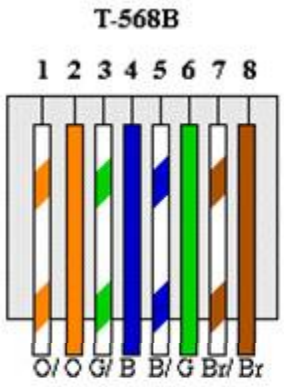
1. * The wire colors of our recommended readers is implemented in the table: OmniSmart, OmniClass,
   OmniProx, HID SIGNO and iCLASS and luminAXS.

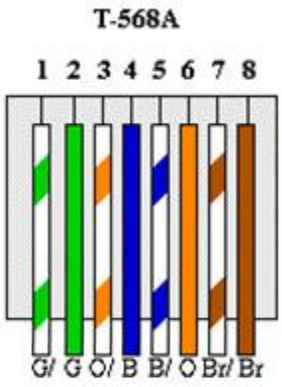
Note: *The reader wire colors can be different for various readers. Please see the reader's manual*

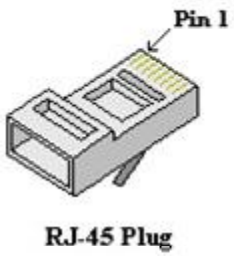
2. ** See previous chapter for voltage range and maximum currents.

CODE B



CODE A





3.6.4.2 OSDP Reader Wiring

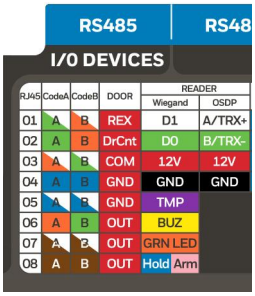
The RJ45 READER terminal can fully support an 8-wire cable (18-24 AWG). Preferably use the standard FTP cable with RJ45 plug 8-wire CAT6E/7 (recommended) 8-conductor cable.

When using thicker cables (AWG18 - AWG20), an RJ45 -8 screw convertor (P/N: MPA2RJ) is required to connect the reader to the panel.

For reader cable lengths and power requirements, please look in chapter 6.6.

Table 3-7 The wire connections are listed below vs the orientation of the RJ45 connector.

RJ45 PIN	Colour*	OSDP	Description
01	White	A/TRX+	RS485A data signal
02	Green	B/TRX-	RS485B data signal
03	Red	12V	Reader power 12VDC from panel OR higher voltage from external power source
04	Black	GND	Reader power 0V / GND
05	Not used		
06			
07			
08			

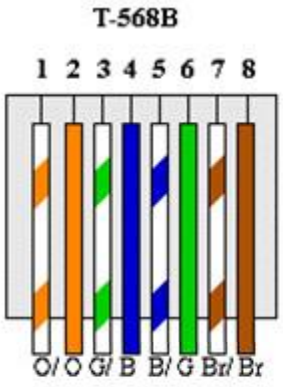


1. * The wire colors of our recommended readers is implemented in the table: OmniSmart, OmniClass,
   OmniProx, HID SIGNO and iCLASS and luminAXS.

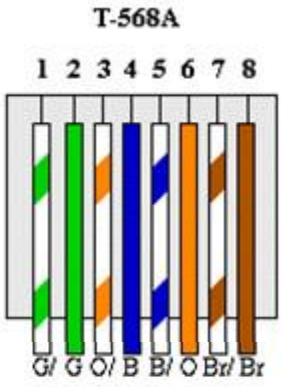
Note: *The reader wire colors can be different for various readers. Please see the reader's manual*

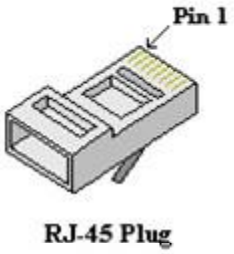
2. ** See previous chapter for voltage range and maximum currents.

CODE B



CODE A





MPA2C3 has a fixed baud rate for both OSDP busses at 9600 bits per second (bps)

Similarly the OSDP reader Baud Rate. must be set to 9600 bps

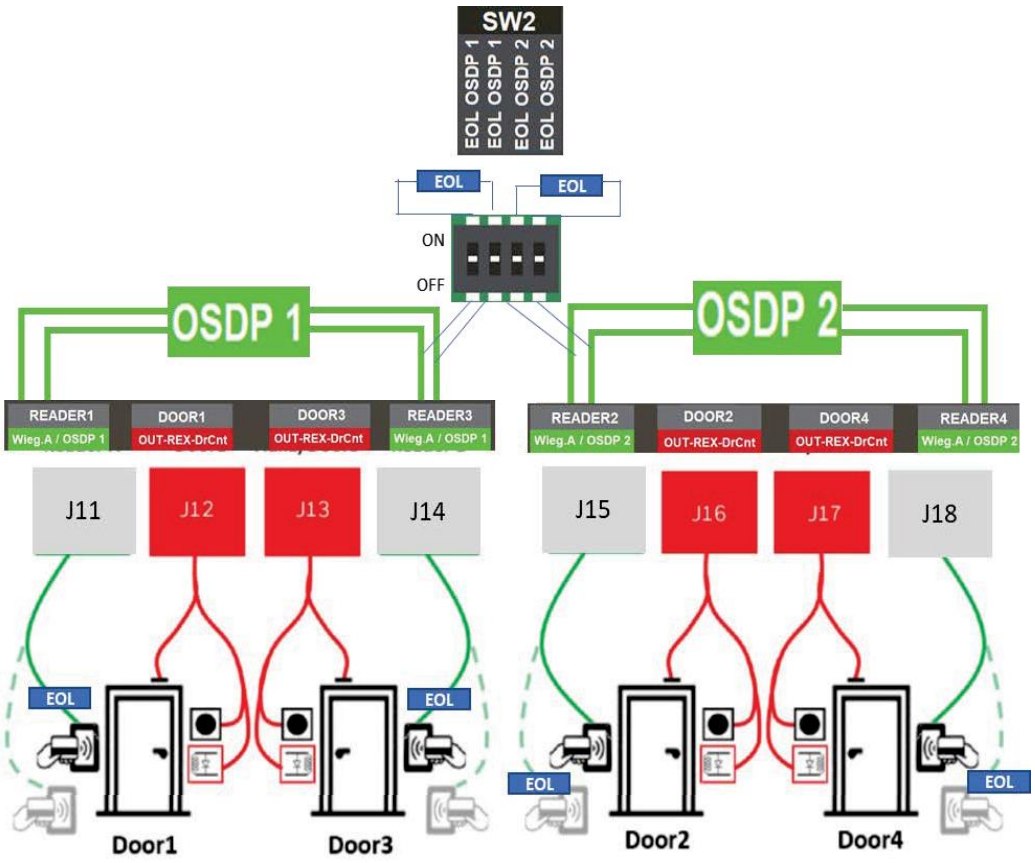
OSDP Bus transmission speed (baud Rate)

MPA2C3 has a fixed baud rate for both OSDP busses at 9600 bits per second (bps)

Similarly the OSDP reader Baud Rate. must be set to 9600 bps

OSDP Bus termination

Because OSDP is an RS485 protocol, for long distances the balanced RS485A and RS485B signal wires must be terminated at both ends of the OSDP reader cable with an 120 Ohm resistor.



Because there are 2 OSDP RS485 busses (OSDP1 and OSDP2), for each OSDP bus this has to be set up correctly.

The below tables give examples of readers connected to various RJ45 terminals and the DIP Switch SW2 setting and resistor placement at the reader.

OSDP EOL Termination in 2 - Door Panel

Table 3-8 OSDP EOL Termination in 2 - Door Panel

OSDP bus termination					Add Resistor on OSDP readers	DIP Switch SW2			
readers connected						EOL OSDP1		EOL OSDP2	
QTY	Function	RJ45 Terminal	OSDP BUS	Addr	A/B signal wires	Bit1	Bit2	Bit3	Bit4
1	Reader 1 IN	READER1 IN	OSDP1	1	120 OHM	ON	ON	OFF	OFF
1	Reader 2 IN	READER2 IN	OSDP2	1	120 OHM	OFF	OFF	ON	ON
2	Reader 1 IN	READER1 IN	OSDP1	1	120 OHM	OFF	OFF	OFF	OFF
	Reader 1 OUT	READER1 OUT	OSDP1	2	120 OHM				
2	Reader 1 IN	READER1 IN	OSDP1	1	120 OHM	ON	ON	ON	ON
	Reader 2 IN	READER2 IN	OSDP2	1	120 OHM				
3	Reader 1 IN	READER1 IN	OSDP1	1	120 OHM	OFF	OFF	ON	ON
	Reader 1 OUT	READER1 OUT	OSDP1	2	120 OHM				
	Reader 2 IN	READER2 IN	OSDP2	1	120 OHM				

3	Reader 1 IN	READER1 IN	OSDP1	1	120 OHM	ON	ON	OFF	OFF
	Reader 2 IN	READER2 IN	OSDP2	1	120 OHM				
	Reader 2 OUT	READER2 OUT	OSDP2	2	120 OHM				
4	Reader 1 IN	READER1 IN	OSDP1	1	120 OHM	OFF	OFF	OFF	OFF
	Reader 1 OUT	READER1 OUT	OSDP1	2	120 OHM				
	Reader 2 IN	READER2 IN	OSDP2	1	120 OHM				
	Reader 2 OUT	READER2 OUT	OSDP2	2	120 OHM				

OSDP EOL termination in 4-door panels

OSDP bus termination					Add Resistor on OSDP readers	DIP Switch SW2			
Readers connected						EOL OSDP1		EOL OSDP2	
QTY	Function	RJ45 Terminal	OSDP BUS	Addr	A/B signal wires	Bit1	Bit2	Bit3	Bit4
1	Reader 1 IN	READER1	OSDP1	1	120 OHM	ON	ON	OFF	OFF
1	Reader 2 IN	READER2	OSDP2	1	120 OHM	OFF	OFF	ON	ON
1	Reader 3 IN	READER3	OSDP1	3	120 OHM	ON	ON	OFF	OFF
1	Reader 4 IN	READER4	OSDP2	3	120 OHM	OFF	OFF	ON	ON
2	Reader 1 IN	READER1	OSDP1	1	-	ON	ON	OFF	OFF
	Reader 1 OUT*			2	120 OHM				
2	Reader 2 IN	READER2	OSDP2	1	-	OFF	OFF	ON	ON
	Reader 2 OUT*			2	120 OHM				
2	Reader 3 IN	READER3	OSDP1	3	-	ON	ON	OFF	OFF
	Reader 3 OUT*			4	120 OHM				
2	Reader 4 IN	READER4	OSDP2	3	-	OFF	OFF	ON	ON
	Reader 4 OUT*			4	120 OHM				
2	Reader 1 IN	READER1	OSDP1	1	120 OHM	OFF	OFF	OFF	OFF
	Reader 3 IN	READER3		3	120 OHM				
2	Reader 2 IN	READER2	OSDP2	1	120 OHM	OFF	OFF	OFF	OFF
	Reader 4 OUT	READER4		3	120 OHM				
2	Reader 1 IN	READER1	OSDP1	1	120 OHM	ON	ON	ON	ON
	Reader 2 IN	READER2	OSDP2	1	120 OHM				
2	Reader 1 IN	READER1	OSDP1	1	120 OHM	ON	ON	ON	ON
	Reader 4 IN	READER4	OSDP2	1	120 OHM				
2	Reader 3 IN	READER3	OSDP1	1	120 OHM	ON	ON	ON	ON
	Reader 2 IN	READER2	OSDP2	1	120 OHM				
2	Reader 3 IN	READER3	OSDP1	1	120 OHM	ON	ON	ON	ON
	Reader 4 IN	READER4	OSDP2	1	120 OHM				
3	Reader 1 IN	READER1	OSDP1	1	-	ON	ON	ON	ON
	Reader 1 OUT			2	120 OHM				
	Reader 2 IN	READER2	OSDP2	1	120 OHM				
3	Reader 1 IN	READER1	OSDP1	1	120 OHM	ON	ON	ON	ON
	Reader 2 IN	READER2	OSDP2	1	-				
	Reader 2 OUT			2	120 OHM				

4	Reader 1 IN	READER1	OSDP1	1	-	ON	ON	ON	ON
	Reader 1 OUT			2	120 OHM				
	Reader 2 IN	READER2	OSDP2	1	-				
	Reader 2 OUT			2	120 OHM				
4	Reader 1 IN	READER1	OSDP1	1	120 OHM	OFF	OFF	OFF	OFF
	Reader 3 IN	READER3		3	120 OHM				
	Reader 2 IN	READER2	OSDP2	1	120 OHM				
	Reader 4 IN	READER4		3	120 OHM				
5	Reader 1 IN	READER1	OSDP1	1	-	OFF	OFF	ON	ON
	Reader 1 OUT			2	120 OHM				
	Reader 3 IN	READER3		3	120 OHM				
	Reader 2 IN	READER2	OSDP2	1	-				
	Reader 2 OUT			2	120 OHM				
5	Reader 1 IN	READER1	OSDP1	1	-	OFF	OFF	OFF	OFF
	Reader 1 OUT			2	120 OHM				
	Reader 3 IN	READER3		3	120 OHM				
	Reader 2 IN	READER2	OSDP2	1	120 OHM				
	Reader 4 IN	READER4		2	120 OHM				
8	Reader 1 IN	READER1	OSDP1	1	-	OFF	OFF	OFF	OFF

OSDP ADDRESSING VIA PANEL

OSDP reader's functions (IN or OUT reader for Door 1-4) are determined by the connected OSDP bus and the configured address in the reader. In the below tables the address and respective functions are described.

MPA2C3 (2 door)	OSDP Reader		
Reader Connection mode	RJ45 Connector READER	Reader Address	Reader Function
OSDP	READER 1 IN	1	Door1 IN reader
	Wieg.A / **OSDP 1**		
	READER 1 OUT	2	Door1 OUT reader
	Wieg.B / **OSDP 1**		
	READER 2 IN	1	Door2 IN reader
	Wieg.A / **OSDP 2**		
	READER 2 OUT	2	Door2 OUT reader
	Wieg.B / **OSDP 2**		
MPA2C3-4 (4 door)	OSDP Reader		

Reader Connection mode	RJ45 Connector	Reader Address	Reader Function
OSDP	READER		
	READER 1	1	Door1 IN reader
	Wieg.A / **OSDP 1**	2	Door1 OUT reader
	READER 3	3	Door3 IN reader
	Wieg.A / **OSDP 1**	4	Door3 OUT reader

OSDP READER ADDRESS ASSIGNMENT FEATURE VIA PANEL

Usually OSDP readers are delivered with address “0”.

The reader needs to be readdressed to the appropriate address for the assigned function per the above table. The readdressing can be done with the addressing tool of the reader (see instruction or installation manual of the reader manufacturer).

