

POLYGYR<sup>®</sup>  
**Temperature controller**  
for Comfort control in HVAC systems

**RWC62**



Fully autonomous, electronic temperature controller with P or PI response. Two temperature inputs for LG Ni 1000 Ω temperature sensors. One digital input for summer/winter or day/night changeover. Two modulating outputs with DC 0...10 V signal output, direct or indirect action. Entering or changing of all data via operating buttons on the controller, possible without additional tools.

**Use**

The temperature controllers are primarily intended for ventilating and air conditioning plants. It can be mounted separately in a control panel or in the ARG62.101. housing in ducts, on walls and in plant rooms.

**Application functions**

- **Controller**  
Individual controller with two direct acting DC 0...10 V outputs with independent adjustment for heating and/or cooling. Adjustable proportional band and common integral action time.
- **Auxiliary controllers**  
Analog input B2 for one of the following functions:
  - PI limitation
  - Remote setpoint
  - Temperature differential control
  - Setpoint compensationDigital input D1 for one of the following functions:
  - Setpoint changeover day/night
  - Operating mode changeover summer/winter

**Type summary**

Inputs		Outputs		Type
Analog	Digital	Analog	Digital	
2	1	2	0	RWC62

**Protective housing**

To use an RWC62 for wall mounting **ARG62.101**

## Equipment combinations

The following Landis & Staefa units can be connected to a RWC62 temperature controller.

### Units

### Data sheet no.

• Sensor with LGNi 1000 $\Omega$ temperature sensing element	17 to 19
• Remote setpoint transmitter type FZA21.11 (0...1000 $\Omega$ )	19..
• Air damper actuators with DC 0...10 V input	46..
• Valve actuators with DC 0...10 V input	45..
• Control valves	46..
• Signal converter SEM61.4 (SEA..) for current valve control	51.. or 47..
• Various signal converters at the outputs	34..

Other combinations with third-party units are possible, provided the input and outputs specifications match those of the POLYGYR® RWC62.

## Functions

The RWC62 is a temperature controller and conducts both primary and auxiliary functions. The respective mode is defined by entering the corresponding configuration and setting parameters via the buttons.

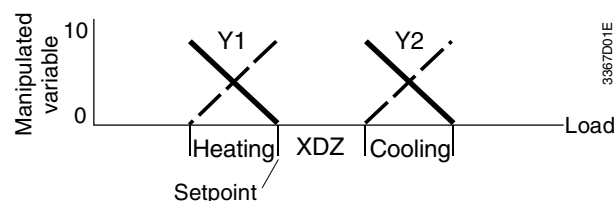
### Controller type

The RWC62 controller is used as an stand-alone controller with analog output or as a sequence controller with two analog outputs.

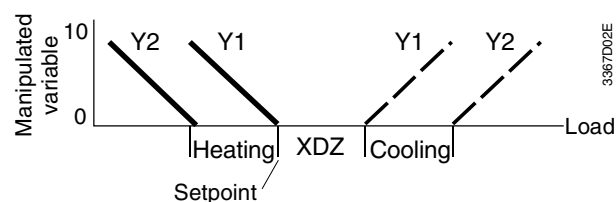
### Main functions

The RWC62 can be programmed as follows:

- One sequence: Y1 or Y2 heating or cooling
- Two sequences: Y1 and Y2 heating and cooling or  
Y1 and Y2 heating, heating or  
Y1 and Y2 cooling, cooling



Heating and/or cooling



Heating, heating or cooling, cooling

### Setpoint

The heating setpoint to be adjusted is assigned to heating sequence Y1.  
The cooling setpoint exceeds the heating setpoint by the dead zone setting XDZ.

### Zero energy band

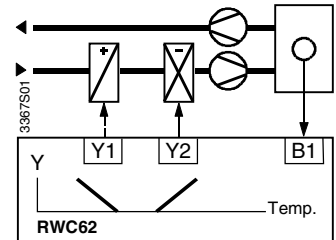
The dead zone between heating and cooling is defined by the XDZ setting.

