e-controls®
electronic intelligent controls, s.l.

INTERNATIONAL EDITION

PRODUCTS AND SOLUTIONS
Energy efficiency and control in buildings

Nº 4

Table of Contents

e-controls®
electronic intelligent controls, s.l.

E-Controls manufactures controls for HVAC, indoor lighting and street lighting remote control. All products are designed and manufactured following high quality standards and demanding development criteria, ensuring the supply of functional, attractive and innovative products.

Control systems become increasingly necessary in installations, where they contribute high added value both to owners and users. New mandatory standards and regulations and the ever rising energy costs make it necessary for buildings to include more and more control devices in order to contain energy expenses, improve efficiency and provide remote control that contributes to adequate energy measurement and facility management.

Energy efficiency and control are made possible with e-Controls thanks to the connectivity features offered by its devices, which are based on standard protocols and designed under the Open Systems concept for compatibility in multi-supplier installations. All products are designed following the energy saving concept, thus allowing an investment return based on the energy consumption reduction achieved.

This catalogue contains the complete product series for building management, in addition to multiple application solutions for installations. We trust that you will find in this document the product that you are looking for. We will be delighted to discuss your application.

Román Francesch
General Manager

Awards and publications

2006
Elected by CIDEM as an Innovating Company

2007
Elected by TVE and Telefónica as an Innovating Company

2008
El Periódico magazine publishes article of Innovation e-Controls

2009
Emprendedores magazine Innovation award

2009
Emprendedores magazine Innovation award

2009
SIIUR 22@ Street Lighting Project founding member

2010
E-Controls published in 125 Innovating Companies book

2011
Smart City Barcelona project Co-founder Company

Open Protocol Solutions:

Most Relevant Projects

Hotel

Royalton Punta Cana Resort & Casino

HVAC control

Location: Punta Cana, Rep. Dominicana

HVAC Control in rooms

500 units e-Room Stand-Alone

Hotel

Barceló
Raval

HVAC control

Location: Barcelona, Spain

HVAC control in rooms

185 units e-Room Classic

SCADA application in reception

Room monitoring and control status

Routers Loytec

Hotel
Barceló Rivera Maya

HVAC Control

Location: Mexico

HVAC Control in rooms

150 units e-Room Classic

Routers Loytec

Hotel
Pollentia Club Resort

HVAC Control

Location: Mallorca, Spain

HVAC Control and motion detection in rooms

216 units e-Room Detector

108 units e-Sensor

Hotel
Ayre
Gran Colón

HVAC control

Location: Madrid, Spain

HVAC control in rooms

Building 1: 180 units e-Room Classic
Building 2: 197 units e-Room Classic

SCADA application in reception

Room monitoring and control status

Switch Loytec
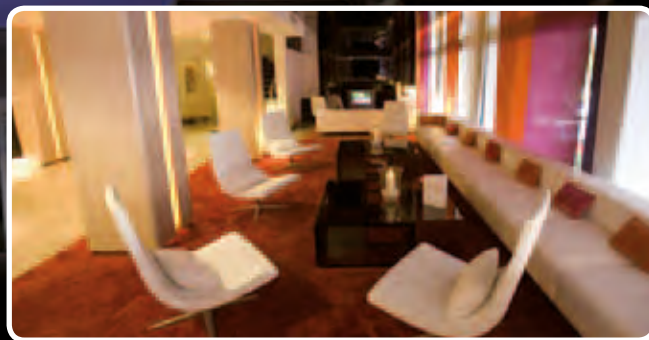
Hotel
Sa Coma
Playa

HVAC control and access control

Location: Mallorca, Spain

HVAC control and access control in rooms

Building 1: 180 units e-Room Classic
Building 2: 150 units e-Room Classic

SCADA application in reception

Room monitoring and control status

Switch Loytec
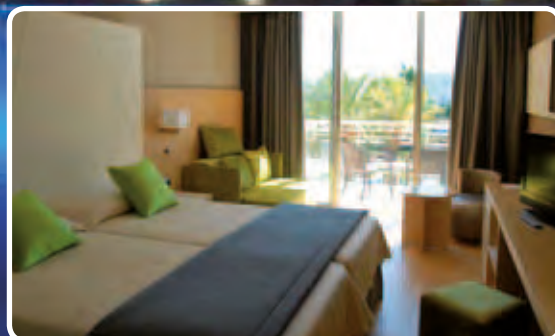
Hotel
Bavaro
Beach Resort

HVAC control

Location: Punta Cana, Rep. Dominicana

HVAC control in rooms

Phase 1: 485 units e-Room Classic
Phase 2: 515 units e-Room Classic
Phase 3: 450 units e-Room Classic

Room monitoring and control status
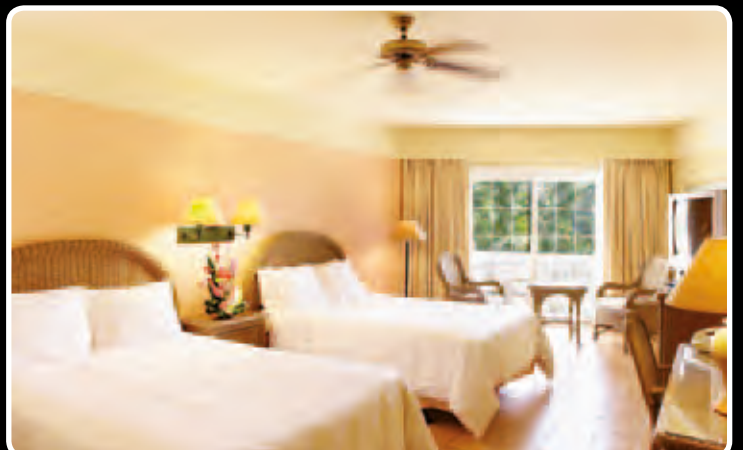
Routers Loytec

Hotel

Secrets Jamaica

HVAC control

Location: Jamaica

HVAC control and presence detection in rooms

700 units e-Room Detector
700 units e-Sensor

SCADA application in reception

Room monitoring and control status

Routers Loytec

Hospital

Parc Sanitari Sant Joan de Déu

Tª and HR visualization in Operating Rooms

Location: Sant Boi de Ll., Barcelona, Spain

Temperature and Humidity visualization in Operating Rooms

22 units e-Clima

Displays Tª and HR LonWorks

Remote monitoring of Tª and HR
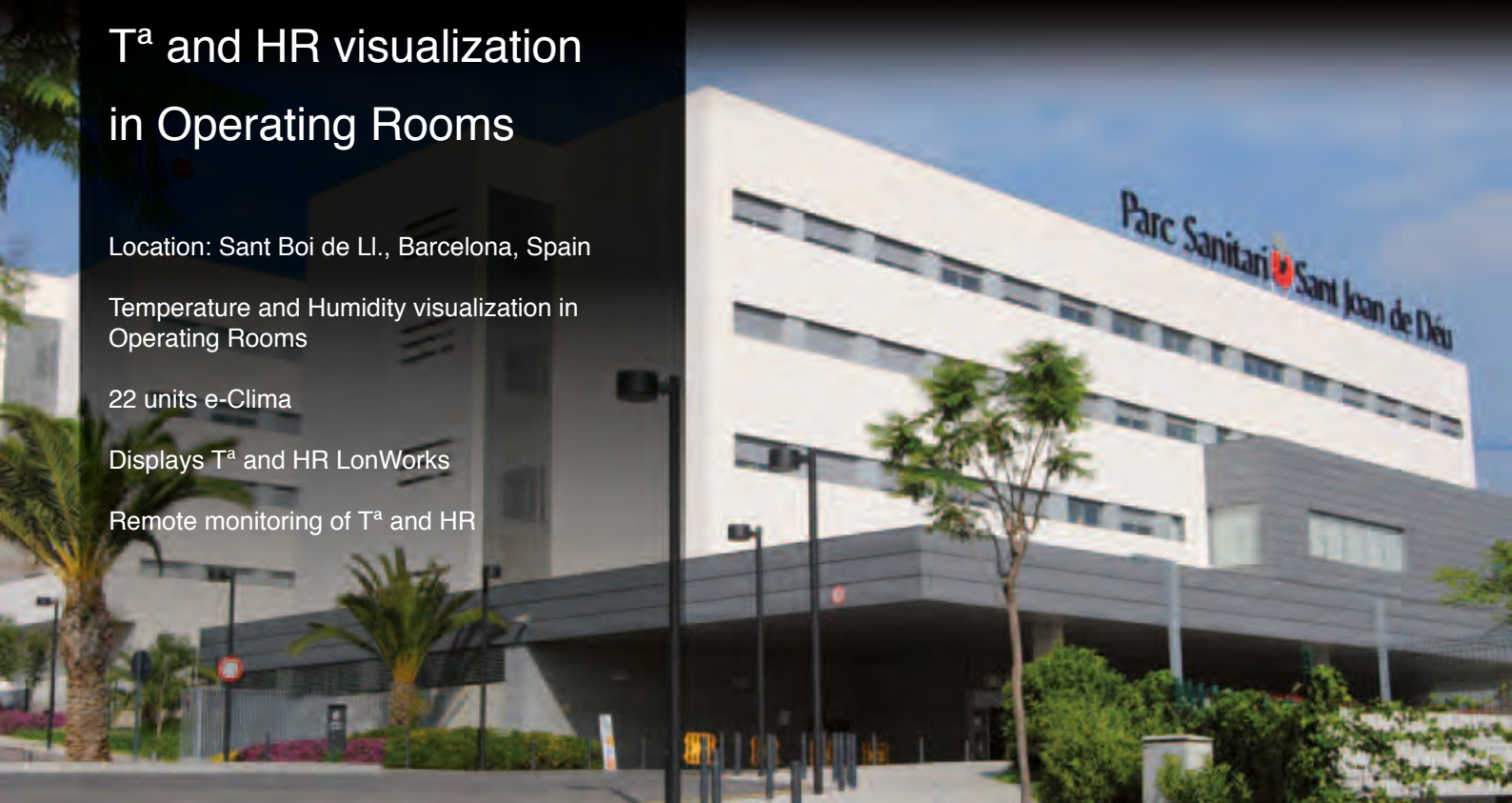
Offices

Gesa Endesa

HVAC control

Location: Mallorca, Spain

Office HVAC control

230 units e-Room Classic

Building monitoring and remote control

Routers Loytec

IKEA Gran Canaria

HVAC control

Location: Las Palmas de Gran Canaria, Spain

Office HVAC control

12 units e-Room Classic

Offices

Torre Iberdrola

Lighting Control

Location: Bilbao, Spain

Offices lighting control

98 units L-DALI Gateways

SCADA application in reception

Remote management of 20.000
lighting points with DALI

Loytec Infrastructure
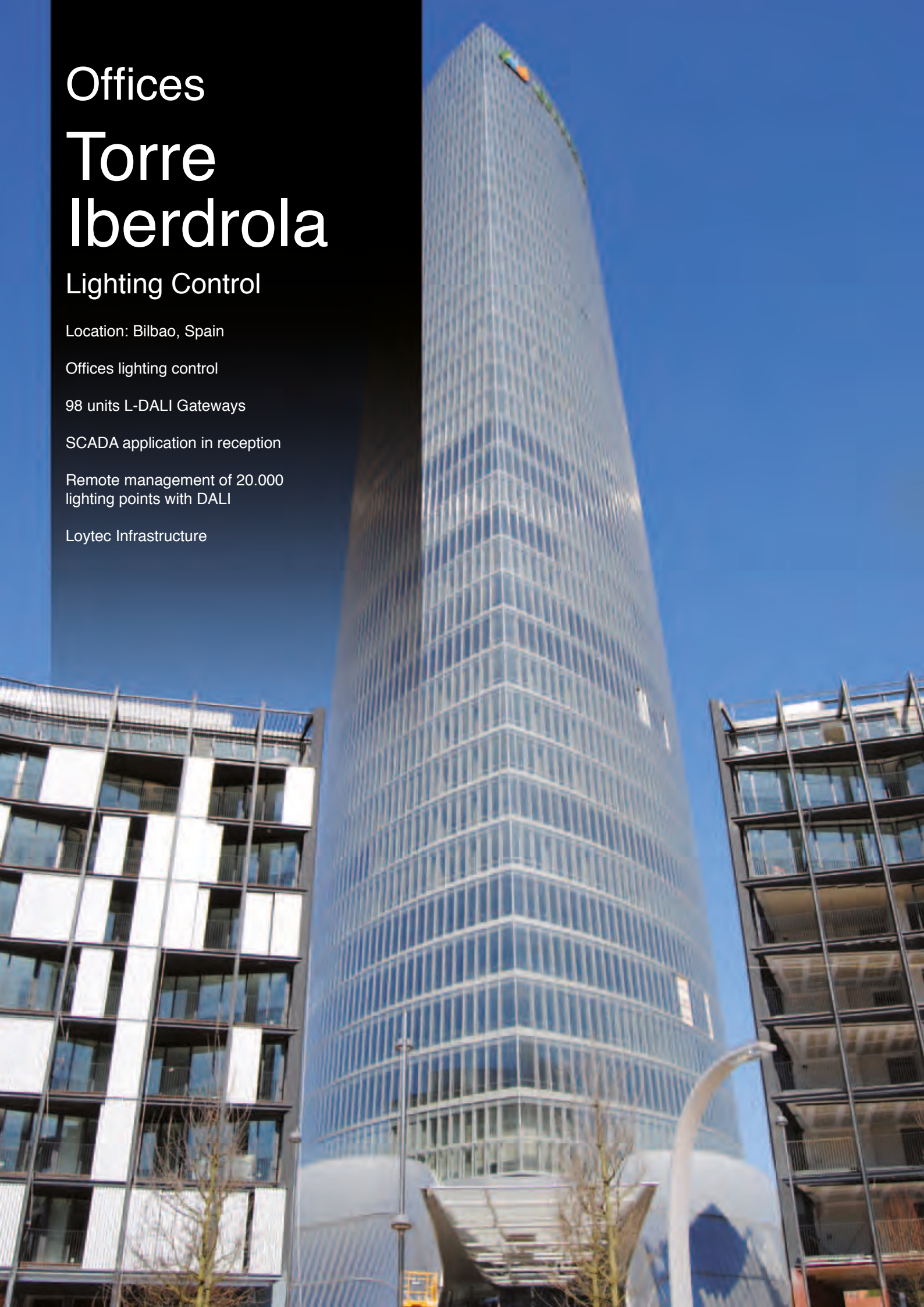
Offices

Renault Technocentre

HVAC/lighting energy saving

Location: Paris, France

2268 units e-Multisensor 0-10V

Multisensor Motion Detector and
Light Sensor

Products and Solutions Reference Guide

e-controls®
electronic intelligent controls, s.l.

E-Controls products application markets and segments

Indoor

Building control

- Hotels
- Offices
- Hospitals

Buildings waste 24% of country global energy in Spain.

Office buildings represent 40% of overall energy waste.

55% of energy bill in a building is HVAC and Lighting.

It's possible to save up to 70% energy respect to conventional buildings using automation and control systems.

Outdoor

Streetlight remote monitoring and control

- Remote control
- Light dimming
- Alarms

19% of world energy is wasted in lighting.

2% of energy in Spain is used for public lighting.

Public lighting represents 65% overall waste in a municipality.

Products based in standard open protocols

LonMark® · BACnet™ · Modbus · M-Bus · OPC FOUNDATION MEMBER · DALI
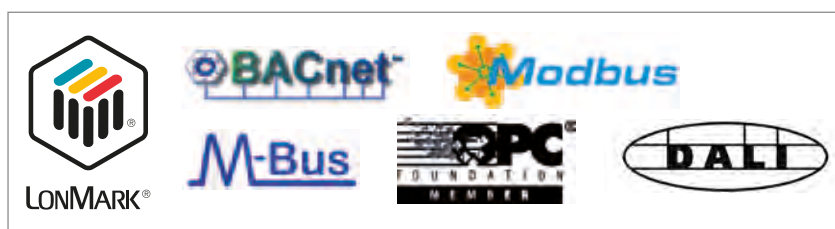
Indoor

HVAC

Room controllers for room global energy management

Stand-Alone operation

Panasonic VRF Systems

Water 2P / 4P

HVAC+Lighting

Optimal energy saving HVAC and Lighting zone controllers

Water 2P / 4P

Remote control

Building remote management with multiprotocol gateways and internet connection. BMS SCADA and OPC monitoring, alarms, e-mails and trend logs report.

Lighting Multisensors

Motion, light and temperature sensors for energy saving applications

Stand-Alone   Bus systems

Indoor lighting

Automatic light dimming and manual scene control of lights and sunblinds

Light dimming

Sunblinds control

Outdoor   MULTILAMP

Remote Control

Energy monitoring and luminaire point to point remote control.

SLaV   SLaC

Luminaire Control

Energy saving with individual on off and light dimming. Individual lamp alarm failure monitoring.