The MPA2C3 panel has an auto addressing function.The procedure is described below.

OSDP reader controls

When an invalid card has been swiped to the reader, the access is denied to the card holder and the reader red LED will flash twice and generates two beeps.

This is different than the Wiegand controls.

Wiring Input/Output Devices of Doors

Door Monitoring and Locking Devices set up

The MPA2C3 Access Control Panel supports up to 4 doors. Each door supports:

Two Inputs for

Door Contact (DrCnt) - a sensor that monitors the state of the door (open or closed state)

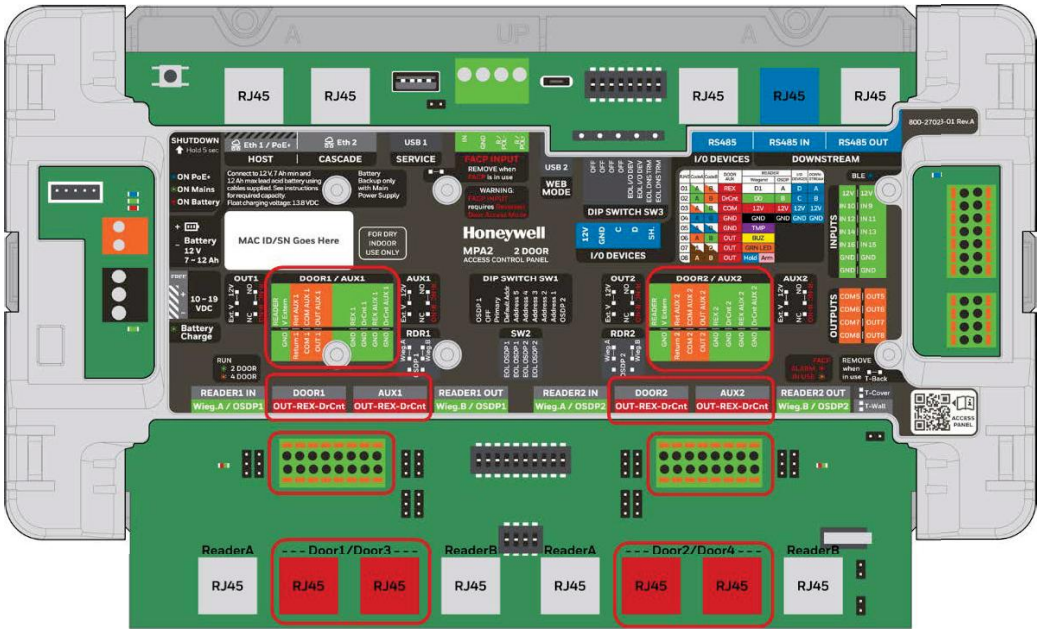
Request to Exit (REX) device – A switch or sensor that allows a person to unlock the door without a valid identifier (eg a card) to exit from the protected area. A REX device is not needed if and OUT Reader on that door is applied.

Output for

Door lock / door strike / magnetic lock - a locking device that is controlled by the panels Door output

There are 4 Red RJ45 terminals and in parallel 2 removable push-in terminal blocks, designed to wire the inputs and output . The information card on the panel identifies these terminals as eg DOOR1, AUX2, DOOR 4 (RJ45 Terminals) or as eg DOOR2 / AUX2 or DOOR1 / DOOR3 (Terminal Blocks).

Note: *RJ45 Connectors allow standard structured cable (CAT 5E / CAT6/7) to be used to wire a door. A door connection convertor (PN:MPA2S5) converts these wires in 2 input connections and 1 outputs connection.*



In a 2-door MPA2C3 controller, each Door I/O (Input/Output) is identified with DOOR1 and DOOR2.

The AUX1 and AUX2 I/O are not controlled as a Door I/O, however the Inputs REX and Door Contact and Output AUX1 can be controlled as additional auxiliary device controls.

In a 4-door MPA2C3 controller, each Door I/O (Input/Output) is identified with DOOR1 – DOOR4.

Table 3-9 The connections for monitoring and locking devices

DOOR #	Terminal Block Pin		RJ45 Terminal Pin		Function	Software Name
Door I/O						
DOOR 1	DOOR1 / AUX1	REX 1 , GND	DOOR1	(REX) PIN 1	REX / Free Egress	Door 1 Egress
				(GND)PIN 3		
		DrCnt 1, GND		(DrCnt) PIN 2	Door Contact	Door1 Status
				(COM) PIN 3		
		OUT1 , COM1 / Return1		(OUT) PIN 6,7,8	Door Lock	Relay 1
				(GND) PIN 4,5		
DOOR 2	DOOR2 / AUX2	REX 2 , GND	DOOR2	(REX) PIN 1	REX / Free Egress	Door 2 Egress
				(COM) PIN 3		
		DrCnt 2, GND		(DrCnt) PIN 2	Door Contact	Door2 Status
				(COM) PIN 3		
		OUT2 , COM2 / Return2		(OUT) PIN 6,7,8	Door Lock	Relay 2
				(GND) PIN 4,5		
Auxiliary Door related I/O						

AUX1	DOOR1 / AUX1	REX AUX 1 , GND	AUX1	(REX) PIN 1	REX / Free Egress	Door 3 Egress
				(GND)PIN 3		
		DrCnt AUX 1, GND		(DrCnt) PIN 2	Door Contact	Door3 Status
				(COM) PIN 3		
		OUT AUX 1 ,		(OUT) PIN 6,7,8	Door Lock	Relay 3
		COM AUX1 / Return AUX1		(GND) PIN 4,5		
AUX2	DOOR2 / AUX2	REX AUX 2 , GND	AUX2	(REX) PIN 1	REX / Free Egress	Door 4 Egress
				(GND)PIN 3		
		DrCnt AUX 2, GND		(DrCnt) PIN 2	Door Contact	Door4 Status
				(COM) PIN 3		
		OUT AUX 2,		(OUT) PIN 6,7,8	Door Lock	Relay 4

MPA2C3 4-door peripherals configurations

The below table describes the connections for monitoring and locking devices.

Figure 3-17 The connections for monitoring and locking devices

DOOR #	Push in Terminal Block Pin		Red RJ45 Terminal Pin		Function	Software Name
Door I/O						
DOOR 1	DOOR1 / DOOR3	REX 1 , GND	DOOR1	(REX) PIN 1 (GND)PIN 3	REX / Free Egress	Door 1 Egress

		DrCnt 1, GND		(DrCnt) PIN 2 (COM) PIN 3	Door Contact	Door1 Status
		OUT1 , COM1 /Return1		(OUT) PIN 6,7,8 (GND) PIN 4,5	Door Lock	Relay 1
DOOR 2	DOOR2 / DOOR4	REX 2 , GND	DOOR2	(REX) PIN 1 (COM) PIN 3	REX / Free Egress	Door 2 Egress
		DrCnt 2, GND		(DrCnt) PIN 2 (COM) PIN 3	Door Contact	Door2 Status
		OUT2 , COM2 /Return2		(OUT) PIN 6,7,8 (GND) PIN 4,5	Door Lock	Relay 2
DOOR 3	DOOR1 / DOOR3	REX 3 , GND	DOOR3	(REX) PIN 1 (GND)PIN 3	REX / Free Egress	Door 3 Egress
		DrCnt 3, GND		(DrCnt) PIN 2 (COM) PIN 3	Door Contact	Door3 Status
		OUT3 , COM3 /Return3		(OUT) PIN 6,7,8 (GND) PIN 4,5	Door Lock	Relay 3
DOOR 4	DOOR2 / DOOR4	REX 4 , GND	DOOR4	(REX) PIN 1 (GND)PIN 3	REX / Free Egress	Door 4 Egress
		DrCnt 4, GND		(DrCnt) PIN 2 (COM) PIN 3	Door Contact	Door4 Status
		OUT4 , COM4 /Return4		(OUT) PIN 6,7,8 (GND) PIN 4,5	Door Lock	Relay 4

Door Monitoring Devices / Inputs

Connect per door the sensors for Door status (DrCnt) and Ergess/Request-to-EXit (REX) to the push in terminal blocks or the corresponding red RJ45 Door terminal.

Push in Terminal Block

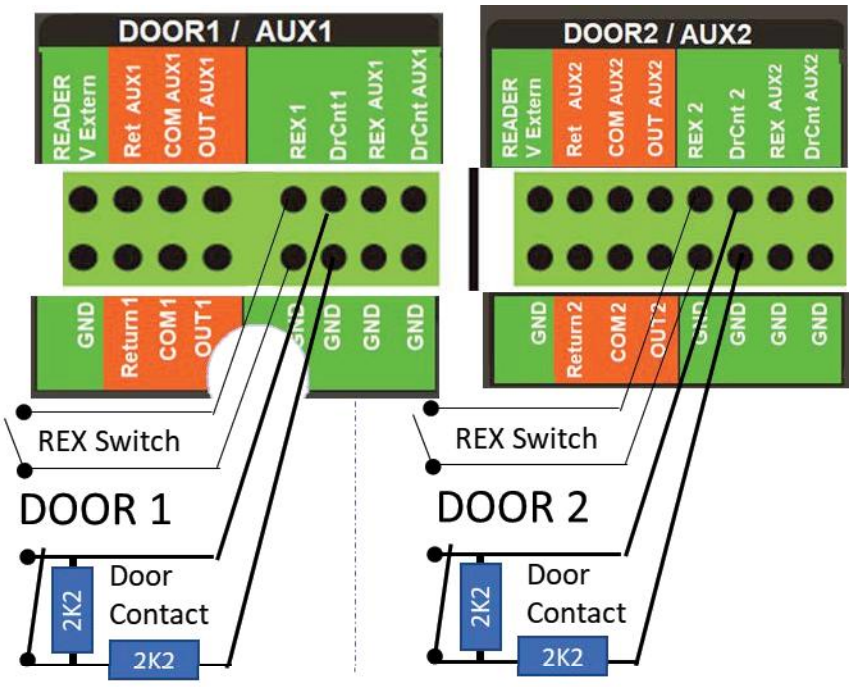
The default settings for the door inputs are, using the push in terminal blocks :

The REX input is a Normally Open (NO) input, without end-of-line (EOL) resistors.

- You can connect the NO contacts of the REX switch or sensor immediately to the REX and GND input of the panel.

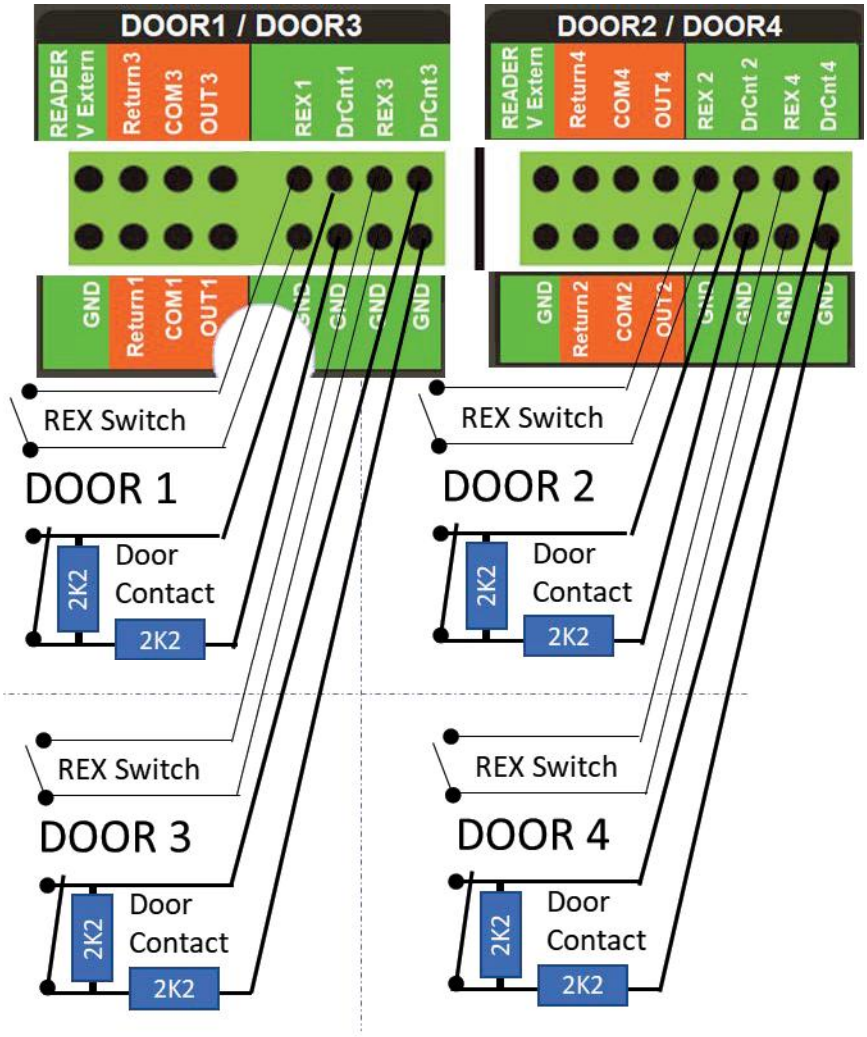
DrCnt input is a supervised, Normally Closed (NC) input, set for 2.2 kOhm EOL resistors.

- You can connect the NC contacts of the Door monitoring switch or sensor with two 2.2 kOhm to the DrCnt and GND input of the panel. See picture per below.



Both Rex and DrCnt inputs can be configured for unsupervised or supervised input. Supervised inputs can be set for 1 kOhm, 2.2 kOhm, 4.7 kOhm or 10kOhm. Both resistors must be the same per value.

Figure 3-18 For a 4 door configuration, the connections are



Red RJ45 Door terminal

The default settings for the door inputs are, using red RJ45 door terminals:

The REX input is a Normally Open (NO) input, without end-of-line (EOL) resistors.

