

Partner Product

EBG 218-EN



Energy Control Pack

Shop Floor Energy Management

Solutions for Managing Energy Costs

for End Users and System Integrators



e-Factory
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.

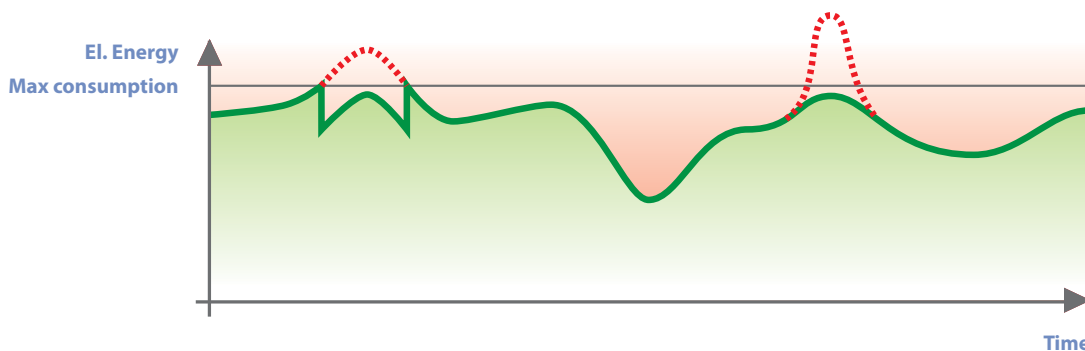
Mitsubishi and its partners INEA and LEM all have great expertise in Energy management, based on cutting edge technology and long experience. ECP is a third generation technology, so is well proved, highly developed, easy to use and ultra reliable.

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

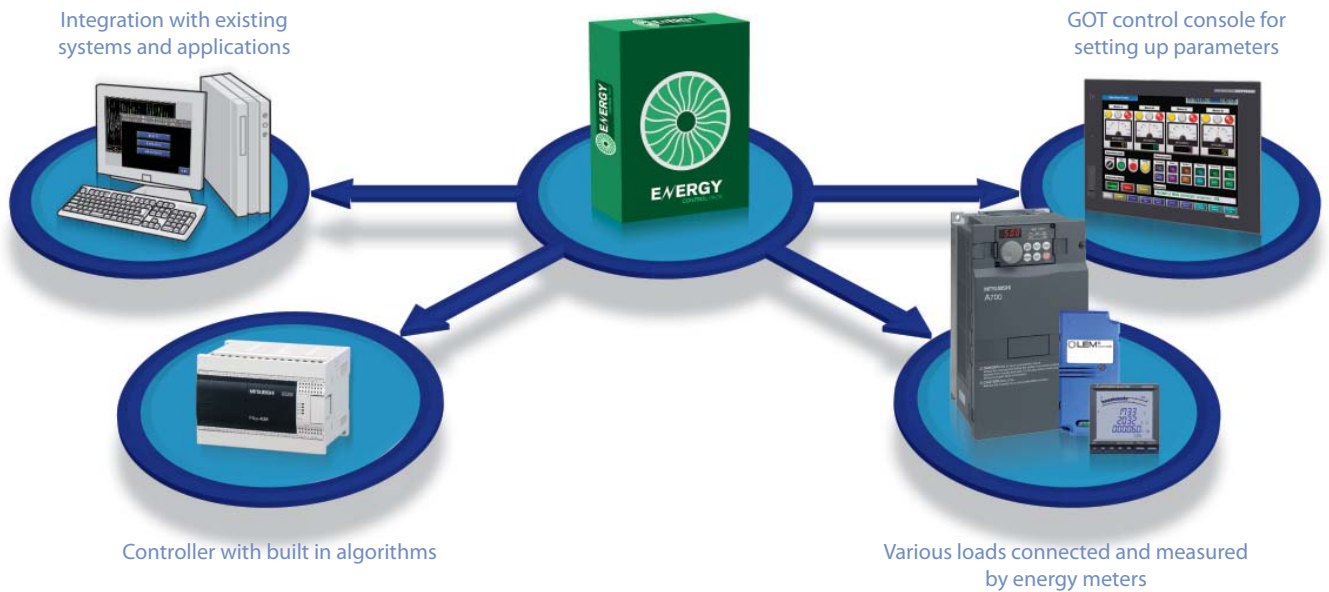
The Energy Control Pack is based on a series of proven control modules, which can be selected, configured and scaled to suit any given application, new or existing. It bundles together hardware, software and documentation for out-of-the-box Energy Management.

