ACT365 ACU
Single Door Cloud Controller with 12 Volt DC 2A PSU

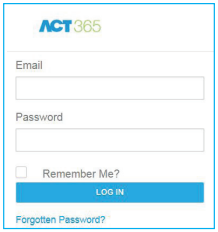
Operating and Installation Instructions

ACT Product Code: ACT365 ACU

Quick Set Up - Adding ACT365 ACU to customer site

1. Wire the door components as per the wiring diagram in Section ‘Typical wiring of ACT365 ACU’s’

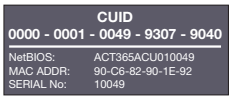
2. Login to www.act365.eu. ACT365 is only available to registered ACT installers. (You may apply for registration via the interACT web site https://inter.act.eu).



3. Enter the customer site from the installer portal.

4. Select “**Add ACT365 ACU**” from the “**Quick Link**” widget on the Home page.

5. Enter ACT365 ACU details
   a. Controller Unique Identifier (CUID), which is located on the label on the controller PCB.



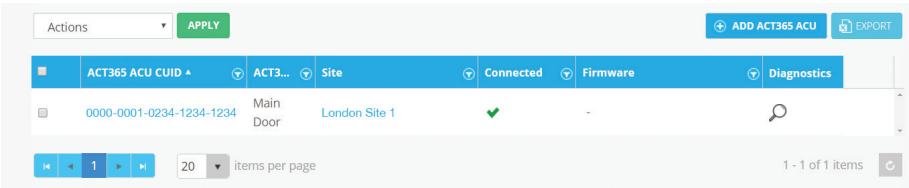
   b. Select the site where the ACT365 ACU will be installed

   c. Give the Controller an appropriate name; ACT recommend using a name that describes the location of the door. E.g. Main Entrance

6. Press Save

   The ACU will contact the ACT365 server and register to the configured site.

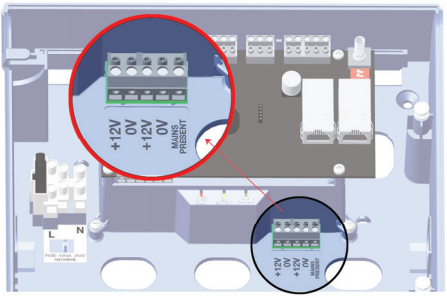
7. To confirm that the ACT365 ACU has successfully connected to the server, click Hardware from the main menu and select ACT365 ACUs. The Connected column will show a green tick mark if successfully connected.



1.0 ACT365 ACU PSU Installation guide

The ACT365 ACU includes an ACT 12V DC 2A power supply unit.

The 2A output current is used to power the controller and supply the battery recharge current. 500mA is reserved for battery recharge and to power the ACT365 ACU Controller. Therefore 1.5A is available to power readers and the lock.

