http://van.fyi?Link=ASC-1400-B1

Table of Contents

1   <u>Overview</u>

This guide describes the installation of the acre Smart Controller.
- The ASC-1400-B1 is a 4 Door Access Panel, PCBA only.
- The ASC-1400-M1 is a 4 Door Access Panel in a Metal Housing.
- The ASC-1412-M1 is a 4 Door Access Panel in a Metal Housing with 12V 60W PSU and 7aH battery fitted separately.

1.1   <u>Technical specification</u>

	ASC-1400-B1		ASC-1400-M1		ASC-1412-M1	
Voltage Range (Controller)	12-24V DC		12-24V DC		12V DC	
AC rating	N/A		N/A		Mains 115v – 240AC, 50-60Hz, 1.13A	
Current Consumption (Controller)	@12V	4.36A	@12V	4.36A	@12V	4.36A
	@24V	3.4A	@24V	3.4A	@24V	3.4A
Controller Dimensions (H x W x D mm)	205x155x30mm		310x265x65mm		390x310x75mm	
Controller Weight (kg)	300g		2.5Kg		3.7Kg	
Operating Temperature	-10 to +55° C		-10 to +55° C		-10 to +55° C	
Operating Environment			Surface Mount Internal Use		Surface Mount Internal Use	
Enclosure Material	N/A		1.2mm Mild Steel		1.2mm Mild Steel	
LED Status Indicators	3 On-board LEDS, Power, Comms, Fault.		3 On-board LEDS, Power, Comms, Fault. Power LED on outside of Cabinet.		3 On-board LEDS, Power, Comms, Fault. Power LED on outside of Cabinet.	
Lid Opening Tamper Detection (Front)	N/A		Yes		Yes	
Ethernet	10/100/1000Mbps		10/100/1000Mbps		10/100/1000Mbps	

1.1.1 Electrical specification

	ASC-1400-B1	ASC-1400-M1	ASC-1412-M1
Entry Exit Readers	Multiple up to 500mA	Multiple up to 500mA	Multiple up to 500mA
Main Relay,	2A @30V DC (Resistive)	2A @30V DC	2A @30V DC
Aux Relay	1A @ 30V DC (Inductive)	(Resistive) 1A @ 30V DC (Inductive)	(Resistive) 1A @ 30V DC (Inductive)
Programmable Outputs: 4	@12V 159mA	@12V 159mA	@12V 159mA
Outputs (OP1, OP2, OP3, OP4)	@24V 120mA	@24V 120mA	@24V 120mA
Inputs: Digital Inputs (IP1 – IP12)	0-5V	0-5V	0-5V
Inputs: Wiegand	5V (1A max) (Shared by 2 readers)	5V (1A max) (Shared by 2 readers)	5V (1A max) (Shared by 2 readers)
System Inputs: PSU	12-24 V	12-24 V	12-24 V

ASC-1400-B1 / ASC-1400-M1 / ASC-1412-M1	
System Inputs: Tamper	0-5V TTL (Normally closed contact)
System Inputs: Low Battery	0-5V TTL
System Inputs: AC MON	0-5V TTL
OSDP (RS485) 4 ports	1A Max (Shared by all ports)
Vlock 2 rails	Each Vlock rail delivers 1A max

1.1.2 Relay load

When used with inductive loads (Maglock/Strike locks) the following ratings apply.

ASC-1400-B1 / ASC-1400-M1 / ASC-1412-M1
Main relay   30V / 2A (Resistive load) 30V / 1A (inductive load)
Aux relay   30V / 2A (Resistive load) 30V / 1A (inductive load)

1.1.3 Power Rails outputs (power coming out from the board)

Device	Circuit	Rated Voltage	Rated Current	Remarks
ASC-14x	Readers conn (J13-J14)	10-12V (set JP2)*	600mA nom 800mA max	Total for 2 connections
ASC-14x	Readers conn (J13-J14)	24V (set JP2)	600mA nom 800mA max	Total for 2 connections
ASC-14x	RS485 Rails (J19-J22)	10-12V (set JP8)	600mA nom 800mA max	Total for 4 connectors
ASC-14x	RS485 Rails (J19-J22)	24V (set JP8)*	600mA nom 800mA max	Total for 4 connectors
ASC-14x	Vlock1 & Vlock2	24V (set JP9 & JP10)	600mA nom 800mA max	On each Vlock1 & Vlock2
ASC-14x	Vlock1 & Vlock2	10-12V (set JP9 & JP10) *	1A nom 1.2A max	On each Vlock1 & Vlock2

* Specal application

1.1.4 UL294 Performance levels

- Attack 1
- Endurance 4
- Line Security 1
- Standby Power 2

1.2 Ordering details

ASC-1400-B1	acre Smart Controller (board only)
ASC-1400-M1	acre Smart Controller with Enclosure
ASC-1412-M1	acre Smart Controller, Enclosure and PSU

1.3 FCC Statement

FC	Model Number	ASC-1400-B1	ASC-1400-M1	ASC-1412-M1

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Warning: Changes or modifications not expressly approved by the party responsible for compliance could void the User`s authority to operate the equipment.

2   Installation

The acre Smart Controllers are for indoor installation only and must be installed as permanently connected equipment.

For the ASC-1412-M1 only, an external mains disconnect device must be fitted. Before installation, ensure that the mains supply to the controller is disconnected.

For the ASC-1412-M1 only, mains power should be connected to Controllers by a licensed electrician in accordance with local/national codes.

The acre Smart Controller will not be installed in a restricted access location, under normal circumstances it should only be accessed by an "instructed person" or a "skilled person".

Use a 6.5 x 1.2mm slotted screwdriver to open the housing. For the US versions, a key is required to open the housing.

2.1   ASC-14xx acre Smart Controller

2.1.1   Mounting

Mount the acre Smart Controllers ASC-1400-M1 or ASC-1412-M1 directly on to the wall. The keyed mounting hole should be screwed first to the wall to aid the mounting.