SLaM-ON   SLaM-BiLevel   SLaM-DALI

Clima | e-Room® Stand-Alone

Stand-alone room climate control for fan-coil applications

Application:

1 Hotel 2 Pipes / 4 Pipes lighting contact

RC.604505-000

Climate control at an optimal cost

The e-Room® Stand-Alone device is a stand-alone fan coil controller designed to cover the demands of hotels and offices where a sophisticated remote control system for room management is not required. The device includes a set of inputs and outputs that provide zone climate control based on occupancy and window position, thus allowing significant energy savings that dramatically reduce electricity costs in buildings.

e-Room® Stand-Alone includes a temperature sensor on its front panel that provides room temperature measurement and Heat/Cool valve actuation as appropriate; fan coil speed is controlled to cover the energy demand. An analog input is also included to connect an external temperature sensor, used in installations where temperature is measured at the return point.

The device includes a large blue backlit display screen that provides the user with an optimal visualization, in addition to user-friendly pushbuttons for simple and effective control. Device configuration is accomplished through the pushbuttons and the display screen; up to 24 different parameters may be adjusted in order to set the device as required.

Stand-alone control for low-cost installations

Occupancy based climate control

Designed for 2 pipe and 4 pipe systems

A single control device for each zone

Auxiliary lighting output

DATASHEET

Energy Savings

- Up to 20% zone energy savings
- Occupancy based temperature setpoint change
- Window contact stops operation
- Configurable Max/Min setpoints
- Dual ON/ECO setpoint
- ECO mode on unoccupied zone

Device Configuration

- Celsius/Fahrenheit display
- 1 or 3 fan coil speeds selection
- Fan coil state on no demand
- Device on OFF or ECO on unoccupied zone
- Heat/Cool mode switching
- 2 pipe / 4 pipe system
- Keycard switch contact or lighting input
- Heat/Cool deadband
- Occupied/ECO state setpoints
- Device state after reset
- Heat/Cool device startup
- NO/NC valves

Patented product
Registered design

Installation

- A single device per zone
- Less installation time
- Improved maintenance
- No communication bus required

Features

- Stand-alone climate control
- Room temperature sensor on front panel
- Blue backlit LCD screen
- 4/5 pushbuttons
- Digital inputs (dry contact):
  - Keycard switch contact / lighting contact
  - Window contact
- Analog inputs (NTC10K):
  - Water temperature sensor
  - External temperature sensor
- Relay outputs (5 Amp):
  - Three Fan-Coil speeds (3 outputs)
  - Cool valve (4 pipes) / H-C (2 pipes)
  - Heat valve (4 pipes) / Lighting
- Supply voltage: 24 Vac / 24 Vdc
- BTicino Light / Light Tech frame (different colors available)

Ordering numbers

RC.604505-000
e.Room® Stand-Alone
4 pushbuttons

RC.604505-100
e.Room® Stand-Alone
5 pushbuttons (Heat / Cool)

CE

e-Room® Stand-Alone

Input / Output Diagrams

2 pipe system + lighting application

4 pipe system + keycard switch application

More efficient
UNE-EN 15232

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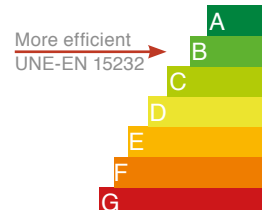
Clima | e-Room® Panasonic

Room climate control for VRF applications

Application:

1 Direct expansion indoor unit and room control

RV.004401-000

Direct expansion system control and room management in a single device

The e-Room® Panasonic room climate controller, specially designed for hotel installations, provides direct control of a direct expansion indoor unit without the need for gateways. The device includes inputs and outputs to optimize room energy consumption by operating climate, lighting and motorized blind or curtain controls based on room occupancy.

Four operating modes are available to adapt device inputs and outputs to the requirements of each installation. Depending on the selected option, room occupancy may be monitored through a keycard switch contact or a motion detector in order to drive climate control, lighting or curtains based on room occupation. The device includes also a window contact input that will temporarily stop climate control operation, in addition to a temperature sensor that will control a secondary climate zone through a valve actuator output.

e-Room® Panasonic is available in two product models: one model for stand-alone operation with no communication bus, and another model with a Modbus or LonWorks communication bus that allows integration into a building management installation for remote climate control.

Direct indoor unit control

Climate, lighting and curtain management

Comprehensive control for maximum savings

Remote climate control activation

May be integrated into a BMS

Indoor unit control for optimized installation management

DATASHEET

e-controls®
electronic intelligent controls, s.l.

Energy Savings

- Climate and lighting control OFF when room is unoccupied
- Climate control ON/OFF through window contact
- Occupancy based temperature setpoint
- Dual Comfort/ECO setpoint for Heat/Cool
- Dual configurable user and operating setpoints
- Temperature sensor for secondary zone

Indoor Unit Control

- Direct e-Room® control
- Available functions: ON/OFF, Setpoint modification, Fan-Coil speed (I-II-III-AUTO), Heat/Cool

Device Configuration

- Celsius/Fahrenheit display
- Fan coil position on no demand
- Device on OFF or ECO on no occupation
- Heat/Cool mode change
- Occupancy detection through keycard switch or motion detector
- Setpoint for Occupied/ECO
- Secondary zone setpoint offset

Features

- Indoor unit control
- No bus or remote control bus options
- Ambient temperature sensor
- Blue backlit LCD screen
- Four installation based operating modes
- Three digital inputs (dry contact):
  - Keycard switch/Motion detector/Lighting contact
  - Window contact
  - Blind raise-up pushbutton/Door contact
- One analogue input (NTC10K):
  - Blind lower pushbutton/External temperature sensor
- Four output relays (5 Amp):
  - Courtesy light
  - Lighting breaker
  - Blind raise-up motor
  - Blind lower motor/Secondary zone valve
- Alarm indication on display screen
- Alarm reporting via bus
- Supply from indoor unit bus
- BTicino Light / Light Tech frame

Installation

- Single device per zone
- Reduced installation time
- Improved maintenance

Ordering numbers

RV.004401-000
e.Room® Panasonic Stand-Alone

RV.074401-000
e.Room® Panasonic Modbus RTU

RV.024401-000
e.Room® Panasonic Lon TP/FT-10

Available I/O configurations for different operating modes

	Input 1	Input 2	Input 3	Input 4
Option 1	Keycard	Window	Lighting	Temperature
Option 2	Keycard	Window	Blinds Up	Blinds Down
Option 3	Motion S.	Window	Door Contact	Temperature
Option 4	Lighting	Window	Blinds Up	Blinds Down

	Output 1	Output 2	Output 3	Output 4
Option 1	Courtesy	Lighting	Not Used	Valve actuator
Option 2	Courtesy	Lighting	Blinds Up	Blinds Down
Option 3	Courtesy	Lighting	Not Used	Valve actuator
Option 4	Not used	Lighting	Blinds Up	Blinds Down

CE

Patented product

e-Room® Panasonic
Input / Output Diagrams
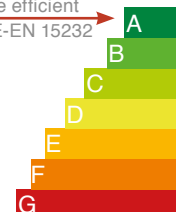
Operating mode no. 2

Operating mode no. 3

More efficient
UNE-EN 15232

A B C D E F G

Clima | e-Room® Stand-Alone

Stand-alone room climate control for fan-coil applications

1 Application Hotel 2 Pipes / 4 Pipes lighting contact

Available Input/ Outputs for:

2 Pipes

4 Pipes

3 Fan-Coil Speed — 2 P / 4 P

C/H   C   H

Window Contact — 2 P / 4 P

Lighting Output — 2 P

Keycard Contact — 2 P / 4 P

Lighting Input — 2 P

2 Pipes   4 Pipes

RC.604505-000
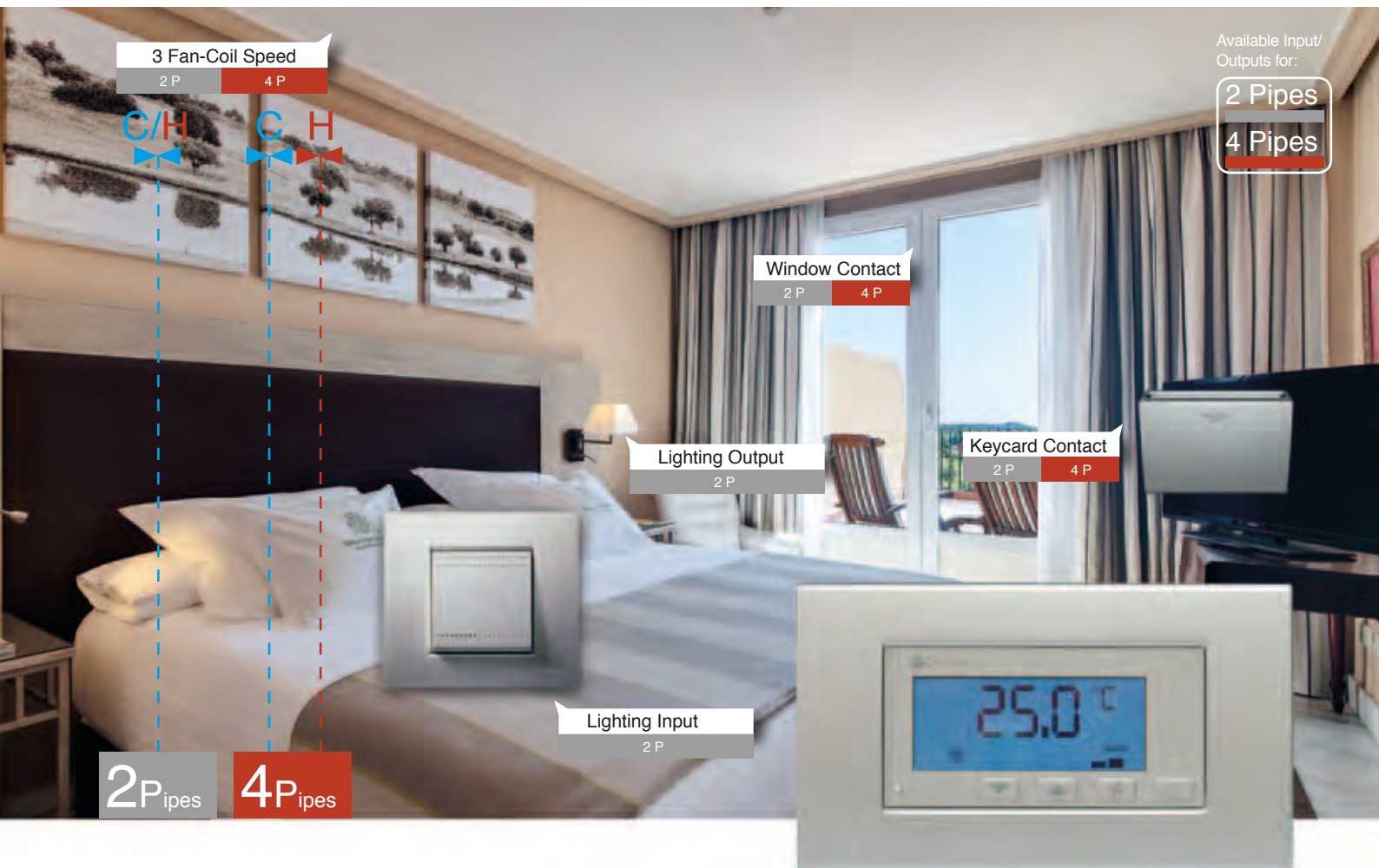
Climate control at an optimal cost

On the e-Room Stand-Alone model, the device is enabled when the card is inserted, allowing the guest to connect the HVAC system and change the setpoint as desired. In two pipes system, the device can be configured to operate also over the room lighting system, switching it on and off when the room becomes occupied or unoccupied, but also over the courtesy light, working as above but automatically switching the lights off after a configurable timeout.

The product is including up to 24 different parameters to configure the device according to the specifications of the installation, like two or four pipes system and some other options. As the product operates in stand-alone mode, the device can be configured to start-up after a power reset, in heating or cooling mode. The device can automatically start the HVAC system if the guest is in the room, even a power loss has been done at night. Some other parameters like change to ECO mode or switch off the HVAC system when the guest leaves the room can be defined, among the possibility to configure the maximum and minimum setpoints defined by the guest.

e-Room Stand-Alone is a fully configurable device for low cost applications which becomes a flexible and powerful product for any kind of installation like hotel rooms or offices.

Stand-alone HVAC and lighting

Occupancy based climate control

2 Pipes / 4 Pipes systems

A single control device for each zone

Auxiliary lighting input / output

Up to 24 configurable parameters

Clima | e-Room® Panasonic

Room climate control for VRF applications

1 Application direct expansion indoor unit and room control
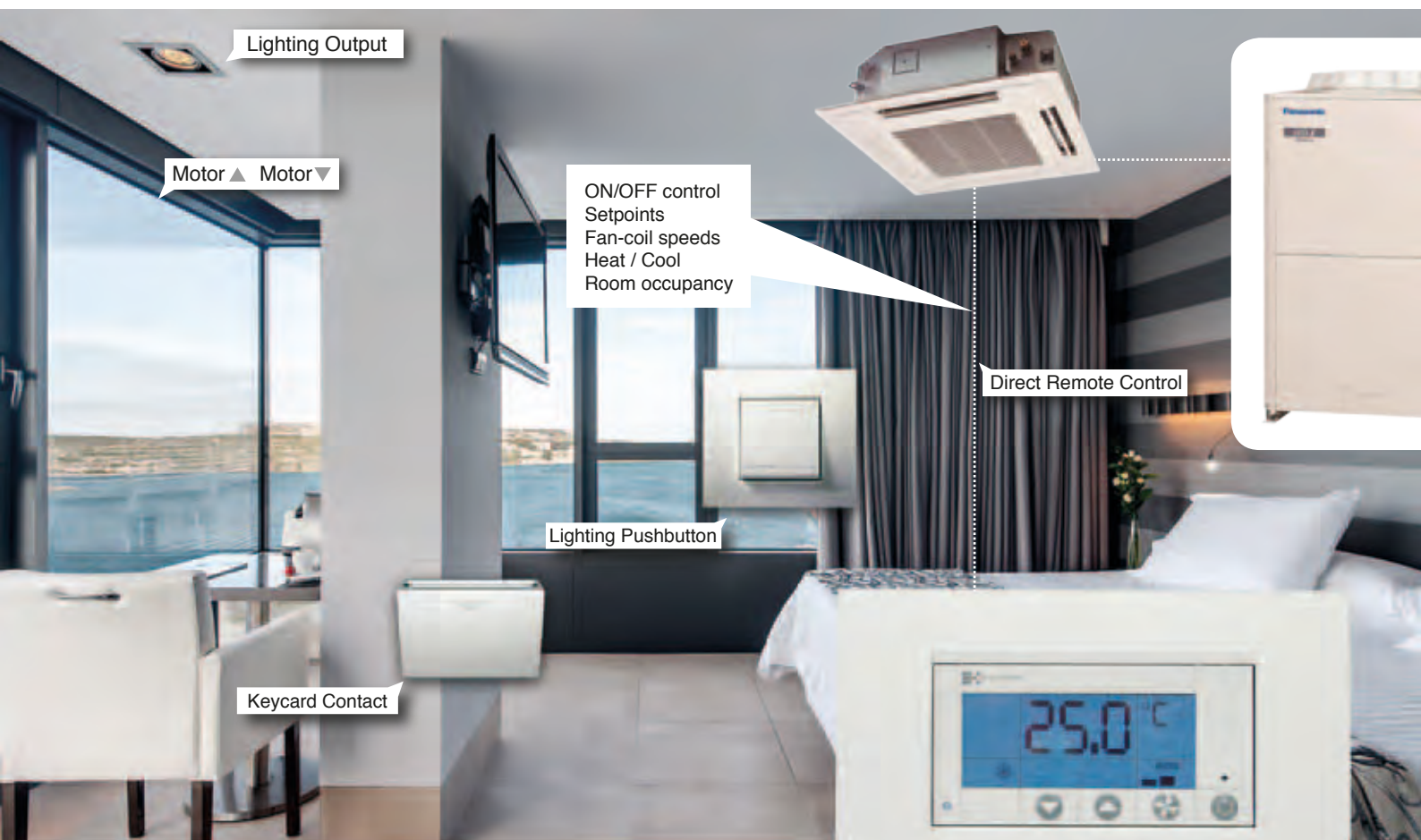
Lighting Output

Motor ▲ Motor ▼

ON/OFF control
Setpoints
Fan-coil speeds
Heat / Cool
Room occupancy

Direct Remote Control

Lighting Pushbutton

Keycard Contact

RV.004401-000

Direct expansion system control and room management in a single device

The e-Room® Panasonic device is an innovative product to directly operate over the Panasonic VRF Indoor Unit system. The device includes a set of functions to operate over the HVAC system, the lighting system and the blinds using only a single device in a hotel room, providing also some functions to operate over a second heating/cooling zone like a bathroom.

