

INSTALLATION



MAC316M 14+2 Multi-Reader Interface Door Access



MAC316M: 14+2 Multi-Reader Interface Door Access

Description

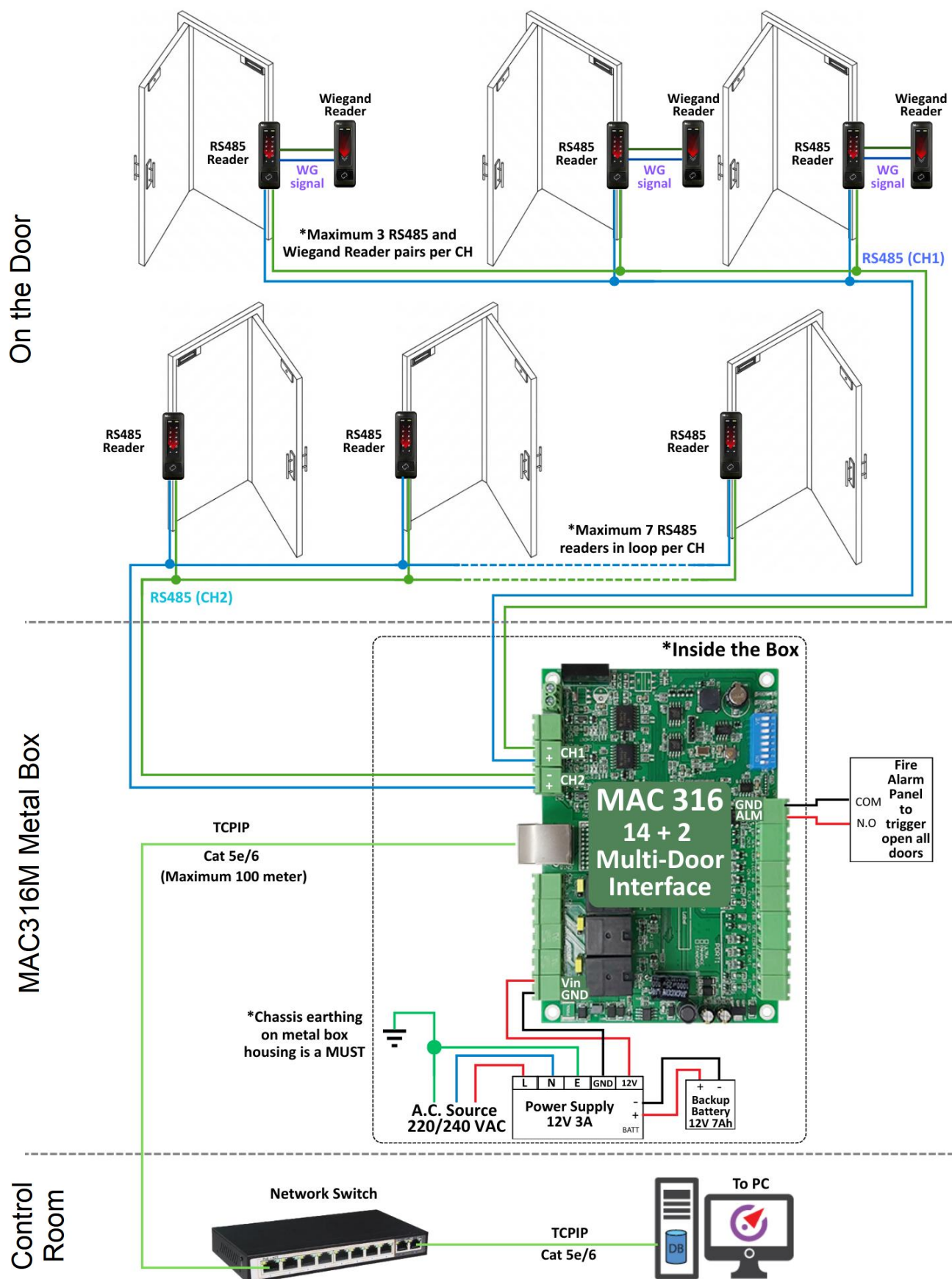
MAC316M is a professional 16-door IP control panel engineered for large-scale access control architecture. It offers flexible communication through RS-485 or TCP/IP interfaces to form a robust network loop. Optimized for high-traffic environments, the MAC316M supports a massive default capacity of 16,000 cardholders (expandable to 32,000) and features sophisticated multi-door anti-passback functionality to ensure strict security across all entry and exit points.

Seamlessly integrating with MagEtegra software, the MAC316M provides a user-friendly experience for managing complex access permissions, real-time event monitoring, and comprehensive reporting across extensive facility layouts.

