

INT-R

Universal expander for card / iButton readers

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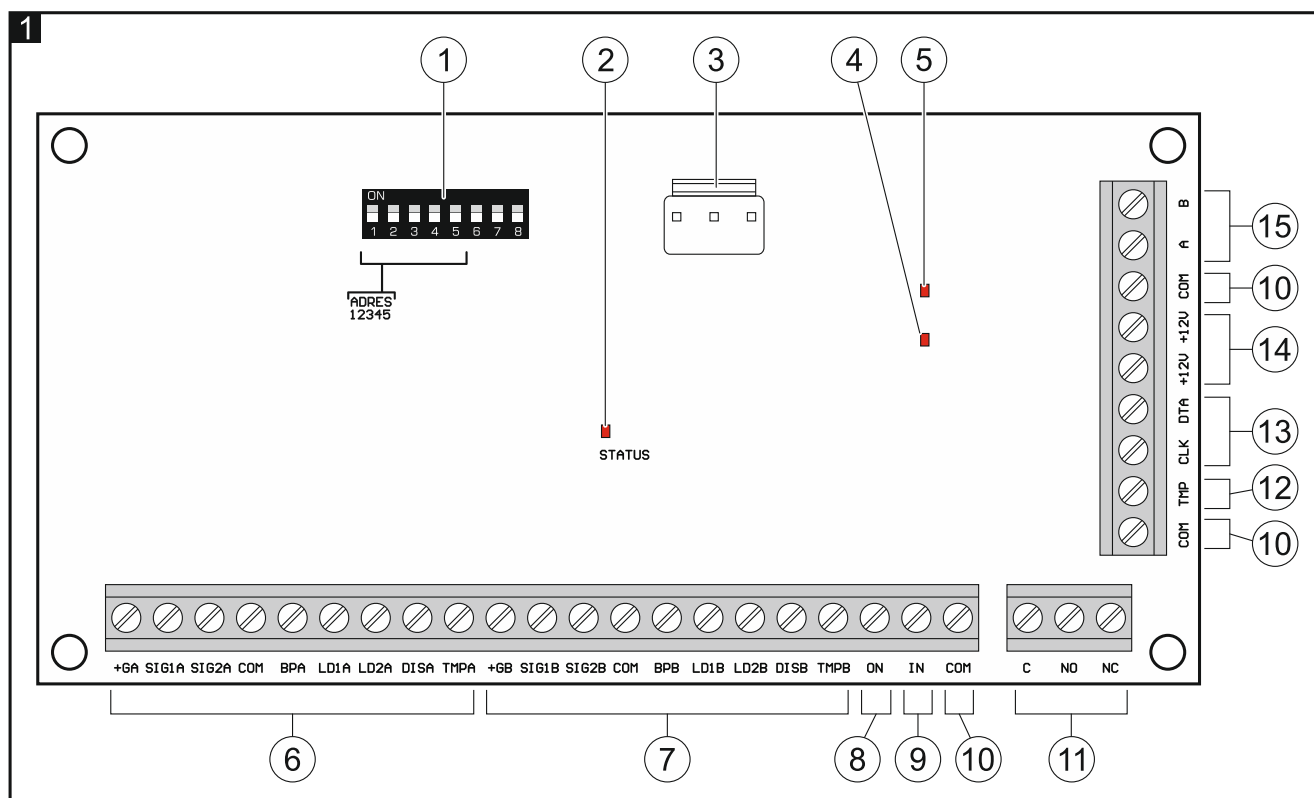
Quick installation guide

Full manual is available on www.satel.eu. Scan the QR code to go to our website and download the manual.



The INT-R expander allows installation of proximity card / Dallas iButton readers in the alarm system. In addition, the expander makes it possible to control access to a single door. The expander works with the INTEGRA / INTEGRA Plus alarm control panels. This manual applies to the expander with electronics version 2.0.

1. Electronics board



- ① DIP-switches (see “Operating mode selection” p. 4 and “Address setting” p. 5).
- ② LED indicating the status of communication with the control panel:
ON – no communication with the control panel,
flashing – communication with the control panel OK.

- ③ connector for SATEL power supply (e.g. APS-412).



The power supply can be connected to expanders made after 09/09/2014.

No information on the power supply status is sent through this connector.

