

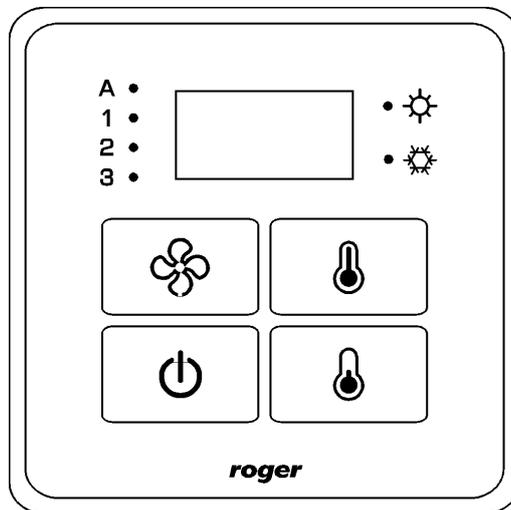
*Roger Access Control System*

# Installation guide for HRT82AC air conditioning control panel

Firmware version: 1.1.2.39 or newer

Hardware version: 1.1

Document version: Rev. F



redr203

## 1. INTRODUCTION

This manual contains minimum information that is necessary to properly install device. Following documents supplement this manual:

- Functional description of HRC series controllers
- Installation guide for HRC series controllers

In order to acquire the first one it is necessary to obtain Roger consent and sign non-disclosure agreement (NDA). The second one is available at [www.roger.pl](http://www.roger.pl).

## 2. DESCRIPTION AND SPECIFICATION

HRT82AC air conditioning control panel is peripheral device used in a hotel system based on HRC series controllers. The device communicates with controller using RACS CLK/DTA bus and enables to adjust air conditioner speed, to start heating or cooling and to read and display room temperature. Interchangeably, room temperature can also be read by means of such devices with built-in temperature sensors as HRT82TS temperature sensor module and HRT82MF-CH card holder.

HRT82AC front panel includes monochromatic display, six LED indicators and four touch buttons which can be used for switching panel on/off, adjusting AC speed and setting desired room temperature. The device is equipped with front panel backlight and buzzer.

The panel is offered in two versions: HRT82AC for surface mounting and HRT82AC-F for flush mounting.

<b>Table 1. Specification</b>	
Supply voltage	Nominal 12VDC, min./max. range 10-15VDC
Average current consumption	60mA
Tamper resistance	Isolated contact, NC type (normally closed when enclosure is assembled and attached), 24V/50mA
Distance	Between controller and HRT device (RACS CLK/DTA): max. 150m
IP code	IP30
IK code	HRT82AC: IK06 HRT82AC-F: IK08
Environmental class (acc. to EN 50131-1)	Class II, indoor general conditions, temperature: -10°C- +50°C, relative humidity: 10 to 95% (no condensation)
Dimensions HxWxD	HRT82AC: 85 x 85 x 22 mm HRT82AC-F: 105 x 105 x 31 mm
Weight	~ 100g
Certificates	CE

### 3. INSTALLATION

#### 3.1 Terminals and connection diagram

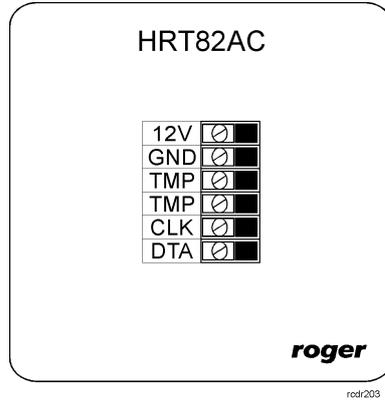


Fig. 1 HRT82AC air conditioning control panel

<b>Table 2. HRT82AC terminals</b>			
Term.	Description	Term.	Description
12V	12VDC power supply	DTA	RACS CLK/DTA bus
GND	Ground	TMP	Tamper
CLK	RACS CLK/DTA bus	TMP	Tamper

