

PAL

ELECTRONIC SYSTEMS

PAL ELECTRONIC SYSTEMS

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



Contents

1	Product description & benefits	3
2	Models & part numbers	4
3	Technical specifications	5
4	Terminals & LEDs	6
5	Wiring	7
6	LED indications	9
7	PalGate app	10
	Contact	12

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
 Spider-50	1	1	50	—	—
 Spider-i	1	1	Unlimited	—	—
 Spider-B	2	2	Unlimited	—	—
 Spider i-WRL	1	1	3	4000	—
 Spider i-WR	1	1	Unlimited	4000	—
 Spider B-WR	2	2	Unlimited	4000	—
 Spider-Wiegand 26	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
Spider-50	SP300	—
Spider-i	SP301	—
Spider-B	SP302	—
Spider i-WRL	SP310	—
Spider i-WR	SP311	SP011
Spider B-WR	SP312	SP012
Spider-Wiegand 26	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.

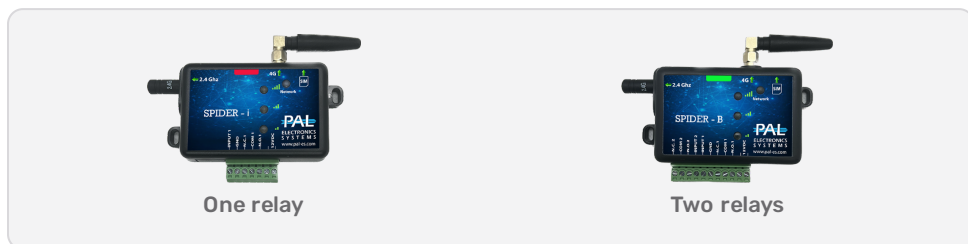


Figure 2 – Terminal and LED layout (Spider-i, Spider-B)

Model	Relays	Alert inputs	Other
Spider-50 Spider-i	N.0.1 • COM 1 • N.C.1	INPUT 1 • GND	12VDC + –
Spider i-WRL Spider i-WR	N.0.1 • COM 1 • N.C.1	INPUT 1 • GND	12VDC + – 433MHz antenna
Spider-B	N.0.1 • COM 1 • N.C.1 N.0.2 • COM 2 • N.C.2	INPUT 1 • GND INPUT 2 • GND	12VDC + –
Spider B-WR	N.0.1 • COM 1 • N.C.1 N.0.2 • COM 2 • N.C.2	INPUT 1 • GND INPUT 2 • GND	12VDC + – 433MHz antenna
Spider-Wiegand 26	N.0.1 • COM 1 • N.C.1	INPUT 1 • GND INPUT 2 • GND	12VDC + – D0 • D1 GND Wiegand 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.

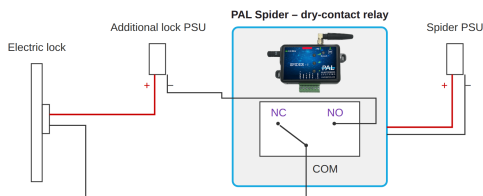


Figure 3 – Electric lock wiring to the Spider: additional lock supply, (–) switched through the relay N.O. contact

**Note**

For electromagnetic locks, or any controller that opens when power is cut, connect to **N.C.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.

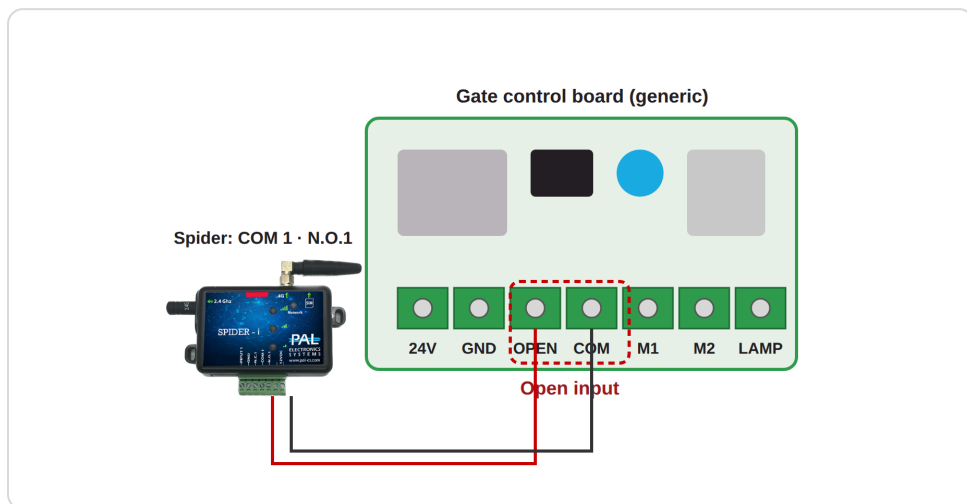


Figure 4 – Connecting the Spider to the open input of a gate control board (generic drawing)



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

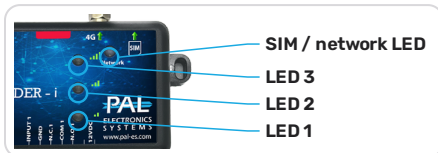


Figure 5 – LED positions

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.

PAL
ELECTRONIC
SYSTEMS

PAL Electronic Systems Ltd.

www.pal-es.com • info@pal-es.com