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.



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 Acquisition) 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

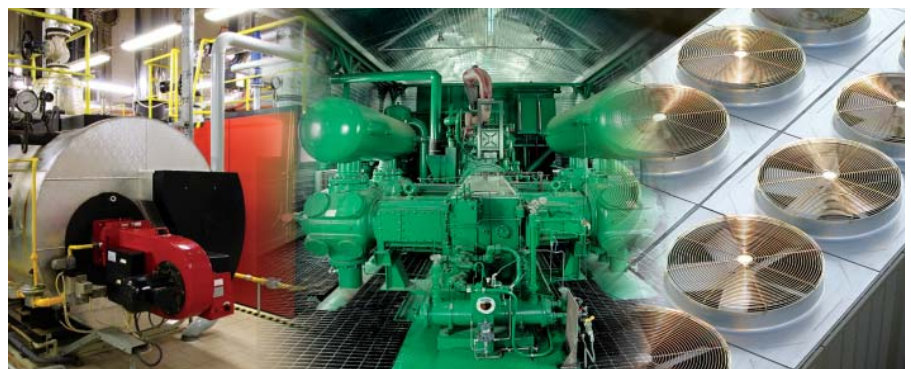
ECP Algorithms

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 multiple applications

Configurations ///



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.

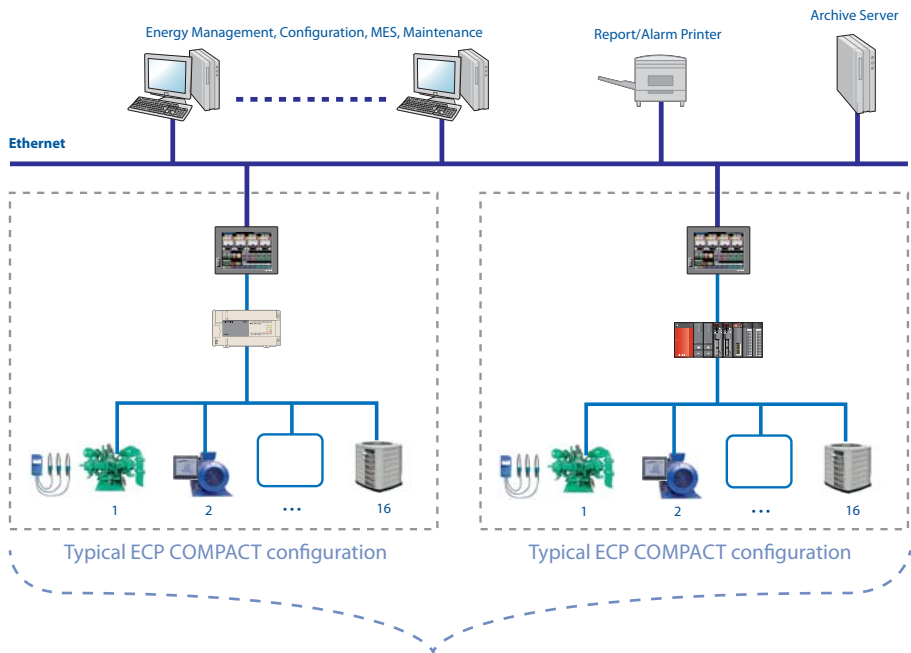
ECP MODULAR

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

MITSUBISHI COMPETENCE CENTRE

INEA d.o.o. Stegne 11 SI-1000 Ljubljana Phone: +386 (0)1/513 8100	SLOVENIA	LEM SA Chemin des Aulux 8 CH-1228 Plan-les-Ouates, Geneva Phone: +41 22.706 11 11	SWITZERLAND
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EUROPEAN BRANCHES