A disconnect device must be installed.

The ratings of the over-current protective device to be installed should be chosen in accordance with the product specification.

Mounting the acre Smart Controller should be done with fixings appropriate for the weight of the unit and considering the installation surface it is to be attached to.

The unit should be installed in a ventilated area that allows for accessibility after installation.

2.1.2   Power supply

The ASC-1400-M1 acre Smart Controller (board only) requires an external 12V DC or 24V DC power supply. The supply should be connected to the +12/24V DC and 0V/GND connections.
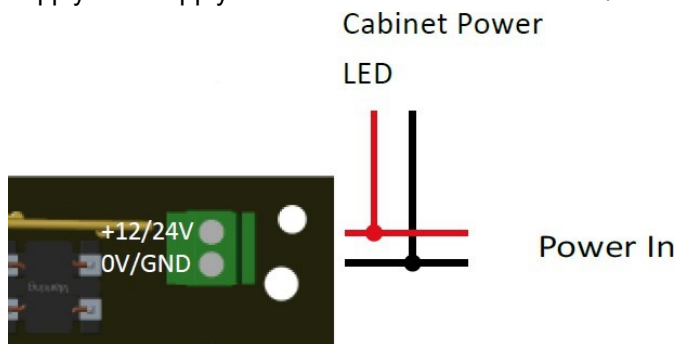
The ASC-1400-M1 acre Smart Controller with Enclosure requires mains power as shown in the image below.

2.1.3   Wiring of mains cable to the controller

A readily accessible approved disconnect device must be incorporated in the building installation wiring. This must disconnect both phases at the same time. Acceptable devices are switches, circuit breakers, or similar devices

- The disconnect device must have at least 3mm distance between the contacts.
- Minimum size conductor used for connecting mains is 1.5mm square.
- The circuit breakers must have a minimum of 6A and a maximum rating of 16A.

2.2   ASC-1412-M1

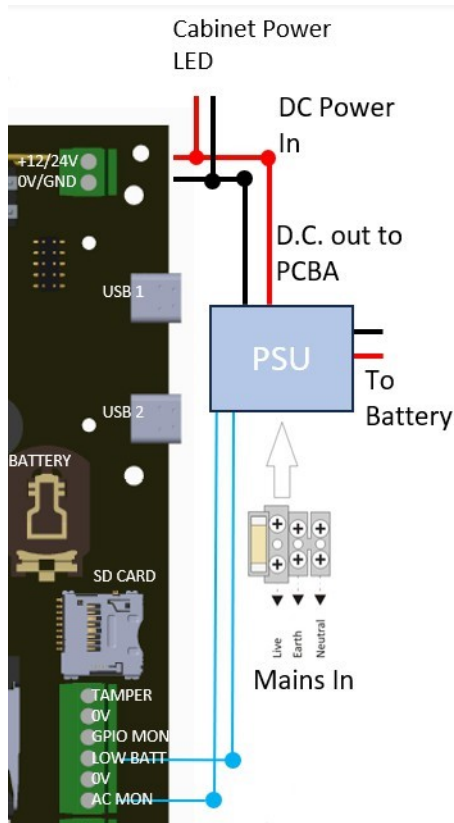This unit is only suitable for installation as permanently connected equipment.

- The PSU is not suitable for external installation.
- Equipment must be earthed.

Before installation, ensure that external disconnect device is **OFF**.

The PSU should be installed via a 500mA fused spur according to all relevant safety regulations applicable to the application.

2.2.1   Mains power up (ASC-1412-M1 only)

1. Attach correctly rated mains cable (minimum 0.5mm2 [3A], 300/500V AC) and fasten using cable ties.
2. Apply mains power and:
   - Check for 13.8V DC on load outputs.
   - Check blue Power LED on the PCBA and outer lid is on.
3. Disconnect mains power.

2.2.2 Load Output (ASC-1412-M1 only)

1. Attach correctly rated load cable and fasten using cable ties. Note polarity.
2. Apply mains power and check blue Power LED is on in the PCBA and outer lid.
3. Verify load is operating correctly.
4. Disconnect mains power.

2.2.3 Standby Battery (ASC-1412-M1)

Note: Ensure battery being fitted to this unit are in good condition

1. Connect battery leads to battery, ensuring correct polarity of battery connections. Acre recommends using a 7Ah battery.
2. Apply mains power and check that the blue Power PCB LED is on and also on the outer lid.
3. Disconnect mains power.
4. Check that the batteries continue to supply voltage and current to the load.

   The blue Power LED should be on.

   Note: Batteries must have sufficient charge to supply the load.

5. Reconnect mains power.

   Green LED should be on.

2.2.4 Tamper

A tamper condition may be reported in software.

1. Check that the tamper switch is:

   - Closed when the enclosure lid is closed, and the lid screw is fitted.
   - Open when the lid is open.

2. Close cover and secure using fastening screw(s) provided.

   Note: For the ASC-1400-B1 acre Smart Controller (board only) an external tamper is used.

3 <u>Wiring</u>

The product shall be constructed so that, with all field-installed wiring connected to the product, either:

- A minimum 1/4 inch (6.4 mm) is provided between all Class 2 or 3 conductors and all electric light, power, Class 1 conductors, non-Class 2 or 3 signaling conductors, or medium- power network-powered broadband communications-circuit conductors.

Or

- For circuit conductors operating at 150 volts or less to ground where the Class 2 or 3 conductors are installed, a minimum 1/4-inch (6.4 mm) separation is provided between these Class 2 or 3 cable conductors extending beyond the jacket and all electric light, power, Class 1 conductors, non-Class 2 or 3 signaling conductors, and medium-power network-powered broadband communications-circuit conductors.

3.1 Typical wiring of acre Smart Controller

ASC-1400-Mx acre Smart Controller with Enclosure - Wiring Diagram

acre

Scan for manuals
URL: http://van.fyi?Link=ASC-1400-Mx

ETHERNET: RJ45

Cabinet Power LED

DC Power In

OSDP Door 1,2,3,4

OSDP
GND (Black)
12v (Red)
Data A (Yellow)
Data B (Green)

* Note: For OSDP, Configure wiring and set EOL resistors as specified in the reader manual.