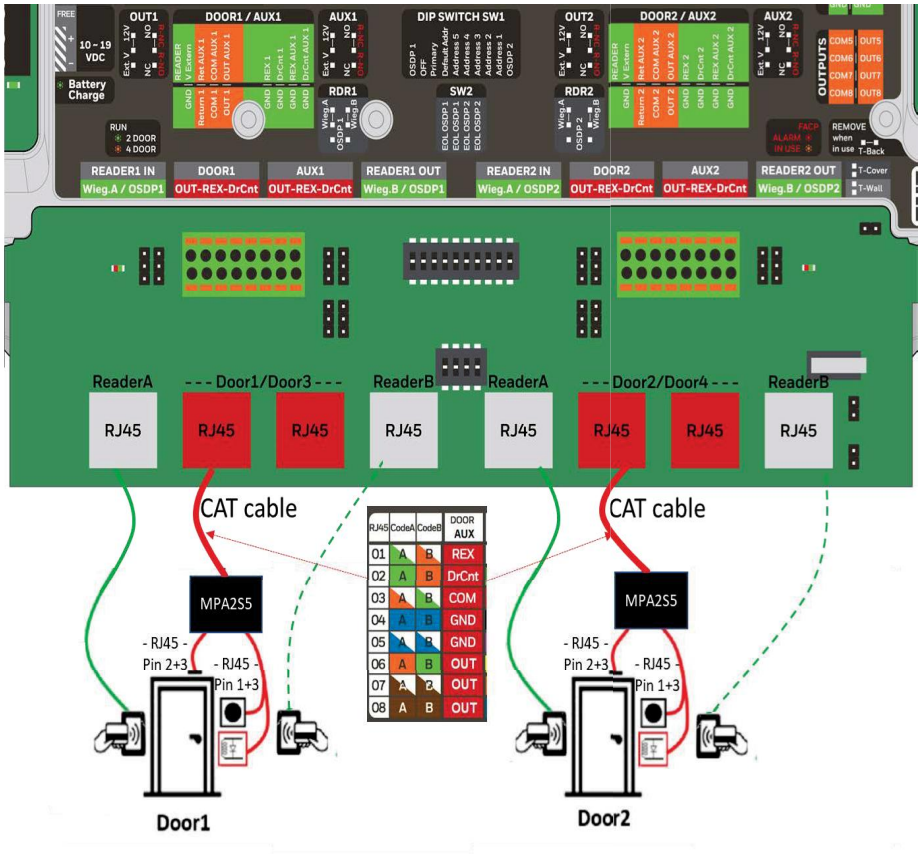
- You can connect the NO contacts of the REX switch or sensor immediately to the REX and GND input of the panel.

DrCnt input is a supervised, Normally Closed (NC) input, set for 2.2 kOhm EOL resistors.

- You can connect the NC contacts of the Door contact or sensor with two 2.2 kOhm resistors to the DrCnt and GND input of the panel.
- When using the MPA2S5, there is no need to add the two EOL resistors at the
- Door Contact or sensor. See picture per below.

Both Rex and DrCnt inputs can be configured for unsupervised or supervised input. Supervised inputs can be set for 1 kOhm, 2.2 kOhm, 4.7 kOhm or 10kOhm. Both resistors must be the same per value.

Note: *When using the MPA2S5 at the door, the DrCnt must be set (as default) to supervised with 2.2 kOhm EOL resistors. The MPA2S5 has built in 2.2 kOhm resistors for the Door contact / sensor. The MPA2S5 convertor must be installed at the door can be connected to the CAT structured cable via RJ45 connection.*



Note: *For a 4-door configuration the RJ45 door terminals for Door3 and Door4 have the same configuration.*

Door Locking Devices / Output configurations

Connect per door the locking devices for Door OUTput / Relay (OUT) to the push in terminal blocks or the corresponding red RJ45 Door terminal.

Each Door output (or AUX output) can be configured in 2 ways, by jumpers.

1. Output selection for locking devices powered by panel's internal power source (12V – by default) or by external power supply (Ext V – voltage fee contact).

Note: *Current and Voltage limitations for locking power is different per power source selection.*

Below tables are reflecting current and voltage limitation for 2 and 4 door system.

Table 3-10 The reflecting current and voltage limitation for 2 and 4 door system

Outputs 2-door system		
Output Contact type	OUT 1-2, AUX1-2	Selectable per jumper OUT 1-2, AUX1-2: NO (Normally Open) or NC (Normally Closed)
Relay contact max switching voltage and current	OUT 1-2, AUX1-2 @ RJ45	500mA @ 30VDC,
(dry contact)		500mA @ 22VAC
	OUT 1-2, AUX1-2 @ push in terminal block**	3A @ 30VDC,
		1A @ 22VAC
Max output Voltage at Door1/AUX1 output when OUT1, AUX1 jumper onboard "12V" is used (wet contact)	OUT 1 @ RJ45 or	10VDC ~ 14VDC
	OUT 1 @ push in terminal block**,	
	AUX 1 @ RJ45 or	
	AUX 1 @ push in terminal block**	
Max output current at Door1/AUX1 output when OUT1, AUX1 jumper onboard "12V" is used (wet contact)	OUT 1 @ RJ45 **,	500mA per RJ45, limited to 750mA @ 12VDC combined over both door output contacts
	AUX 1 @ RJ45 **	
	OUT 1 @ push in terminal block**,	750mA @ 12VDC combined over both door output contacts
	AUX 1 @ push in terminal block**	

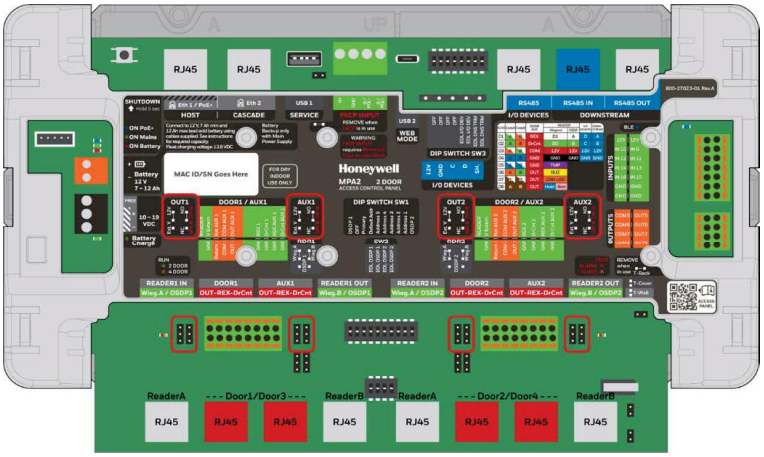
Max output Voltage at Door1/AUX1 output when OUT2, AUX2 jumper onboard "12V" is used (wet contact)	OUT 2 @ RJ45 or OUT 2 @ push in terminal block**, AUX 2 @ RJ45 or AUX 2 @ push in terminal block**	10VDC ~ 14VDC
Max output current at Door2/AUX2 output when OUT2, AUX2 jumper onboard "12V" is used (wet contact)	OUT 2 @ RJ45 **, AUX 2 @ RJ45 **	500mA per RJ45, limited to 750mA @ 12VDC combined over both door output contacts
	OUT 2 @ push in terminal block**, AUX 2 @ push in terminal block**	750mA @ 12VDC combined over both door output contacts
**** Connect either RJ45 or push in terminal block; do not connect same Door output on both RJ45 and push in terminal block.**		

1. Output selection for Normally Open (NO - by default) or Normally Closed (NC) operation. Jumpers are available to select the desired operation, depending on the type of lock connected.

If a lock is a power-to-unlock type (normal door strike – for fail secure installations) then this jumper needs to be set to NO.

If a lock is a power-to-lock type (fail safe door strike or magnetic lock – for fail safe installations) then this jumper needs to be set to NC.

Figure 3-19 Indicate the location of the Jumpers.



Push-in terminal block

You can connect a solid or braided wire up to 18 Gauge (0.5 mm diameter) in the connection points.

The default settings for the door outputs are, using the push in terminal blocks:

The Door output is a Normally Open (NO) output

- Move jumper to NC when Power-to-unlock device is connected

The Door output is powered from the panel's internal 12V power source.

- Always apply a surge device, e.g a diode in antiparallel configuration at the locking device.

Internal power source for locking devices for a 2-door panel

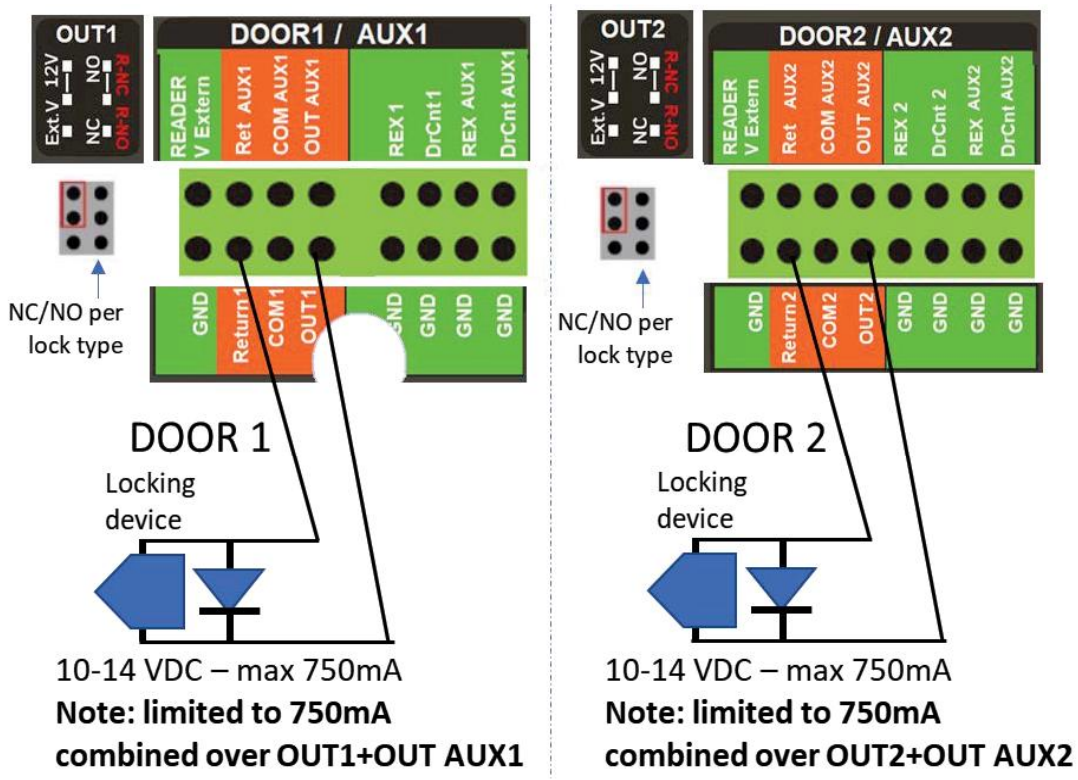
When the power source is internal 12V, set the jumper OUT to 12V and connect the locking device on OUT and Return

The available voltage range is 10VDC – 12VDC. The maximum current that can be switched is 750mA. The internal power source is shared between OUT1 and OUT AUX1 which has a combined current of maximum 750mA. Separately this internal power source is shared between OUT2 and OUT AUX2 which has a combined current of maximum 750mA.

The below figure shows the connection and relevant jumper setting when internal power is used to the outputs in a 2-door panel.

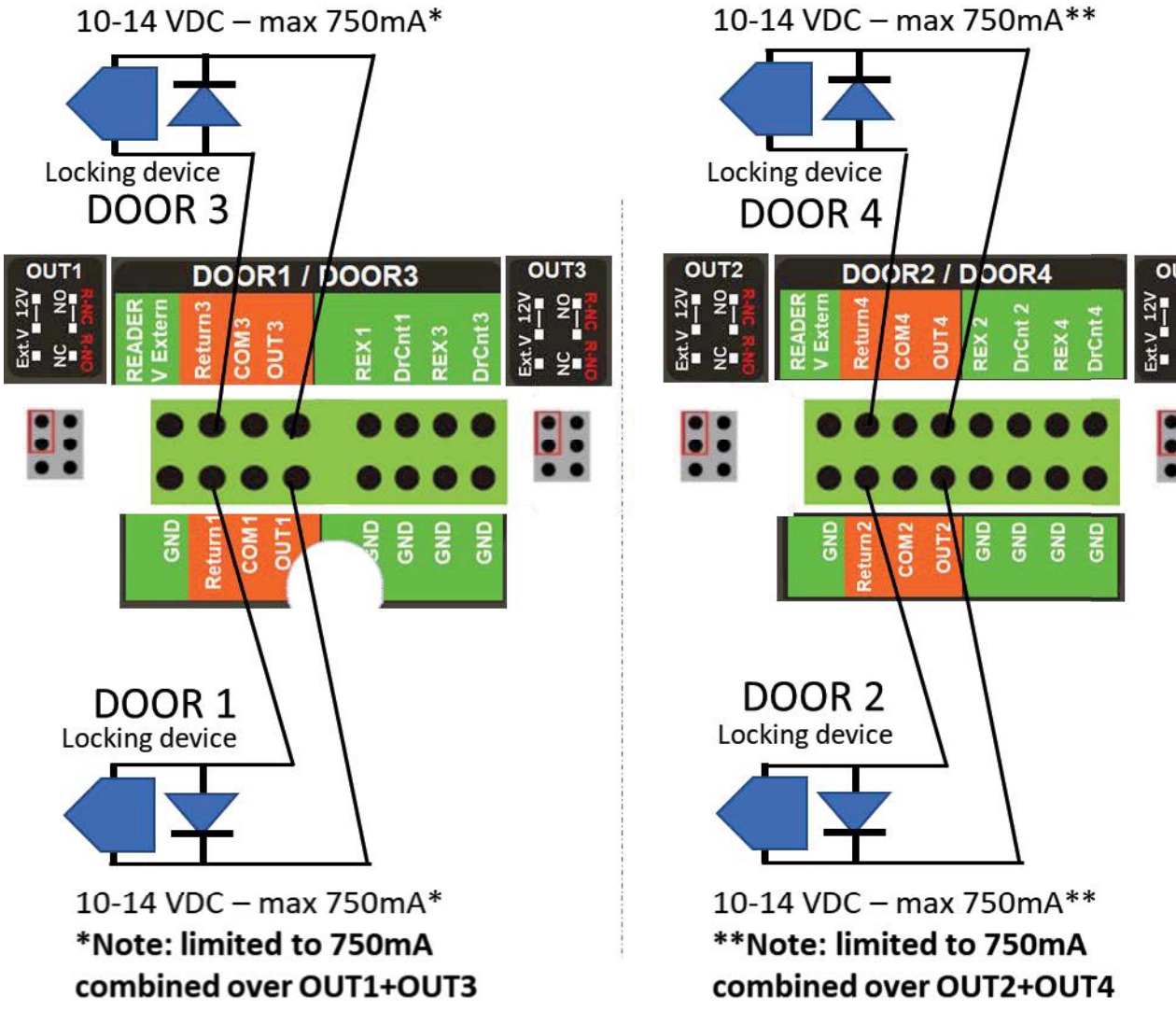
Figure 3-20 . The connection and relevant jumper setting when internal power is used to the outputs in a 2-door panel

Note: *Always apply a surge device, e.g a diode in antiparallel configuration at the locking device.*



The below figure shows the connection and relevant jumper setting when internal power is used to the outputs in a 4-door panel.

