



microSpider2 lite

Quick Start Guide



Models	HML-021, HML-022, HML-023, HML-025
Date	September 2026

The microSpider2 lite is a compact 4G low power logging and alarm system in an IP68 enclosure with integrated long-life batteries — no external power supplies, enclosures, or additional hardware required. This guide is a suggested framework for getting your unit installed and communicating — it does not cover site-specific configuration. For full detail, refer to the microSpider2 lite User Manual. You can download it from halytech.com.au/microspider2-lite.

This guide covers the standard variants — HML-021, HML-022, HML-023 and HML-025: 8-pin I/O connector, 2 digital + 2 analogue inputs, open collector output.

The other builds have their own guides. The **Modbus variants** (HML-030, HML-031, HML-034, HML-036, HML-037) have a 7-pin I/O connector with RS-485, 1 digital + 1 analogue input, no open collector and a 5 V / 20 mA low voltage output. The **pulse metering variants** (HML-026 to HML-029) have a flying lead carrying two digital inputs, with no analogue inputs and no outputs.

Both are fitted at manufacture and **cannot be added to a standard unit afterwards**.

The builds are **identical from the outside apart from what comes out of the case**. A **flying lead** means a pulse metering unit. Otherwise count the connector pins: **8 = standard, 7 = Modbus**. The part number on the unit label confirms it.

1. What's in the Box

Item	Qty
microSpider2 lite unit (battery fitted inside, disconnected)	1
110 Ω ¼ W resistor (shunt for 4–20 mA sensors)	1
8-pin I/O mating connector	1
Halytech Comm Port sealing cap	1
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A new microSpider2 lite ships without a SIM card and with the battery disconnected.

2. Before You Start

Gather the following before attending site:

- 3 mm hex screwdriver (to open the case)
- Nano SIM card with mobile data and SMS enabled — disable the SIM PIN before inserting
- LANlink cable or HLink dongle (required for initial configuration only)

- External antenna variants only: SMA antenna + self-vulcanising rubber tape

APN: You will need the APN for your SIM card during configuration — confirm the correct value with your carrier or SIM provider before attending site.

Recommended workshop preparation

If possible, complete the following before attending site — it is much easier in the workshop than in the field:

- Open case, install SIM, connect battery, close case, fit antenna
- Connect via LANlink or HLink and log in to the web interface
- Load a config from a similar site if you have one — or build from scratch
- Configure inputs, outputs, alarms, and reports
- Test mobile signal and send a test SMS
- Save setup to disk

3. Open Case, Install SIM, Connect Battery, Close Case

A SIM card is required to send automatic reports and alarms over the mobile network. Before installing, insert the SIM into a mobile phone and **disable any PINs**.

Open the case:

1. Undo the 4 hex screws holding the two halves of the case together.
2. Carefully separate the two halves, taking care not to put strain on the cables connecting them.

Install the SIM card:

3. If the battery is connected, disconnect it by squeezing the locking latch and gently pulling the connector upwards.
4. Push the SIM tray into the receptacle until it clicks and springs out.
5. Place the nano SIM card into the tray — gold contacts facing down, observing the notched corner orientation.
6. Push the tray back into the receptacle until it clicks into place.

If the SIM has been used in an iPhone, turn off iMessage on the iPhone before removing it — otherwise Apple may intercept SMS commands sent to the device. See the User Manual for details.

Connect the battery:

7. Connect the battery lead by pushing it onto the battery connector on the circuit board until it clicks into place. The battery slides into the case behind the circuit board.

To disconnect the battery later: press the white tab and pull the connector off. **Close the case:**

8. Check the O-ring is still seated in the groove of the top half of the case.

The O-ring is greased and fitted at the factory. If it has come out — or you have removed it for cleaning or replacement — refit it by holding one corner in the groove and running a finger around the groove a few times to seat it evenly. If more lubrication is needed, use tap grease (e.g. "Fix-a-tap").

9. Align the two halves, ensuring the antenna cable is not caught between them. Pinch the flange at both ends with thumb and forefinger and squeeze gently until the halves slide together.