Analog input B1	The analog input B1 is used exclusively for the main temperature sensor (Ni 1000 $\Omega$ ).
Analog input B2	The analog input B2 is used either as an auxiliary temperature input (Ni 1000 $\Omega$ ) or for the remote setpoint transmitter.
Digital input D1	The digital input D1 is used to select the setpoints or operating modes. Changeover occurs via potential-free contacts between D1 and GND.
Analog outputs	Each output Y (Y1, Y2) can be configured for either heating or cooling. The modulating voltage output (Y...) serves to control actuators with a DC 0...10 V signal input

### Example

Ventilating plant with temperature control

B1 = Room temperature  
 Y1 = Heating, reverse action  
 Y2 = Cooling, direct action



### Auxiliary functions

From the following auxiliary functions, one each can be configured:

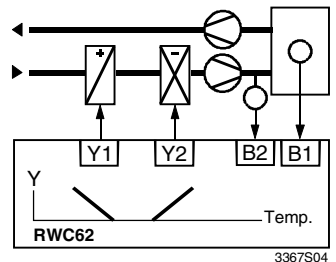
- PI limiter function
- Remote setpoint
- Temperature differential control
- Setpoint compensation

Additionally, one of the following functions can be selected:

- Day/night operation
- Summer/winter operation

### PI limiter function

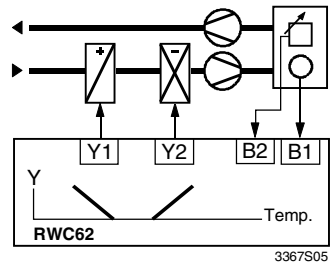
The PI limiter function with PI control enables absolute maximum or minimum limitation of the supply air temperature. When the value drops below or exceeds the limiter setpoint, the limiter function with PI control overrides the standard control function to maintain the limiter setpoint.



### Remote setpoint

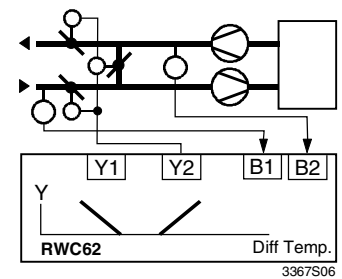
A remote setpoint transmitter (FZA21.11 or QAA25), connected to B2 and configured accordingly, assumes the function of the setpoint

Two ranges are available:  
 0... 50 °C  
 0...100 °C



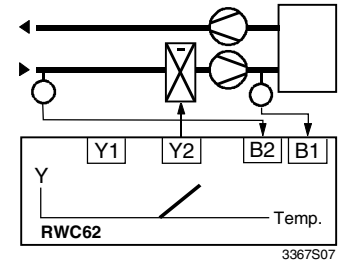
Temperature differential control

The controller forms the temperature differential from the measured values of sensors B1 and B2. If the differential exceeds the setpoint, the controller sends a corresponding output signal to outputs Y1 or Y2. On positive deviation B1–B2, the signal is set to Y2. On negative deviation, the signal is set to Y1.



Setpoint compensation

The temperature setpoint B1 is controlled by the temperature as measured at sensor B2. Configuration of the RWC62 defines the influence on setpoint B1. The example shows the supply air temperature setpoint as controlled by the outside temperature.



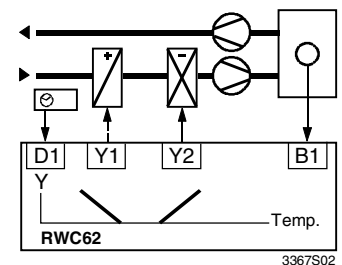
Day/night setpoint

D1...GND potential-free contact (timer)

A timer contact between terminals D1 and GDN can be used to implement setpoint changeover for day/night operation.

When the contact is open, the setpoint for day operation is selected.

When the contact is closed, the setpoint for night operation is selected.



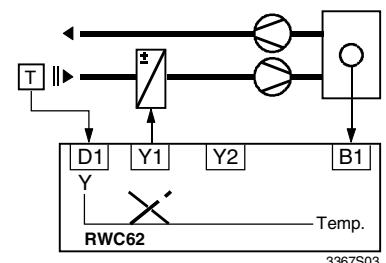
Summer/winter operation

D1...GND potential-free contact (thermostat)

A thermostat contact between terminals D1 and GDN can be used to implement summer/winter changeover.

When the contact is closed, summer operation is selected. Output Y1 is set to direct action (cooling).

When the contact is open, winter operation is selected. Output Y1 is set to reverse action (heating).



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## Engineering

### Housing

The RWC62 temperature controller is a compact unit as per DIN 43880 Gr. 1.

### Protective housing ARG62.101

The ARG62.101 accommodates an RWC62. A protective housing is used to protect the controller when mounted outside a control panel, such as in ducts, on walls and in plant rooms. Furthermore, the protective housing prevents inadvertent contact with voltage supplying parts such as the connecting terminals.

Brackets are used to attach the RWC62 in the protective housing.

The cable entries are located at the top and on the sides of the protective housing.