Door 1

Door 2

EXIT READERS
For Clock & Data readers, wire exit readers in parallel but leave the sense line unconnected. For Wiegand readers, wire the DATA 0 of the exit reader to SENSE on the ASC-1400-Mx. Max length 30m with 12V DC Cable: 8 Core Screened Belden 9504 or equivalent

Each Vlock rail delivers 1A max @ 12v

IMPORTANT:
Place varistor across all lock terminals

BREAK GLASS UNIT (Double Pole)
POLE A   POLE B

Diagram shows normally energised magnetic lock

IMPORTANT:
Place varistor across all lock terminals

BREAK GLASS UNIT (Double Pole)
POLE A   POLE B

Diagram shows normally energised magnetic lock

ASC-1412-Mx acre Smart Controller, Enclosure and PSU - Wiring Diagram

Scan for manuals
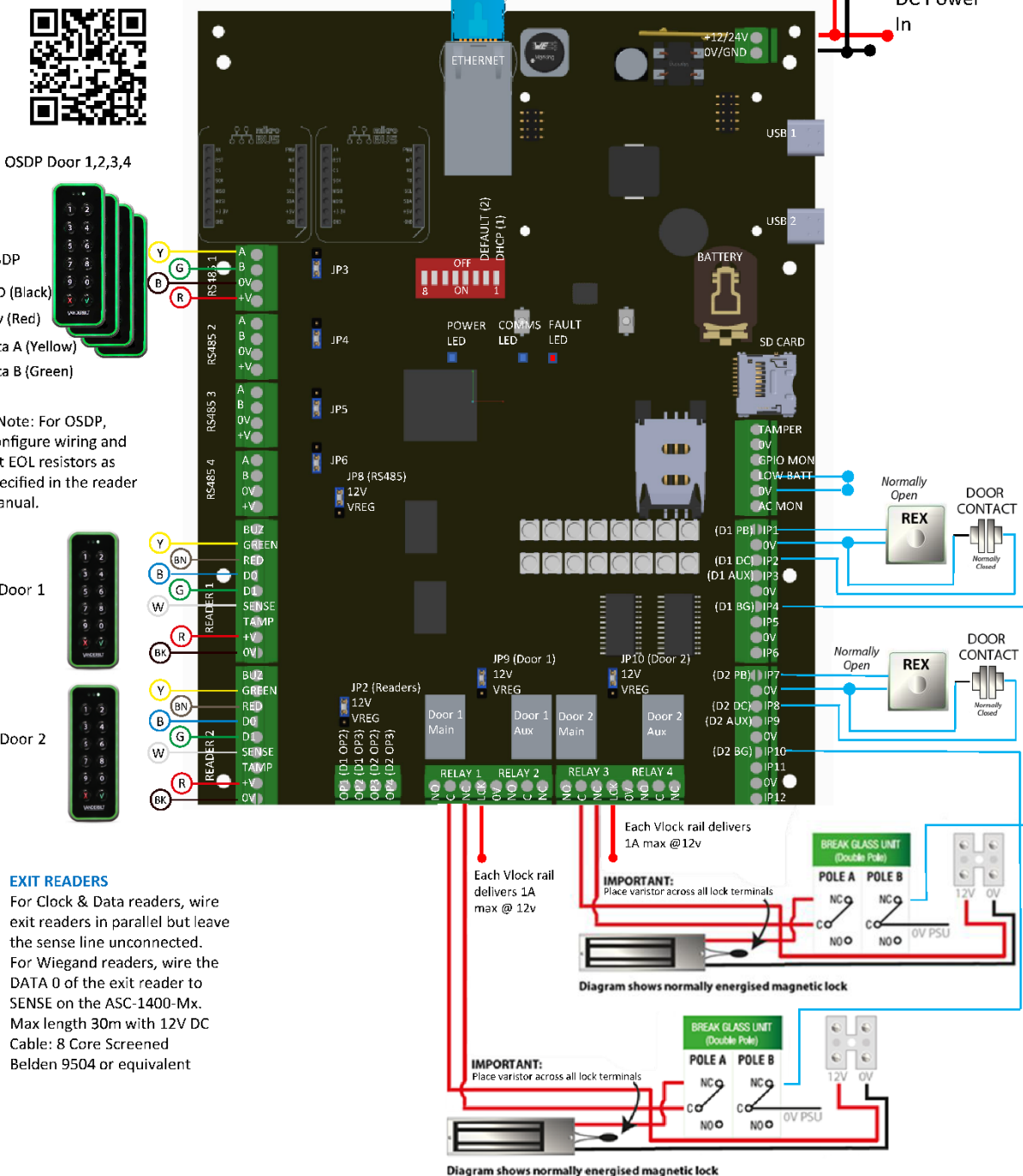URL: http://van.fyi?Link=**ASC-1412-Mx**
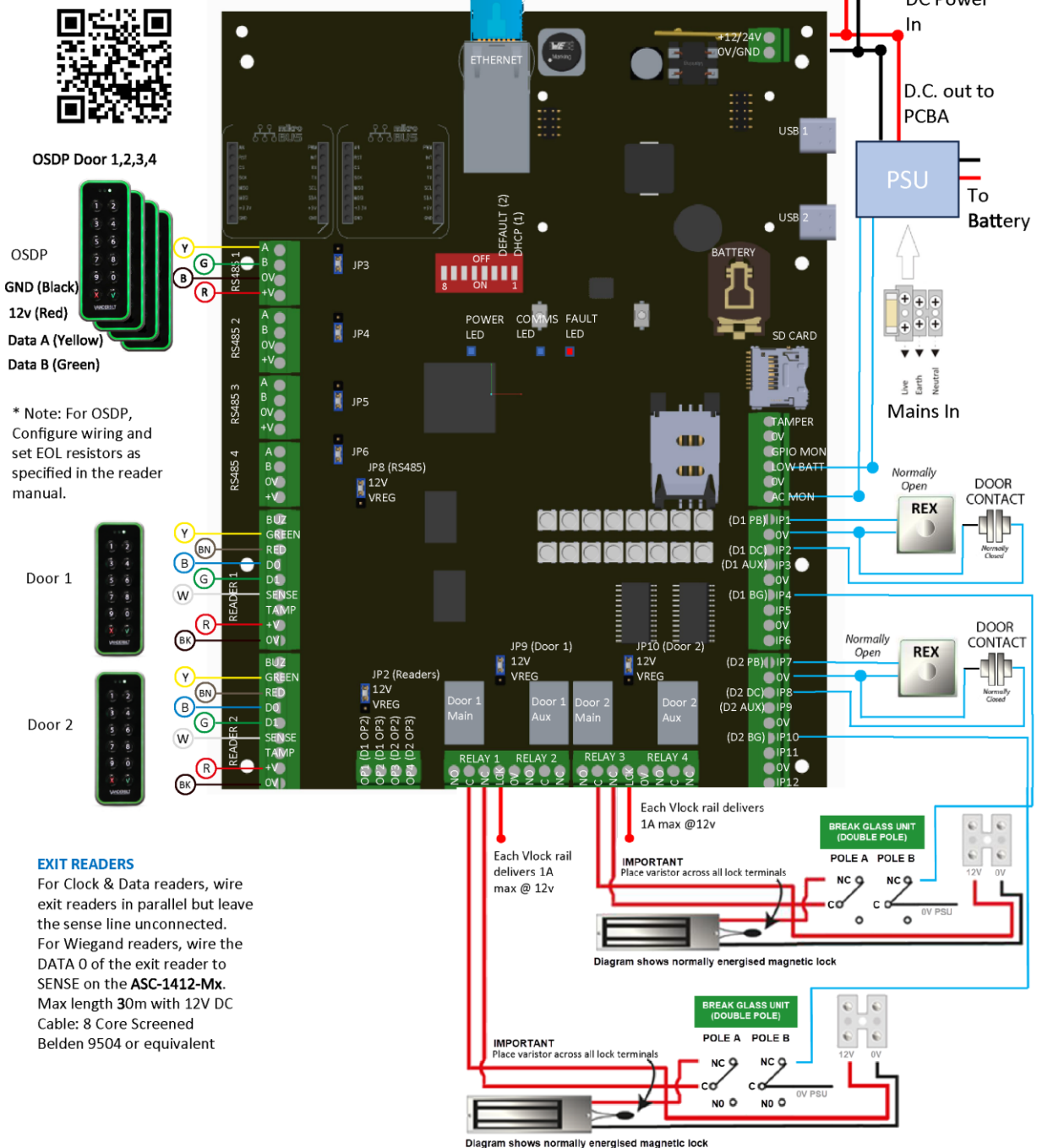
3.1.1 Wiring exit readers

