



ALD Wireless Interfaces

Installation manual

May, 2023

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Safety precautions

The **ALD** wireless interfaces should only be installed and maintained by qualified personnel.

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

Always disconnect the power supply before making any electrical connections.

Any changes, modifications or repairs not authorized by the manufacturer shall render the warranty void.



Please adhere to your local waste sorting regulations and do not dispose of this equipment or its components with other household waste.

1 Description

ALD-IO wireless door interface with **ALD-TR** transceiver increase the number of inputs and outputs of the **AP-2xx** controllers using two-way RF communication.

The PGM output (relay) of the **ALD-IO** can be remotely controlled (on/off) by various users or by a connected Wiegand device. **ALD-IO** has one digital input.

Features

Communication:

- Line-of-sight wireless range up to 2000 m.
- Up to 8 **ALD-IO** wireless door interfaces can be connected to the **AP-2xx** controller.
- The ALD interfaces come with a standard antenna suitable for most applications. **In cases where it is necessary to provide high-quality communication at the maximum possible distance, an antenna (433 MHz or 868 MHz) with a higher radio signal gain should be used.**

Inputs and outputs (ALD-IO1):

- 1 input, of selectable type: NC, NO.
- 1 output (relay).

Connection:

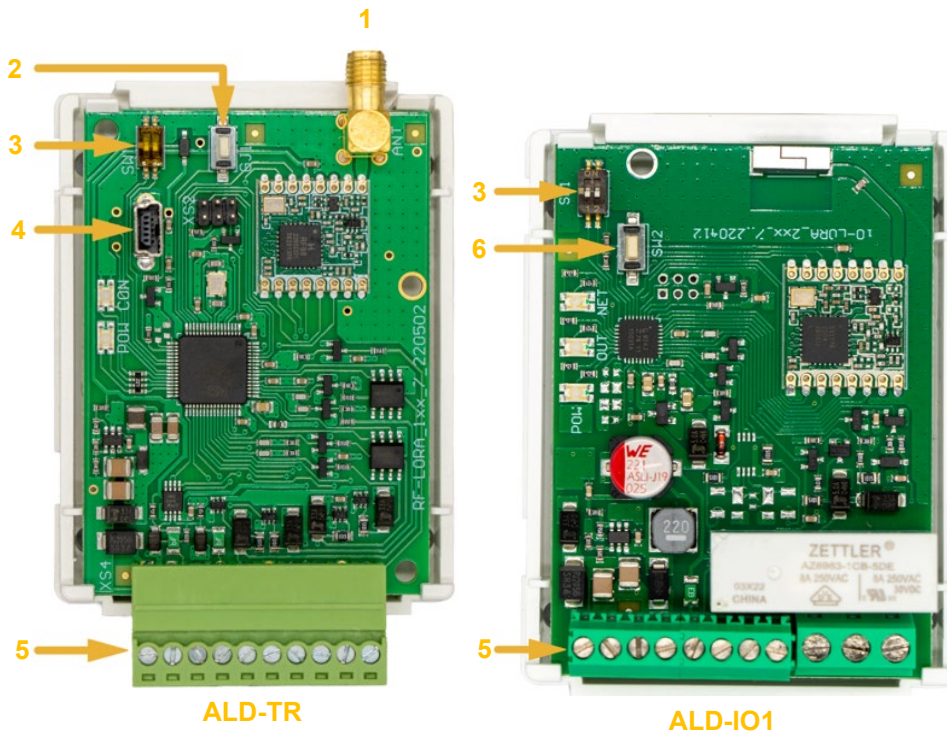
- The **ALD-IO** door interface is wireless connected to the **AP-2xx** controller via the **ALD-TR** transceiver.
- The **ALD-TR** wireless interface is connected to the **AP-2xx** controller via the RS485 bus.



1.1 Specifications

Parameter	Description
Transmission frequency	4F modification: 433,3 - 434,7 MHz 8F modification: 867 - 869 MHz
Power supply voltage	9-24 V DC
Current consumption	Up to 50 mA (stand-by) Up to 150 mA (short-term, while sending)
Report encryption	Yes
Range in open space	Up to 2000 m
Input (ALD-IO)	1, selectable type: NC, NO
Output (ALD-IO)	1, relay, 250 V AC, 4 A
Operating environment	Temperature from -20 °C to +50 °C, relative humidity – up to 80% at +20 °C
Dimensions	62 x 77 x 25 mm
Weight	80 g

1.2 Interface elements



1. SMA connector for RF antenna.
2. "DJ1" button to enable/disable LORA module learning mode. Terminal for external connections.
3. DIP switch "SW".
4. USB Mini-B connector is for firmware update.
5. Terminal for external connections.
6. "SW2" button for linking the device and checking the connection.