MITSUBISHI ELECTRIC EUROPE B.V. Gothaer Straße 8 D-40880 Ratingen Phone: +49 (0)2102 / 486-0	GERMANY
MITSUBISHI ELECTRIC EUROPE B.V. Radlická 714/113a CZ-158 00 Praha 5 Phone: +420 - 251 551 470	CZECH REPUBLIC
MITSUBISHI ELECTRIC EUROPE B.V. 25, Boulevard des Bouvets F-92741 Nanterre Cedex Phone: +33 (0)1 / 55 68 55 68	FRANCE
MITSUBISHI ELECTRIC EUROPE B.V. Viale Colleoni 7 I-20041 Agrate Brianza (MB) Phone: +39 039 / 60 53 1	ITALY
MITSUBISHI ELECTRIC EUROPE B.V. Krakowska 50 PL-32-083 Balice Phone: +48 (0)12 / 630 47 00	POLAND
MITSUBISHI ELECTRIC EUROPE B.V. Carrereta de Rubi 76-80 E-08190 Sant Cugat del Valles (Barcelona) Phone: 902 131121 // +34 935653131	SPAIN
MITSUBISHI ELECTRIC EUROPE B.V. Travellers Lane UK-Hatfield, Herts. AL10 8XB Phone: +44 (0)1707 / 27 61 00	UK