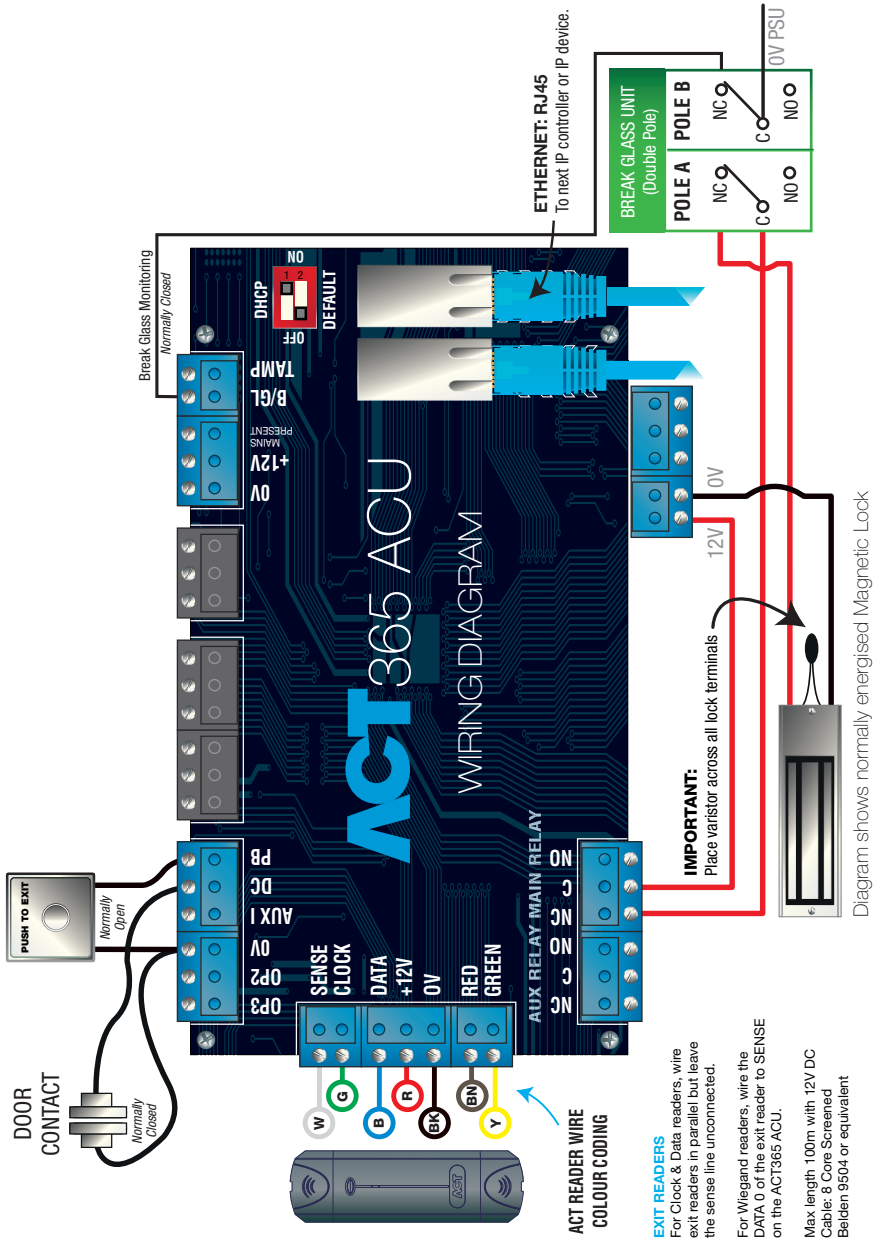


Example: Power budget of a typical single door read in/out installation.

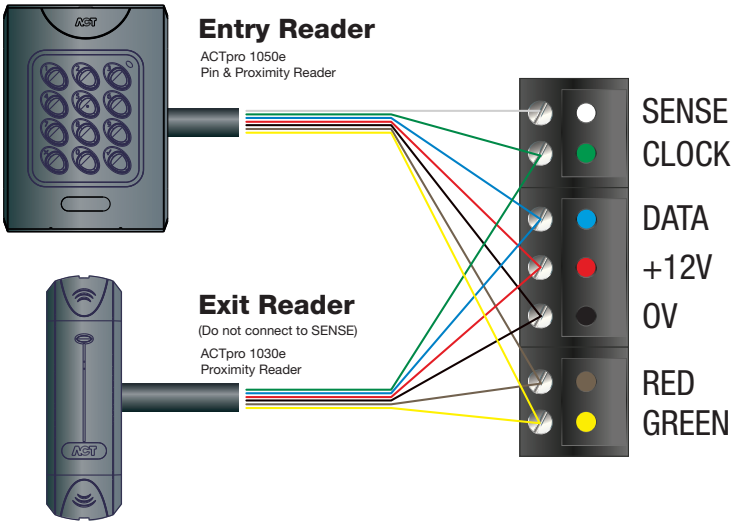
Total Current Available	2000mA
ACT365 ACU and Battery Recharge	500mA
ACT Reader x 2	200mA
Typical Mag Lock	800mA
Total Consumption	1500mA
Spare Capacity	500mA

Note: See section 'ACT365 ACU Installation & Technical Specification'