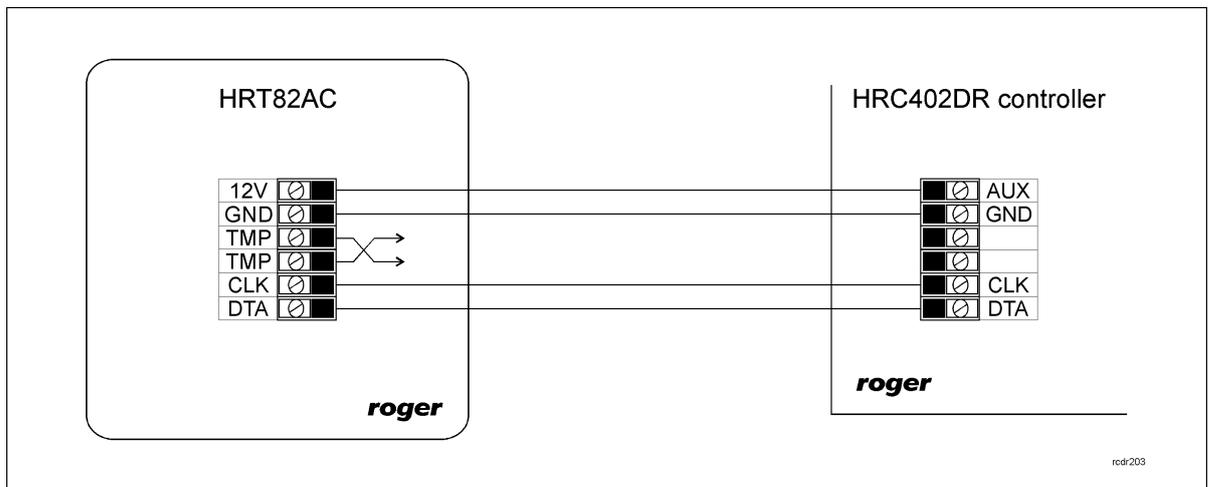


Fig. 2 Connection to controller with 12VDC power supply output

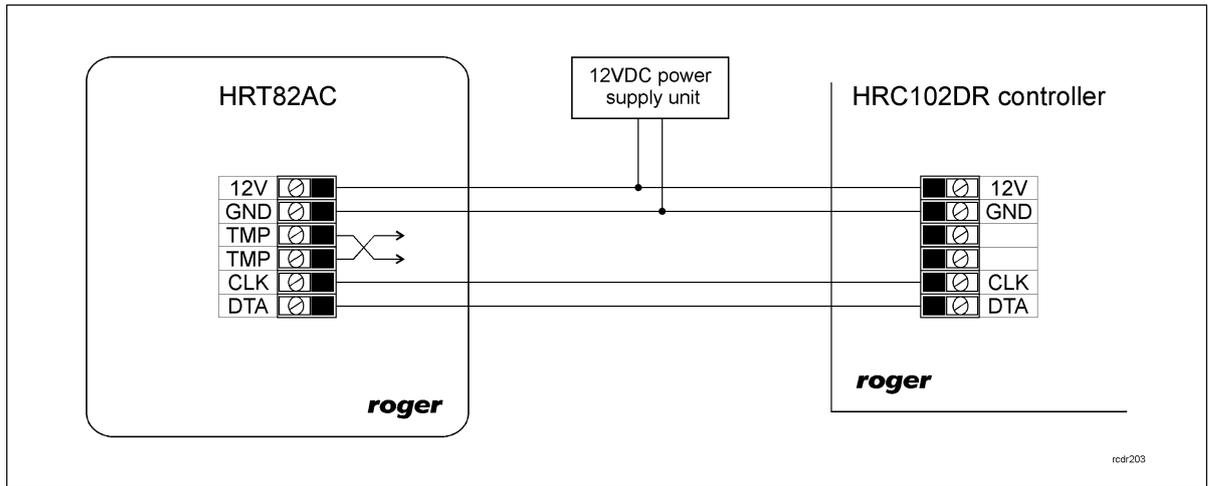


Fig. 3 Connection to controller without 12VDC power supply output

### 3.2 Power supply

HRT82AC requires 12VDC nominal power supply. The power must be connected to 12V and GND terminals. Additionally, the GND terminal is used as reference potential for the RACS CLK/DTA bus. HRT82AC power supply can be provided by connection to 12VDC buffer power supply unit or connection to AUX output of HRC402DR controller (see fig. 2). Backup battery connected to power supply unit or directly to HRC402DR controller can be used in order to ensure operation in case of 230VAC power failure.

