



# Application Note

## DM-20 Wiring Examples

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English

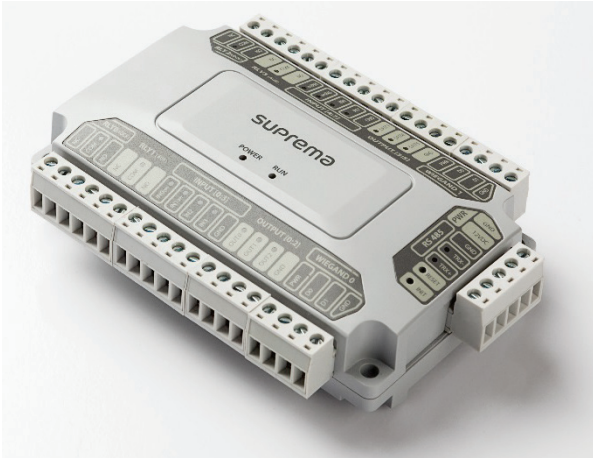


## Contents

<b>Door Control Module DM-20 .....</b>	<b>2</b>
Introduction.....	2
Features.....	2
<b>Supervised Input.....</b>	<b>3</b>
Principal and Connection .....	3
BioStar 2 and DM-20 .....	3
<b>Connection Diagram .....</b>	<b>4</b>
Wiegand Reader x 2 .....	4
Wiegand Reader x 1, Slave Device x 1 .....	5
<b>System Diagram.....</b>	<b>6</b>
Controlling 2 Doors.....	6
Controlling 4 Doors.....	8
Anti-Passback .....	10

# Door Control Module DM-20

## Introduction



DM-20 is a door control module that controls Wiegand readers and various I/O devices. The DM-20 has 4 Supervised Input ports and various I/O interfaces. You can control the Wiegand reader's LED, Buzzer, Tamper, and more by engaging the DM-20 with BioStar 2.

## Features

- You can engage the DM-20 with BioStar 2 and control the Wiegand reader's LED, Buzzer, Tamper, and more.
- The DM-20 can detect 4 states such as ON, OFF, Open, and Short Circuit by using the Supervised Input port. With the 'Trigger and Action' function from BioStar 2, you can preset the operation to perform when the DM-20 detects a state of Open or Short-Circuit.
- 2 Wiegand readers can be connected to 1 DM-20 maximum. When the DM-20 is connected as daisy-chain topology via RS-485, you can connect up to 62 Wiegand readers.
- The DM-20 has a power output port (12V, Maximum 1.5A) for Wiegand readers.
- Supports various connections.
  - RS-485 x1
  - TTL input x4
  - TTL output x6
  - Wiegand x2
  - Relay x4
  - Supervised Input x4

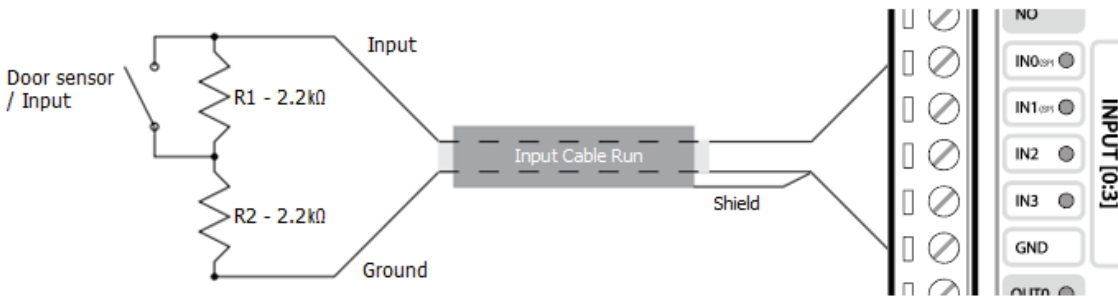
### ⓘ Note

- Please refer to the DM-20 installation guide for cable connections.
- Please refer to the BioStar 2 administrator guide for Wiegand reader and DM-20 Supervised Input configurations.

# Supervised Input

## Principal and Connection

The Supervised Input detects the voltage flow on the circuit and supervises the input device based on 4 states (Open, Short-Circuit, ON, OFF). The resistors need to be connected as below.



