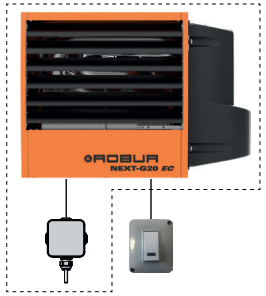
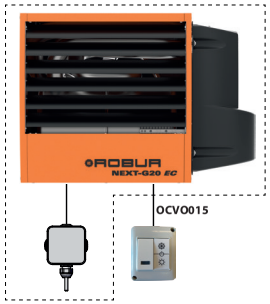
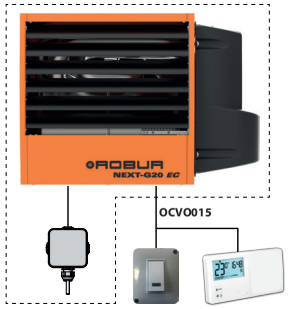
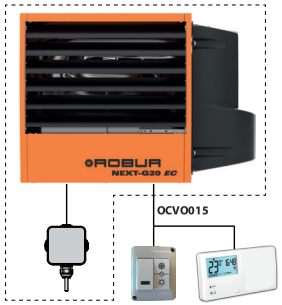
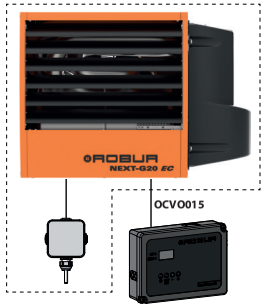
1 AVAILABLE FEATURES DEPENDING ON CONTROLS

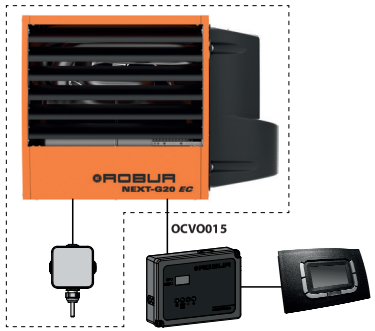
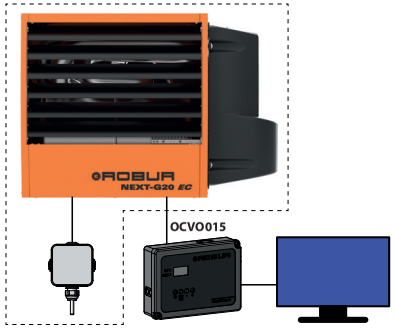
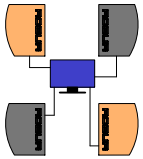
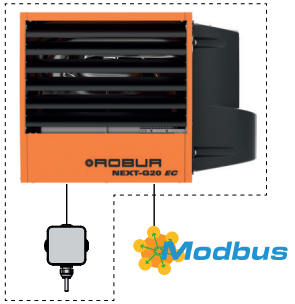
1.1 NEXT-G SERIES

Next-G gas unit heaters are supplied with a room temperature probe.

Table 1.1 *Available features depending on controls*

Control system	Burner	Controls	Available features	Notes
		OCDS012 1-key basic control 	Light signalling of the presence of errors or warnings of the gas unit heater. Reset of the lockout (for lockouts that can be reset). Modulation of gas unit heater power. Control of the heated room temperature by means of the supplied room temperature probe.	! • An external request acting on the "HEAT" contact of the gas unit heater's board is required for activation/deactivation of the gas unit heater. • The setpoint must be set on the board on the gas unit heater.
		OCDS016 2-key basic control OCVO015 connection cable	Light signalling of the presence of errors or warnings of the gas unit heater. Reset of the lockout (for lockouts that can be reset). Modulation of gas unit heater power. Control of the heated room temperature by means of the supplied room temperature probe. Gas unit heater start/stop. Summer ventilation mode activation.	The setpoint must be set on the board on the gas unit heater.

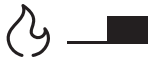
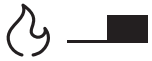
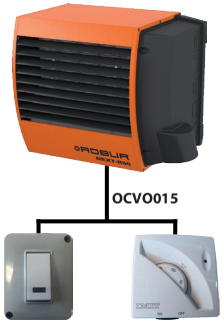
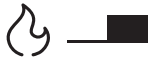
Control system	Burner	Controls	Available features	Notes
		OCDS012 1-key basic control OCDS005 digital programmable chronothermostat OCVO015 connection cable	Light signalling of the presence of errors or warnings of the gas unit heater. Reset of the lockout (for lockouts that can be reset). Modulation of gas unit heater power. Control of the heated room temperature by means of the supplied room temperature probe. ON OFF Gas unit heater start/stop. Automatic operation according to the set weekly programming.	The setpoint must be set on the board on the gas unit heater.
		OCDS016 2-key basic control OCDS005 digital programmable chronothermostat OCVO015 connection cable	Light signalling of the presence of errors or warnings of the gas unit heater. Reset of the lockout (for lockouts that can be reset). Modulation of gas unit heater power. Control of the heated room temperature by means of the supplied room temperature probe. ON OFF Gas unit heater start/stop. Summer ventilation mode activation. Automatic operation according to the set weekly programming.	The setpoint must be set on the board on the gas unit heater.
		OTRG005 thermoregulator OCVO015 connection cable	Light signalling of the presence of errors or warnings of the gas unit heater. Reset of the lockout (for lockouts that can be reset). Management of the gas unit heater on two heat output levels. Control of the heated room temperature by means of the room temperature probe on the OTRG005 thermoregulator. ON OFF Gas unit heater start/stop. Summer ventilation mode activation. Diagnostics. Possibility of remote management via Modbus.	• Remember to disable the room temperature probe supplied with the gas unit heater. • The setpoint must be set on the OTRG005 thermoregulator. • Possible connection with OCDS008 digital chronothermostat and OSWR000 Genius software.

Control system	Burner	Controls	Available features	Notes
		OTRG005 thermoregulator OCDS008 digital chronothermostat OCVO015 connection cable	Light signalling of the presence of errors or warnings of the gas unit heater. Reset of the lockout (for lockouts that can be reset). Management of the gas unit heater on two heat output levels. Control of the heated room temperature by means of the room temperature probe on the OTRG005 thermoregulator. Gas unit heater start/stop. Summer ventilation mode activation. Diagnostics. Time programming on a weekly basis on 3 temperature levels. Up to 10 gas unit heaters cascade system management.	• Remember to disable the room temperature probe supplied with the gas unit heater. • The setpoint must be set on the OTRG005 thermo-regulator.
		OTRG005 thermoregulator OSWR000 Genius software  OCVO015 connection cable	Light signalling of the presence of errors or warnings of the gas unit heater. Reset of the lockout (for lockouts that can be reset). Management of the gas unit heater on two heat output levels. Control of the heated room temperature by means of the room temperature probe on the OTRG005 thermoregulator. Gas unit heater start/stop. Summer ventilation mode activation. Diagnostics, also by email. Time programming on a weekly basis on 3 temperature levels. Up to 100 gas unit heaters cascade system management. Division of gas unit heaters into zones, up to 10 different zones. Remote control of the system from multiple devices.	• Remember to disable the room temperature probe supplied with the gas unit heater. • The setpoint must be set via the Genius OSWR000 software.
		Generic Modbus controller Modbus	Modulation of gas unit heater power. Modbus interfacing for remote control. Depending on the registers managed on the Modbus controller, the relevant functions will be available or not (switching the gas unit heater on/off, choosing the operating mode, error reporting and reset, setpoint setting, ...).	The document describing the mapping and meaning of the Modbus registers implemented on the board on the gas unit heater is available on-demand from Robur technical service.

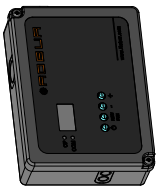
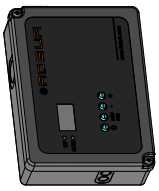
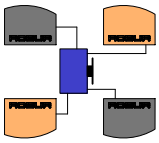
Control system	Burner	Controls	Available features	Notes
		OCDS015 Modbus remote control 	Light signalling of the presence of errors or warnings of the gas unit heater. Reset of the lockout (for lockouts that can be reset). Modulation of gas unit heater power. Control of the heated room temperature by means of the supplied room temperature probe. Gas unit heater start/stop. Summer ventilation mode activation. Automatic operation according to the set weekly programming. Colour touch screen. Predictive start-up function. Advanced diagnostics. Up to 30 gas unit heaters cascade system management. Division of gas unit heaters into zones, up to 6 different zones. Modbus interfacing for remote control. Possibility of internet connection.	The setpoint setting must be made via the OCDS015 Modbus remote control.

