InControl 3270 and ToConnect 3270

ASSA ABLOY
Opening Solutions

For more information, see:
Incedo™ Open InControl 3270 / ToConnect 3270 Installation Guide
Incedo™ Open User Guide

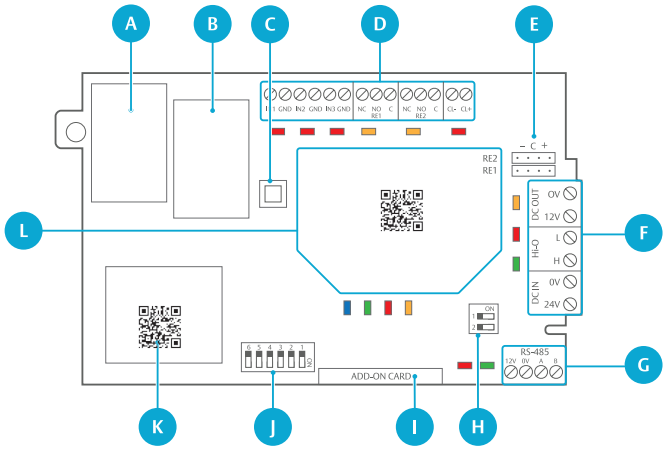
Controller Unit Specifications

Power supply	17-30 V DC. A UPS solution is recommended
Internal current consumption	At 27.8 V: 96 mA Max 120 mA
PoE	PoE+ 30 W IEEE 802.3af/at
Power Out	12-14 V DC, max 1.6 A (independent of power option)
Operating environment	+5 ° C to +40 ° C, RH 5 % to 95 %
IP class	44
Dimensions (housing)	182.3 x 182.3 x 45.5 (W x H x D mm)
Maximum number of Door controllers per Controller	16

Controller Unit Overview

Hardware components such as electric strikes and readers are connected to Controllers and Door controllers on terminal blocks. Settings for either controller unit can be made on the Mode selection DIP (J), and relay jumper pins (E). The RS-485 bus is terminated on the terminal block T3 (G).

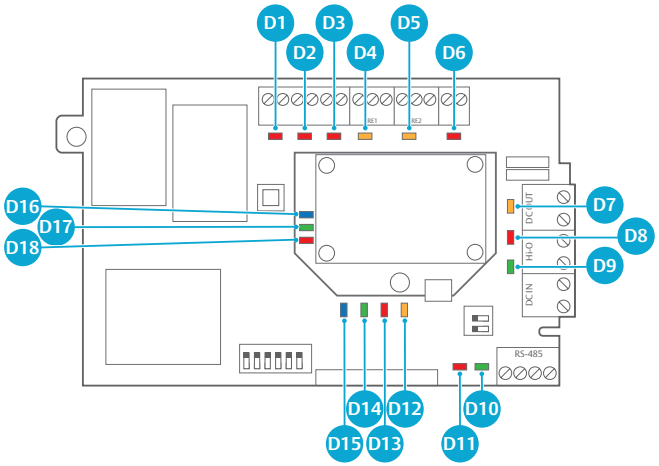
Controllers are equipped with an additional PCB (M), but the I/O connectivity is the same for both controller units.



A) RJ-45 Ethernet connector PoE+
B) RJ-45 Ethernet connector (no PoE)
C) Tamper switch
D) Terminal block T1: Analogue inputs and relay outputs
E) Relay jumper pins
F) Terminal block T2: DC IN, Hi-O, DC OUT
G) Terminal block T3: RS-485
H) RS-485 termination
I) Add-on card connector
J) Mode selection DIP
K) Label with QR code and MAC Address for Door controller
L) Controllers only: Additional PCB with QR code and MAC address label for Controller

The MAC address is used to map controller units in the Incedo™ Open web application. The (InControl 3270) Controller has two separate MAC addresses, since it can act both as a Controller and a Door Controller.