Note: All devices connected to the same RACS CLK/DTA bus must be connected to common reference potential (GND).

### 3.3 RACS CLK/DTA communication bus

RACS CLK/DTA is the addressable bidirectional communication standard developed and applied in Roger controllers in order to enable their communication with peripheral devices. Addresses of all devices connected to CLK and DTA lines must be properly configured in range of 00..15. Standard unshielded signal cables (e.g. U/UTP cat. 5) with maximal length of 150m can be used for RACS CLK/DTA communication.

### 3.4 Front panel

#### OLED display

HRT82AC panel is equipped with monochromatic OLED display to present temperature [°C] and five icons which signal controller’s state. Depending on HRC controller settings, the panel can display temperature in two modes. In the first one, the panel based on built-in temperature sensor displays actual room temperature and after pressing one of temperature adjustment buttons (TEMP+ or TEMP-) it switches to display temperature setting (blinking value). After a few seconds of inactivity it switches back to display actual room temperature. In the second mode only configured temperature is displayed all the time.

Table 3 Display icons	
Icon	Description
	Panel switched off with touch button.
	Air conditioning is in standby mode.

	The window is opened and air conditioning is automatically switched off.
	Heating automatically switched on to prevent freezing.
	Temperature reading error.

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Note: In case of firmware 1.1.2.39 or newer, LED indicators can be dimmed after 5s of device idleness and the display can be automatically switched off after 30 s of device idleness.

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### LED indicators

In the top part of HRT82AC panel there are located six LED indicators. Their functions are explained in table 4.

Symbol	Name	Colour	Function
<b>A</b>	AUTO	Green	Automatic control of air conditioner or fan coil speed
<b>1</b>	SP1	Green	Air conditioner speed 1
<b>2</b>	SP2	Green	Air conditioner speed 2
<b>3</b>	SP3	Green	Air conditioner speed 3
	HEAT	Red	Heating on
	COOL	Blue	Cooling on

The panel enables to control air conditioner fan speed by means of HRC controller outputs or connected XM-6DR outputs. Speed is switched with SPSW button. In case of automatic operation, the HRC controller automatically selects speed depending on difference of actual room temperature and temperature setting. HEAT and COOL indicators are activated respectively when heating and cooling is started by HRC controller. Both heating and cooling result from difference of actual temperature and temperature setting. HRC controller can operate with two pipe and four pipe systems.

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Note: In case of firmware 1.1.2.39 or newer, LED indicators can be automatically dimmed when panel is idle for 5s.

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### Touch buttons

HRT82AC panel is equipped with four touch keys. Their functions are explained in table 5. By default when button is pressed, short acoustic signal is generated by panel.

Symbol	Name	Function
	SPSW	Switch air conditioner fan speed
	ON/OFF	Switch HRT82AC panel on/off
	TEMP+	Adjust temperature up

	TEMP-	Adjust temperature down
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### 3.5 Wall mounting and installation guidelines

HRT82AC consists of front panel and base which are factory assembled and require manual disassembly prior to installation according to fig. 4.

#### Installation guidelines

- Install device on wall far from sources of heat and moisture
- It is recommended to install device on Ø60mm flush mounting box
- In case of HRT82AC-F base it is necessary to make cut in the wall below temperature detector (hole in fig. 5) and under glass panel and additionally install the panel in a distance of 1-2mm from wall to ensure air circulation at the detector
- Front panel and base must be properly oriented in order to ensure functioning of tamper lever.
- All electric connections must be made with power supply switched off
- Run connection wires through hole in device base and then connect wires to screw terminals
- If device and controller are supplied from different power supply units then it is necessary connect GND terminals of both devices
- Front panel can be regularly cleaned with wet cloth and mild detergent. Do not clean by means of abrasive materials and strong cleaners like alcohols, solvents, etc.
- Damages resulting from improper maintenance or use are not covered by warranty