2.0 Typical wiring of ACT365 ACU



3.0 Adding PIN and/or Proximity Readers
Wiring of entry & exit readers.



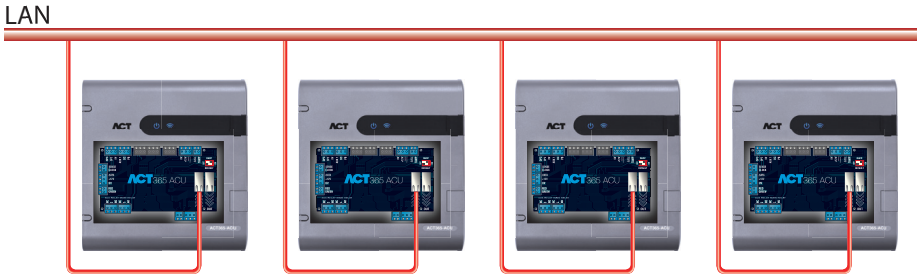
Reader Terminal Block	Recommended wiring colour	Controller input Pin	Signal information
SENSE	White	SENSE	For Entry readers connect the reader SENSE cable or terminal to the SENSE input pin. For Exit readers, do not use this input.
CLOCK	Green	CLOCK	This is the clock or strobe signal input on the ACT365 ACU. Connect the reader CLOCK cable or terminal on the reader to CLOCK input pin.
DATA	Blue	DATA	This is the Data input. Connect the reader DATA cable or terminal on the reader to DATA input pin.
+12V	Red	+12V	Positive +12V DC Supply voltage for the reader.
0V	Black	0V	0V Supply Voltage for the reader.
RED	Brown	RED	Red LED control output from the ACT365 ACU. Connect the reader brown cable to the terminal marked RED on the controller.
GREEN	Yellow	GREEN	Green LED control output from the ACT365 ACU. Connect the reader green cable or terminal marked GREEN on the ACTpro controller.

For Wiegand Entry Readers wire D0 to DATA Pin on ACT365 ACU and D1 to CLOCK pin on ACT365 ACU.

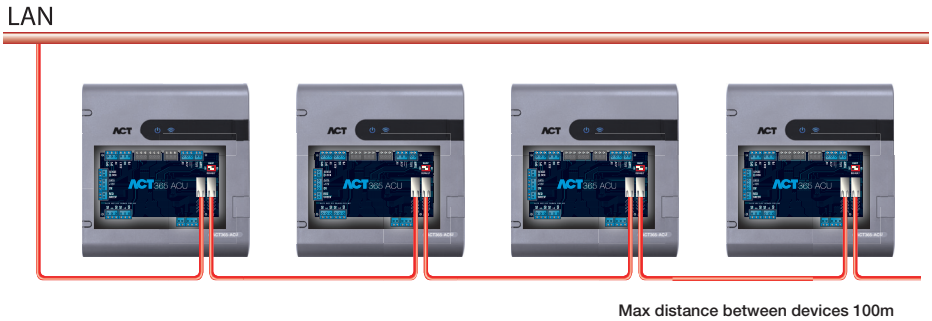
For Wiegand Exit readers wire the D0 of the exit reader to SENSE pin on ACT365 ACU and D1 to CLOCK pin on ACT365 ACU.

4.0 Connecting Controllers to customer LAN

Controllers connected directly to ethernet switch:
Each ACT365 ACU can be connected directly to the customer network.



Controllers connected directly to a single ethernet port:
Each ACT365 ACU has a dual Ethernet switch allowing for the connection of IP devices. Ensure each controller has a unique IP address.



Max distance between devices 100m

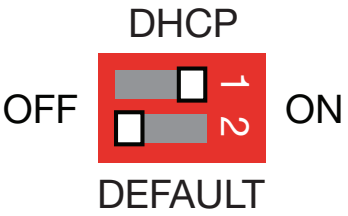
Cabling Chart

From	To	Network Type	Cable Type	Comments
LAN	ACT365 ACU	TCP/IP	Cat5/6	Max distance between network devices is 100m
ACT365 ACU	ACTpro Readers	ACT Protocol	8 core Screen	Max distance 100m
ACT365 ACU	ACT365 ACU's	TCP/IP	Cat5/6	Max distance between network devices is 100m

5.0 Defaulting Controller and IP Address Configuration

The ACT365 ACU has two 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.



5.1 Factory Default controller *(DIP Switch 2)*

The ACT365 ACU 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 ACT365 ACU:

1. Power down the ACT365 ACU.
2. Set the DEFAULT DIP switch 2 to **ON**
3. Hold down the Tamper spring.
4. Apply power to the ACT365 ACU.
5. Wait approximately 5 seconds, until the controller confirms default completed by sounding the buzzer.
6. Release the Tamper.
7. Power down the ACT365 ACU.
8. Set the Default DIP switch to **OFF**
9. Re-apply power.