Figure 3-21 The connection and relevant jumper setting



Note: *Always apply a surge device, e.g a diode in antiparallel configuration at the locking device.*

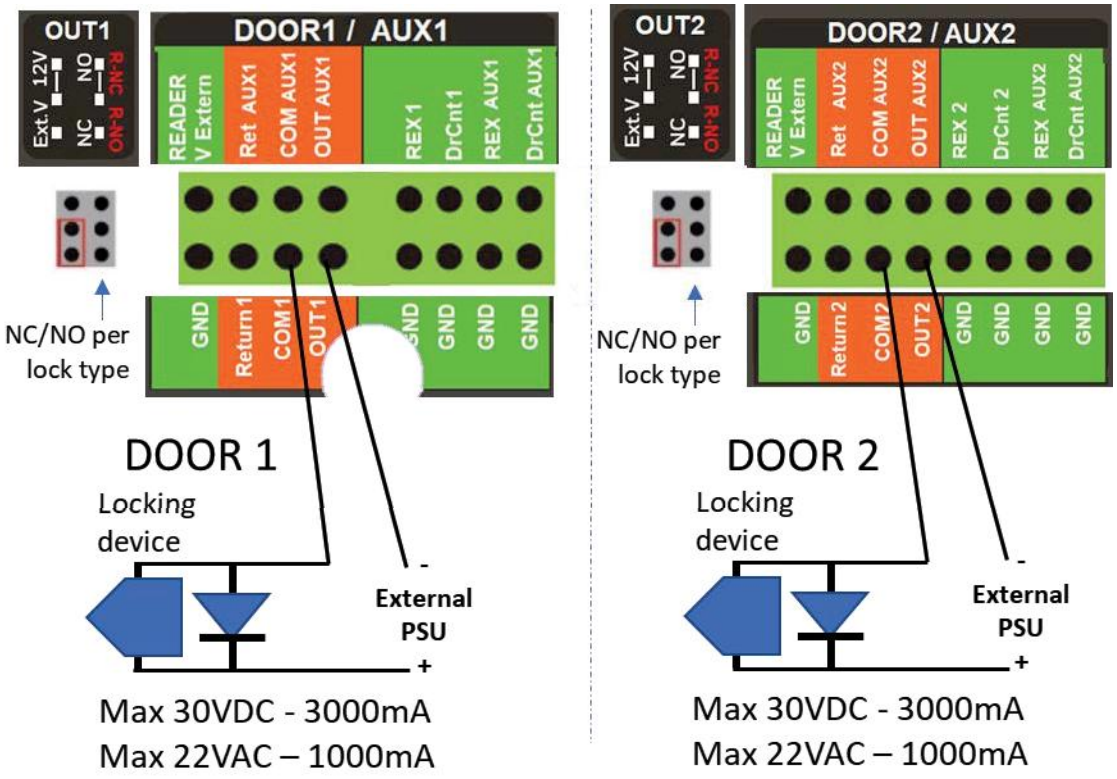
External power source for locking devices or voltage free contact

When the power source is an external power supply or a voltage free contact is needed, set the jumper OUT to Ext.V and connect the locking device on OUT and COM

The maximum voltage range for the output is 30VDC-3000mA or 22VAC-1000mA.

The below figure shows the connection and relevant jumper setting when external power source is used to the outputs in a 2-door panel.

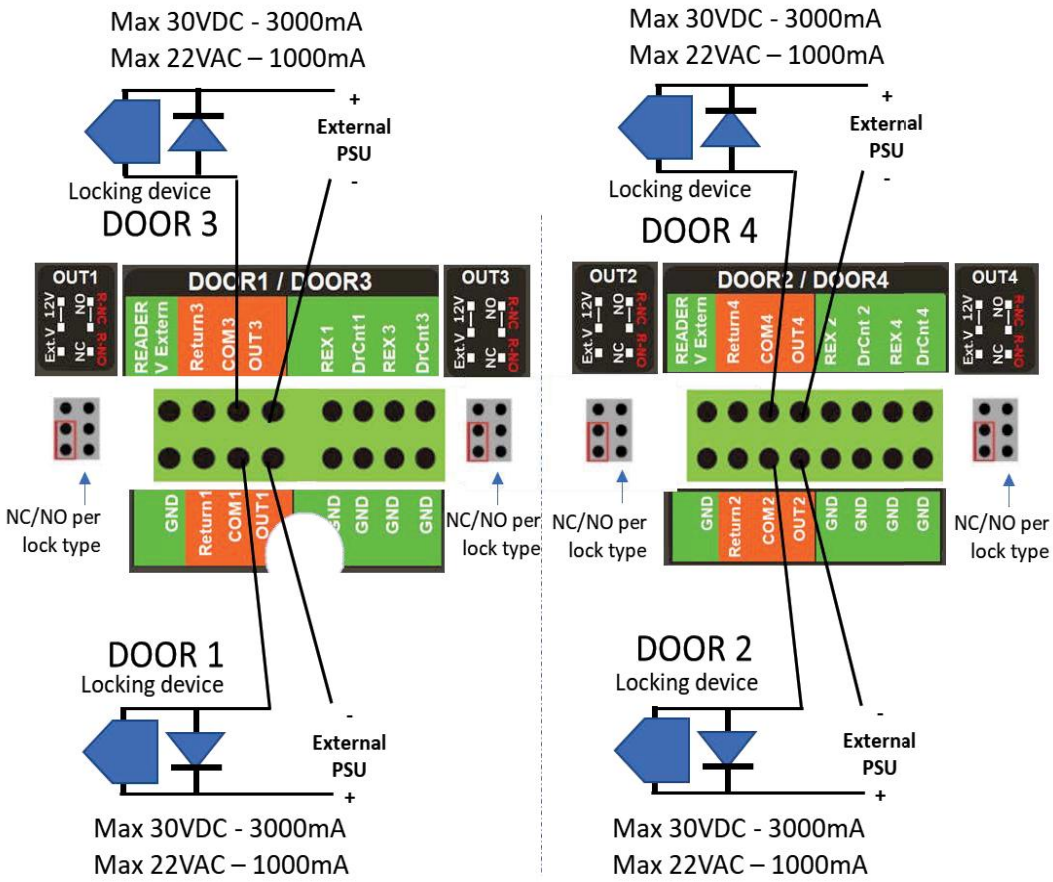
Figure 3-22 The connection and relevant jumper setting2-door panel



Note: *Always apply a surge device, e.g a diode in antiparallel configuration at the locking device*

The below figure shows the connection and relevant jumper setting when external power source is used to the outputs in a 4-door panel.

Figure 3-23 The connection and relevant jumper setting he outputs in a 4-door panel



Red RJ45 Door terminals

The default settings

for the door outputs are, using the Red RJ45 Door Terminals:

The Door output is a Normally Open (NO) output

- Move jumper to NC when Power-to-unlock device is connected

The Door output is powered from the panel's internal 12V power source

- Always apply a surge device, e.g a diode in antiparallel configuration at the locking device.
- When using the MPA2S5, there is no need to add the surge device at the locking device Only with internal power source.

Internal power source for locking devices

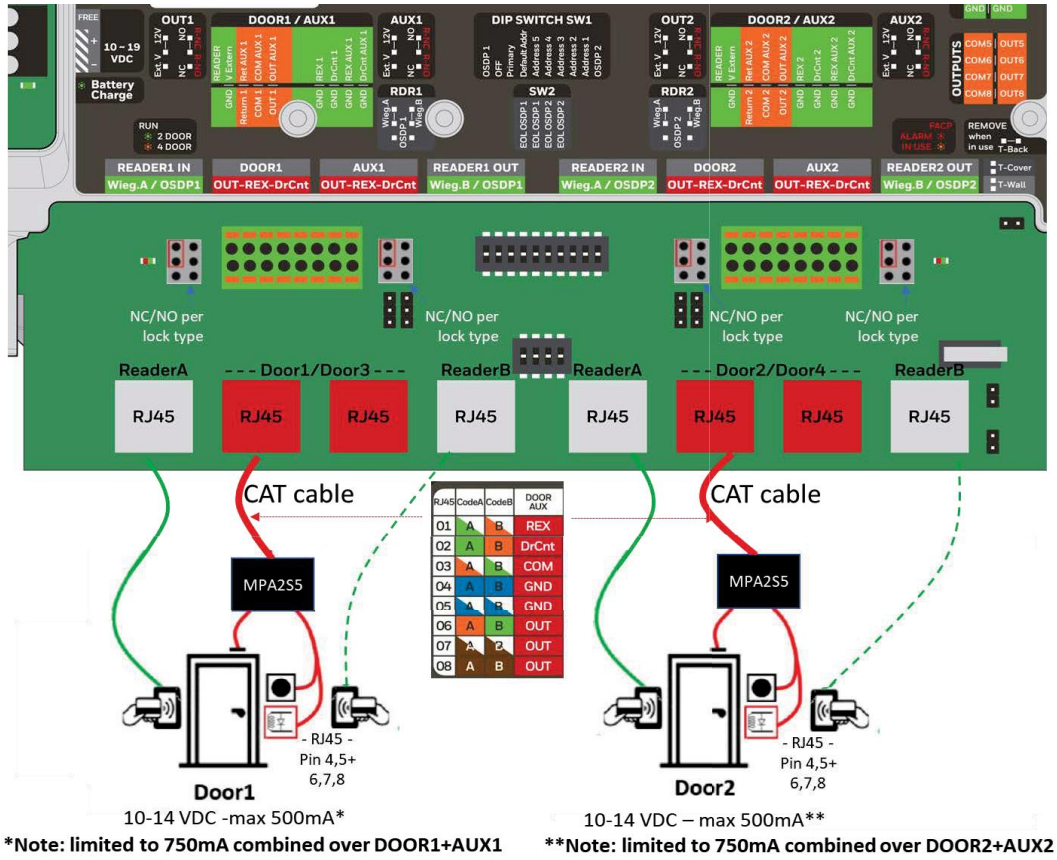
When the power source is internal 12V, set the jumper OUT to 12V and connect the locking device on RJ45 pins 6,7,8 (OUT) and pins 4,5 (GND).

The available voltage range is 10VDC – 12VDC. The maximum current that can be switched is 500mA. The internal power source is shared between OUT1 and OUT AUX1 which has a combined current of maximum 750mA. Separately this internal power source is shared between OUT2 and OUT AUX2 which has a combined current of maximum 750mA.

Note: *The maximum current in a CAT cable is specified. Make sure the right gauge / wire thickness is used for locking device currents*

The below figure shows The connection and relevant jumper setting when internal power is used to the outputs in a 2-door panel.

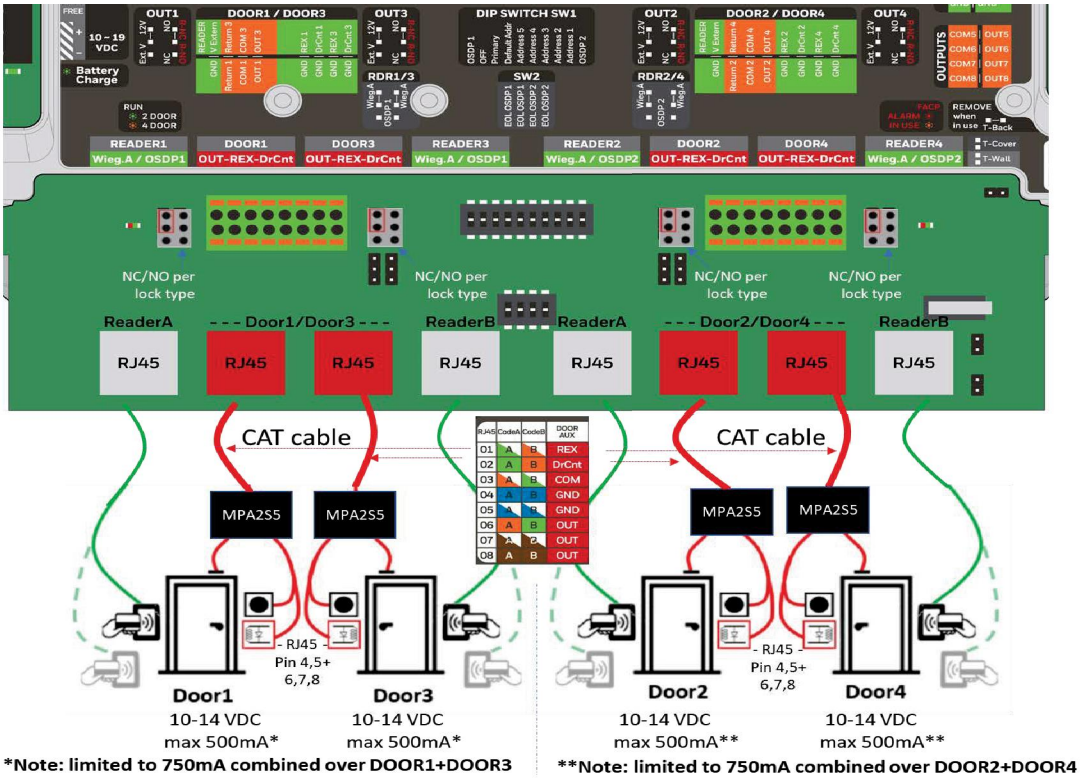
Figure 3-24 The connection and relevant jumper setting when internal power is used to the outputs in a 2-door panel.



RJ45	CodeA	CodeB	DOOR AUX
01	A	B	REX
02	A	B	DrCnt
03	A	B	COM
04	A	B	GND
05	A	B	GND
06	A	B	OUT
07	A	B	OUT
08	A	B	OUT

The below figure shows The connection and relevant jumper setting when internal power is used to the outputs in a 4-door panel.