If the O-ring is pushing the halves apart, the assembly is incorrect — repeat from step 8.

10. Insert the four hex screws and nuts. Do not over-tighten — force is not required to maintain the seal.

When correctly assembled the two halves stay together once finger pressure is removed.

11. **External antenna variants only:** with the case closed, connect the SMA antenna to the connector on the bottom of the case. Hand-tighten only, then seal the connection with self-vulcanising rubber tape.

4. Connect to the Web Interface

The microSpider2 lite is configured via a built-in web server accessible from any browser. No software required.

Option A — Via LANlink Cable (Ethernet)

1. Connect the LANlink cable between the Halytech Comm Port and your computer.
2. Open a browser and go to: `http://192.168.0.177`

Option B — Via HLink Dongle (Wi-Fi)

1. Connect the HLink dongle to the Halytech Comm Port.
2. On your device, connect to the Wi-Fi network — look for a network name containing the serial number from the side of the unit (format: `192.168.2.177_MS1_[serial]`).
3. Connect using Wi-Fi password: `Halytech`

4. Open a browser and go to: `http://192.168.2.177`



microSpider lite login

Username	
Password	
Log in	

Default Credentials

Field	Value
Username	user
Password	changeme

Change the password on first login.

Note: The LANlink and HLink dongles do not power the unit. The internal battery supplies all power during configuration. Disconnect the dongle when you finish.



microSpider lite
Environmental

Home >> Change Setup

Change Setup

Location	Time & Date
User & Password	
Input Setup	Select Input to Calibrate ▾
Controls	Select Alarm to Change ▾
Network	Email
Reports	Twitter
Modem Diagnostics	Advanced
Manual Setup Management	Automatic Setup Management
Manual Software Upgrade	Automatic Software Upgrades
Save setup to disk	
Exit change setup	
Exiting setup will re-enable logging	

5. Test Mobile Connection

1. Connect your LANlink or HLink dongle to the microSpider2 lite and log in to the web interface (see Section 4).
2. Navigate to **Change Setup** → **Modem Diagnostics**.
3. Click **Mobile Signal Test** — a warning about battery usage appears; click **OK** to proceed. The modem turns on and displays signal strength continuously. Confirms the SIM is active and

the antenna location has adequate signal.

4. Enter your mobile number and click **Send Test SMS** — you should receive an SMS with the unit's location, serial number, signal strength, and date/time.

6. Test Data Connection

Set APN:

1. Navigate to **Change Setup** → **Network**.
2. Set **Method** to Mobile Internet (Modem).
3. Enter the **APN** for your SIM card — confirm the correct value with your carrier or SIM provider.
4. Click **Save**.

Confirm data connection via NTP sync:

5. Navigate to **Change Setup** → **Time & Date**.
6. Ensure **Automatic NTP** is ticked and an NTP server address is entered.
7. Click **Synchronise now** — the device connects to the internet and syncs the clock.
8. Confirm the date and time are correct.

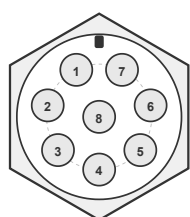
A successful NTP sync confirms the SIM has active mobile data and the APN is correct.

7. Mount the Unit

The microSpider2 lite has an integrated mounting bracket built into the enclosure. An optional stainless steel pipe mounting bracket is available from Halytech for installation on vertical or horizontal pipework.

8. Wire Sensors

The microSpider2 lite has a single 8-pin circular IP68 I/O connector on the bottom of the case. Connect sensors and outputs to the relevant connection points:



I/O Connector Pins
Panel view. Same as plug solder-cup view.