1.2 NEXT-R SERIES

Table 1.2 *Available features depending on controls*

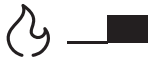
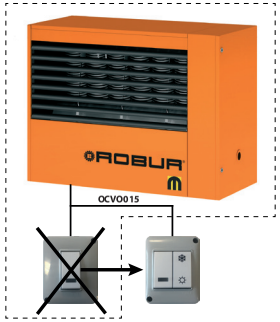
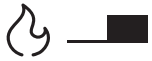
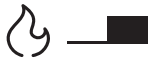
Control system	Burner	Controls	Available features	Notes
		OCDS012 1-key basic control 	Light signalling the status of the flame lockout. Reset of the flame lockout. On/Off management of the gun unit heater.	! For the activation/deactivation of the gas unit heater and the management of heat output levels, an external request is required, acting on the appropriate contacts of the gas unit heater terminal board.
		OCTR000 2-key basic control OCVO015 connection cable	Light signalling the status of the flame lockout. Reset of the flame lockout. On/Off management of the gun unit heater. Summer ventilation mode activation.	! For the activation/deactivation of the gas unit heater and the management of heat output levels, an external request is required, acting on the appropriate contacts of the gas unit heater terminal board.
		OCDS012 1-key basic control O12301035 room thermostat OCVO015 connection cable	Light signalling the status of the flame lockout. Reset of the flame lockout. On/Off management of the gun unit heater. Control of the heated room temperature by means of the room thermostat. ON OFF Gas unit heater start/stop.	• For the management of heat output levels, an external request is required, acting on the appropriate contacts of the gas unit heater terminal board. • As an alternative to the O12301035 room thermostat, the O12301025 sealed room thermostat can be used.

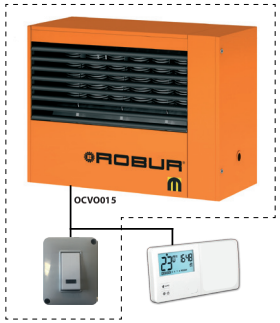
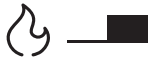
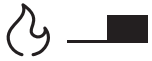
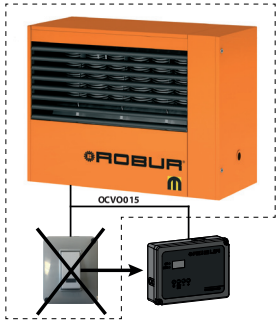
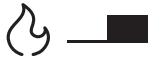
Control system	Burner	Controls	Available features	Notes
		OCDS012 1-key basic control OCDS005 digital programmable chronothermostat OCVO015 connection cable	 Light signalling the status of the flame lockout. Reset of the flame lockout. On/Off management of the gas unit heater. Control of the heated room temperature by means of the room thermostat. Gas unit heater start/stop. Automatic operation according to the set weekly programming.	For the management of heat output levels, an external request is required, acting on the appropriate contacts of the gas unit heater terminal board.
		OCTR000 2-key basic control O12301035 room thermostat OCVO015 connection cable	 Light signalling the status of the flame lockout. Reset of the flame lockout. On/Off management of the gas unit heater. Control of the heated room temperature by means of the room thermostat. Gas unit heater start/stop. Summer ventilation mode activation.	• For the management of heat output levels, an external request is required, acting on the appropriate contacts of the gas unit heater terminal board. • As an alternative to the O12301035 room thermostat, the O12301025 sealed room thermostat can be used.
		OTRG005 thermoregulator OCVO015 connection cable	 Light signalling the status of the flame lockout. Reset of the flame lockout. Management of the gas unit heater on two heat output levels. Control of the heated room temperature by means of the room temperature probe on the OTRG005 thermoregulator. Gas unit heater start/stop. Summer ventilation mode activation. Diagnostics. Possibility of remote management via Modbus.	Possible connection with OCDS008 digital chronothermostat and OSWR000 Genius software.

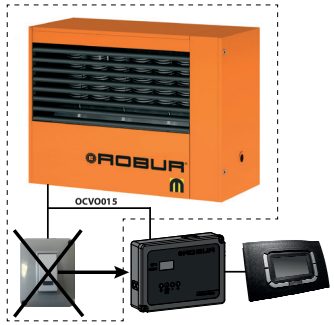
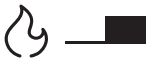
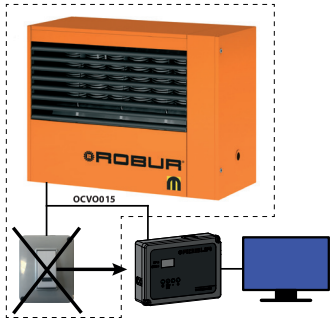
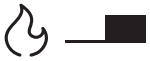
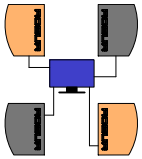
Control system	Burner	Controls	Available features	Notes
		OTRG005 thermoregulator  OCDS008 digital chronothermostat OCVO015 connection cable	Light signalling the status of the flame lockout. Reset of the flame lockout. Management of the gas unit heater on two heat output levels. Control of the heated room temperature by means of the room temperature probe on the OTRG005 thermoregulator. Gas unit heater start/stop. Summer ventilation mode activation. Diagnostics. Time programming on a weekly basis on 3 temperature levels. Up to 10 gas unit heaters cascade system management.	
		OTRG005 thermoregulator  OSWR000 Genius software  OCVO015 connection cable	Light signalling the status of the flame lockout. Reset of the flame lockout. Management of the gas unit heater on two heat output levels. Control of the heated room temperature by means of the room temperature probe on the OTRG005 thermoregulator. Gas unit heater start/stop. Summer ventilation mode activation. Diagnostics, also by email. Time programming on a weekly basis on 3 temperature levels. Up to 100 gas unit heaters cascade system management. Division of gas unit heaters into zones, up to 10 different zones. Remote control of the system from multiple devices.	

1.3 M SERIES

Table 1.3 *Available features depending on controls*

Control system	Burner	Controls	Available features	Notes
		1-key basic control (supplied) 	Light signalling the status of the flame lockout. Reset of the flame lockout. On/Off management of the gas unit heater.	! For the activation/deactivation of the gas unit heater, an external request is required, acting on the appropriate contacts of the gas unit heater terminal board.
		OCTR000 2-key basic control OCVO015 connection cable	Light signalling the status of the flame lockout. Reset of the flame lockout. On/Off management of the gas unit heater. Summer ventilation mode activation.	! • Replace the supplied 1-key basic control with the one indicated. • For the activation/deactivation of the gas unit heater, an external request is required, acting on the appropriate contacts of the gas unit heater terminal board.
		O12301035 room thermostat OCVO015 connection cable	Light signalling the status of the flame lockout. Reset of the flame lockout. On/Off management of the gas unit heater. Control of the heated room temperature by means of the room thermostat. ON OFF Gas unit heater start/stop.	As an alternative to the O12301035 room thermostat, the O12301025 sealed room thermostat can be used.

Control system	Burner	Controls	Available features	Notes
		OCDS005 digital programmable chronothermostat OCVO015 connection cable	Light signalling the status of the flame lockout. Reset of the flame lockout. On/Off management of the gas unit heater. Control of the heated room temperature by means of the room thermostat. Gas unit heater start/stop. Automatic operation according to the set weekly programming.	
		OCTR000 2-key basic control O12301035 room thermostat OCVO015 connection cable	Light signalling the status of the flame lockout. Reset of the flame lockout. On/Off management of the gas unit heater. Control of the heated room temperature by means of the room thermostat. Gas unit heater start/stop. Summer ventilation mode activation.	• Replace the supplied 1-key basic control with the one indicated. • As an alternative to the O12301035 room thermostat, the O12301025 sealed room thermostat can be used.
		OTRG005 thermoregulator OCVO015 connection cable	Light signalling the status of the flame lockout. Reset of the flame lockout. On/Off management of the gas unit heater. Control of the heated room temperature by means of the room temperature probe on the OTRG005 thermoregulator. Gas unit heater start/stop. Summer ventilation mode activation. Diagnostics. Possibility of remote management via Modbus.	• Replace the supplied 1-key basic control with the one indicated. • Possible connection with OCDS008 digital chronothermostat and OSWR000 Genius software.

Control system	Burner	Controls	Available features	Notes
		OTRG005 thermoregulator OCDS008 digital chronothermostat OCVO015 connection cable	Light signalling the status of the flame lockout. Reset of the flame lockout. On/Off management of the gas unit heater. Control of the heated room temperature by means of the room temperature probe on the OTRG005 thermoregulator. Gas unit heater start/stop. Summer ventilation mode activation. Diagnostics. Time programming on a weekly basis on 3 temperature levels. Up to 10 gas unit heaters cascade system management.	Replace the supplied 1-key basic control with the one indicated.
		OTRG005 thermoregulator OSWR000 Genius software  OCVO015 connection cable	Light signalling the status of the flame lockout. Reset of the flame lockout. On/Off management of the gas unit heater. Control of the heated room temperature by means of the room temperature probe on the OTRG005 thermoregulator. Gas unit heater start/stop. Summer ventilation mode activation. Diagnostics, also by email. Time programming on a weekly basis on 3 temperature levels. Up to 100 gas unit heaters cascade system management. Division of gas unit heaters into zones, up to 10 different zones. Remote control of the system from multiple devices.	Replace the supplied 1-key basic control with the one indicated.

2 ADJUSTMENT AND CONTROL ACCESSORIES

The Tables in Paragraph 1 *p. 1* show, for each series of gas unit heater, the available controls and a summary description of the functionality that can be obtained.
Further information concerning the functionality of the control devices and their correct installation and connection to the gas unit heater is given below.
All connections of the adjustment and control accessories are made on the terminal board located in the electrical panel inside the gas unit heater.

2.1 OCDS012 1-KEY BASIC CONTROL

Its functions are:
- ► Light signalling the status of the lockout of the gas unit heater.
- ► Reset of the lockout (for lockouts that can be reset).

The control must be installed on the wall in a suitable position, using expansion screws.

The 1-key basic control is supplied with M series gas unit heaters, complete with a 2 metres long connection cable.