Figure 3-25 . The connection and relevant jumper setting when internal power is used to the outputs in a 4-door panel



External power source for locking devices or voltage free contact

When the power source is an external power supply or a voltage free contact is needed, set the jumper OUT to Ext.V and connect the locking device on OUT and COM

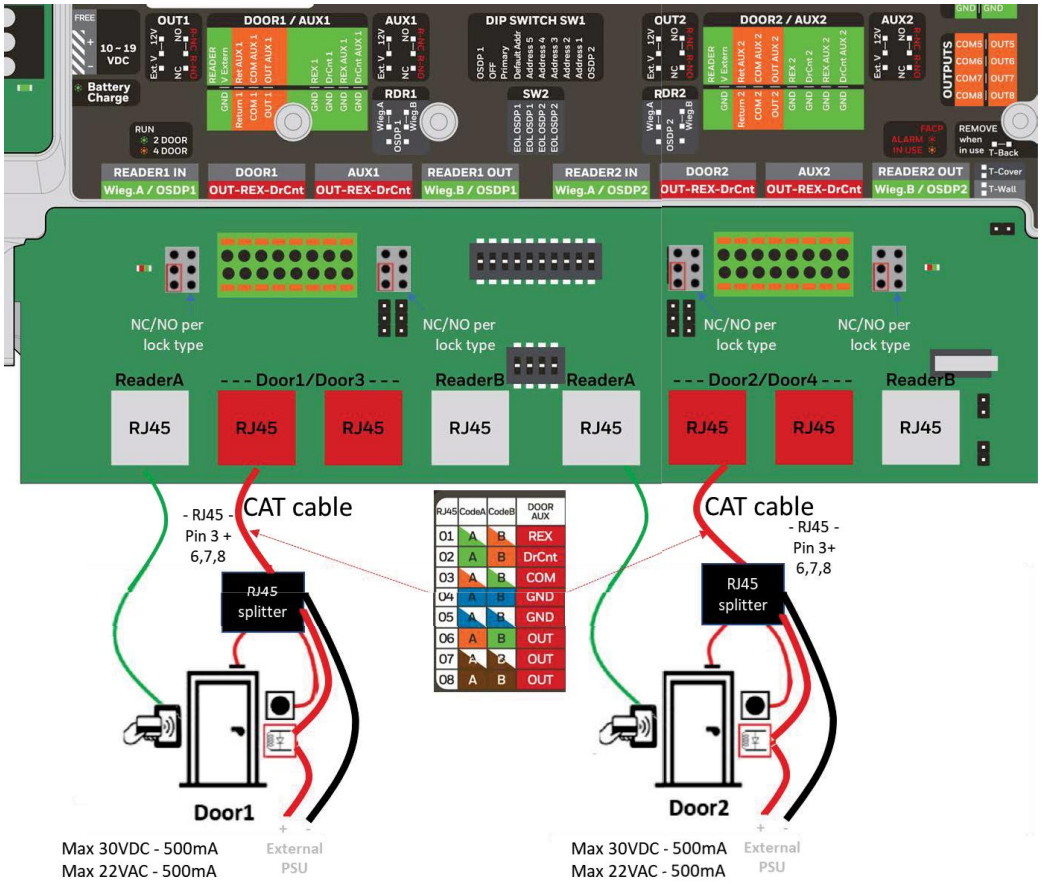
The maximum voltage range for the output is 30VDC-500mA or 22VAC-500mA.

Note: *This configuration is not supported by the MPA2S5 convertor*

Note: *The maximum current in a CAT cable is specified. Make sure the right gauge / wire thickness is used for locking device currents*

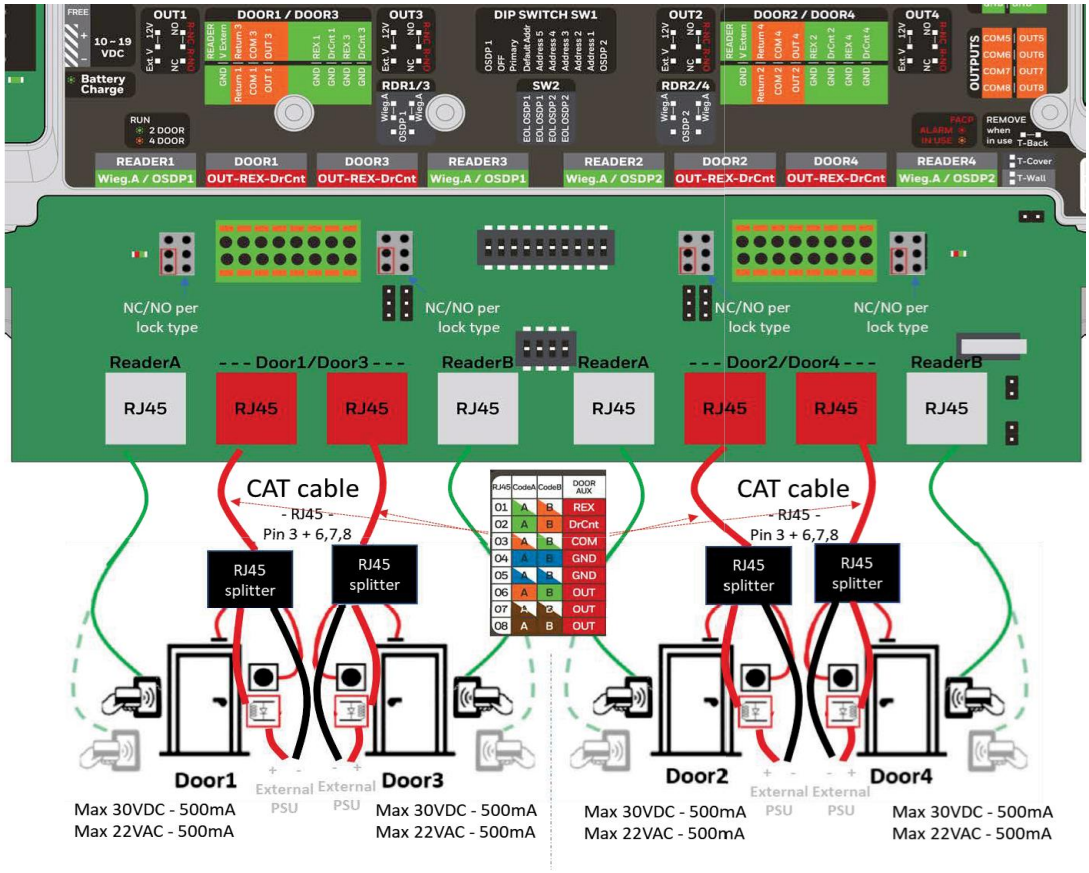
The below figure shows the connection and relevant jumper setting when external power source is used to the outputs in a 2-door panel.

Figure 3-26 the connection and relevant jumper setting when external power source is used to the outputs in a 2-door panel.



The below figure shows the connection and relevant jumper setting when external power source is used to the outputs in a 4-door panel

Figure 3-27 the connection and relevant jumper setting when external power source is used to the outputs in a 4-door panel



Wiring the MPA2S5 cables to a door

The MPA2C3 Metal enclosure kits include multiple MPA2S5 door connection cables, one for each door.

The MPA2S5 is designed to connect a CAT cable (via the RED RJ45 Terminal) easily to the internally (panel) powered door locking device, the door contact and the REX / Egress button.

Figure 3-28 Wiring the MPA2S5 cables to a door

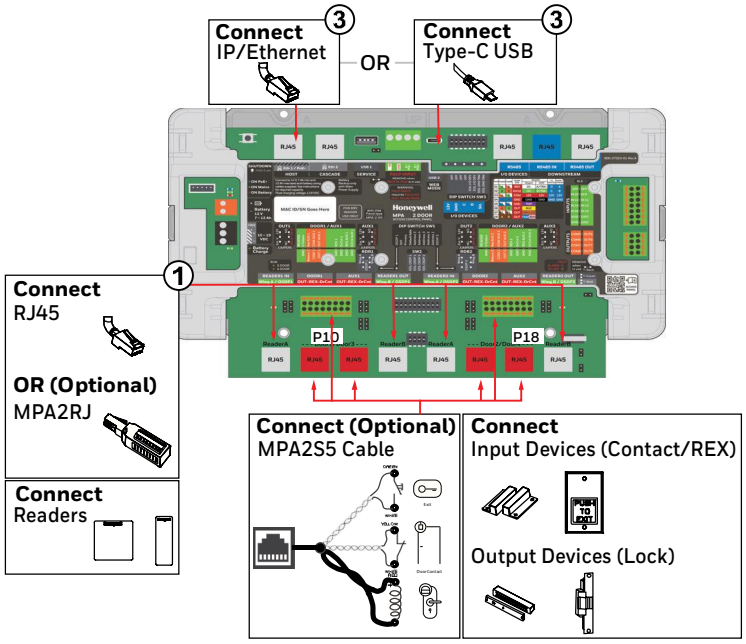
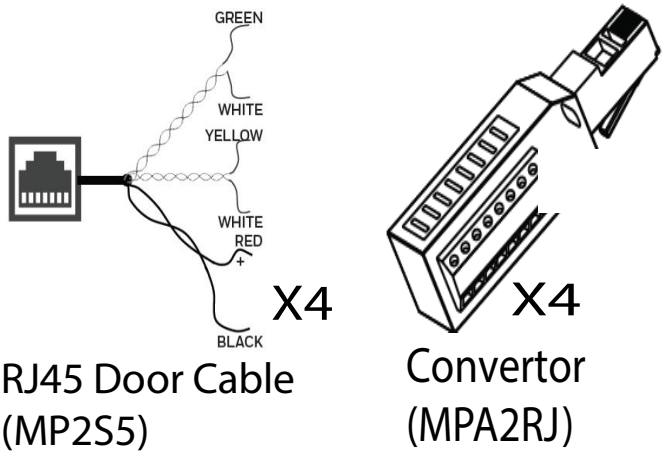


Figure 3-29 MPA2S5 Cable

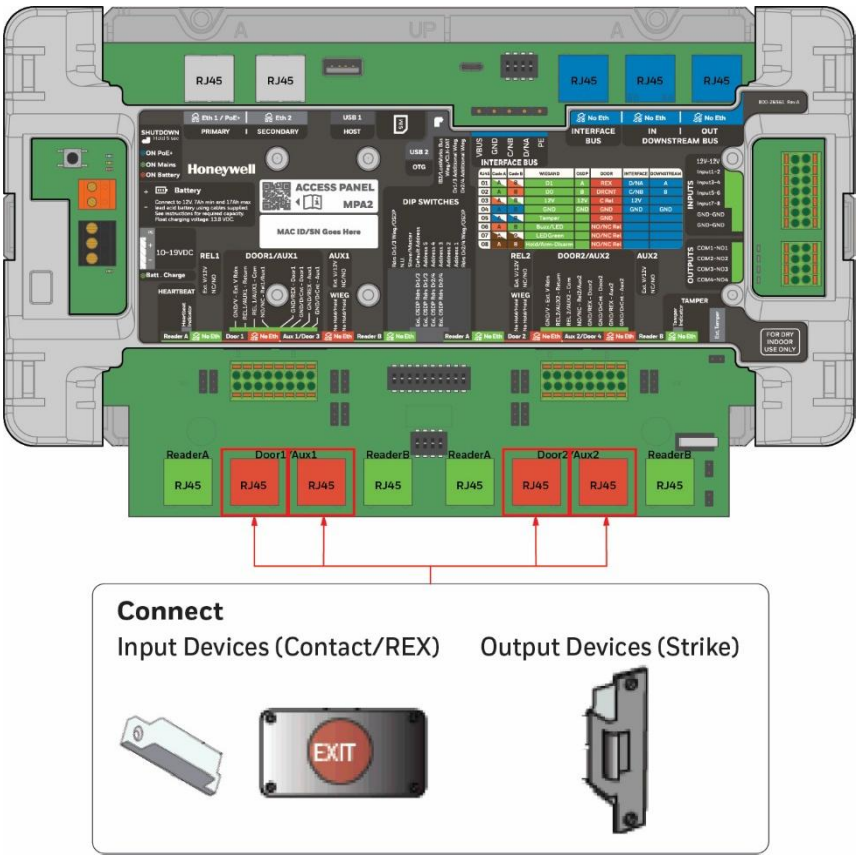


The MPA2S5 cable has built-in 2k2 Ohm EOL resistors for the door contact (for supervised input) and a suppressor diode for the locking device's peak power suppression. The egress button is considered unsupervised Normally open contact.

In this configuration the maximum locking device current is 500mA.

Note: *Do not use MPA2S5 when the door locking device is externally powered.*

Figure 3-30 The Locations of RJ45 Ports to Wire Input/Output Devices


RJ45
RJ45
RJ45
RJ45
RJ45
Honeywell
ACCESS PANEL
MPA2
MAC ID/SN Goes Here
DIP SWITCHES
INTERFACE BUS
INTERFACE BUS
DOWNSTREAM BUS
10-19VDC
REL1
DOOR1/AUX1
AUX1
REL2
DOOR2/AUX2
AUX2
INPUTS
OUTPUTS
TAMPER
FOR DRY INDOOR USE ONLY
ReaderA
Door1
Aux1
ReaderB
ReaderA
Door2
Aux2
ReaderB
RJ45
RJ45
RJ45
RJ45
RJ45
RJ45
RJ45
RJ45
Connect
Input Devices (Contact/REX)
Output Devices (Strike)
EXIT

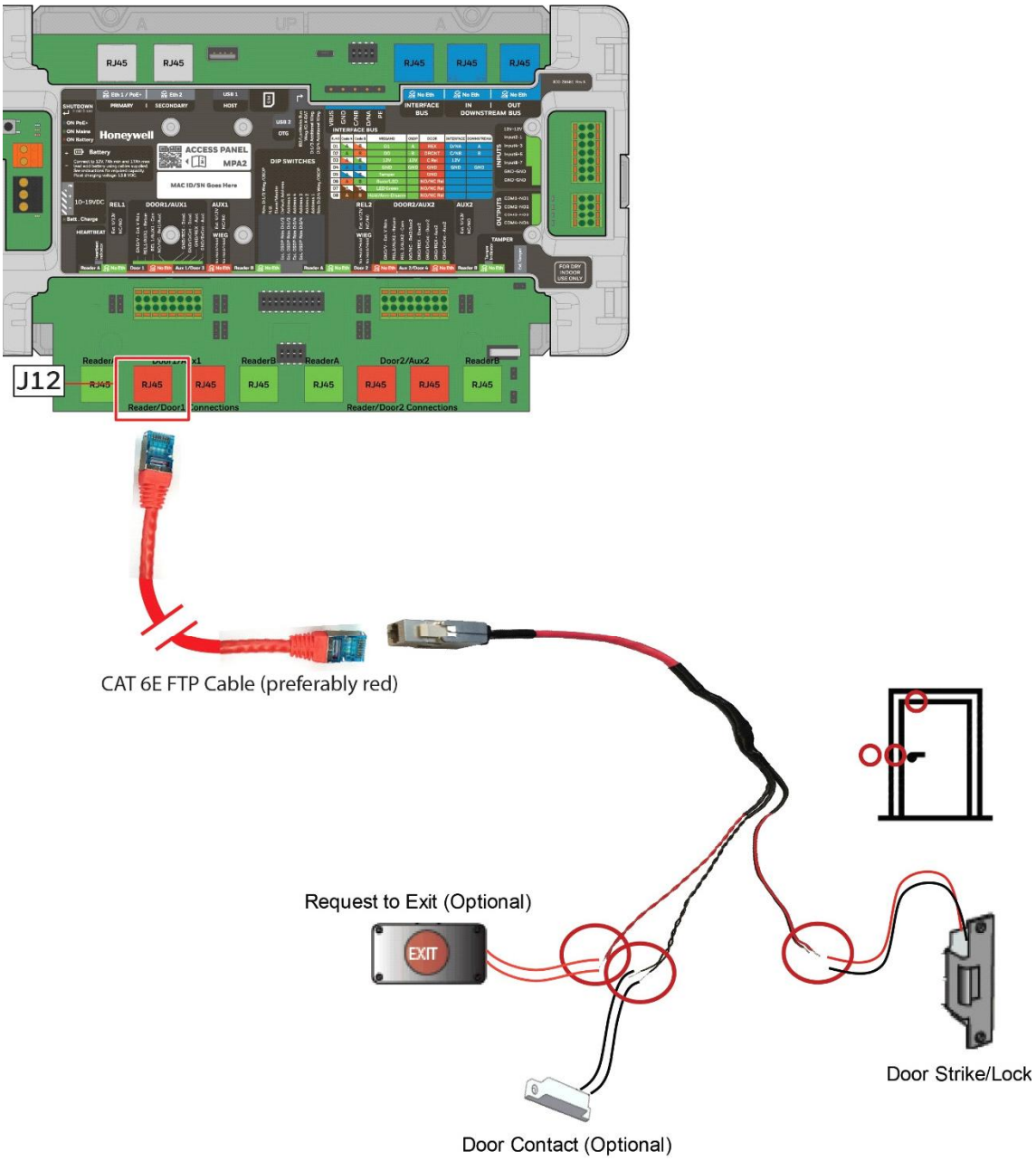
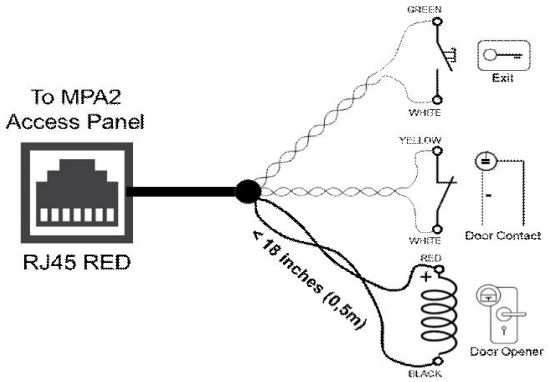