[Example of Supervised Input connection diagram]

When connecting resistors as above, the circuit has the resistance as below.

- When the switch is closed (ON), the current flows from the switch to R2 instead of R1 to R2. Therefore, the circuit's resistance is 2.2 kΩ (R2).
- When the switch is open (OFF), the current flows from R1 to R2. Therefore, the circuit's resistance is 4.4 kΩ (R1 + R2).
- When the circuit is open, the resistance is infinite and the current does not flow.
- When the ground or the cable connected to the input port is shorted, the circuit's resistance is 0.

State	DM-20 LED Status	Circuit Resistance
ON	Green	2.2 kΩ
OFF	Off	4.4 kΩ
Open	Orange	Infinite kΩ
Short-Circuit	Red	0

[LED Status and Circuit Resistance of DM-20 based on the device's state]

### ⚠ Note

- You can use the following resistors for the DM-20. 1 kΩ, 2.2 kΩ, 4.7 kΩ, 10 kΩ.
- The DM-20 supports 4 Supervised Input ports (IN0<sub>(SP)</sub>, IN1<sub>(SP)</sub>, IN4<sub>(SP)</sub>, IN5<sub>(SP)</sub>).

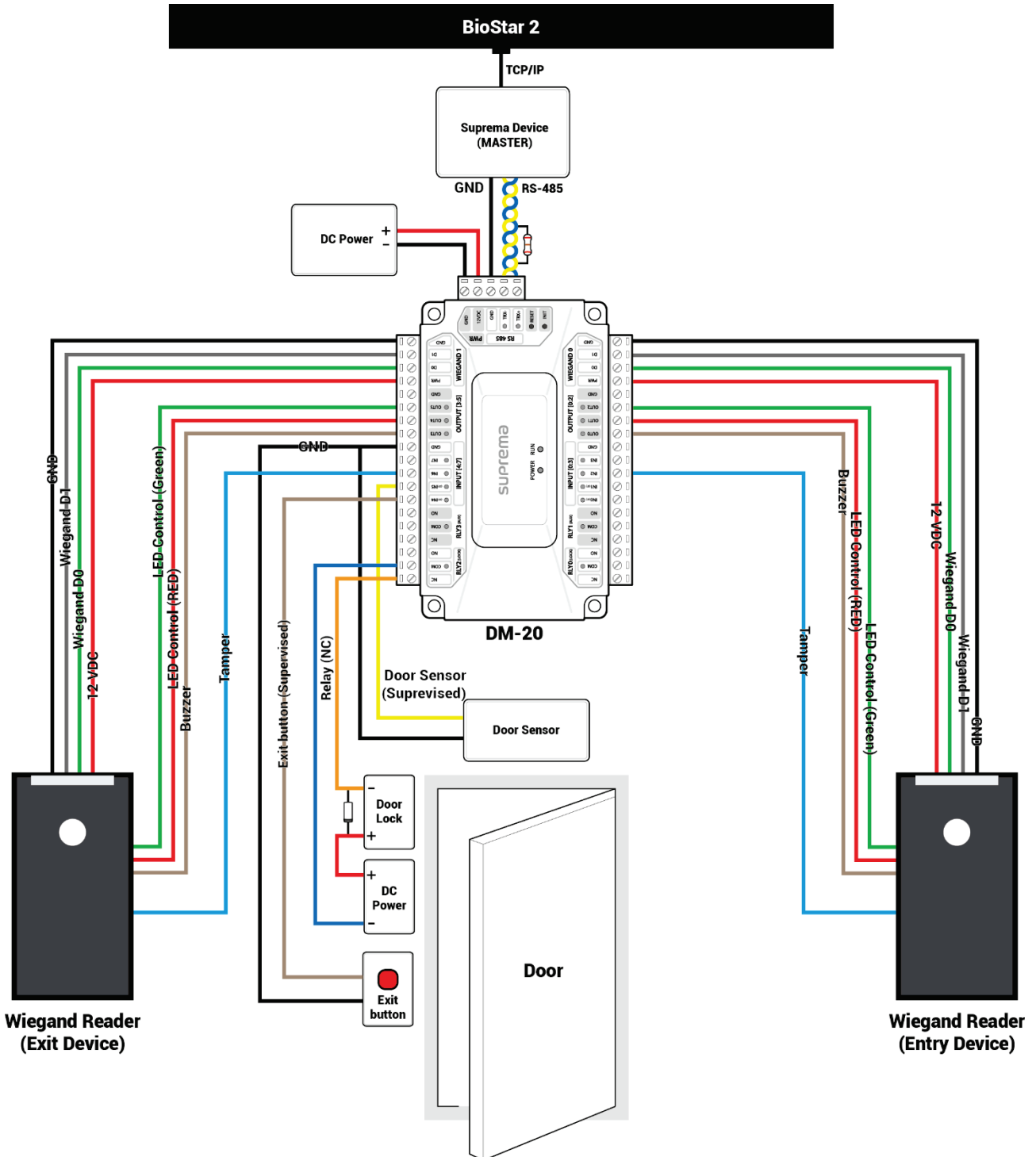


## BioStar 2 and DM-20

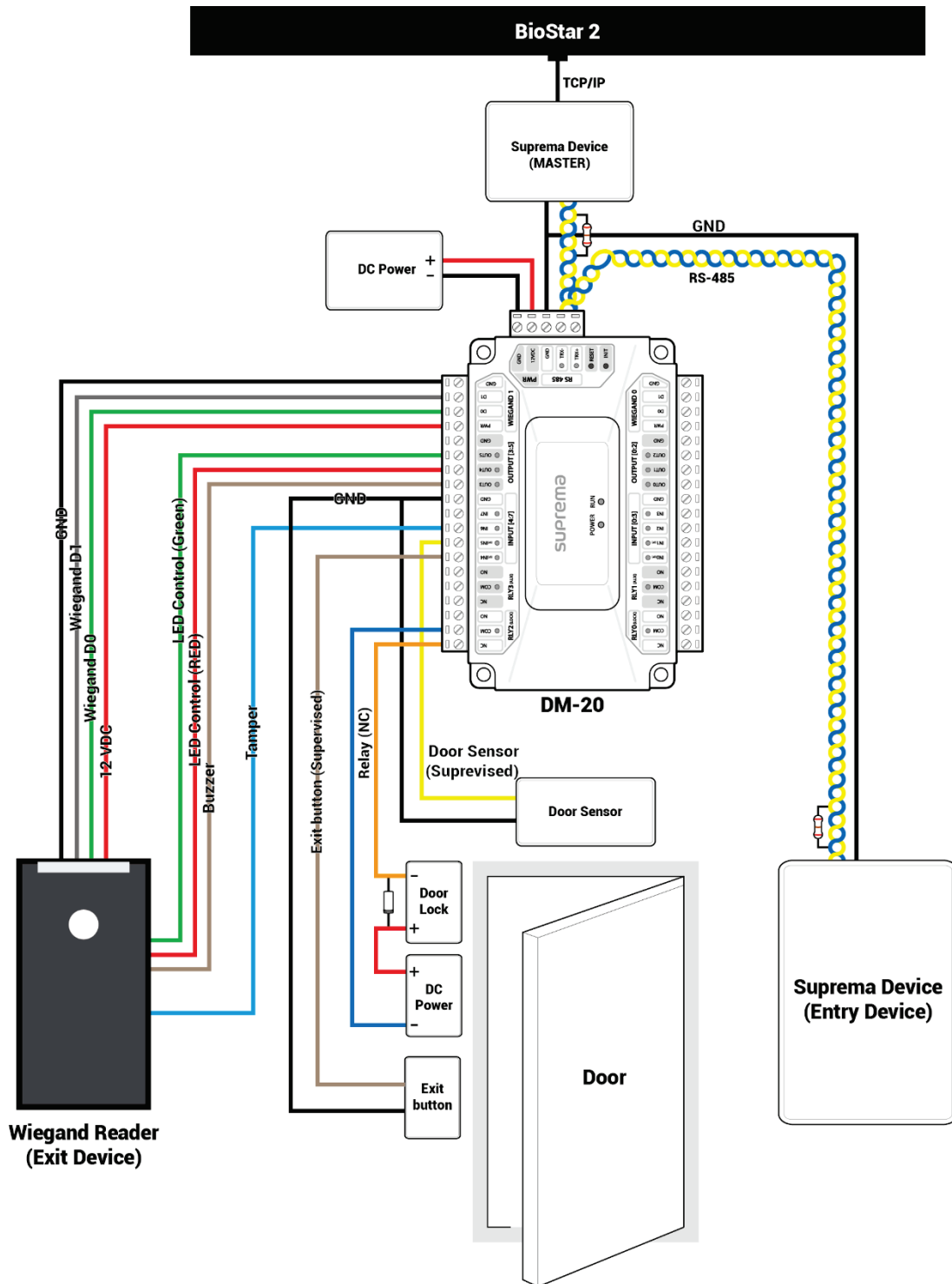
DM-20 added to the BioStar 2 can monitor the device or switch's open and short-circuit states. You can configure the 'Trigger and Action' and send out a preset signal or send an e-mail to the administrator when the DM-20 detects a certain state.