The cable may not be longer than 20 metres.

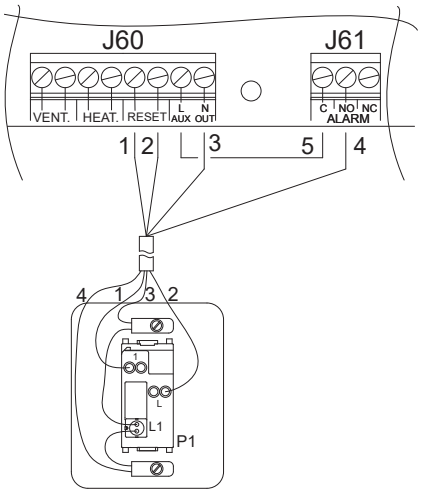
For further information refer to the instruction sheet supplied with the OCDS012 optional.

2.1.1 Next-G series

How to connect the OCDS012 1-key basic control

1. Use FRO-HP 4x0,75 mm² cable for connection.
2. Connect the wires to the terminal block as shown in Figure 2.2 *p. 11*.

Figure 2.1 *1-key basic control connection*



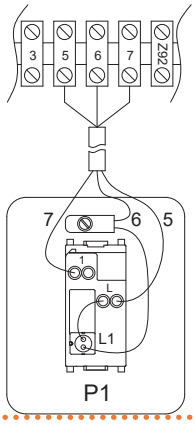
L1 Alarm indicator lamp
P1 Reset button
J60/J61 Terminal blocks of the board on the Next-G gas unit heater

2.1.2 Next-R and M series

How to connect the OCDS012 1-key basic control

1. Use FRO-HP 3x1 mm² cable for connection.
2. Connect the wires to the terminal block as shown in Figure 2.2 *p. 11*.

Figure 2.2 *1-key basic control connection*



L1 Lockout lamp
P1 Reset button

2.2 OCTR000 2-KEY BASIC CONTROL

This control should only be used with Next-R and M

series gas unit heaters.

Its functions are:
- ► Light signalling the status of the flame lockout.
- ► Reset of the flame lockout.
- ► Summer ventilation mode activation.

The control must be installed on the wall in a suitable position, using expansion screws.

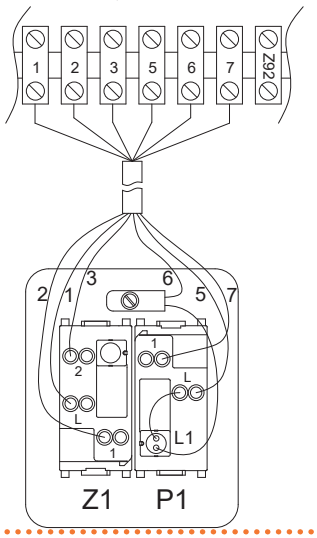
How to connect OCTR000 2-key basic control

1. Use FRO-HP 6x0,75 mm² cable (available as OCVO015 optional, with 5 m length).
2. Connect the wires to the terminal block as shown in Figure 2.3 *p. 12*.

The cable may not be longer than 20 metres.

For further information refer to the instruction sheet supplied with the OCTR000 optional.

Figure 2.3 *2-key basic control connection*



L1 Lockout lamp
P1 Reset button
Z1 Summer/winter switch

2.3 OCDS016 2-KEY BASIC CONTROL

This control should only be used with Next-G series gas unit heaters.

Its functions are:
- ► Light signalling of the presence of errors or warnings of the gas unit heater.
- ► Reset of the lockout (for lockouts that can be reset).
- ► Selection of the operating mode: heating, summer ventilation or off.

Heat output modulation is managed independently by the gas unit heater thanks to the presence of the supplied room probe. The control must be installed on the wall in a suitable position, using expansion screws.

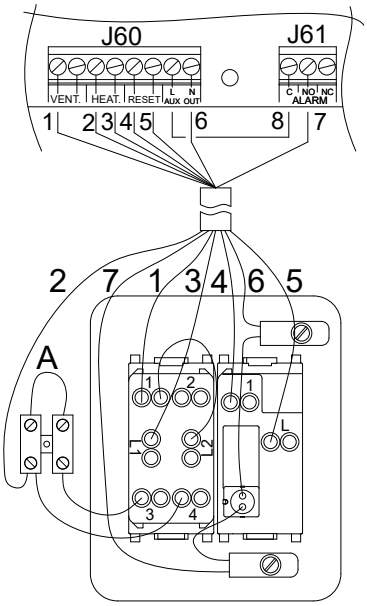
How to connect OCDS016 2-key basic control

1. Use FRO-HP 7x0,75 mm² cable (available as OCVO015 optional, with 5 m length).
2. Connect the wires to the terminal block as shown in Figure 2.4 *p. 12*.
3. If there is an external request for managing start/stop of the gas unit heater (e.g. thermostat, timer, switch, contactor ...) this must be connected to terminal A, removing the factory-installed jumper.

The cable may not be longer than 20 metres.

For further information refer to the instruction sheet supplied with the OCDS016 optional.

Figure 2.4 *2-key basic control connection*



A Terminal for possible external request
SP Alarm indicator lamp
P1 Reset button
Z1 Summer/Winter/Off switch
J60/J61 Terminal blocks of the board on the Next-G gas unit heater

2.4 O12301035 ROOM THERMOSTAT

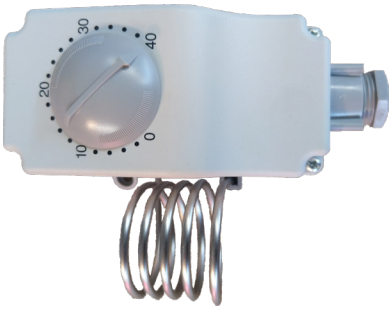
The O12301035 room thermostat is a request device equipped with NO voltage-free contact, for the start/stop of the gas unit heater.
The thermostat is equipped with an on/off switch and a lamp to

indicate the request activation status.
The protection rating is IP 20.
The thermostat must be installed on the wall in a suitable position, using expansion screws.
To connect the room thermostat refer to Paragraph 3.1 *p. 21*.

The cable may not be longer than 20 metres.

For further information refer to the instruction sheet supplied with the O12301035 optional.

2.5 O12301025 SEALED ROOM THERMOSTAT



The O12301025 sealed room thermostat is a request device equipped with NO voltage-free contact, for the start/stop of the gas unit heater.
It is particularly suitable for use in environments with high humidity or air acidity, such as greenhouses and livestock farms.
The protection rating is IP55.
The thermostat must be installed on the wall in a suitable position, using expansion screws.
To connect the room thermostat refer to Paragraph 3.1 *p. 21*.

The cable may not be longer than 20 metres.

For further information refer to the instruction sheet supplied with the O12301025 optional.

2.6 OCDS005 DIGITAL PROGRAMMABLE CHRONOTHERMOSTAT

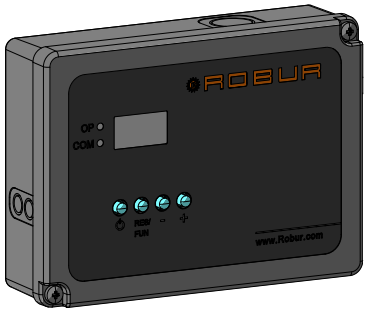
Its functions are:
- Turning the gas unit heater on/off.
- Room temperature measurement.
- Automatic operation according to the set weekly programming.
- Manual operation.
- Operation in holiday mode.
- Antifreeze function.

The device is battery powered and therefore requires no external power supply.
To connect the room thermostat refer to Paragraph 3.1 *p. 21*.

The cable may not be longer than 20 metres.

For further information refer to the instruction sheet supplied with the OCDS005 optional.

2.7 OTRG005 THERMOREGULATOR



The thermoregulator is a device that can directly manage wall-mounted gas unit heaters: the serial interface makes it possible to create cascade systems managed by a single chronothermostat (optional OCDS008, described in Paragraph 2.8 *p. 17*), with considerable advantages in terms of thermoregulation, especially in large spaces.
The main functions are:
- Turning the gas unit heater on/off.
- Ambient temperature measurement by NTC probe.
- Diagnostics.
- Reset of the flame lockout.
- Gas unit heater data display and parameters setting.
- Space heating and summer ventilation setpoint setting.
- Automatic management of power modulation.
- Summer ventilation mode activation.
- Possibility of creating cascaded systems.
- Possibility of remote management via Modbus.

The thermoregulator must be installed on the wall in a suitable position, using expansion screws.

The cable may not be longer than 10 metres.

If the device is used in local mode without using an external request (Paragraph 3.1 *p. 21*), close J6 connector with an electrical bridge.

