

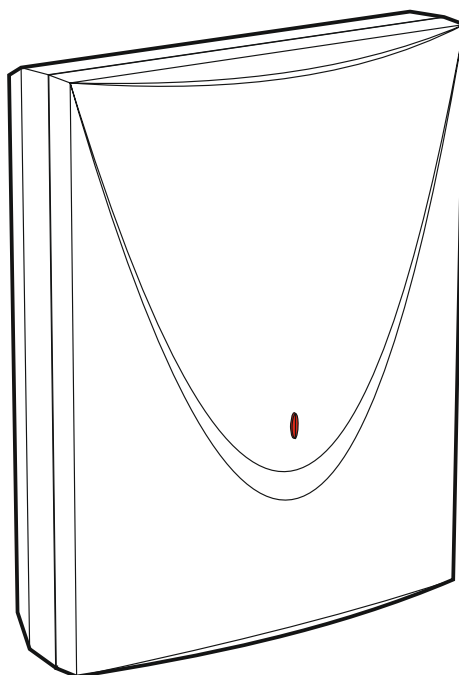
# Satel®

## abox2

# ACX-220

Hardwired zone / output expander

CE



Firmware version 1.00

acx-220\_en 01/20

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## IMPORTANT

The device should be installed by qualified personnel.

Prior to installation, please read carefully this manual in order to avoid mistakes that can lead to malfunction or even damage to the equipment.

Disconnect power before making any electrical connections.

Changes, modifications or repairs not authorized by the manufacturer shall void your rights under the warranty.

The rating plate of the device is located on the enclosure base.

SATEL aims to continually improve the quality of its products, which may result in changes in their technical specifications and software. Current information about the changes being introduced is available on our website.

Please visit us at:  
<http://www.satel.eu>

**Hereby, SATEL sp. z o.o. declares that the radio equipment type ACX-220 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: [www.satel.eu/ce](http://www.satel.eu/ce)**

The following symbols may be used in this manual:



- note,



- caution.

The ACX-220 expander enables hardwired devices (detectors, sirens, etc.) to be used in a wireless system. The expander is designed for use as part of the ABAX 2 / ABAX two-way wireless system. This manual applies to the expander with firmware version 1.00, which is supported by:

- ABAX 2:
  - ACU-220 / ACU-280 controller,
  - ARU-200 repeater.
- ABAX:
  - ACU-120 / ACU-270 controller (firmware version 5.04 or newer),
  - ARU-100 repeater (firmware version 2.02 or newer),
  - INTEGRA 128-WRL control panel (firmware version 1.19 or newer and firmware version of processor used to operate ABAX system 3.10 or newer).

The expander takes up 4 positions on the list of wireless devices (in the case of the ACU-220 controller, in the mode of the universal module of wireless devices, the expander can occupy from 1 to 4 positions on the list of wireless devices).

## 1. Features

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- 4 programmable hardwired zones:
  - support for NO and NC type detectors,
  - support for Single EOL and Double EOL configuration.
- 4 programmable hardwired outputs (relay).
- Encrypted two-way radio communication in the 868 MHz frequency band (AES standard for the ABAX 2 system).
- Transmission channel diversity – 4 channels for automatic selection of the one that will enable transmission without interference with other signals in the 868 MHz frequency band (ABAX 2 system only).
- Remote update of expander firmware (ABAX 2 system only).
- Remote configuration.
- Tamper protection against cover removal.