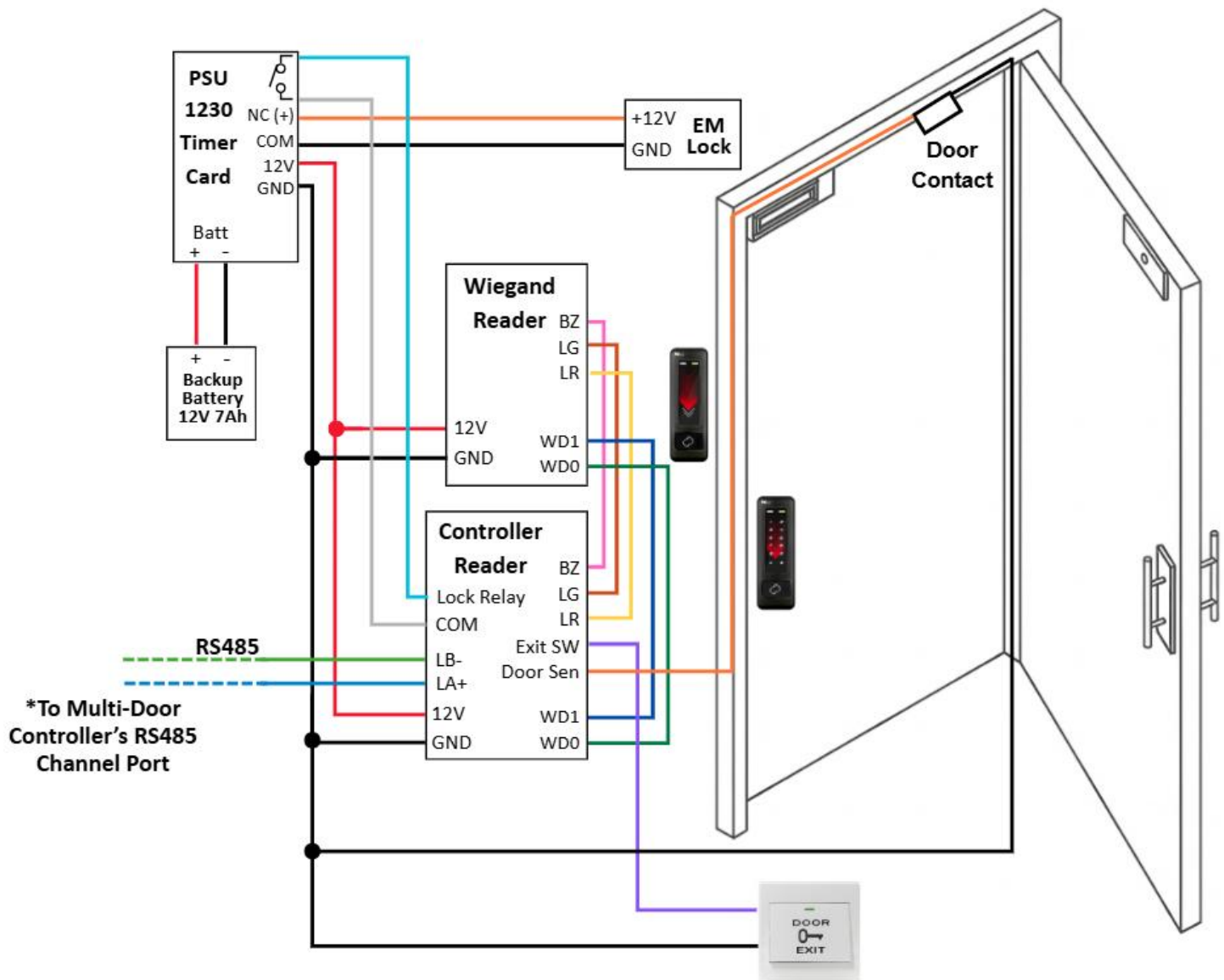
Features

1. **Multi-Door & Large Capacity Control:** Designed to manage up to 16 doors from a single control panel.
2. **Flexible Communication Modules:** Features a built-in RS-485 and TCP/IP interface for software management via network.
3. **Installation-Friendly Design:** Utilizes an industrial-standard locking design and quick-release terminals for easier wiring and maintenance.
4. **Multi-Reader Support:** Connects up to **14 units of RS-485 readers** and **2 units of Wiegand readers**.
5. **Advanced Anti-Passback:** Includes built-in **multi-door anti-passback** logic to prevent one card from being used for multiple entries.
6. **Emergency Integration:** Features a built-in fire alarm input that can automatically **release all door locks** during an emergency.
7. **Reliability & Redundancy:** Equipped with a **watchdog timer** to prevent system hang-ups and a **Real Time Clock (RTC)** for precise event logging.
8. **Continuous Operation:** Supports rechargeable battery integration to keep the system running during power outages.

Wiring Diagram



Door Wiring Diagram

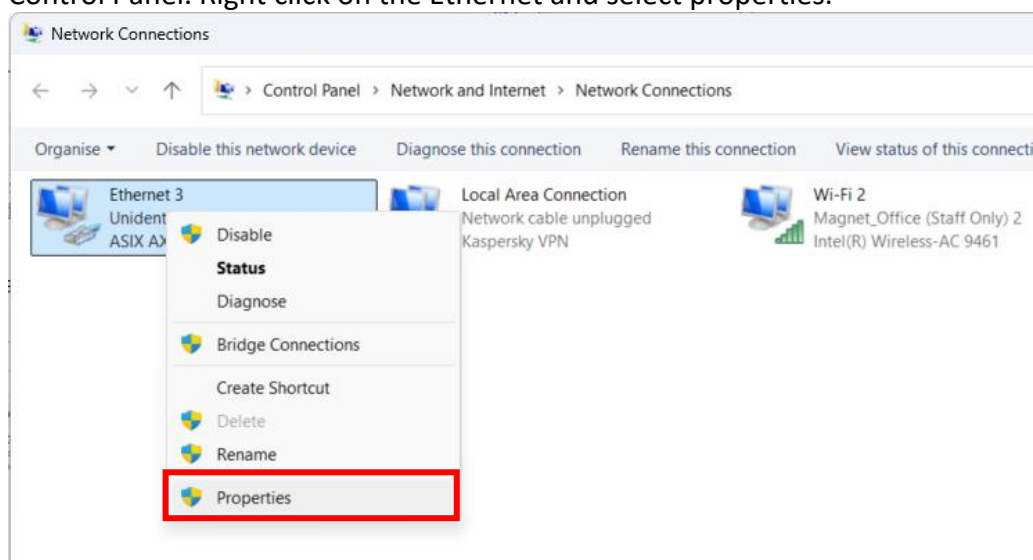


MAC316 hardware setup

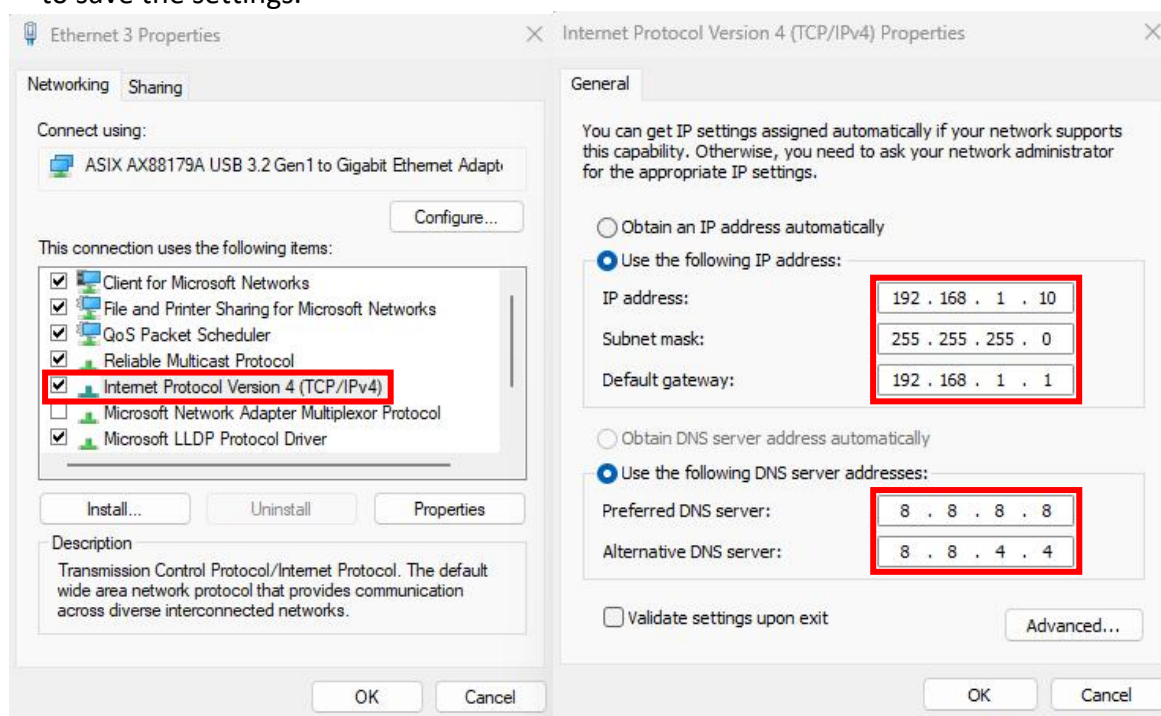
The default IP Address for MAC316 is 192.168.1.127. Ensure that the IP segment for the PC is similar.

