AX300 Hardware Manual

AX300

Access Control & Environmental Monitoring Controller

Hardware Manual

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G e n e r a l

The AX300 is an IP-based access control and environmental monitoring unit capable of controlling 2 doors / readers. The unit incorporates an integrated 12vDC monitored power supply which simplifies installation as it is a single boxed solution.

The AX300 also has 6 ports for smart sensors and input / output expanders. Standard software is included to enable setup and monitoring of doors, cardholders and physical assets.

Technical Data

Dimensions: 300 x 260 x 76.8mm (11.81 x 10.24 x 3.02")
Nett Weight: 3kg (6.61lbs)
Power Supply: 12vDC monitored

Controller Contents

1 x AX300 Network/Door Controller
1 x Fixing Kit – comprising 3 no.8 screws & 3 rawl plugs
1 x Software CD
1 x CAT5 Network Patch Cable

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Installation Instructions

The AX300 controller includes a fixing kit for installation onto brick or plasterboard walls. Please note the controller is not suitable for outdoor use and should be installed in an area protected from the elements of rain / water.

1. Drill top centre hole using a 6mm drill bit. Insert rawl plug and insert screw, do not over-tighten the screw in the plug until all the holes have been drilled.
2. Hang the unit on the screw. Ensure the unit is hanging inline horizontally, mark the two bottom fixing holes with a marker pen.
3. Remove the unit from the screw. Drill the two additional mounting holes, inserting a rawl plug in each.
4. Hang the unit back on the top centre screw and hand-tighten. Insert and hand-tighten the two bottom fixing screws.
5. Before finishing, ensure the unit is straight, then tighten all three screws.

120.00 mm

AX300 Drilling
Dimensions

210.19 mm

240.00 mm
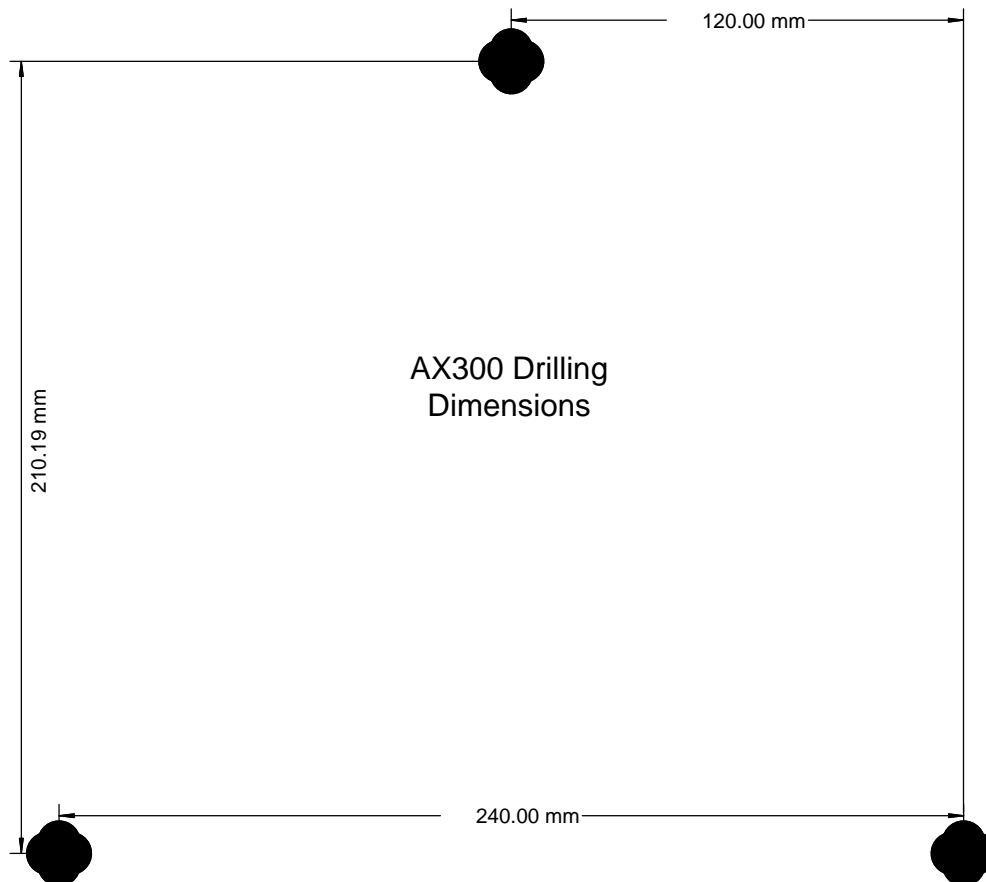
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Controller Overview

The AX300 is an IP-based access control and environmental monitoring unit supporting 2 readers / doors, incorporates and integrated monitored power supply, battery charger with auto stop feature, 6 ports for smart sensor and input / output expanders.

