

# PAL

## ELECTRONIC SYSTEMS

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# SPIDER

## Installation & User Guide

4G cellular network, Wi-Fi and Bluetooth control units for gates, doors and lighting systems

**Spider-50 • Spider-i • Spider-B • Spider i-WRL • Spider i-WR • Spider B-WR • Spider-Wiegand 26**



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## Important information before installation



### Warning

Installation, maintenance and repairs must be carried out by an authorized installer only.



### Caution

The unit requires a stable 12VDC/1A power source. Protect the unit from excessive humidity, rain and insect infiltration. Install the unit in a waterproof, dustproof enclosure.



### Note

If the unit is installed in a metal cabinet, connect an external antenna that reaches outside the cabinet.

\* Optional feature – may involve an additional charge (e.g. management via the web interface).

## CHAPTER 1

# Product description

Spider units are IoT units based on the 4G network, 2.4GHz Wi-Fi and Bluetooth, for access control and management through onboard relays. They are suitable for gates, doors and lighting systems.



**Figure 1** – The Spider family: Spider-i, Spider-B, Spider B-WR

## 1.1 Key benefits

- Remote access and control from anywhere
- 2.4GHz Wi-Fi connection on all models
- Continued operation even during cellular network outages (Bluetooth backup for nearby opening, or Wi-Fi connection)
- "Nearby only" permission – allows opening from nearby only, with adjustable opening distance
- Automatic opening via the car multimedia system (Apple CarPlay, Android Auto)
- Compact size: 53×80 mm
- Managed with the free PalGate app (iOS/Android) or web interface\*
- Visual LED indicators for unit status and reception
- Real-time notifications by email and push to the app
- Open by app, dialing, proximity, Siri, Google Assistant, Apple Watch and remote controls (WR models)
- Timers, events, calendar and holidays, and a programmable astronomical clock
- Import and export users with Excel files
- Programmable relay activation time (default: 2 seconds)

## CHAPTER 2

# Models & part numbers

## 2.1 Model comparison

| Model                                                                                                     | Relays | Alert inputs | App users | 433MHz remotes | Wiegand 26 |
|-----------------------------------------------------------------------------------------------------------|--------|--------------|-----------|----------------|------------|
|  <b>Spider-50</b>         | 1      | 1            | 50        | —              | —          |
|  <b>Spider-i</b>          | 1      | 1            | Unlimited | —              | —          |
|  <b>Spider-B</b>          | 2      | 2            | Unlimited | —              | —          |
|  <b>Spider i-WRL</b>      | 1      | 1            | 3         | 4000           | —          |
|  <b>Spider i-WR</b>       | 1      | 1            | Unlimited | 4000           | —          |
|  <b>Spider B-WR</b>       | 2      | 2            | Unlimited | 4000           | —          |
|  <b>Spider-Wiegand 26</b> | 1      | 2            | Unlimited | 4000           | ✓          |

All relays and inputs: N.O./N.C. • Supply voltage, all models: 12VDC.

## 2.2 Part numbers – Europe

| Model                    | Part number | Global |
|--------------------------|-------------|--------|
| <b>Spider-50</b>         | SP300       | —      |
| <b>Spider-i</b>          | SP301       | —      |
| <b>Spider-B</b>          | SP302       | —      |
| <b>Spider i-WRL</b>      | SP310       | —      |
| <b>Spider i-WR</b>       | SP311       | SP011  |
| <b>Spider B-WR</b>       | SP312       | SP012  |
| <b>Spider-Wiegand 26</b> | SP313       | SP013  |

Package: 8x5.3x2.5 cm • 83 g (Spider-50, Spider-i, Spider-B), 87 g (other models). This edition covers the Europe models (SP3XX).

## CHAPTER 3

# Technical specifications

| Parameter                        | Value           |
|----------------------------------|-----------------|
| Supply voltage                   | 12V DC, 1A      |
| Average standby current          | ~70mA           |
| Relay contact rating (resistive) | 1A, 30V AC/DC   |
| Antenna                          | SMA, 50Ω        |
| Operating temperature            | -20°C ... +70°C |
| Dimensions                       | 53 × 80 mm      |
| Net weight                       | 87 g            |
| Wi-Fi                            | 2.4GHz          |
| Voice                            | VoLTE           |
| Certification                    | CE              |

## 3.1 Frequency bands – Europe (SP3XX)

| Network | Bands                    |
|---------|--------------------------|
| 4G      | B1, B3, B7, B8, B20, B28 |
| 2G      | B3, B8                   |