For clock and data readers, wire exit readers in parallel but leave the sense line unconnected.
For Wiegand readers, wire the DATA 0 of the exit reader to the SENSE pin on the ASC-14x and DATA 1 to the CLOCK/D1 pin on the ASC-14x.
Max length: 30m with 12V DC
Cable: 8 core screened Belden 9504 or equivalent

3.1.2 Setting jumper positions for terminated/not terminated
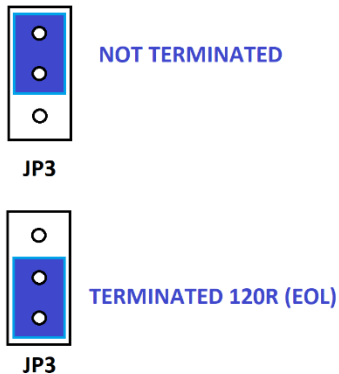
The following jumpers are shown in the wiring diagrams:

- JP3 (BUS RS485 1)
- JP4 (BUS RS485 2)
- JP5 (BUS RS485 3)
- JP6 (BUS RS485 4)

Set jumper position for JP3 as shown below to configure "not terminated" or "terminated".

NOT TERMINATED

JP3

TERMINATED 120R (EOL)

JP3

3.2 Fire Option in aAC

Fire operation requires a fire panel that provides a dry contact output that is NC.
This Fire Input will be triggered from the Fire Alarm panel.
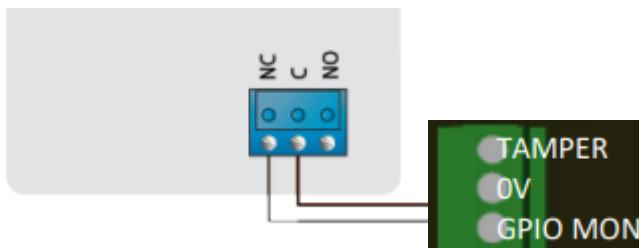
1. Enable **Controller Fire Monitoring** (GPIO)
2. Open the **Controller** menu.
3. Select the **Advanced** tab.
4. Enable **Fire Monitoring**.
5. Save and close.
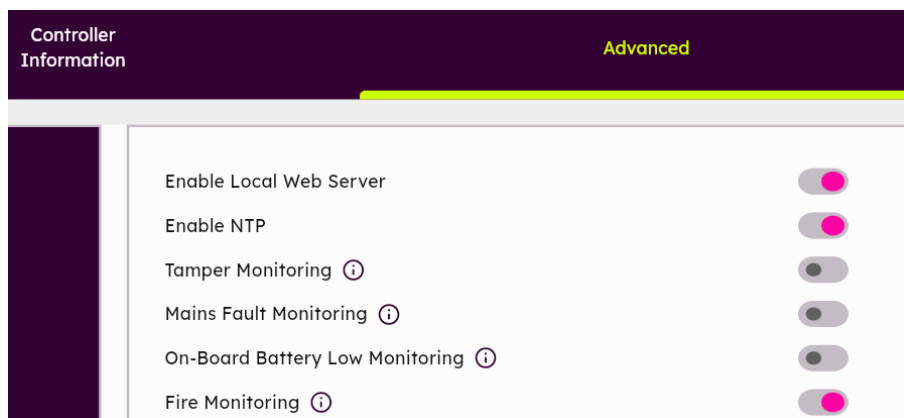
This option will need to be enabled on every controller where you want the Doors to open on a Fire alarm event.
While the 0v signal is maintained at the GPIO input, the Fire Doors remain in Normal operation.
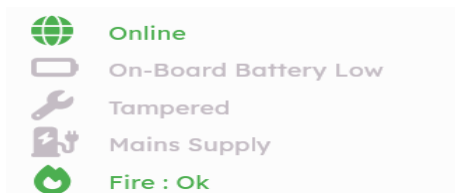
When 0V is removed only the Doors on that specific controller will open.
The Controller will change, indicating **Alarm Condition** on the system.
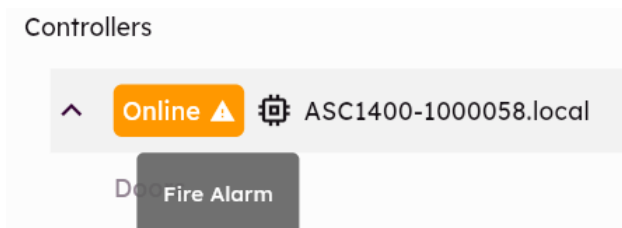
In the Controller status window, the **Fire** option will change to **Fault**.
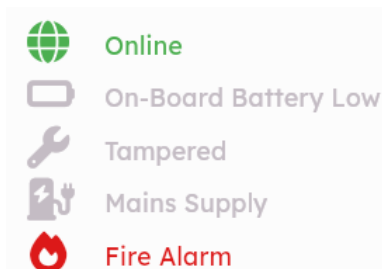