EUROPEAN REPRESENTATIVES

GEVA Wiener Straße 89 AT-2500 Baden Phone: +43 (0)2252 / 85 55 20	AUSTRIA	AutoCont C.S. s.r.o. Technologická 374/6 CZ-708 00 Ostrava-Pustkovec Phone: +420 595 691 150	CZECH REPUBLIC	KAZPROMAUTOM. Ltd. Mustafina Str. 7/2 KAZ-470046 Karaganda Phone: +7 7212 / 50 11 50	KAZAKHSTAN	Beijer Electronics AS Postboks 487 NO-3002 Drammen Phone: +47 (0)32 / 24 30 00	NORWAY	Beijer Electronics AB Box 426 SE-20124 Malmö Phone: +46 (0)40 / 35 86 00	SWEDEN	TEHEL ELECTRONICS Ltd. 2 Ha'umanut, P.O.B. 6272 IL-42160 Netanya Phone: +972 (0)9 / 863 39 80	ISRAEL
TEHNIKON Oktyabrskaya 16/5, Off. 703-711 BY-220030 Minsk Phone: +375 (0)17 / 210 46 26	BELARUS	B.ELECTRIC, s.r.o. Zakrytá 2/1855 CZ-141 00 Praha 4 – Záběhlice Phone: +420 286 850 848	CZECH REPUBLIC	Beijer Electronics SIA Ritausmas iela 23 LV-1058 Riga Phone: +371 (0)784 / 2280	LATVIA	Sirius Trading & Services Aleea Lacul Morii Nr. 3 RO-060841 Bucuresti, Sector 6 Phone: +40 (0)21 / 430 40 06	ROMANIA	Omni Ray AG Im Schürli 5 CH-8600 Dübendorf Phone: +41 (0)44 / 802 28 80	SWITZERLAND	CEG INTERNATIONAL Gebaco Center/Block A Autostrade DORA Lebanon - Beirut Phone: +961 (0)1 / 240 430	LEBANON
ESCO D & A Culliganlaan 3 BE-1831 Diegem Phone: +32 (0)2 / 717 64 30	BELGIUM	Beijer Electronics A/S Lykkegårdsvej 17 DK-4000 Roskilde Phone: +45 (0)46 / 75 76 66	DENMARK	Beijer Electronics UAB Savanoriu Pr. 187 LT-02300 Vilnius Phone: +370 (0)5 / 232 3101	LITHUANIA	Craft Con. & Engineering d.o.o. Bulevar Svetog Cara Konstantina 80-86 SER-18106 Nis Phone: +381 (0)26 / 617 163	SERBIA	GTS Bayraktar Bulvari Nutuk Sok. No:5 TR-34775 Yukarı İSTANBUL Phone: +90 (0)216 526 39 90	TURKEY	CBI Ltd. Private Bag 2016 ZA-1600 Isando Phone: +27 (0)11 / 977 0770	SOUTH AFRICA
Koning & Hartman b.v. Woluwelaan 31 BE-1800 Vilvoorde Phone: +32 (0)33 / 921 02 40	BELGIUM	Beijer Electronics Eesti OÜ Pärnu mnt.160i EE-11317 Tallinn Phone: +372 (0)6 / 51 81 40	ESTONIA	ALFATRADE Ltd. 99, Paola Hill Malta- Paola PLA 1702 Phone: +372 (0)21 / 697 816	MALTA	INEA SR d.o.o. Izletnicka 10 SER-113000 Smederevo Phone: +381 (0)26 / 617 163	SERBIA	CSC Automation Ltd. 4-B, M. Raskovoyi St. UA-02660 Kiev Phone: +380 (0)44 / 494 33 55	UKRAINE	ILAN & GAVISH Ltd. 24 Shenkar St., Kiryat Arie IL-49001 Petah-Tiqva Phone: +972 (0)3 / 922 18 24	ISRAEL
INEA BH d.o.o. Aleja Lipa 56 BA-71000 Sarajevo Phone: +387 (0)33 / 921 164	BOSNIA AND HERZEG.	Beijer Electronics OY Peltioie 37 FIN-28400 Ulvila Phone: +358 (0)207 / 463 540	FINLAND	INTEHISIS srl bld. Traian 23/1 MD-2060 Kishinev Phone: +373 (0)22 / 66 4242	MOLDOVA	AutoCont Control s.r.o. Radlinského 47 SK-02601 Dolny Kubin Phone: +421 (0)43 / 5868210	SLOVAKIA	CS Mtrade Slovensko, s.r.o. Vajanského 58 SK-92101 Piestany Phone: +421 (0)33 / 7742 760	SLOVAKIA		
AKHNATON 4 Andrej Ljapchev Blvd. Pb 21 BG-1756 Sofia Phone: +359 (0)2 / 817 6044	BULGARIA	UTECO 5, Mavrogenous Str. GR-18542 Piraeus Phone: +30 21 / 1206 900	GREECE	HIFLEX AUTOM. B.V. Wolweverstraat 22 NL-2984 CD Ridderkerk Phone: +31 (0)180 - 46 60 04	NETHERLANDS	INEA d.o.o. Stegne 11 SI-1000 Ljubljana Phone: +386 (0)1 / 513 8100	SLOVENIA				
INEA CR d.o.o. Losinjska 4 a HR-10000 Zagreb Phone: +385 (0)1/36940-01/-02/-03	CROATIA	MELTRADE KFL Fertő utca 14. HU-1107 Budapest Phone: +36 (0)1 / 431-9726	HUNGARY	Koning & Hartman b.v. Haarlerbergweg 21-23 NL-1101 CH Amsterdam Phone: +31 (0)20 / 587 76 00	NETHERLANDS						



Mitsubishi Electric Europe B.V. /// FA - European Business Group /// Gothaer Straße 8 /// D-40880 Ratingen /// Germany
Tel.: +49(0)2102-4860 /// Fax: +49(0)2102-4861120 /// info@mitsubishi-automation.com /// www.mitsubishi-automation.com

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