RJ45
RJ45
RJ45
RJ45
RJ45
Honeywell
ACCESS PANEL
MPA2
MAC ID/SN Goes Here
DIP SWITCHES
INTERFACE BUS
IN
DOWNSTREAM BUS
OUT
10-19VDC
REL1
DOOR1/AUX1
AUX1
REL2
DOOR2/AUX2
AUX2
TAMPER
J12
ReaderB
ReaderA
Door2/Aux2
ReaderB
RJ45
RJ45
RJ45
RJ45
RJ45
RJ45
RJ45
RJ45
Reader/Door1 Connections
Reader/Door2 Connections
CAT 6E FTP Cable (preferably red)
Request to Exit (Optional)
EXIT
Door Strike/Lock
Door Contact (Optional)

Figure 3-31 MPA2S5 Cable



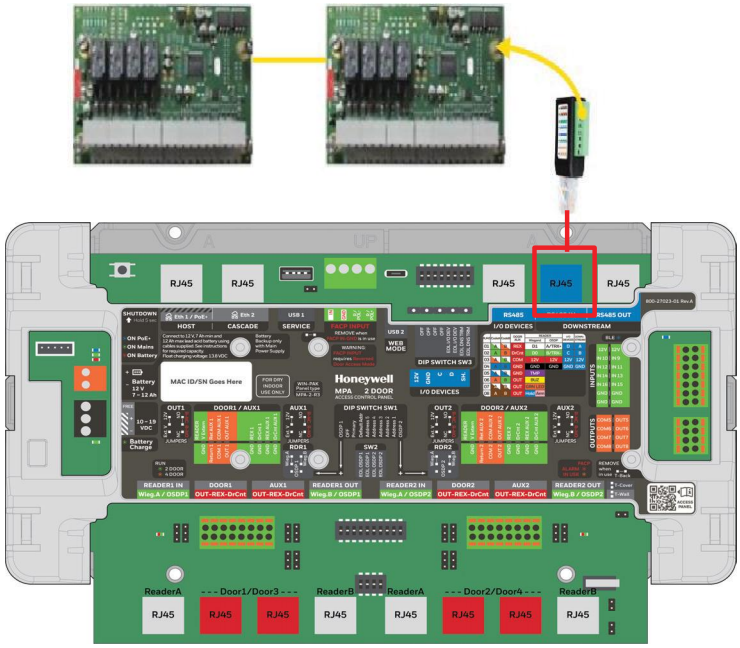
Wiring to the RS485 Busses.

Warning: Use a static strap whenever touching the panel to ensure protection from ESD (Electrostatic Discharge).

RS485 I/O Devices bus (NX4IN / NX4OUT)

The MPA2C3 has a dedicated RS-485 interface bus for Input and output devices (I/O Devices). A maximum of 2 NX4IN and/or 2 NX4OUT downstream I/O devices can be added to the bus (total of 2 downstream I/O devices).

Figure 3-32 Wiring the Interface Bus



The Interface bus is wired into the panel using standard RJ45 connection (Preferably use CAT 7 S/FTP cable) (J6) on the board. Use pin1&2 (D/NA/CNB) to connect the NX4 I/O boards. Make sure the NX4 I/O boards are powered with an external 24 VDC power supply.

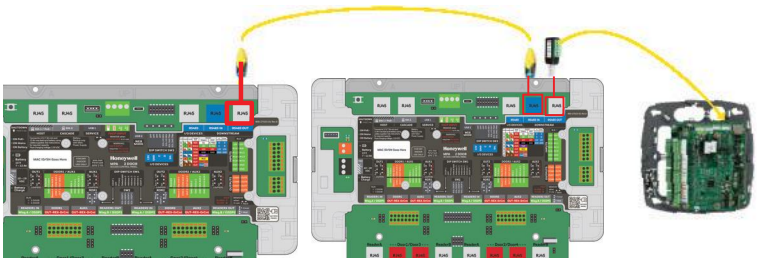
For additional information about the Downstream I/O, see "RS-485 Panel Downstream bus (IN/OUT)" on page 3-86.

RS-485 Panel Downstream bus (IN/OUT)

The access control panel has a RS-485 downstream bus for connecting downstream panels (MPA2C3 or NetAXS123). A maximum of 8 (1+7) MPA2 panels can be configured in the loop, or a maximum of 8 (1+7) MPA2 panels and NetAXS123/NetAXS4 panels can be configured in the loop. One MPA2C3 panel must be configured as the primary panel and the panel loop must be RS-485.

For Dipswitch SW1 configuration of primary and secondary panel see DIP Switch Settings. for further advanced software settings, see Chapter of the MPA2C3 user manual.

Figure 3-33 Downstream Panel Connections of RS-485 Bus



The RS-485 Downstream bus is wired from the RJ45 DOWNSTREAM RS485 OUT terminal to the blue RJ45 DOWNSTREAM RS485 IN terminal.(Preferably use CAT 6E/7 S/FTP cable). Use pin1&2 (TA/TB) to connect the downstream panels. Make sure the downstream panels are powered by their local power supply.

RS485 bus termination.

An RS485 bus must be terminated with a resistor at both ends of the RS-485 bus.

If the MPA2C3 panel is at the beginning or end of the Downstream RS485 bus, then the bus must be closed with 120 Ohm resistor. On Dipswitch SW3 both bit 7 and 8 (EOL DNSTRM) must be set to ON position to add the resistor to the RJ45 DOWNSTREAM RS485 IN and OUT communication wires.

External I/O Devices via RS-485

Note: *UL has not evaluated the compatibility I/O devices with the MPA2C3 panel.*

Note: *At the time of the launch of the MPA2C3, the NX4IN and NX4OUT modules were made obsolete. Use this section as reference for backward compatibility.*

In some applications, the number of system inputs or outputs exceeds the number that is standard on the panel. The solution is to add a combination of NX4IN and NX4OUT downstream I/O devices as external devices to the MPA2C3 enclosure, which are connected to the panel via a dedicated RS-485 interface bus. A maximum of 2 NX4IN and maximum of 2 NX4OUT for a total of 2 downstream I/O devices can be added to the downstream bus.

A NX4IN module has 32 supervised, 4-state inputs that are limited to 2.2K Ohms resistance. The NX4OUT has 2 supervised inputs and 16 SPDT relay outputs; each input is limited to 2.2K Ohms resistance. Refer to the individual installation manuals for I/O wiring details.

The interface bus is wired to the access panel by using standard CAT 6E/7 (S)/ FTP/UTP cable with RJ45 plug (J16) on the panel. The interface bus has a fixed baud rate and communicates to the downstream I/O devices using a polling technique.

Each downstream I/O device needs to have a unique address for proper communication. Each one also has some configuration jumpers that need to be positioned correctly. The following table lists the DIP switch and jumper settings for the NX4IN and NX4OUT downstream devices.

Table 3-11 Downstream I/O Devices DIP Switch and Jumper Settings

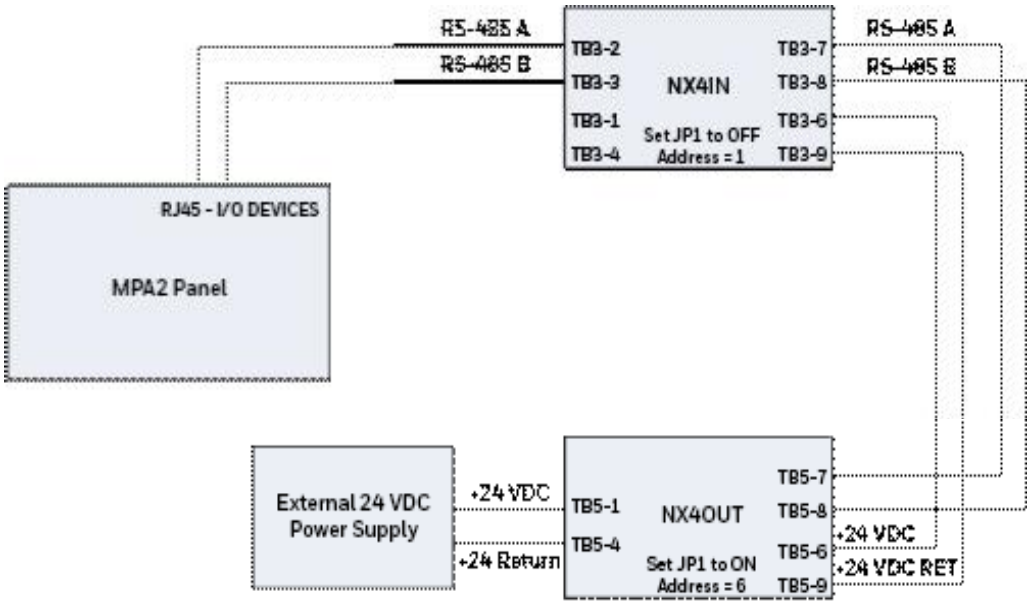
Module	Setting	Value
NX4IN	DIP switches	Address (switches 1-6) – 1 or 2
		Baud rate (switches 7 and 8) – 7 = OFF, 8 = ON
		OP Mode (switches 9 and 10) – 9 = OFF, 10 = OFF
	Jumper settings	JP1 – ON, positions 1 and 2 (if the module is the last module on the downstream bus), OFF positions 2 and 3 (if the module is not the last module on the downstream bus)
		JP2 – any setting
		JP3 – any setting
		JP4 – NORMAL (Positions 1 and 2)
NX4OUT	DIP switches	Address (switches 1-6) – 3 through 6

		Baud rate (switches 7 and 8) – 7 = OFF, 8 = ON
		OP Mode (switches 9 and 10) – 9 = OFF, 10 = OFF
	Jumper settings	JP1 – ON, positions 1and 2 (if the module is the last module on the downstream bus); OFF, positions 2 and 3 (if the module is not the last module on the downstream bus)
		JP2 – NORMAL, positions 1 and 2

Note: *If a NX4IN is not required in a system, start addressing the NX4OUT at DIP switch 3. When an NX4IN is configured with an address other than 1 or 2, the access control panel will not communicate with it. When an NX4OUT is configured with an address other than 3 through 6, the access control panel will not communicate with it.*

The access control panel is not intended to provide either module power or module output load power for downstream I/O. A separated 24 VDC supply should be used to provide power to all downstream modules and output loads.

Figure 3-34 Default Downstream I/O Configuration with Wiring



RS485 bus termination.

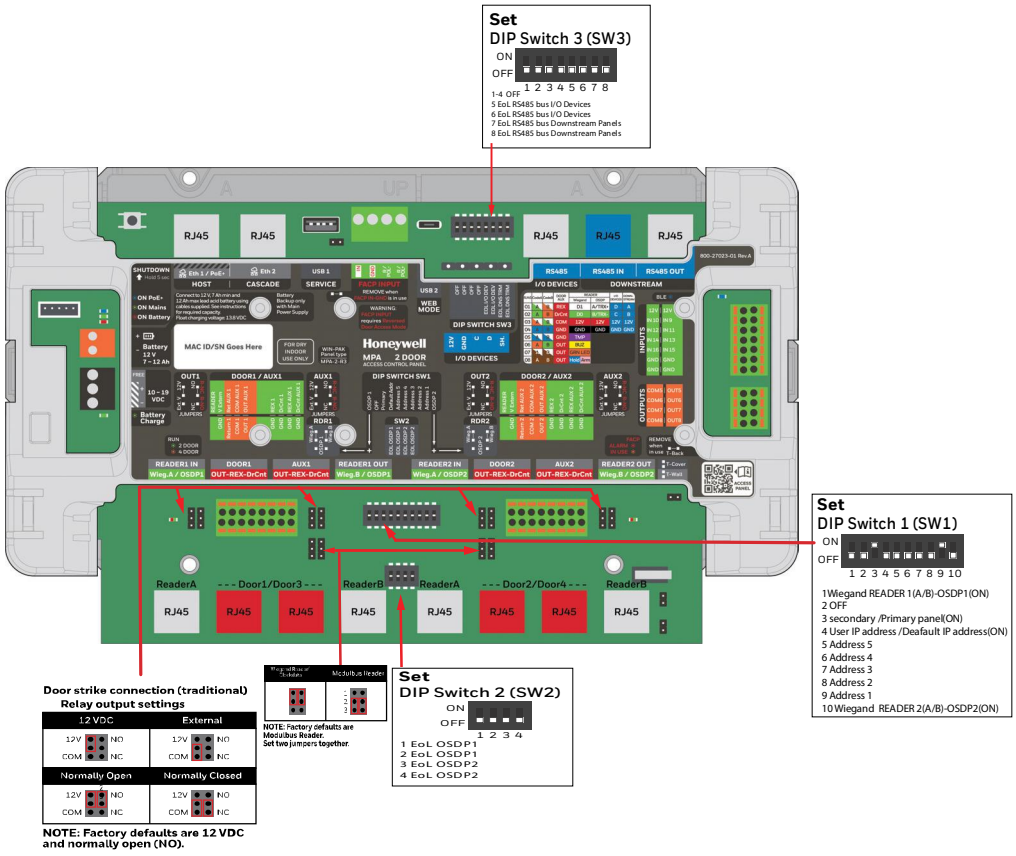
An RS485 bus must be terminated with a resistor at both ends of the RS-485 bus.