The device is including up to four different pre-defined input/output configurations to operate over different hotel room specifications. A Keycard switch contact can be used to enable the HVAC system, among to automatically switch on the lighting system or the entrance courtesy light when the guest enters in the room. The device automatically switches the HVAC system off or changes into ECO mode when the guest leaves the room, switching also the lights off. A window contact can be used to temporary switch off the HVAC system when opening it, activating it again when it is closed. The device can operate over a motorized blinds, changing the position with some pushbuttons accordingly to the guest.

Using the e-Room® Panasonic bus system model, a standardized communication protocol solution can be used to operate over the room with a remote monitoring and control BMS system.

Direct Panasonic indoor unit control

Room control and VRF control in a single device

Four configurations for different room applications

User and real adjustable setpoints

Occupancy and window contact energy saving functions

Stand-alone or bus systems

Clima | e-Room®

Room Climate Control for Fan Coil applications

Applications:

1 Hotel 2P / 4P keycard switch contact

2 Thermostat with display

RC.624501-000

Energy Efficiency in HVAC

e-Room® Classic is a device designed to provide overall room climate control on fan coil based systems. Its operation provides a user friendly control and allows remote facility management through its standard ISO/IEC 14908 (LonWorks®) communication bus. Originally designed for use in hotels, its versatility has made it present nevertheless in offices, small rural hotels and homes, amongst others.

e-Room® Classic is a solution comprising a single device that includes on its front panel a large display screen, pushbuttons and a temperature sensor, in addition to card reader contact and window contact inputs that provide energy efficiency optimization in installations. It further includes output relays for Heat/Cool valve actuator On/Off control and three outputs to manage fan coil speed. All these features are included in a single device to support a simple, easy and fast installation and to optimize startup times and facility maintenance.

Three different models comprise the product reference: **e-Room Classic** for card contact room occupancy, **e-Room Detector** for presence detection and door contact room occupancy and **e-Room Thermo**, a display and pushbutton device without inputs/outputs.

Energy consumption optimization

Designed for 2 pipe and 4 pipe systems

On/Off valve control

Stand-alone operation

Easy installation

LonWorks® network

Open Systems integrable HVAC control

DATASHEET

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Energy Efficiency

- Up to 20% energy savings
- Zone occupancy detection based on keycard switch contact or motion detector upon model
- Window contact stops operation
- Configurable Max/Min setpoints
- Dual ON/ECO setpoint
- ECO mode on unoccupied zone

Remote Management

- Remote manual or programmable On/Off control
- Adjustable setpoints
- Pushbutton locking feature

Integration

- LonWorks® bus
- ISO/IEC 14908 LonWorks bus
- LonMark® compatible

Patented product

LONMARK® CE

Installation

- One single device per zone
- Reduced installation time
- Improved maintenance

Features

- Stand-alone operation
- Front panel ambient temperature sensor
- Blue backlighted LCD display
- Digital inputs (contact type):
  - Keycard switch contact / Motion detector (Classic/Detector)
  - Window contact
- Analog inputs (NTC10K):
  - Water temp. Heat-Cool / Door contact (Classic/Detector)
  - External temperature sensor (optional)
- Relay outputs (5Amp):
  - Three Fan-Coil speeds (3 outputs)
  - Heat-Cool valve actuator / Cool valve actuator (2P / 4P)
  - Auxiliary / Cool valve actuator (2P / 4P)
- Supply Voltage 24Vac/24Vdc
- TP/FT-10 twisted pair
- ISO/IEC 14908 LonWorks® network
- BTicino Light frame (different colors available)

Ordering numbers

RC.624501-000
e-Room® Classic

RC.624502-000
e-Room® Detector

RC.620004-000
e-Room® Thermo

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e-Room® Classic application for keycard switch contact 4 pipes installation

e-Room® Classic
Input / Output Diagrams

RC.624501-000

Fan-Coil

Window   Card contact

BMS

Ethernet Lon IP-852

TP/FT-10

More Efficient
UNE-EN 15232

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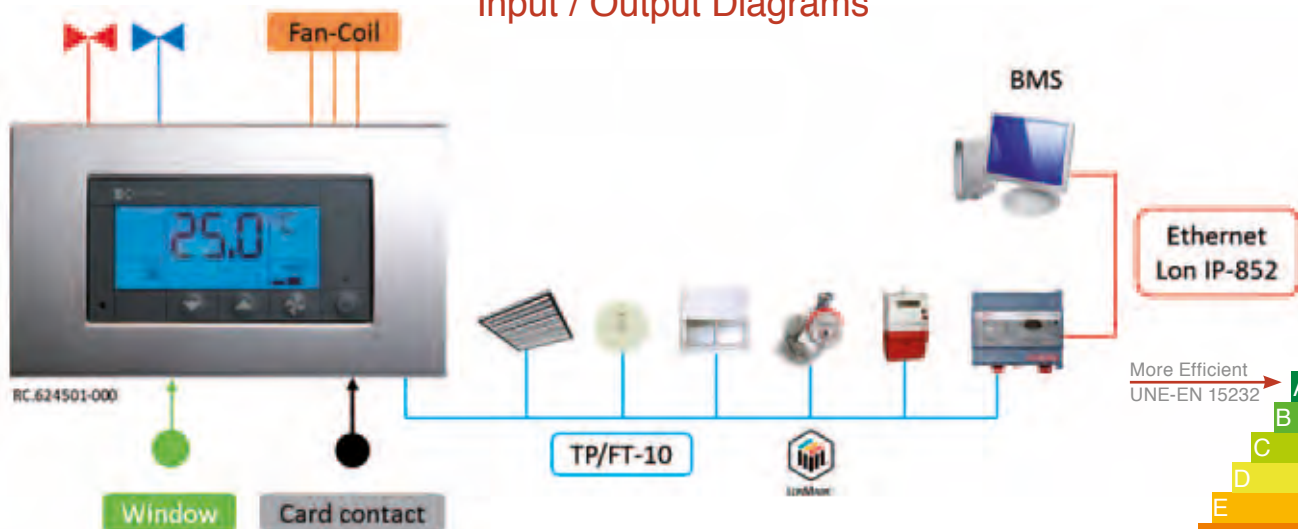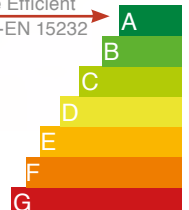
Clima | e-Room® Classic

Room Climate Control for Fan Coil applications

1 Application Hotel 2 Pipes / 4 Pipes keycard switch contact

3 Fan-Coil Speed
2 P | 4 P

2 P | 4 P
Window Contact

Lighting Output
2 P

Available Input/Outputs for:
2 Pipes
4 Pipes

C/H   C   H

Keycard
2 P | 4 P

2 P | 4 P
LonWorks TP/FT-10

2Pipes   4Pipes

RC.624501-000

Integrated control in a single device

On the **e-Room Classic** model, the device is enabled when the card is inserted, allowing the user to connect the HVAC system and change the setpoint as desired. In 2 Pipes systems it's possible to use the auxiliary output for a lighting point which will be switched on automatically when the card is inserted. The HVAC control is done in stand-alone mode, controlling the valve actuator and fan-speed outputs on demand. Opening the window stops the HVAC system temporarily, activating it again when it is closed. The auxiliary output is switched on temporarily when the card is removed (in 2 Pipes system configuration) and stops the HVAC system or changes it to low consumption mode depending on the configuration. Remote monitoring and control of the device can be done by means of its communication bus for BMS global control system integration.

On **e-Room Detector** model, occupancy detection in the room can be achieved by a combination of door contact and movement sensor installed in the room, enabling in this case the HVAC system for its use at any time. The combination of door closed and the absence of people automatically stops the HVAC system.

2 Pipes / 4 Pipes systems

On/Off valve control

Device locking card contact

Window contact stops operation

Additional Lighting output (2 pipes)

Stand-alone operation

Clima | e-Room® Thermo

Room Climate Control for Fan Coil applications

2 Application Thermostat with display

HVAC Controller

HVAC Controller

LONMARK®

Ethernet Lon-IP

BMS

LonWorks TP/FT-10

RC.620004-000

Temperature control and HVAC management

The e-Room Thermo device provides the HVAC system remote monitoring and control of a zone. Temperature of the zone, setpoint, window contact status, warm/cool operating mode and fan speed (I-II-III-AUTO) are displayed on the screen. The device may include different pushbuttons on its front panel for the user to change the device on/off status, temperature setpoint and fan-coil speed depending on its preferences.

Zone temperature is achieved by means of the front panel integrated temperature sensor. The device communicates using its standard communication bus with the zone HVAC controller, exchanging information between the actions done by the user on the pushbuttons and displaying information received by the controller. The same communication bus is used to do a remote monitoring of the device from a BMS (building management system).

HVAC control interface

Easy and intuitive visualization

Local control pushbuttons

Front panel integrated temperature sensor

Easy installation

Remote control through LonWorks® network

Clima | e-Room® Radiant

Intelligent Climate Control for Underfloor Heating and Cooling Systems

Applications:

1 One Zone Underfloor Heating

2 Two Zones Underfloor Heating/Cooling

RC.624203-000

Intelligent HVAC control on installations

e-Room® Radiant is a climate controller for underfloor heating and cooling systems that provides individualized control of two different zones in a single device. Optimal system energy savings are contributed to by the device connectivity features through its standard ISO/IEC 14908 (LonWorks®) communication bus, which enable remote control, temperature history reporting and external management.

This device features within a single unit an ambient temperature sensor (front panel), an external input for a second zone temperature sensor, a backlit LCD, sensitive pushbuttons, a control algorithm and independent output relays to control each zone valve actuator.

Energy saving functions are included by means of a window contact input that switches off the heating/cooling functions, another input that enables device blocking, and configurable setpoints that allow adjusting maximum and minimum desired temperature limits. The operation of each zone may be configured as only heat mode or as heat/cool mode; additionally, the second valve actuator may be assigned to the zone 1 or to the zone 2 sensor.

Manages two independent zones

Independent temperature sensor for each zone

Configurable as only Heat or Cool/Heat

Stand-alone operation

Remote control through compatible LonWorks® network

Configurable for underflooor heating / cooling installations on each zone

DATASHEET

Energy Savings

• Window contact stops operation
• Device blocking contact
• Configurable Max/Min setpoints

Remote Management

• Remote On/Off control with program function
• Adjustable setpoints
• Keypad blocking feature

Integration

• ISO/IEC 14908 LonWorks® bus
• LonMark® compatible

Installation

• A single device for two zones
• Reduced installation time
• Improved maintenance

Features

• Stand-alone operation
• Front panel ambient temperature sensor for zone 1
• External temperature sensor for zone 2
• Blue backlighted LCD display
• Digital inputs (contact type):
   - Device blocking input or auxiliary contact
   - Window contact
• Analog inputs (NTC10K):
   - Water temperature heat-cool sensor
   - External temperature sensor for zone no. 2
• Relay outputs (5Amp):
   - Zone 1 valve actuator
   - Zone 2 valve actuator
• Supply Voltage 24Vac/24Vdc
• TP/FT-10 twisted pair
• ISO/IEC 14908 LonWorks® network
• BTicino Light frame (different colors available)

Ordering number

RC.624203-000
e-Room® Radiant

Patented product

e-Room® Radiant
Input / Output Diagrams
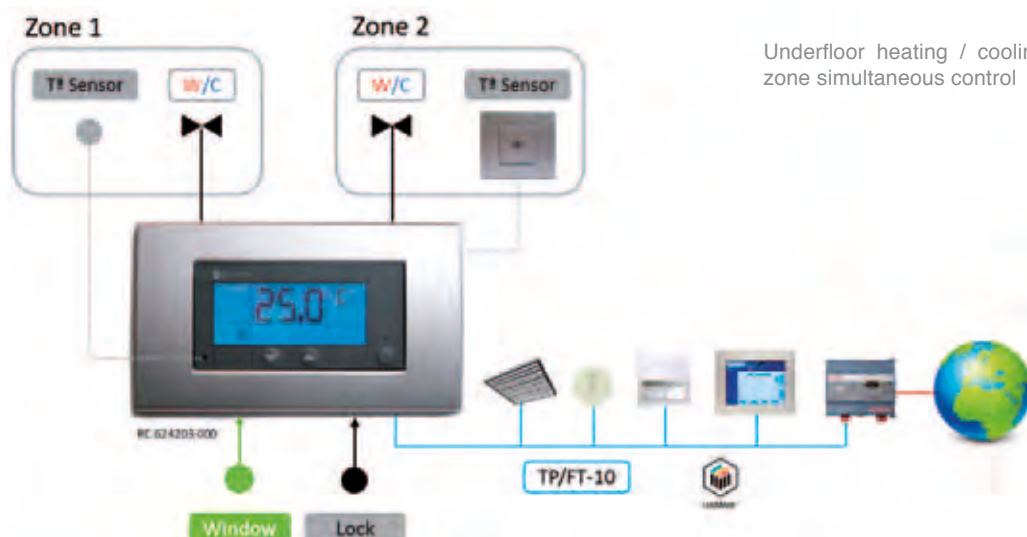
Underfloor heating / cooling combined 2 zone simultaneous control

More efficient
UNE-EN 15232
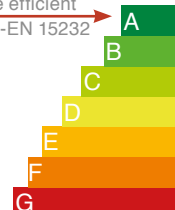
Clima | e-Room® Radiant

Intelligent Climate Control for Underfloor Heating and Cooling Systems

1 Application One Zone with Underfloor Heating

Window Contact

LonWorks TP/FT-10

21.0°

RC.624203-000

1 zone

Integrated control in a single device

The e-Room Radiant device provides one underfloor heating/cooling zone control by means of its front panel integrated temperature sensor and a valve actuator relay output. In this application note the device has been configured for underfloor heating/cooling, in order to take the maximum advantage of its features.

The device includes a communication bus that can be used to integrate it to the home or building management system, providing an overall function remote control of the device like switching on/off, warm/cool operating mode and temperature setpoint, among monitoring the different parameters of the zone like temperature, device status and window contact. To avoid the device being manipulated, one input is available to activate the keypad blocking feature.

Front panel temperature sensor

Device blocking contact

Window contact stops operation

Stand-alone operation

Remote control through LonWorks® network

Clima | e-Room® Radiant

Intelligent Climate Control for Underfloor Heating and Cooling Systems

2 Application Two Zones with Underfloor Heating/Cooling

Zone 2 Tª Sensor

AC.000100-001

Window Contact

Blocking

LonWorks TP/FT-10

Zone 2

Zone 1

2 independent zones

21.0 °C

RC.624203-000

Global management system integrable control

The e-Room Radiant device is able to manage up to two independent HVAC zones, with the option to configure an underfloor heating system or a cooling/heating system for any of them. Each zone is controlled by an independent temperature sensor and a relay output for the valve actuator which is controlled by the zone ambient temperature and the setpoint defined by the user. The device shares the operating mode, on/off and temperature setpoint for both zones at the same time and includes a window contact to temporarily stop the HVAC system when the window is opened, re-activating it again when it is closed.

In this application note the room zone has been configured for underfloor cooling/heating system while the bathroom has been configured only for heating system, with the aim to avoid the condensation produced by means of cooling a humidity zone like the bath.

The device can be remotely controlled using its communication bus, thus configuring the maximum and minimum setpoint temperatures and the device working parameters (on/off, operating mode, setpoint), and monitor the zone status (on/off clima, temperature, user setpoint, window contact status).

Two independent zones control

Independent temperature sensor for each zone

Individual zone valve actuators

Configurable heating and/or cooling

Remote control through LonWorks® network

Clima | e-Room® Plus

Climate and Lighting Control from a Single Unit

Applications:

1 Sunblinds Office

2 2P / 4P Office

3 Hotel 2P / 4P keycard switch contact

4 Hotel 2P / 4P Detector

5 Hospitals

6 VRV Integration

RP.626601-000

Overall Zone Energy Efficiency

e-Room® Plus is a device that provides room climate and lighting energy management control. It is designed to optimize energy savings in room or zone climate and lighting services. The unit includes various operating profiles to cover every possible requirement for offices, hotels, hospitals and old people's homes.

e-Room® Plus is designed for either stand-alone operation or to be integrated into a network to perform remote control through the standard ISO/IEC 14908 (LonWorks®) communication bus. The device includes key card reader contact and window contact inputs for climate energy savings, in addition to a digital input and a relay output to control a light. Furthermore, it includes relay outputs for heat/cool valve actuator On/Off control and three outputs for fan coil speed management.

Climate and lighting energy efficiency

Hotel/Office/Hospital operating modes

On/Off valve control

Key card contact or detector based occupancy monitoring

Stand-alone operation

LonWorks® network

Climate and Lighting Control from a Single Unit

e-controls®
electronic intelligent controls, s.l.