Fire Event will be logged.

13/02/2025 07:15:00	ASC1400-1000058.local Fire Change of State from inactive to active
Priority	100
device	controller
from	inactive
id	550434
logId	1252
to	active
Reader	ASC1400-1000058.local
Controller	ASC1400-1000058.local
MacAddress	0000-0100-0058-3458-9434
Timezone	Europe/London
MessageTimeUtc	13/02/2025 07:15:00
MessageTime	13/02/2025 07:15:00
Application Source	Access Control Service
Event Type	Door Fire

13/02/2025 08:13:26 AM ASC1400-1000058.local Fire Change of State from active to inactive

⊕	Priority	100
⊕	device	controller
⊕	from	active
⊕	id	550434
⊕	logId	1357
⊕	to	inactive
⊕	Reader	ASC1400-1000058.local
⊕	Controller	ASC1400-1000058.local
⊕	MacAddress	0000-0100-0058-3458-9434
⊕	Timezone	Europe/London
⊕	MessageTimeUtc	13/02/2025 08:13:26 AM
⊕	MessageTime	13/02/2025 08:13:26 AM
⊕	Application Source	Access Control Service
⊕	Event Type	Door Fire

The fault condition will be removed once the dry contact closes. (Input returns to normal).

3.2.1 Exclude Fire Doors

When this option is enabled, the Door is excluded from unlocking in a Fire condition.

Excluding a Fire Door:
1. Open the **Door Information** for the door that you wish to exclude.
2. Select **Advance Settings > Logging and Options**.
3. Enable the **Exclude Fire Door** option.
4. Click **Save and Close**.
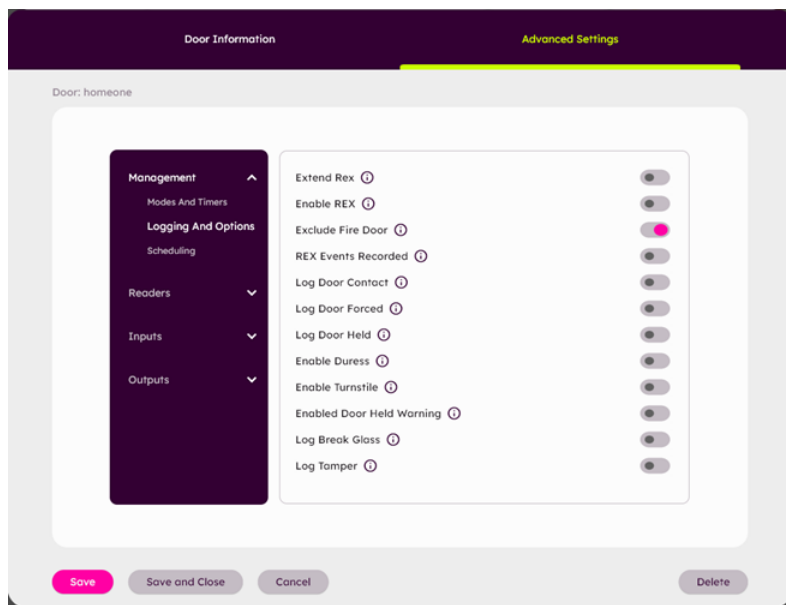
4   Defaulting the Controller and IP Address Configuration

The acre Smart Controller has 8 DIP switches.
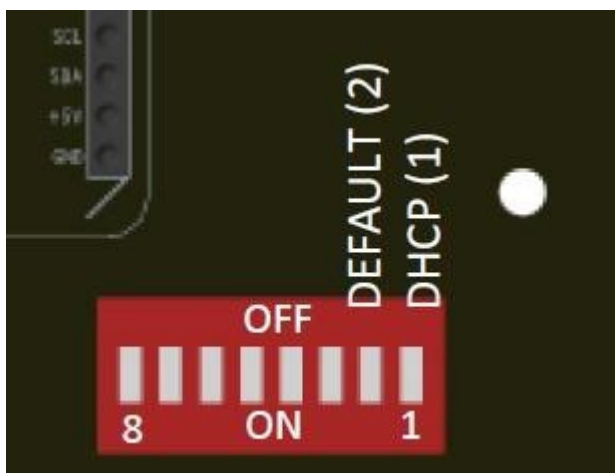
- DIP switch 1: DHCP
  Enables DHCP or Static IP address mode.
- DIP switch 2: DEFAULT
  Defaults the controller or the Static IP address.