1. Setting the PC's IP Address.

- a) Go to the "Network connections" setting under "Network and Internet" option in the Control Panel. Right click on the Ethernet and select properties.



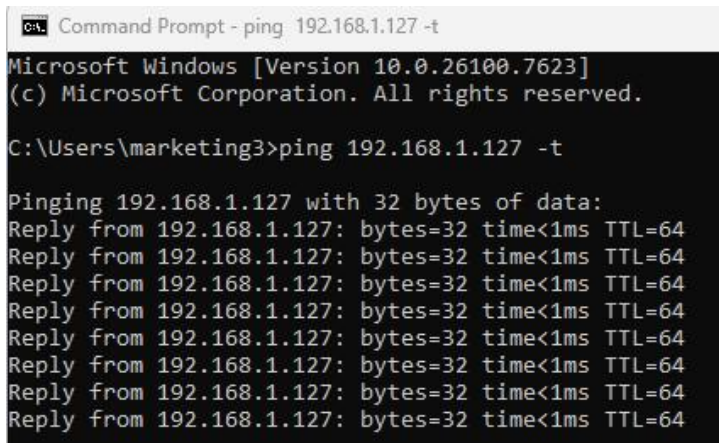
- b) Double click "Internet Protocol Version 4 (TCP/IPv4)". Tick the "Use the following IP Address". Set the IP Address, Subnet mask and Default Gateway accordingly. Click "OK" to save the settings.



2. Set the IP Address for MAC316.

To make sure that the MAC316 successfully connected to the PC, open the command prompt and ping the device IP Address.

“ping 192.168.1.127 -t”



```

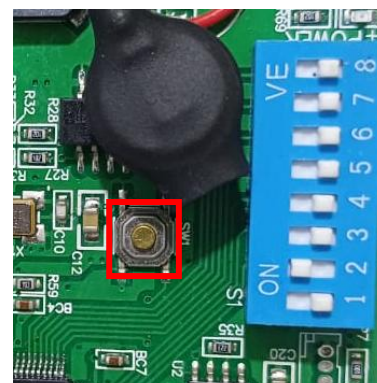
C:\> Command Prompt - ping 192.168.1.127 -t

Microsoft Windows [Version 10.0.26100.7623]
(c) Microsoft Corporation. All rights reserved.

C:\Users\marketing3>ping 192.168.1.127 -t

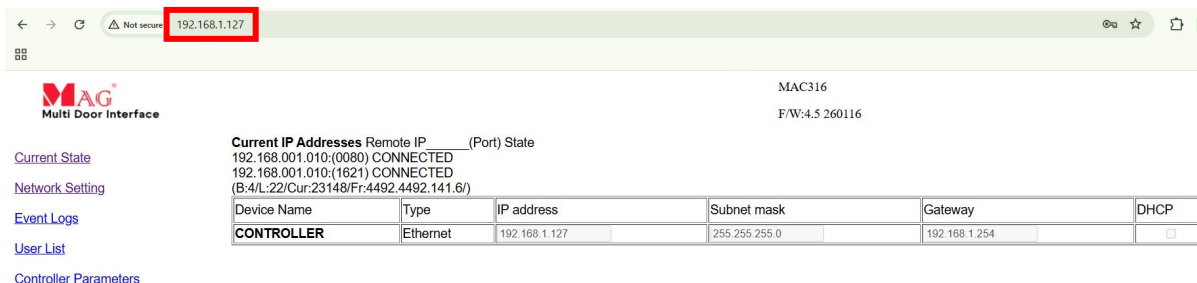
Pinging 192.168.1.127 with 32 bytes of data:
Reply from 192.168.1.127: bytes=32 time<1ms TTL=64
Reply from 192.168.1.127: bytes=32 time<1ms TTL=64
Reply from 192.168.1.127: bytes=32 time<1ms TTL=64
Reply from 192.168.1.127: bytes=32 time<1ms TTL=64
Reply from 192.168.1.127: bytes=32 time<1ms TTL=64
Reply from 192.168.1.127: bytes=32 time<1ms TTL=64
Reply from 192.168.1.127: bytes=32 time<1ms TTL=64

```

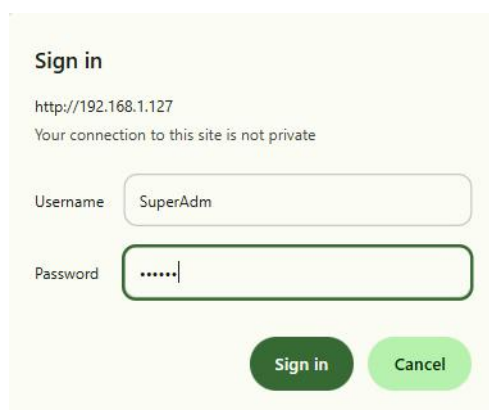


(if unsuccessful, try resetting MAC316. Hold for 5 seconds.)

a) Open the web browser, key in the IP Address on the search bar, then click “Network Setting”.



b) Enter “Username : SuperAdm” & “Password : 721568” then click “Sign in” to enter the network setting.



c) Set the IP Address, subnet mask, gateway and node ID accordingly. Click update to save the setting. If the IP segment is different, make sure to change the IP Address for the PC same IP segment same with the device.