DATASHEET

Energy Efficiency

- Up to 25% energy savings
- Climate + lighting control in a single device
- Occupancy monitoring based on key card contact or presence detector
- Window contact stops operation
- Configurable Max/Min setpoints
- ECO mode for climate and lighting control

Remote Management

- Remote or programmable On/Off control
- Adjustable setpoints
- Pushbutton locking feature

Integration

- ISO/IEC 14908 LonWorks® bus
- LonMark® compatible

Installation

- Single device
- Reduced installation time
- Improved maintenance

Patented product

Features

- Stand-alone operation
- Ambient Temperature on front panel
- 4 or 5 keys upon model
- Blue backlighted LCD display
- Digital inputs (contact type):
  - Keycard switch contact / Motion detector
  - Window contact
  - Lighting pushbutton
- Analog inputs (NTC10K):
  - Water temp. heat-cool / Door contact
  - External temperature sensor (optional)
- Relay outputs (5Amp):
  - Three Fan-Coil speeds (3 outputs)
  - Heat-Cool valve actuator /Cool valve actuator (2P / 4P)
  - Courtesy Lamp / Cool valve actuator (2P / 4P)
  - Auxiliary output
- Supply Voltage 24Vac/24Vdc
- TP/FT-10 twisted pair
- ISO/IEC 14908 LonWorks® network
- Simon 82 or Nature series frame
- Flush mounting in two 65x65mm universal enclosure
- IR receiver for remote operation

Ordering numbers

RP.626601-000
e.Room® Plus 4 Keys

RP.626601-100
e.Room® Plus 5 Keys (Cool/Warm)

LONMARK®

CE

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e-Room® Plus application for keycard switch contact Hotel 4 Pipes Installation

e-Room® Plus
Input / Output Diagrams
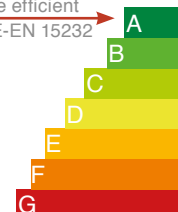
Clima | e-Room® Plus

Sunblinds automation management and HVAC control

1 Application Office with Sunblinds

3 Fan-Coil Speed
2 P

C/H

2 P
Motor▲ Motor▼

2 P
Window Contact

Available Input/
Outputs for:

2 Pipes

2 P
Sunblind Pushbuttons

2 P
LonWorks TP/FT-10

2P ipes

RP.626601-000

Clima and sunblinds/curtains automation from a single unit

In this application note the e-Room Plus device is configured in Office Sunblinds mode and provides a 2 pipes system HVAC control and an automated curtains / sunblinds management. The HVAC system is directly controlled through the device pushbuttons, or it can also be remotely controlled through its standard communication bus. The HVAC system is done in stand-alone mode on the device, managing its outputs automatically for the valve actuator control and the fan-coil speed on demand. Opening the window stops the HVAC system temporarily, activating it again when it is closed. The raise and lower curtain pushbuttons are directly connected to the device, like the two relays output that control both motor directions. The device includes timeout raise/lower limit switch configuration variables that can be changed through the bus depending on each installation.

Any HVAC control function and curtain/sunblinds automated position control function are available through the communication bus for a global Building Management System remote control.

2 Pipes installation

On/Off valve control

Pushbuttons and relay outputs for curtains automation

Window contact stops operation

Stand-alone operation

Remote control with LonWorks® network

Clima | e-Room® Plus

Occupancy dependent HVAC and lighting control

2 Application Office 2 Pipes / 4 Pipes

3 Fan-Coil Speed
| 2 P | 4 P |

C/H **C** **H**

Global Energy Management

Lighting Control
| 2 P | 4 P |

Available Input/ Outputs for:
- 2 Pipes
- 4 Pipes

Motion Detector
| 2 P | 4 P |

DP.100101-001

| 2 P | 4 P |
Window Contact

Lighting Pushbutton
| 2 P | 4 P |

| 2 P | 4 P |
LonWorks TP/FT-10

| 2 P |
Occupied Zone Indicator

2Pipes **4Pipes**

25.0

RP.626601-000

HVAC and Lighting from a single unit

In office installations the zone HVAC and lighting systems is controlled by the device depending on the occupancy status. When the motion detector is detecting occupancy, the device turns to enable mode, allowing the user to connect the HVAC system and change the setpoint as desired. When the zone is occupied the lighging output turns to on and turns it again off after some time from the last movement detection.

The user can also manually turn on permanently the light using a wall switch actuator. When the zone changes to unoccupied, the HVAC system turns to off or to low consumption mode, depending on the configuration previously downloaded. Opening the window stops the HVAC system temporarily, activating it again when it is closed. The device can be configured for 2 pipes or 4 pipes system. In 2 pipes system the Occupied Zone Indicator output shows the zone occupancy status. The HVAC system is directly controlled through the device pushbuttons, or it can also be remotely controlled through its standard communication bus and do automatic switch on/off programming functions, change operation mode or setpoint through an external real time clock event. The device includes remote control mechanism that enables the keypad blocking to avoid the user manipulate the operating through it.

2 Pipes / 4 Pipes systems

Motion detector HVAC and lighting control

Window contact stops operation

Pushbutton and lighting control output

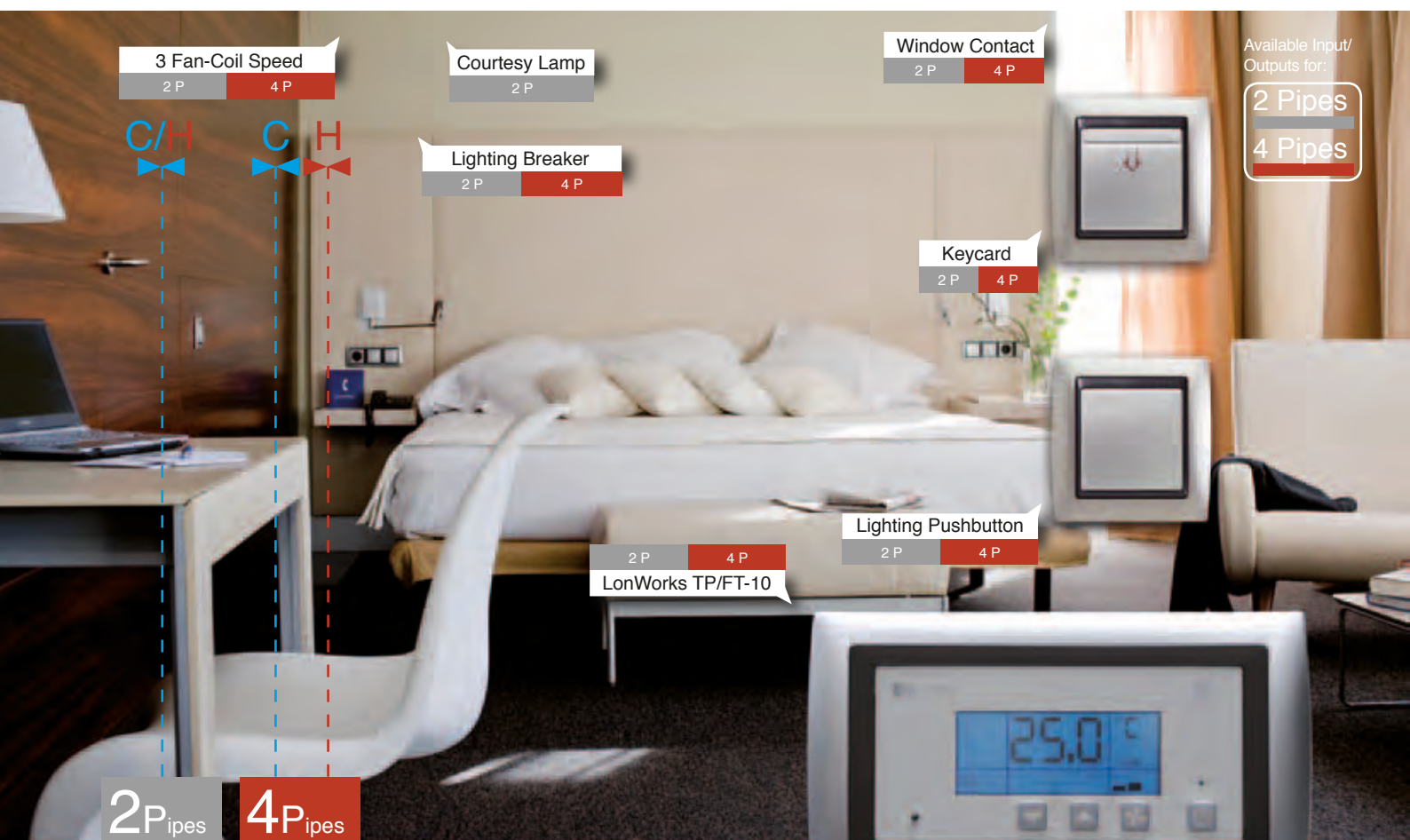**Occupied zone indicator**

Remote control through LonWorks® network

Clima | e-Room® Plus

Card contact HVAC and lighting control

3 Application Hotel 2 Pipes / 4 Pipes keycard Contact

3 Fan-Coil Speed
| 2 P | 4 P |

Courtesy Lamp
| 2 P |

Lighting Breaker
| 2 P | 4 P |

Window Contact
| 2 P | 4 P |

Keycard
| 2 P | 4 P |

Lighting Pushbutton
| 2 P | 4 P |

2 P | 4 P
LonWorks TP/FT-10

Available Input/ Outputs for:
2 Pipes
4 Pipes

C/H   C   H

2 Pipes   4 Pipes

RP.626601-000

Keycard contact occupancy control

In keycard contact Hotel 2 Pipes / 4 Pipes operating mode, the HVAC and lighting systems are controlled by the device depending on the occupancy status. When the card is inserted, the device turns to enable mode, allowing the user to connect the HVAC system, activating the circuit breaker lighting output and switching on the lights automatically. A manual pushbutton for bedroom lighting control is provided to the user. The HVAC system is done in stand-alone mode on the device, managing its outputs automatically for the valve actuator control and the fan-coil speed. Opening the window stops the HVAC system temporarily, activating it again when it is closed.

When the card is removed the HVAC systems turns to off or changes to low consumption mode depending on the configuration, and the lighting is switched off. In 2 pipes systems the device includes an extra output for the courtesy lighting room control, switching it on when the card is inserted and switching it automatically off after a configurable expiration timeout. When the card is removed the same operation is done by the device.

All the HVAC and lighting control functions are available through compatible LonMark® functional blocks that are accessible from the global Building Management remote control System.

2 Pipes / 4 Pipes systems

On / Off valve control

Device blocking card contact

Window contact stops operation

Lighting control output and pushbutton

Remote control through LonWorks® network

Clima | e-Room® Plus

Motion detector HVAC and lighting control

4 Application Hotel 2 Pipes / 4 Pipes Motion Detector

3 Fan-Coil Speed		Courtesy Lamp	Window Contact	
2 P	4 P	2 P	2 P	4 P

C/H   C   H

Lighting Breaker	
2 P	4 P

Motion Detector	
2 P	4 P

DP.100101-001

Door Contact	
2 P	4 P

Available Input/Outputs for:

2 Pipes

4 Pipes

Lighting Pushbutton	
2 P	4 P

2 P	4 P

LonWorks TP/FT-10

2Pipes   **4**Pipes

25.0

RP.626601-000

Motion detector occupancy control

In Hotel 2 Pipes / 4 Pipes Detector operating mode, the HVAC and lighting control is controlled by means of the occupancy defined between the combination of a door contact and a motion detector. When the door is opened and movement is detected in the room, the device turns to enable mode, allowing the user to connect the HVAC system, activating the lighting output and switching on the lights automatically. A manual pushbutton for bedroom lighting control is provided to the user. The HVAC system is done in stand-alone mode on the device, managing its outputs automatically for the valve actuator control and the fan-coil speed on demand. Opening the window stops the HVAC system temporarily, activating it again when it is closed.

The combination of a door closing and an absence of motion detection stops the HVAC system or changes it to low consumption mode and switches the output lighting to off. In 2 pipes systems the device provides an additional output for room courtesy lighting control, activating it when the door is opened and turns to off automatically after a preconfigured timeout.

All the HVAC and lighting control functions are available through compatible LonMark® functional blocks that are accessible from the global Building Management remote control System.

2 Pipes / 4 Pipes systems

On / Off valve control

Occupancy control by motion detector and door contact

Window contact stops operation

Lighting control output and pushbutton

Remote control through LonWorks® network

Clima | e-Room® Plus

Room alarm management and HVAC control

3 Fan-Coil Speeds
4 P

C   H

Alarm Indicator
4 P

Panic Alarm
4 P

Available Input/
Outputs for:

4 Pipes

Doctor Call
4 P

Window Contact
4 P

Occupied Room
4 P

4 P
LonWorks TP/FT-10

4Pipes

25.0

RP.626601-000

HVAC and alarm management from a single unit

In hospital operating mode, HVAC control and room alarm management are provided by the device, as well as alarm lighting indicators to show if the the room is in alarm status. The HVAC system is directly controlled through the device pushbuttons, or it can also be remotely controlled through its standard communication bus. The HVAC system is done in stand-alone mode on the device, managing its outputs automatically for the valve actuator control and the fan-coil speed on demand. Opening the window stops the HVAC system temporarily, activating it again when it is closed.

The device is provided with inputs for occupied bed sensor, doctor call and panic alarm, as well as a digital input to reset the panic alarm through a safety key from the room. The alarms are shown through a room alarm indicator output and doctor call indicator. The alarms are sent using the standard communication bus to show the status by a Building Management System and displays on the reception of each floor. All the HVAC parameters can be remotely controlled through the communication bus.

4 Pipes system

On / Off valve control

Window contact stops operation

Control center alarm information

Room identification alarm indicator

Remote control through LonWorks® network

Clima | e-Room® Plus

Open systems VRV integration

6 Application Integration with VRV

Lighting Control

Window Contact

Motion Detector

DP.100101-001

Courtesy Lamp

Gateway

Lighting Pushbutton

LonWorks TP/FT-10

Ethernet Lon-IP / BACnet

RP.626601-000

HVAC and Lighting integration with VRV System

The VRV system integration application mode allows to use the HVAC and lighting device functions for HVAC control depending on zone occupancy status.

The e-Room Plus device manages the on/off functions, temperature setpoint, fan-coil speed and heat/cool mode VRV indoor unit through the standard communication bus up to the VRV system gateway. In addition it is also used to show the room temperature provided by the indoor unit, fan-coil speed and actual operating mode.

The motion detector turns the device to enable mode when movement is detected, and the lighting circuit breaker is also activated. A manual pushbutton for bedroom lighting control is provided to the user. Opening the window stops the HVAC system temporarily sending a message through the bus to stop the indoor unit, activating it again when it is closed.

All the HVAC and lighting control functions are available through compatible LonMark® functional blocks that are accessible from the global Building Management remote control System.

VRV clima control

e-Room® Plus zone control

Keycard contact or detector based occupancy monitoring

Window contact stops operation

Lighting control output and pushbutton

LonMark-IP and BACnet BMS integration

Visualization | e-Clima

Applications:

1 Operating Room

2 White Room

DC.621001-000

- Intuitive display

- Easy and fast reading

- Temperature, Humidity and Pressure

- External sensors

- Keypad for setpoint adjustment

- LonWorks® network

Weather parameters under control

e-Clima is a device that provides temperature, relative humidity and pressure values supplied by different sensors located in a room. It includes an EN 14908 LonWorks® communication bus through which values supplied by the various remote sensors are received; these are in turn displayed on the screen for simple and intuitive reading. An analogue input is provided for direct connection of an NTC temperature sensor where a temperature sensor is not to be connected to the bus.

e-Clima allows the sequential display of sensor supplied temperature, humidity and pressure values. Two versions are available, one without local setpoint control and another with local control that allows temperature and relative humidity setpoint adjustment through a 4 button keypad, to have the values sent through the Lon network to a remote climate control device.

This unit is particularly suited for applications such as hospital operating rooms, clean rooms, laboratories, refrigeration chambers, cinemas, maintenance departments, etc.

DATASHEET

e-controls ®
electronic intelligent controls, s.l.