Factory state of Dip switches:

DIP	Function	Factory State	Comment
1	DHCP	ON	
2	Default	OFF	
3	None	OFF	
4	None	OFF	
5	None	OFF	
6	BOOT Mode	ON	
7	BOOT Mode	OFF	
8	BOOT Mode	ON	Boot from onboard memory

4.1   Factory default the Controller (DIP switch 2)

The acre Smart Controller may be defaulted to factory settings. This will completely erase the controller memory. All information including card details will be erased and the static IP address will be reset to 192.168.1.60.

To default the acre Smart Controller:

1. Power down the acre Smart Controller.

2. Set the **DEFAULT** DIP switch 2 to **ON**.

3. Apply power to the ASC-14x Controllers.

4. Wait up to 1 minute until the buzzer sounds and all 3 LEDs (System Comms & Fault) flash on and off.

5. Set the **DEFAULT** DIP switch to **OFF**. The buzzer sounds and LEDs flash once every second until the Default dip switch is turned off.

6. Re-apply power.

4.2   DHCP/static IP addressing (DIP switch 1)

The acre Smart Controller is shipped with DHCP enabled and can be configured to obtain an IP address from a DHCP server or use a static IP address.

1. Power down the acre Smart Controller.
2. Set DIP switch 1 to its new position.
3. DHCP IP addressing: Move DIP switch 1 to **ON**.
4. Static IP addressing: Move DIP switch 1 to **OFF**
   Note: Default static IP address is **192.168.1.60**.
5. Re-apply power to the board.
6. The local webserver can be used to change the static IP address if required.

4.3   Changing static IP address on the acre Smart Controller

1. Connect the acre Smart Controller to the IP network.

2. Open a web browser on a PC.

3. Enter http://<Hostname>, http://ACP03200-1000010
   Logon details:
   - Username: installer
   - Password: 999999

```
            CUID
0000-0100-0010-2619-3118

Hostname:   AP3200-1000010
MAC ADDR:  90-C6-82-91-EA-6A
SERIAL No:  1000010
```
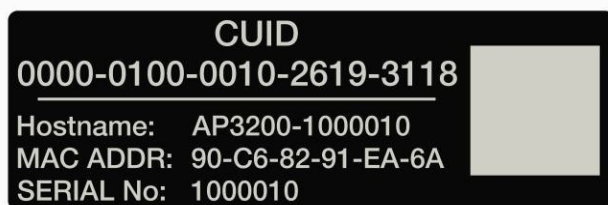
4. Choose the Network Settings menu and set the following:
   - IP Address/Subnet mask
   - Default Gateway
   - DNS

```
              Network Settings

    DHCP is enabled, settings will be ignored

IP Address
   192.168.1.60/24

Gateway
   192.168.1.1

DNS
   208.67.222.222

                Save
```
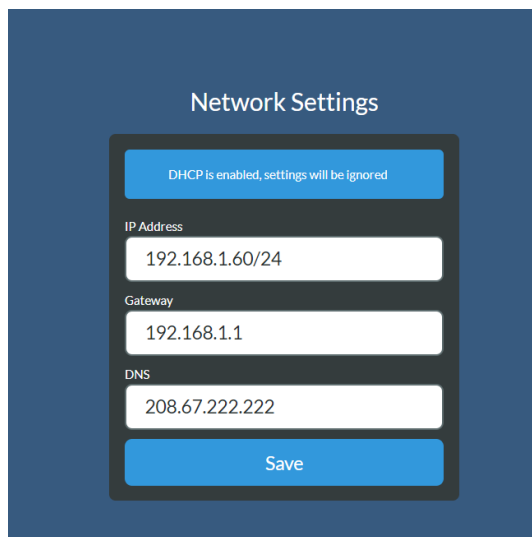
5. Click Save.
   Note: Use the new IP address when connecting to the Access Panel.

Firmware version; Revision 1.00.001 : ASC1400-sdimage-release-prod-v1.0.1-20240515.wic.

5 Door Controller Status Indicators

5.1 Acre Smart Controller

Status indicators appear on the front of the acre Smart Controller.
The meaning of each indicator is described below.

5.1.1 (LED P) Power / System Running

Off indicates system not booting.
Flashing indicates system is running.
Constant illumination indicates operation done for the following operations:
- System upgrade via SD-card.
- Factory reset.

5.1.2 (LED C) Communications

Blue LED located beneath and right of DIP switches.
Flashing indicates firmware is attempting to connect to AAC service.
Constant illumination indicates firmware is connected to AAC service.

5.1.3 (LED F) Fault

Amber LED located beneath and right of DIP switches.
Flashing indicates a warning in the system.
Possible causes:
- High reader port power consumption.
- Low battery.

Illumination indicates a fault in the system.
Possible causes:
- Tamper open.
- Mains fault.
- Low supply power.
- Reader port over current.
- Break glass active.
- Extended inability to connect to AAC service.
- One or several inputs not being in closed or open state, e.g., a resistor being connected.

6 SD Card Firmware Update

1. Power off the board.
2. Insert the SD card, ensuring that the contacts are facing upwards as you insert the card.
3. Change DIP switches as follows:
   - DIP 6: OFF
   - DIP 7: ON
   - DIP 8: OFF
4. Power on the board.
5. Wait for a minute until the blue flashing System Running LED stops flashing and the buzzer makes a signal.
6. Power off the board.
7. Remove SD card.
8. Change DIP switches as follows:
   - DIP 6: ON
   - DIP 7: OFF
   - DIP 8: ON
9. Power on the board.

7   RTC Battery replacement

1. Power off board.
2. Remove old battery and dispose of responsibly.
3. Insert new battery with + side facing up.
4. Power up board.

