OP5

Preprogrammed, configurable controller for simple applications

Optigo 5 is a new preprogrammed, configurable controller intended for DIN-mounting that can be set to handle everything from temperature control or humidity control to CO_2 control or pressure control.

- **Language independent**
- **Simple configuration via the backlit display**
- **Input for an external setpoint device**
- **Pre-loaded with several application modes**
- **Simple handling with puch-/ turn knob**
- **Change-over**

Optigo OP5 is a new pre-programmed, configurable controller for HVAC applications. It has been designed with the main intention of replacing a number of Regin's Aqualine controllers.

From July 2010, it is possible to connect an external setpoint device. This applies to OP5 models with revision number R18.

Optigo

Optigo Regin's newest control series intended to control temperature, CO_2, pressure, humidity and domestic hot water in HVAC applications. A simple stand-alone controller for smaller applications. The controller is extremely easy to install, set-up and control and are mainly intended for smaller applications.

Optigo has a knob with an encoder which makes the menu system very easy to use. You can read and set values shown in the back-lit display. A value is approved by pressing the knob.

Models

The Optigo series comprises two different models, OP5 and OP10.

OP5 has 5 in-/outputs and OP10 has 10 in-/outputs.
OP5 is intended for 24 AC supply voltage.
OP10 is available in versions for both 24 V AC and 230 V AC.

Applications OP5

Optigo OP5 is preprogrammed with a choice of five different control modes:

- Temperature control
- CO_2
- Humidity control
- Pressure control
- Outdoor temperature compensated pressure control

Inputs and outputs

Optigo OP5 has:

- 1 analogue input, PT1000
- 1 SPI input for an external setpoint device
- 1 universal input, PT1000 or digital
- 1 digital input
- 2 analogue outputs, 0…10 V DC

Easy to install

Optigo is suitable for DIN-rail or cabinet mounting. Since the terminals are detachable all connections can be made before Optigo is installed.

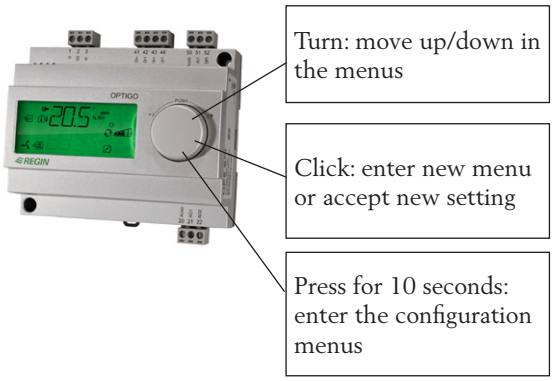
Optigo has been developed according to our Ready-Steady-Go concept, which simplifies every step from installation to management.

Display handling

On the display the following indications/information can be displayed. All setting and configuration is done using the display and encoder.

The menu information on the display is organised in a tree fashion. Using the encoder you can move between menus, set values and actual valve.

In any of the configuration menus, a click on the encoder will activate change mode. You can then turn the encoder button to move between choices or set values. A second click of the button will accept the choice.



The menu system is divided into two levels:

- Base level - view mode
- 10-second level - configuration area

Base Display

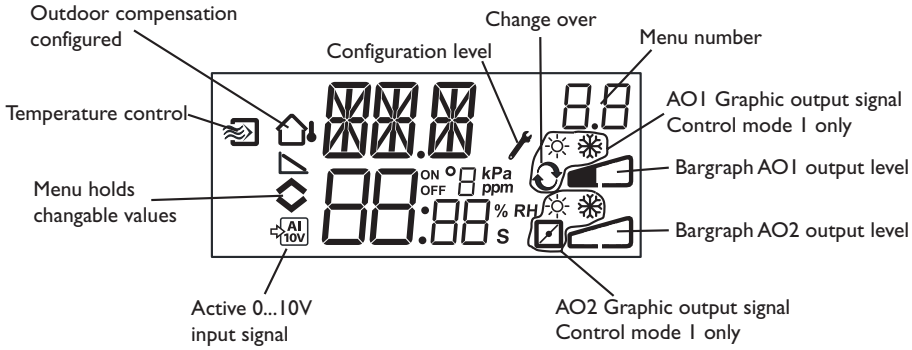
This is an example of the Base Display, the display that is normally shown when there is no operator activity.

The upper line shows which control mode has been configured, in this case control mode 1, Temperature control. The bottom line shows the actual value.
There are bar-graphs showing the current output levels. In control mode there are symbols showing how the outputs have been configured (Heating, Cooling, Damper or Change-over).

When the base display is shown, by turning the knob counter clockwise until the text I/O is displayed and then clicking on it, you can gain access to a menu where you can look at the values and states of all inputs and outputs.

To exit this menu again, click on the knob and then turn the knob clockwise and you will be returned to the Base display.

