

Individual room controller XMP-GA-IRC-001

Fields of application

The main function of the individual room controller **XMP-GA-IRC-001** is the optimization of the comfort and the well-being of the person been in the room through an intelligent regulation of temperature and ventilation considering economic aspects.

Module for single room regulation



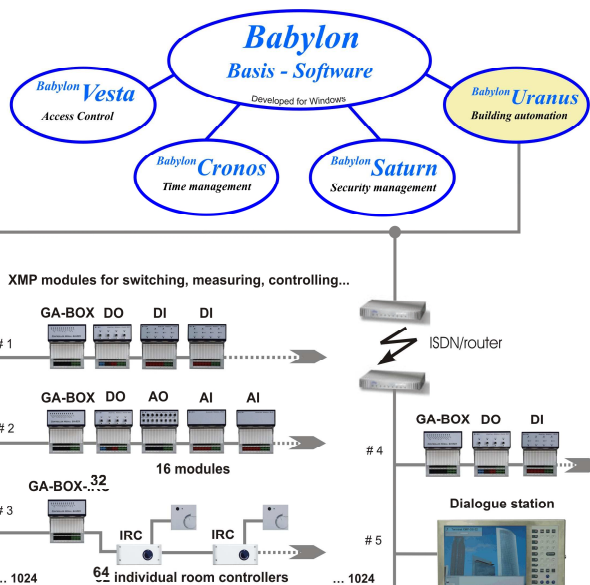
XMP-GA-IRC-001

Functions, properties

- The setting of parameters and the control of up to 32 individual room controllers is realized with the substation XMP-GA-BOX/IRC (RS485 interface)
- hardware addressing via micro switches
- 3 digital outputs (potentialfree), one of them configurable (potentialfree or carrying voltage 15 V DC)
- with closing contact function, max. current 5A / 250V~ or 30V -.
- 4 digital inputs (potentialfree)
- 2 analog outputs (0..10 V) for driving of adjusting valves
- 3 analog inputs (0..10 V), AI0 temperature sensor (Ni1000 standard, Pt1000, Pt100), measuring range 10..35°C, measuring accuracy ±1.5K, AI1 set-point transmitter (0..1kOhm)
- easy mounting

Technical data

Power supply:	24 V AC (for voltage supply of the adjusting valves a separat power supply must be used)
Current consumption:	Approx. 40 mA (in idle state) Approx. 250 mA (under load)
Power consumption:	Max. 6 VA
Interfaces:	1 x RS485 1 x programming interface
Processor:	M16C
Ambiance conditions:	in operation: 0 to 70°C storage: -40 to 70°C
Dimensions:	(HxWxL) 40 x 82 x 177 mm
Weight:	approx. 0.26 kg

