Flexible And Reliable Solutions For HVAC, Lighting & Energy Monitoring
Flexible And Reliable Solutions For HVAC, Lighting & Energy Monitoring

System Benefits
The Benefits Of The Emerson Solution For HVAC, Lighting And Energy Monitoring
Emerson Solution Center's Technical Capabilities Contributing To Your Success
Building Energy Management Systems provide an integrated control solution for the energy-intensive equipment installed inside shop buildings.

HVAC units are coordinated by a supervisory and control system that harmonizes and optimizes their operation based on the operation patterns of any specific building.

The Emerson solution extends to the complete control of chillers, heat pumps, rooftops, AHUs, cross flow heat recovery units that can be fitted with Emerson programmable controllers.

For chillers and rooftops, units that include one or multiple compressors, a Control Module dedicated to the protection and optimization of the most important components of the refrigeration circuit is available.

Light controls are part of the integrated solution and are managed in a variety of increasingly complex and performing approaches. From standard control approaches, based on digital and analog signals, to advanced approaches based on the use of serial protocols.

Eventually advanced energy monitoring capabilities allow to measure all sorts of energy use for reporting and optimization purposes.
System Benefits

The Benefits Of The Emerson Solution For HVAC, Lighting And Energy Monitoring

- Reduced start up and commissioning time
- Enhanced performance and operation
- Powerful remote control
- Open and flexible
- Integrated Emerson solution for optimal monitoring and diagnostic
- Everything is under control

HVAC, Lighting and energy monitoring overview

An Architecture Able To Deliver Maximum Benefits To End-users

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HVAC, Lighting and energy monitoring overview

Reduced start up and commissioning time

- Embedded applications can quickly and easily be connected to create powerful building control strategies
- Modifications to a planned strategy can be implemented on site
- Once the unit is put online, technicians can connect remotely to support the work of on-site commissioning engineers and work in combination with them

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Enhanced Performance And Operation

- Optimum Start Stop with adaptive algorithm, enthalpic free cooling control, indoor air quality to drive outside air intake: these are examples of the powerful capabilities included in the Emerson Building Energy Management Systems
- Interfaces to most types of energy meters make it a perfect cornerstone for EN50001 implementation programs and energy performance initiatives
- Thanks to the full integration with all the Emerson parts, the customer can benefit from the highest efficiency and real-time performance monitoring.
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Emerson Solution Center’s Technical Capabilities Contributing To Your Success

Powerful remote control

- Emerson Site Supervisor offers unparalleled configuration features. It can be entirely reconfigured from remote without stopping the control process. Software back ups and updates are easily manageable using the native web server capabilities
- In combination with Emerson cloud services, it is possible to automate back ups, data logs collection, firmware updates, set points broadcasts and many other productivity actions
- Through the remote control, the customer can have full access to the refrigerant circuit controller for optimal parameter settings and data collection
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Emerson Solution Center’s Technical Capabilities Contributing To Your Success

Open and flexible

- Embedded applications and web server user interfaces
- Native alarm configuration and dispatch engine
- Possibility to add interface to third party controllers using serial standard protocols
- All these features make the Emerson Building Energy Management Systems a scalable solution adaptable to the needs and standards of modern buildings
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Emerson Solution Center’s Technical Capabilities Contributing To Your Success

Seamless integration into Emerson cloud monitoring and management platforms

- Emerson Building Energy Management Systems can monitor all the Emerson refrigerant circuit parts (compressor, drives, expansion valves) for a more accurate diagnostic, enabling predictive maintenance
- Emerson’s ProAct cloud solutions consolidates the capillary distributed controls installed locally and connected to the Building Management System. Data are aggregated, analysed and converted into reports and information to those in charge to maintain and optimize a multitude of shops
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Emerson Solution Center’s TechnicalCapabilities Contributing To Your Success

Everything is under control

- Maintaining a convenient shopping experience for customers is a constant challenge for retailers. It means keeping a close watch over every store system and piece of equipment impacting that experience – from refrigeration and lighting to heating and cooling
- Emerson Building Energy Management Systems provide easy, yet powerful, unified access and better control over key store systems
Flexible And Reliable Solutions For HVAC, Lighting & Energy Monitoring

Hundreds of parameters are continuously monitored and serve as input for the controlling algorithms.

Outside sensors:
- Temperature
- Humidity

Inside comfort sensors:
- Temperature
- Humidity

Data converge to the control unit which processes them, updates outputs, dispatches advisories, logs data and events, provides user interfaces and communicates with the enterprise supervisory system.