Note:

DIP switch "SW" settings:

1 - Radio frequency ("OFF" - RF1; "ON" - RF2). Intended for changing the radio channel if the current channel is heavily loaded.

2 - Modulation type ("OFF" - fast; "ON" - slow). The "ON" position allows you to increase the communication distance by about 2 times (depending on the environmental conditions). But if a quality connection is ensured using the "Off" position, it is recommended to use it. In the "On" position system performance decreases.

NOTE: In *ALD-IO* and *ALD-TR* devices, the positions of the "SW" switch must match! Otherwise, the radio communication will not work!

1.3 Purpose of terminals ALD-IO1

Terminal	Description
+DC	Power terminal (9-24 V DC positive)
-DC	Power terminal (9-24 V DC negative)
D0	D0 wiegand reader
D1	D1 wiegand reader
+5V	Positive 5 V power terminal for "1-Wire" devices
1Wire / OUT wgd	"1-Wire" data bus terminal („OUT wgd“ – not used)
COM	Common negative terminal
IN1	1 input, of selectable type NO, NC (factory setting: NO)
NC	Relay terminal NC
C	Relay terminal C
NO	Relay terminal NO

1.4 Purpose of terminals ALD-TR

Terminal	Description
+DC	Power terminal (9-24 V DC positive)
-DC	Power terminal (9-24 V DC negative)
A 485	RS485 bus A contact
B 485	RS485 bus B contact
IO1-IO4	Not used
COM	Not used

1.5 LED indication of operation ALD-IO1

Indicator	Light status	Description
NETWORK	Off	No RF signal
	Green blinking	RF signal level from 0 to 10. Sufficient strength is 4.
OUTPUT/KEY	Green solid	Relay output activated
	Yellow solid	Dallas contact key activated
POWER	Off	No supply voltage
	Green blinking	Normal supply voltage level
	Yellow blinking	Low supply voltage level (≤ 11.5 V)

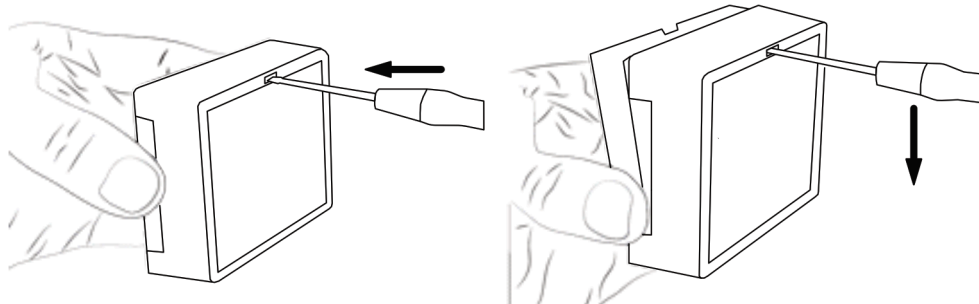
1.6 LED indication of operation ALD-TR

Indicator	Light status	Description
DATA/TROUBLE	Blinking/Lighting red	Communication with the module is broken
	Blinking green/red	ALD modules linking mode
	Green lights up for 3 sec	Pre-bound ALD module (in learning mode)
POWER	Off	No supply voltage
	Green blinking	Normal supply voltage level
	Yellow blinking	Low supply voltage level (≤ 11.5 V)
	Yellow	No communication with AP-2xx controller via RS485