Adding devices to existing or new IP networks is done quickly and easily with the built-in LCD screen and keypad.
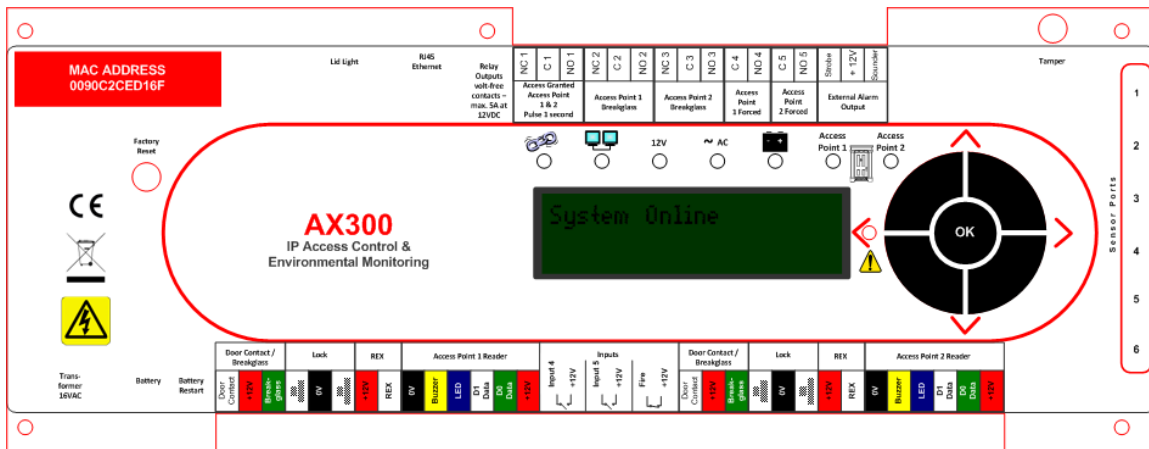
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F r o n t   P a n e l   L E D   I n d i c a t o r s

Identifier	Description	Colour	Represents
	Cable Link	Green	ON = Ethernet link OFF = Ethernet link incorrect or missing connection (check network cable)
	Network Activity	Amber	Flashing – network data / activity
12V	Output Power OK	Green	ON = onboard power supply OK
~ AC	Power Input	Green	ON = mains power supply OK
	Battery Fault	Red	ON = low battery indicator
	Access Point 1	Green/Red	Green Flashing = normal mode Green ON = door unlocked
	Access Point 2	Green/Red	Red Flashing = high security mode Red ON = deadlock mode
	Alarm	Red	ON = warning alarm, read LCD display for detailed information

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Access Point(s)/Reader(s)