If the MPA2C3 panel is at the beginning or end of the I/O Devices RS485 bus, then the bus must be closed with 120 Ohm resistor. On Dipswitch SW3 both bit 5 and 6 (EOL I/O DEV) must be set to ON position to add the resistor to the RJ45 I/O DEVICES RS485 communication wires.

Setting DIP Switches and Jumpers

The access control panel involves 3 DIP Switches and 14 jumpers. The switches are used to configure the IP addresses, to configure the panel for different reader connections, to configure primary panel and so forth. The jumpers are used for Door output power source selection and relay contact type (2 per door), for reader wiegand/OSDP selectio"Wiegand Reader Wiring" on page 3-55 for FACP bypass (see".FACP Jumper" on page 3-97) and for Back tamper bypass ("T-Back Jumper" on page 3-97).

Note: *For configurations for readers, see “” on page*


Set
DIP Switch 3 (SW3)
ON
OFF
1 2 3 4 5 6 7 8
1-4 OFF
5 EoL RS485 bus I/O Devices
6 EoL RS485 bus I/O Devices
7 EoL RS485 bus Downstream Panels
8 EoL RS485 bus Downstream Panels
RJ45
RS485
RS485 IN
RS485 OUT
I/O DEVICES
DOWNSTREAM
Honeywell
MPA 2 DOOR
ACCESS CONTROL PANEL
MAC ID/SN Goes Here
DIP SWITCH SW1
DIP SWITCH SW3
ReaderA
Door1/Door3
ReaderB
ReaderA
Door2/Door4
ReaderB
Set
DIP Switch 1 (SW1)
ON
OFF
1 2 3 4 5 6 7 8 9 10
1 Wiegand READER 1 (A/B)-OSDP1(ON)
2 OFF
3 secondary /Primary panel(ON)
4 User IP address /Deafault IP address(ON)
5 Address 5
6 Address 4
7 Address 3
8 Address 2
9 Address 1
10 Wiegand READER 2 (A/B)-OSDP2(ON)
Door strike connection (traditional)
Relay output settings
12 VDC
External
Normally Open
Normally Closed
12V
COM
NO
NC
NOTE: Factory defaults are 12 VDC and normally open (NO).
Modulbus Reader
NOTE: Factory defaults are Modulbus Reader. Set two jumpers together.
Set
DIP Switch 2 (SW2)
ON
OFF
1 2 3 4
1 EoL OSDP1
2 EoL OSDP1
3 EoL OSDP2
4 EoL OSDP2

DIP Switch Settings

Use the following DIP switch configurations to set up your access control panel.

Table 3-12 DIP Switch 1 (SW1) Settings

S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Selection
OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	Factory Settings
OFF										Reader 1 and Reader 3 = Wiegand
ON										Reader 1 and Reader 3 = OSDP (OSDP 1)
	OFF									Future Use - set to OFF
		OFF								Downstream/Secondary Panel
		ON								Master/Primary Panel
			OFF							Uses the User Provided Ethernet IP Address
			ON							Uses the Default IP Address(192.168.1.150)
				OFF	OFF	OFF	OFF	ON		Address 1
				OFF	OFF	OFF	ON	OFF		Address 2
				OFF	OFF	OFF	ON	ON		Address 3
				OFF	OFF	ON	OFF	OFF		Address 4
				OFF	OFF	ON	OFF	ON		Address 5
				OFF	OFF	ON	ON	OFF		Address 6
				OFF	OFF	ON	ON	ON		Address 7
				OFF	ON	OFF	OFF	OFF		Address 8
				OFF	ON	OFF	OFF	ON		Address 9
				OFF	ON	OFF	ON	OFF		Address 10
				OFF	ON	OFF	ON	ON		Address 11
				OFF	ON	ON	OFF	OFF		Address 12
				OFF	ON	ON	OFF	ON		Address 13
				OFF	ON	ON	ON	OFF		Address 14
				OFF	ON	ON	ON	ON		Address 15
				ON	OFF	OFF	OFF	OFF		Address 16
				ON	OFF	OFF	OFF	ON		Address 17
				ON	OFF	OFF	ON	OFF		Address 18
				ON	OFF	OFF	ON	ON		Address 19
				ON	OFF	ON	OFF	OFF		Address 20
				ON	OFF	ON	OFF	ON		Address 21
				ON	OFF	ON	ON	OFF		Address 22
				ON	OFF	ON	ON	ON		Address 23
				ON	ON	OFF	OFF	OFF		Address 24
				ON	ON	OFF	OFF	ON		Address 25
				ON	ON	OFF	ON	OFF		Address 26
				ON	ON	OFF	ON	ON		Address 27
				ON	ON	ON	OFF	OFF		Address 28
				ON	ON	ON	OFF	ON		Address 29
				ON	ON	ON	ON	OFF		Address 30
				ON	ON	ON	ON	ON		Address 31*
									OFF	Reader 2 and Reader 4 = Wiegand
									ON	Reader 2 and Reader 4 = OSDP (OSDP 2)

DIP Switch SW1 bit 4 (Default Addr) does NOT require a panel reboot to take effect. This does not affect the USB IP address..

Note: *A Primary panel (SW1 bit 3 ON) cannot be set to address 31*

If the MPA2C3 panel will be configured in EVL mode, please consider the settings highlighted in chapter 2: Setting panel in EVL mode.

Note: *When you use the DIP switches to reset a panel to the factory default values, the Event History is lost and any customized databases are removed, and the panel is reset with the factory default database.*

Table 3-13 DIP Switch 2 (SW2) Settings

Bit1	Bit2	Bit3	Bit4	Section
OFF	OFF			No EOL resistor for OSDP 1 (Door 1 & 3)
ON	ON			EOL resistor for OSDP 1 (Door 1 & 3)
		OFF	OFF	No EOL resistor for OSDP 2 (Door 2 & 4)
		ON	ON	EOL resistor for OSDP 2 (Door 2 & 4)

The 4-door license is required for the 3-door or 4-door configuration.

Table 3-14 DIP Switch 3 (SW3) Settings

Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8	Selection
OFF	OFF	OFF	OFF					Future Use - always in OFF position
				OFF	OFF			NO EOL resistor for RS485 bus I/O Devices (default)
				ON	ON			EOL resistor for RS485 bus I/O Devices
						OFF	OFF	NO EOL resistor for RS485 bus Downstream panels (default)
						ON	ON	EOL resistor for RS485 bus Downstream panels

Resetting to the Factory Default

1. Make a note of the existing settings on DIP switches.
2. While the panel is powered up, turn all DIP switches to the OFF position.
3. Restart the panel, And the Heartbeat LED flickers fast.
4. Set the DIP switches back to their original positions.
5. Restart the panel. The Heartbeat LED should flash normal. The panel is now reset to the original factory default values.

Note: *Address 0 is not a valid setting.*

Jumper Settings

Door output jumpers

The MPA2C3 2-door panel provides 4 sets of jumpers for output relay 1 (OUT1), Output Relay 2 (OUT2), Output relay Aux1 (AUX1) and Output relay Aux 2 (AUX2).

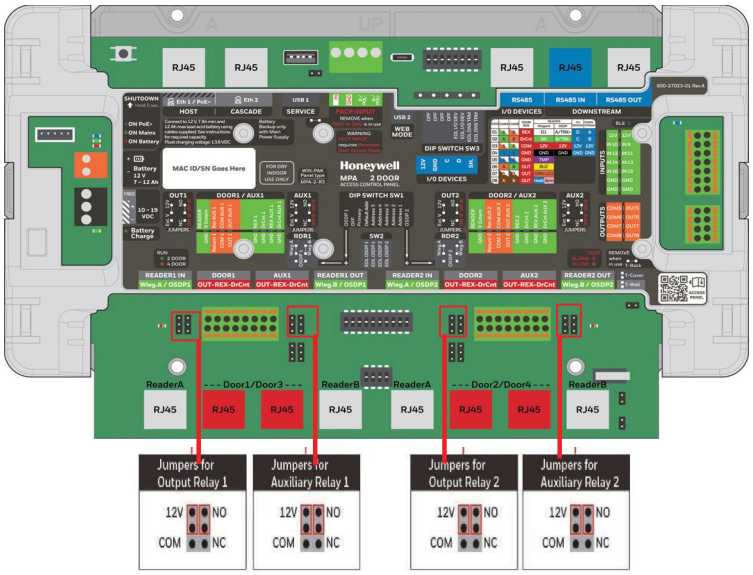
The MPA2C3 4-door panel provides 4 sets of jumpers for output relay 1 (OUT1), Output Relay 2 (OUT2), Output relay 3 (OUT3) and Output relay 4 (OUT4).

There is a total of eight 3-pin jumpers (two jumpers per relay) on the panel.

The setting of the jumpers is effective for both the push-in terminal block as well as the corresponding Red RJ45 Door Terminal.

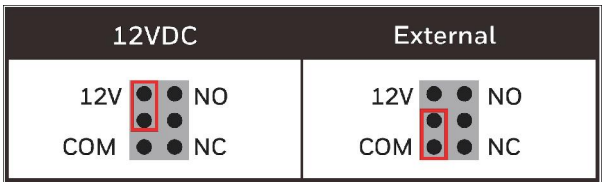
e.g. On a MPA2C3 2-door the power and relay contact type jumper setting for OUT1 is effective for both terminal block DOOR1 OUT1 as well as Red RJ45 Terminal DOOR1/OUT

Figure 3-35 The Locations of Jumpers



Each relay is associated with 2 jumpers. As shown below, a relay's left jumper configures the relay's load source (12 VDC or External), and the right relay jumper configures the relay contact type (Normally Closed or Normally Open).

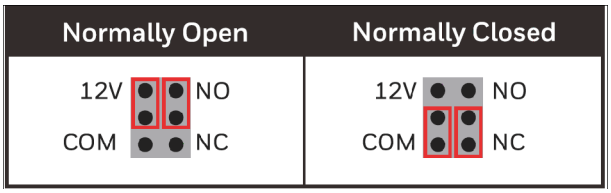
- Setting the jumpers to configure the power source:



Note: *The power source selected by the jumper settings configures the power source for the relay. It does not configure the power source for the panel.*

Caution: RJ45 door connections do not support external relay load source.

- Setting the jumpers to configure the relay contact type:



Reader mode selection jumpers

There are two sets of reader mode selection jumpers for Wiegand or OSDP mode.

In a MPA2C3 2-door panel, one set is for READER1 IN and READER1 OUT to select Wiegand A and Wiegand B or OSDP bus 1 (OSDP1). The other set is for READER2 IN and READER2 OUT to select Wiegand A and Wiegand B or OSDP bus 2 (OSDP2).

In a MPA2C3 4-door panel, one set is for READER1 and READER3 to select Wiegand A and Wiegand A or OSDP bus 1 (OSDP1). The other set is for READER2 and READER4 to select Wiegand A and Wiegand A or OSDP bus 2 (OSDP2).

Note: *Both jumpers must be positioned in synchronization.Please see chapter 3.6.3 System set up for Wiegand or OSDP readers.*

Note: *Both jumpers must be positioned in synchronization*

Note: *Please see chapter 3.6.3 System set up for Wiegand or OSDP readers*

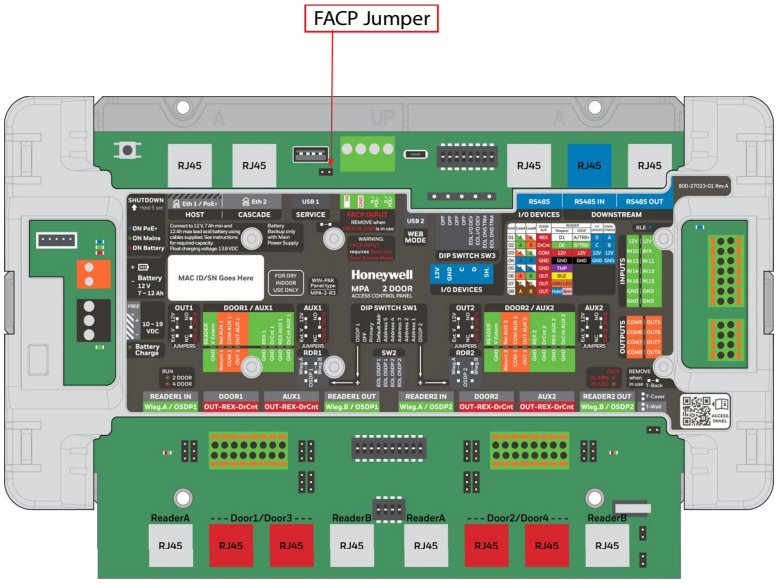
Note: *Both jumpers must be positioned in synchronization.Please see chapter 3.6.3 System set up for Wiegand or OSDP readers.*

FACP Jumper

The FACP jumper head is by default set on the jumper pins to bypass the FACP input. Only when the FACP IN-GND input terminals are in use, then remove the jumper head from the FACP jumper.

Please see chapter 4 for more information

Figure 3-36 FACP jumper



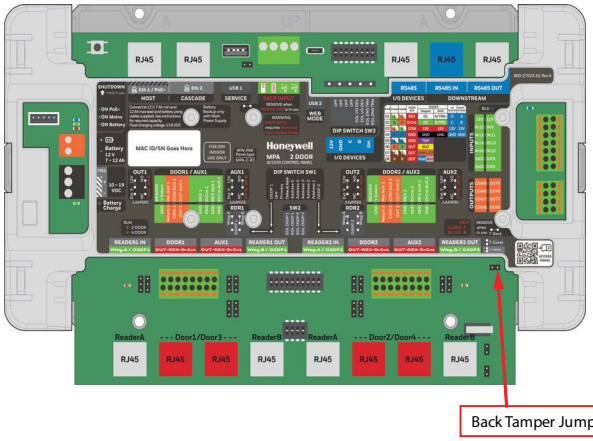
T-Back Jumper

The T-Back jumper head is by default set on the jumper pins to bypass the 2 Back tamper switched on the back of the MPA2C3 panel.

When the MPA2C3 is mounted in the metal cabinet the jumper head must be positioned on the jumper heads. When the MPA2C3 is mounted directly on the wall the T-Back jumper head can be removed to activate the off-wall tamper of that combined system.

It is also possible to connect over the T-Back jumper pins an external tamper switch to function as external off wall switch.

Figure 3-37 T-BACK jumper



Communications

USB Communications

The MPA2C3 include two USB Connections: USB1 / SERVICE and USB2 / WEB MODE.