Display

• Temperature, Humidity and Pressure
• Sequential reading
• Adjustable display times
• Configurable display backlighting
• Configurable auto power on

Remote Management

• Remote On/Off
• Keypad adjustable setpoints
• LonWorks® network based parameter
  transmission

Integration

• ISO/IEC 14908 LonWorks® bus
• LonMark® compatible

Patented product

Installation

• Single display unit
• Optional external temperature sensor

Features

• Supply Voltage 24Vac/24Vdc
• TP/FT-10 twisted pair
• ISO/IEC 14908 LonWorks network
• BTicino Light frame (different colors
  available)
• Independent external sensors
• External temperature sensor (optional)
• Temperature range:
  –199.9 to +199.9 (ºC/ºF) @ 0.1 ºC/1 ºC
• Humidity range: 0% to 99% @ 1%
• Pressure range: –99 to +99 Pa @ 1 Pa

Ordering numbers

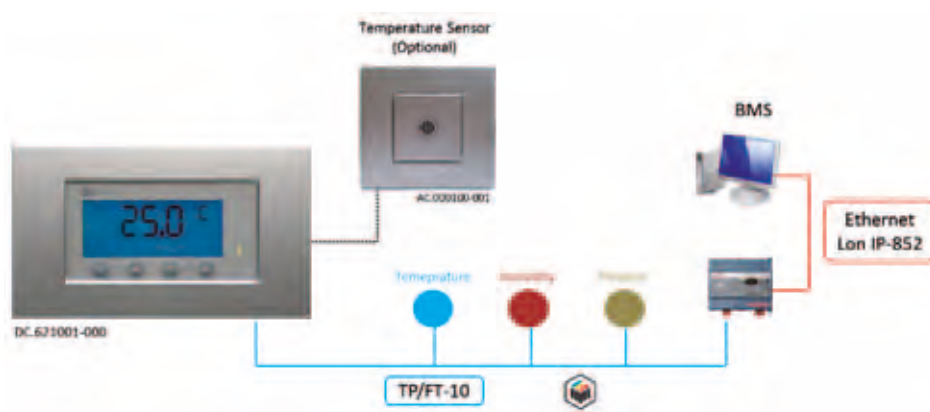**DC.621000-000 – e-Clima**

**DC.621001-000
e-Clima Setpoints**

LONMARK® CE

e-Clima
Input / Output Diagrams
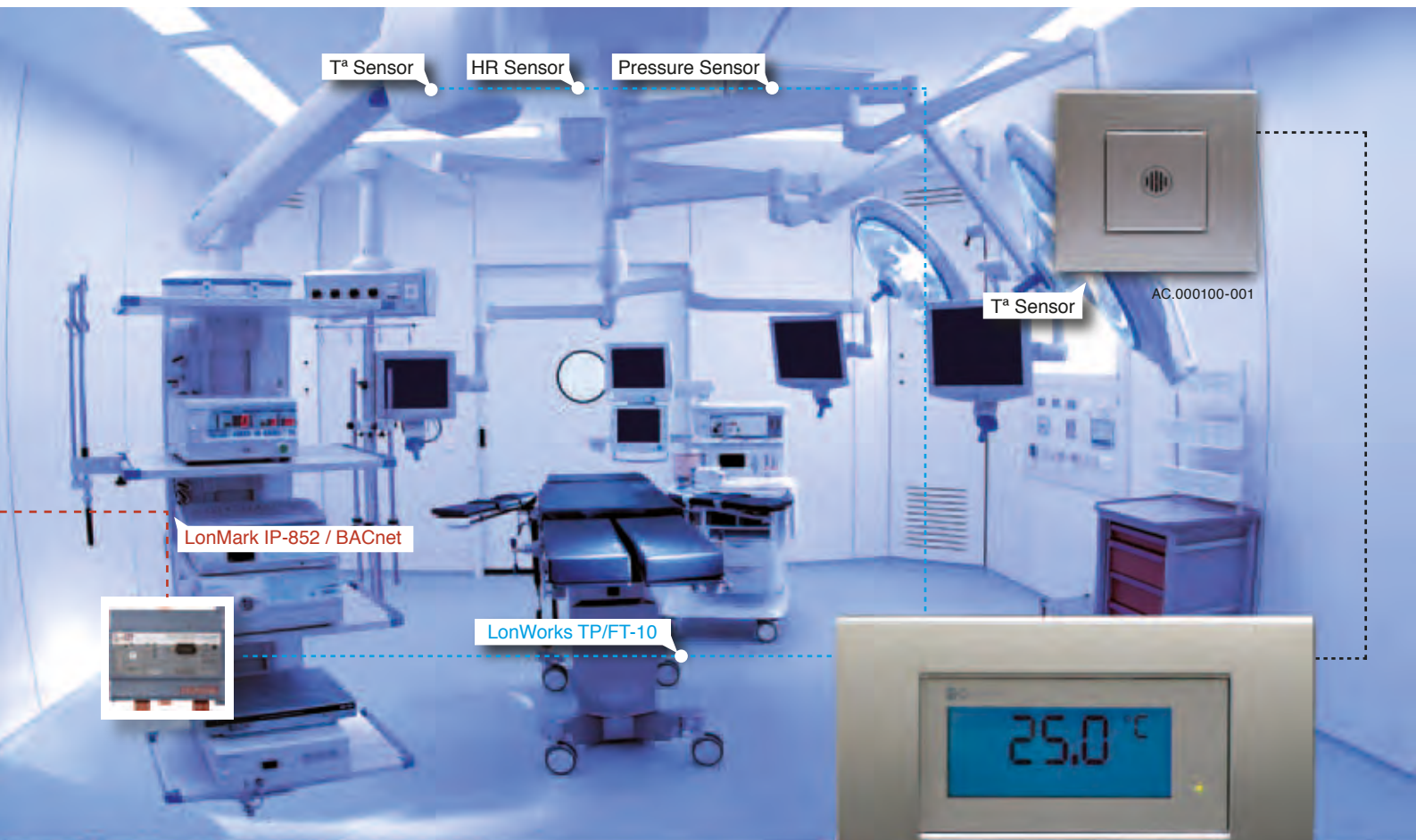
Visualization | e-Clima

Temperature, humidity and pressure visualization

1 Application Operating Room

Tª Sensor   HR Sensor   Pressure Sensor

Tª Sensor

AC.000100-001

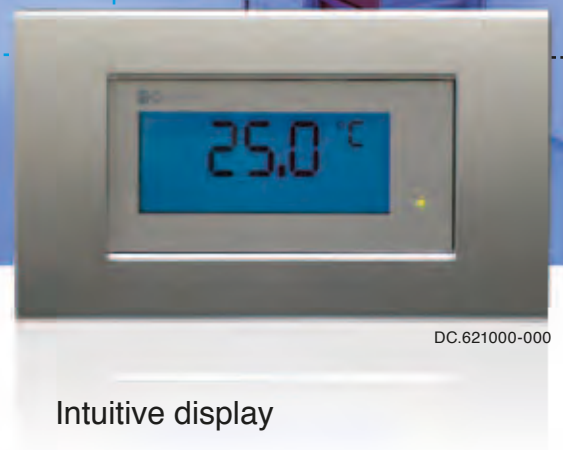LonMark IP-852 / BACnet

LonWorks TP/FT-10

DC.621000-000

Meteorological parameters under control

Ambient temperature, humidity and pressure in operating rooms must be displayed in a physical visualization system as defined in the actual standards for hospital installations. With e-Clima it is possible to show this information on the screen using different sensors that provide the ambient parameters through the standard communication bus to the display. Ambient temperature can also be measured using an NTC10K sensor with an analog input also available on the device. In this case the device must be configured to show the value of this input instead of the value received from the bus.

Network variables with bindings to the external sensors are automatically detected by the device and showing the values sequentially on the screen when more than one parameter should be displayed. The visualization time can be configured through a network variable.

Some output network variables are also available to send the values to other devices on the network.

Intuitive display

Easy and fast reading

Temperature, Humidity and Pressure

External sensors

Optional external temperature sensor

LonMark-IP and BACnet BMS integration

Visualization | e-Clima Setpoints

Temperature, humidity and pressure visualization

2 Application White Room

Tª Sensor   HR Sensor   Pressure Sensor

LonMark IP-852 / BACnet

LonWorks TP/FT-10

25.0 ℃

DC.621001-000

Display visualization with setpoint pushbuttons

The **e-Clima Setpoints** device includes four buttons keypad on its front panel for temperature and relative humidity setpoint adjustment. Last fixed setpoint is shown when pressing a key and subsequent pressings modify the value accordingly. Some output network variables are also available to send the values to the zone HVAC control system.

The same as e-Clima, ambient temperature, relative humidity and pressure are shown on the display from different sensors of the installation transmitting information through the standard communication bus to the device. Ambient temperature can also be measured using an NTC10K sensor with an analog input also available on the device. In this case the device must be configured to show the value of this input instead of the value received from the bus.

Kaypad for Tª and RH setpoint adjustment

Sequential parameters display

Optional backlit switched on

LonMark-IP and BACnet BMS integration

Lighting | e-Scene

Lighting Control and Energy Saving

Applications:

1 Auditorium lighting control

2 Spa sunblinds control

BT.51G000-000

Curtains and lighting scenes control

e-Scene® is an innovative pushbutton pad for lighting control of areas such as offices, meeting rooms, auditoriums, etc. This unit can control up to five lighting areas independently with on, off and dimming functions for each area, optimizing power consumption levels in real time. It includes five memory locations to configure and apply different lighting scenarios; it can also control blind or curtain motors to meet user requirements at all times. This unit is designed to be installed in conjunction with any e-Controller series product.

System installation does not require additional wiring, dramatically reducing installation time and cost and providing an optimal solution for building refurbishment or rehabilitation. No computer or special software is necessary to configure the unit, rendering this solution even more versatile and easy to install.

Based on the ISO/IEC (LonWorks®) communication standard, this device may be integrated into any LonMark® system in the market.

Five independent lighting zones

Five programmable scenarios

No additional wiring required for installation

No computer required for commissioning

Robust and reliable technology

LonWorks® network

Energy Savings

• Light dimming for each zone
• Five memory locations for scenario application
• Integration of blinds and curtains

Integration

• ISO/IEC 14908 LonWorks® bus
• LonMark® compatible

Installation

• No additional wiring required
• 4 step commissioning; no computer required
• Installation with 1-10 V electronic ballasts
• Ideal solution for refurbishment and rehabilitation

Features

• Five channels for lighting and blind control
• Five memories for lighting scenarios
• User programmable memories
• Blue LED backlit touch keys
• Infrared receiver for remote operation
• Supply Voltage 95-250Vac 50/60Hz
• PowerLine mains data transmission
• ISO/IEC 14908 LonWorks® network
• BTicino Light frame
• May integrate in LonMark® open systems

Ordering numbers

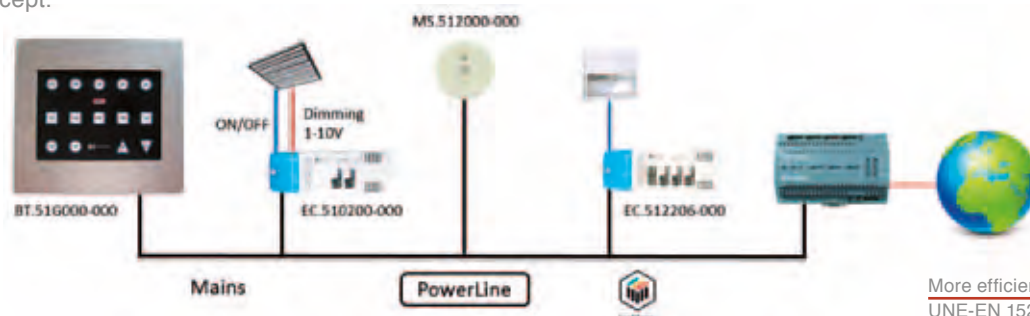### Powerline Tactile Pushbutton BT.51G000-000 e-Scene

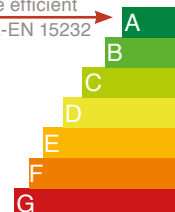### Infrared remote control MI.70G000-000 e-Scene IR

LONMARK® CE

PowerLine communication using the mains electrical wire to communicate with other devices on the installation.
Tactile sensation keys innovative concept.

e-Scene®

Input / Output Diagrams

MS.512000-000

ON/OFF
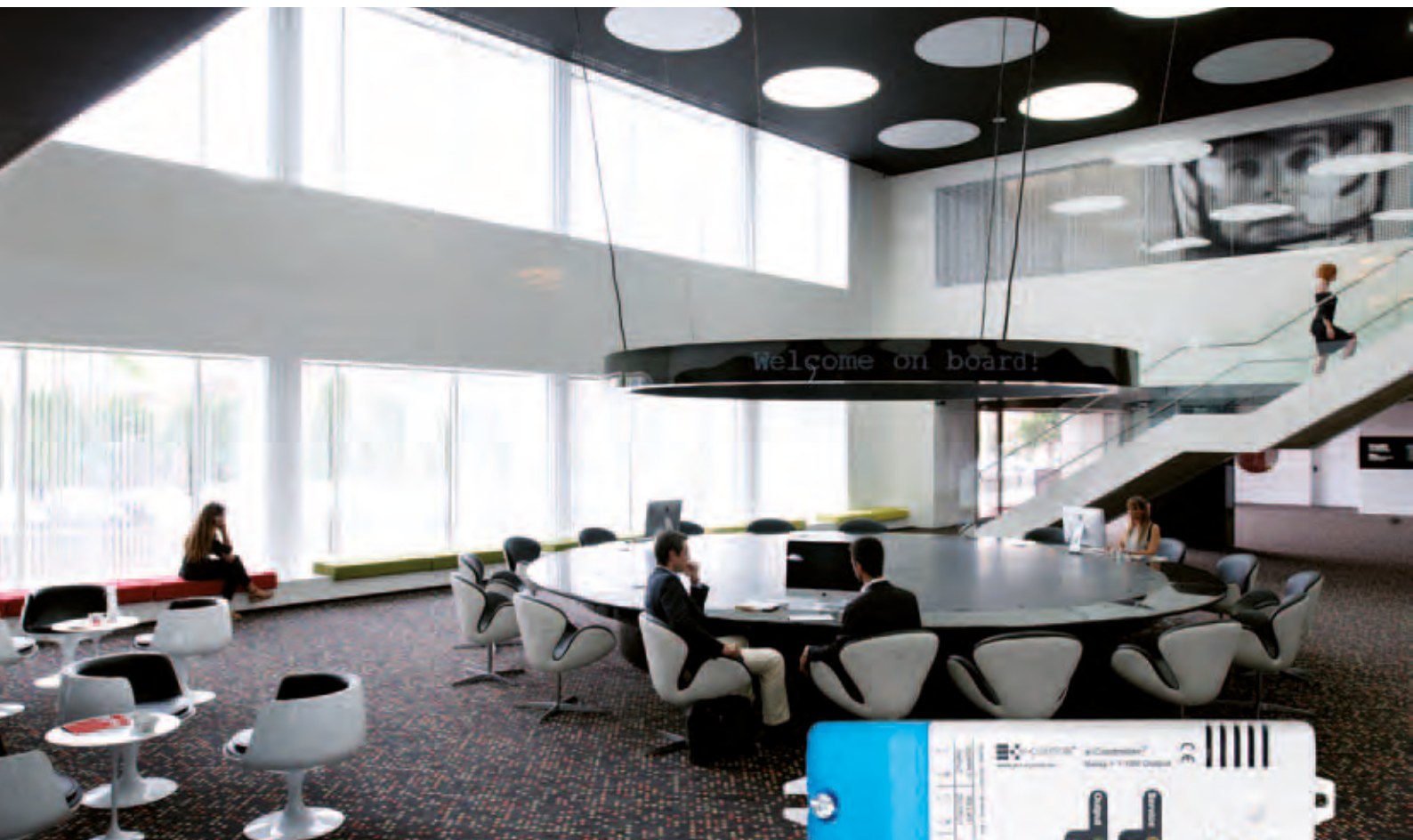Dimming 1-10V

BT.51G000-000   EC.510200-000   EC.512206-000

Mains   PowerLine

More efficient
UNE-EN 15232

A
B
C
D
E
F
G

Lighting

e-Controller 1-10V

Indoor building light dimming

EC.510200-000

Energy saving of lighting spaces

The e-Controller 1-10V is a device used for light dimming at an optimum level every hour of the day on different spaces in a building. Designed to maximize sites energy consumption and save energy without reducing the comfort level, the device can also be used with multisensors for automatic light dimming like the e-Multisensor Bus PowerLine or the e-Scene pushbuttons used for light manual dimming and scene lighting control, to adapt any space to the user needs.

The mains electrical network is used by the device for data transmission with other devices.
A data transmission system is included on the device which takes the advantage of the mains wiring as a means to transmit data with other devices, without the need to plan ahead for new wiring on the installation, making it particularly suitable for facility refurbishment. Along with its easiest installation, an auto-installation mechanism is included on the device to avoid commissioning with a laptop.

Other e-Controller products are available with the following functions:
e-Controller 1 Relay Output, including one high power relay output (10Amp) for switching up to 2000W loads.
e-Controller 2 Input / 2 Output ON/OFF, including two inputs for local or remote outputs switching and two 5Amp small loads relay outputs with local or remote switching.

Lighting energy saving

Integration with multisensors

On, Off and light dimming

Remote control without new wires

BMS integration

LonWorks® networks

Light dimming and curtains automation

DATASHEET

e-controls ®
electronic intelligent controls, s.l.

