Satel®

INT-ADR

ADDRESSABLE ZONE EXPANDER

The INT-ADR expander allows you to expand the system by adding up to 48 addressable zones. It supports detectors in which the CA-64 ADR-MOD addressable module is installed. The expander works with INTEGRA, INTEGRA Plus and CA-64 control panels.

⚠️ **If the expander is connected to the CA-64 alarm control panel, connecting any other modules to the control panel to expand the system by additional zones is impossible.**

1. Features

- Up to 48 addressable zones.
- Support for NO and NC type detectors with CA-64 ADR-MOD module installed.
- NC type tamper input.
- Capable of being integrated with dedicated power supply unit (operation in "expander with power supply" mode).
- Connectable to RS-485 bus (firmware update through the bus).

2. Electronics board
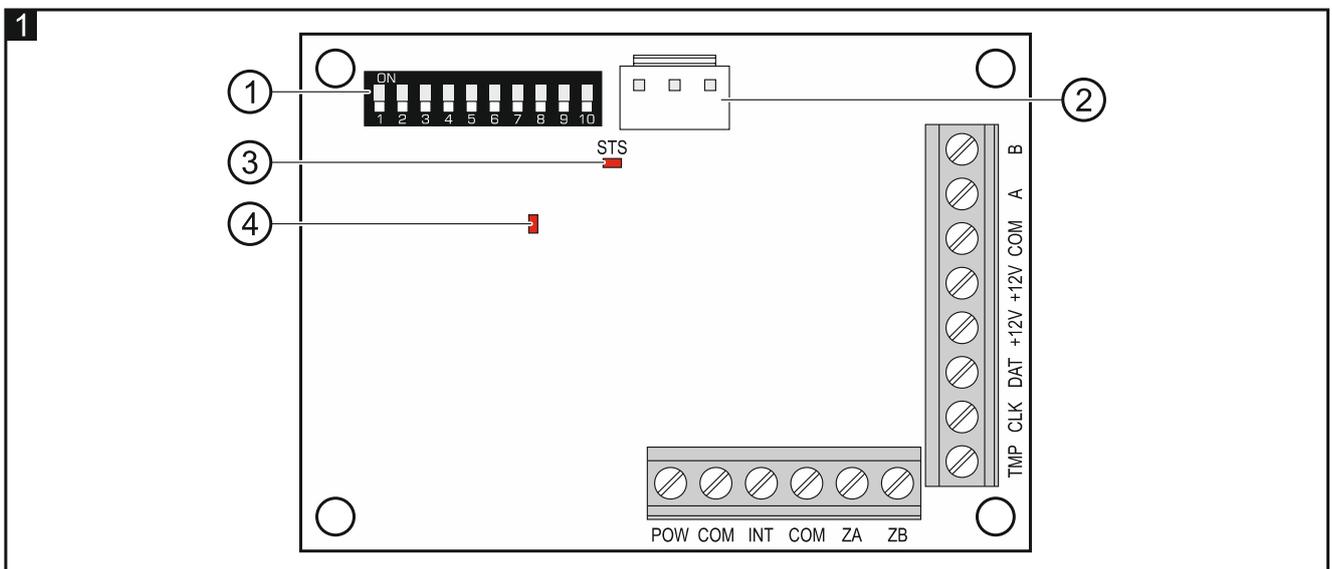
Explanations to Fig. 1:

① DIP-switches (see: DIP-SWITCHES).

② connector for a dedicated power supply unit (e.g. APS-412).

③ STS LED indicating the status of power supply connected to the connector:

  ON – power supply is working normally,

  blinking – power supply is reporting a trouble.

④ LED indicating the status of communication with the control panel:

ON – no communication with the control panel,

blinking – communication with the control panel OK.

Description of terminals:

POW - +12 V DC dedicated power supply output for CA-64 ADR-MOD addressable modules and detectors.

COM - common ground.

INT - data input from CA-64 ADR-MOD addressable modules.

ZA, ZB - terminals for future applications.

TMP - tamper input (NC) – if not used, it should be shorted to the common ground.