- ④ LED indicating the status of relay output (ON when the output is on).
- ⑤ LED indicating the status of power (ON when power is present).
- ⑥ terminals to connect the reader A (see “Connecting the readers” p. 5):
- +GA** - power,
 - SIG1A** - data (0),
 - SIG2A** - data (1),
 - COM** - common ground,
 - BPA** - sound control,
 - LD1A** - green LED control,
 - LD2A** - red LED control,
 - DISA** - disabling reader operation,
 - TMPA** - reader presence control.
- ⑦ terminals to connect the reader B (see “Connecting the readers” p. 5):
- +GB** - power,
 - SIG1B** - data (0),
 - SIG2B** - data (1),
 - COM** - common ground,
 - BPB** - sound control,
 - LD1B** - green LED control,
 - LD2B** - red LED control,
 - DISB** - disabling reader operation,
 - TMPB** - reader presence control.
- ⑧ **ON** terminal – request to exit input (NO).
- ⑨ **IN** terminal – door status input (NC). If the input is not to be used, connect the IN terminal to the COM terminal.
- ⑩ **COM** terminals – common ground.
- ⑪ relay output terminals:
- C** - common contact,
 - NO** - normally open contact,
 - NC** - normally closed contact.
- ⑫ **TMP** terminal – tamper input (NC). If the input is not to be used, connect the TMP terminal to the COM terminal.
- ⑬ communication bus terminals:
- CLK** - clock,
 - DTA** - data.
- ⑭ **+12V** terminals – +12 VDC power input / output.
- ⑮ RS-485 bus terminals.

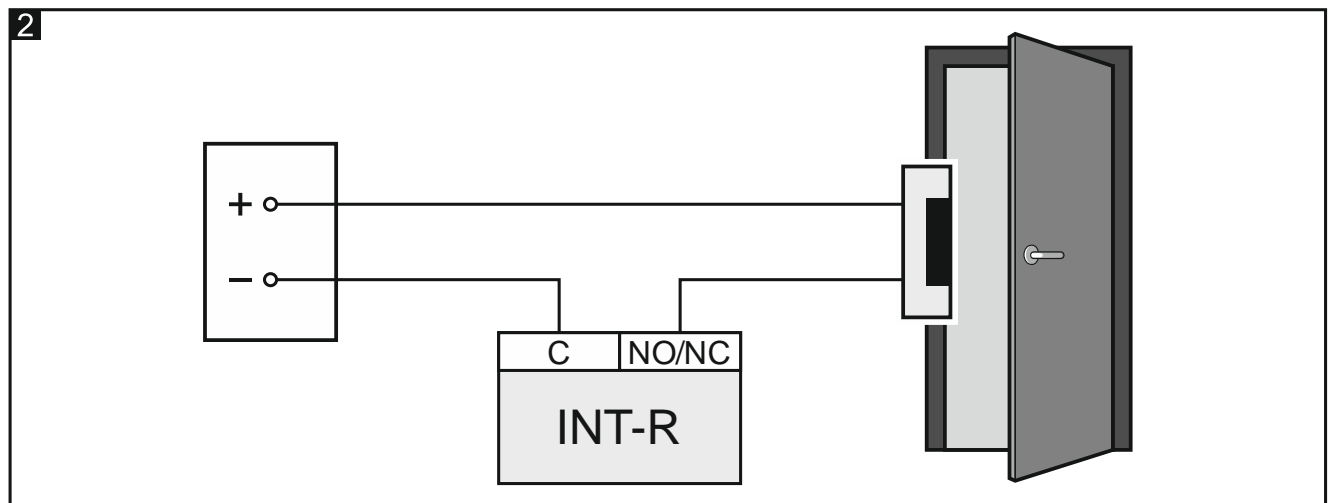
2. Installation



Disconnect power before making any electrical connections.

The expander should be installed indoors, in spaces with normal air humidity.

1. Fasten the expander electronics board in the enclosure (a variety of enclosures in which the expander can be installed are available from SATEL).
2. Change the expander operating mode if it is to be other than the factory default one (see "Operating mode selection" p. 4).
3. Set the expander address (see "Address setting" p. 5).
4. Connect the CLK, DTA and COM terminals to the appropriate terminals of the control panel expander bus (see the control panel installer manual). The wires must be run in one cable. It is recommended that an unshielded non-twisted cable be used. If you use the twisted-pair type of cable, remember that CLK (clock) and DTA (data) signals must not be sent through one twisted-pair cable.
5. Connect the readers to the expander (see "Connecting the readers" p. 5).
6. If the reader cannot emit sounds, because it has no built-in sounder (e.g. the iButton reader), you can install an external sounder (5 V). In the case of reader A, connect it to the BPA and COM terminals of the expander, and in the case of reader B – to the BPB and COM terminals.
7. If the expander is to control an electric strike, electromagnetic lock or another door actuator, connect this device to the relay output as shown in Fig. 2. Depending on the device type, use the NO or NC terminal. It is not recommended that the door actuator be powered from the same source as the expander.