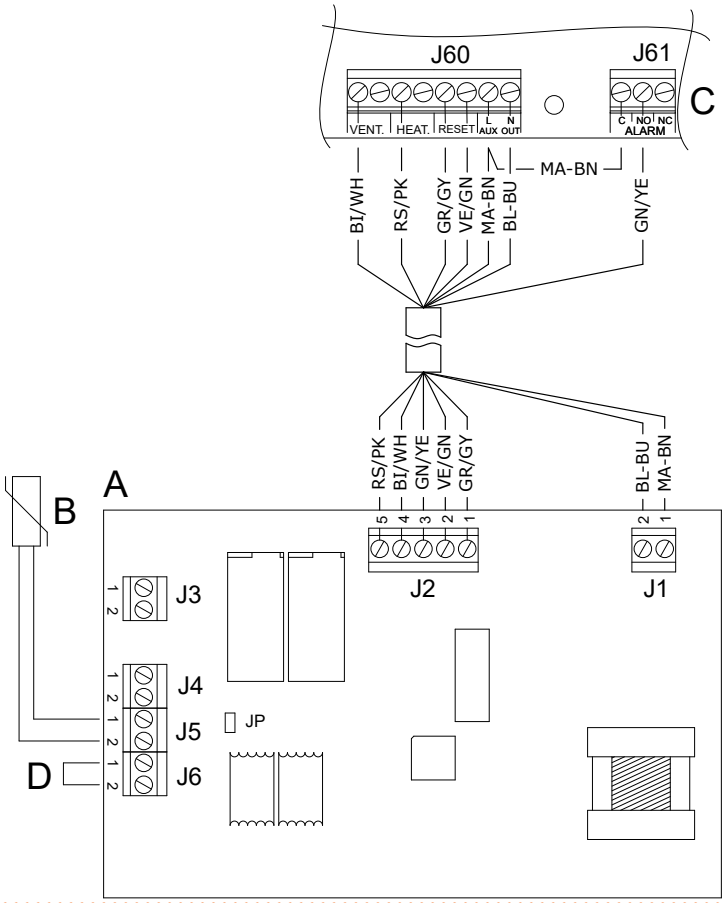
For further information refer to the instruction sheet supplied with the OTRG005 optional.

2.7.1 Next-G series

How to connect OTRG005 thermoregulator

1. Use FRO-HP 7x0,75 mm² cable (available as OCVO015 optional, with 5 m length).
2. Make electrical connections as described in Figure 2.5 *p. 14* and in Table 2.1 *p. 14*.

Figure 2.5 *Connections between the thermoregulator and the gas unit heater*



A OTRG005 thermoregulator
B NTC room temperature probe (supplied)
C Next-G gas unit heater terminal block
D J6 electrical bridge

Table 2.1 *Connections between the thermoregulator and the gas unit heater*

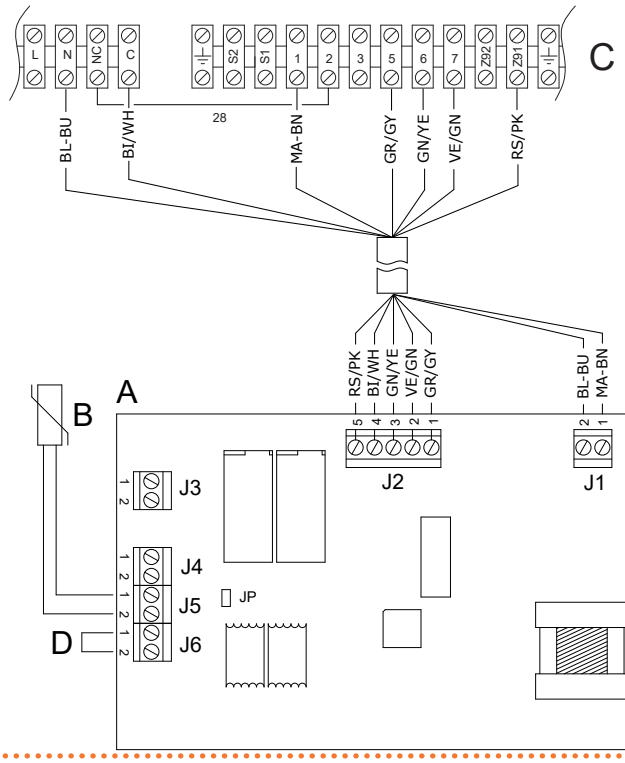
OTRG005 thermoregulator					Next-G	Recommended colour
Connector	Terminal	Type	Description		Terminal	
J1	1	Input	L	phase	L AUX	brown
	2	Input	N	neutral	N AUX	blue
J2	1	Input	OF	Gas unit heater operation feedback	"RESET"	grey
	2	Output	RES	Reset of ignition/flame control device	"RESET"	green
	3	Input	LF	Flame control locking state reading	NO (ALARM)	yellow
	4	Output	FAN	Control of the gas unit heater fan(s)	"VENT."	white
	5	Output	REQ	Control of the ignition/flame control device	"HEAT."	pink
J3	1	Input/output	SI2	OpenTherm master interface (towards any following thermoregulator of the control chain)	-	-
	2				-	-
J4	1	Input/output	SI3	Modbus RS-485 serial interface (Terminal 1 = signal "B" – Terminal 2 = signal "A")	-	-
	2				-	-
J5	1	Input		NTC probe input	-	-
	2				-	-
J6	1	Input/output	SI1	OpenTherm slave interface (towards OCDS008 digital chronothermostat or any previous thermoregulator of the control chain)	-	-
	2				-	-
JP	/	Input		Selection jumper "impedance 120 Ω"	-	-

2.7.2 Next-R series

How to connect OTRG005 thermoregulator

1. Remove 27 and 28 temporary jumpers on the terminal block.
2. Reuse electrical bridge cable 28 to make the connection between terminals NC and 2 (Figure 2.6 *p. 15*).
3. Use FRO-HP 7x0,75 mm² cable (available as OCVO015 optional, with 5 m length).
4. Make the other electrical connections as described in Figure 2.6 *p. 15* and in Table 2.2 *p. 15*.

Figure 2.6 *Connections between the thermoregulator and the gas unit heater*



A OTRG005 thermoregulator
B NTC room temperature probe (supplied)
C Next-R gas unit heater terminal block
D J6 electrical bridge

Table 2.2 *Connections between the thermoregulator and the gas unit heater*

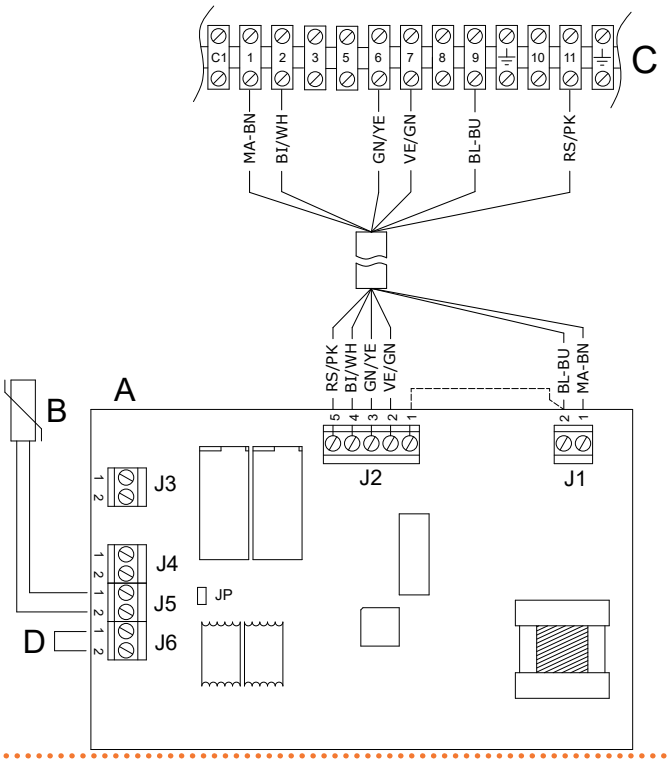
OTRG005 thermoregulator					Next-R	Recommended colour
Connector	Terminal	Type	Description		Terminal	
J1	1	Input	L	phase	1	brown
	2	Input	N	neutral	N	blue
J2	1	Input	OF	Gas unit heater operation feedback	5	grey
	2	Output	RES	Reset of ignition/flame control device	7	green
	3	Input	LF	Flame control locking state reading	6	yellow
	4	Output	FAN	Control of the gas unit heater fan(s)	C	white
	5	Output	REQ	Control of the ignition/flame control device	Z91	pink
J3	1	Input/output	SI2	OpenTherm master interface (towards any following thermoregulator of the control chain)	-	-
	2				-	-
J4	1	Input/output	SI3	Modbus RS-485 serial interface (Terminal 1 = signal "B" – Terminal 2 = signal "A")	-	-
	2				-	-
J5	1	Input		NTC probe input	-	-
	2				-	-
J6	1	Input/output	SI1	OpenTherm slave interface (towards OCDS008 digital chronothermostat or any previous thermoregulator of the control chain)	-	-
	2				-	-
JP	/	Input		Selection jumper "impedance 120 Ω"	-	-

2.7.3 M series

How to connect OTRG005 thermoregulator

1. Use FRO-HP 7x0,75 mm² cable (available as OCVO015 optional, with 5 m length).
2. Make electrical connections as described in Figure 2.7 *p. 16* and in Table 2.3 *p. 16*.

