

## POPULUS B – ACCESS CONTROLLER

The Populus B is an access controller that controls up to 10 readers and up to 5 outputs for electric strikes. It is designed for residential and business buildings, offices, shops, etc.

The entire set-up procedure is carried out with the software. The controller allows access for up to 30000 users (expandable to 100000) and saves 100000 events. It is intended for controlling entries, exits and passes of users in the system and controlling sliding doors, ramp, el. strike, turning alarm on/off... It needs to be set with BLOCKER, V7 or CODEKS software.

The SDK is also available for this controller. If a user or software producer wants to develop its own application, please contact us.

### TECHNICAL DATA

POPULUS P-2-B	
Readers	2x direct or Wiegand, 4x protocol (RS485) (*max. 2x direct or Wiegand, 6x protocol)
Inputs	2x door status, 2x push button (*max. 3x door status, 3x push button)
Outputs	2x output - max. 0.5 A on each output When active=GND (*max. 3x output)
Relays	2x 5A 60V DC (*max. 3x 5A 60V DC)

\*Option is available when you select Door 5 for the reader in Codeks software.

POPULUS P-4-B	
Readers	4x direct or Wiegand, 8x protocol (RS485) (*max. 4x direct or Wiegand, 10x protocol)
Inputs	4x door status, 4x button (*max. 5x door status, 5x push button)
Outputs	4x output - max. 0.5 A on each output When active=GND (*max. 5x output)
Relays	4x 5A 60V DC (*max. 5x 5A 60V DC)

\*Option is available when you select Door 5 for the reader in Codeks software.

Features	
Input voltage	110 – 230 V AC 50–60 Hz
Output voltage	13.8 V DC
Primary fuse	(F100) T1AL, 250 V (5x20mm)
Current consumption	Up to 2W
Humidity	10-80 %, non-condensing
Dimensions (mm)	222x222x80 (WxHxD)
Operating temperature	From -20°C to 40°C
Communication	RS485 or Ethernet
Clock	Real time clock, battery backup (max. ten hours)
Operation at an altitude of	<2000m
Appliance class	Class II - This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

### CONNECTOR DESCRIPTION

Connectors are marked on the circuit board with AC, LAN, SYS, COM, WIG, RDR and DOOR.

#### CONNECTOR AC – Power supply

Contact	Description	Specification
1	AC	Power supply 110 – 230 V AC 50–60 Hz

#### CONNECTOR LAN – Ethernet connection

Contact	Description	Specification
1	LAN	Ethernet

#### CONNECTOR SYS – backup battery connection

Contact	Description	Specification
1	BAT	12 V DC from battery
2	GND	Ground
3	12V	Max. 0.5 A
4	GND	Ground

#### CONNECTOR COM – RS485 communication connection

Contact	Description	Specification
1	CA	RS485 A line
2	CB	RS485 B line
3	CA	RS485 A line
4	CB	RS485 B line

#### CONNECTOR WIG1, WIG2, WIG3, WIG4 – direct or wiegand reader connection

Contact	Description	Specification
1	D0 (WIG1), D2 (WIG2) D4 (WIG3), D6 (WIG4)	Data 0 connection from the reader (direct or wiegand reader)
2	D1 (WIG1), D3 (WIG2) D5 (WIG3), D7 (WIG4)	Data 1 connection from the reader (wiegand reader)
3	BUZ	Buzzer output
4	LED	LED output

#### CONNECTOR RDR1, RDR2, RDR3, RDR4, RDR5– protocol reader connection

Contact	Description	Specification
1	12V	12 V DC output
2	GND	Ground
3	XA – RS485 XA line	Connection of CA line of protocol reader
4	XB – RS485 XB line	Connection of CB line of protocol reader

#### CONNECTOR DOOR1, DOOR2, DOOR3, DOOR4 – sensor, button, el. strike and relay connections

Contact	Description	Specification
1	SWITCH	Door status switch input. Active when connected to GND
2	GND	Ground
3	BUTTON	Push button input Active when connected to GND
4	12V	12 V DC output
5	LOCK	El. strike output When active=GND
6	NO	Relay – open contact
7	MIDDLE	Relay – middle
8	NC	Relay – closed contact

#### CONNECTOR DOOR5/EXTRA – connection of extra functions or sensor, button, el. strike and relay connections for additional reader

Contact	Description	Specification
1	FIRE	When active relays from 1 to 4 open
2	GND	Ground
3	TAMPER (I9-Input9)	Programmable with Macro
4	12V	12 V DC output
5	ALARM (O5-Output5)	Programmable with Macro
6	NO	Relay – open contact
7	MIDDLE	Relay – middle
8	NC	Relay – closed contact

\* If "Door 5" is enabled in the Codeks software then Fire, Tamper and Alarm functions are replaced by Switch, Button and Lock functions.

#### Power Supply

The controller can operate within a 110-230V AC, 50–60Hz input range. The output power of the in-built power supply is 30W, 13.8V fulltime. The power supply has protection against both short circuits and current overload. In the event of protection activation, the power will be switched off for 5s. If this is repeated 20 times, the controller will switch off until electrical resetting takes place



(unplugging from mains voltage). This protection is activated if external consumption exceeds 2A.

An appropriate disconnect device should be provided external to the equipment. A multi-strand/stranded flexible wires connected to the unit mains input require ferrules.

2.3Ah battery support is included with a charging limit of 13.8 V DC and shut down at 10.5V. The charging time of an empty battery is approximately 4 hours. The charging voltage and current are 13.8 V DC and max. 0.625 A. A 2.3Ah battery can be installed in the box. Larger external 12V batteries, such as 7Ah, may also be connected but recharging times will be longer. When operating from battery, the output voltage will drop from 13.8V to 10.5V. Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the manufacturer's instructions.

#### Voltage drops

When you connect devices to the controller, use a cable of at least 0.2mm<sup>2</sup> diameter. Take into consideration the fact that this cable has a resistance of approximately 9ohm per 100m. You should have a minimum of 10V for power supply at device point (for our readers). With our readers you can achieve cable length of more than 200m (see our black line readers). For total case scenario, consider also the supply voltage drop when operating on a battery.

#### Door

A One-Door connector is a set of one output, for a door strike or magnet, 2 inputs for the door switch and push button and 3 relay contacts. Select magnet or door strike and readers so that their total consumption does not exceed 1.5A at 12V.

#### Inputs, outputs and environment

##### Inputs:

Inputs are realized with opto-isolators. The input is active, when pulled to ground with an open collector transistor or mechanical switch, which is connecting the input pin of the controller to the Ground.

##### Outputs:

Output has a pre-installed protection diode for an inductive load. It is also protected from current overload. The best way is to use a 0.25A el. strike or a 0.5A el. magnet, which has to be connected to the same positive pole (+) as the controller. Connect the negative pole (-) to the door strike output (LOCK). When the output is active it is pulled to ground.

##### Environment:

Do not install the controller on/in a place, where it can come in contact with water. You must assure good cable joints, protected against moisture, otherwise corrosion may damage the controller. Damage in such cases is not covered by the warranty. You have to install the controller in an airy place.

#### Communication

##### Important!!!

**If you will use protocol readers (e.g. Reader O-3-3P) you can use only Ethernet connection for communication with controller.**

**If you will use only wiegand or direct readers you can use RS485 or Ethernet connection for communication with controller.**

##### Ethernet:

Connect the controller to the computer through your LAN via Ethernet connector. Use at least UTP CAT 5e cable. Adjust network settings of the controller using the Codeks Device Manager software so that it will function properly in your network. Please consult Codeks Device Manager's manual.

#### RS485:

Connect the controller to the computer, with one of the power supplies, with communication converter, from the Spider family: Spider W5-USB, Spider W5-NET, Spider W40+NET.

The RS485 communication bus is used between the controllers and Jantar software. Up to 128 controllers can be lined up into one communication line. The maximum length of the communication line is 1000 cable meters. It is recommended that you use an FTP

or S-FTP cable. Only a serial connection of controllers in a single communication line is allowed. **Star (parallel) connection is not allowed.**

All shields of S-FTP cables must be wired together and at **one point** connected to the earth. Individual connections to the earth are not allowed. Do not connect the shield of the cable to the ground of the controller.

**In the event of problems in communication, a termination resistor needs to be added. We recommend using 120 Ohm resistors on each side of the cable. Converters are, on the RS485 side, protected with slow-blow fuses and transient voltage suppressors.**

#### Reset to the factory settings (brainwash):

When the controller is reset to the factory settings (brainwash), the controller address is set to 255.

#### ORDERING CODES

Populus [box]-[card]-[software]

Box: **P**

Nb. of outputs for el. strikes: **2** – 2 outputs, 4 readers (max. 3 outputs, 6 readers)

**4** – 4 outputs, 8 readers (max. 5

outputs, 10 readers)

Model: **B** – Black line

Code	Specification
<b>POPULUS P-2-B</b>	Access controller in <b>P</b> box, 2 outputs, 4 readers, for CODEKS software
<b>POPULUS P-4-B</b>	Access controller in <b>P</b> box, 4 outputs, 8 readers, for CODEKS software

#### OTHER

Please read through our warranty and disclaimer statements.

Connection scheme and additional support for the use of this product can be found on:

<http://www.jantar.si/forum/en>

#### CONTACT:

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