8. If the expander is to supervise the door status, connect the detector supervising the door status to the IN and COM terminals. If the expander is not to supervise the door status, connect the IN terminal to the COM terminal or, when configuring the expander, set value 0 for the "Max. door open time" parameter.
9. If the door is to be unlocked by using the request to exit button or another device (e.g. detector), connect that device to the ON and COM terminals.
10. 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 COM terminal.
11. 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).



Never connect power simultaneously to the electronics board connector and the terminals.

12. Power on the alarm system.

13. Start the identification function in the control panel (see the control panel installer manual). How the expander will be identified depends on selected operating mode.

2.1 Operating mode selection

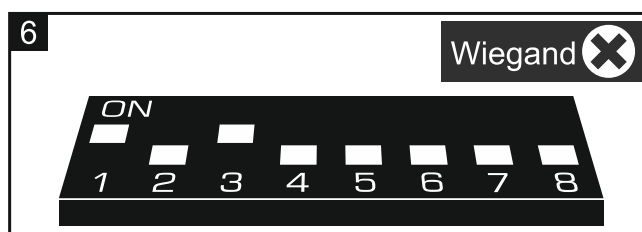
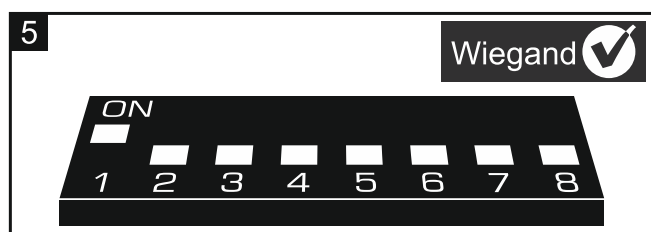
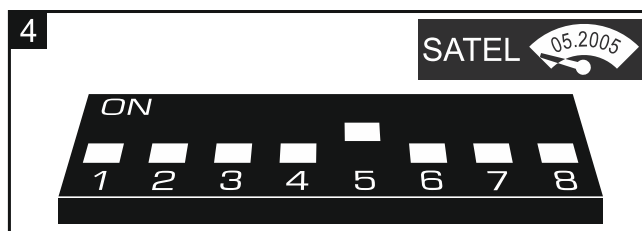
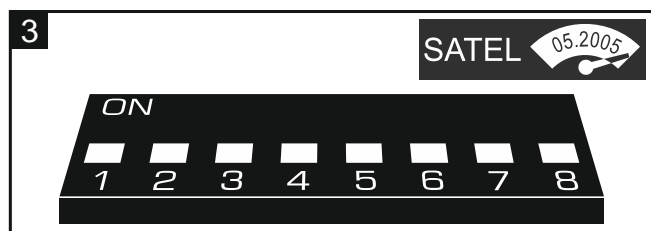
The operating mode defines which readers are supported by the expander. The expander with factory default settings supports SATEL readers made since May 2005. If you want to select another operating mode, follow the procedure below.