5.2 DHCP/Static IP Addressing *(DIP Switch 1)*

The ACT365 ACU is shipped with the DHCP enabled. ACT365 can also be configured to use a static IP address.

1. Power down the ACT365 ACU.
2. Set the DIP switch to its new position.
   a. DHCP IP addressing: Move DIP switch 1 to **ON**
   b. Static IP addressing: Move DIP switch 1 to **OFF**
   Note: Default static IP address is **192.168.1.60**
3. Re-apply power to the board.

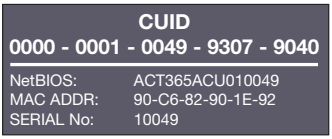
5.3 Defaulting the Static IP address

The static IP address can be reset to the default value of 192.168.1.60.

1. Power down the ACT365 ACU.
2. **Important:** *Ensure nothing is connected to the tamper input terminal and the tamper spring is not pressed, otherwise the following steps will factory default the controller losing all information.*
3. Set the DHCP DIP switch 1 to **OFF**
4. Set the DEFAULT DIP switch 2 to **ON**.
5. Re-apply power - Wait approximately 5 seconds, until the controller confirms static IP default completed by sounding the buzzer.
6. Remove power.
7. Set the DEFAULT DIP switch 2 to **OFF**.
8. Re-apply power.

5.4 Changing Static IP address on the ACT365 ACU

1. Connect ACT365 ACU to the IP network.
2. Open Web browser on PC (use Microsoft Internet explorer, Chrome, etc.)
3. Enter http:// followed by the NetBIOS name which is located on the PCB e.g. **http://ACT365ACU010049**
4. Logon details:
   Username: ***installer***
   Password: ***999999***
5. Choose Network Settings and set the following:
   - **Static IP Address**
   - **Network Mask**
   - **Default Gateway**
6. Press **Save IP Settings**.

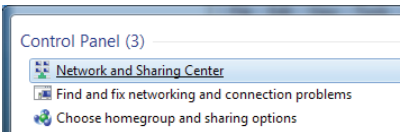


6.0 Configuring the PC/Laptop for Static IP address

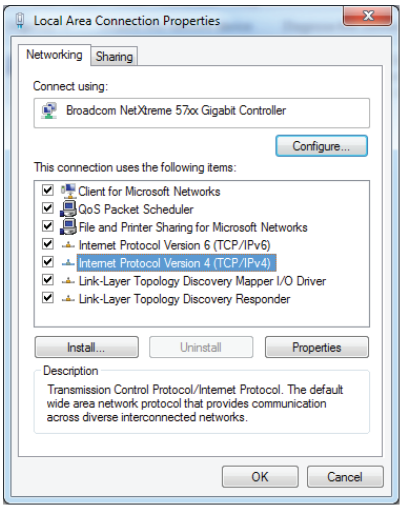
For Microsoft Windows 7 users; go to Start and enter the **"Network and Sharing"** in the search box.

For Microsoft Windows 8 or 10 users; start typing **"Network and Sharing"** from the main screen.

1. Select **"Network and Sharing Center".**

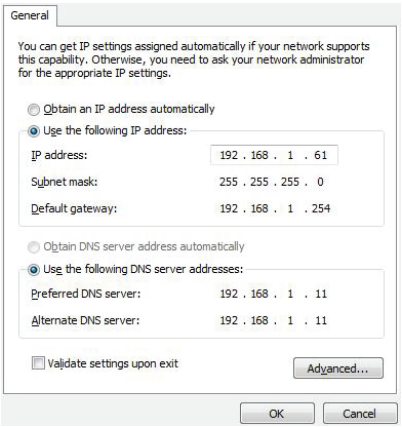


2. Select **"Change adapter setting"** and Right click on the **"Local Area Connection"** and select **"Properties".**



3. Highlight **"Internet Protocol Version 4 (TCP/IPv4)"** and press the **"Properties"** button.

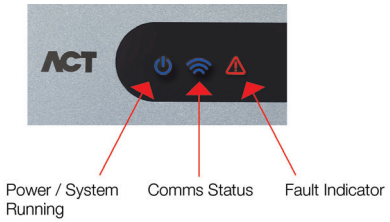
4. Select **"Use the following IP address"** and enter the following:
   Set IP address to "192.168.1.61"
   Subnet mask to "255.255.255.0"



5. Press OK then Close.

7.0 ACT365 ACU Status Indicators

Blue: Power
This indicates that the ACT365 ACU has power.