Figure 2.7 *Connections between the thermoregulator and the gas unit heater*



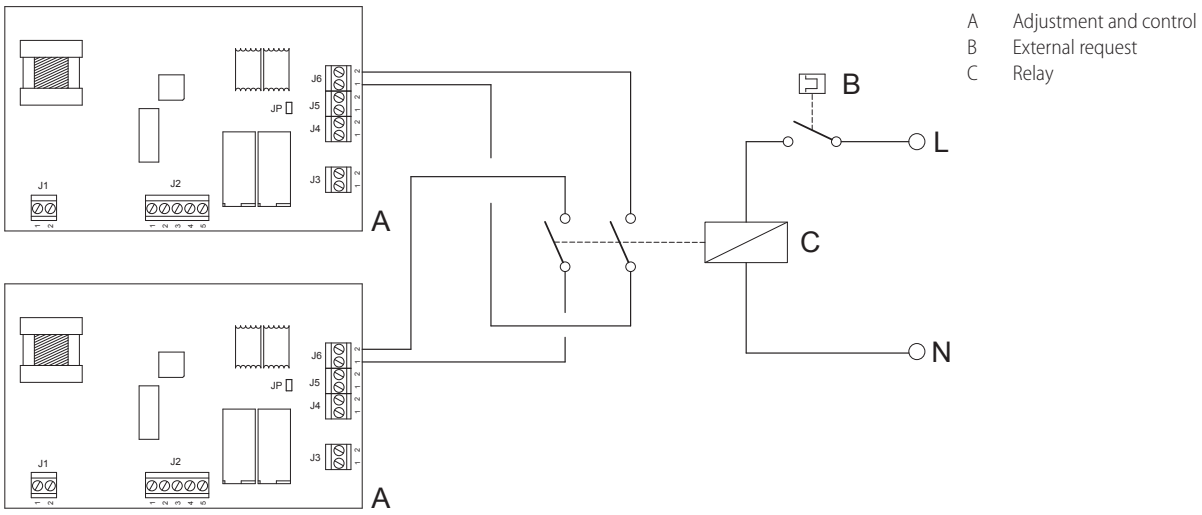
A OTRG005 thermoregulator
B NTC room temperature probe (supplied)
C M gas unit heater terminal block
D J6 electrical bridge

Table 2.3 *Connections between the thermoregulator and the gas unit heater*

OTRG005 thermoregulator					M	Recommended colour
Connector	Terminal	Type	Description		Terminal	
J1	1	Input	L	phase	1	brown
	2	Input	N	neutral	9	blue
J2	1	Input	OF	Gas unit heater operation feedback	-	-
	2	Output	RES	Reset of ignition/flame control device	7	green
	3	Input	LF	Flame control locking state reading	6	yellow
	4	Output	FAN	Control of the gas unit heater fan(s)	2	white
	5	Output	REQ	Control of the ignition/flame control device	11	pink
J3	1	Input/output	SI2	NTC probe input	-	-
	2				-	-
J4	1	Input/output	SI3	Modbus RS-485 serial interface (Terminal 1 = signal "B" – Terminal 2 = signal "A")	-	-
	2				-	-
J5	1	Input		NTC probe input	-	-
	2				-	-
J6	1	Input/output	SI1	OpenTherm slave interface (towards OCDS008 digital chronothermostat or any previous thermoregulator of the control chain)	-	-
	2				-	-
JP	/	Input		Selection jumper "impedance 120 Ω"	-	-

2.7.4 Connection of several Next-G, Next-R and M series gas unit heaters via a single external request

Figure 2.8 *Example of connection of several thermoregulators to an external request*



2.8 OCDS008 DIGITAL CHRONOTHERMOSTAT

OCDS008 digital chronothermostat integrates the functions of room temperature control and remote control of the gas unit heaters heating system in a single interface, specifically designed to make all functions available to the user in a clear and intuitive way.
It may be used only in association with the OTRG005 thermoregulator.
The main functions are:

- ► Multilingual interface.
- ► Gas unit heaters cascade system management (up to 10).
- ► Time programming on a weekly basis on 3 temperature levels.
- ► Diagnostics.
- ► Reset.
- ► Gas unit heater data display and parameters setting.
- ► Space heating and summer ventilation setpoint setting.
- ► Automatic management of power modulation.
- ► Summer ventilation mode activation.

The chronothermostat must be installed on the wall in a suitable position, using expansion screws.
Connection of OCDS008 chronothermostat is made on OTRG005 thermoregulator, which is necessary for the use of the chronothermostat.

How to connect the OCDS008 digital chronothermostat

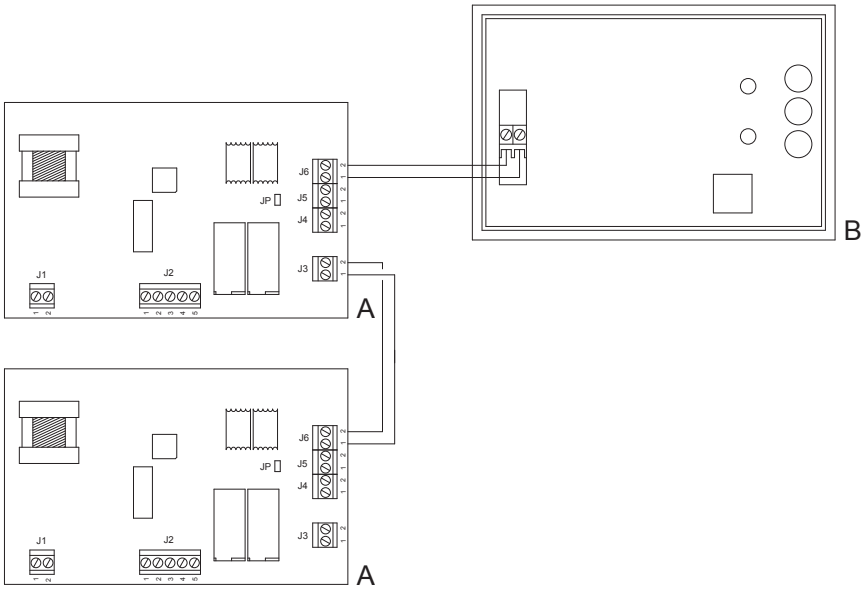
1. Make electrical connections as described in Figure 2.9 *p. 18*.
2. OTRG005 thermoregulator is connected as described in Paragraph 2.7 *p. 13*.
3. To connect OCDS008 chronothermostat to OTRG005 thermoregulator, use a two-pole cable (e.g. H03VV-F) with a section between 0,5 mm^2 and 2,5 mm^2.
4. In rooms with high electromagnetic noise, it is recommended to use shielded cable.

The cable may not be longer than 50 metres.

For further information refer to the instruction sheet supplied with the OCDS008 optional.

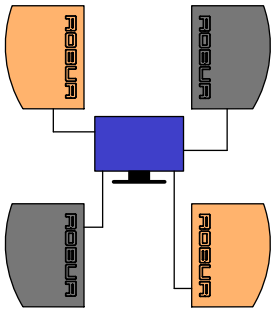
2.8.1 Connection of several Next-G, Next-R and M series gas unit heaters to a single OCDS008 chronothermostat

Figure 2.9 *OCDS008 digital chronothermostat connection*



A OTRG005 thermoregulator
B OCDS008 digital chronothermostat

2.9 OSWR000 GENIUS SOFTWARE FOR REMOTE MANAGEMENT OF GAS UNIT HEATERS



This is a software that allows, through the OTRG005 thermoregulators, to centralize the management of up to 100 gas unit heaters, allowing them to be freely divided into zones, for an even more personalized heating management.
If the PC on which the software is installed is accessible remotely, the software allows remote management of the whole heating system from multiple devices, as well as sending emails to report any anomalies to the gas unit heaters or to the heating system.
The main functions are:

- ► Centralized system to control up to 100 gas unit heaters.
- ► Division of gas unit heaters into zones, up to 10 different zones.
- ► Independent or centralized gas unit heaters control.
- ► Remote control of the system from multiple devices.
- ► Diagnostics, also by email.
- ► Reset.
- ► Gas unit heater data display and parameters setting.
- ► Space heating and summer ventilation setpoint setting.
- ► Automatic management of power modulation.
- ► Summer ventilation mode activation.

OSWR000 Genius software for remote management of gas unit heaters comes with a PC Windows setup package and installation instructions.
The Modbus connection between the PC and OTRG005 thermoregulators must then be made, using the specific USB/RS485 converter, supplied.

How to connect OTRG005 thermoregulator

OTRG005 thermoregulator is connected as described in Paragraph 2.7 *p. 13*.

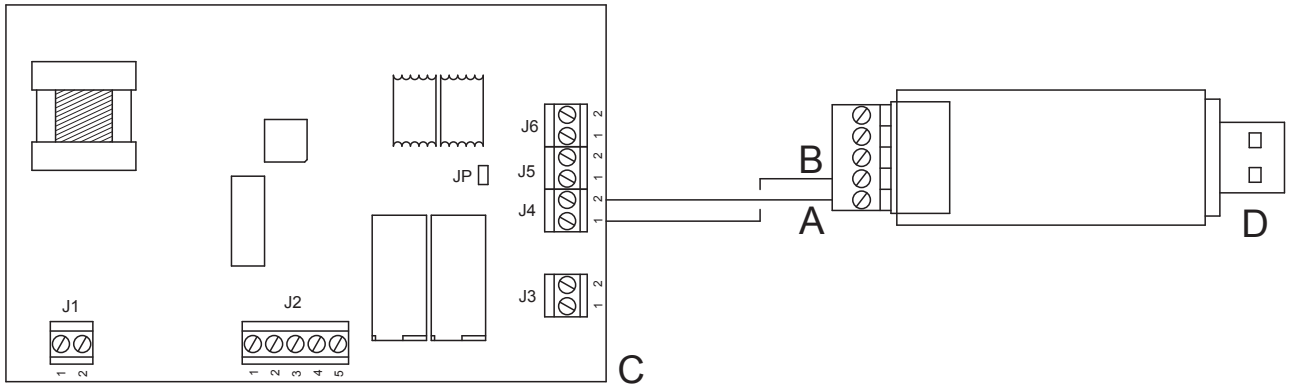
How to make Modbus connection

1. Access the J4 connection terminal block on OTRG005 thermoregulator.
2. Use unshielded 2x0,5 mm² twisted cable.
3. Connect the wires to the USB/RS485 converter terminal block as shown in Figure 2.10 *p. 19*.
4. Insert the USB converter into the PC. The device drivers will be downloaded and installed automatically if the PC is online.