# Connection Diagram

## Wiegand Reader x 2



Wiegand Reader x 1, Slave Device x 1



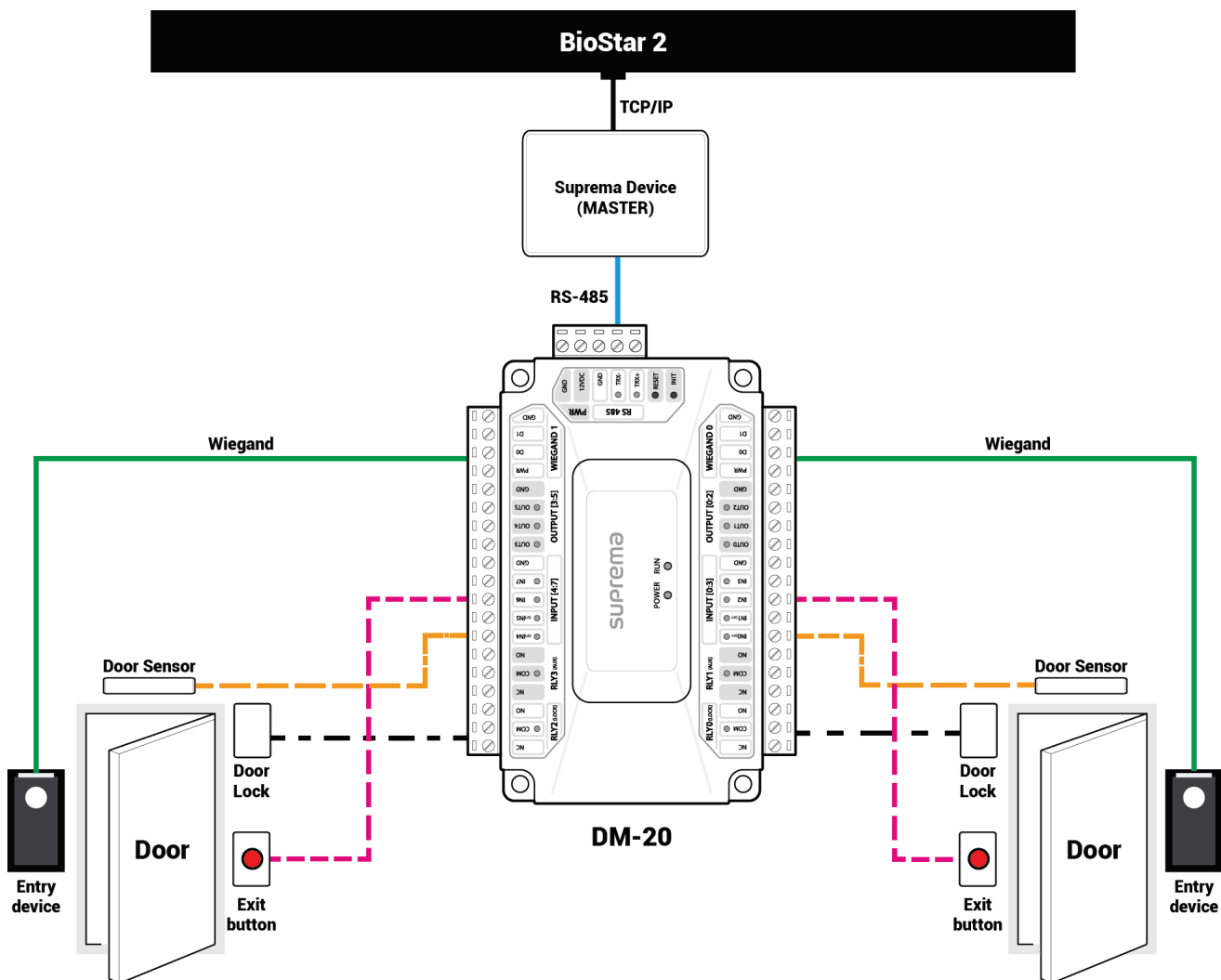
# System Diagram

The DM-20 can configure doors in numerous ways.