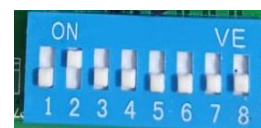
Network Setting

After you have changed the IP address, the device will **restart** (hardware reset). Please update the IP address in the browser after any changed.

Item	Setting
Device Name	CONTROLLER (Can be any unique identifier)
LAN IP Address	192.168.1.127
LAN Net Mask	255.255.255.0
Default Gateway	192.168.1.254
Primary DNS Server	0.0.0.0
Secondary DNS Server	0.0.0.0
MAC Address	00-13-57-06-35-51
DHCP Client	☐
TCP Listen Port	1621 (1024~65530)
HTTP Server Port	80 (80~65530)
Socket Timeout	120 (0~600)sec. (TCP Client Keep Alive:0)
Area ID (0~15)	0
Node ID (Device ID)	2
Message Server IP 1st	0.0.0.0
Message Port 1st	0 (1024~65530, 0:disable, 8031:Text Mode)
Message Server IP 2nd	0.0.0.0
Message Port 2nd	0 (1024~65530, 0:disable or 8031:Text Mode)
Update	

Node ID is set by DIP Switch.
Supports Node ID: 001 - 254

Value	1	2	4	8	16	32	64	128
DIP SW	1	2	3	4	5	6	7	8
Node 01	ON	Off	Off	Off	Off	Off	Off	Off
Node 02	Off	ON	Off	Off	Off	Off	Off	Off
Node 03	ON	ON	Off	Off	Off	Off	Off	Off
?								
Node 253	ON	Off	ON	ON	ON	ON	ON	ON
Node 254	Off	ON	ON	ON	ON	ON	ON	ON

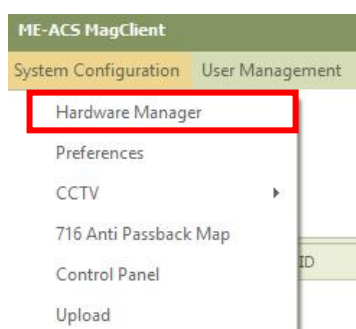


*DIP Switch Setting for Node ID: 2

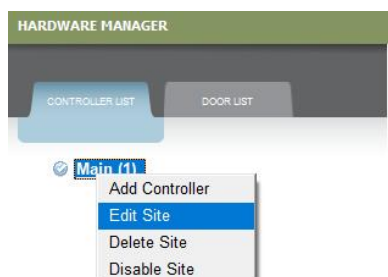
MagEtegra ME-ACS software setup

1. Add MAC316 into Hardware Manager

a) Run MagClient --> System Configuration --> Hardware Manager



Right click on Main--> Click "Edit Site"



b) Select “TCPIP” and key-in the Site Name, MAC316’s IP address and port number.



EDIT SITE [X]

Site ID: 1

Site Name: North Wing

Server Location: ☒ Local ☐ Remote

COM/TCPIP: TCPIP

IP Address: 192.168.1.127

Port: 1621

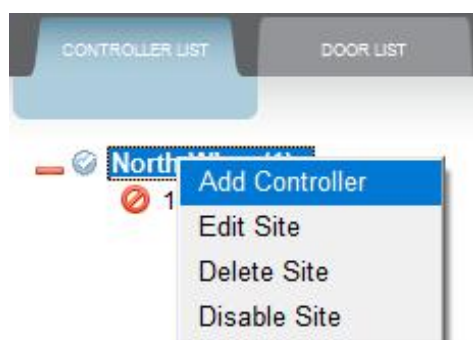
TCPIP

Timeout: 5000

Polling Speed: 1000

[SAVE] [CANCEL]

c) Click on the selected site to highlight it, then right click and select “Add Controller” to add controller.



d) Key in the MAC316's Node ID (Default is 1) --> Select Reader Model "MAC316" --> Key in Controller Name --> Click "Online Reader"

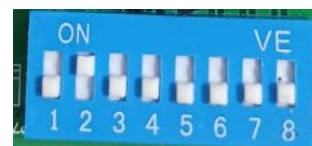
Node ID: COM/TCPIP: Model: IP Address: Port:

Door ID: Parameter: Settings: Door Number: Maintenance:

Door ID: Controller Name:

Node ID is set by DIP Switch.
Supports Node ID: 001 - 254

Value	1	2	4	8	16	32	64	128
DIP SW	1	2	3	4	5	6	7	8
Node 01	ON	Off	Off	Off	Off	Off	Off	Off
Node 02	Off	ON	Off	Off	Off	Off	Off	Off
Node 03	ON	ON	Off	Off	Off	Off	Off	Off
...								
Node 253	ON	Off	ON	ON	ON	ON	ON	ON
Node 254	Off	ON	ON	ON	ON	ON	ON	ON



*DIP Switch Setting for Node ID: 2

e) Select the respective Node ID's of all Readers being used. Click "Save" to save all settings.

Door ID: Online reader: Parameter: Settings: Door Number: Maintenance:

Channel 1 - Reader 3 to 8: ☒ 003 ☐ 004 ☐ 005 ☐ 006 ☐ 007 ☐ 008

Channel 2 - Reader 9 to 16: ☒ 009 ☐ 010 ☐ 011 ☐ 012 ☐ 013 ☐ 014 ☐ 015 ☐ 016

Relay setting: Channel 1 (3): Channel 2 (9):

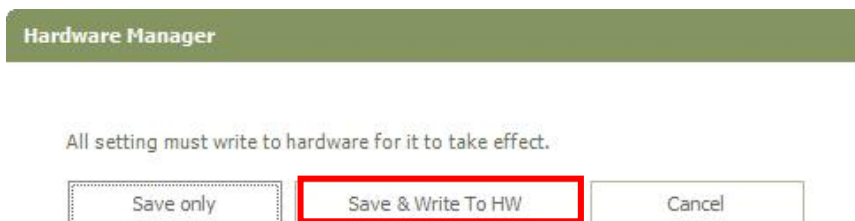
Wiegand reader: ☒ 001 Wiegand 1 ☒ 002 Wiegand 2

Note:

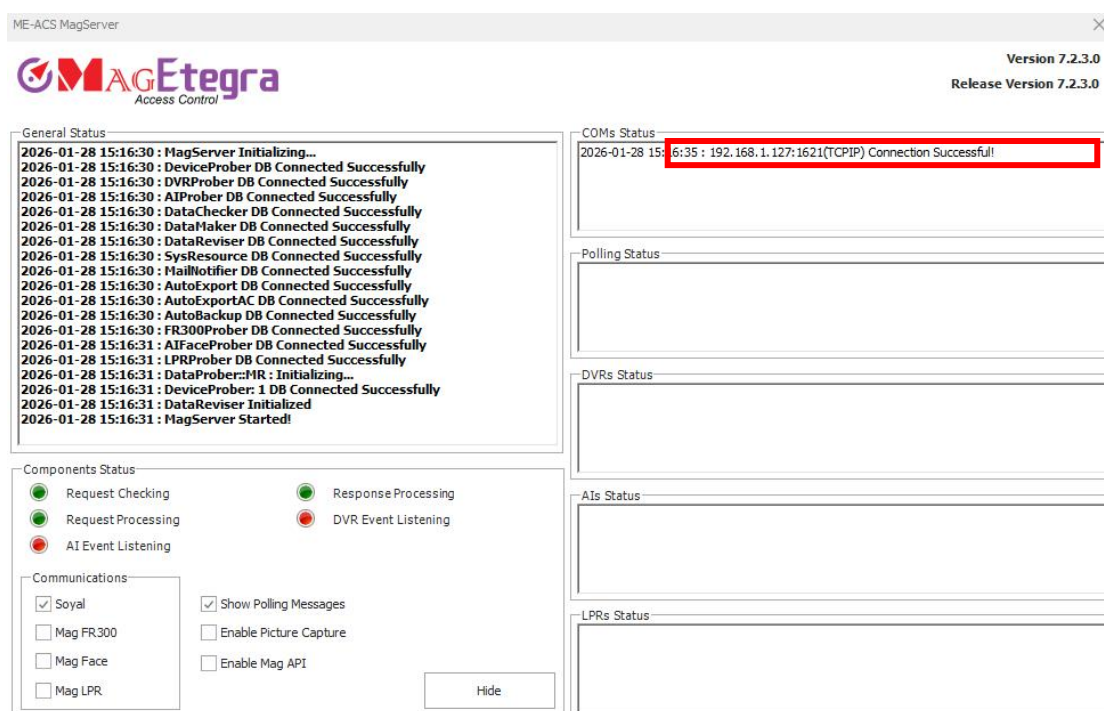
1) Each connected RS485 Reader needs to be assigned a distinct Node ID. This has to be programmed manually (refer to respective RS485 Reader's User Guide)

2) Channel 1 starts with Node ID '003' because Node ID '001' & '002' are reserved for the wiegand ports.

f) Select “Save & Write to HW” to save settings and upload to hardware.

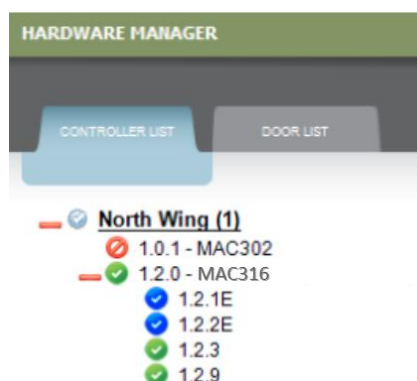


g) Launch “MagServer” and wait for COMs Status



*If unsuccessful, check for loose cable connections or mistyped IP Address.
 By default, MAC316's IP Address is “192.168.1.127”

h) Green Icon means connection of MAC316 to MagEtegra Software is successful.



Fire Alarm Integration to unlock all doors during emergency

Door ID	Online reader	Parameter	Settings	Door Number	Maintenance
Master code		123456	Keypad lock max error		3
Arming code		1234	Duress code		4321
Door open duration		7 sec	WGA		PIN num input method ☐ user number + pin ☒ pin only
Open too long		15 sec	7 sec		
Alarm output duration		15 sec	15 sec		
Arm delay		1 sec	User Capacity Mode		
Alarm delay		1 sec			16384
General					
☒ DI1 unlock all doors					

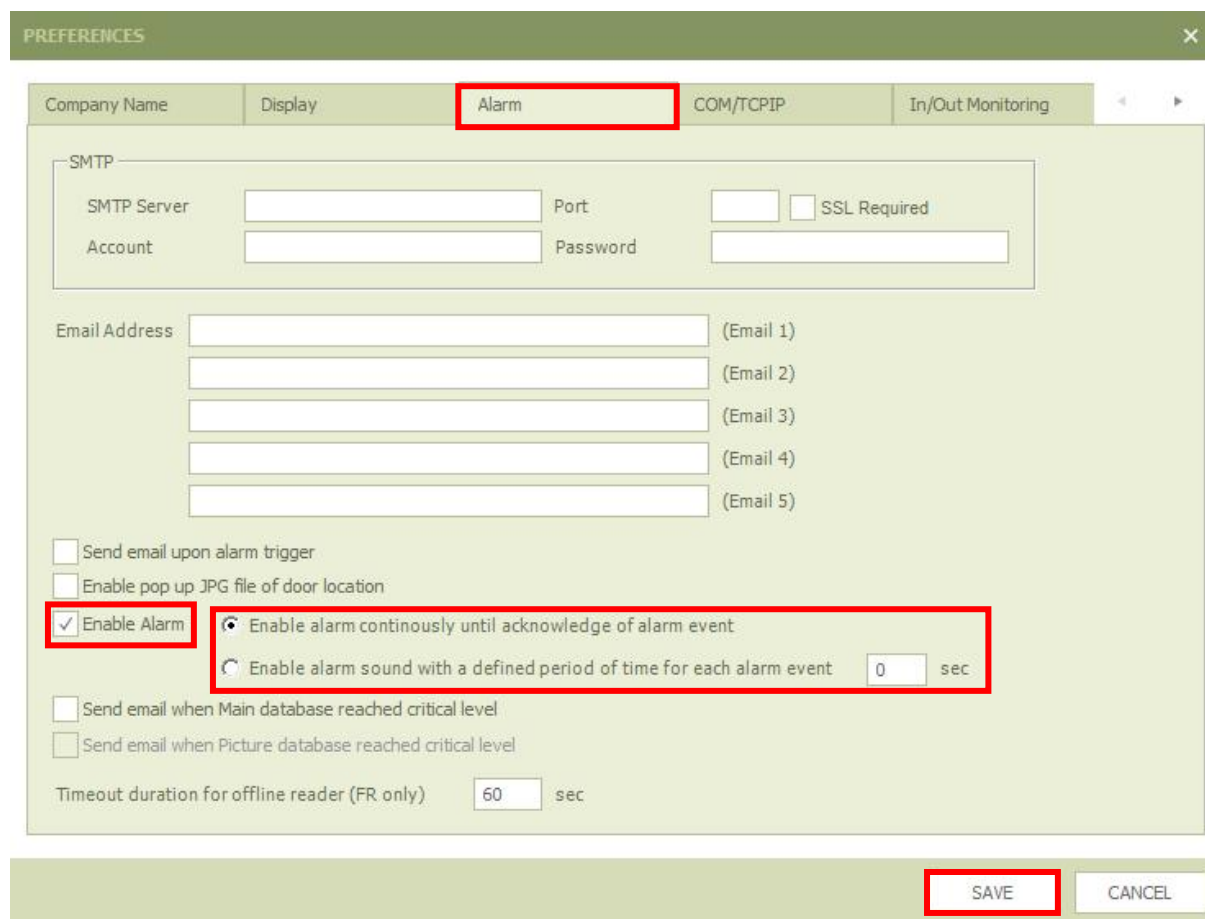
Enable Software Alarm (Pair with E-map)