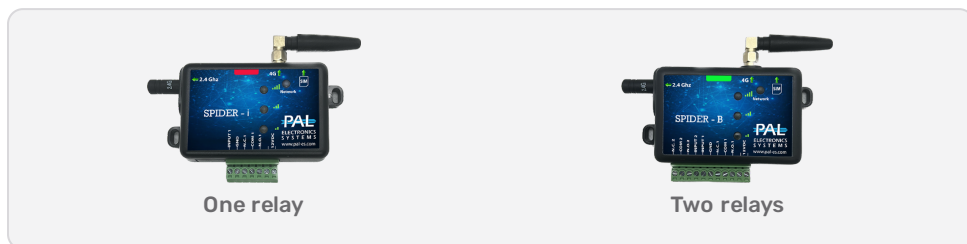
### Cellular coverage

Make sure the part number matches the installation region – each region uses different bands. PAL Electronic Systems Ltd. is not responsible for the quality of cellular network coverage; it is the installer's/user's responsibility to ensure adequate 4G reception at the site.

## CHAPTER 4

# Terminals & LEDs

All models: **12VDC** + – power input, 4G antenna connector, 2.4GHz antenna (Wi-Fi / Bluetooth), SIM/network LED and three signal-strength LEDs.



**Figure 2** – Terminal and LED layout (Spider-i, Spider-B)

| Model                       | Relays                                                       | Alert inputs                                 | Other                                                                      |
|-----------------------------|--------------------------------------------------------------|----------------------------------------------|----------------------------------------------------------------------------|
| Spider-50<br>Spider-i       | <b>N.O.1 • COM 1 • N.C.1</b>                                 | <b>INPUT 1 • GND</b>                         | <b>12VDC</b> + –                                                           |
| Spider i-WRL<br>Spider i-WR | <b>N.O.1 • COM 1 • N.C.1</b>                                 | <b>INPUT 1 • GND</b>                         | <b>12VDC</b> + –<br>433MHz antenna                                         |
| Spider-B                    | <b>N.O.1 • COM 1 • N.C.1</b><br><b>N.O.2 • COM 2 • N.C.2</b> | <b>INPUT 1 • GND</b><br><b>INPUT 2 • GND</b> | <b>12VDC</b> + –                                                           |
| Spider B-WR                 | <b>N.O.1 • COM 1 • N.C.1</b><br><b>N.O.2 • COM 2 • N.C.2</b> | <b>INPUT 1 • GND</b><br><b>INPUT 2 • GND</b> | <b>12VDC</b> + –<br>433MHz antenna                                         |
| Spider-Wiegand<br>26        | <b>N.O.1 • COM 1 • N.C.1</b>                                 | <b>INPUT 1 • GND</b><br><b>INPUT 2 • GND</b> | <b>12VDC</b> + –<br><b>D0 • D1</b> <b>GND</b><br>Wiegand<br>433MHz antenna |

## CHAPTER 5

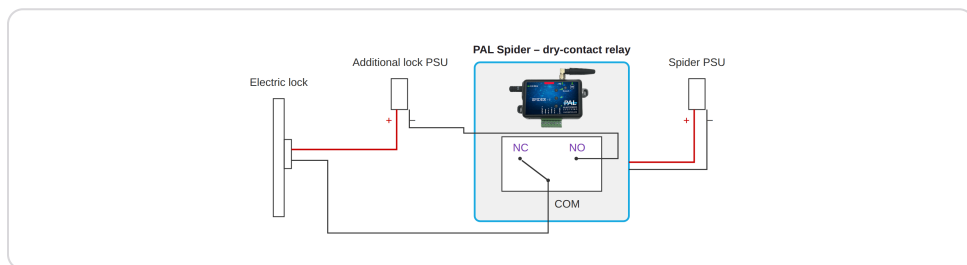
# Wiring

**Warning**

Disconnect power before any wiring work. Maximum relay load:  
1A/30VDC; 0.5A/125VAC.

## 5.1 Electric lock connection

- 1 Connect the unit power**  
**12VDC/1A** supply: + – (polarity does not matter)
- 2 Connect the lock to an additional supply**  
The (+) of the lock power supply goes directly to the lock.
- 3 Route the (–) through the relay**  
The (–) of the lock power supply to **N.O.1**, and **COM 1** to the other lock wire.
- 4 Magnetic sensor (optional)**  
To **INPUT 1** and **GND** – for door status notifications.



**Figure 3** – Electric lock wiring to the Spider: additional lock supply, (–) switched through the relay N.O contact

**Note**

For electromagnetic locks, or any controller that opens when power is cut, connect to **N.O.1** and **COM 1**.