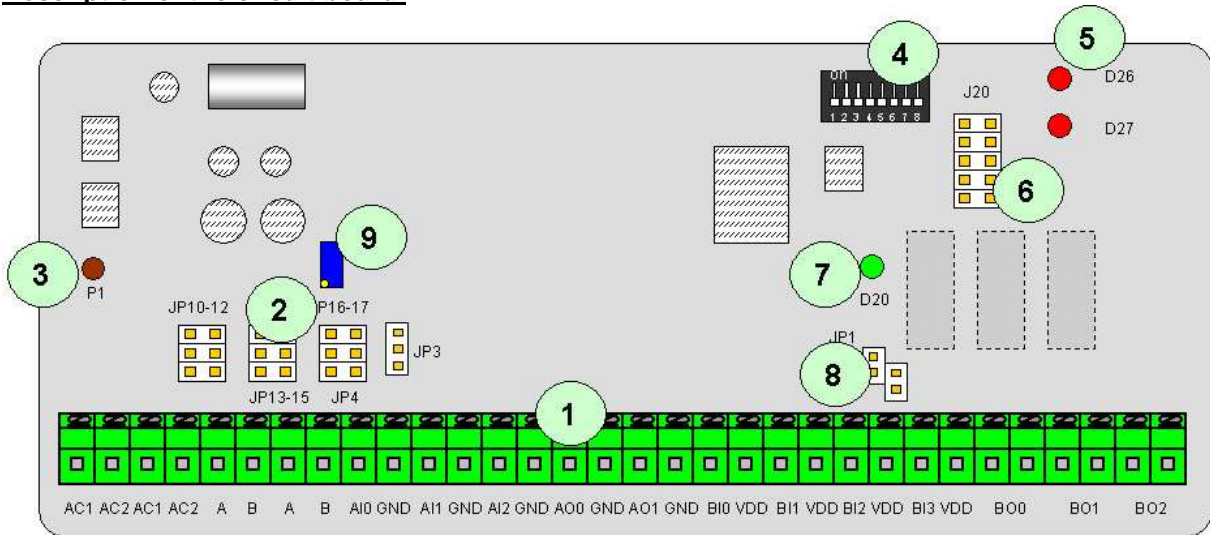


Scheme for the connection possibilities of the XMP-GA modules to BABYLON/NT

XMP-GA-BOX	GA controller module for the GA input and output modules as well as for the individual room controllers (special firmware!)
XMP-GA-12-DI	12 times binary input
XMP-GA-12-DO	12 times binary output
XMP-GA-4-DO	4 times binary output
XMP-GA-4-DO-HAND	4 times binary output with manual operation panel
XMP-GA-8-AI	8 times analogue input
XMP-GA-8-AO	8 times analogue output
XMP-GA-8-AO-HAND	8 times analogue output with manual operating panel
XMP-GA-IRC-001	Individual room controller

Order number: XMP-GA-IRC-001

Description of the circuit board:



1. termination ledge
2. jumper blocks for configuration of the peripherie
3. potentiometer for adjusting the set-point value adjuster
4. micro switch block for addressing the IRC
5. communication LED's (XMP-GA-Box/IRC ↔ IRC)
6. programming interface
7. operation display IRC
8. jumper block for configuration of the BO0 (potentialfree or carrying voltage 15 V for triggering the set-point adjuster presence LED)
9. potentiometer for the correction of the Pt100 temperature sensor

Anschlussbeschreibung der Klemmen:

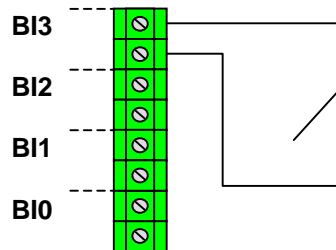
BO2	binary output, potential free (e.g. display „Dew-point reached“)
BO1	binary output, potential free (e.g. display „Window open“)
BO0	binary output, potential free or 15 V (drives the LED of the ROP)
VDD	binary input, potential free (presence push button of the ROP)
BI3	binary input, potential free (free)
VDD	binary input, potential free (window contact)
BI2	binary input, potential free (closing contact of the dew-point sensor)
VDD	analogue output 0..10 V (cooling valve)
BI1	analogue output 0..10 V (heating valve)
VDD	analogue input 0..10 V (free)
BI0	set-point adjuster (0...1 kOhm)
GND	temperature sensor Pt1000, Pt100, Ni1000 std. (see jumper position)
AO1	communication lines to the next IRC
GND	communic. lines: GA-BOX/IRC (cl. 13 → A; cl.14 → B); IRC/IRC (A → A; B → B)
AI2	operating voltage IRC 24 V~;
GND	continuing to the next IRC
AI1	operating voltage IRC 24 V~
GND	
AI0	
B	
A	
B	
A	
AC2	
AC1	
AC2	
AC1	

XMP-GA-IRC-001

The flexible URANUS modules offer the optimal solution for the planning of building specific automation systems. The **XMP-GA-IRC modules** are used for the connection of analog and digital field devices (e.g. supervision of contacts, controlling of positioning elements, etc.).

Binary inputs

There is always a potential difference of 15 V between the terminators BI0..BI3 and VDD. The binary inputs will be activated from outside by potentialfree contacts.

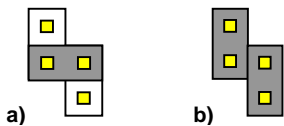
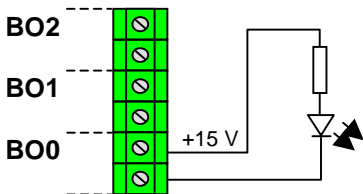


Connection example for a binary input

Binary outputs

The binary outputs BO0..BO2 are potentialfree outputs with closing contact function.

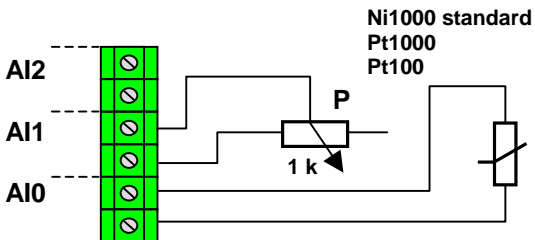
The BO0 can be configured as carrying voltage (15 V) by jumpers (position 8 in the circuit board description). This output is intended for triggering an LED of a room operation device. For BO1 and BO2 this option does *not* exist!



Configuration of the BO0 with jumpers as
a) potentialfree, b) carrying voltage (15 V)

Analogue inputs:

The analog inputs AI0 and AI1 are intended for the direct connection at the room operation device - AI0 for the temperature sensor and AI1 for the input signal of the temperature set-point adjuster. AI2 is not used at the moment.