CLK - clock (expander communication bus).

DAT - data (expander communication bus).

+12V - +12 V DC power input / output.

⚠ **Do not connect power to the terminals, if the dedicated power supply unit is connected to the connector on electronics board.**

A, B - RS-485 bus.

3. DIP-switches

The DIP-switches 1-5 are used for address setting. A numerical value is assigned to each switch. In OFF position, the value is 0. Numerical values assigned to individual switches in ON position are shown in Table 1. The sum of numerical values assigned to switches 1-5 means the address set on the module. The address must be different from that on the other modules connected to the communication bus of the control panel.

DIP-switch number	1	2	3	4	5
Numerical value	**1**	**2**	**4**	**8**	**16**

Table 1.

The switch 10 allows you to define how the expander will be identified by the control panel (see: Table 2) and how many addresses it will take up in the system. If the switch is set to the ON position, the expander will take up 6 addresses (the address set in the expander and 5 subsequent ones). At the same time, 48 zones will be reserved in the system for the expander. If the switch is set to the OFF position, the expander can take up from 1 to 6 addresses and at the same time reserve from 8 to 48 zones (1 address = 8 zones). The number of occupied addresses and reserved zones depends on the number of connected addressable modules and addresses set in them (see: Table 3). Consecutive sequence of addresses must be maintained and any gaps must be avoided, because one module with an address out of a group of 8 addresses suffices to reserve 1 address and 8 zones.

|		Identification of device	
		expander w/o power supply	expander with power supply
DIP-switch position	**ON**	INT-ADRPS / CA-64 ADR	
	OFF	INT-ADR	INT-ADRPS / CA-64 ADR

Table 2.

Notes:

- *The expander will be identified as INT-ADR / INT-ADRPS by INTEGRA / INTEGRA Plus control panels with firmware version 1.12 or newer.*

- *The switch 10 must be set in ON position, if the expander is connected to the following control panels:*

  - *CA-64,*

  - *INTEGRA / INTEGRA Plus with a firmware version older than 1.12, if the dedicated power supply is not connected to the onboard connector.*

  If the switch is set in OFF position, the control panel will not be able to identify the expander.

- *If the dedicated power supply is not connected to the onboard connector and the expander has been identified as INT-ADRPS / CA-64 ADR, no power supply related troubles will be reported.*

- *Leave a suitable number of free addresses for the expander. If it turns out during identification that the addresses required for the expander are already occupied, the identification will fail (the control panel will inform you that two devices have the same address).*

Addresses of CA-64 ADR MOD modules	Addresses for expander in the system
0-7	address set on DIP-switches
8-15	address set on DIP-switches +1
16-23	address set on DIP-switches + 2
24-31	address set on DIP-switches + 3
32-39	address set on DIP-switches + 4
40-48	address set on DIP-switches + 5

Table 3.