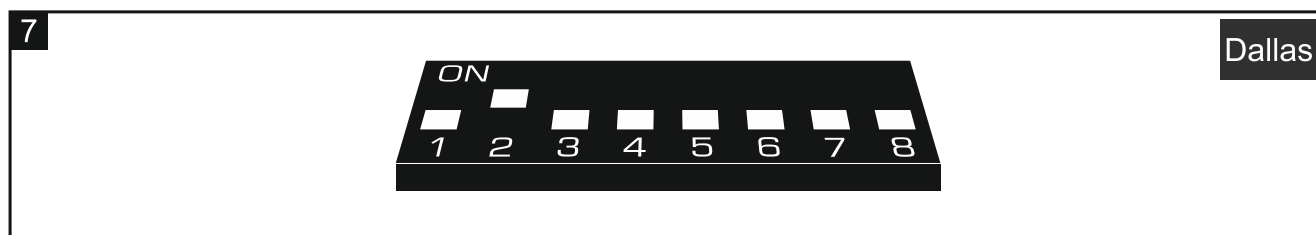
1. Power off the expander (if it is powered on).
2. Set the DIP-switches as required for the selected operating mode:
 - Fig. 3 – **support for SATEL proximity card readers made since May 2005** (CZ-EMM / CZ-EMM2 / CZ-EMM3 / CZ-EMM4) [factory setting] – the expander will be identified as CA-64 SR,
 - Fig. 4 – **support for SATEL proximity card readers made before May 2005** (CZ-EMM) – the expander will be identified as CA-64 SR,
 - Fig. 5 – **support for Wiegand interface readers** (formats: 26-bit, 34-bit, 42-bit and 56-bit) – the expander will be identified as CA-64 SR,
 - Fig. 6 – **support for Wiegand interface readers without parity check** (formats: 26-bit, 34-bit, 42-bit and 56-bit) – the expander will be identified as CA-64 SR,
 - Fig. 7 – **support for Dallas iButton readers** – the expander will be identified as CA-64 DR.



The SATEL proximity card reader support mode is designed for readers using the EM-Marin format. If the CZ-EMM3 or CZ-EMM4 reader uses the Wiegand 26 protocol, choose another, suitable expander operating mode.

If you install proximity card readers with the Wiegand interface in the alarm system, the cards assigned to users by means of such readers will be supported only by these readers. SATEL readers using the EM-Marin format, keypads with readers, etc. will not support these cards. Similarly, the Wiegand interface readers will support no cards assigned to users by means of readers using a protocol other than Wiegand.





3. Short-circuit the CLK and DTA terminals.
4. Power on the expander.
5. The selected operating mode will be saved, which will be confirmed by the slow flashing of the STATUS LED.
6. Power off the expander.
7. Open the CLK and DTA terminals.

2.2 Address setting

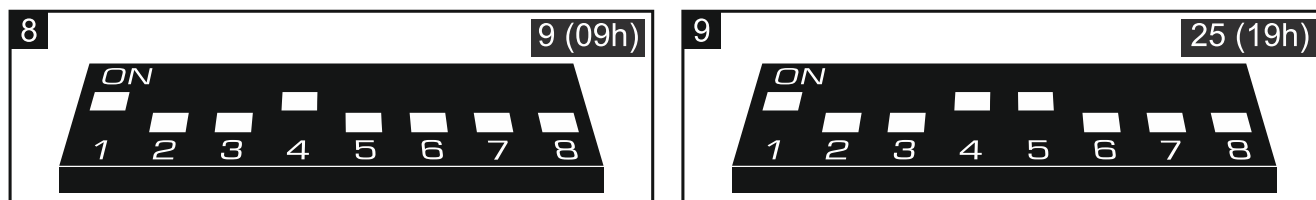
An individual address (different from that in the other devices connected to the control panel bus) must be set in the expander.

To set the address, use the DIP switches on the device electronics board. The switches have numbers assigned to them. The number for OFF position is 0. The numbers assigned to the switches in ON position are presented in the table 1. The sum of these numbers is the address set.

Switch (ON position)	1	2	3	4	5
Number	1	2	4	8	16

Table 1.

Figures 8 and 9 show examples of addresses set by using DIP switches.



2.3 Connecting the readers

The length of the cable connecting the reader to the expander should not exceed 30 meters.

Connecting the SATEL proximity card reader

Connect the reader wires to the expander terminals as shown in Table 2.



The black wire is available in the CZ-EMM3 and CZ-EMM4 readers. Connect it if the expander is working in the Wiegand interface reader support mode and the Wiegand 26 format is selected in the reader.










Expander terminal		Reader wire
Reader A	Reader B	
+GA	+GB	 red
SIG1A	SIG1B	 green
SIG2A	SIG2B	 black
COM	COM	 blue
BPA	BPB	 yellow
LD1A	LD1B	 pink
LD2A	LD2B	 gray
DISA	DISB	 brown
TMPA	TMPB	 white

Table 2.

Connecting the Dallas iButton reader

Connect the reader wires to the expander terminals as shown in Table 3.






Expander terminal		Reader wire
Reader A	Reader B	
SIG1A	SIG1B	 white
COM	COM	 yellow
		 gray
LD1A	LD1B	 green
LD2A	LD2B	 brown

Table 3.

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