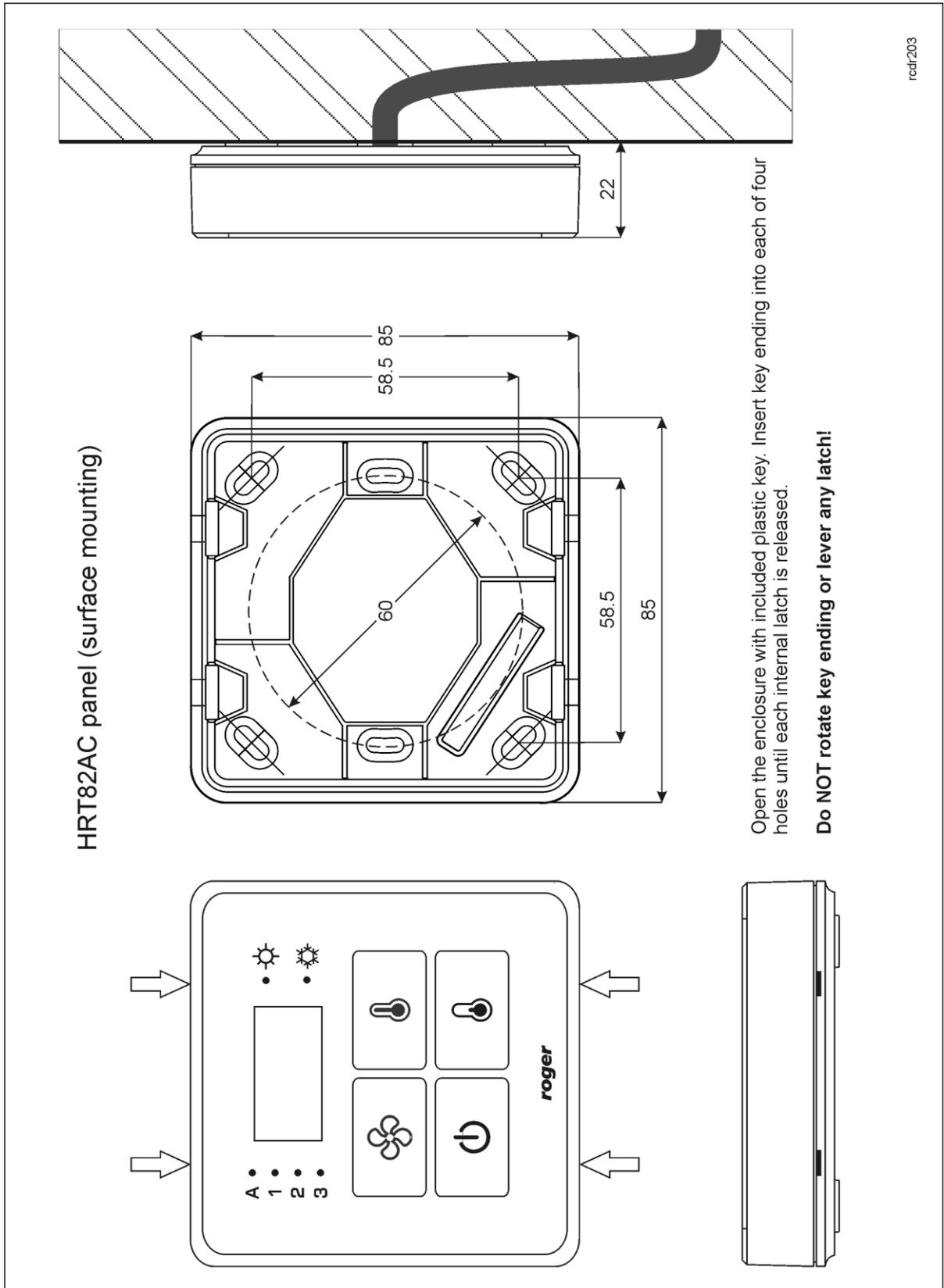


Fig.4 HRT82AC latches and surface mounting

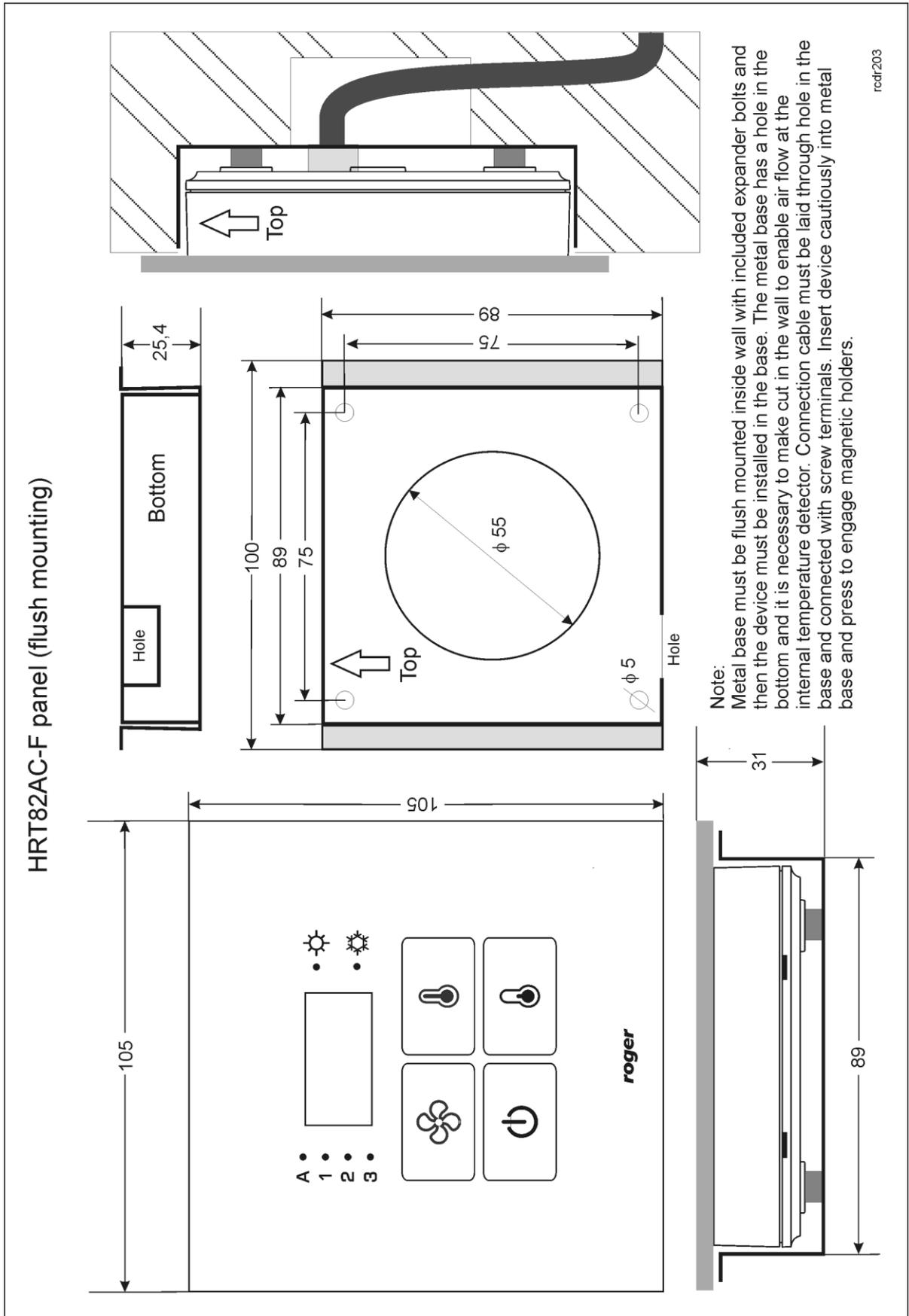


Fig.5 HRT82AC-F flush mounting

## 4. CONFIGURATION

### 4.1 Device programming

The address of factory new HRT82AC is ID=7 and such device is ready to communicate with HRC series controller requiring no additional configuration. The same address is used by HRT82TS temperature sensor module. Therefore particular controller can operate with only one of mentioned devices using ID=7 address. In case of HRC controllers with firmware 1.3.12.108 (or newer), two HRT82AC can be connected in order to control two individual air conditioning zones. In such a case the second HRT82AC is configured with ID=4 address.

If necessary, HRT82AC settings can be modified with RogerVDM software (available at [www.roger.pl](http://www.roger.pl)) after connection to RUD-1 communication interface.