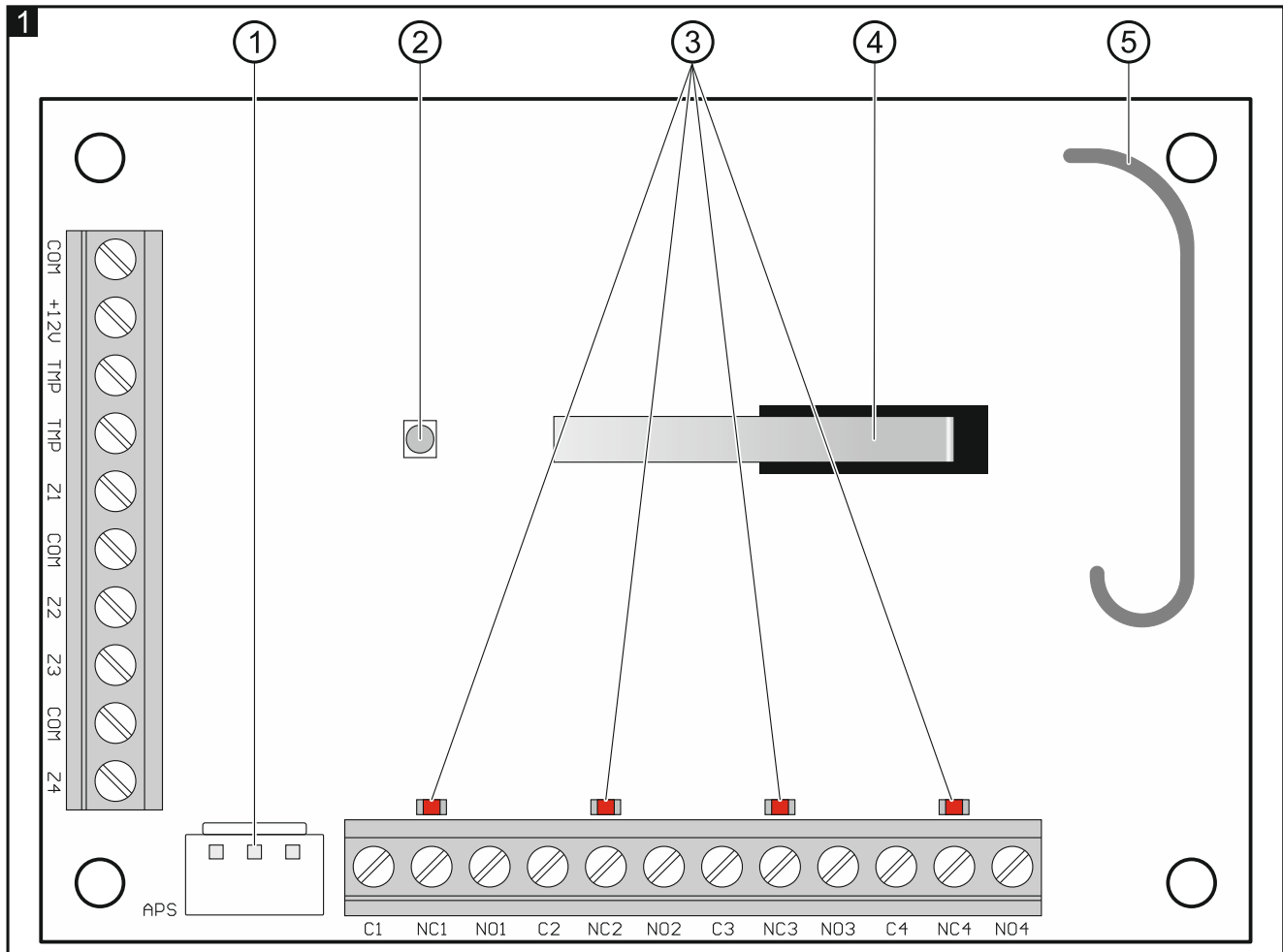
## 2. Specifications

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Operating frequency band .....	868.0 MHz ÷ 868.6 MHz
Radio communication range (in open area)	
ABAX 2	
ACU-220 .....	up to 2000 m
ACU-280 .....	up to 1600 m
ABAX.....	up to 500 m
Supply voltage .....	12 V DC ±15%
Standby current consumption .....	35 mA
Maximum current consumption.....	120 mA
Relay outputs (resistive load).....	1000 mA / 24 VDC
Complied with standards..EN 50130-4, EN 50130-5, EN 50131-1, EN 50131-3, EN 50131-5-3	
Security grade according to EN50131-3 .....	Grade 2
Environmental class according to EN50130-5 .....	II

Operating temperature range.....-10°C...+55°C  
 Maximum humidity .....93±3%  
 Enclosure dimensions..... 126 x 158 x 32 mm  
 Weight.....204 g

### 3. Electronics board



- ① APS connector for a SATEL power supply unit (e.g. APS-412).
- ② LED indicator which flashes when the communication with a controller takes place.
- ③ LEDs indicating the status of the relay outputs:  
 OFF – output inactive,  
 ON – output active.
- ④ tamper switch.
- ⑤ antenna.