Blue: Communications
Constant illumination
Constant illumination indicates that the ACU is connected to the ACT365 service.

Flashing indicates there is an issue connecting to the ACT365 server

Red: Fault
This illuminates to indicate an alarm on the system.

Possible causes are:

1. Tamper open: ACT365 ACU housing is not closed.

2. Break Glass: ACT365 ACU's provide a method to monitor an Emergency break glass switch via the B/GL input. The fault LED will illuminate if the Emergency break glass switch is activated.

3. Mains Fault: ACT365 ACU will accept a mains present signal from a PSU (pre-wired on ACT365 ACU). This is wired into MAINS PRESENT input on the PCB. When the PSU has no mains supply the fault LED is active.

4. Low Supply Voltage: When voltage to the +12V terminal is less than +9V.

5. Fuse Blown: The +12V output on the READER terminals is current limited to provide short circuit protection. The Fault LED will illuminate if too much current is drawn from this connection.

6. The ACT365 ACU cannot connect to the ACT365 service

8.0 Troubleshooting

Unknown Card
The card has not been assigned to a cardholder in ACT365.

Access Denied
Make sure the cardholder is enabled and has appropriate access rights.

ACT365 ACU not connecting

Step 1: Check that the LEDs on the ACT365 ACUs ethernet jack are active. If no LEDs are illuminated then check the ethernet cable is inserted fully and that it is connected to an ethernet switch.

Step 2: Ping the ACT365 ACU using either the NetBIOS name or IP address and ensure the controller responds.
- NetBIOS name e.g. “ping ACT365ACU010049”
- IP address e.g. “ping 192.168.1.60”

Step 3: If the ping fails, ensure the ACT365 ACU’s IP address is set. If the ACU is set to use DHCP, ensure the DHCP server on your network is running. If the ACU is set to use a static IP address, ensure it is set correctly. See section on IP Address Configuration for more details.

Step 4: If the ping succeeds, then open the web page of the ACT365 ACU and click in the Diagnostic tab. Click on “Run Diagnostic” tab, wait 10 seconds and click on “Refresh”. Similar data to the following should be displayed

Diagnostic Complete
Resolved Server IP: 104.45.81.79
Test Port 80 open: SUCCESS
Test Port 443 open: SUCCESS

CUID	
0000 - 0001 - 0049 - 9307 - 9040	
NetBIOS:	ACT365ACU010049
MAC ADDR:	90-C6-82-90-1E-92
SERIAL No:	10049

If Resolved Server IP: does not indicate an IP address
then the DNS server setting maybe incorrect, contact your network administrator.

If Test Port 443 open: does not report ‘SUCCESS’ then you should contact your network administrator.

Step 5: Login to act365.eu and check that the ACT365 ACU CUID matches what is printed on the label inside the controller.

If the problem is not resolved, contact the IT department as there may be a problem with the network.

The ACT365 ACU needs to connect to https://api.ACT365.eu on port 443.

9.0 ACT365 ACU Installation & Technical Specification

The power supply is capable of delivering 2A. 1.5A is available for external locks and readers, 0.5A for the PCB and battery.

Electrical Specification:	
Input Voltage	230VAC +/- 10%
Frequency	47-53 Hz
Input Fuse	625mA 250V anti-surge fuse
Output Voltage	13.65V (+/- 5%)
Max Load	2A @ 25ºC
Electronic Output fuse	Yes
Battery Current	~ 0.5A for a battery discharged to ~ 10V
Battery Protections	Deep Discharge/Over Charge/Reverse Polarity

PSU Output Voltage:

12V DC The power supply provides two 12V outputs. One is pre-wired to power the ACT365 ACU. The second is available to power locks.

The full load current is shared between the two outputs.
ACT recommend that a **maximum of 1.5A** is used to power locks and readers. The remaining 0.5A is used by the controller and battery charging.
Total current from both outputs must not exceed 2A.

Monitoring:

Mains present The PSU MAINS PRESENT output is pre-wired to the MAINS PRESENT input of the ACT365 ACU.

Tamper The enclosure lid is tamper monitored.

Note: All faults, including tamper and breakglass, are reported to ACT365.