Fans and pumps, Variable Speed Drives

Dampers and valves control

Preparations, bakery, gastronomy

Burners

Lights control

Chiller and heat pump, rooftop, AHU, dry cooler, cross-flow heat recovery

Compressors

Inside and outside light sensors

Energy metering and monitoring:
- Electricity
- Gas
- Hot & cool fluids
Flexible And Reliable Solutions For HVAC, Lighting & Energy Monitoring

Roof top units incorporate an Emerson solution made of:

The roof top controller is connected to the store Site Supervisor. All relevant data is available at this higher level.

Site Supervisors from multiple locations are connected to the cloud Enterprise software to create aggregations, benchmarks, reports, statistics,…

At this level data from the remote controllers become actionable information.
Roof top units incorporate an Emerson solution made of:

### Building Energy Management System

#### Site Supervisor

**Benefits:**
- Improves indoor comfort levels
- Automates the verification of the temperature of the food cold chain
- Improves maintenance activities by sending automatic alerts
- Allows you to monitor and reduce energy consumption
- It is navigable by PCs, tablets and smartphones
- Reduces installation costs
- Enables advanced user profile management

The roof top controller is connected to the store Site Supervisor. All relevant data is available at this higher level.
Site Supervisor

Features:
- Lights and HVAC control
- Refrigeration monitoring
- Energy analysis application
- Peak load management
- Connection via web browser
- Automatic alerts sent via email / SMS
- Data storage
- Easy and intuitive user interface

The roof top controller is connected to the store Site Supervisor. All relevant data is available at this higher level.

Building Energy Management System

Roof top units incorporate an Emerson solution made of:
- OEM System Controller
- PROACT cloud platform
- Programmable Controllers
- Site Supervisor
- Electronic Expansion Valve
- FX ProAct
- Light and HVAC control
- Refrigeration monitoring
- Energy analysis application
- Peak load management
- Connection via web browser
- Automatic alerts sent via email / SMS
- Data storage
- Easy and intuitive user interface

Site Supervisor screen

Site Supervisors from multiple locations are connected to the Emerson Drive Site Supervisor software to create aggregations, benchmarks, and statistics...

OEM System Controller

Variable Speed & Fixed Speed Compressor With ProAct cloud platform

Features:
- lights and HVAC control
- Refrigeration monitoring
- Energy analysis application
- Peak load management
- Connection via web browser
- Automatic alerts sent via email / SMS
- Data storage
- Easy and intuitive user interface

Flexible And Reliable Solutions For HVAC, Lighting & Energy Monitoring
Site Supervisor

Roof top units incorporate an Emerson solution made of:

- OEM System Controller
- Electronic Expansion Valve – FX
- ProAct cloud platform
- Programmable Controllers
- Site Supervisor
- Building Energy Management System
- X

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Roof top units incorporate an Emerson solution made of:

Building Energy Management System

Site Supervisor

Onboard Features:

- Mounting: DIN rail
- Inputs: 8 analog/4 digital
- Relay outputs: 4 outputs
- Ethernet ports: 3 ports, 1,1,0
- USB ports: 2 ports, 1,2
- Micro SD: 1
- Access: Onboard web server, ProAct Site Manager
- Control network: 4 Modbus RS48S ports
- User access: Local and remote
- Power requirement 2: 4VAC 20VA required
- Operating temperature: -10°C to 60°C
- Relative humidity: 20-85% RH non-condensing
- Dimensions: 103.7 x 34.7 mm
- Enclosure rating: UL 94 V-0

Site Supervisor

OEM System Controller

The roof top controller is connected to the store Site Supervisor. All relevant data is available at this higher level.
Roof top units incorporate an Emerson solution made of:

- The roof top controller is connected to the store Site Supervisor. All relevant data is available at this higher level.
- Site Supervisor screen options include:
  - 10” capacitive display
  - Offers access to the complete set of web pages hosted on the control unit
  - Features:
    - TFT wide color display
    - Resolution 1280 x 800, 64K colors
    - 2 Ethernet ports
    - 2 USB ports
    - 1 SD card slot

At this level, data from the remote controllers become actionable information.
Roof top units incorporate an Emerson solution made of:

- OEM System Controller
- Electronic Expansion Valve – FX
- ProAct cloud platform

Site Supervisor Screen Options

- 4.3” resistive display
- Offers access to the control unit via a simplified textual app

Features:
- TFT wide color display
- Resolution 480x272, 256 colors
- Available front panel and wall mount

The roof top controller is connected to the store Site Supervisor. All relevant data is available at this higher level.

At this level data from the remote controllers become actionable information.

Site Supervisor screen

Building Energy Management System

Flexible And Reliable Solutions For HVAC, Lighting & Energy Monitoring
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The roof top controller is connected to the store Site Supervisor. All relevant data is available at this higher level.