LED Indicators



Controller and Door controller LED reference:

LED	Col	Name	On	Blinking
D1	Red	Input IN1	Input is active (triggered)	Sabotage (wire cut)
D2	Red	Input IN2	Input is active (triggered)	Sabotage (wire cut)
D3	Red	Input IN3	Input is active (triggered)	Sabotage (wire cut)
D4	Yellow	Relay RE1	Relay is active	n/a
D5	Yellow	Relay RE2	Relay is active	n/a
D6	Red	Not used	n/a	n/a
D7	Yellow	DC out over-load	12 V DC output and/or onboard relays draw current beyond capacity	n/a
D8	Red	Hi-O encrypted	Hi-O bus is locked (encrypted)	n/a
D9	Green	Hi-O unlocked	Hi-O bus is unlocked	n/a
D10	Green	RS-485 RX	Data is being received over the RS-485 bus	n/a
D11	Red	RS-485 TX	Data is being transmitted over the RS-485 bus	n/a
D12	Yellow	Voltage detected	Voltage between 12-28 V detected on the DC IN terminal or the PoE+ port	n/a
D13	Red	Not used	n/a	n/a
D14	Green	Network status	Door controller is communicating with the Controller.	IP address received
D15	Blue	Service status	Door controller is not running the firmware	Door controller is running the firmware
D16	Blue	Controller status	n/a	Slow blinking: Controller is working, connected to cloud. Fast blinking: Controller is not connected to cloud.
D17	Green	Number of connected devices	n/a	Blinking to indicate number of connected devices (Door controller or WellCom units). One blink per connected device, then a pause for 3-4 seconds (repeated).
D18	Red	Number of disconnected devices	n/a	Blinking to indicate number of disconnected devices (Door controller or WellCom units). One blink per disconnected device, then a pause for 3-4 seconds (repeated).

Warning!
Ensure that the controller unit is powered off before connecting or disconnecting any wire or cable.

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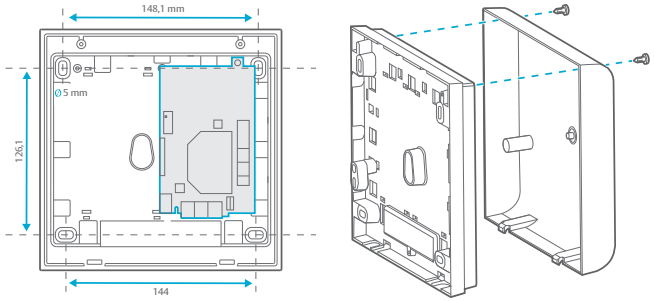
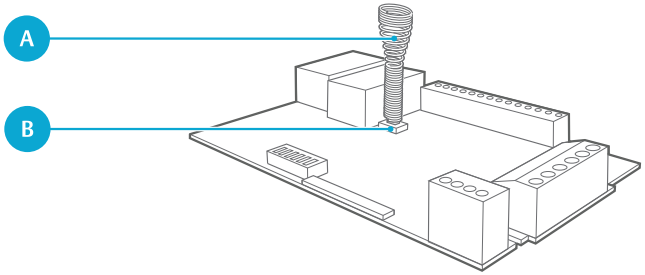
Installing Controller Unit

The supplied housing have room for one add-on card.
It is secured to the wall using four 5mm screws (not included).
Cables can either be run from a hole in the wall or from the sides. Before mounting, consider placement with respect to cabling needs and exposure to wear and damage.



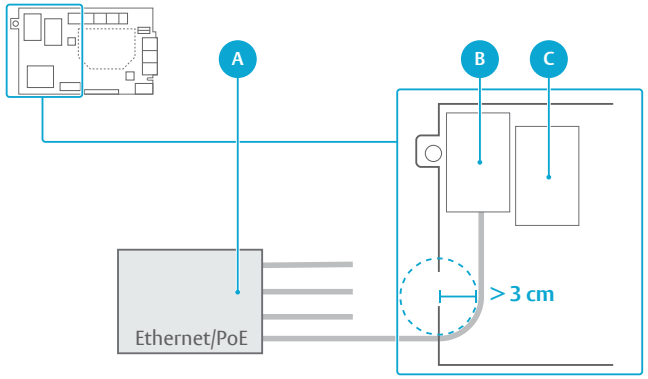
1) Secure the back cover to the wall, with the part marked UP facing upwards.
2) Optional: Install an additional relay board.
3) For the selected components and interfaces, make the desired cable connections.
4) Connect the power supply, and power up the unit.
If powering from PoE+, connect the network cable.
5) Connect the controller unit to the local network.
A number of LEDs on the controller unit should light up.
6) Ensure that the tamper spring (A) is secured to the tamper switch (B). It should fit tightly around the button.



7) Close the front cover and secure it with the two screws.

Note!
The LEDs on the PCB are turned off when the lid is closed properly, with the tamper spring in correct position.