Display information



Configuration

All the configuration menus lie in the 10-seconds level. This level is accessed from the Base Display by clicking and holding the encoder knob for 10 seconds.

There are numerous configuration menus covering all available options and combinations.

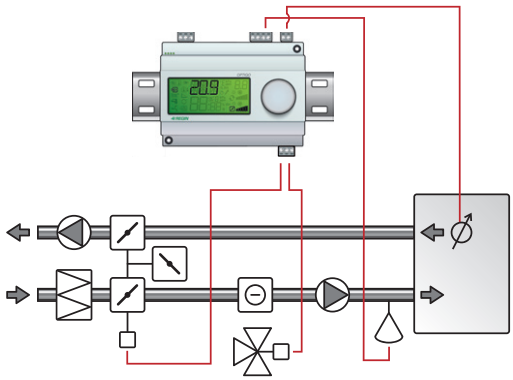
In some cases, making a certain choice in one menu will mean that you will only see certain other menus. For example, the menu for setting the damper minimum limit is only shown if you have configured AO2 to be a damper control output.

Application examples

Optigo OP5 can be configured to any one of the following control modes.

Temperature control

The temperature at the sensor is kept at the setpoint value by controlling the output signals on AO1 and AO2. The setpoint can be set directy in the display or via an external setpoint device. A single PI control loop is used.



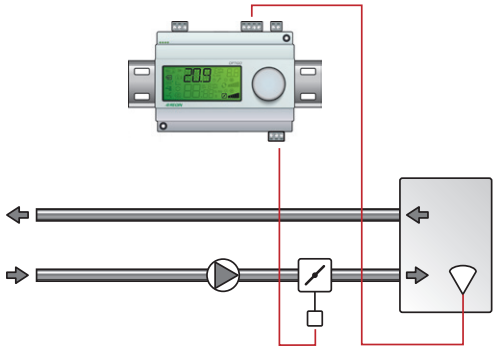
The analogue outputs can be configured to the following combinations:

AO1	AO2
1. Heating	**/ -**
2. Cooling	**/ -**
3. Heating	**/** Cooling
4. Heating	**/** Heating
5. Cooling	**/** Cooling
6. Heating	**/** Damper
7. Cooling	**/** Damper
8. Change-over*	**/ -**

* (Seasonal change-over between heating and cooling)

CO_2-control

The CO_2-value at the sensor is kept at the setpoint value by controlling the output signal on AO1. A single PI control loop is used.



The output signal will increase when the CO2-value rises above the setpoint value.

The CO_2-sensor must have a 0...10 V DC output. Use a Regin sensor according the information below:

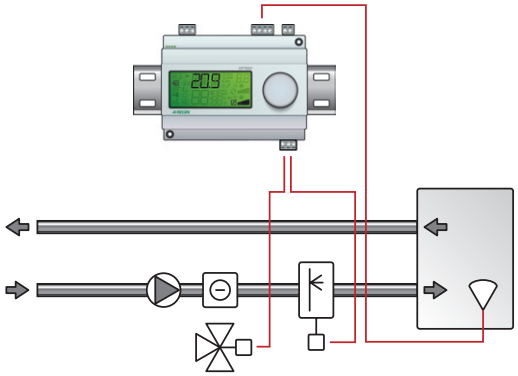
CO2RT, CO2RT-D Room sensors

CO2DT Duct sensor

The transmitter range cannot exceed 5000 ppm at 10 V DC output.

Humidity control

The humidity at the sensor is kept at the setpoint value by controlling the output signals on AO1 and AO2. AO1 is used for humidification, AO2 for dehumidification. A single PI control loop is used.



Humidification and dehumidification can be used simultaneously. A neutral zone can be set between humidification and dehumidification.

The humidity transmitter must have an output signal of 0...10 V DC. Use a Regin sensor according the information below:

HRT, HRT250 or **HRT350** Room humidity transmitters

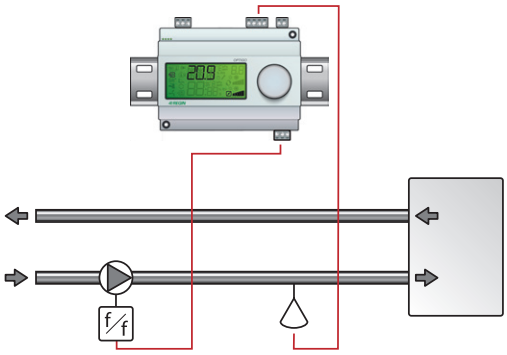
HDT2200 or **HDT3200** Duct transmitters

Humidity control

The humidity at the sensor is kept at the setpoint value

Pressure control

The pressure at the sensor is kept at the setpoint value by controlling the output signal on AO1. A single PI control loop is used.



The output signal will increase when the pressure signal falls below the setpoint value.

