Controllers for comfortable indoor climate and energy efficiency

Produal controllers are widely used in various commercial and public facilities to implement optimal room climate control. The best possible indoor environment is offered for hotel guests, office staff, audience members or patients by ensuring versatile and precise detection and on-demand control. Having three adjustable operation modes (Day, Night and Save), the control units also help to make energy consumption savings without compromising the comfort of room climate. Modern, intelligent building calls for the use of heating, cooling, comfort ventilation and fan coils only when needed. This ensures cost efficiency and minimises the global environmental impact.

We are working with you to help to design proven room solutions for projects and provide excellent services using our extensive and easy-to-install room controller selection, enabling intelligent control both now and in the future.
Cutting edge controllers

for all types of building automation applications

Our expertise manifests itself in a wide offering of multifunctional and reliable controllers with functionalities from chilled beams, radiators and fan coils to VAV and beyond. Our offering covers single room or zone control, integration to intelligent building automation systems and complete interoperability with overall building management, in larger or smaller scale applications. Our selection and designs cater for all budgets.

1. Controllers for hidden installation and room units
   - Controllers for false ceiling mounting or other hidden installation
   - Less cables through walls
   - Various room units for different needs
   - Add-on capabilities in room units for more functions

2. Room controllers
   - All connections in the same unit
   - Various controller types for different requirements
   - Add-on sensor or button capability for more functions

3. Universal controllers
   - Controllers for a wide area of use
   - Control heating, ventilation, pressure, humidity or other
   - Available with various functions for different applications

4. Transmitters with control output
   - One control output, and different measurement outputs
   - Control a damper, cooling actuator directly from the transmitter
   - Add-on capabilities for more functions
Controllers for hidden installation and room units

The advanced C2xx product family control units are designed for easy false ceiling mounting, fan coil unit or other hidden installation and flexibility. All the wiring is done to the control unit and multifunctionality enables one room controller to be used for various functionalities. Also, all the control parameters are configurable, which makes the C2xx family highly adaptable for your future needs.

Our selection of room units offers the possibility of easy-to-use, high-class applications or simple, but stylish solutions. Combining different sensors in one housing removes the need for separate sensors in the room. The units have a user-friendly interface with options to be chosen depending on the requirements of the room. This makes the system flexible and future proof.

Example applications:

**Hotel room application with fan coil and cascade controlled floor heating**

C230 controls a 3-speed fan coil unit with heating, cooling and a damper actuator for ventilation/cooling in sequence. The heated floor is controlled with a 0...10 V actuator within minimum and maximum limits depending of the total heating demand of the room. The key card switch changes the operation mode of the controller between night mode (for energy saving) and day mode (comfort).
Conference room application with chilled beams and radiators
C221 controls chilled beams with cooling and a damper actuator for ventilation if the CO2 values are too high, or if there is a cooling demand. Heating is controlled with radiators. The PIR occupancy sensor changes the operation mode of the controller between night mode (for energy saving) and day mode (comfort).

Conference room application with fan coil
C230 controls a 3-speed fan coil unit with heating, cooling and a damper actuator for ventilation if the CO2 value are too high, or if there is a cooling demand. Heating is controlled with radiators. The PIR occupancy sensor built-in the active transmitter changes the operation mode of the controller between night mode (for energy saving) and day mode (comfort).

Hotel room application with fan coil and cascade controlled floor heating
C222 with RL203 controls a 3-speed fan coil unit with heating, cooling and a damper actuator for ventilation/cooling in sequence. The heated floor is controlled with a 0…10V actuator within minimum and maximum limits depending on the total heating demand of the room. The key card switch changes the operation mode of the controller between night mode (for energy saving) and day mode (comfort).
The C2xx product family is designed for hidden installation. C221 is expandable for on/off dampers in 3 steps, and C222 for 3-speed fan coils with relay unit RL203. C230 has three built-in relays for on/off dampers in 3 steps or 3-speed fan coil units. The controllers are equipped with 2 x 0...10 VDC outputs, 2 x 24 VAC outputs or 230 VAC (C230) outputs and 3 x 0...10 VDC/NTC10/Contact/Resistive inputs. C230 has an extra input just for occupancy detection or a key card switch. The I/O functions are adaptable for different functions. The control unit has a built-in, galvanic isolated RS-485 channel for communication via Modbus and it can be connected to any supervisory Modbus RTU software/system. C221 and C222 are supplied with 24 VAC and C230 with 230 VAC. The basic models can be complemented with room units for a complete room solution.