## 5.2 Gate operator connection

### 1 Connect the unit power

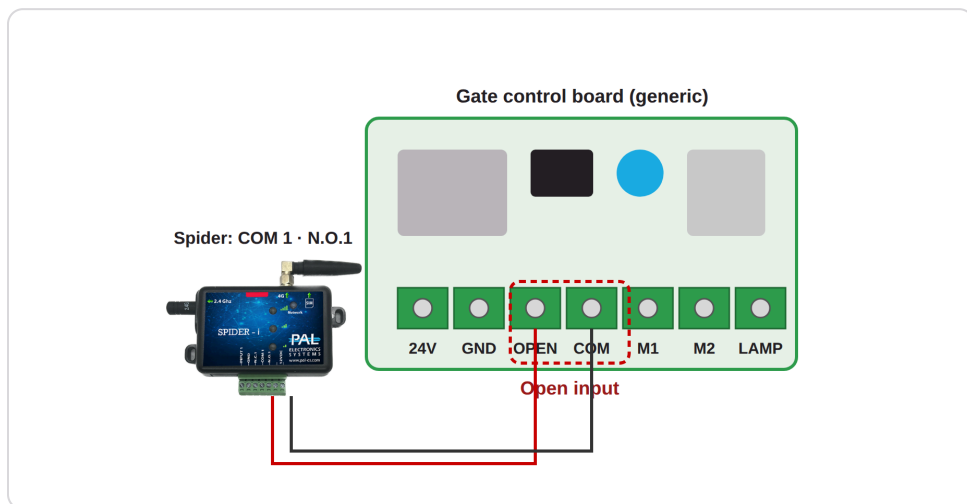
**12VDC** supply: + – (polarity does not matter)

### 2 Connect to the gate control board

**COM 1** and **N.O.1** to the open push-button input of the control board and its common.

### 3 Magnetic sensor (optional)

To **INPUT 1** and **GND** – for gate status notifications.



**Figure 4** – Connecting the Spider to the open input of a gate control board (generic drawing)



#### Caution

Terminal names vary between gate operator manufacturers. Identify the open input according to the control board manufacturer's instructions.



#### Note

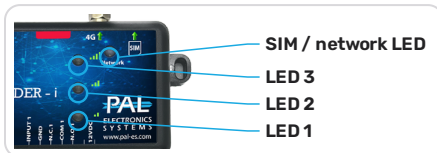
The Spider output relay is a dry contact – it acts like pressing the open button and does not supply power to the control board.

## CHAPTER 6

# LED indications

### 6.1 SIM / network LED

| LED state         | Meaning                          |
|-------------------|----------------------------------|
| Fast flashing     | System is booting                |
| Slow flashing     | Searching for a cellular network |
| All LEDs flashing | SIM card not recognized          |



**Figure 5** – LED positions

### 6.2 LED 1 – connection

| LED state         | Meaning                    |
|-------------------|----------------------------|
| Blinks twice      | Connecting to the internet |
| Blinks four times | Connecting to the servers  |

### 6.3 Signal strength

| LEDs on        | Signal           |
|----------------|------------------|
| ● ○ ○ LED 1    | Low signal       |
| ● ● ○ LEDs 1-2 | Good signal      |
| ● ● ● LEDs 1-3 | Very good signal |



#### Caution

Low signal (LED 1 only) may affect unit operation. Consider another location or an external antenna.

## CHAPTER 7

# PalGate app



## 7.1 Installing the app

**1 Download the app**

Search for "PalGate" on the App Store or Google Play.

**2 Enter your phone number****3 Enter the verification code**

Sent to you by SMS.

**4 Confirm your phone number**

## 7.2 Adding a new device

**1 Tap the + button**

To add a new device.

**2 Scan the QR code**

Or choose to add it manually.

**3 Enter the serial number and code**

Exactly as printed on the unit.

**4 Tap "Next"**

The device appears on the "My gates" screen.

## 7.3 Adding users

### 1 Tap Gate Settings

### 2 Select "Manager Options"

### 3 Select "Users"

### 4 Tap +

To add a user.

### 5 Type a name

Or select from your contacts.

### 6 Tap "Save"

The new user receives a notification and appears on the list.



#### Note

Each user can be set to open from any distance or "Nearby only", with an access schedule. Users can be imported and exported with Excel files.

## 7.4 Opening methods

- App
- Proximity and automatic
- Google Assistant
- Apple CarPlay
- Dialing
- Siri
- Apple Watch
- Android Auto



#### Caution!

Make sure the gate/door has proper, working safety and protection devices before installing the system.

The logo features the word "PAL" in a large, bold, white sans-serif font. Three horizontal blue lines with arrowheads at both ends pass behind the letters. Below "PAL", the words "ELECTRONIC" and "SYSTEMS" are stacked in a smaller, white, all-caps sans-serif font.

# PAL

ELECTRONIC  
SYSTEMS

A thick blue horizontal bar with arrowheads at both ends, spanning the width of the page.

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