Fig. 2 shows some examples of DIP-switches settings.
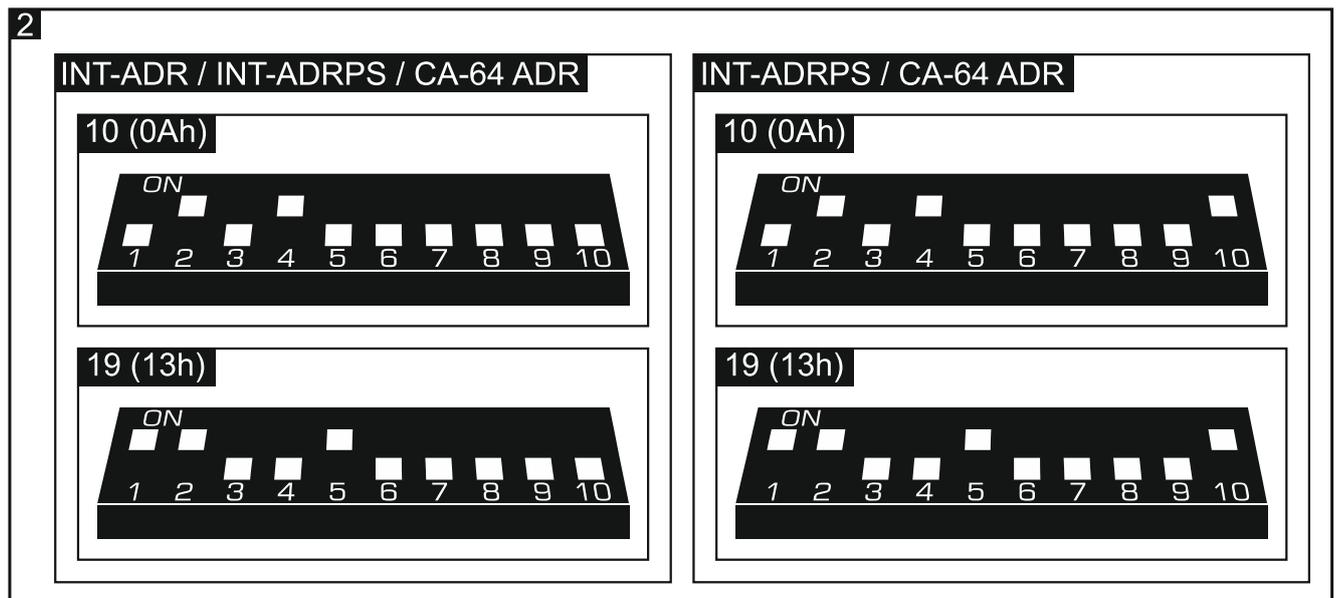
4. Installation and start-up

Disconnect power before making any electrical connections.

The expander is designed for indoor installation.

1. Fasten the expander electronics board in the enclosure.

2. Using the DIP-switches, set the suitable expander address and define how it is to be identified.

3. Connect the CLK, DAT and COM terminals to the corresponding terminals of the control panel communication bus (see: installer manual for alarm control panel). It is recommended that an unshielded non-twisted cable be used to make the connection. If you use the twisted-pair type of cable, remember that CLK (clock) and DAT (data) signals must not be sent through one pair of twisted conductors. The conductors must be run in one cable.

4. If the expander is to supervise the enclosure tamper contact, connect the wires of tamper contact to the TMP and COM terminals. If the expander is not to supervise the enclosure tamper contact, connect the TMP terminal to the expander COM terminal.

5. Connect the addressable detectors to the expander (see: CONNECTING ADDRESSABLE DETECTORS).

6. Depending on the selected method of expander powering, connect the dedicated power supply unit to the connector on expander electronics board or connect the power leads to the +12V and COM terminals (the expander may be powered directly from the control panel, from an expander with power supply or from a power supply unit).

⚠ **The expander must not be powered from both sources at the same time.**

7. Power on the alarm system.

8. Start the identification function in the control panel. After the expander is identified, the addressable zones will be given corresponding numbers in the alarm system (see: NUMBERING ADDRESSABLE ZONES). The control panel monitors presence of the identified modules. If the module is disconnected from communication bus, position of DIP-switches is changed, or the device is replaced with another one with DIP-switches set in the same way, a tamper alarm will be triggered.

Note: The status of addressable zones is read out by the expander every 200 ms. When programming the zone sensitivity, do not enter any values lower than 200 ms.

5. Connecting addressable detectors

Addressable detector is a detector with the CA-64 ADR-MOD module installed. Dimensions of the module enable it to be mounted inside the detector enclosure.

The maximum distance between the addressable detector and the expander may be up to 1000 m. Table 4 shows requirements for the common ground wires if 0.5 mm dia. conductors are used.

Distance to expander	Number of conductors connected in parallel
up to 200 m	1
200-400 m	2
400-600 m	3
600-1000 m	4

Table 4.

The addressable modules and detectors should be powered from the POW output of the expander. Where the sum of currents drawn by the addressable modules and detectors exceeds the output current of power supply unit connected to the expander, the detectors may be powered from another source (but not the addressable modules).

Use separate conductors to connect the power common for addressable modules and the power common for detectors.

Connect to one of the detector alarm output terminals the same common ground which is connected to the addressable module. Connect the other terminal of alarm output to the blue wire of the addressable module.