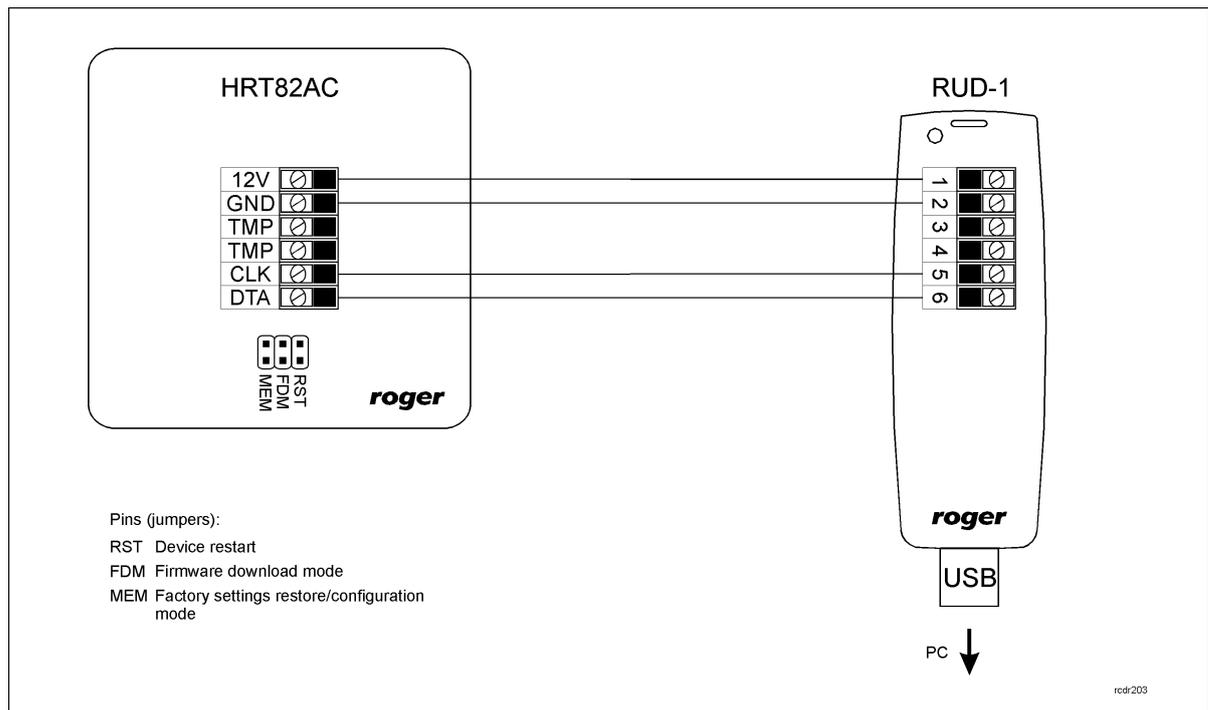


Fig. 6 HRT82AC and RUD-1 connection

#### Connection and configuration procedure

1. Connect device to RUD-1 communication interface according to fig. 6
2. Place jumper on MEM pins
3. Restart the device (place and remove jumper on RST pins or switch power supply off and on)
4. Install and start RogerVDM software
5. In the opened window select device, firmware version, RS232 communication channel and serial port with connected RUD-1.
6. Select *Connect* button, the software shall establish connection with the device and automatically switch to configuration window
7. Enter required settings (options are described in table 6)
8. Select *Send to Device* button – the software shall upload new settings
9. Remove jumper from MEM pins
10. Restart the device (place and remove jumper on RST pins or switch power supply off and on)

Note: During connection procedure placing jumper on MEM pins and restarting the device restores its factory default settings.

**Table 6. Configuration parameters**

Parameter	Values	Description
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General		
Device Name	16 ASCII characters	Device description which can be filled with any comment by installer
Transmission Format		
RACS CLK/DTA Address	0..15	Device address on RACS CLK/DTA bus. Default address ID=7 is used for communication with controller. The address ID=4 can be used in case of two AC zones.
Communication timeout [0.5s]	0..255	The device signals communication failure when selected timeout elapses. When 0 is selected then failure is not signalled at all.
Optical Signalization		
Backlight level	0..100%	Parameter specifies backlight level for LED indicators and keypad.
Backlight animation	Yes, No	Parameter enables automatic dimming of LED indicators and keypad after 5 s inactivity while the display is switched off after 30 s inactivity.
Backlight Dim	On, Off	When activated, panel will temporary switch off keypad backlight (50 ms) when key is pressed.
Acoustic Signalization		
Buzzer loudness level	0..100%	Buzzer loudness level. Buzzer is switched off when 0 level is selected
Key Press Confirmation Signal On Buzzer	Yes, No	When activated, button pressing is signalled with buzzer.
Advanced Settings		
Key Short Press [s]	0,125..1	Key short press time. Not implemented
Key Long Press [s]	1,125..3	Key long press time. Not implemented.