**C221-01 1155050 control unit**

**C222-01 1155060 control unit with relay control port**

**C230 1155110 230V room temperature controller**

ROU-S 1150380 room operating unit (surface mounting)

ROU-F 1150390 room operating unit (flush mounting)

ROU-PIR-opt 1150381 PIR sensor option, for occupancy detection

ROU-S-CO2-opt 1150382 CO₂ sensor option, only for ROU-S

ROU-RH-opt 1150383 humidity option

Room unit with touch screen and modbus. Use together with C2xx-series or only as a modbus slave. ROU has an innovative and easy GUI and some symbols can be hidden from the user. The automatic screensaver saves the display and energy. Add-on modules are available as an option for added functionality.

E121-01 1155080 room unit (set point potentiometer)

E122-01 1155081 room unit (set point potentiometer + fan speed control switch)

E123-01 1155082 room unit (set point potentiometer + timer)

A simple room unit with an extra button for output forcing or temporary daytime timer (1-5h).

E201-01 1155090 room unit with display

A simple room unit with a display and 2-button setpoint adjustment. The lid hides the function buttons so that you don’t accidentally push the settings buttons. E201 allows for access to the settings menus for configuration or parameter changes.

E202-01 1155091 room unit with display and fan speed control
Room controllers

HLS- and R-series room controllers are flexible controllers with all the intelligence and connections in the same unit. There are models available for advanced, multifunctional control needs and for simpler and more affordable requirements. Depending on the room requirements, the controllers can be adapted or adjusted to suit most control needs, covering both bus and analogue products. The configuration possibilities of all the control parameters make the units highly adaptable for your future needs.

Application examples:

**Conference room application with chilled beams and radiators**
HLS 44-CO2 controls chilled beams with cooling and a damper actuator for ventilation if the CO₂ values are too high, or if cooling is required. Heating is controlled with radiators. The PIR occupancy sensor changes the operation mode of the controller between night mode (for energy saving) and day mode (comfort).

**Room application with fan coil, radiators, chilled beams and CO₂ sensor**
HLS 44 controls a fan coil unit with heating, cooling and a damper actuator for ventilation/cooling in sequence. A damper actuator opens for ventilation if the CO₂ values are too high, or if cooling is required. The key card switch changes the operation mode of the controller between night mode (for energy saving) and day mode (comfort).
HLS 44  1150250  room temperature controller

An advanced multifunctional controller specifically designed for individual room temperature and zone control applications. The controller supports 0...10 V controlled actuators, fan speed, thermal actuators and 0...10 V controlled dampers. The controller has a built-in, galvanic isolated RS-485 channel for communication via Modbus and it can be connected to any supervisory Modbus RTU software/system.

There are also several HLS 44 variations offered, such as HLS 44-CO2 with a built-in CO₂ sensor, HLS 44-EC with selectable voltages for fan speed control output, HLS 44-V for fan coil VAV and light control, HLS 44-3P for 3-point actuator control, HLS 44-6W for 6-way valve control, HLS 44-BAC with BACnet communication and HLS 45 for both 2-pipe FCU and floor heating and cooling applications.

Also, simple 1-stage controller HLS 16, 2-stage controller HLS 21 and 2- or 3-stage controller HLS 33 are available.

RS102-01  1155030  room controller

A versatile control unit specifically designed for individual room temperature and zone control applications. An additional button to force an output during 2h time can be useful in conference rooms etc. Controller supports 0...10 V controlled actuators, thermal actuators and 0...10 V controlled dampers.