The detector tamper contact can be connected to a separate tamper circuit (the addressable zone should be programmed as NO or NC) or can be connected in series into the power circuit of addressable module (the addressable zone should be programmed as 2EOL/NO or 2EOL/NC).

Figure 3 shows how the addressable modules and detectors should be connected to the expander when the status of detector tamper contacts is to be monitored by the expander. The wires of addressable module are marked in the figure as follows:

W – white wire (common ground),

B – black wire (data output),

A – blue wire (detector status supervision input),

R – red wire (power input).
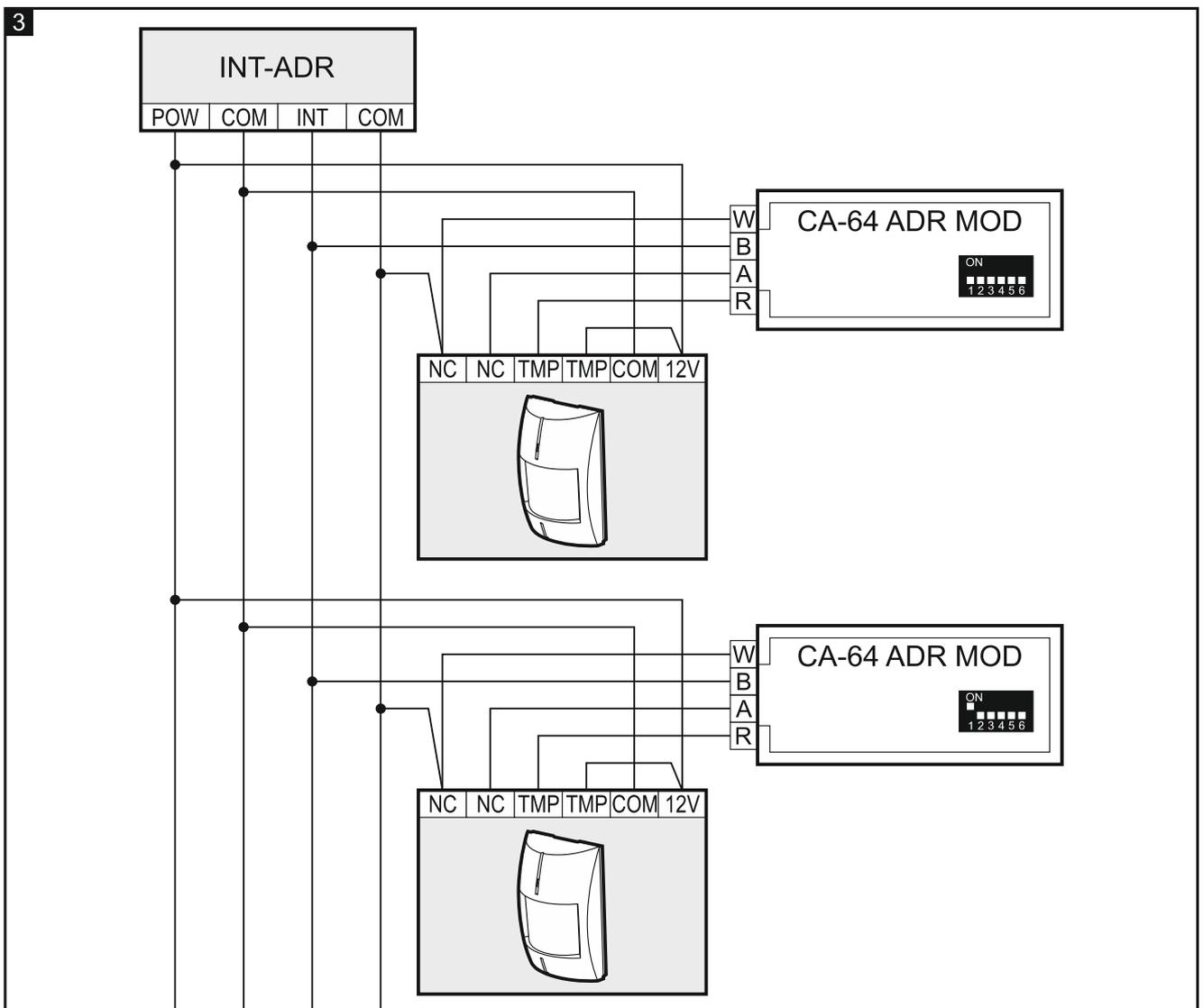
6. Numbering addressable zones