Energy Saving

• Light level control as needed
• Individual integration with multisensors
• Switching on/off and light dimming
• Efficient dimming with 1-10V analog output

Remote Control

• Mains data transmission
• Dimming from multisensors, keypads and controllers

Integration

• LonWorks® ISO/IEC 14908 bus
• LonMark® compatible

Installation

• No new wires needed
• Multiple luminaries control with a single device

Features

• Supply Voltage 95-250Vac 50/60Hz
• Two phase contact digital inputs (2In/2Out model)
• One phase contact 10Amp relay output (1-10V and 1 Relay models)
• Two phase contact 5Amp relay outputs (2In/2Out model)
• 1-10V analog output for ballast dimming and LED driver (1-10V model)
• 10 programmable memory scenes
• Inputs status LED indicators (2In/2Out model)
• Outputs test pushbuttons and outputs status LED indicators
• e-Scene keypad and e-Multisensor auto-commissioning
• Mains data transmission (PowerLine)
• ISO/IEC 14908 LonWorks network
• External BTicino Light frame
• Integrable with LonMark® Open Systems

Ordering numbers

EC.510200-000
e-Controller Dimming 1-10V

EC.510102-000
e-Controller 1 Relay Output PC

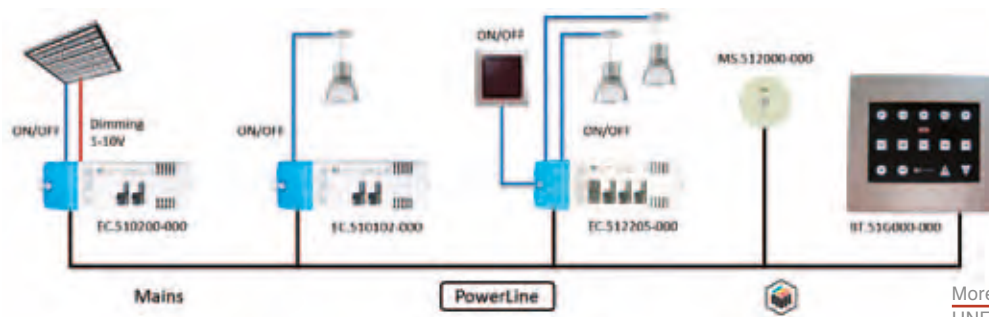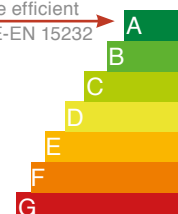**EC.512205-000**
e-Controller 2In2Out ON/OFF

LONMARK® CE

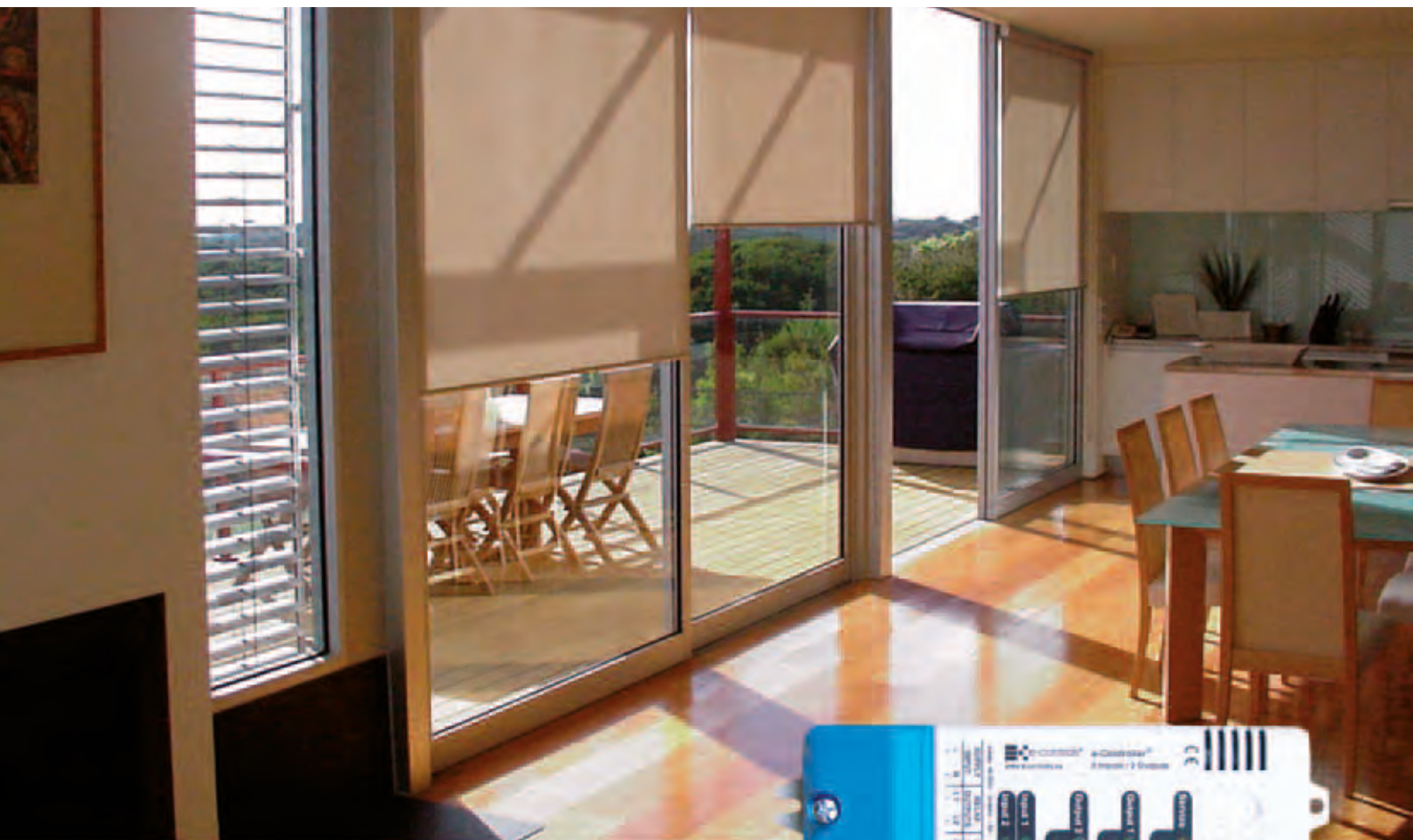# e-Controller Dimming 1-10V

Input / Output Diagrams

More efficient
UNE-EN 15232

A B C D E F G

DDS00006513000-0, EC.510200-000 e-Controller 1-10V DDSEN

Sunblinds | e-Controller 2In2Out Sunblinds

Curtains and sunblinds automation with e-Scene

EC.512206-000

Comfort and energy saving with different ambient definition

The **e-Controller 2 Inputs / 2 Outputs Sunblinds** is a device used for easy and comfortable raise/lower control automation functions on sunblinds or curtains. Two digital inputs for conventional pushbuttons are included on the device for direct control of two relay outputs for motor position management.

The main advantage of the device is the ability of being remotely controlled through keypads like e-Scene or other e-Controller devices, for position motor control functions at any percentage level and the possibility to manage up to ten scenes. For this purpose the system takes the advantage of using the existing mains electrical wiring for data transmission between devices and no additional wirings are required for the installation, making it particularly suitable for facility refurbishment of existing buildings where new wires are difficult to install.

Some pushbuttons and LED indicators are disposed on the front panel of the device for outputs testing and inputs state monitoring, and an auto-installation system is included for automatic installation with the s-Scene keypad to avoid commissioning with a computer.

Integration with keypads

Opening percentage control

Ten memories for scene control

No computer need for set-up

Remote control with no new wires

LonWorks® network

Light dimming and curtains automation

DATASHEET

e-controls®
electronic intelligent controls, s.l.

Confort

• Possibility to define any opening percentage level
• Pre-programmed scenes for ambient definition
• Infrared remote control command

Energy Saving

• Astronomical time position control
• Multisensors integration option

Remote Control

• Mains network® control wire
• Schedulers and keypads management

Integration

• ISO/IEC 14908 LonWorks® network
• LonMark® compatible

Installation

• No additional bus wires
• No computer needed for commissioning

Features

• Supply Voltage 95-250Vac 50/60Hz
• Two phase contact digital inputs
• Two phase contact 5Amp relay outputs
• 10 programmable memory scenes
• Inputs status LED indicators
• Outputs test pushbuttons and outputs status LED indicators
• e-Scene keypad auto-commissioning
• Configurable raise/lower timeouts
• Mains electrical network (PowerLine) for data transmission
• ISO/IEC 14908 LonWorks network
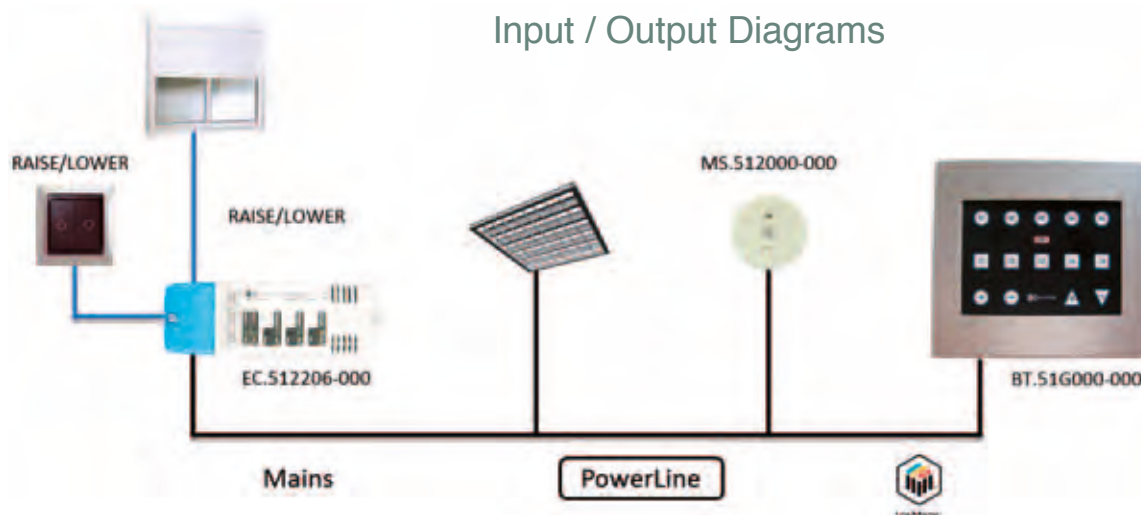• Integrable with LonMark® Open Systems

Ordering number

EC.512206-000
e-Controller 2In2Out Sunblinds
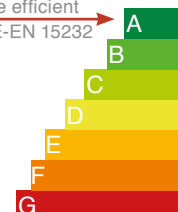
LONMARK®

CE

e-Controller 2 Inputs / 2 Outputs Sunblinds

Input / Output Diagrams

RAISE/LOWER

RAISE/LOWER

MS.512000-000

EC.512206-000

BT.51G000-000

Mains

PowerLine

LonMark

More efficient
UNE-EN 15232

A
B
C
D
E
F
G

e-Scene®

Lighting control in meeting rooms

1 Auditorium lighting control

C1

Mains electrical network

C2

C3

C4

LonWorks PowerLine

BT.51G000-000

Auditorium lighting control application

The e-Scene keypad is used for 4 zone lighting control and a projection screen control in a room like this auditorium, switching on, off and dimming or positioning each individual zone of the facility according to the needs at any given time. The combination between lighting and motors for curtains, blinds or screens control is providing a global control on the installation and its application on any environment. Five scene keys S1 to S5 are used to save different light levels or motor position of every one of each channel at the same time, for further recall with a simple scene key touch. The solution is comprising by the **e-Scene** keypad and different **e-Controller 1-10V** light dimming receivers or an **e-Controller 2In2Out Sunblinds** motor control receiver. One channel can control more than one e-Controller at the same time, thus making all of them the same function.

The system takes the advantage of using the existing mains electrical wiring for data transmission between devices and no additional wirings are required for the installation, making it particularly suitable for facility refurbishment of existing buildings where new wires are difficult to install.

Five independent lighting zones

Five programmable scenarios

No additional wiring required for installation

No computer required for commissioning
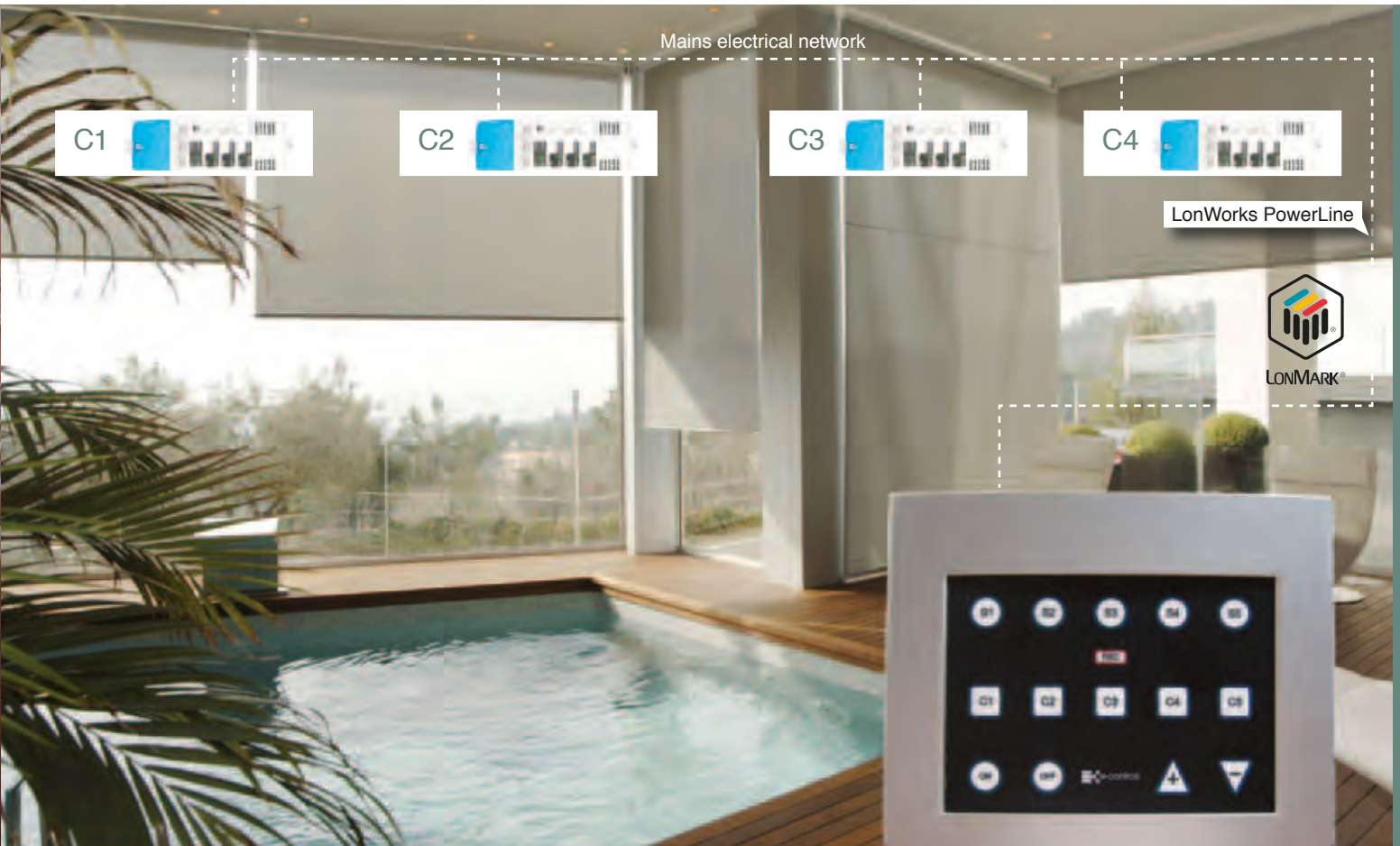
Robust and reliable technology

LonWorks® network

Sunblinds | e-Controller 2In2Out Sunblinds

e-Scene curtains and blinds automation

2 Spa sunblinds control

Mains electrical network

C1

C2

C3

C4

LonWorks PowerLine

LonMark®

BT.51G000-000

Total comfort with integrated curtains and lighting

The curtains, blinds and screens automation **e-Controller 2In2Out Sunblinds** receiver, takes care of the position control on each of the curtains on the facility. Every receiver can be configured on one channel of the e-Scene keypad for remote control, but also many receivers can be configured on a same channel when the user wants to do the same control on all of them at the same time.

Two digital inputs for conventional pushbuttons installation are included on the device so that the user could do a direct control from the wall pushbuttons. Every device can be remotely controlled using its communication bus using the mains electrical network to communicate with the e-Scene keypad or any other device on the network.

The Scene position control allows you to have different preconfigured blinds positions and do an automatic adjustment with an easy desired scene key press. A control system is included on the device to do an specific position control on values between 0 to 100%.

Individual motor position control

Scenes for global channel position

No additional wiring required for installation

All signals are sent through the mains network

Designed for existing installations

Sensors

e-Multisensor 0-10V

Light and motion sensor

MS.602000-000

Energy saving in buildings

e-Multisensor 0-10V is an innovative multisensor including a motion detector and a light sensor for occupancy control and light level monitoring in a zone of a building. The data is sent to a control system for further processing of the light and HVAC management, in order to ensure an optimum energy saving of the facility. The light level is measured by the device and provided to the control system for later processing. The motion sensor can be used for automatic light and HVAC on-off switching depending on the zone occupancy state, switching it off and saving energy when the zone is in unoccupied mode.

