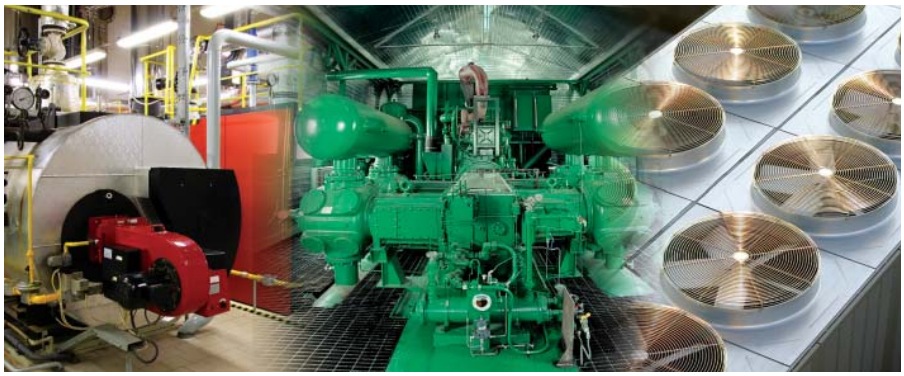
ECP Algorithms

The main parameter in the ECP system is a power limit, whose average must not be exceeded within a predefined time interval called “account interval” (the default value is 15 min). Current power can be greater than average power for a short period of time (less than the account interval) as long as its average value does not exceed the limitation.

Installation and Commissioning

The ECP does not require complex programming; instead parameters are simply set via the HMI/GOT. A series of screens are called up on the terminal to set load type, tariff schedule and other parameters.

Once operating, the terminal displays current data as it is collected. This is protected to different levels of security for shopfloor operation, technical management and enterprise decisions.



Reduce energy costs in mulitple applications

Configurations ///

ENERGY CONTROL PACK

ECP COMPACT

The simple system consists of one PLC, which is capable of controlling up to 16 electrical loads. It can be installed by the End User or System Integrator. Integral software automatically collects and analyses all necessary data.

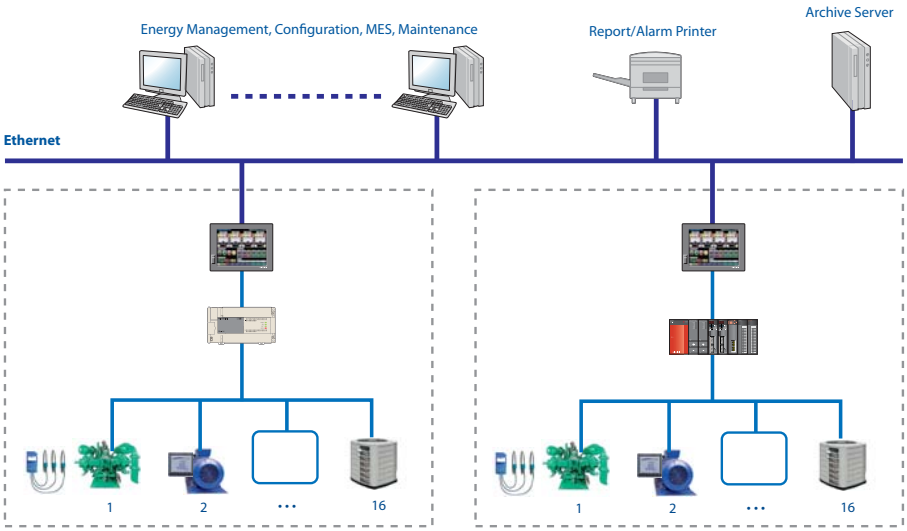
ECP MODULAR

This is for complex systems with more than 16 loads which are dispersed to several locations. Several PLCs are installed; one is defined as the master, and the rest as slaves. The solution should be implemented by a System Integrator.

ECP OPEN

Open end systems are for the most complex installations. They need a project based approach, starting with a feasibility study and including defined targets for Return on Investment. Typically the ECP will be connected to further energy systems such as air, gas, oil, water, space heating or air conditioning.

ECP OPEN as part of an energy grid with a ECP COMPACT or ECP MODULAR system



Typical ECP COMPACT configuration

Typical ECP COMPACT configuration

Typical ECP MODULAR configuration, here for example with one master and one slave.

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Specifications subject to change /// Art. no. 237031-A /// 04.2011