Each AX300 controller supports two readers / access points.
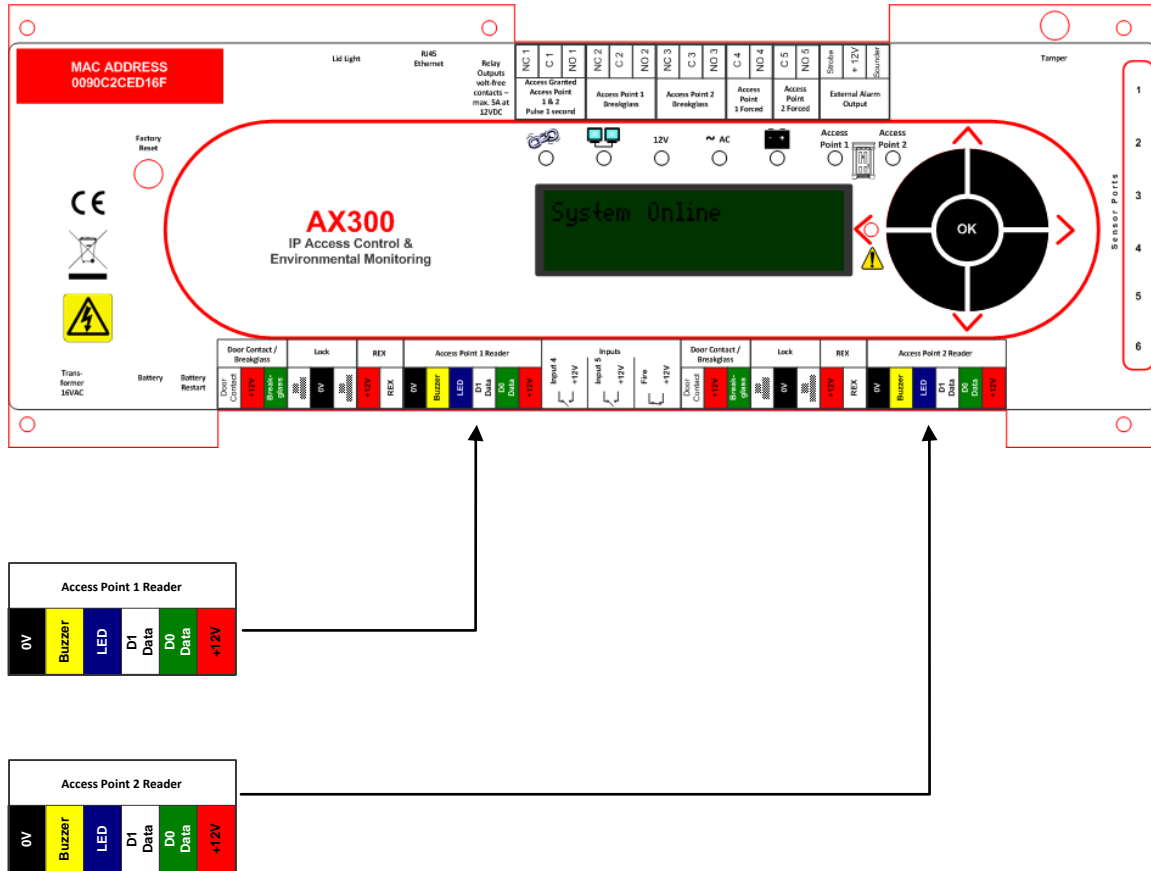
AX reader cables are colour-coded and should be wired accordingly. Third party readers may contain additional cores, ensure that all conductors not used are trimmed back and covered.

Maximum cable distance from AX300 controller to reader is 50 metres (165ft).

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Request to Exit (REX/PREX)

Two request to exit devices can be connected for each access point.

REX	
+12V	**REX**

Lock

Two locking devices can be connected per access point eg. electric strike, magnetic lock, depending upon the security requirements of the site / application, will depend upon whether the lock is wired as a fail-secure (fail-locked) or fail-safe (fail-unlocked).

Lock		
Fail Locked	0V	Fail Unlocked
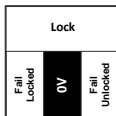
Please ensure the end-user is fully aware of the pros and cons concerning fail-safe and fail-secure scenarios and that they have adequate manual override procedures in place.

Door Contact / Breakglass Monitoring

Each access point supports additional door contact and breakglass monitoring. Wire the external devices to monitor from the software.

Door Contact / Breakglass		
Door Contact	+12V	Break-glass
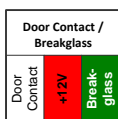
Please note breakglass monitoring, fire and other inputs remain inactive until they have been connected and triggered once.

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I n p u t s

Fire Input

A dedicated fire alarm input enables doors / access points to be opened in the event of an emergency. Please note this connection is a voltage free Normally Closed connection.
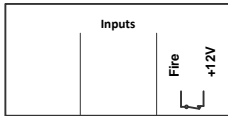
Auxiliary Inputs

The AX300 supports two auxiliary inputs for the connection of ancillary devices.
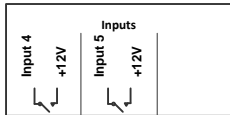
B a t t e r y   B a c k u p

Battery Connector

A single 12v 7AH battery can be connected and housed in the controller to provide battery backup in the event of power failure.

Battery Restart

If the AX300 controller is being tested / commissioned without mains power connected, the battery restart button must be depressed when the battery is initially connected.

F a c t o r y   R e s e t

If the unit needs to be reset to factory default, remove battery backup connection, power down the mains power, press and hold down the factory reset button whilst reconnecting mains power. The AX300 will restore all settings to factory default.

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O u t p u t s

The AX300 controller provides 5 relay outputs with volt-free contacts (maximum 5A at 12VDC) and 2 12VDC outputs for sounder and strobe.