The device is designed for flush mounting on a suspended ceiling providing a wide coverage area of 36m2, making it an ideal solution for loft offices, with a high sensibility level to detect the smaller movements and optimizing its operating. Finished with an ultra slim case design and an innovative aesthetic design, the product is the perfect solution for engineers, architects and indoor designers that are looking an innovative and elegant design product.

A relay output for the motion detector signal with adjustable 1 second to 50 minutes timeout for automatic off switching is included on the device. The light sensor signal is provided by means of a 0-10V analog output.

Detection area 36m^2

High sensitivity

0 to 1000 lux range

Flush mounting in suspended ceiling

Relay output and 0-10V analog

Adaptable to any control system

Automatic lighting control for energy saving in buildings

DATASHEET

e-controls®
electronic intelligent controls, s.l.

Energy Saving

- Light sensor for light dimming
- Motion detector for occupancy management
- Adjustable relay output timeout 1 second to 50 minutes
- Automatic switching off lights when zone unoccupied
- Occupancy control HVAC management
- May integrate in any control system

Pattern detection

(installed at 2,5mts)
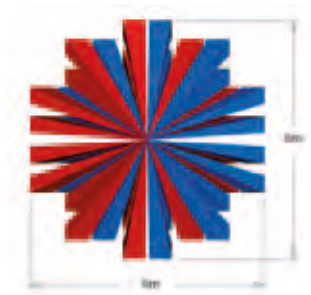
Features

- Supply Voltage 24 Vac / 24 Vdc
- Relay output for motion sensor
- Timeout switching off relay 1 sec. to 50 min.
- Detection area 6x6mts (installed at 2,5mts ceiling)
- Max detection distance 8 meters
- 68 motion sensor detection zones
- Motion sensor coverage area 360º
- Light sensor 0-10V analog output
- Lux range 0 to 1000 lux
- Light sensor measurement angle +/- 50º
- Light sensor with visible color correction radiation filter
- Flush mounting in suspended ceiling
- Dimensions 80x50 (ØxH, mm)

Ordering numbers
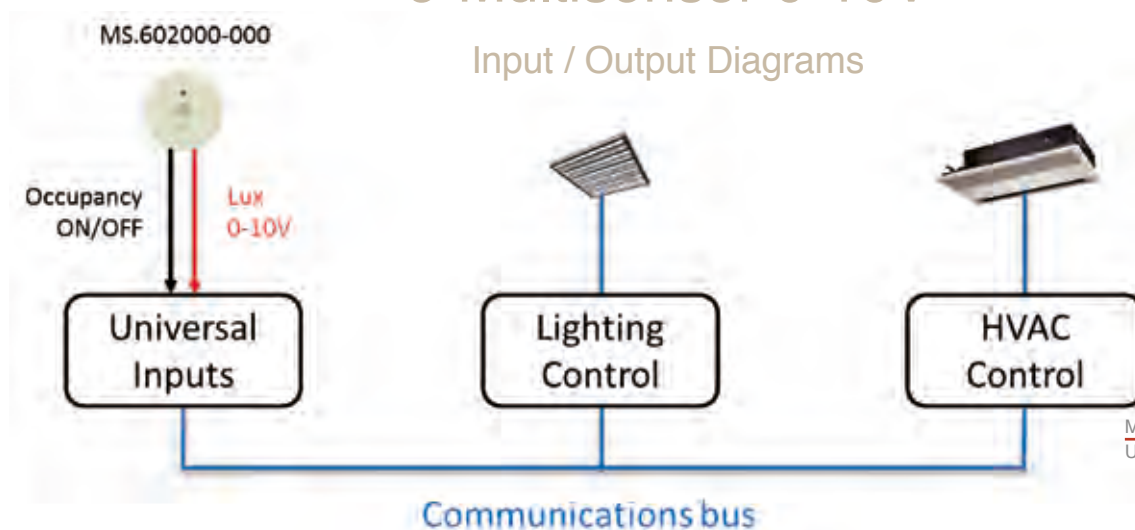
MS.602000-000
e-Multisensor 0-10V

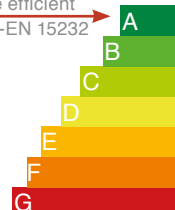**AC.000001-000**
Surface mouting enclosure

CE

e-Multisensor 0-10V

Input / Output Diagrams

Sensors

e-Multisensor Auto

Stand-alone light dimming and switching

Energy saving in offices

e-Multisensor Auto is a powerful digitally controlled multisensor range of products, designed to provide an stand-alone lighting control solution in buildings, in order to obtain an energy saving at the lowest installation and equipment cost. Including a motion sensor and a light sensor, both components combined provide multiple control applications in any building area. Two different models are available:

e-Multisensor AutoOnOff is a device for automatic lighting switching on control when movement is detected and the ambient light level is below a minimum pre-defined value. If the light level is over the pre-defined value, the device will keep the lights off even a movement is detected. An automatic light switching off is done in two ways: when the amount of natural light in the zone becomes over the pre-defined value even the zone is occupied or by timeout since the last detection. An auxiliary external input can be used for keeping the lights on (switch mode) or to temporarily trigger the lights on (pushbutton mode).

e-Multisensor AutoDim 1-10V is an innovative multisensor for automatic light dimming level on occupied zones. The ambient light level is measured by the light sensor and keeps the luminaries at a constant value throughout the day according to a pre-defined light setpoint. This allows reducing the energy consumption of the installation at a minimum level. An auxiliary external input can be used for Scene control, bypassing the sensors and fixing a pre-defined value on the 1-10V output (in switch mode), or to change the lighting setpoint temporarily and dim the lights at a user desired level (in pushbutton mode).

Stand-alone light dimming

Up to 75% energy saving

Detection area 36m^2

High detection sensibility

Auxiliary multifunction external input

Flush mounting in suspended ceiling

Automatic light dimming and switching

DATASHEET

e-controls®
electronic intelligent controls, s.l.

Energy Saving

- Constant Light Controller (AutoDim model)
- Light level setpoint setting
- Motion detector to switch off unoccupied areas
- Timeout setting for switching off occupancy relay
- External input for switch and trigger in AutoOnOff model or Scene and Manual dim in AutoDim model.
- Up to 75% energy saving

Models

- ON/OFF: May fix the light level from which the output relay is switched on when the area is occupied.
- AUTODIM: May regulate the light level of occupied zones to a pre-defined setpoint value.

Installation

- Direct connection from sensor to luminaire (see diagram)
- Flush mounting in suspended ceiling
- Adjustable timeout for output relay automatic switching off
- Minimum light level setting adjustment for automatic light switching on
- Lighting setpoint adjustable for automatic light dimming control

Features

- Supply Voltage 95-250Vac 50/60Hz
- Relay output 10A/250V for motion sensor
- Timeout switching off relay 5 sec. to 30 min., ON position
- Detection area 6x6mts (installed at 2,5mts ceiling)
- Max detection distance 8 meters
- 88 motion sensor detection zones
- Motion sensor coverage area 360º
- Isolated analog 1-10V output (AutoDim)
- Lux range 5 to 1000 lux
- Light sensor measurement angle +/- 50º
- Light setpoint setting for automatic dimming
- Light sensor with visible color correction radiation filter
- Flush mounting in suspended ceiling
- Dimensions 80x50 (ØxH, mm)

Ordering numbers
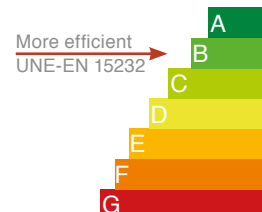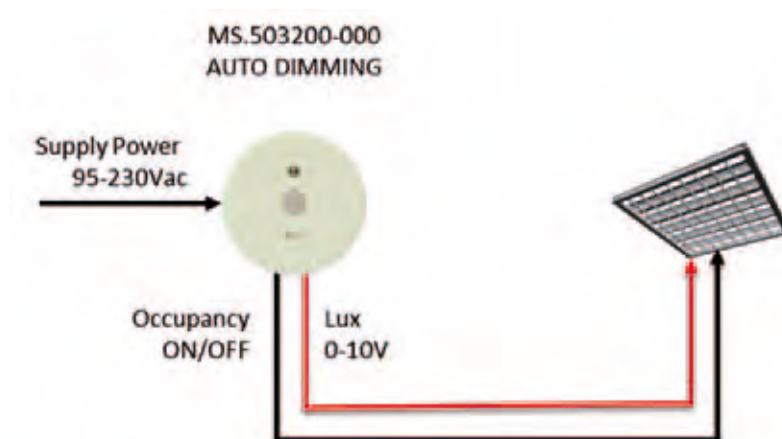
MS.503200-000
e-Multisensor AutoDim 1-10V

MS.503201-000
e-Multisensor AutoOnOff

AC.000001-000
Surface mounting enclosure

CE

e-Multisensor AutoDim 1-10V

Input / Output Diagrams

MS.503200-000
AUTO DIMMING

Supply Power 95-230Vac

Occupancy ON/OFF

Lux 0-10V

More efficient
UNE-EN 15232

A B C D E F G

Sensors | e-Multisensor Bus

Automatic light dimming and switching

MS.622000-000
MS.512000-000

Energy saving in buildings

e-Multisensor Bus is an innovative multisensor including a high sensitivity motion detector and a light sensor for occupancy control and light level monitoring in a zone. A communication bus on the device allows transmitting the information to other devices on the network that actuate over the lighting components switching them on, off or dimming. A constant light controller is included on the device which is used to adjust light level according to the light setpoint configured and the combination of natural and artificial lighting. The motion sensor is used to automatically switch on and off the lights depending on the zone occupancy status, switching them off and saving energy when the zone is unoccupied.

Two different communication buses are available in two different reference products: LonWorks® twisted pair TP/FT-10 and LonWorks® PowerLine. This last model is using the mains electrical network as a transmission channel and is specially indicated for building refurbishment where no special cables are needed to install on the facility.

The device is designed for flush mounting on a suspended ceiling providing a wide coverage area of 36m2, making it an ideal solution for loft offices.

Automatic light dimming and motion detection

Detection area 36m^2

Up to 75% energy saving

Ultra Slim design for suspended ceiling facility

Motion sensitivity adjustable by network

LonWorks TP/FT-10 and PowerLine

Automatic light dimming and switching

DATASHEET

e-controls®
electronic intelligent controls, s.l.

Energy Saving

• Light sensor for light dimming
• Motion sensor for automatic on/off switching
• Automatic light level control
• Up to 75% energy saving
• Constant light controller with two outputs for window and corridor lighting areas at the same time.
• Neighbor lighting control output.
• Minimum lighting value configurable.

Integration

• Providing EN15232 Class A
• ISO/IEC 14908 LonWorks® network
• LonMark® compatible
• Motion sensitivity adjustable by network
• In field sensor calibration with luxometer or by reflection index

LonMark Profiles

• 1 x Light Sensor
• 1 x Presence Detector
• 1 x Constant Light Controller
• 1 x Occupancy Controller
• 1 x Temperature Sensor

Installation

• TP/FT-10 with twisted pair bus
• PowerLine over mains electrical network
• No computer required for commissioning (PowerLine model)

Features

• Supply Voltage 24 Vac/24 Vdc (TP/FT-10) or 95-250Vac 50/60Hz
• TP/FT-10 or PowerLine channel
• ISO/IEC 14908 LonWorks® network
• Detection area 6x6mts (installed at 2,5mts ceiling)
• Max detection distance 8 meters
• 88 motion sensor detection zones
• Motion sensor coverage area 360º
• Lux range 5 to 1000 lux
• Light sensor measurement angle +/- 50º
• Light setpoint setting for automatic dimming
• Light sensor with visible color correction radiation filter
• Flush mounting in suspended ceiling
• Dimensions 80x50 (ØxH, mm)

Ordering numbers

MS.623000-000
e-Multisensor Bus Lon TP/FT-10

MS.512000-000
e-Multisensor Bus Lon PowerLine
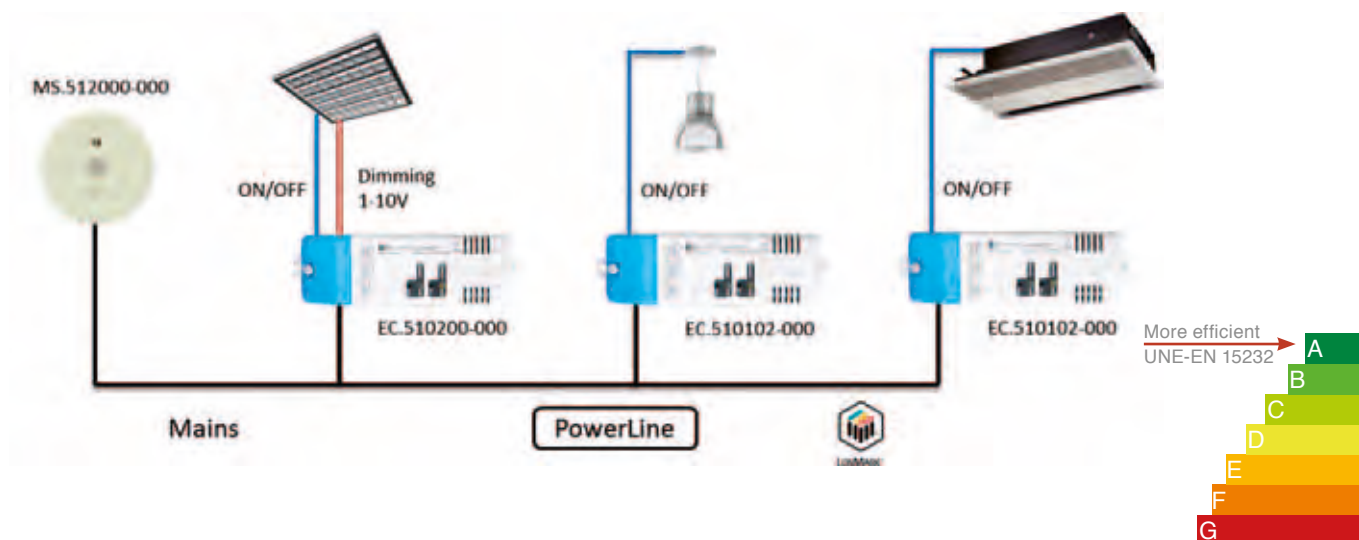
AC.000001-000
Surface mounting enclosure

LonMark®   CE

e-Multisensor Bus Lon PowerLine

Input / Output Diagrams

Sensors | e-Multisensor 0-10V

Motion detection and light sensor in facilities

Control System
Clima + Lighting

Control System
Clima + Lighting

Control System
Clima + Lighting

MS.602000-000

Energy saving with control systems

The device is including a high sensitivity motion sensor used to detect smallest movements like hanging up the phone, picking up a pen, etc. to allow detect an occupied zone. It is designed to cover an area of 36m2, enough to fit a 4 to 6 people working place. A free contact relay output for the motion sensor is used to inform about the occupancy status of the zone to a digital input of the control system. When a movement is detected the relay output goes to the on state, actuating over the digital input of the system which will automatically switch on the lighting and the HVAC systems. After a period of inactivity on the zone, the relay will automatically turn to off and the control system will switch off the lighting and the HVAC systems for energy saving purposes. The switching off time can be configured by means of a potentiometer on the back side of the product.

A light sensor is also included on the device, sending the light level through a 0-10V analog output which will be sued for the control system for light dimming purposes, depending on the natural light level incident in the building. This control solution is providing an optimum light level on the building, saving the maximum energy as possible.

Energy saving when zone is unoccupied

Light dimming depending on natural lighting

Adaptable to any control system

May control the HVAC system

Sensors

e-Multisensor AutoDim 1-10V

Automatic light dimming in buildings

MS.503200-000

Stand-alone light dimming in buildings

e-Multisensor AutoDim 1-10V is a device that connects to a luminaire or group of luminaires for direct control. The device is powered at the mains electrical network voltage and a phase contact output relay is available for automatic light switching on and off depending on the zone occupancy state, providing an energy saving due to an automatic light switching off when the zone turns to unoccupied. A 1-10V output is available on the device for an automatic light dimming control, which is directly connected to the ballast or led driver of the luminaire.

Operating mode:

The lights automatically turns on when a movement is detected. At that moment the device dims the lights to a pre-defined setpoint value, ensuring the maximum energy saving as possible thanks to the digital control mechanism built in the device. When the zone goes to unoccupied, the lights turns to off after a pre-defined timeout has been expired.

An auxiliary external input can be configured for Scene control or manual lighting setpoint modification. When the input is configured for Scene control, the user can use an external switch button to bypass the sensors and fix a pre-defined light value on the zone i.e. for powerpoint presentations. When the input is configured in setpoint modification, the user can temporarily change the lighting setpoint using an external pushbutton, to increase or decrease the light level on the zone. The original setpoint will be again used after the lights will switch off and on again.