Connecting Controller Unit



A) Network router or switch
B) RJ-45 Ethernet connector PoE+
C) RJ-45 Ethernet connector (no PoE)

Note!
When running a network cable, the bending radius must be 3 cm or larger. Category 5e, or higher, twisted-pair cable is recommended.

1) To connect a Controller to the cloud service:

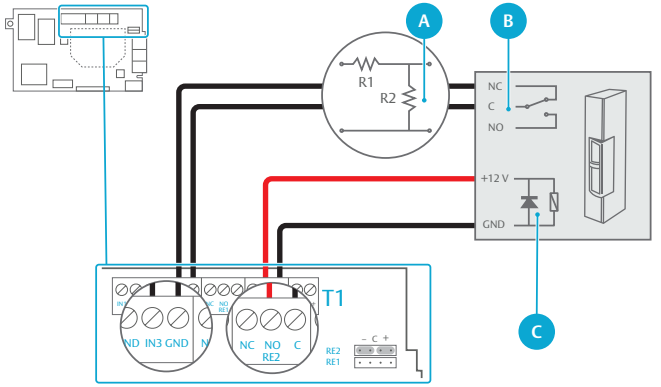
Controller	Connect to
RJ-45 PoE*	Local network router or switch with Internet access.

2) To connect a Door Controller to the parent Controller:

Door controller	Connect to
RJ-45 PoE*	• The parent controller's local network switch. • Optional: The parent controller's free RJ-45 connector (no PoE).

* Power over Ethernet (PoE) is optional. It is recommended to power controller units from DC IN.

Connecting 12 V Electric Strike



Optional dual loop (A), door sensor (B), flyback diode (C).

1) Select input and relay.
An additional relay board can also be used.

Function	Quantity	I/O
Electric strike	1	RE1-2 Relay board: RE3-RE8
Door sensor	0-1	IN1-IN3 Relay board: IN4-IN7

2) Connect the electric strike.
Configure the relay to supply 12 V. Configure the electric strike for NO (fail-secure) or NC (fail-safe) operation. Mount a flyback diode between the + and C/0 V/GND terminals.

Jumper setting	Relay output mode
– C +	Powered mode: RE1 or RE2 connector NC or NO supplied +12 V DC C connected to ground.

Make the connections.

Terminal T1	Electric strike
NO or NC	+ (NO or NC)
C	C/0 V/GND

3) Optional: Connect the door sensor.
Mount the input as dual loop in the web application and connect dual loop resistors in the switch.
Make the connections.

Terminal T1	Electric strike
IN	NC
GND	0 V/C

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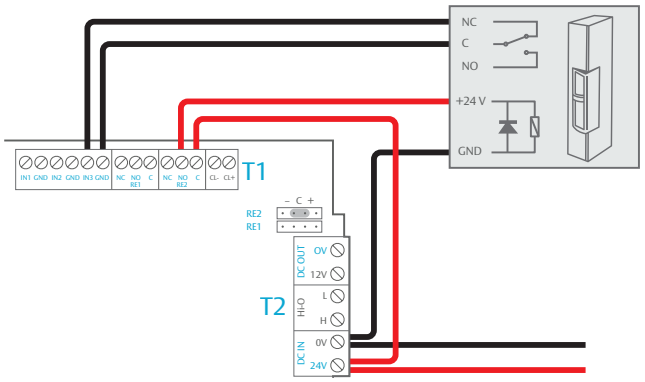
Connecting 24 V Electric Strike



1) Follow step 1) from *Connecting 12 V Electric Strike*.
2) Connect the electric strike.
Configure the relay to passive mode and supply 24 V from the board. Configure the electric strike for NO (fail-secure) or NC (fail-safe) mode, and mount a flyback diode between the + and C/0 V/GND terminals.

Jumper setting	Relay output mode
– C +	Passive mode: RE1 or RE2 connectors NC, NO, and C directly connected to the relay.

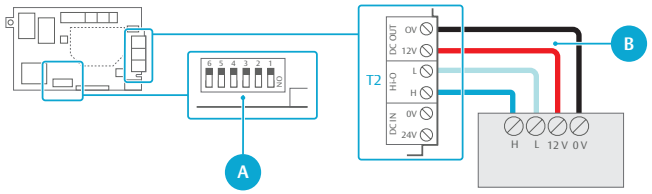
3) Make the connections.