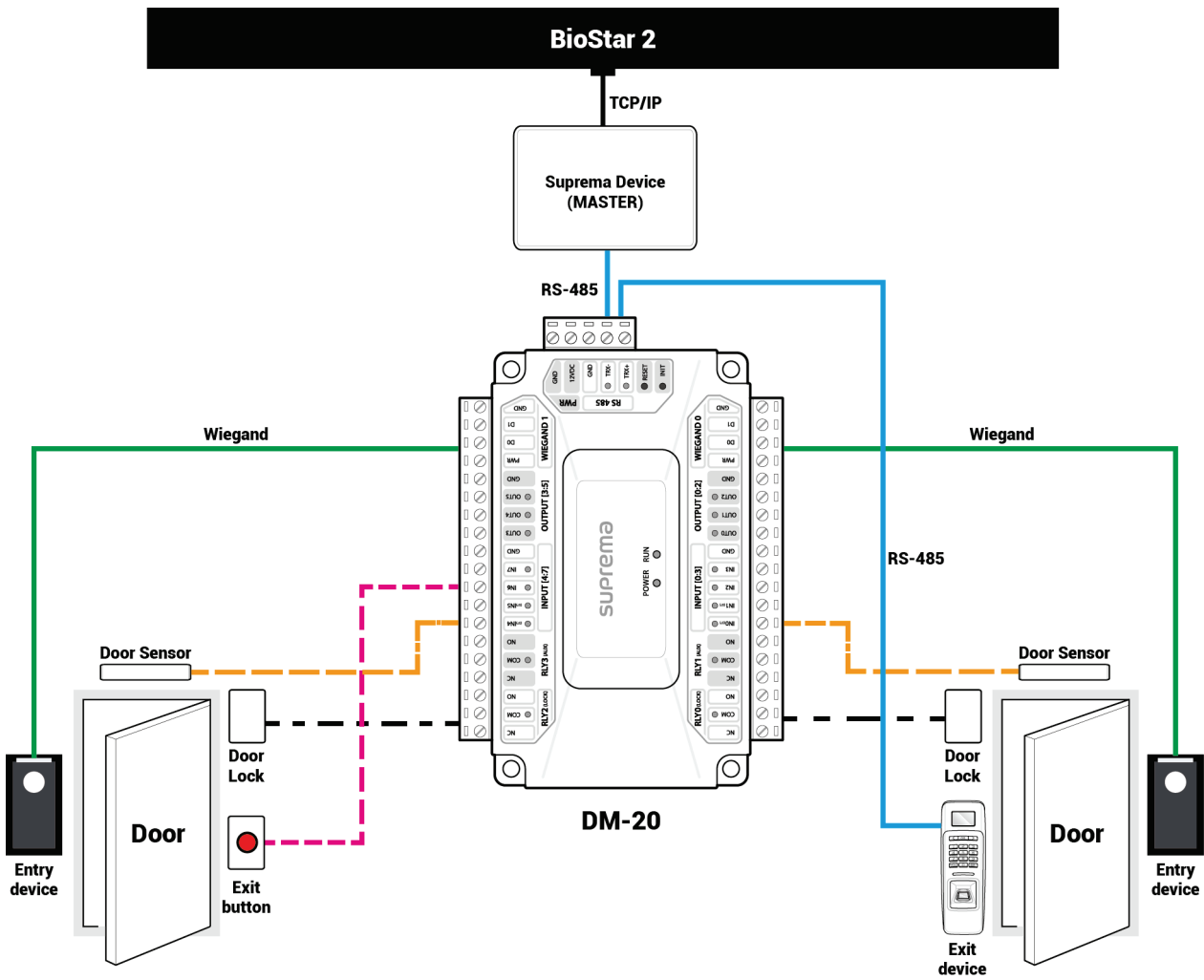
You can connect 2 Wiegand readers to 1 DM-20 and easily control many doors by connecting the slave device and the DM-20 in daisy chain via RS-485.