To enable the audible software alarm, go to:

1. System Configuration Tab --> Preferences



2. Click the "Alarm" tab and select "Enable Alarm".
Choose between a continuous alarm or a fixed time period alarm.
Click "SAVE" to save all settings.



PREFERENCES

Company Name | Display | **Alarm** | COM/TCPIP | In/Out Monitoring

SMTP

SMTP Server: [] Port: [] ☐ SSL Required

Account: [] Password: []

Email Address: [] (Email 1)

[] (Email 2)

[] (Email 3)

[] (Email 4)

[] (Email 5)

☐ Send email upon alarm trigger

☐ Enable pop up JPG file of door location

☒ **Enable Alarm**

☒ Enable alarm continuously until acknowledge of alarm event

☐ Enable alarm sound with a defined period of time for each alarm event [0] sec

☐ Send email when Main database reached critical level

☐ Send email when Picture database reached critical level

Timeout duration for offline reader (FR only) [60] sec

SAVE CANCEL

Anti-passback

MAC316's Anti-passback security feature forces a user to "exit" a secured area (using their card/credential) before they can "enter" it again. This added feature prevents sharing credentials to let someone else in (passing back) or tailgating, ensuring one card equals one person per entry/exit cycle.

a) To activate the anti-passback feature, program the Controller Readers(CA413-RK) with the following command:

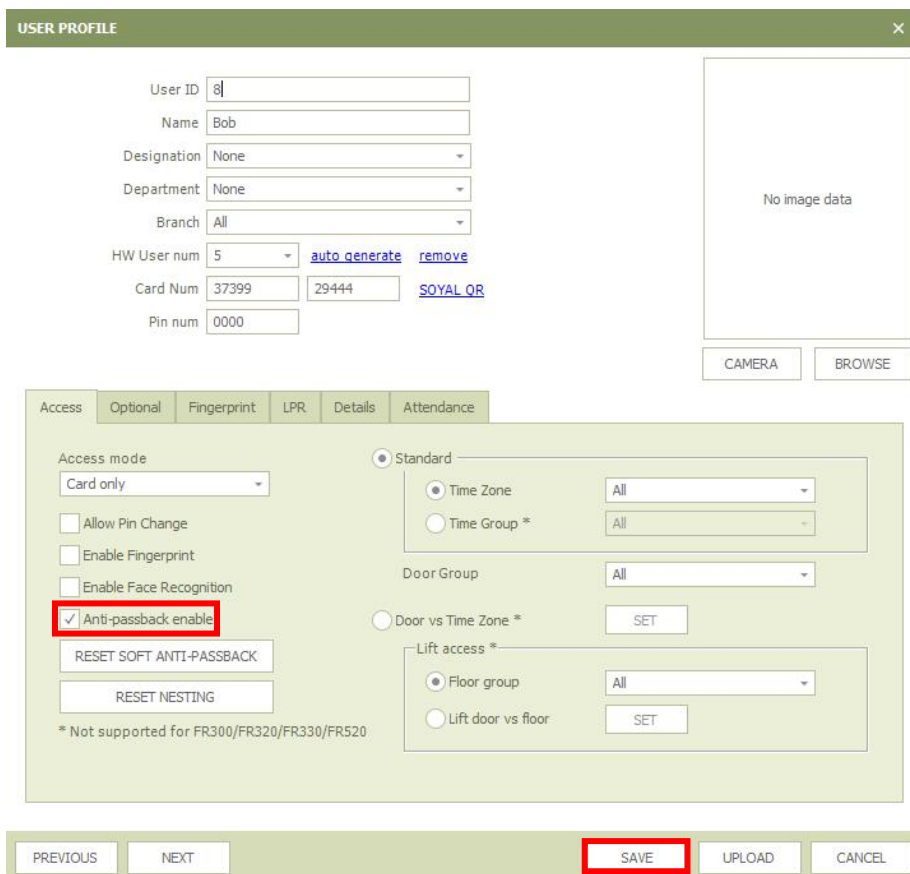
1. Enter Programming Mode (By default: *123456#)
2. Press the following code to differentiate the readers:

ENTRY READER - 20 * 208 #
EXIT READER - 20 * 144 #

3. Press *# to to save the setting and exit. (**# to save, arm and exit)

b) Anti-passback is enabled on all new users by default. To disable this feature on specific users:

1. Go to the specific user profile
2. Deselect "Anti-passback enable", click "Save".



USER PROFILE

User ID: 8 | Name: Bob | Designation: None | Department: None | Branch: All

HW User num: 5 | [auto generate](#) | [remove](#)

Card Num: 37399 | 29444 | [SOYAL QR](#)

Pin num: 0000

No image data

CAMERA | BROWSE

Access | Optional | Fingerprint | LPR | Details | Attendance

Access mode: Card only

☐ Allow Pin Change

☐ Enable Fingerprint

☐ Enable Face Recognition

☒ **Anti-passback enable**

[RESET SOFT ANTI-PASSBACK](#)

[RESET NESTING](#)