The cable may not be longer than 1100 metres.

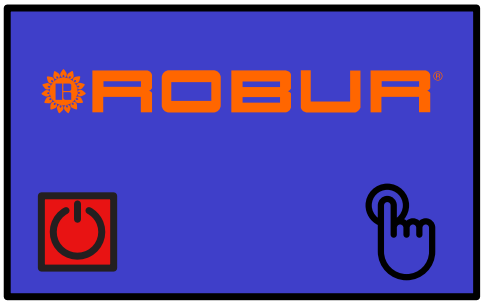
For further details and diagrams see the Genius software instruction sheet for remote control of the OSWR000 generators.

Figure 2.10 *USB/RS485 converter connection*



A A signal
B B signal
C OTRG005 thermoregulator
D USB/RS485 converter

2.10 OCDS015 MODBUS REMOTE CONTROL



The OCDS015 remote control is an optional control device with a colour touch screen that allows centralised management of the Next-G gas unit heaters, up to a maximum of 30 gas unit heaters even divided over a maximum of 6 zones.
The main functions are:

- Programmed on/off switching of the gas unit heaters, up to a maximum of 30.
- Possibility of dividing the connected gas unit heaters into several zones, up to a maximum of 6, each with its own set-point, operating mode and time programming.
- Management of the automatic destratification function.
- Space heating and summer ventilation setpoint setting.
- Antifreeze function.
- Summer ventilation mode activation.
- Centralised control with touch interface.
- Diagnostics.
- Possibility to interface with a BMS system.
- Possibility of temporarily excluding one or more appliances from operation.

The OCDS015 Modbus remote control must be installed on the wall in a suitable position, using expansion screws.
Operation via OCDS015 Modbus remote control must be enabled on the gas unit heater board via the appropriate parameters.

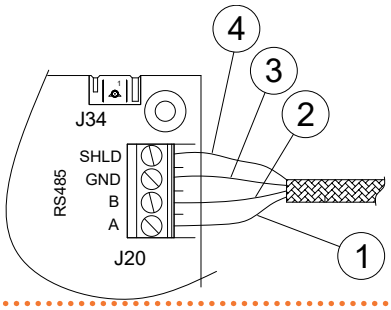
How to connect the remote control

1. Use LAN Cat. 5e FTP cable 4x2xAWG 24/1.
2. Make electrical connections as described in Figure 2.11 *p. 19*.

The total length of the connection cables between all gas unit heaters and the OCDS015 Modbus remote control must not exceed 1100 m.

For further information refer to the instruction sheet supplied with the OCDS015 optional.

Figure 2.11 *Modbus connection*



1 White/green
2 Green
3 White/blue + blue
4 Shield

2.11 GENERIC MODBUS CONTROLLER

The Next-G gas unit heaters can interact directly with a generic Modbus controller on which the registers required to control the gas unit heater itself have been appropriately configured.
Depending on the registers managed on the Modbus controller, the relevant functions will be available or not (switching the gas unit heater on/off, choosing the operating mode, error reporting and reset, setpoint setting, ...).

The document describing the mapping and meaning of the Modbus registers implemented on the GEN10 board is available on-demand from Robur technical service.

Operation via generic Modbus controller must be enabled on the gas unit heater board via the appropriate parameters.
The connection of a generic Modbus controller to the gas unit heater is identical to that provided for the OCDS015 Modbus remote control (Paragraph 2.10 *p. 19*).

Check with the Modbus controller manufacturer the type of cable to be used, the cross-sections and the maximum permissible cable lengths.

Any functions not supported by the Modbus controller can be managed via external requests by making the relevant connections (Paragraph 3 *p. 21*).

2.12 TEMPERATURE PROBES INPUTS

In order to extend the available features, the Next-G gas unit heater allows up to three NTC 10k temperature probes to be connected:

- ► Room probe (supplied)
- ► Destratification probe
- ► Outdoor probe

Cable to be used for temperature probes connection

2x0,5 mm² up to 40 m
For industrial environments, a shielded cable should be used, connecting the shield to the right-hand terminal of the contact to which the probe is connected.

2.12.1 Room probe (supplied)

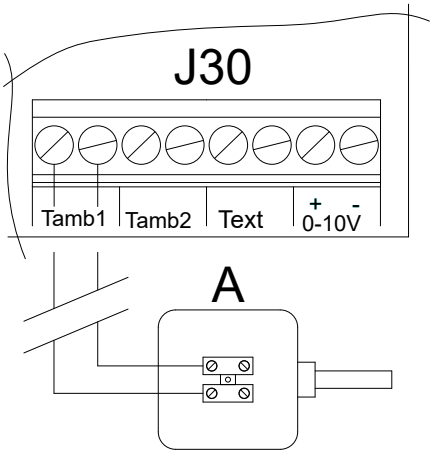
The supplied room probe allows the temperature inside the heated room to be measured.
The room temperature probe is enabled by default.

How to connect the room temperature probe

Connect the room probe to the "Tamb1" contact of the terminal block of the gas unit heater as shown in Figure 2.12 *p. 20*.

For further information refer to the instruction sheet supplied with the probe.

Figure 2.12 *Room probe connection*



A Room probe (supplied)
J30 Terminal block of the board on the Next-G gas unit heater

2.12.2 Destratification probe

The destratification probe (available as OSND012 optional) allows the temperature inside the heated room to be measured at a high point where heat can accumulate and be reused.
The destratification probe must be enabled on the gas unit heater board via the appropriate parameters.

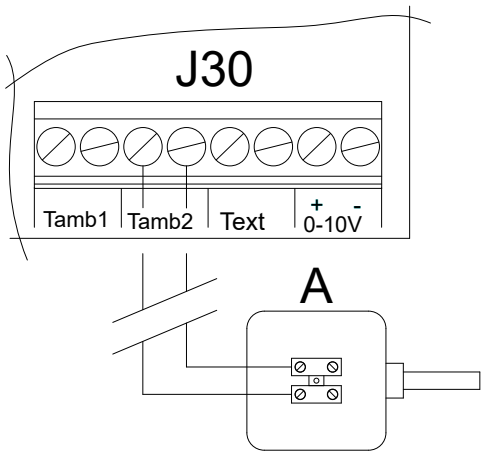
Please refer to Section B05 for an explanation of the operating logic of destratification mode.

How to connect the destratification probe

Connect the destratification probe to the "Tamb2" contact of the terminal block as shown in Figure 3.7 *p. 23*.

For further information refer to the instruction sheet supplied with the OSND012 optional.

Figure 2.13 *Destratification probe connection*



A Destratification probe
J30 Terminal block of the board on the Next-G gas unit heater

2.12.3 Outdoor probe

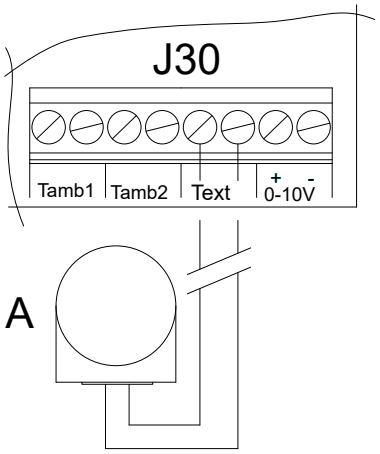
The outdoor probe (available as OSND007 optional) allows detecting the outdoor temperature.
The probe is required, in combination with the OCDS015 Modbus remote control, for the activation of the predictive start-up function.
The outdoor probe must be enabled on the gas unit heater board via the appropriate parameters.

How to connect the outdoor temperature probe

Connect the outdoor probe to the "Text" contact of the terminal block as shown in Figure 2.14 *p. 20*.

For further information refer to the instruction sheet supplied with the OSND007 optional.

Figure 2.14 *Outdoor probe connection*



A Outdoor probe

2.13 0-10 V INPUT

Without a Modbus controller, either the room temperature set-point or the power value can be communicated to the Next-G gas unit heater alternatively via a 0-10 V analogue signal.

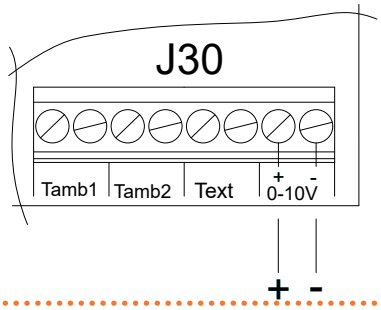
The activation of the 0-10 V input and the meaning to be given to the 0-10 V signal are chosen by appropriately configuring the parameters on the gas unit heater board.

How to connect the 0-10 V signal

Connect the 0-10 V signal, using a FRO-HP 2x0,75 mm² cable, to the "0-10V" contact of the terminal block as shown in Figure 2.15 *p. 21*, respecting the indicated polarity. For industrial environments, a shielded cable should be used, connecting the shield to the "-" terminal.