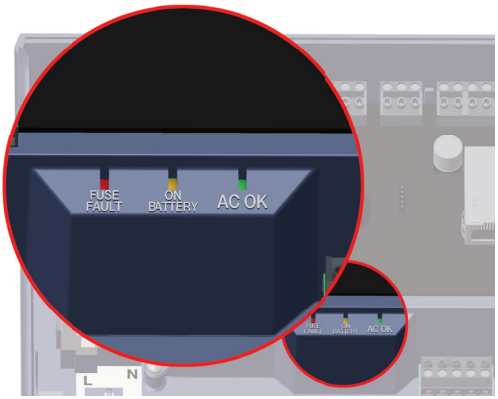
LED indicators

Green - **AC OK**	Indicates that the AC Mains is within specification.
Amber – **ON BATTERY**	Indicates that the battery is supplying the output voltage.
Red - **FUSE FAULT**	Indicates electronic output shutdown fuse is active and that no power is being supplied to the load.

The maximum current that the PSU can guarantee is 1.5A plus 0.5A for battery charging and powering the ACU. Beyond this the fuse will trip and the LED will stay on until the load is fully disconnected.

Once the load has been disconnected, remove devices to reduce the current demand below 1.5A.

It is important to calculate the power budget adequately. Please refer to the section on the following page titled 'Power Budget' for more information.



Installation Instructions

The ACT365 ACU's are for indoor installation only and must be installed as permanently connected equipment.

An external mains disconnect device must be fitted. Before installation ensure that the mains supply to the controller is disconnected.

Mains power should be connected to the ACT365 ACU by a licensed electrician in accordance with local/national codes.

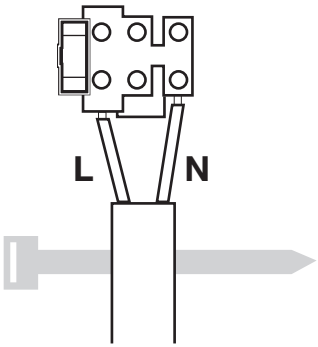
Mounting

Mount the controller directly on to the wall with the supplied screws.

The keyed mounting hole should be screwed first to the wall to aid the mounting.

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

Mains Power up



Attach a correctly rated mains cable and fasten using the cable tie.

Use an approved external mains disconnect device.

Apply mains power. Check the 'AC OK' LED is on and measure the +12V output.

Battery insertion

Disconnect the mains.

Ensure the battery has enough charge to supply the load.

Connect the red battery lead to the "+" battery terminal and the black lead to the "–" terminal.

Apply the mains power and check the "AC OK" Green LED is illuminated.

Remove the mains power and check that "ON BATTERY" Amber LED is illuminated. If the Amber led is illuminated the battery is now supplying the output.

Re-apply the mains power. The "AC OK" Led will illuminate and the "ON BATTERY" LED will extinguish.

Power Budget

The PSU can supply up to 2A; 0.5A reserved for battery recharging and to power the controller. 1.5A remains to power the locks and readers.

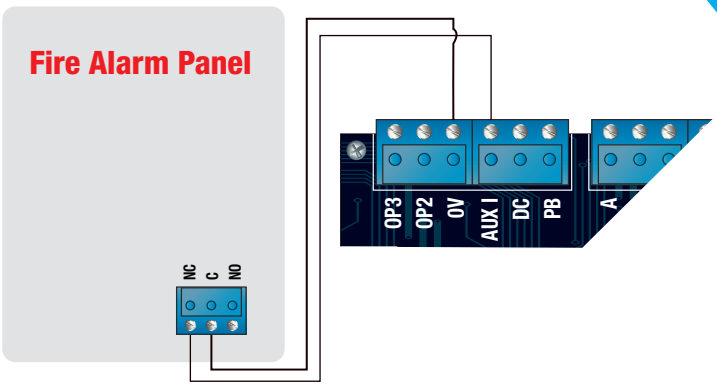
A complete access control system will require readers and a lock mechanism all of which will require power.

The following table should be used for calculating the power budget.

ACTpro reader (1030/1040/1050/1060)	100mA
ACTPro MIFARE reader (1030/1040/1050)	100mA
Typical Mag Lock (consult your supplier)	800mA

10.0 Fire Override Configuration

To release doors on fire alarm activation.



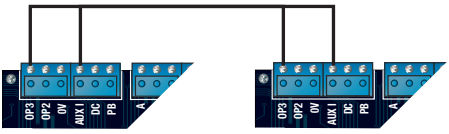
Login to the ACT365 customer portal and go to **Manage Sites | Site Settings.** Assign the door group to the Fire Door Group from the drop down menu.