The number of addressable zone depends on the address set in the CA-64 ADR-MOD module. To set the address, use the DIP-switches. A numerical value is assigned to each switch. In the OFF position, the value is 0. Numerical values assigned to individual switches in the ON position are shown in Table 5. The sum of numerical values assigned to switches 1-6 denotes the address set in the module. Addresses from the 0-47 range should be set. Modules with higher addresses are not supported. A different address must be set in each module. Setting the same address in two modules will result in two addressable detectors being assigned to the same zone.
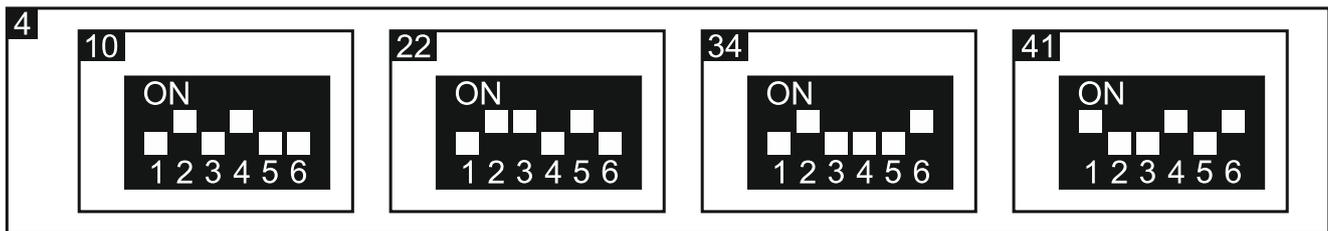
DIP-switch number	1	2	3	4	5	6
Numerical value	1	2	4	8	16	32

Table 5.

Notes:

- *The INTEGRA 24 control panel may be expanded by up to 16 addressable zones (set the addresses within the 0-15 range).*
- *The INTEGRA 32 control panel may be expanded by up to 24 addressable zones (set the addresses within the 0-23 range).*

Figure 4 shows examples of setting addresses in the CA-64 ADR-MOD modules.

Interfacing with the CA-64 control panel

To determine the number which will be assigned to an addressable zone in the system, add the number 17 to the address set in the CA-64 ADR-MOD module.

Interfacing with the INTEGRA / INTEGRA Plus control panel

The INTEGRA control panels have different number of zones on their mainboard. To the INTEGRA / INTEGRA Plus control panel, it is possible to connect other modules to expand the number of zones, in addition to the INT-ADR expander. The zones in expanders with lower addresses are given lower numbers than those in expanders with higher addresses. The above mentioned factors have an effect on numbering of the addressable zones. For example, if two INT-E zone expanders (2 x 8 zones) with lower addresses than the address set in the INT-ADR expander are connected to the INTEGRA128 control panel (16 zones), numbers from 33 up will be assigned to the addressable zones.

7. Updating the expander firmware

Using the RS-485 bus, connect the expander to the ACCO-USB converter, and then connect the converter to the computer (see: ACCO-USB converter manual). You can find a program for updating the expander firmware and a detailed description of the firmware update procedure on the www.satel.eu website.

8. Specifications

Supply voltage .... 12 V DC ±15%
Standby current consumption .... 30 mA
Maximum current consumption .... 35 mA
+12V output rating .... 2.5 A / 12 V DC
POW output rating .... 2.5 A / 12 V DC
Environmental class according to EN50130-5 II
Operating temperature range .... -10 °C...+55 °C
Maximum humidity .... 93±3%
Dimensions .... 80 x 57 mm
Weight .... 35 g

The declaration of conformity may be consulted at www.satel.eu/ce