Note: The RTC battery should only be inserted on a system that is normally powered. Once inserted, the battery will maintain rtc time for minimum 1 month on a powered off unit.

Only add a battery to a system that is about to be commissioned and power up as it will start to drain when the system is left powered off. The battery will maintain RTC for a minimum of 1 month when powered off.

Note: the battery type is CR2032.

8   Jumper settings

In this section the 12v & 24v operation is described with the necessary header configuration on the PCB.

8.1   Use Cases for 12V and 24V systems

Jumper REF	Jumper Name	Function
JP7	Not connected	Not used
JP3	Serial 1 EOL	When fitted a termination of 120R will be added (see below)
JP4	Serial 2 EOL	When fitted a termination of 120R will be added (see below)
JP5	Serial 3 EOL	When fitted a termination of 120R will be added (see below)
JP6	Serial 4 EOL	When fitted a termination of 120R will be added (see below)
JP8	VRS485 voltage	Jumper for setting the Voltage of the serial ports (RS485 external rails) VREG or 12V
JP2	Readers Voltage	Card readers voltage (not RS485) VREG or 12V
JP9	LOCK1 Voltage	Lock 1 external rail voltage VREG or 12V
JP10	LOCK2 Voltage	Lock 2 external rail voltage VREG or 12V

8.2   JP3 – JP6

When fitted on position 1-2 (upper two pins diagram below) the termination is NONE When fitted on position 2-3 (lower two pins diagram below) termination 120R ON
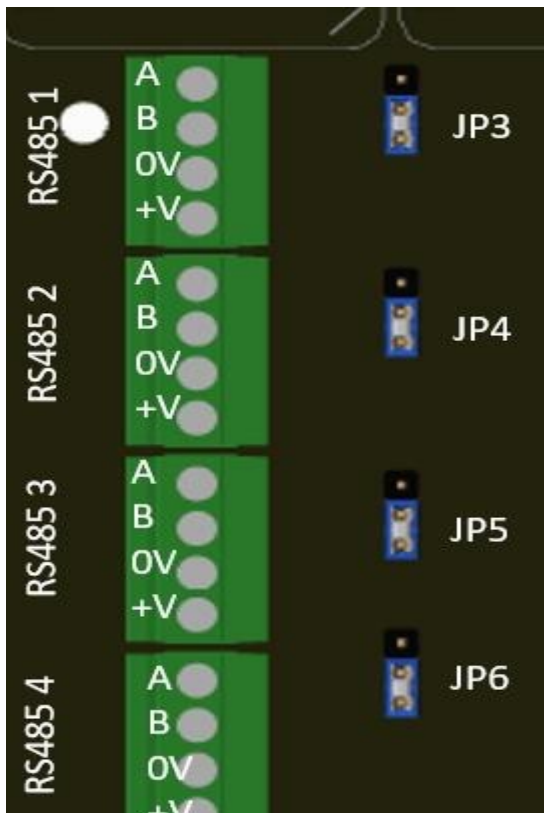
8.2.1   Naming conventions

All jumpers have a description on the silkscreen of the printed circuit board.
The term VREG refers to the incoming voltage from the PSU (external to the board)

By fitting the voltage jumpers on the VREG positions the respective rails are becoming the same voltage with the external PSU voltage. For instance, if the external PSU will supply 24V and the VLOCK1 jumper is fitted on the VREG positions the VLOCK 1 voltage will become 24V.

8.3   Use cases

8.3.1 12V systems (most likely setup)

Example configuration:

PSU 12V and 12V battery (nominal voltage 13.6V when battery fully charged and AC present)
External Readers (not RS485) 12 V compatible
Serial Ports 12V
Maglocks 12V compatible
In this case all jumpers should be fitted on VREG position (all rails will forward the PSU voltage)

JP8	VRS485 voltage	Fitted on VREG position (12V) limited to 600mA
JP2	Readers Voltage	Fitted on VREG position (12V) limited to 600mA
JP9	LOCK1 Voltage	Fitted on VREG position (12V) limited to 1A
JP10	LOCK2 Voltage	Fitted on VREG position (12V) limited to 1A

8.3.2 24V systems (Scandinavia)

Example configuration

PSU 24V and 24V battery (nominal voltage 26.8V when battery fully charged and AC present)
External Readers (not RS485) 24 V compatible
Serial Ports 24V
Maglocks 24V compatible
In this case all jumpers should be fitted on VREG position (all rails will forward the PSU voltage)

JP8	VRS485 voltage	Fitted on VREG position (24V) limited to 600mA
JP2	Readers Voltage	Fitted on VREG position (24V) limited to 600 mA
JP9	LOCK1 Voltage	Fitted on VREG position (24V) limited to 800mA
JP10	LOCK2 Voltage	Fitted on VREG position (24V) limited to 800mA

8.3.3 24V/12V mixed systems

Example configuration
PSU 24V with 24V battery (nominal voltage 26.8V when battery fully charged and AC present)
External Readers (not RS485) 12 V compatible
Serial Ports 12V
Maglocks 24V compatible
In this case all jumpers should be fitted on VREG position (all rails will forward the PSU voltage)

JP8	VRS485 voltage	Fitted on 12V position (12V) limited to 600mA
JP2	Readers Voltage	Fitted on 12V position (12V) limited to 600mA
JP9	LOCK1 Voltage	Fitted on VREG position (24V) limited to 800mA
JP10	LOCK2 Voltage	Fitted on VREG position (24V) limited to 800mA

DO not select 12V position of the jumpers unless you have an 24V PSU and you need a 12V external rail. (i.e., Mixed voltage scenario) otherwise the power efficiency will be affected.

9 Cable type & length

Element	Maximum Length	Wire Guage (AWG)
Readers connector (J13, J14)	30m	24
Programmable Outputs (J19-J22)	30m	24
Main relay (J10)	30m	AWG16 not shielded
Aux relay (J11)	30m	AWG16 not shielded
Digital Inputs (IP1-IP12)	30m	24

*For UL294 systems, it is not permitted to connect cables greater than 98.5 ft (30 m) long to the product or to specific circuits of the product.