The 0V Input from the fire panel must be wired to the AUX Input of each controller.
While the 0V signal is maintained at the AUX input on the ACU, the door will maintain normal operation.

When the 0V signal is removed, the doors are unlocked, and remain unlocked until the 0V is restored.

11.0 Interlock/Airlock Configuration

Allowing only one door to open at a time.



Door 3 Door 4

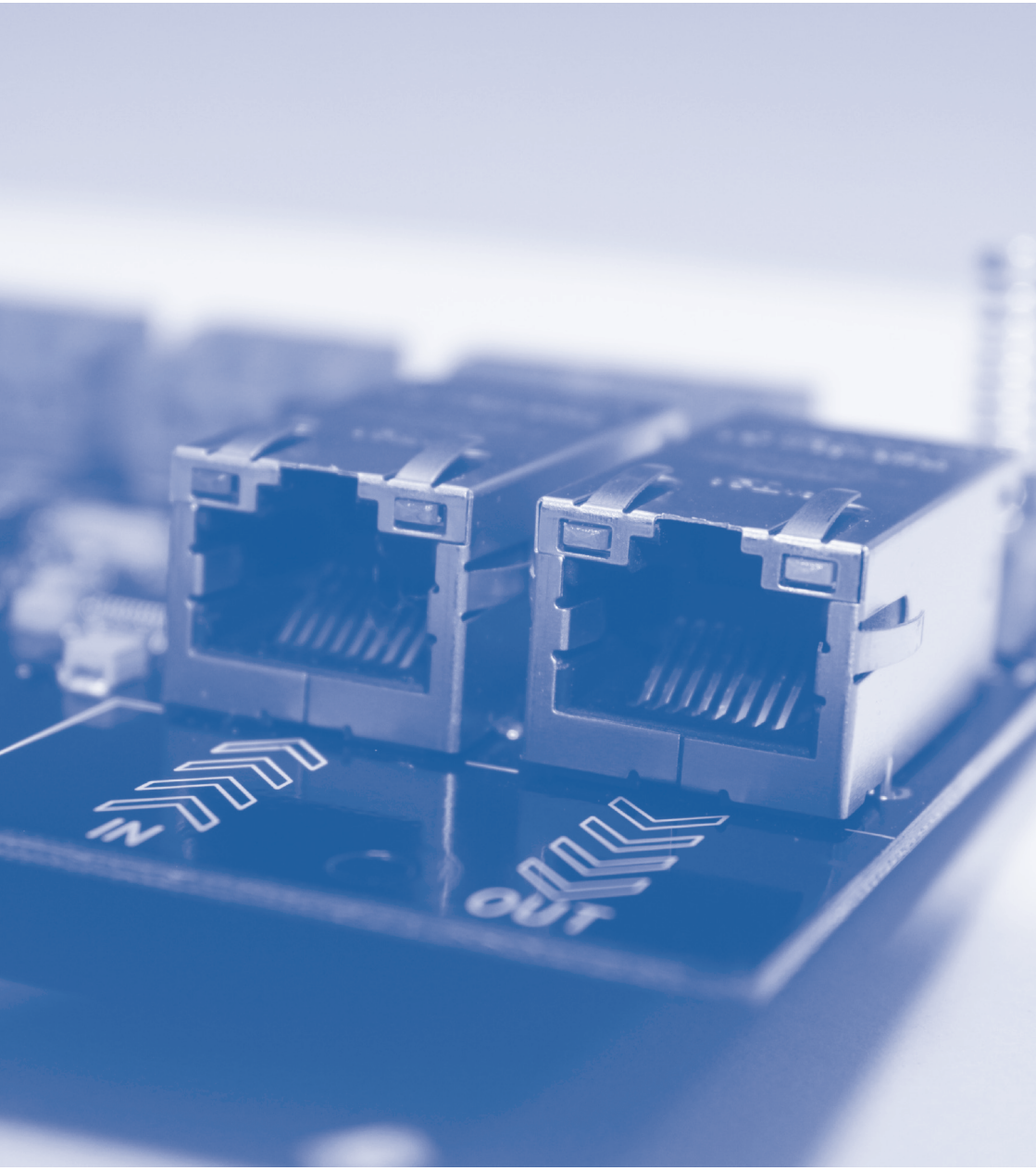
The diagram shows how to interlock two doors. When Door 3 is open, Door 4 is locked and vice versa.