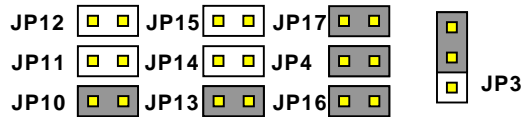
Connection example for analogue inputs

Overview of possible jumper positions for configuring the analogue inputs when using GA-BOX-IRC for driving the XMP-IRC

(Corresponding to figure JP3 is always set in upper position)

Connection condition	JP16	JP10	JP13	JP11	JP14	JP12	JP15	JP4	JP17	JP3
Set-point transmitter (0..1kOhm)									•	•
Pt1000	•	•	•					•		•
Pt100	•			•	•					•
Ni1000 – standard	•					•	•	•		•

By positioning of jumpers (position 2 in the circuit board description) the outside periphery of the IRC can be configured, e.g., a connected set-point transmitter as well as the type of temperature sensor currently used: Ni1000 Standard/ Pt1000 oder Pt100.

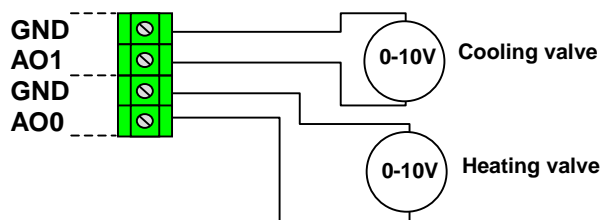


Jumper positions in delivery state

- Set-point transmitter connected JP17,
- Pt1000 connected (JP3, JP4, JP10, JP13, JP16)

Analogue outputs:

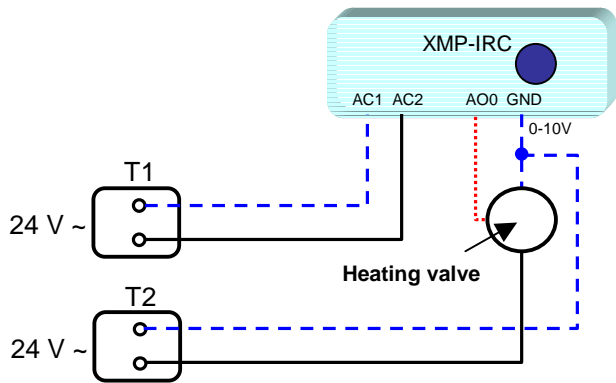
The output voltage range of the analog outputs AO0 and AO1 is 0 to 10V DC.



Connection example for analogue outputs

AO1 must be connected with the triggering input of the cooling valve and AO0 with the triggering input of the heating valve.

The maximum burden (R min) per output is 600Ω.



Scheme for the connection of a heating valve with an operating voltage of 24 V ~ and a driving voltage of 0..10 V DC.

Attention!
 The adjusting drives for the heating and cooling valves - which are controlled by the analogue outputs of the **XMP-IRC** - must be supplied by a separate power supply **absolutely!**
That means: The power supply for the operation of the XMP-IRC and those of the adjusting drives must not be the same! The ignoring of this hint can effect serious damages on the XMP-IRC.

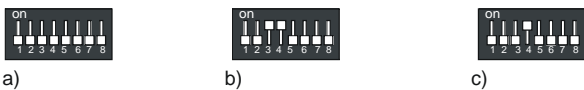
Connection of the room operation panel (ROP) at the XMP-IRC:

- The individual room controller XMP-IRC is designed for the following room operation panels:
- RTF5 NI1000
 - RTF5 PT1000
 - RTF5 PT100

The possibility to connect other types of room operation panels must be proved in particular case.

Addressing:

The addressing of the IRC is realized using the micro switch block which is situated on the IRC circuit board (position 4 in the circuit board description). The address (0..31) must be adjusted in binary coded manner.



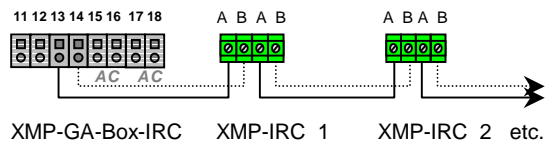
Examples of addressing:

a) address 0, b) address 12, c) address 8

Using Dip-Switch 7 the Baudrate is fixed. ON = 19200 Baud, OFF = 9600 Baud. Dip-Switch 8 activates the Bootloader (only used in special cases).

Communication interface:

The data transfer between substation (XMP-GA-Box-IRC/ XMP-GA-BOX32) and IRC is realized via the communication interface (terminators A,B).



In stand alone operation of the IRC the terminals A and B must not be connected. After restart the **XMP-IRC** the regulation is determined by default values given in the IRC firmware.

Operation modes of the XMP-IRC

- ECONOMY
- STANDBY
- COMFORT

Firmware versions

For setting parameters and the controlling the XMP-IRC software versions starting with following versions are necessary:

XMP-GA-Box/IRC:	V3.1
XMP-IRC :	V1.8

Dimensions:

