

V2.3 Controller Board Configuration

The circuit board has many different links and jumpers as well as other adjustments that allow it, together with appropriate firmware, to be configured for many different readers and modes of operation. Below is a description of each of the possible group link configurations.

Note that these configurations are in addition to particular firmware e.g. you cannot change a standalone system to a network system by simply by configuring the appropriate jumpers – the chip firmware must also be of the appropriate type.

Note also that each system is pre-configured and tested using the information below before it leaves the factory. The tables below are intended for informational purposes only.

1. Programming Firmware to the Board:

The controller has two hardware set modes of operation: 'download' and 'normal' operation. The only time the controller needs to be in 'download' mode is when downloading the firmware to the controller is performed. To enable 'download' mode the jumper link attachments must be placed on LK1 and LK2. When the jumpers are in position LED1 will be turned off. The board is turned on and one of the CS Technician's will then program the controller with the required firmware for the customer. The jumpers are then removed.

Operation Mode	LK1	LK2
Normal Operation	Off	Off
Download Operation	On	On

Jumper Settings for Download and Normal Operation

2. Networking

The system can be set up as either a standalone or networked system. If it is a standalone system it communicates using RS232 communication to the PC. If it is a networked system it communicates using RS232 between the PC and the first controller in the network (the 'master' controller). The first controller then converts the communication to RS485 to communicate to the other controllers in the network.

The communication modes are set-up using LK4, 5, 6 and 7 and three communication chips U3, U4 and U5. (U3 is the RS232 chip and U4, 5 are the RS485 chip). See the table below for the chip and jumper setting details.

	U3	U4	U5	LK4	LK5	LK6	LK7
Standalone	Yes	No	No	No	Yes	Yes	Yes
Network Master	Yes	Yes	Yes	Yes	No	No	No
Network Slave(s)	No	No	Yes	(*)	No	No	No

Chip and Jumper Settings for Networking

(*) LK4 is used to terminate the RS485 bus – should be in at the start and end of the bus

3. Driving voltage selectors

The voltages on the four-door controller ports can be configured to +5 or +12 Volts depending on the requirements of the door reader. Most readers run on +5 volts, although there are some like the Presco Keypad, which requires +12Volts.

There are two three-pin jumpers, LK21 and 22. LK21 sets the IN1, 3,5,7 to +5 or +12Volts, and LK22 sets the V+ pin for each door to +5 or +12 Volts also. The settings are tabulated below.

Door Controller Pins	+5	+12
IN1, 3,5,7	LK21 Down (2 +3)	LK21 Up (1 + 2)
+ V	LK22 Up (1+ 2)	LK22 Down (2 + 3)

Driving Voltage Selector Pin Set-up

4. Setting up the Variable Resistors:

There are four variable resistors (VR2, 3,4 and 5) on the board, which need to be set to different values for different types of readers. They correspond to the four door controllers on the board Door1, 2,3 and 4 respectively. The settings are tabulated below.

Reader Type	VR2	VR3	VR4	VR5
Silicon Key	1K5	1K5	1K5	1K5
Presco Keypad	1K	1K	1K	1K
Combank	1K	≥1K	≥1K	≥1K
Demo	≥1K	1K5	1K	≥1K
Other	≥1K	≥1K	≥1K	≥1K

Variable Resistor Settings

Note to measure the resistance on the controller, the power supply must be turned off and the resistance is measured on the door controller port between V+ and the corresponding controller port pin IN1, 3,5 and 7.

e.g. To measure the resistance for VR2 you need to measure resistance between IN1 and +V.

5. LED Control

Each of the outputs on the controller (OUT1, OUT2, OUT3 and OUT4) are equipped with a current limiting resistor to allow a diode to be driven directly by the output without blowing it up. However some readers are also equipped with a resistor and in some cases the current is too low to drive the LED on the reader. In these cases the current-limiting resistor can be removed from the circuit using LK9, 10, 11 and 12.

	LK9	LK10	LK11	LK12
Wiegand	Yes	Yes	Yes	Yes
Scrambling/SS Keypad	Yes	Yes	Yes	Yes
Silicon Key	No	No	No	No
Presco Keypad	Yes	Yes	Yes	Yes
Abacard	No	No	No	No
Gencard	No	No	No	No
Combank	No	No	No	No
Demo	Yes	No	No	Yes

Jumper Settings for LED Control

6. Interrupts

Different types of readers require different interrupt inputs to the controller. These are configured using LK8, 17, 18, 19 and 20, as per table below.

	LK8	LK17	LK18	LK19	LK20
Silicon Key	No	No	No	No	No
Presco-2, Abacard-2, Gencard-2	No	No	No	Yes	No
Presco-4, Abacard-4, Gencard-4	No	Yes	No	Yes	No
Presco-Lift, Abacard-lift, Gencard-Lift	No	No	No	No	No
Wiegand-2, Scrambling/SS Kpd-2	No	No	Yes	Yes	Yes
Wiegand-4, Scrambling/SS Kpd-4	Yes	Yes	Yes	Yes	Yes
Wiegand-Lift, Scrambling/SS Kpd-Lift	No	No	No	No	Yes
Combank	No	No	No	No	No
Demo (*)	Yes	Yes	No	No	No

Jumper Settings for Interrupt Set-up

7. For Elevator / Non Elevator Systems

When the system is configured for elevator operation, some of the control lines must be redirected to drive additional relay outputs. In particular this means that the speaker will not work on the board when the system is configured as an elevator controller.

	LK3
Elevator	Up (1+2)
Non-Elevator	Down (2+3)

Jumper setting for Elevator Controller

The V2.3 Board is now ready for installation with the appropriate firmware.

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