## Controlling 2 Doors

**Components:** Master Device x 1, DM-20 x 1, Wiegand Reader x 2



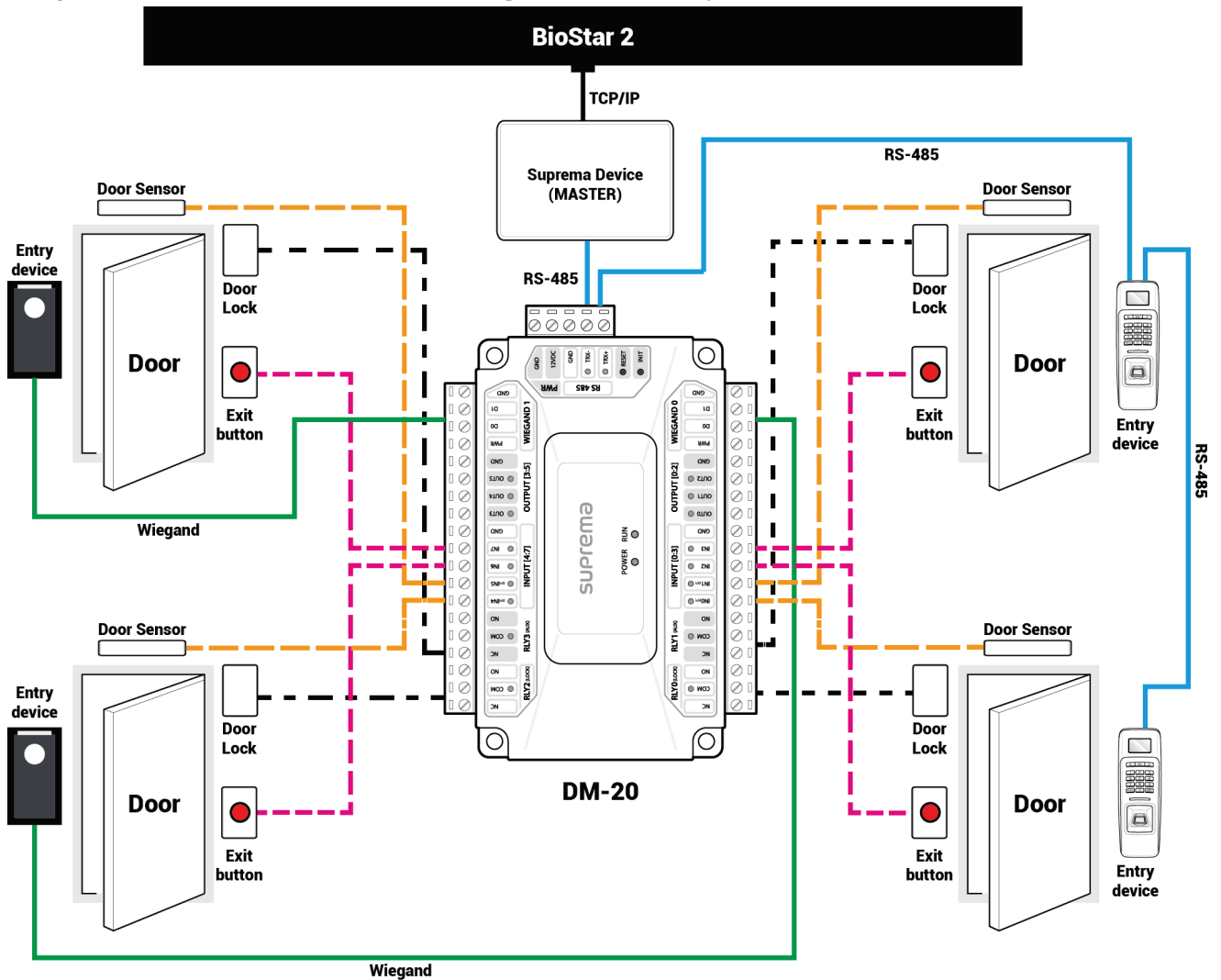
**Components:** Master Device x 1, DM-20 x 1, Suprema Device(Slave) x 1, Wiegand x 2