The front contains an LCD display and the programming buttons.

### Mounting options

The RWC62 temperature controller can be mounted as follows:

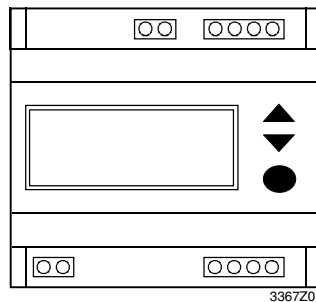
- In a standard electrical control cabinet as per DIN 43 880
- Wall mounting in an ARG62.101 protective housing
- Front mounting with standard available installation elements

### Terminals

Plug-in screw terminals

### Operating and display elements

The RWC62 is operated by means of the buttons on the controller front. Additional tools, such as PC tools, etc., are not necessary.



### LCD

The LCD shows the following information for normal operation:

- Current temperature
- Current setpoint
- Function of the second analog input

The LCD shows the following information for test operation:

- DC voltage values of outputs Y1, Y2
- Temperature at sensor B1
- Temperature at sensor B2
- Status for digital input D1

### Operating buttons

The controller has three operating buttons for the following functions:

#### SELECT ●

The SELECT ● button is used to select the next higher level in the configuration program. Pressing the SELECT button for 5 seconds opens the configuration mode. The SELECT button in this mode is used to change options.

#### ▲ / ▼

The setting values are changed via the ▲ / ▼ operating buttons.

Press both ▲ / ▼ buttons simultaneously to open the test mode.

### Configuration

To configure the controller, follow the instructions supplied with the controller.

## Engineering notes

### Intended use

Use this controller only for applications as described in the brief description on the title page (bold print) and the section "Use". Additionally, observe all conditions and restrictions imposed in this section and in "Technical data".



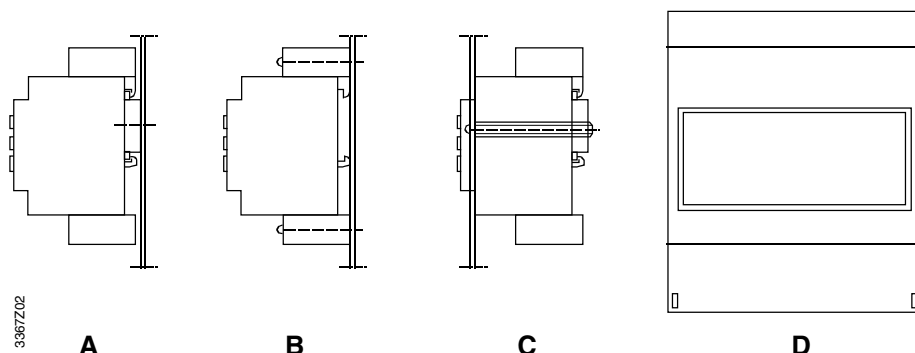
The sections marked with a warning symbol as shown to the left contain technical safety requirements and restrictions. Observe all of these warnings as they directly relate to the protection of personnel and equipment.

### Installation notes

The RWC62 controller may be mounted as follows:

Observe all local installation and mounting regulations.

- A On a DIN rail (EN50 022-35x7.5) at least 120 mm long
- B Wall mounting by means of 2 or 4 screws
- C Front mounting by means of the following standard elements:
  - 1 DIN rail 125 mm long, 2 hexagonal placeholders 50 mm with inside and outside thread M5 with 1 stud, 1 screw and 2 washers
- D In the ARG62.101 protective housing



### Electrical installation

Standard cables can be used for the POLYGYR<sup>®</sup> system. However, when mounting in an environment greatly exposed to EMC, use only shielded cables.



The operating voltage must comply with the requirements for safety extra-low voltage (SELV) as per EN 60 730.

Use safety insulating transformers with double insulation as per EN 60 742; they must be designed for 100 % on-time.

When using several transformers in one system, the connection terminals G0 must be galvanically connected.

Supplying voltages above AC 24 V to low voltage connections may damage or destroy the controller or any other connected devices. Additionally, connections to voltages exceeding 42 V endanger personnel safety.

## Commissioning

### Required documentation

The following documents are required for commissioning:

- All instructions supplied with the RWC62 controllers

### Configuration and parameterization (programming)

The controller must be configured for plant-specific operation.