## 4.2 Firmware update

HRT82AC firmware can be updated with RogerVDM (available at [www.roger.pl](http://www.roger.pl)) after connection to RUD-1 communication interface.

### Firmware update procedure

1. Connect device to RUD-1 communication interface according to fig. 6
2. Install and start RogerVDM software
3. Close Select Device window
4. In top menu select *Tools->Update* firmware
5. In the opened window select device, port with connected RUD-1 and specify path to firmware file (\*.hex).
6. According to displayed message place jumper on FDM pins and restart the device (place and remove jumper on RST pins or switch power supply off and on)
7. Select *Update* button
8. After firmware upload remove jumper from FDM pins and reset device (place and remove jumper on RST pins or switch power supply off and on)

## 4.3 Memory reset

In order to restore HRT82AC factory default settings place jumper on MEM pins and then restart the device either by placing and removing jumper on RST pins or by switching power supply off and on. Moreover, memory reset is also part of connection and configuration procedure (see 4.1).

## 5. TROUBLESHOOTING

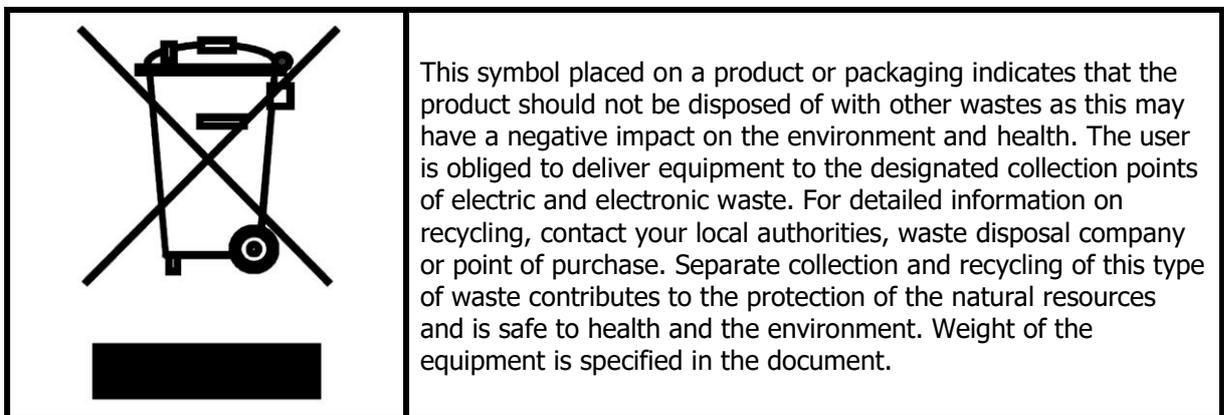
Issue	Visual indication	Acoustic indication	Solution
No communication with controller	All LED indicators are blinking.	-	<ol style="list-style-type: none"> <li>1. Check if RACS CLK/DTA bus is properly connected, wires are undamaged and the bus does not exceed 150 m. All devices connected to particular RACS CLK/DTA bus should have common supply minus (GND).</li> <li>2. Check if the controller is properly configured for communication with the device.</li> </ol>
Device configuration error	AUTO green LED indicator single blinking every 2 sec.	Short beep every 2 sec.	1. Connect the device to PC with RogerVDM software and configure it again (see 4.1).
Device firmware error	AUTO green LED indicator double blinking every 2 sec.	Short double beep every 2 sec.	1. Upload the firmware again (see 4.2)

## 6. ORDERING INFORMATION

HRT82AC	Touch type function key panel
RUD-1	Communication interface with 12VDC power supply output

## 7. PRODUCT HISTORY

Version	Released	Description
HRT82AC v.1.0	07/2014	The first commercial version of the product



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