R402  1155120  room controller

A versatile room controller for individual room temperature and VAV control applications. The controller supports 0...10 V controlled actuators and thermal actuators and 0...10 V controlled dampers. The controller can be connected to any system that supports Modbus RTU protocol by using the RS-485 connection. The bus is galvanically isolated from the controller’s other electronics.
Universal controllers

PDS and HS universal controllers have a wide area of use. The parameters can be adapted to suit different types of heating, ventilation, pressure, humidity control or other applications. The universal controllers are available with different functions depending on the control application.

Application examples:

Heating control with radiators, outdoor temperature sensor, heating water sensor and room temperature sensor
PDS 2-H controls the incoming water temperature in the radiator depending on the set point, outdoor temperature and indoor temperature. The control of the actuator is made with an adjustable control curve for optimal performance.

Ventilation control with HS 2.2
HS 2.2 controls the damper actuator to keep a constant air pressure.

For other applications, please contact your sales person at Produal.
PDS 2     1150120  controller
A temperature controller for air handling unit, hot domestic water and heating applications. The controller supports Pt1000 temperature sensors. The thermal actuators can be either 0...10 V controlled or 3-point controlled. Commissioning and settings will be made by using built-in display and buttons. The controller has RS-485 connection for Modbus RTU communication.

PDS 2.2  1150150  universal controller
A universal controller, which can be used for controlling pressure, differential pressure, humidity and temperature. Input of PDS 2.2 is for a 0-10V signal. Actuators may be 0-10V controlled and 3-point or thermic actuators. Commissioning and settings will be made by using built-in display and buttons. The controller has RS-485 connection for Modbus RTU communication.

HS 2.2-M  1150290  universal controller, room housing
A universal controller for HVAC applications. The controller can be used for controlling e.g. pressure, differential pressure, temperature or illumination level. The controller can be connected to any system that supports Modbus RTU protocol by using the RS-485 connection. The bus is galvanically isolated from the controller’s other electronics.
The Produal transmitters can be also used as single sequence controllers for heating/cooling and ventilation.

On the table below you can see a list of our transmitters with control output and related functionalities.

For more information, please see the transmitters section online or in our product catalogue.

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<th>Transmitters with control output</th>
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The controller outputs can be equipped with relays and different signal transformers or signal splitters. We have a wide selection of system components that completes the functionality.

For easy commissioning of the controllers, we offer different tools to access and configure the controller’s settings. H203 is a commissioning tool for the C2xx control units. Connect the commissioning tool directly to the control unit or through an E12x room unit. The H203 allows for access to the settings menus for configuration or parameter changes. HLS 44-SER commissioning tools are available for all the HLS temperature controllers. ML-SER tool is designed for easy commissioning and configuration of Produal transmitters.

To make sure that your projects will have the right control system, we offer our customers Adaption Service to preconfigure the controllers and transmitters, together with documentation and technical drawings. We also offer Advisory Service to help the planners with product selections, function diagrams, function description texts and CAD files.

Our service includes punctual delivery, 5-year warranty, and online services.
FINLAND

Kotka
Produal Oy
Keltakalliontie 18
48770 Kotka

tel. +358 10 219 9100
fax. +358 5 230 9210
info@produal.fi
www.produal.com

Swedish
Produal Sverige AB
Solkraftsvägen 16 A
13570 Stockholm

tel. +46 8 555 985 80
info@produal.se
www.produal.se

Denmark
Produal A/S
Generatorvej 8H
2860 Soeborg

tel. +45 70 26 03 04
info@produal.dk
www.produal.dk

France
Produal S.A.S.
16, rue Albert Einstein
77420 Champs sur Marne

tel. +33 1 71 40 50 49
info@produal.fr
www.produal.fr

Poland
Produal Oy – Sales office
Farbliarska Street 63 b
02-862 Warsaw

tel. +48 536 036 677
info@produal.pl
www.produal.pl

More product information:

Other countries
Produal Oy Partner sales
tel. +358 10 219 9100
partnersales@produal.com