Argus-RC-CDO

Pre-programmed room controller with display and communication

Argus-RC-CDO is a complete pre-programmed room controller from the Argus series intended to control heating and cooling in a zone control system.

- **Awarded design**
- **Communication via RS485 (Modbus or EXOline)**
- **Fast and safe configuration via Regio tool©**
- **Simple installation**
- **On/Off or 0...10 V control**
- **Backlit display**
- **Input for occupancy detector, window contact, condensation detector and change-over function**

Argus-RC-CDO is a room controller from the Argus series. It has a display and communication via RS485 (Modbus or EXOline) for integration into systems.

Argus

Argus is a wide series of controllers which handle heating and cooling.

The controllers are divided into three different series; pre-programmed, stand-alone controllers, freely programmable controllers with communication and pre-programmed controllers with communication, to which Argus-RC-CDO belongs.

Applications

The Argus controllers are suitable in buildings where you want optimal comfort and low energy consumption, for example offices, schools, shopping centres, airports, hotels and hospitals etc.

See application examples on page 3.

Design

The controllers have a modern design. The design has been awarded the 2007 “iF product design award”.

product design award 2007

Sensor

The controller has a built-in sensor. An external Pt1000-sensor can also be used.

Actuators

Argus-RC-CDO can control 0...10 V DC valve actuators and/or 24 V AC thermal actuators.

Easy to install

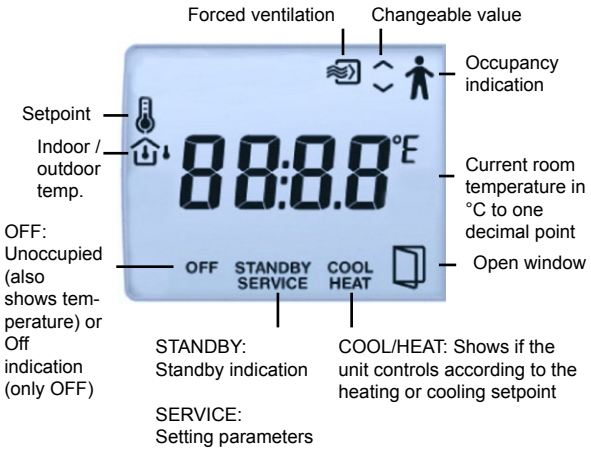
The modular design with a separate bottom plate for wiring makes the whole Argus series easy to install and commission. The bottom plate can be put into place before the electronics are installed. Mounting is directly on the wall or on an electrical connection box.

Flexibility with communication

Argus-RC-CDO can be connected to a central SCADA-system via RS485 (EXOline or Modbus) and configured for a particular application using the cost-free configuration tool Regio tool©. Read more about Regio tool© on page 3.

Display handling

The display has the following indications:



It is possible to set different parameter values in a parameter menu in the display, using the buttons on the controller. You change parameter values with the INCREASE and DECREASE buttons and confirm changes with the Occupancy button.

Control states

Argus-RC-CDO can be configured for different control states/
control sequences:

- Heating
- Heating or cooling via the change-over function
- Heating/Heating
- Heating/Cooling
- Heating/Cooling with VAV-control and forced supply air function
- Heating/Cooling with VAV-control
- Cooling
- Cooling/Cooling

Operating modes

There are five different operating modes: Off, Unoccupied, Stand-by, Occupied and Bypass. Occupied is the preset operating mode. It can be changed to Stand-by in the parameter menu in the display. The operating modes can be activated via a central command, an occupancy detector or the Occupancy button.

Off: Heating and cooling are disconnected. However, the temperature must not drop below the set minimum temperature (Factory setting (FS)=8°C). Operating mode Off is activated on open window.

Unoccupied: The room where the controller is placed is not used for an extended period, for example during holidays or long weekends. Both heating and cooling are disconnected within a temperature interval with configurable min/max temperatures (FS min=15°C, max=30°C).

Stand-by: The room is in an energy save mode and is not used at the moment. This can for example be during nights, weekends, evenings etc. The controller is prepared to change operating mode to Occupied if someone enters the room. Both heating and cooling are disconnected within a temperature interval around the applicable setpoint (FS heating setpoint value=-3°C, cooling setpoint=+3°C).

Occupied: The room is in use and is therefore in a comfort mode. The controller regulates the temperature around a heating setpoint (FS=22°C) and a cooling setpoint (FS=24°C).

Bypass: The temperature in the room is controlled in the same way as in operating mode Occupied. The output for forced ventilation is also active. Bypass is useful for example in conference rooms, where many people are present at the same time for a certain period of time.

When Bypass has been activated by a press on the Occupancy button, the controller will automatically return to the preset operating mode (Occupied or Stand-by) after a configurable time (FS=2 hours).
If an occupancy detector is used, the controller will automatically return to the preset operating mode after 10 minutes absence.

Occupancy detector

By connecting an occupancy detector, Argus-RC-CDO can switch between Bypass and the preset operating mode (Occupied or Stand-by). The temperature is then controlled according to requirement, which saves energy and keeps the temperature at a comfortable level.