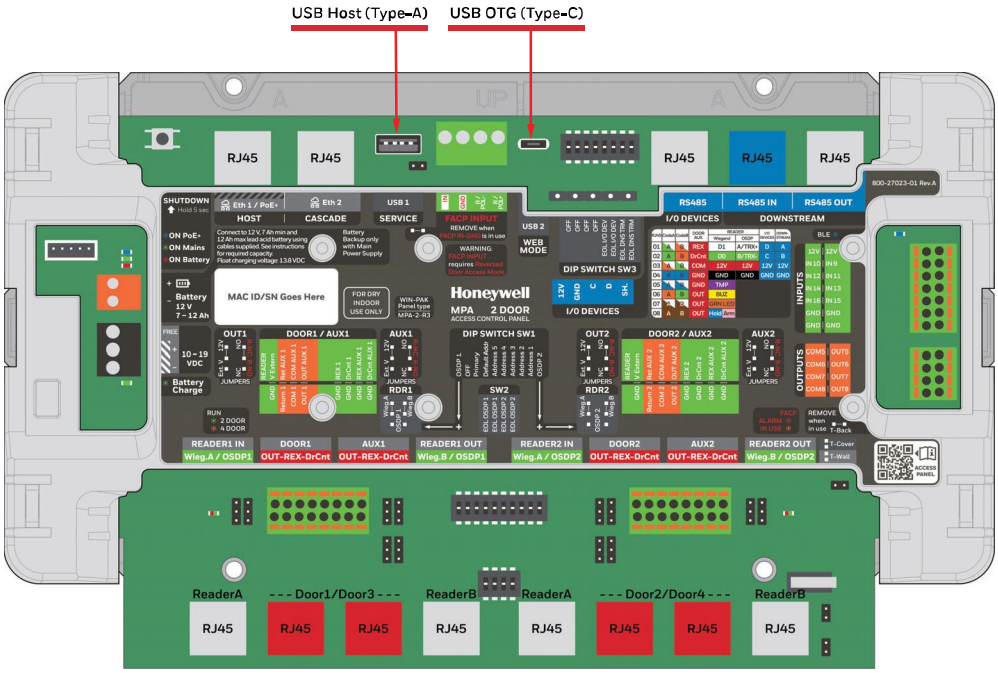
USB 1 is used for factory purposes only. Do not use this USB1 port.

USB2 / WEB MODE provides a USB-C port that connects to the web server in the panel.

Warning: Do not plug in unknown USB devices on either USB ports (for example, USB Killers) which can damage hardware components. This access control unit is not designed with a protective function for any deliberately damaged USB devices. Honeywell is not responsible for your losses caused by using deliberately damaged USB devices.

Note: *USB communication requires a Type-A to Type-C USB cable or a Type-C to Type-C USB cable.*

Figure 3-38 Connecting Type-C USB Cable



You will need to install a USB driver to support the connection. Follow these steps:

Warning: Do NOT connect the USB cable to the panel until AFTER the drivers are installed

1. Download the MPA2C3 USB driver from the link given in below table or scan the specific QR code to access. https://mywebtech.honeywell.com/Systems/Home

https://honeywelldiscovertraining.com/login/discover/default.asp

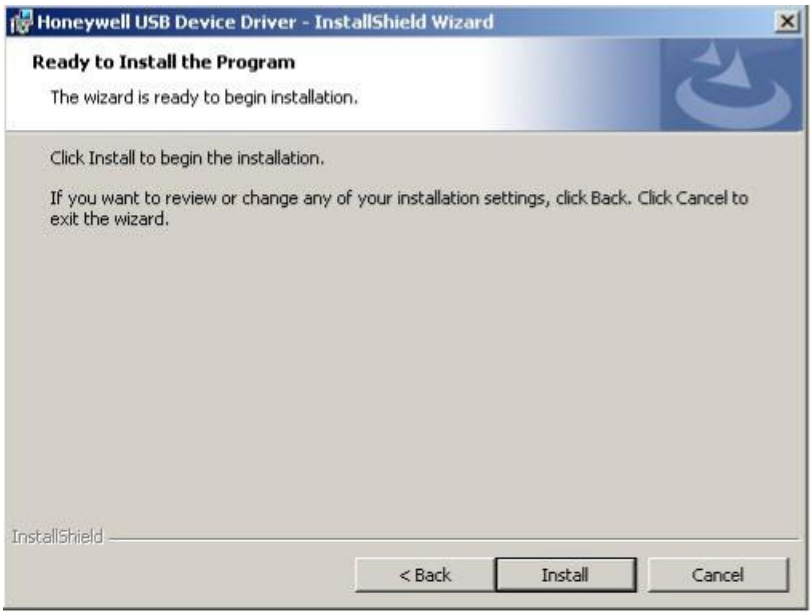
2. Click Install USB Drivers on the product menu to start the USB driver installation wizard.

Figure 3-39 USB Driver InstallShield Wizard

3. Click Next to display the Ready to Install the Program screen.

Note: *If confirmation dialog boxes pop up before or during the installation, click the appropriate boxes to allow or approve the installation*

Figure 3-40 Ready to Install the Program



1. Click Install to initiate the installation.
2. When the installation is complete, the closing screen
3. appears:

Figure 3-41 InstallShield Wizard Completed

1. Click Finish.
2. Connect
3. the computer to the MPA2C3 controller with a Type-A to Type-C USB cable or a Type-C to Type-C USB cable.

4. Turn on the power to the MPA2C3 controller.

For login information, go to https://192.168.2.150.

RS-485 Communications

If a MPA2C3 panel is to be placed onto a pre-existing RS-485 dropline loop (NetAXS), it must be setup as the Primary panel. The interface allows the wiring of a multi-drop communication network of up to 4,000 feet (1200 in length. Only one host converter device per dropline is supported.

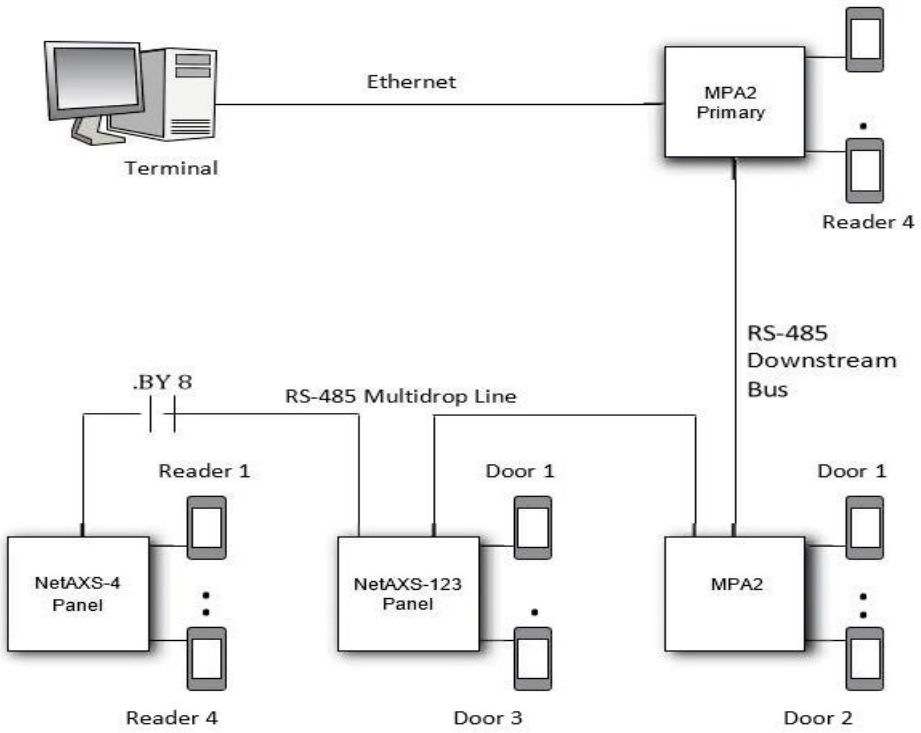
- MPA2C3 must be the Primary panel on an existing NetAXS loop. The MPA2C3 panel cannot be placed as a Secondary panel when the Primary is a NetAXS system.
- RS-485 communication has not been evaluated by UL or ULC.

Set DIP Switch SW1 Bit 3 (Primary)to ON to enable it to be a primary panel. Bit 3 in the OFF position configures the panel as a secondary panel; ON configures a primary panel. The panel must be power cycled for a new switch setting to be recognized. Bit 5-9 of DIP Switch 1 are used to select the panel's address on the network. For more information about DIP SW1 Settings, see .

Note: *For more information on end of line (EOL) termination, contact Honeywell technical support.*

Warning: If an RS-485 network has a MPA2C3 Secondary panel, no N1000-II, N1000-III, N1000-IV, or NS2 are allowed on the same network. If they are added to a network with a MPA2C3 primary panel, they will not be able to communicate with the host computer.

Figure 3-42 RS-485 Configuration via MPA2C3 Primary Panel



This configuration supports a total of 8 NetAXS-123 and/or MPA2C3 downstream panels per Multidrop line.

Each MPA2C3 panel has a port for an Ethernet TCP/IP interface. The Ethernet TCP/IP interface provides 10/100 MB Ethernet support for each panel.

Configuring FACP input functionality

FACP input functionality

The MPA2C3 has a dedicated fully hardware controlled FACP (Fire Alarm Control Panel) input, intended to unlock all doors when triggered with the highest priority, overriding any current access control setting.

When connected to a Fire system and there is a fire alarm, this function allows people to easily evacuate a premises and allows first responders to easily enter unlocked areas.

To make this function fully effective hardware AND software configuration need to be made on the MPA2C3.

Door Access Modes

By default the MPA2C3 is a normal access control panel, operating in Normal Door Access Mode. The operation and control of the outputs are for access control use. This mode sets the Door Relays (OUT1, OUT3 (AUX1), OUT2, OUT4 (AUX2)) in fail-secure operation.

Note: *Door outputs or relays (OUT1, OUT3 (AUX1), OUT2, OUT4 (AUX2)) apply to both Push in terminal blocks and all 4 red Door/AUX RJ45 terminals.*

Note: *AUX REL 5,6,7 and 8 are NOT affected hardware wise by the FACP input.*

In Normal Door Access Mode all Door Relays (OUT1, OUT3 (AUX1), OUT2, OUT4 (AUX2)) are de-energized when the door is supposed to be locked. To unlock a door the Door relay must be in energized state.

When additionally, the doors must be unlocked when e.g. a Fire Alarm occurs, then MPA2C3 panel must be in Reversed Door Access Mode. This mode sets the Door Relays (OUT1, OUT3 (AUX1), OUT2, OUT4 (AUX2)) in fail-safe operation. See further about the conditions and Door Output states in fail-safe operation.

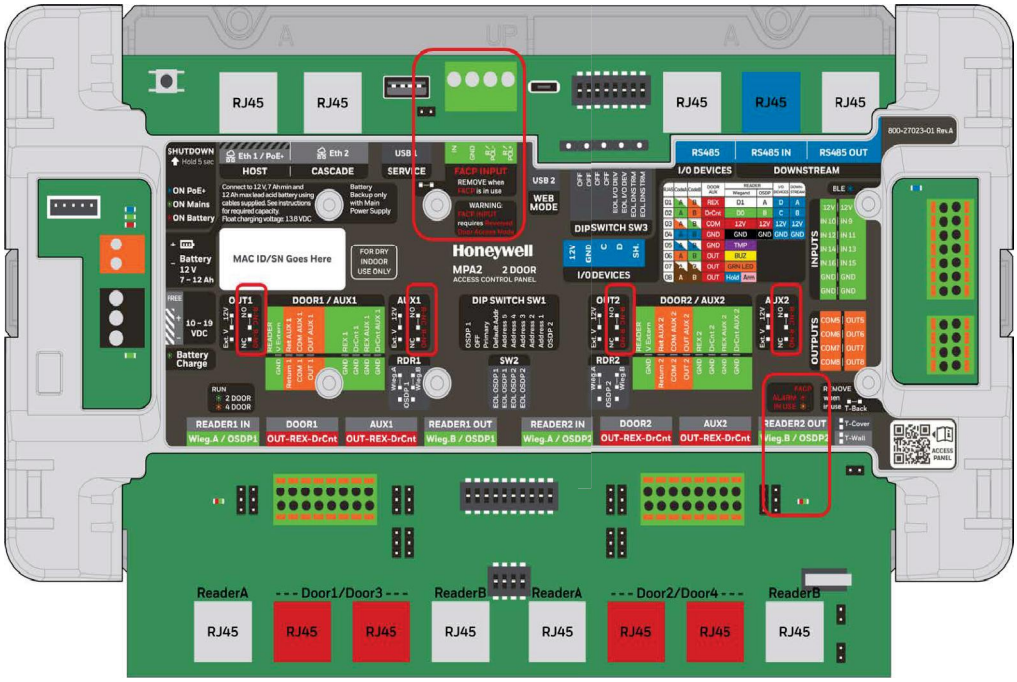
In Reversed Door Access Mode all Door Relays (OUT1, OUT3 (AUX1), OUT2, OUT4 (AUX2)) are energized when the doors are supposed to be locked. To unlock a door the Door Relay must be in de-energized state.

Door access mode indication

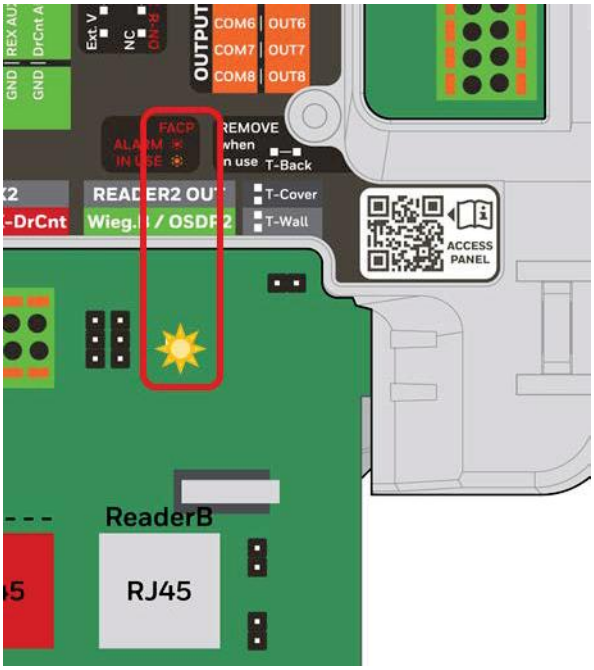
On the panel's information card Normal Door Access Mode functions are described in wording in WHITE. Where wording in RED is available at some functions (e.g. OUT / AUX R-NO/R-NC jumpers) AND Reversed Door Access Mode has been activated, then the wording in Red must be considered.

In the figure below, identify the wording in RED for Reversed Door Access Mode indicators.

Figure 3-43 he wording in RED for Reversed Door Access Mode indicators.



When Reversed Door Access Mode is activated, the amber FACP LED is ON, indicating that FACP Input can be connected.



Note: *The amber FACP LED (in use) will not turn on automatically when the FACP jumper has been removed.*

In the Web User Interface there are many references to Door Access Modes.

See in sections 4.3 and further for more information