Programmable Controllers

iProCHILL

- Advanced programmable controllers for:
  - Chillers
  - Heat pumps (also with sanitary hot water production)
  - Rooftops
  - AHUs
- High connectivity through powerful platform (Ethernet, USB, RS485 ports)
- Improved communication thanks to ModBUS, BACnet and LON protocols
- Connection to expansion modules and EEV drivers
- Web site for iPro management
- Complete local/remote alarm and unit/plant management via standard browser

At this level data from the remote controllers become actionable information.
Flexible And Reliable Solutions For HVAC, Lighting & Energy Monitoring

Hundreds of parameters are continuously monitored and serve as input for the controlling algorithms.

- Advanced parametric controllers for:
  - Chillers
  - Heat pumps (also with sanitary hot water production)
  - Dry coolers
  - Cross-flow heat recovery
  - High connectivity through LAN and RS485
  - Improved communication thanks to ModBUS, BACnet and LON protocols
  - Master/Slave function thanks to IPM500D module
  - Connection to expansion modules and EEV drivers

Data converge to the control unit, which processes them, updates outputs, dispatches advisories, logs data and events, provides user interfaces and communicates with the enterprise supervisory system.

IC200 evo

Compressors

Chiller and heat pump, rooftop, AHU, dry cooler, cross-flow heat recovery

Outside and inside light sensors

Inside comfort sensors:
- Temperature
- Humidity

Energy metering and monitoring:
- Electricity
- Gas
- Hot & cool fluids

Outside sensors:
- Temperature
- Humidity

Inside sensors:
- Temperature
- Humidity

Energy metering:
- Electricity
- Gas
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Flexible and reliable solutions for HVAC, lighting & energy monitoring.
AHU Solution

- **Advanced** Regulator for AHU units developed on the programmable iPro platform and able to handle all the applications, from the most simple to the complex ones.
- Thanks to its great configurability and integrated web server, this product can be used both by OEMs and technicians.
- The AHU units that will be implemented with this new controller can be easily integrated into the plant network thanks to the high connectivity of the proposed hardware.

**iProAHU**
Flexible And Reliable Solutions For HVAC, Lighting & Energy Monitoring

System Benefits

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Emerson Solution Center's Technical Capabilities Contributing To Your Success

- Solutions
- Analytical engineering
- Advanced electronics

Solutions

Our team of engineering experts will help you define the optimal system specifications for your refrigeration system in order to improve quality, efficiency and reliability through dynamic system simulations, real system testing and system life testing.

These will not only offer a better overview and a greater understanding of the inter relationship between the defined parameters, but also indicate how the final system will perform.
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Analytical engineering

Our team of analytical engineers possess the knowledge and tools to evaluate and improve the structure and sound emission while developing new products.

Modal analysis and strain gauging are examples of tools to determine the robustness of the system, analyzing and evaluating the structural dynamics and the piping.

Noise source identification and sound analysis are techniques used to determine and help eliminate the sound emissions and reduce vibrations to the lowest possible level.
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- Solutions
- Analytical engineering
- Advanced electronics

Advanced electronics

With algorithm development, software design & coding, hardware design and testing our advanced electronics team can support in developing new products for your desired application.

Other services we can provide in the Emerson Solution Center include pre-compliance testing, EMC testing & consultancy, agency approval testing and internal support.
Flexible And Reliable Solutions For HVAC, Lighting & Energy Monitoring

Roof top units incorporate an Emerson solution made of:

**ZPV + ZP Tandem**

- Copeland Scroll™ variable speed compressor and Emerson drive technology provide enhanced system performance and best value
  - Highest seasonal efficiency
  - Maximum flexibility in system design
  - Wide speed range
  - Silent operation

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At this level data from the remote controllers become actionable information.
Roof top units incorporate an Emerson solution made of:

**Motor Drive**

**Emerson Drive**

- Drive optimized for Emerson Variable Speed compressor
  - Customized parameter settings
  - RS485 Modbus® communications as standard
  - Best compressor protection
  - Higher reliability

- OEM System Controller
- Variable Speed & Fixed Speed Compressor With Emerson Drive
- Programmable Controllers

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**Refrigerant Circuit Controller**

- Smart refrigerant circuit controller with advanced control and diagnostic capabilities
  - Easy and reliable capacity management of compressor tandem and trios
  - Smart EXV management to achieve higher seasonal efficiency
  - Dynamic management of the compressor to achieve the best performance
  - Advanced diagnostic and active refrigerant circuit protection
  - Plug and play solution using RS485 Modbus communication as standard

**Control Module**

- ProAct cloud platform
Flexible And Reliable Solutions For HVAC, Lighting & Energy Monitoring

Graphical Keyboards With LCD Interface

VISOGRAH

- Dedicated interfaces for the HVAC/R world
- Useful machine status information through animated icons
- On-board probes for temperature/humidity control
- LCD display – 240 x 96 pixels
- High programmability thanks to the Visoprog 5 development tool
- Quick panel or wall mount
- UNICODE and Ascii character compatible

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