The Occupancy button

If you press the Occupancy button for less than 5 seconds when the controller is in the preset operating mode, the controller changes to operating mode Bypass. If you press the button for less than 5 seconds when the controller is in Bypass, it changes operating mode to the preset operating mode.

When the Occupancy button is held depressed for more than 5 seconds, the controller changes operating mode to "Shutdown" (Off/Unoccupied), regardless of the current operating mode. Via the display or Regio tool©, you can configure which operating mode, Off or Unoccupied, should be activated on "Shutdown" (FS=Unoccupied). If you press the Occupancy button for less than 5 seconds in Shutdown, the controller returns to Bypass.

Forced ventilation

Argus has a built-in function for forced ventilation. A short press on the Occupancy button activates output DO1 for example for a damper.

Change-over function

Argus-RC-CDO has an input for change-over that automatically resets output UO1 to operate with heating or cooling function. The input can be connected to sensors of type PT1000 and have the sensor mounted so that it senses the temperature on the supply pipe to the

coil.

When the temperature exceeds 22°C, the output function is set to heating and when the temperature drops below 18°C, the output is set to cooling.

As an alternative, a potential-free contact can be used. When the contact is open the controller works with the heating function and when it is closed, with the cooling function.

To ensure satisfactory functioning using sensor, the system must have continuous primary circuit circulation. When the change-over function is not used, the input must be left disconnected.

Setpoint

In Occupied mode, the controller operates from a heating setpoint (FS = 22°C), or a cooling setpoint (FS = 24°C) that can be changed using the INCREASE and DECREASE buttons.

Pressing on INCREASE increases the current setpoint by 0.5°C with each press up to the max. limit (FS = +3°C). Pressing on DECREASE decreases the current setpoint by 0.5°C with each press down to the min. limit (FS = -3°C).

Switching between heating and cooling setpoints is done automatically in the controller depending on the heating and cooling requirement.

Built-in safety functions

Argus-RC-CDO has an input for a condensation detector which prevents condensation. The controller also has frost protection. It prevents frost damages by ensuring that the room temperature does not drop below 8°C when the controller is in Off-mode.

Actuator exercise

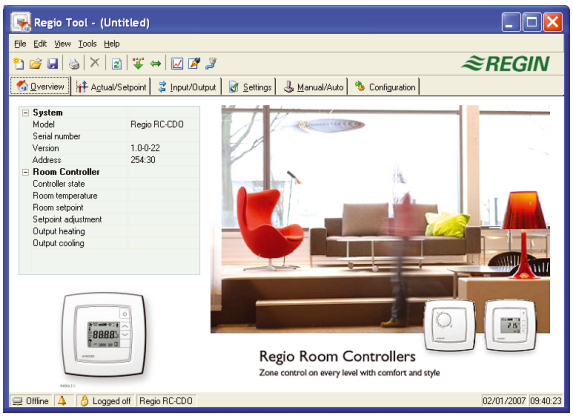
All actuators are exercised. The exercise takes place at set intervals in hours (FS=23 hours interval). An opening signal is sent to the actuator for as long time as the run time has been configured. Then a closing signal is sent for as long time and the exercise is finished.

Configuration and supervision with Regio tool©

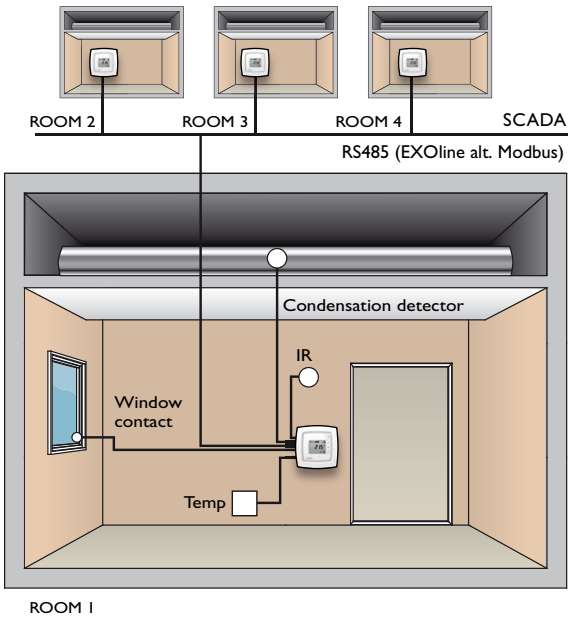
Argus-RC-CDO is pre-programmed on delivery, but can be configured using Regio tool©.