In this regard, observe the following:

- Power supply to the controller and the connected devices must be guaranteed
- Values and settings entered in the devices are saved permanently, i.e., they remain available even on power failure

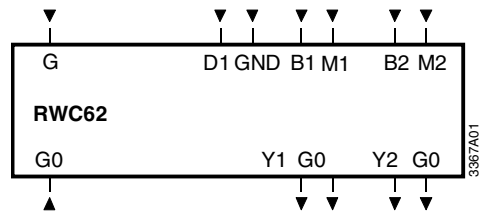
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## Technical data

### General data

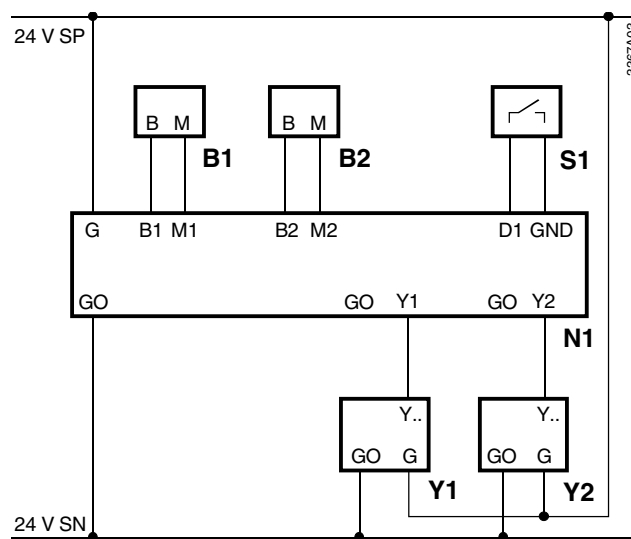
 Power supply	Operating voltage	AC 24 V $\pm 20\%$
	Safety extra-low voltage (SELV) as per	EN 60 730
Power input Prompting speed LCD	Frequency	50 Hz / 60 Hz
	RWC62	1.7 VA
	Cycle time	2 s
	Actual and nominal values	3 digits
Environmental conditions	Resolution of values <100	0.5 °C
	Transport	IEC721-3-2
	Climatic conditions	Class 2K3
	Temperature	-25...+70 °C
Environmental conditions	Humidity	< 95 % r.h.
	Mechanical conditions	Class 2M2
	Operation	IEC721-3-3
	Climatic conditions	Class 3K5
IP code	Temperature	-5...50 °C
	Humidity	< 95 % r.h.
Product standards	Housing	IP 20 as per EN 60 529
	Front and with ARG62.101	IP 30 as per EN 60 529
CE conformity	Automatic electrical controls for household and similar use	EN 60 730
	In accordance with European Union directives	
	Electromagnetic compatibility EMC	89/336 EEC
	Low voltage directive	73/23 EEC
Terminals	Emissions	EN 50 081-1
	Immunity	EN 50 082-1
Weight without packaging	Safety	EN 60 730
	Screw terminals for cables with	min. 0.5 mm dia.
Analog inputs B1, B2		max. 2x1.5 mm <sup>2</sup> or 2.5 mm <sup>2</sup>
	RWC62	0.300 kg
Temperature sensor LG Ni 1000 $\Omega$ /0 °C	ARG62.101	0.175 kg
	Range	-35...130 °C
Remote setpoints B2	Resolution	$\pm 0.5$ °C
	Max. cable length for dia. 0.6 mm	max. 50 m
		(4.5 $\Omega$ line resistance corresponds to approx. 1 K difference)
	Range	0... 1000 $\Omega$
Digital input D1		(0...50 °C or 0...100 °C)
	Resolution	$\pm 0.5$ °C
	Max. cable length for dia. 0.6 mm	max. 50 m
		(10 $\Omega$ line resistance corresponds to 1% error)
Analog outputs Y1, Y2	Polling voltage for control commands (D...GDN)	DC 12 V
	Current consumption	< 6 mA
	Range	DC 0...10V
	Resolution	39 mV
	Maximum current	$\pm 1$ mA

## Internal diagram



- G-G0: AC 24 V supply  
 M1, M2 Ground (G0) for signal inputs  
 B1 Signal input (main temperature)  
 B2: Signal input (aux. Temperature, remote setpoint)  
 Y1, Y2 Analog outputs  
 D1: Digital input  
 GDN Ground (G0) for digital signal input  
 G0: Ground (G0) for signal outputs

## Connection diagram



## Legend

- N1 RWC62 controller  
 B1 Main temperature sensor  
 B2 Auxiliary temperature sensor or remote setpoint  
 S1 Timer or summer/winter thermostat  
 Y1 Valve actuator 1 / damper actuator 1  
 Y2 Valve actuator 2 / damper actuator 2

## Dimensions