To enable '**Interlock**' login to the ACT365 customer portal and select **'Access Control | Doors'** from the menu. Select the doors to interlock from the list and enable interlock from the 'Operation' panel.

To Interlock additional doors, simply continue linking OP3 and AUX I for each new door, as per illustration.

When Interlock is enabled on a door, the door is locked when the AUX input is active.

When the door is open, OP3 is active.



12.0 Product Specification

Features:
DHCP / Static IP addresses, dual Ethernet Switch
Voltage monitoring
Break glass monitoring
NetBIOS name
Status LED's
Space for cable management
Entry & exit readers
Reader short circuit protection
Anti-passback
Interlocking
TCP/IP connection
Main relay for door control and AUX relay for alarm monitoring
Supports all ACTpro readers (RFID 125Khz, MIFARE Classic, DESFire EV1)

Capabilities:	Controller	System
Number of doors	1	Unlimited
Number of Users	10,000	Unlimited
Card Holder Groups	250	Unlimited
Time Zones	50	Unlimited
Door Groups	250	Unlimited
Log Events	1,000	Unlimited
Browser Compatibility	Internet Explorer 10 or later and latest Chrome and Firefox Versions	

Technical Details:	
Voltage Range:	11-15V DC
Current Consumption (Controller)	350mA (Max)
Dimensions: (ACT365 ACU)	235mm x 255mm x 85mm
Weight: (ACT365 ACU)	950g
Relay contacting rating	Main relay 5A / 50 Vac, AUX relay 1A / 50Vac
Operating temperature	-10 to +50° C
Indoor use only	

13.0 Ordering Information:

ACT Product Code	Product Description
Controllers	
ACT365 ACU	Single door IP controller with integrated 12 V DC 2Amp power supply
ACT365 VCU	Video controller
Readers	
ACT RFID	
ACTpro 1030e	ACT RFID slimline, proximity reader, IP67
ACTpro 1040e	ACT RFID Surface / Flush, proximity reader, IP67
ACTpro 1050e	ACT RFID Surface/ Flush, PIN & proximity reader, IP67
ACTpro 1060e	ACT PIN only reader, IP67
ACTpro 1030PM	Panel mount RFID proximity reader, IP67
ACTpro 1030e VR	Vandal Resistant cover for the ACTpro 1030e
ACTpro MIFARE	
ACTpro MIFARE 1030	ACT MIFARE slimline, proximity reader, IP67
ACTpro MIFARE 1040	ACT MIFARE Surface / Flush, proximity reader, IP67
ACTpro MIFARE 1050	ACT MIFARE Surface/ Flush, PIN & proximity reader, IP67
ACTpro MIFARE 1030PM	Panel mount MIFARE proximity reader, IP67
ACTpro 1030 VR	Vandal Resistant cover for the ACTpro MIFARE 1030
ACTpro DESFire EV1	
ACTpro DESFire EV1 1030	ACT DESFire slimline, proximity reader, IP67
ACTpro DESFire EV1 1040	ACT DESFire Surface / Flush, proximity reader, IP67
ACTpro DESFire EV1 1050	ACT DESFire Surface/ Flush, PIN & proximity reader, IP67
ACTpro DESFire EV1 1030PM	Panel mount DESFire EV1 reader, IP67
Cards and Fobs	
ACT RFID ISO-B	ACT RFID Batch Cards
ACT RFID FOB-B	ACT RFID Batch Fobs
ACTpro MIFARE Card	ACT MIFARE 1K Cards
ACTpro MIFARE Fob	ACT MIFARE 1K Fobs
ACTpro DESFire EV1 Card	ACT DESFire EV1 Cards

This manual refers to the ACT365 ACU.

Access Control Technology Ltd. reserve the right to change the contents of this manual and the system it applies to without prior notice.

While every effort has been taken by ACT to ensure the accuracy of the information contained within this document, ACT assumes no responsibility for any errors or omissions. No liability is assumed for damages resulting from the use of information contained within this document.

Certifications:
The ACT365 ACU complies with the following European directives:
Information technology equipment - Safety - EN60950-1
EMC Directive - 2004/108/EC

CE

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