#### Terminals

- COM** - common ground.
- +12V** - power input / +12 V DC power output when the expansion module is powered from a power supply unit connected to the APS connector.
- TMP** - tamper output (NC).
- Z1...Z4** - zone.

- C1...C4** - relay output common contact.  
**NC1...NC4** - relay output normally closed contact.  
**NO1...NO4** - relay output normally open contact.

## 4. Installation

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**Disconnect power before making any electrical connections.**

The ACX-220 expander should be installed indoors, in spaces with normal air humidity. Remember that thick walls, metal partitions, etc. will reduce the range of the radio signal. It is recommended that the expander be mounted high above the floor. This will allow you to get a better range of radio communication and avoid the risk of the expander being accidentally covered by people moving around the premises. Installing the device in close vicinity of electrical systems is not recommended, since it can adversely affect the range of radio signal.

The expansion module can be supplied from a power supply unit connected to the APS connector (e.g. from the APS-412 power supply offered by SATEL) or, alternatively, from the +12V and COM terminals. In the latter case, the control panel, expander with power supply, or power supply can serve as a power source.



*If a power supply unit is connected to the APS connector, the expander will send information about the following power supply unit troubles:*

- loss of 230 V AC mains,
- low battery,
- power supply overload.

1. Loosen the screws locking the enclosure cover and remove the cover.
2. Connect the temporary 12 V DC power supply to the expander.
3. Add the expander to the wireless system (see the ABAX 2 / ABAX controller manual or the INTEGRA 128-WRL control panel installer manual). The sticker with serial number which shall be entered when registering the expander in the system can be found on the electronics board.



*In the INTEGRA / VERSA alarm system, the expander is identified as ACX-201.*

*Simultaneous operation of the expander by the ABAX 2 and ABAX controller / INTEGRA 128-WRL alarm control panel is not possible.*

4. Place the expander in the location intended for its installation.
5. Check the level of signal received from the expander by the ABAX 2 / ABAX controller or the INTEGRA 128-WRL control panel. If the signal level is lower than 40%, select another place for installation. Sometimes, it is sufficient to shift the device ten or twenty centimeters to obtain a considerable improvement in the signal quality.



*The ARF-200 tester makes it possible to check the radio signal strength at the place of future installation without having to put the expander there.*

6. Disconnect the temporary 12 V DC power supply.
7. Make a hole for the bunch of wires in the enclosure base.
8. Run the wires through the hole (power cables, cables connecting wired devices with the expander, etc.).

9. Secure the enclosure base to the wall with wall plugs (screw anchors) and screws. Proper wall plugs must be selected for the type of mounting surface (different for concrete or brick wall, different for plaster wall, etc.).
10. Connect detectors to the expander zones. For the EOL configuration, use a 2.2 k $\Omega$  resistor, and for the 2EOL configuration – two 1.1 k $\Omega$  resistors.
11. If the tamper switch is to be supervised, connect the tamper output terminals to the expander zone (you can configure the zone as 2EOL and connect tamper output and detector to it in series).
12. Connect the devices to the expander outputs.



*Given the specific character of radio communication, it is not recommended that the expander be used in applications where quick switchover of the output status is expected.*

13. Depending on the selected method of expander powering, connect the power supply unit to the APS connector or connect the power leads to the +12V and COM terminals (use flexible conductors with a cross-section of 0.5-0.75 mm<sup>2</sup>, or rigid conductors with a cross-section of 1-2.5 mm<sup>2</sup>).



**Never connect power supply to APS connector and terminals at the same time.**

14. Replace the cover and then lock it with the screw.
15. Power up the expander.
16. Configure the expander settings (refer to ABAX 2 / ABAX controller manual or INTEGRA / VERSA series control panels programming manual).



*Taking into account the requirements of EN50131-3 standard, enter 400 ms when configuring the sensitivity of alarm zones.*