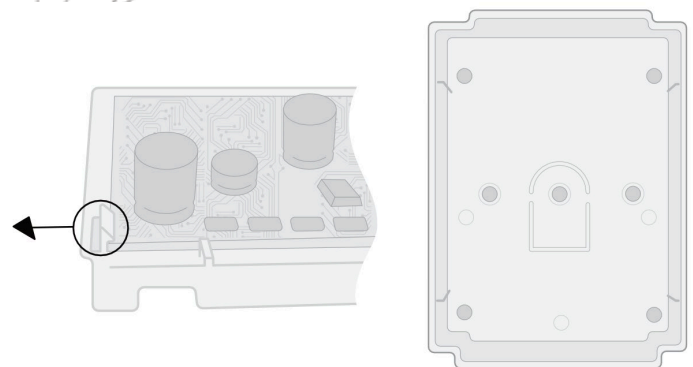
2 Wiring schematics

2.1 Fastening

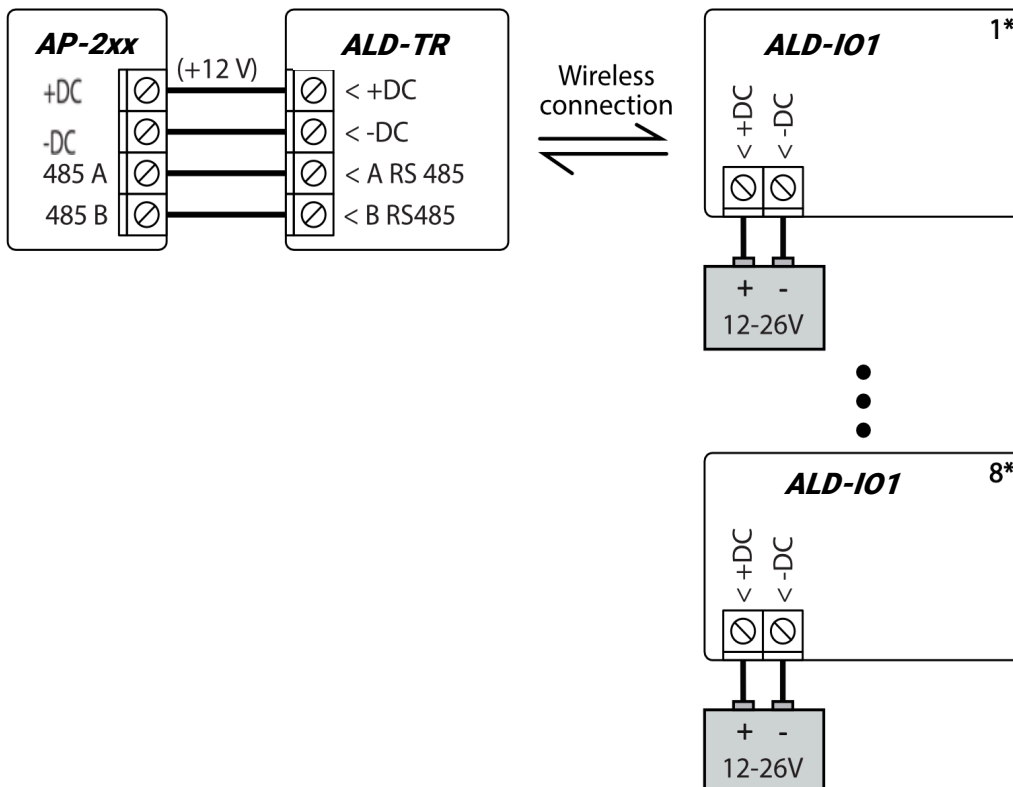
1. Remove the top lid.



2. Remove the PCB board.
3. Fasten the base of the case in the desired place using screws.
4. Reinsert the board.
5. Close the top lid.