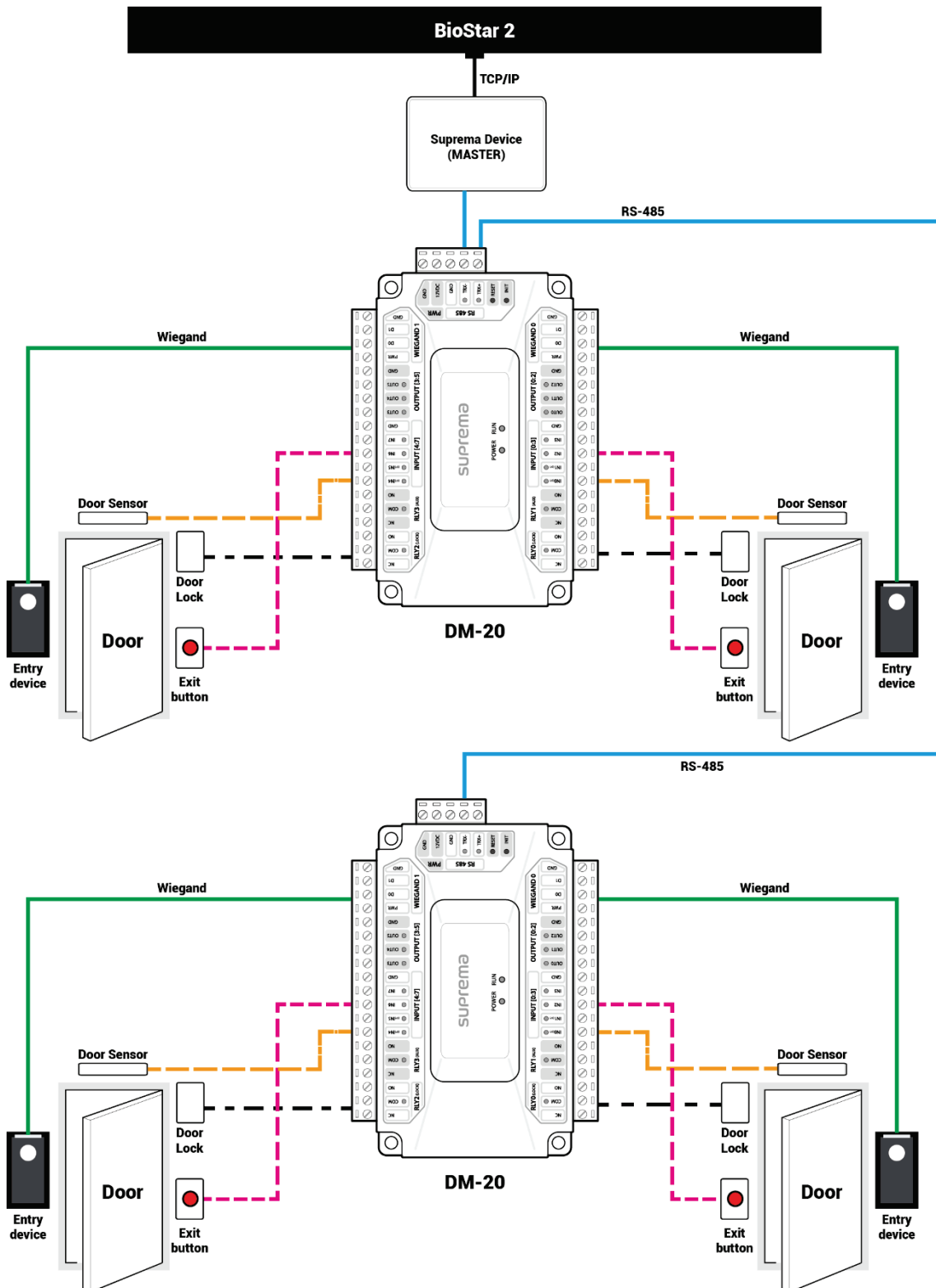


## Controlling 4 Doors

**Components:** Master Device x 1, DM-20 x 1, Wiegand Reader x 2. Suprema Device(Slave) x 2

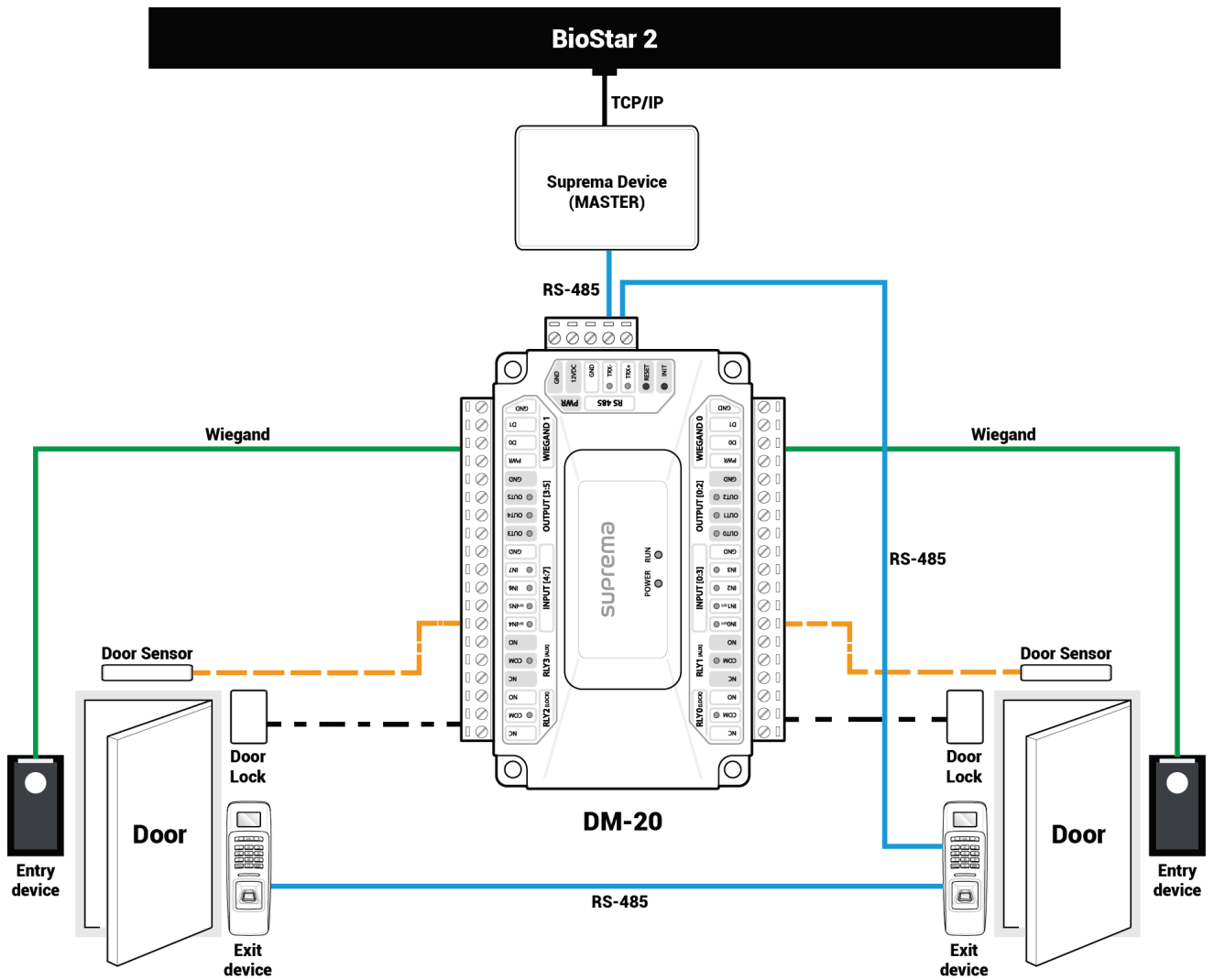


**Components:** Master Device x 1, DM-20 x 2, Wiegand Reader x 4



# Anti-Passback

**Components:** Master Device x 1, DM-20 x 1, Slave Device x 2, Wiegand Reader x 2





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