Access Granted – Access Point 1 & 2 Pulse 1 second

Access Point 1 – Breakglass

Access Point 2 – Breakglass

Access Point 1 – Forced

Access Point 2 – Forced

External Alarm Output

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LCD Menu Structure

>System Online>

>300-1>

>Other System Messages>

>Sensors Present 123456>

>System Online>

>Battery OK>

>Power Status>

>Power OK – Lock 1>

>Power OK – Lock 2>

>Power OK – Readers>

>Power OK – Sensors 1-3>

>Power OK – Sensors 4-6>

>Network Settings> [1]

>Local IP 0.0.0.0>

>Host IP 0.0.0.0>

>Subnet Mast 255.255.255.0>

>Gateway IP 0.0.0.0>

>Reset All> [2]

>Confirm Reset>

>Cancel Reset>

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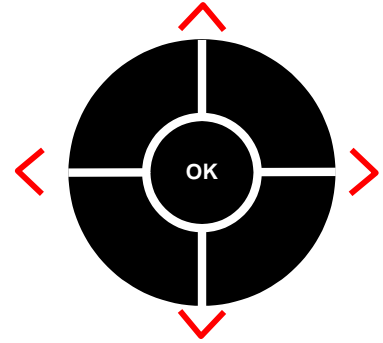
[1] Network address settings can only be set / amended whilst the unit is offline, for additional information see Network Settings
[2] Only displayed when the unit is offline

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Network Settings

IP Address

An IP address is a unique identifier for each controller, PC or other Ethernet device. The IP address range is from 0 to 255, where 0 is null, 1 to 254 are valid numbers and 255 is a broadcast number (eg. 10.1.1.25).

Note: Please consult with the Network Administrator before using any IP address to avoid duplicate numbers and network conflicts.

Subnet Mask

A subnet mast a range of IP addresses that the device(s) are allowed to talk to, typically the broadcast number is used (eg. 255.255.255.0 - in this example permission is granted to communicate to the last 255 devices on the network based on the last 3 digits of the IP address).

LAN

Local Area Network refers to structured Ethernet cabling within a local area such as a single building.

WAN

Wide Area Network refers to a group of local area networks (LAN's) connected together such as a group of buildings.

VPN

Virtual Private Network refers to a separate IP numbering system applied on wide area networks (WAN's) that allow different equipment in various locations to communicate as a local area network (LAN).

Gateway

The Gateway is the device used to channel IP traffic between local area networks (LAN's) over a wide area network (WAN).

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IP Port Number

The IP port number is the number assigned for the communications over TCP to that specific IP address.

Local		Remote	
Port Number	**Type**	**Port Number**	**Type**
8484	LAN	8484	LAN
1818	Access Control	4848	Access Control
50000	Environmental	50000	Environmental
161	SNMP Agent	162	SNMP Manager
4782/4783/50505	Client - OCX SDK		
21	FTP (CCTV or Data)		
50050	Dual Redundancy		

Firewall

A firewall may comprise of a physical device or software on a PC and it is designed to stop malicious attacks by computer hackers or viruses.
Note: Firewalls may also stop communication between the AX300 controller and the software unless the specified IP port numbers are listed in both the TCP and UDP protocol safe list on the firewall.

LAN Configuration

When working on a local area network (LAN) all devices that are configured to operate with fixed IP address such as the AX300 controller, will require the same segment address. So if the software server (PC) IP address is 10.1.1.15 then the AX300 will require an IP address within the same segment such as 10.1.1.52. When building a private network (if there is not already one in place), it is recommended that the segment address is 10.1.1.x Use the subnet mask as 255.255.255.0 and the gateway IP address should be 0.0.0.0

WAN Configuration

When working on a wide area network (WAN) all devices that are configured to operate with fixed IP address such as the AX300 controller, will probably have a different segment address. So if the software server (PC) IP address is 10.1.1.15 then the AX300 will require an IP address within the appropriate segment such as 10.1.2.52. Use the subnet mask as 255.255.255.0 and the gateway IP address must also be configured - please consult the Network Administrator for all appropriate IP settings.

VPN Configuration

Generally configure Virtual Private networks as per the LAN Configuration setup - please consult the Network Administrator for all appropriate IP settings.