The cable may not be longer than 30 metres.

Figure 2.15 *0-10 V input connection*



3 EXTERNAL REQUEST

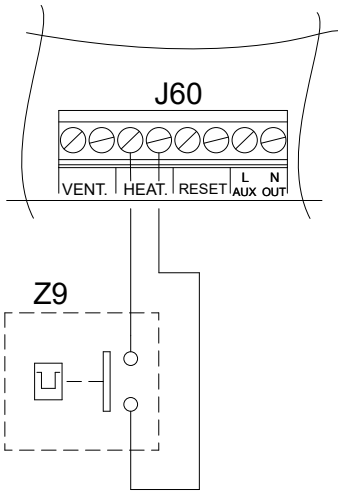
Depending on the required operation, it is required to arrange:

- Request device (e.g. thermostat, timer, switch, ...) equipped with a voltage-free NO contact, used for managing start/stop of the gas unit heater.
- Request device (switch) equipped with a changeover contact, for managing winter/summer mode operation (only for Next-R and M gas unit heaters).
- Request device (e.g. switch) equipped with a voltage-free NO contact, for managing the two power levels of the Next-R and Next-G gas unit heater (the latter only if you do not wish to use the modulating mode, active by default).

All the contacts for external requests of the terminal block in the electrical panel inside the unit have a 230 V voltage applied to the relative terminals.

The cable may not be longer than 20 metres.

Figure 3.1 *Connection of external request for gas unit heater start/stop management*



Z9 External request (e.g. thermostat, timer, switch, ...)

3.1 GAS UNIT HEATER START/STOP MANAGEMENT

Below are instructions on how to connect the external request for gas unit heater's start/stop management.

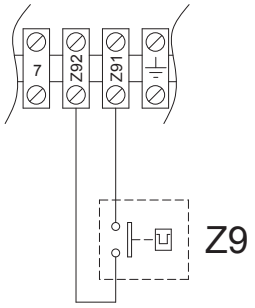
3.1.1 Next-G series

Connect the external request, using a 2x0,75 mm² FRO-HP cable, to the "HEAT." contact of the gas unit heater terminal block, as shown in Figure 3.1 *p. 21*.

3.1.2 Next-R series

Connect the external request, using a 2x0,75 mm² FRO-HP cable, to Z9-Z9 terminals of the gas unit heater terminal block, as shown in Figure 3.1 *p. 21*.

Figure 3.2 *Connection of external request for gas unit heater start/stop management*

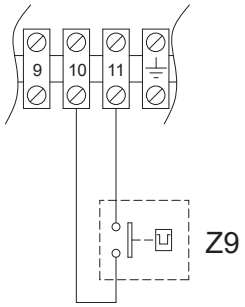


Z9 External request (e.g. thermostat, timer, switch, ...)

3.1.3 M series

Connect the voltage-free contact of the external request, using a 2x1 mm² cable, to 10-11 terminals of the gas unit heater terminal block, as shown in Figure 3.1 *p. 21*.

Figure 3.3 *Connection of external request for gas unit heater start/stop management*



Z9 External request (e.g. thermostat, timer, switch, ...)

3.2 SUMMER/WINTER MODE MANAGEMENT

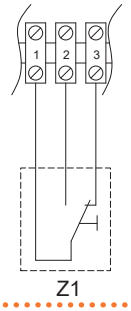
Summer/winter mode management via external request is only available for Next-R and M gas unit heaters.

For the Next-G series, the OCDS016 2-key basic control must be used.

How to connect the external request for summer/winter mode management

1. Remove the temporary jumper 28 between terminals 1-3 on the gas unit heater internal terminal block.
2. Connect the external request, using a 3x0,75 mm² cable, to terminals 1, 2, 3, of the gas unit heater terminal block, as shown in Figure 3.4 *p. 22*.

Figure 3.4 *Summer/winter switch connection*



Z1 Summer/winter switch

3.3 POWER LEVEL CONTROL

Summer/winter mode management via external request is only available for Next-G and Next-R gas unit heaters.

3.3.1 Next-G series

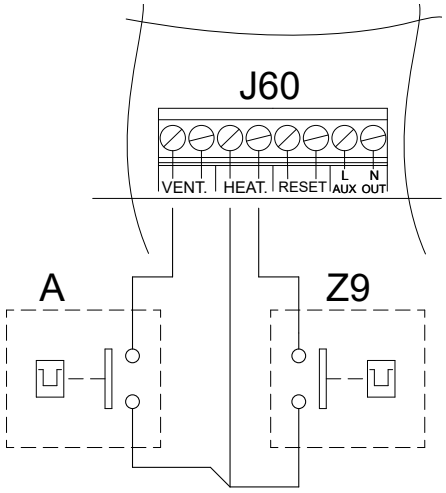
The standard operation of the gas unit heater is in modulation, thanks to the presence of the supplied room probe. Only in the presence of particular needs can it be appropriate to switch to operation on two heat output levels.

How to connect the external request for gas unit heater power level management

Connect the external request, using a 2x0,75 mm² FROHP cable, to the "VENT." contact of the terminal block as shown in Figure 3.5 *p. 22*.

The gas unit heater operates at maximum power when the "VENT." contact is closed, while it operates at minimum power when the "VENT." contact is open. In any case, the "HEAT." contact must be closed for power selection to be active. If the "HEAT." contact is open, closing the "VENT." contact causes activation of the summer ventilation mode.

Figure 3.5 *Gas unit heater power level selector switch connection*



Z9 External request (e.g. thermostat, timer, switch, ...)
A Gas unit heater power level selector switch:
- Closed contact: gas unit heater at maximum power
- Open contact: gas unit heater at minimum power

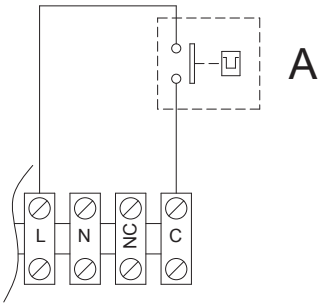
3.3.2 Next-R series

How to connect the external request for gas unit heater power level management

1. Remove the 27 temporary jumper between L-C terminals on the gas unit heater internal terminal block.
2. Connect the external request, using a 2x0,75 mm² cable, to L-C terminals of the gas unit heater terminal block, as shown in Figure 3.5 *p. 22*.

Gas unit heater operates at maximum power when the L-C contact is closed, while it operates at minimum power when the L-C contact is open.

Figure 3.6 *Gas unit heater power level selector switch connection*



A Gas unit heater power level selector switch:
- Closed contact: gas unit heater at maximum power
- Open contact: gas unit heater at minimum power

3.4 DESTRATIFIER FUNCTION

Operation as a destratifier is only available for Next-G and Next-R gas unit heaters.

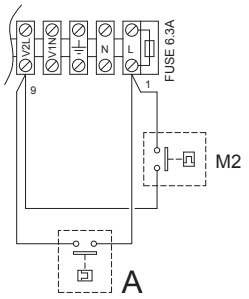
3.4.1 Next-G series

For all Next-G gas unit heaters, it is possible to connect a temperature probe (available as OSND012 optional), suitably positioned, to allow operation of the appliance's fan only (with the burner off), for thermal destratification.
In this way, if the temperature measured by the probe is higher than the threshold set in the gas unit heater parameters, it will start the fan only, which will push the mass of hot air towards the heated room without any gas consumption.
The connection of the temperature probe for the destratifier function is described in Paragraph 2.12.2 *p. 20*.

3.4.2 Next-R series

For Next-R vertical downflow gas unit heaters only, it is possible to use a thermostat, suitably positioned and adjusted, to allow the operation of the appliance's fan only (with the burner off), for thermal destratification.
This way, if the temperature measured by the thermostat in its installation point is higher than the threshold set on the thermostat itself, it will give the request, to the fan only, which will push the warm air flow down again.
Thermostat connection is shown in Figure 3.7 *p. 23*.

Figure 3.7 *Destratification thermostat connection*



A Destratification thermostat (to be provided)
M2 Fan thermostat (provided on the gas unit heater)

The gas unit heater fan will be activated each time it receives the request from the destratification thermostat, regardless of any other request.

It is useful to point out that the destratification thermostat works with an opposite logic to the room thermostat. The destratification thermostat must in fact activate the fan whenever the temperature at the installation point is higher than the set value, whereas the room thermostat must deactivate the heating request when the room temperature is higher than the set value.

4 POSITIONING THE CONTROL SYSTEM

Install the chosen thermostat/control system according to the following guidelines:
- ► At about 1,5 m from the floor, protected against air draughts, direct exposure to sun rays and direct heat sources (lamps, hot air flow from the unit itself, etc.).
- ► If possible, do not place the control system on walls bordering the outside, to avoid false temperature readings and therefore affect system operation. If this is not possible, shield the control system by placing a sheet of insulating material (cork, polystyrene or other similar) between the control system and the wall.

By following the above guidelines, unwanted starting and stopping of the system can be avoided and optimal comfort in the heated space can be guaranteed.