Automatic light dimming

Auto switching unoccuppied zones to off

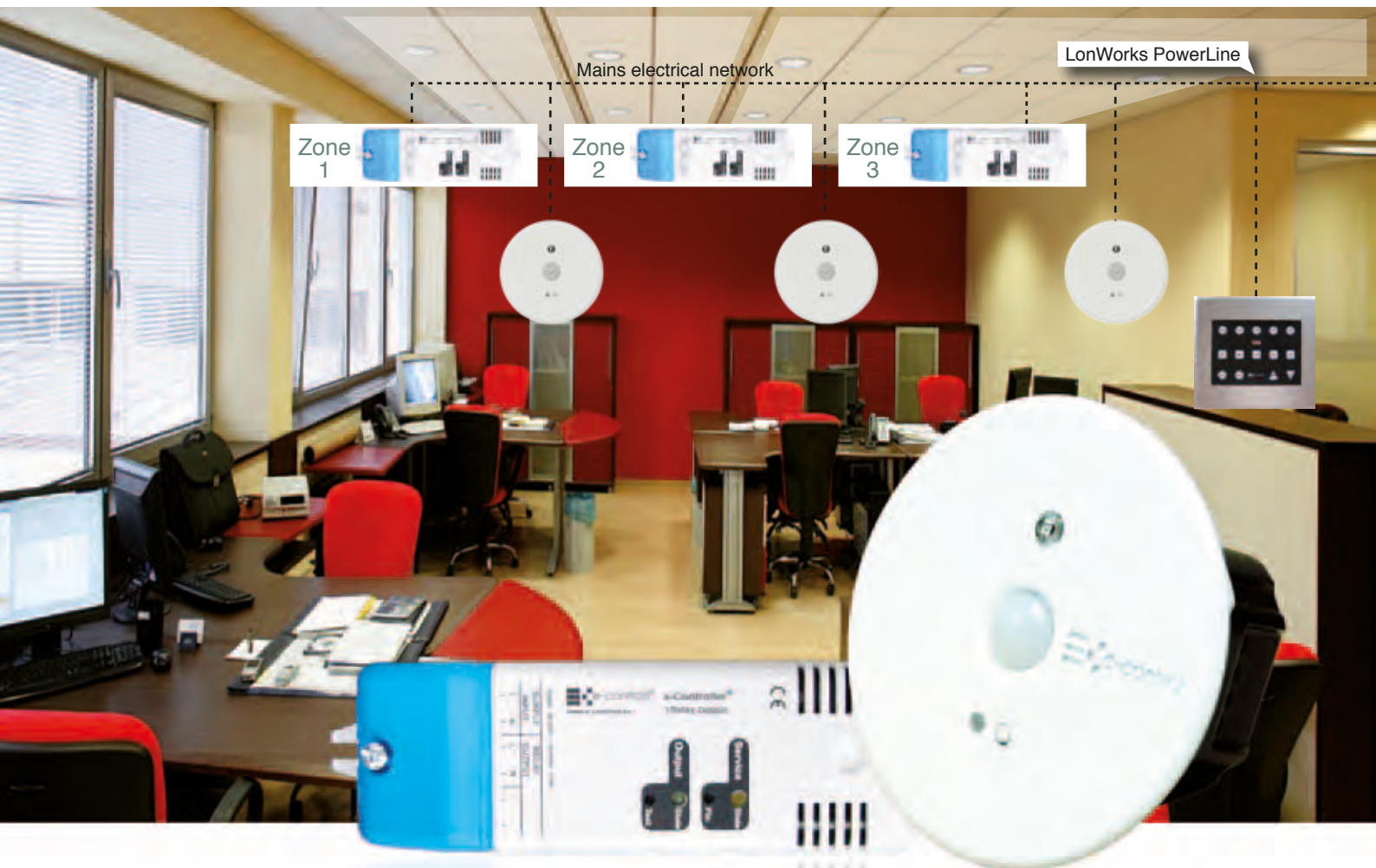---

Adjustable switching off time

Stand-alone control

ON/OFF and AutoDim operating modes

Sensors | e-SaveLux

Automatic light dimming in buildings

Mains electrical network

LonWorks PowerLine

Zone 1

Zone 2

Zone 3

EC.510200-000

MS.512000-000

Maximum savings, minimum installation

e-SaveLux is an innovative solution for automatic light dimming in buildings that provides up to 75% lighting energy savings and reduces installation costs by 25% with respect to traditional wired systems, as no additional wiring is required.

e-SaveLux consists of a multisensor network that incorporates presence and luminosity sensors to detect zone occupancy and measure room lighting levels and send the data to receivers that control luminaire light levels and provide the dimming function in order to achieve maximum energy saving at all times.

This system provides automatic lighting control by switching on and off the lights in different building zones depending on their occupancy and by dimming lighting to its optimum level as required in each situation. Particularly designed for rehabilitation and refurbishment of installations, this system is conceived for small to medium buildings, with no additional wiring requirements since it uses the electric mains to transmit data between the various devices in the installation.

Automatic light dimming

75% lighting energy savings

25% savings on installation costs

Meets building standards on energy saving

No additional wiring to install

No computer required for commissioning

LonWorks TP/FT-10

Light dimming

Lighting Control System

MS.222000-000

Integrated Lighting/Clima energy efficiency solution

There is a growing need for lighting and HVAC control in office building environments to get accurate energy savings, properly managing the services depending on the occupancy state and the natural lighting striking inside the building, to get the maximum energy saving as possible. There is a twofold objective: switching off the services on unoccupied zones and do an automatic light dimming to adjust the lighting at a predefined setpoint value.

In this application note, the e-Multisensor Bus TP/FT-10 device is measuring the light level of the zone and compares it with the predefined setpoint value, obtaining as a result the level at which the luminaires must be set. This result together with the zone occupancy status provided by the motion sensor is sent to the lighting control system for the dimming process. When people in a zone moves to other zone on the building, the motion sensor changes to unoccupancy mode and stops the HVAC system or turns it to ECO mode, switching off the lighting system or dimming it to a low level value.

The communication bus ensures the device integration with the building global management control system to allow the occupancy status and light level values monitoring through an SCADA application for a further analysis.

Occupancy detection and Light sensor

Maximum savings with constant light controller

Automatic switch-off in unoccupied zones

Integrable LonMark Open System

LonWorks® TP/FT-10 network

Industry | e-Controller 2In2Out Autoinstall

Switching contacts remote control through the mains electrical network

Applications:

1 Water Treatment Plant

EC.512207-000

Inputs and outputs remotely controllable with no new wires

The **e-Controller 2In2Out Autoinstall** is a device designed to do a remote control of its outputs relays from the input contacts of an equivalent remote e-Controller. With this system it is possible to monitor the input status of the remote device watching at the values on the outputs of the near device.

A data transmission system that takes the advantage of using the mains electrical network as a transmission channel is used on the device to communicate with other devices, making it particularly interesting on places where additional wires are difficult or impossible to install for cost reasons.

The digital inputs of the device can be configured to work as pushbuttons or switch contacts. Some pushbuttons and led indicators are included on the front panel of the device to test the outputs and monitor the inputs status. An auto-installation mechanism is included on the device for input and output logical connections up to 26 devices, with no computer required for commissioning.

The system has multiple applications both in industry and buildings: water level status monitoring in pump wells, motor on-off remote control, machinery switching on and off, etc.

Input contacts remote monitoring

Relay outputs remote switching

No computer required for commisioning

No additional wiring required for data transmission

Robust and reliable transmission

LonWorks® network

DATASHEET

Remote Control

• Input contacts status monitoring
• Remote outputs direct control
• Data transmission reliable

BMS monitoring and control

• Inputs status monitoring in SCADA application
• Output relay status control

Integration

• ISO/IEC 14908 LonWorks® network
• LonMark® compatible

Installation

• Data transmission using the mains electrical network
• No computer required for commisioning

Features

• Supply Voltage 95-250Vac 50/60Hz
• Two phase contact digital inputs
• Digital inputs configurable as pushbutton or contact
• Two phase contact 5Amp relay outputs
• Input status LED indicators
• Outputs test pushbuttons and outputs status LED indicators
• Auto-intallation mechanism between e-Controllers
• Mains electrical network for data transmission (PowerLine)
• ISO/IEC 14908 LonWorks® network
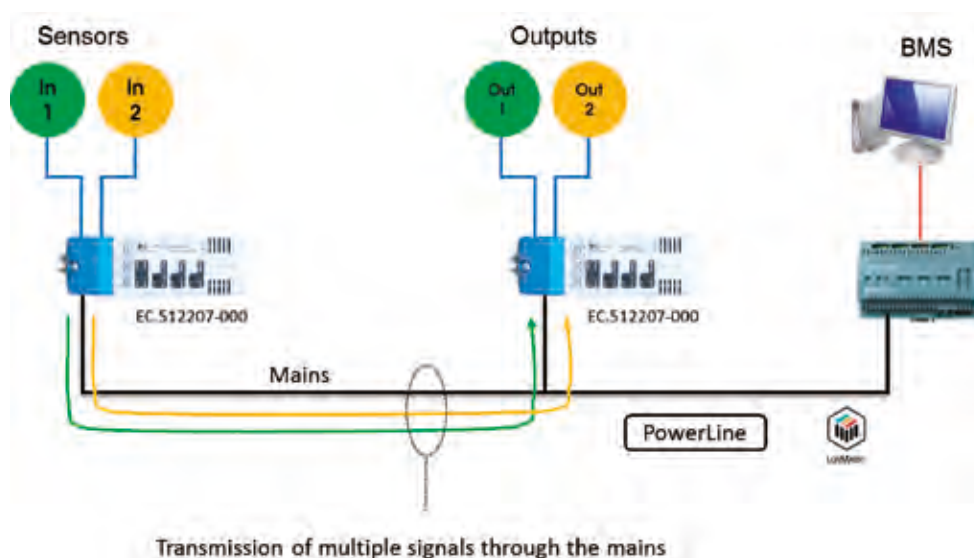• LonMark® Open Systems integrable

Ordering number

**EC.512207-000
e-Controller 2In2Out
Autoinstall**

LONMARK® CE

e-Controller 2In2Out Autoinstall

Input / Output Diagrams
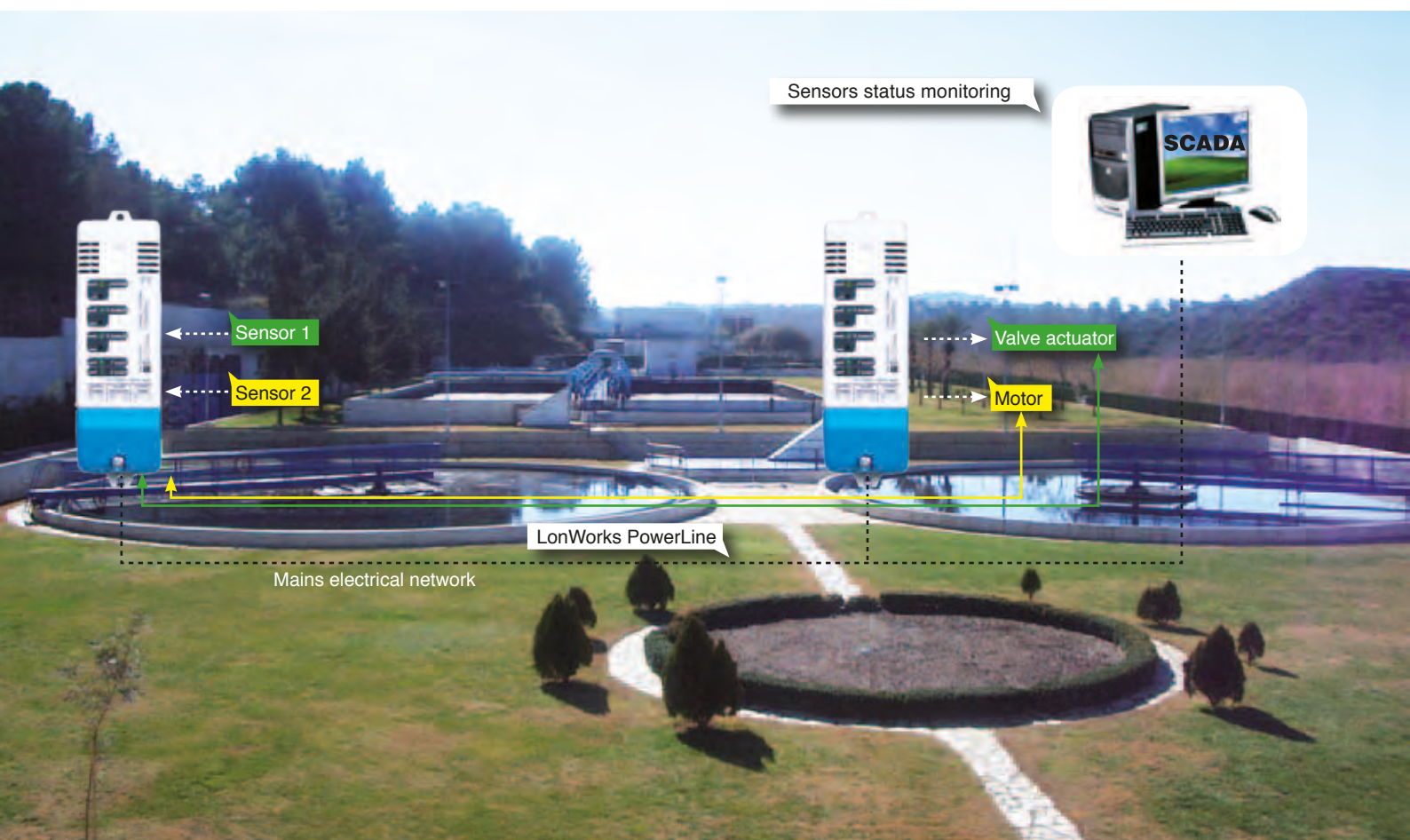
Transmission of multiple signals through the mains

Industry | e-Controller 2In2Out Autoinstall

Remote sensors control through the mains electrical network

1 Application Water Treatment Plant

Sensors status monitoring

SCADA

Sensor 1

Sensor 2

Valve actuator

Motor

LonWorks PowerLine

Mains electrical network

Control signals transmission using the mains electrical network

The aim of this application note is to transmit the sensors status signals connected to an e-Controller device to another remote e-Controller device that will show on its relay outputs the inputs status connected on the first device. The main advantage of this application note is the control transmission system between the e-Controller devices which are using the mains electrical network, preventing to install new wires for the communication, which in most cases are not possible.

Two digital inputs are available on the **e-Controller 2In2Out Autoinstall** device to which different sensors are connected for the plant control, with the aim to transmit the inputs status to another e-Controller with two relay outputs available to monitor the inputs status of the remote e-Controller. No computer is required for commissioning since an advanced algorithm is included on the e-Controller devices to automatically configure the logical addresses between the digital inputs of one e-Controller transmitter and the output or outputs of one or more e-Controllers receivers. This mechanism is done using the mains electrical network and can be extended with up to 26 different devices with the auto-installation system.

Multilple signals through the mains electrical network

Robust and reliable transmission

No computer required for commisioning

Robust and reliable transmission

SCADA application for signal monitoring

ACCESSORIES

e-Sensor: Flush mounting universal Presence Detector for rooms

Description: 1 free contact output NO-0-NC, Supply Voltage 24Vac/24Vdc

Ordering numbers:

Pure white front panel - Bticino Light DP.100100-000
Mat aluminium front panel - Bticino Light DP.100100-001
Pure white front panel - Simon S.82 .... DP.100101-000
Mat aluminium front panel - Simon S.82 .... DP.100101-001

e-Temp: Flush mounting temperature sensor

Description: One NTC 10K output compatible with e-Room and e-Room Plus HVAC room controllers analog input.

Ordering numbers:

Pure white front panel - Bticino Light AC.000100-000
Mat aluminium front panel - Bticino Light AC.000100-001
Pure white front panel - Simon S.82 .... AC.000101-000
Mat aluminium front panel - Simon S.82 .... AC.000101-001

e-Temp Surface: Surface mounting temperature sensor

Description: One NTC 10K output compatible with e-Room and e-Room Plus HVAC room controllers analog input.

Ordering numbers: AC.000102-002

Electromagnetic transformer for suplying devices

Ordering numbers:

Input Voltage: 230 Vac / Output Voltage: 24 Vac / Power: 20VA   AC.300000-000

Input Voltage: 110 Vac / Output Voltage: 24 Vac / Power: 10VA   AC.400000-000

Three phase coupler for LonWorks Powerline networks 95-230Vac, DIN rail mounting

Device for communications signal retransmission transmitted by other PowerLine device to other mains electrical phase.

Ordering numbers: AF.511300-000 Three phase coupler, non isolated version, R-S-T-N / L1-N1
                             AF.511301-000 Three phase coupler, isolated version, R-S-T-N / L1-N1

PowerLine Band elimination filter 115KHz-132KHz, 250Vac, 63Amp, single phase, DIN rail mounting

Electromagnetic noise filtering device caused by other devices on the mains network using the same frequency than the PowerLine band.

Ordering numbers: 10-0000304

PowerLine Line filter 115KHz-132KHz, DIN rail mounting

Supression of high frequency interfering signals for high noise level installations.

Ordering numbers: 10-0000302

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