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Example IP Address Table

| Device Name	Location	IP Address	Gateway Address	Subnet Mask Address
File & Printer Server	London	10.1.1.10	10.1.1.1	255.255.255.0
Sales PC	London	DHCP	DHCP	DHCP
AX300 PC	London	10.1.1.35	10.1.1.1	255.255.255.0
AX300 Controller	London	10.1.1.36	0.0.0.0	255.255.255.0
AX300 Controller	London	10.1.1.37	0.0.0.0	255.255.255.0
File & Printer Server	New York	10.1.2.10	10.1.2.1	255.255.255.0
Sales PC	New York	DHCP	DHCP	DHCP
AX300 Controller	New York	10.1.2.55	10.1.2.1	255.255.255.0
AX300 Controller	New York	10.1.2.56	10.1.2.1	255.255.255.0

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Configuring AX300 on WAN / VPN Tunnels

The software Device Manager uses a broadcast address to discover the AX300 controller. The broadcast address is blocked over the internet.

Once a static IP address has been assigned to the controller use the static IP address to search for it over the internet.

To search a static IP address from the software click on Access Point > Device Manager > select the PC icon, select WAN and close. Select Device Searching and enter the IP address of the controller in from IP address (leave to IP address blank or enter the next IP address). If the AX300 controller is reachable then it is displayed in the software.

General Overview
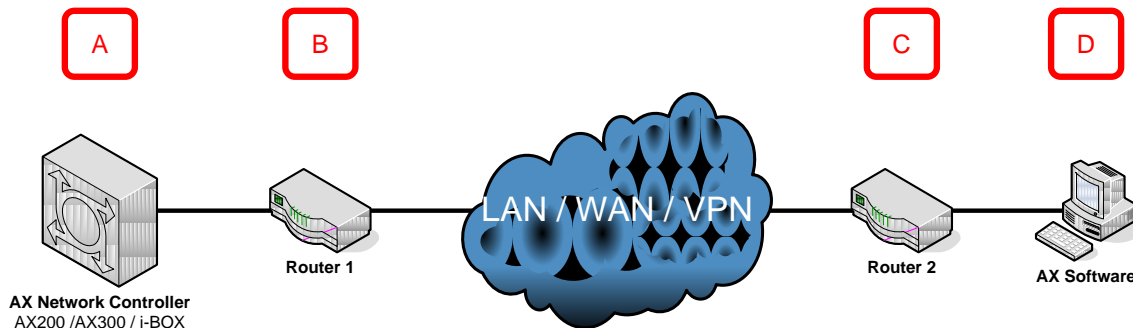
Remote Site
1. Plug laptop into the switch B using DHCP to find the IP address range suitable for the remote site and the gateway IP address.
2. Configure the AX200 controller with an IP address in the range, a subnet mask typically 255.255.0.0 and the gateway IP address (Router B) - The server IP address is the PC at D (you may need to come back to this)

Host Site
1. Plug laptop into C using DHCP to find the IP address range for this location and the gateway address.
2. Assign a static IP address within windows to the PC along with the gateway address for C (Router C)
3. Use device manager to search the WAN to find the AX200 controller.

Note: If you are using wireless devices then configure B and C to talk to each other. If you are connecting B and C over the internet you will need to set up an IP tunnel (such as IKE policy) The IP address of the PC and controller must be within the DHCP address range of the gateway and you will need to reserve the IP addresses that are in use.

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S e n s o r   P o r t s

The AX300 has six sensor ports available for monitoring and reporting via the software.   Axxess ID offer a wide range of sensors for a variety of applications.

Sensors Available

Part Number	Description
IC-AMP-100	Clamp on Amperage Meter Sensor - 100 amp max
IC-CC	Cabinet Contact
IC-DPS	Dust Particle Sensor
IC-FEX	FireTecPro Fire Extinguishing Interface
IC-FS-FLD	Flood Sensor with 5 metres flood cable
IC-FT	Fan Speed & Temperature Sensor
IC-GA	General Analogue Interface
IC-HM	Temperature & Humidity Sensor
IC-INT-DC	Smart Location Contact
IC-INT-P	Intrusion / Movement PIR
IC-INT-V	Vibration / Shock Sensor
IC-IO	Inputs / Output Module (2 inputs, 1 output)
IC-IO-8	8 input / output module in metal housing
IC-LF	Flow & Temperature Sensor
IC-LS	Light Level & Door Contact Sensor
IC-MFT	Fan Fail Sensor for fan tray
IC-MI	Mains Present Monitoring Sensor
IC-PDU-2-13-BK	2 Way I-PDU with 13 Amp Socket - Black
IC-PDU-2-16-BK	2 way I-PDU, 16amp, Black
IC-PRT	Pressure & Temperature
IC-SD	Smoke & Temperature Detector
IC-TS	Smart Temperature Sensor
IC-TS-DC	Temperature & Door Contact Sensor

Sensor Ports

1
2
3
4
5
6