



Temperature Controller ROB50.221... for Oil Preheaters

The ROB50.221... is an electronic proportional temperature controller with 2 fixed setpoints.

It controls resistive oil preheaters with a power consumption of 60 ... 200 Watts.

A built-in release switch is activated at about 15 °C below the adjusted setpoint temperature.

An undervoltage stage opens the release switch when voltage drops below the threshold value.

The temperature controller and this Data Sheet are intended for OEMs which integrate the ROB50.221... in their products!

Use

- Control of nozzle line oil preheaters used with oil burners
- Control of heat output

Warning notes



To avoid injury to persons, damage to property and the environment, the following warning notes must be observed!

Do not open, interfere with or modify the controller!

- All activities (mounting, installation and service work, etc.) must be performed by qualified staff
- Before making any wiring changes in the connection area, completely isolate the plant from mains supply (all-polar disconnection). Ensure that the plant cannot be inadvertently switched on again and that it is indeed dead. If not observed, there is a risk of electric shock hazard
- Ensure protection against electric shock hazard by providing adequate protection for the connection terminals
- Each time work has been carried out (mounting, installation, service work, etc.), check to ensure that wiring is in an orderly state
- Fall or shock can adversely affect the safety functions. Such controllers must not be put into operation, even if they do not exhibit any damage

Mounting notes

- Ensure that the relevant national safety regulations are complied with

Installation notes

- Do not mix up live and neutral conductors

Standards and certificates



Conformity to EEC directives
- Electromagnetic compatibility EMC (immunity)
- Low-voltage directive

2004/108/EC
2006/95/EC



ISO 9001: 2000
Cert. 00739



ISO 14001: 2004
Cert. 38233

Disposal notes



The controller contains electrical and electronic components and must not be disposed of together with household waste.
Local and currently valid legislation must be observed.

Technical data

General controller data	Mains voltage	
	- ROB50.221B27	AC 220 V –15 %...240 V +10 %
	- ROB50.221B17	AC 100...110 V –15 % / +10 %
	Mains frequency	50...60 Hz ±6 %
	Required temperature sensor	NTC resistor R85: 18240 Ω, B = 4200
	Perm. heat output	Max. 200 W
	Required heat output	Min. 60 W
	Release temperature (selectable with slide switch «P»)	65 °C or 130 °C
	Setpoint (fixed)	Approx. 15 °C above the selected release temperature
	Perm. switching current for release contact	Max. 5 (4) A to VDE 0660 AC3
	Switch-off threshold with undervoltage	Approx. AC 145 V
	Degree of protection	IP40
	Environmental conditions	Storage
Climatic conditions		Class 1K3
Mechanical conditions		Class 1M2
Temperature range		-20...+60 °C
Humidity		<95 % r.F.
Transport		DIN EN 60721-3-2
Climatic conditions		Class 2K2
Mechanical conditions		Class 2M2
Temperature range		-40...+60 °C
Humidity		<95 % r.h.
Operation		DIN EN 60721-3-3
Climatic conditions		Class 3K5
Mechanical conditions		Class 3M2
Temperature range		-20...+60 °C
Humidity		<95 % r.h.



Condensation, formation of ice and ingress of water are not permitted!

Function

Heat output control is accomplished with a triac in the form of full-wave control (pulse package control), switched at the zero-crossing of voltage so that radio interference will be avoided and symmetrical mains loads ensured.

When the actual temperature approaches the setpoint, the controller delivers a signal via its release contact (potential-free N.O. contact). This means that the N.O. contact can be included either in the burner control's control loop or in the line of other control or switching devices.

When the release contact is closed, it will stay closed also in the case of larger variations of the actual value. This means that release of the burner will be locked until the release temperature is attained only after a new start (with interruption of the power supply to the oil preheater).

The release contact opens when mains voltage drops to a level where, for example, safe burner operation can no longer be ensured. This switch-off threshold is at a level of about AC 145 V.

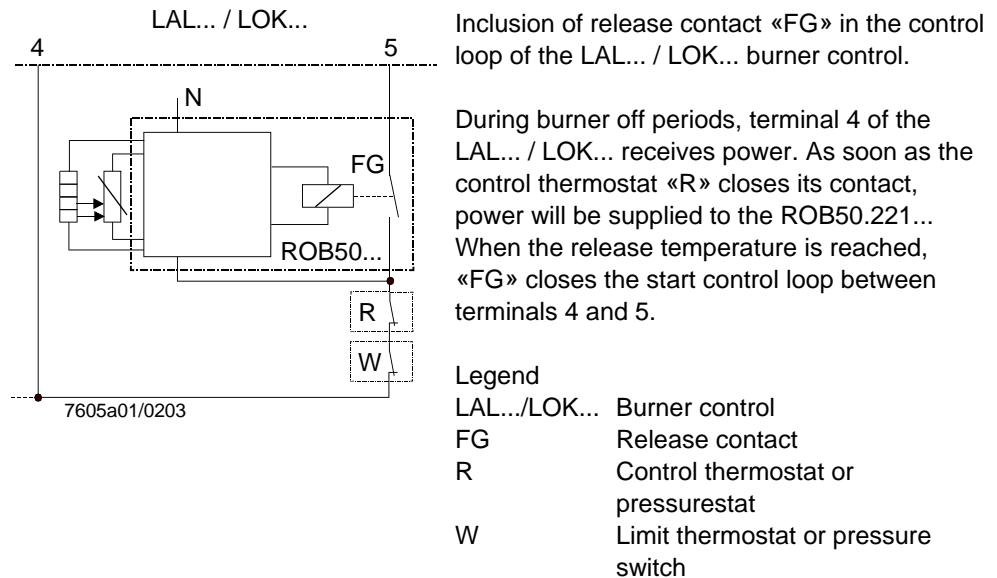
When mains voltage has returned to the normal level and the oil preheater has reached the release temperature, the burner will be switched on again.

The release temperature of 65 °C or 130 °C can be selected with the slide switch on the long side in front of the housing. Each selected release temperature has a proportional band of about 15 °C which lies above the release temperature. When selecting a release temperature of 65 °C, actual values of up to 80 °C can result, depending on the load. When selecting a release temperature of 130 °C, actual values of up to 145 °C can result, depending on the load.

The above mentioned switching points or temperature values apply under the condition that the temperature sensor uses an NT sensing element with the following characteristics: $R_{85} 18,240 \Omega, B = 4,200$.

In the event of a short-circuit or open-circuit of the sensor loop, the nozzle line will only be preheated partially. With an interruption, the burner will not be started. With short-circuit, which is simulated a sufficiently high actual value, the controller closes the release contact and the burner will be started up. If the burner is not ignited because there is no preheating, the burner control will initiate lockout.

Connection diagram



Dimensions

Dimensions in mm