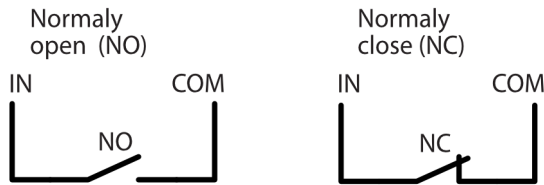


2.2 Schematic for connecting the power supply



2.3 Schematic for connecting input

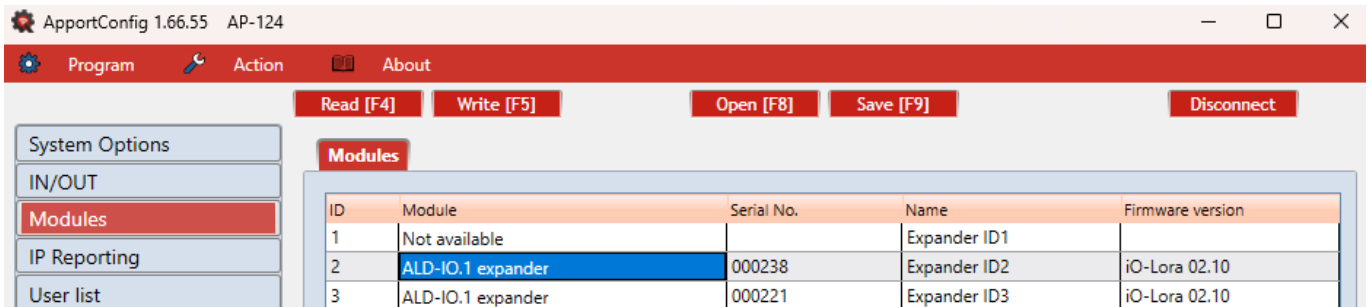
The door interface **ALD-IO1** has one input. Input type can be set: NC, NO.



Note: An **ALD-TR** transceiver must be connected to the AP-2xx controller and then up to 8 pcs. **ALD-IO1** wireless door interfaces can be connected.

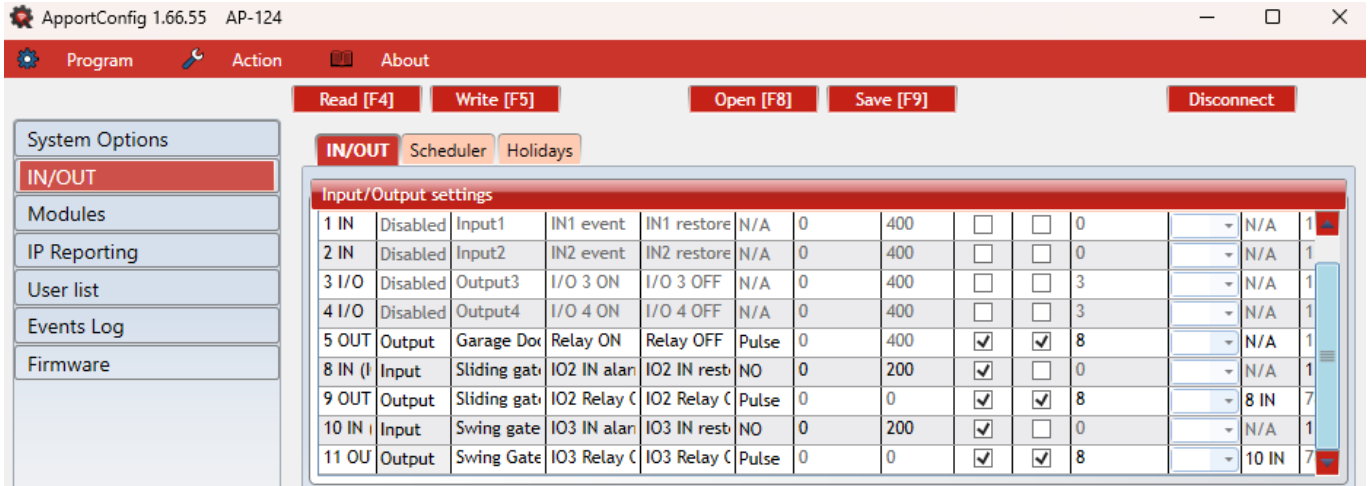
3 Registering the ALD-IO1 wireless expander to the controller AP-2xx

1. An **ALD-TR** transceiver must be connected to the **AP-2xx** controller.
2. Turn on the power supply of the **AP-2xx** controller.
3. Turn on the power supply to the **ALD-IO1** wireless expander.
4. Launch **ApportConfig**.
5. Connect the **AP-2xx** to a computer using a USB Mini-B cable or connect to the **AP-2xx** remotely.
6. Click the button **Read [F4]** for the program to read the parameters currently set for the **AP-2xx** controller. If a window for entering the Administrator code opens, enter the six-symbol administrator code.
7. In the "**Modules**" list, select "**ALD-IO1 expander**".
8. In the "**Serial No.**" field, enter the serial number of the module **ALD-IO1**.



9. In the "IN/OUT" tab, make settings for the expander's input and output.

From IO6 onwards, all inputs/outputs are related to the wireless door interfaces: 6 IN & 7 OUT are related to module ID1, 8 IN & 9 OUT are related to module ID2, 10 IN & 11 OUT are related to module ID3, ...



10. Once configuration is complete, click the **Write [F5]** button.

11. Wait for the updates to finish.

12. Click the "**Disconnect**" button and disconnect the USB cable.