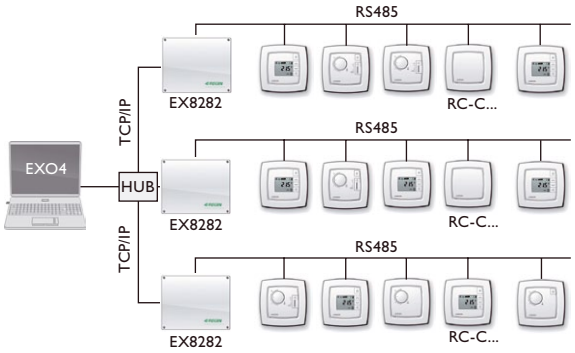
Regio tool© is a PC-based program that makes it possible to configure and supervise an installation, and change settings, via a clear and easy user interface.

The program can be downloaded free of charge from Regin's homepage www.regin.se.



Application examples





Technical data

Supply voltage	18...30 V AC, 50...60 Hz
Internal consumption	2.5 VA
Ambient temperature	0...50°C
Storage temperature	-20...+70°C
Ambient humidity	Max 90% RH
Protection class	IP20
Communication	RS485 (EXOline or Modbus) with automatic detection/change-over
Modbus	8 bits, 1 or 2 stop bits. Odd, even (FS) or no parity.
Communication speed	9600 bps (not changeable)
Display	LCD with background illumination
Built-in temperature sensor	NTC type, measuring range 0...50°C, accuracy ±0.5°C at 15...30°C
Material, casing	Polycarbonate, PC
Weight	110 g
Colour	Cover: Polar white RAL9010 Bottom plate: Light gray
CE	This product conforms with the requirements of European EMC standards CENELEC EN 61000-6-1 and EN 61000-6-3, and the requirements of European LVD standard IEC 60 730-1. It carries the CE mark.

Inputs

External room sensor	PT1000-sensor, 0…50°C. Suitable sensors are TG-R5/PT1000,TG-UH/PT1000 and TG-A1/PT1000.
Change-over alt. potential-free contact	PT1000-sensor, 0…100°C. Suitable sensor is TG-A1/PT1000.
Occupancy detector	Closing potential-free contact. Suitable occupancy detector is IR24-P.
Condensation detector alt. window contact	Condensation detector S-KG-A/1 resp. potential-free contact

Outputs

Forced ventilation	24 V AC actuator, max 0.5 A
Valve actuator alt. thermal actuator	2 outputs
Valve actuator	0…10 V DC, max 5 mA
Thermal actuator	24 V AC, max 2.0 A
Control	Heating or cooling
Actuator exercise	FS = 23 hours interval
Terminal blocks	Lift type for cable cross-section 2.1 mm^2

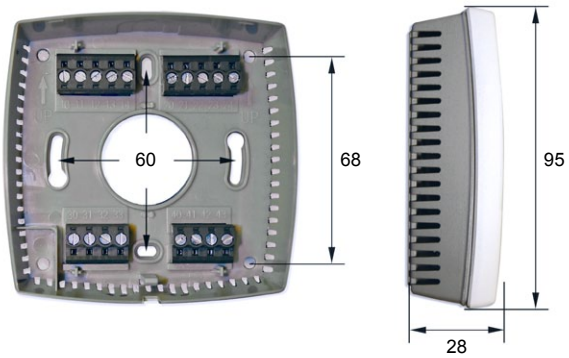
Setpoint settings via Regio tool© or in the display

Basic heating setpoint	5...40°C
Basic cooling setpoint	5...50°C
Setpoint displacement	±0...10°C (FS = ±3°C)

Wiring

Terminal	Designation	Operation
10	G	Supply voltage 24 V AC
11	G0	Supply voltage 0 V
12	DO1	Output for forced ventilation
13-14		No function
20	GDO	24 V AC out common for DO
21	G0	0 V common for UO (when 0...10 V actuator is used)
22		No function
23	UO1	Output for 0...10 V valve actuator alt. thermal actuator. Heating or cooling.
24	UO2	Output for 0...10 V valve actuator alt. thermal actuator. Heating or cooling.
30	AI1	Input for external sensor
31	UI1	Input for change-over sensor alt. potential-free contact
32	DI1	Input for occupancy detector
33	DI2/CI	Input for condensation detector S-KG-A/1 alt. window contact
40	+C	24 V DC out common for UI and DI
41	AGnd	Analogue ground
42	A	RU-Bus A
43	B	RU-Bus B

Dimensions



mm

Product documentation

Document	Type
Argus Manual	Manual for the controllers: Argus-RC-CDO, Argus-RC-CH, Argus-RC-CO and Argus-RC-C.
Installation instruction Argus-RC-CDO	Installation instruction for Argus-RC-CDO
Product sheet TG-R4/PT1000, TG-R5/PT... Product sheet TG-UH/PT... Product sheet TG-A1/PT...	Information about room sensors, outdoor sensors and strap-on sensors suitable for Argus-RC-CDO
Product sheet IR24-P	Information about occupancy detector suitable for Argus-RC-CDO
Instruction IR24-P	Instruction for IR24-P
Product sheet S-KG-A/1	Information about condensation detector for the Argus controllers

Systemair AB
Industrivägen 3, SE-739 30 Skinnskatteberg
Tel +46 222 440 00, Fax +46 222 440 99
mailbox@systemair.se • www.systemair.com