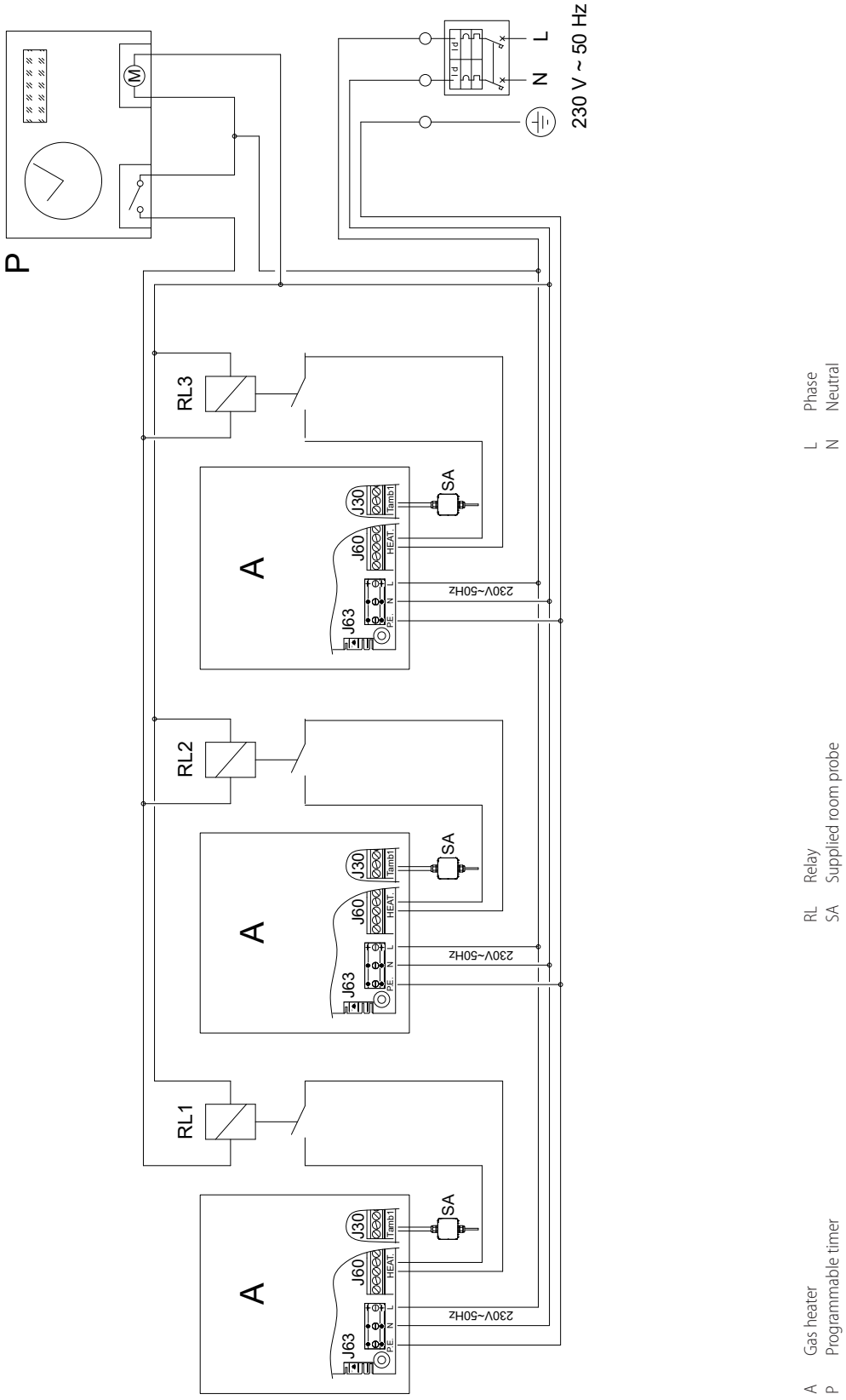
5 CONTROL OF MULTIPLE GAS UNIT HEATERS WITH A SINGLE EXTERNAL REQUEST

In the case of centralized management of multiple gas unit heaters start/stop, advice given is to use:
- ► The OTRG005 thermoregulator (one for each gas unit heater), suitably controlled via relay (Paragraph 2.7.4 *p. 17*).
- ► The OCDS008 digital chronothermostat (Paragraph 2.8.1 *p. 18*), combined with the OTRG005 thermoregulator (one thermoregulator for each gas unit heater), up to 10 gas unit heaters.
- ► OSWR000 Genius software for remote control (Paragraph 2.9 *p. 18*), combined with the OTRG005 thermoregulator (one thermoregulator for each gas unit heater), up to 100 gas unit heaters.
- ► The OCDS015 Modbus remote control (described in Paragraph 2.10 *p. 19*), up to 30 Next-G gas unit heaters.

5.1 NEXT-G SERIES

If you do not wish to use the solutions listed in Paragraph 5 *p. 23* above, the centralized management of start/stop can be done as described in Figure 5.1 *p. 24*, using a programmable timer. The supplied room probes serving each Next-G gas unit heater allow the gas unit heater to be activated only when the specific zone actually needs heat, avoiding wastage of energy. The programmable timer allows subordinating the gas unit heater activation, even if requested by the room probe, to a centralized request.

Figure 5.1 *Multiple appliances wiring diagram with one programmable timer and more room thermostats*



5.2 NEXT-R AND M SERIES

If you do not wish to use the solutions listed in Paragraph 5 *p. 23* above, the centralized management of start/stop can be done as described in Figure 5.2 *p. 25*, using a programmable timer and several room thermostats. The room thermostats serving each gas unit heater allow the gas unit heater to be activated only when the specific zone actually needs heat, avoiding wastage of energy. The programmable timer allows subordinating the gas unit heater activation, even if requested by the room

thermostat, to a centralized request.

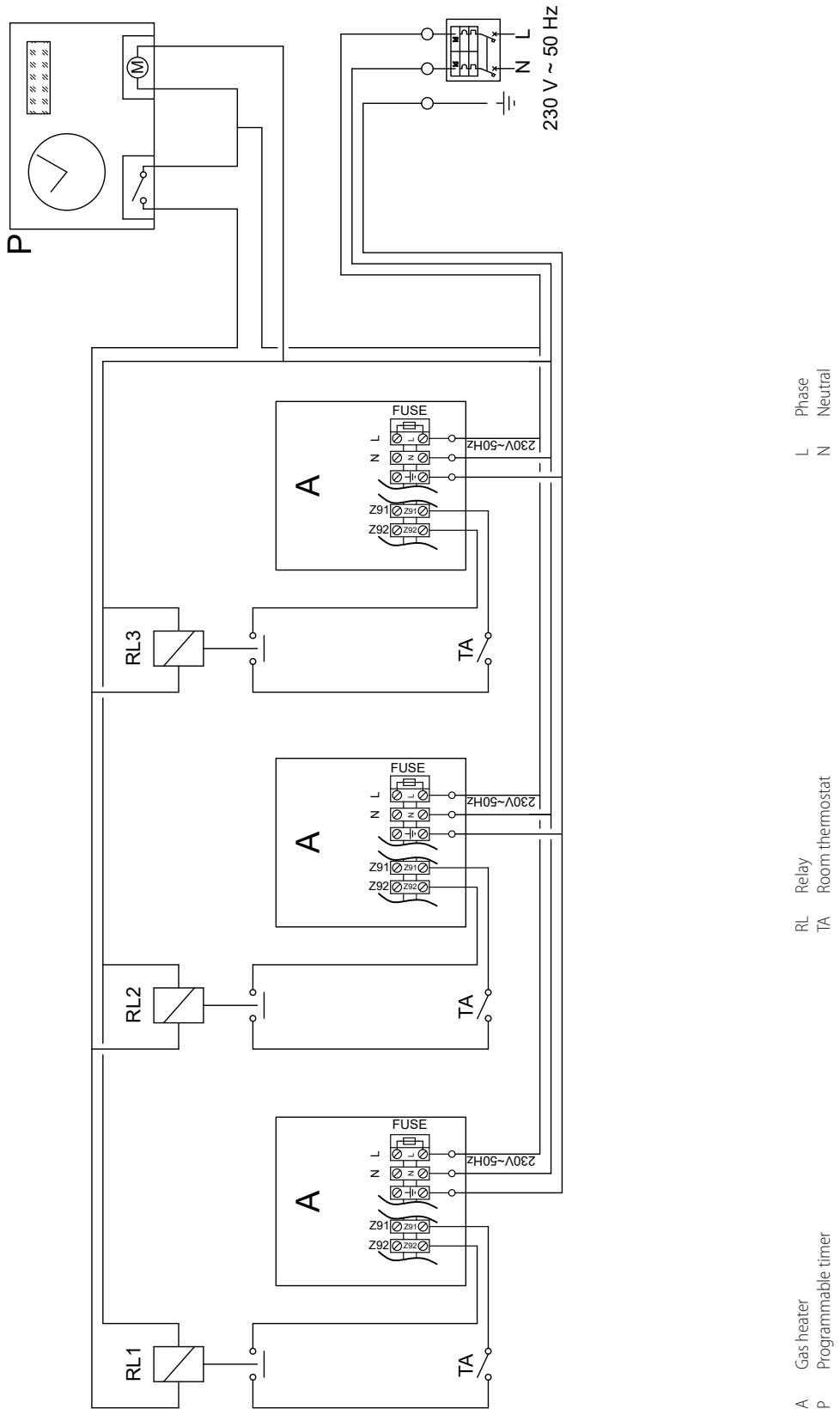



Figure 5.2 *Multiple appliances wiring diagram with one programmable timer and more room thermostats*