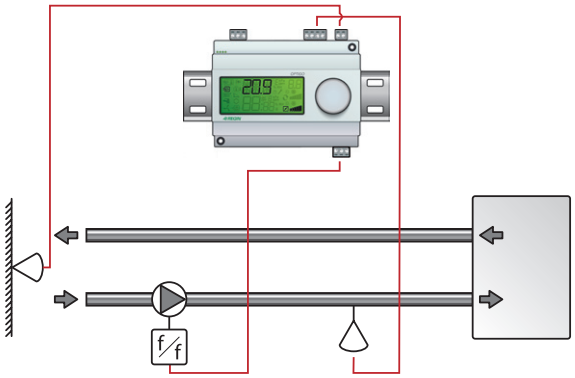
The pressure transmitter must have an output signal of 0...10 V DC. Use a Regin sensor according the information below:

DMD
DTL-series
DTK-series
TTK-series

Pressure ranges up to 500 kPa kan be set.

Pressure control with outdoor compensation

The pressure at the sensor is kept at the setpoint value by controlling the output signal on AO1. The setpoint is automatically adjusted according to the outdoor temperature. A single PI control loop is used.



The output signal will increase when the pressure signal falls below the setpoint value.

The setpoint value follows a settable pressure-to-outdoor temperature relation.

The pressure transmitter must have an output signal of 0...10 V DC. Use a Regin sensor according the information below:

DMD
DTL-series
DTK-series
TTK-series

Pressure ranges up to 500 kPa kan be set.

Technical data

Supply voltage	24 V AC; ±15%, 50...60 Hz
Ambient temperature	0...50°C
Storage temperature	-20...70°C
Ambient humidity	Max 90% RH
Display	Numeric / graphic. Background illumination
Protection class	IP20
Material casing	Polycarbonate, PC
Terminal blocks	Disconnectable, so-called lift type for cable cross-section 2.5 mm^2
Weight	215 g
Colour	Cover: Silver Bottom part: Dark gray
CE	This product conforms with the requirements of European EMC standards CENELEC EN 61000-6-1 and EN 61000-6-3, conforms with the requirements of European LVD standard IEC 60 730-1 and carries the CE mark

Inputs

Analogue inputs	Two
AI1	PT1000-sensor, range -30…+54°C, accuracy +/- 0.2°C
SPI	PT1000 setpoint device, measuring range 0...40°C, accuracy +/- 0.2°C
Universal Input	One analogue- or digital input
AI	0…10 V DC, accuracy +/- 0.15 % of full output
or DI	Closing potential-free contact
Digital Input	One
DI	Closing potential-free contact

Outputs

Analogue outputs	Two
AO	0…10 V DC; 8 bit D/A short-circuit protected

Settings

Setpoints

Temperature setpoints

Temperature	-20..40°C
Via external setpoint device	0....40°C
Hystereses	0...10°C
P-band	0…99°C
I-time	0…990 sec.
Min.-limit damper	0…99 %

Other Settings

Setpoints	
CO_2	0...6534 ppm (The settable range corresponds to the sensor measuring range)
Humidity (RH)	0...100% (The settable range corresponds to the sensor measuring range)
Pressure (Pa)	0...500 kPa (The settable range corresponds to the sensor measuring range)
Hystereses	5% of max. (only humidity)
P-band	0...100% corresponding to the sensor measuring range (exept pressure 0...300%)
I-time	0…990 sec.
Outdoor compensation, start	-30…50°C
Pressure at -20°C outdoor temp.	50 Pa...500kPa

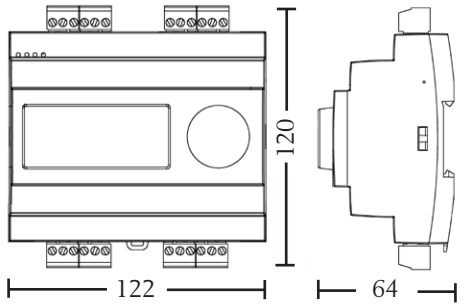
Wiring

OP5

Terminal	Designation	Operation
10	G	24 V AC Optigo 10 only
11	G0	
12	⊣ıı·	

Terminal	Designation	Operation
20	A_{GND}	Reference for AO1 and AO2
21	AO1	0...10 V DC output
22	AO2	0...10 V DC output
41	DI+	Reference for DI1
42	DI1	Digital input
43	UI+	Reference for UI1 Digital mode
44	UI1	Universal 0...10 V DC or digital input
50	A_{GND}	Ref. for AI1, AI2 and UI1 anologue
51	AI1	PT1000 temperature sensor input
52	SPI	Input PT1000 setpoint device

Dimensions



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Product documentation

Document	Type
Optigo Manual	Manual for the Optigo OP5

The product information is available for download from www.regin.se.

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