* Not supported for FR300/FR320/FR330/FR520

Standard

☒ Time Zone: All

☐ Time Group *: All

Door Group: All

☐ Door vs Time Zone *: SET

Lift access *

☒ Floor group: All

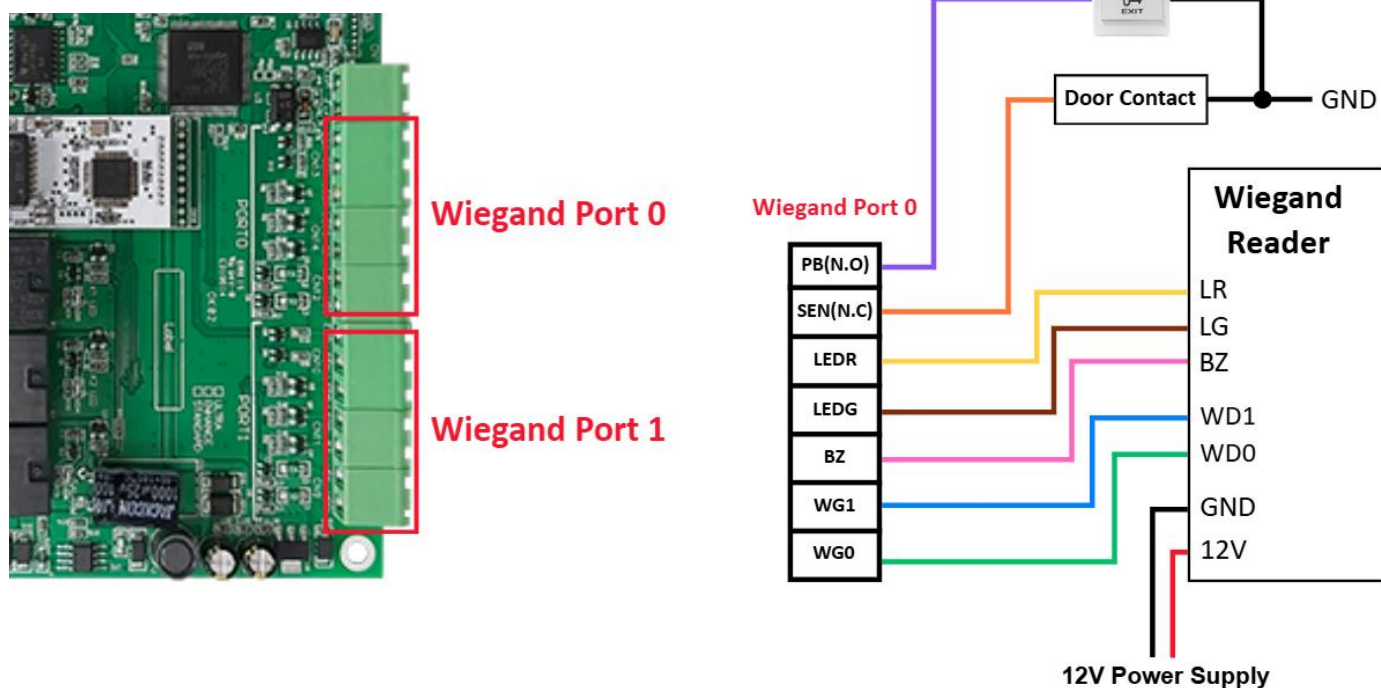
☐ Lift door vs floor: SET

PREVIOUS | NEXT | **SAVE** | UPLOAD | CANCEL

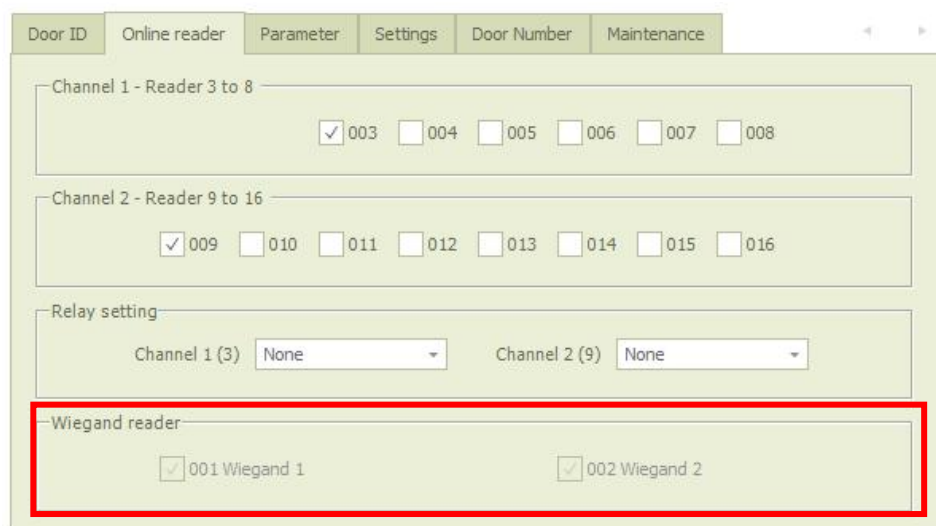
Dual Wiegand Integration

The MAC316 Controller comes with 2 wiegand port integration. The following steps shows how to utilise these two wiegand ports for your project's application.

a) Wire the wiegand reader accordingly:



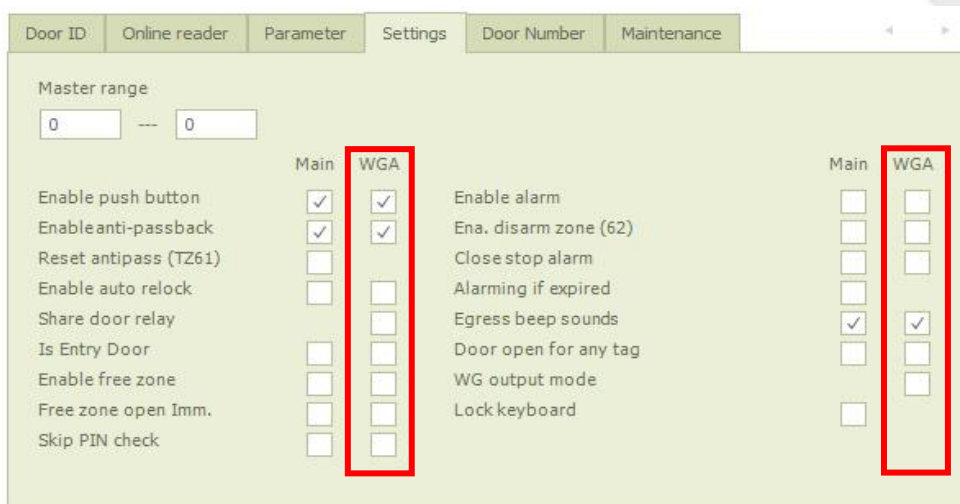
b) Software Settings:



The screenshot shows the 'Settings' tab of the MAC316M software interface. The 'Wiegand reader' section is highlighted with a red box and contains the following settings:

- Channel 1 - Reader 3 to 8:** Checkboxes for 003, 004, 005, 006, 007, and 008. Checkboxes 003 and 004 are checked.
- Channel 2 - Reader 9 to 16:** Checkboxes for 009, 010, 011, 012, 013, 014, 015, and 016. Checkboxes 009 and 010 are checked.
- Relay setting:** Channel 1 (3) is set to 'None' and Channel 2 (9) is set to 'None'.
- Wiegand reader:** Checkboxes for '001 Wiegand 1' and '002 Wiegand 2' are both checked.