Terminal	Electric strike
NO or NC	+ (NO or NC)
0 V	C/0 V/GND

Terminal T1	Terminal T2
C	DC IN 24 V

4) Follow step 3) from *Connecting 12 V Electric Strike*.

Note!
Ensure that the specifications are not exceeded.
The maximum load is 1 A at 28 V DC.



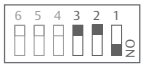
Adding Hi-O Devices

Mode selection DIP (A), +12 V DC (B), from controller unit.

1) Locate terminal block T2.
2) Connect the Hi-O bus device to the controller unit.

Terminal T2	Connect to
Hi-O H	H terminal on the Hi-O device or bus.
Hi-O L	L terminal on the Hi-O device or bus.
DC OUT 0 V	0 V/ground terminal on the Hi-O device or bus.
DC OUT 12 V	Optional. +12 V on the Hi-O device or bus.

3) If externally powered, power up the Hi-O device.
4) Optional: Test the Hi-O device before pairing.
   a) Power up the controller unit.
   b) Test the device on the bus.
   c) Disconnect the unit from the power supply.
5) To pair the Hi-O device with the controller unit, set the Mode selection DIP switch 1 to ON.

Mode selection DIP	Function
	DIP1 = ON: Hi-O pairing mode at power-up

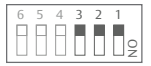
6) Optional: Select the desired electric lock failsafe and fail secure modes at power failures.

Mode selection DIP	Function
	DIP2 = ON: Motor lock door monitor (Hi-O) is deactivated. DIP2= OFF: Default. Motor lock door monitor (Hi-O) is activated.
	DIP3 = ON: Failsafe for electric strikes. Unpowered strikes are unlocked. DIP3 = OFF: Fail secure for electric strikes. Unpowered strikes remain locked.

7) Ensure that the bus is properly terminated.
8) Power up the controller unit.
LED D15 (blue, Service status) is steadily lit during the Hi-O pairing process. When LED D15 blinks, and LED D7 (yellow, DC overload) blinks fast, the pairing process is complete.

Note!
During the Hi-O pairing process, exit buttons cannot be used to open the door.

9) Reset the Mode selection DIP.

Mode selection DIP	Function
	DIP1 = OFF: Normal operational mode.

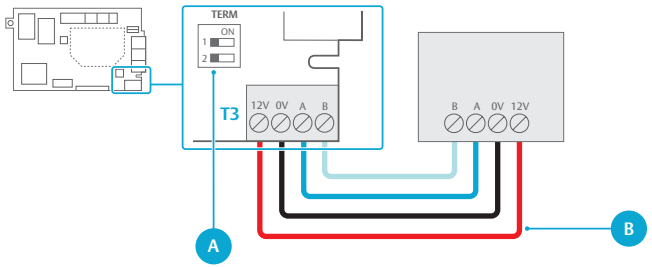
The Mode selection DIP must be reset before the controller unit reboots after 20 seconds. After reboot, LED D8 (red, Hi-O encrypted) should be on. If LED D9 (green, Hi-O unlocked) is on, the pairing process failed.

10) Power cycle the controller unit.

Removing Hi-O Devices

1) If externally powered, turn the Hi-O device on.
2) Set the Mode selection DIP switch 1 to ON.
DIP2 and DIP3 are not used while unpairing the Hi-O bus.
3) Press and hold the tamper switch.
4) Power up the controller unit.
When LED D15 blinks, and LED D7 blinks fast, the unpairing process is complete.
5) When the unpairing process is complete, release the tamper switch.
6) Power off the controller unit.
7) Disconnect, add, or remove the Hi-O device from the bus.
The removed device can now be used with other controller units.
8) To pair the Hi-O bus, follow *Adding Hi-O Devices* from step 3.

Connecting Readers Over RS-485



RS-485 termination DIP (A), +12 V DC (B), from controller unit.

1) Locate terminal block T3.

2) Connect the RS-485 bus devices to the controller unit.

Terminal T3	Connect to
A	A terminal on the RS-485 device or bus.
B	B terminal on the RS-485 device or bus.
0V	0 V/GND on the RS-485 device or bus.
12V	Optional. +12 V on the RS-485 device or bus.

3) Ensure that the bus is properly terminated.
Any end node (controller unit or bus device) on the bus must be terminated.

Termination DIP	Termination state
	RS-485 not terminated on the controller unit.
	RS-485 terminated on the controller unit.