10 Supported Card Types

The system supports the following card type: Mifare, EV1/2/3 and Prox.

11 Exceptions

Note BG (Break glass) and AUX Fire Override have not been validated by UL.

12 Standards and Certifications – Mandatory Features

Standard	Grade	Appendix	Certified by
I.S EN60839-11-1: 2013+AC-2015	II	1	In process

Appendix I
I.S.EN60839-11-1-2013+AC-2015 Grade 2 Mandatory features

Clause	Description
Table 2.3	When the release time is system-defined, the permitted value shall not be less than 3 s
Table 2.5	Provide access control for entry into a protected (controlled) area
Table 2.6	Provide access control for exit from a protected (controlled) area
Table 2.13	Access granted conditional upon credential validity (blocked, suspended, invalid)
Table 2.20	Access point/ status shall be monitored
Table 2.24	Digital input signals (i.e. other than communication signals) with an active period exceeding 400 ms shall be processed
Table 3.1	Visual and/or audible indication required when access is granted
Table 3.2	Visual and/or audible indication required when access is denied
Table 3.14	Transactions
Table 3.24	Loss of communication between access control unit and monitoring console
Table 3.30	Tamper detection
Table 3.31	Portal forced open
Table 3.32	Visual annunciation, alert and logging for expiry of portal allowed open time (portal opened too long)
Table 3.38	Maximum delay time for signals reaching (Grade 2: 90s, Grade 3: 45s) the monitoring console
Table 3.47	Minimum number of system events logging capacity on average per reader (Grade 2: 200, Grade 3: 500)
Table 4.1	The built-in real time clock shall have an accuracy of ± 10 seconds a week and be capable of adjusting to daylight saving time, leap year
Table 4.5	Real time clock shall be kept for the indicated minimum period of time in case of total power loss (except for loss of data retention battery) Grade 2: 24h Grade 3 120h
Table 4.6	Minimum number of user access levels. Grade 2: 8, Grade 3: 16
Table 4.7	Minimum number of configurable time periods Grade 2:4, Grade 3: 8
Table 4.8	Minimum resolution for time within access level includes day of week, hour and minute of day
Table 4.10	System shall be capable to handle a number of configurable days (e.g. statutory holidays, special business days and non-business days) Grade 2: 2, Grade 3: 16
Table 4.13	The system shall assign unique identity to each authorized user
Table 4.18	Access shall be denied after each attempt to gain access using a valid token with invalid memorized information, and after a predetermined number of unsuccessful attempts the access rights for that token shall be suspended for a pre-set duration. The number of attempts can be configurable. Where it is not configurable the number of attempts shall be limited to 5

Clause	Description
Table 4.21	The minimum ratio between number of possible user codes and number of allocated codes shall be at least 1 000 to 1 when system is using recognition of a valid user by memorized information only e.g.: up to 10 users – 4 digits, up to 100 users – 5 digits, up to 1 000 users – 6 digits, etc
Table 4.23	In normal mode of operation the system shall use complete token information (facility code and card number, or unique card number) for recognition
Table 4.26	Tokens with coding system structure visible to unaided human eye shall not be used
Table 4.27	The token identity number readable on the token not to be a direct representation of the entire coding
Table 5.2	The duress alert at the monitoring console to be distinct from other alerts *M* = mandatory only if optional functionality is supported for the specified grade*
Table 5.3	The operation of the duress initiating device shall not produce a signal which may be audible or visible at the location where the duress has been initiated *M* = mandatory only if optional functionality is supported for the specified grade*
Table 6.5	The electronic access control system shall not prohibit the free exit granted by other emergency systems (e.g. fire, environmental)
Table 7.1	Memory stored information (settings) shall be kept for the indicated minimum period of time in case of total power loss (except for loss of data retention battery) Grade 2: 2wks, Grade 3: 2 weeks
Table 7.2	Following a total loss of power automatic restart of the access control system is required upon primary power source restoral
Table 7.3	If full functionality of the access control unit cannot be restored (data corrupted or lost) following the automatic restart a trouble condition shall be annunciated
Table 7.4	Means of access to the internal elements of components of an access control system shall require the use of a tool
Table 7.5	Opening of the enclosure of the user interface intended to be installed outside of the controlled area or that could be accessible from outside the controlled area shall result in tamper detection if manipulation of the internal elements can cause an access granted condition. The tamper detection shall occur before the tamper mechanism can be defeated
Table 7.10	System administration including configuration shall only be logically accessed with the use of valid credentials (e.g. password, token)
Table 7.11	There shall be separate access levels that categorize the ability of the operators to perform different functions in the system. Minimum number of logical access levels is: Grade 2:1, Grade 3:2
Table 7.12	The minimum number of required characters for logical access by memorized information only shall be as indicated (N=numeric/A=alphanumeric) Grade 2: 5N, Grade 3: 6A
Table 7.17	After operational power loss minimum data retention time for logged events stored on the access control unit (due to loss of communication with monitoring console) shall be as indicated. Grade 2: 24h, Grade3:120h

Clause	Description
Table 7.20	Either failure or restoration of the communication channel shall not result in the release of an access point
Table 7.21	Failure of communication with monitoring console shall not interrupt the access decision process
Table 7.22	Processing rules stored in an access point reader shall not be visible to system users
Table 7.23	Light or sound keystroke keypad activation indicators shall not be a direct representation of actual codes, but shall be identical in pitch and duration
Table 7.27	Data entry system validation. System shall provide annunciation when invalid data has been entered during configuration mode at the monitoring console
Table 7.28	Access to the configuration mode shall time out after a pre-set period of inactivity
Table 8.2	Following an extended primary power source failure (system shutdown occurred) and restoration of power, rechargeable batteries shall be recharged to 80 % of rated capacity within 24 hours and 100 % of rated capacity within 72 hours