- Wiegand Readers are enabled by default.



	Main	WGA		Main	WGA
Enable push button	☒	☒	Enable alarm	☐	☐
Enable anti-passback	☒	☒	Ena. disarm zone (62)	☐	☐
Reset antipass (TZ61)	☐	☐	Close stop alarm	☐	☐
Enable auto relock	☐	☐	Alarming if expired	☐	☐
Share door relay	☐	☐	Egress beep sounds	☒	☒
Is Entry Door	☐	☐	Door open for any tag	☐	☐
Enable free zone	☐	☐	WG output mode	☐	☒
Free zone open Imm.	☐	☐	Lock keyboard	☐	☐
Skip PIN check	☐	☐			

- Enable the necessary software features on the Wiegand Reader by selecting the respective boxes.

c) Wiegand output mode

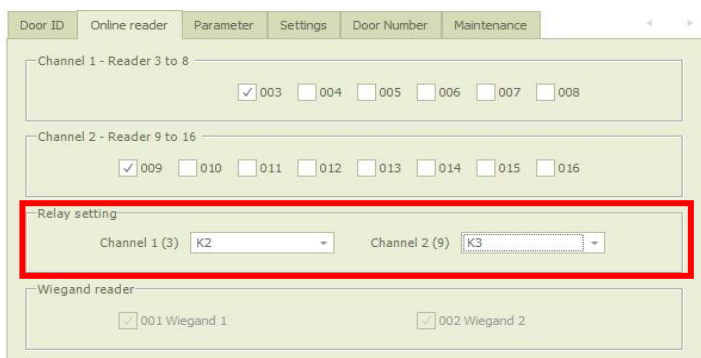


	Main	WGA
Enable alarm	☐	☐
Ena. disarm zone (62)	☐	☐
Close stop alarm	☐	☐
Alarming if expired	☐	☐
Egress beep sounds	☒	☒
Door open for any tag	☐	☐
WG output mode	☐	☒
Lock keyboard	☐	☐

How it works:

Enabling “Wg output mode” **disables** the activation of each wiegand port’s respective relay(K1/K2) when the respective wiegand reader verifies access.

d) Door relay output (Node ID 003 and 009 ONLY)

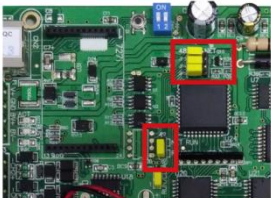


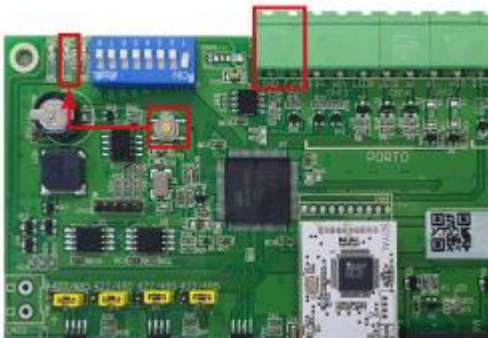
Channel 1 - Reader 3 to 8	Channel 2 - Reader 9 to 16	Relay setting	Wiegand reader
☒ 003 ☐ 004 ☐ 005 ☐ 006 ☐ 007 ☐ 008	☒ 009 ☐ 010 ☐ 011 ☐ 012 ☐ 013 ☐ 014 ☐ 015 ☐ 016	Channel 1 (3): K2 Channel 2 (9): K3	☒ 001 Wiegand 1 ☒ 002 Wiegand 2

How it works:

When reader with Node ID 003 from Channel 1 verifies access, the selected relay(K2) will trigger. Similarly, reader with Node ID 009 from Channel 2 will trigger the selected relay(K3).

FAQ

Problem	Solution
Door opens with a delay after a card is flashed	The card data must be sent to the MAC controller for verification before the door unlocks. Poor-quality cables or excessive wiring distance can slow RS485 communication. Use proper wiring such as Cat5 (up to 100m), RS422 cable like Belden 1419A (up to 300m), or RS485 cable such as Belden 9842 (up to 1km) to ensure stable performance.
No output when flashing a card at a Wiegand reader connected to MAC	Ensure the Wiegand reader and MAC share a common GND reference. If they use separate power supplies, connect the GND of both power supplies together to establish proper signal reference.
MAC controller is easily damaged by surge	Outdoor electronic devices are vulnerable to surge. Connect the MAC metal enclosure to EARTH from the AC socket to create a low-impedance reference shared with other equipment. Proper grounding and surge protection are especially important in exposed areas or locations prone to lightning strikes.
MAC controller behaves intermittently or unpredictably	Surge events may partially damage the CPU without visible burn marks, causing unstable or random behavior. Installing proper surge protection and grounding can prevent this issue and ensure stable system operation.
Unable to ping the controller or access the web interface.	Check that all network jumpers are set to "NET".  RS-485 Mode RS485 NET JP3 ☐ ☐ JP4 ☐ ☐ JP5 ☐ ☐ JP2 ☐ ☐ NET RS485 ➔ Ethernet Mode RS485 NET JP3 ☐ ☐ JP4 ☐ ☐ JP5 ☐ ☐ JP2 ☐ ☐ NET RS485 Verify that the Node ID is correctly configured according to binary numbering. Ensure the controller is using the correct IP address.

Unable to access the controller web interface.	Use the default IP 192.168.1.127. Log in with the default credentials: Username: SuperAdm Password: 721568.
How to reset MAC316 controller to factory settings.	Connect (loop) the Fire contact terminal CN15 to GND, then press and hold the Reset button for more than 5 seconds until the BUSY LED starts blinking.  Release the button and the device will automatically restart with default settings. After reset, disconnect the CN15-GND loop.

***Product performances is based on testing in a controlled environment. Your result may vary due to several external and environment factors.**

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