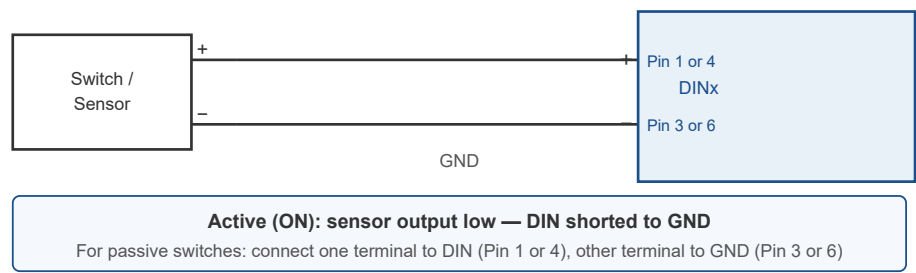
Pin	Function	Notes
1	Switch 1 / Counter 1	Active = short to GND
2	Analogue 1	0–2.5V
3	GND	
4	Switch 2 / Counter 2	Active = short to GND
5	Analogue 2	0–2.5V
6	GND	
7	Open Collector Output	Nominal 10 mA
8	Low Voltage Sensor Power Supply	3.3V or 5V selectable

Using the Connectors

- **Analogue inputs (AIN)** — accept 0–2.5V directly.
- **4–20 mA sensors need the supplied 110 Ω external shunt.** The microSpider2 lite has **no internal 4–20 mA shunt** — fit the supplied 110 Ω ¼ W resistor across the AIN pin and GND, and set the channel type to **Analogue (Voltage)** — there is no *Analogue (4–20 mA)* type on the lite. Scale the channel with the **4-20mA Calibration** method: enter the engineering value at 4 mA and at 20 mA.
- **Loop power must come from elsewhere.** The microSpider2 lite cannot power a 4–20 mA loop — it has no switched power output and no external power input, and the low voltage output is not a loop supply. Use a self-powered sensor, or fit a separate power supply in the loop.
- **Signals above 2.5V** — fit a resistor voltage divider between the sensor and the AIN pin. **The divider resistors are not supplied** — source them yourself; see the User Manual for values. Do not apply more than 2.5V directly to an AIN pin — it may damage the input.
- **Switch / counter inputs** — activated by a short to any GND pin.
- **Open Collector Output** (pin 7) — when active it connects the pin to GND through a 440 Ω resistor, nominal 10 mA. Suitable for triggering a sampler or relay, not for driving a load directly.
- **Low Voltage Sensor Supply** (pin 8) — 3.3V or 5V selectable, max 100 mA, drawn directly from the internal battery. Powering a sensor continuously from it will shorten battery life.

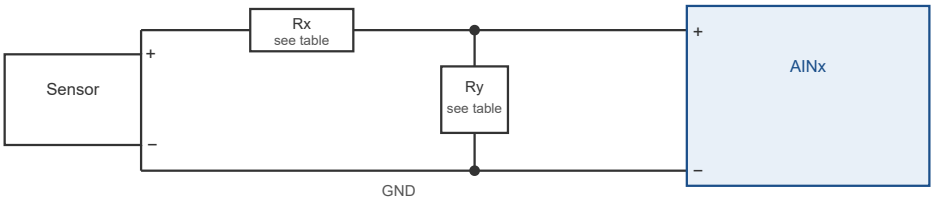
Wiring Examples

Switch / Counter Input Wiring



Analogue Input Wiring — Voltage Input

Rx and Ry resistors may be required depending on sensor output range (see table below)



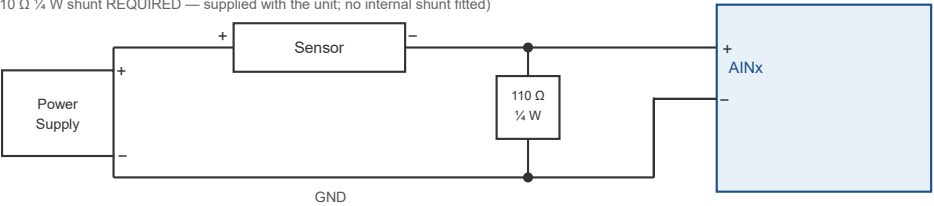
Sensor Range	Value of Rx	Value of Ry
0 – 2.5 V	None required	Leave out
0 – 5 V	1 kΩ ¼ W metal film	1 kΩ ¼ W metal film
0 – 10 V	3.3 kΩ ¼ W metal film	1 kΩ ¼ W metal film

Note: the LV OUT pin can supply 3.3V or 5V to power analogue sensors — configure in Change Setup

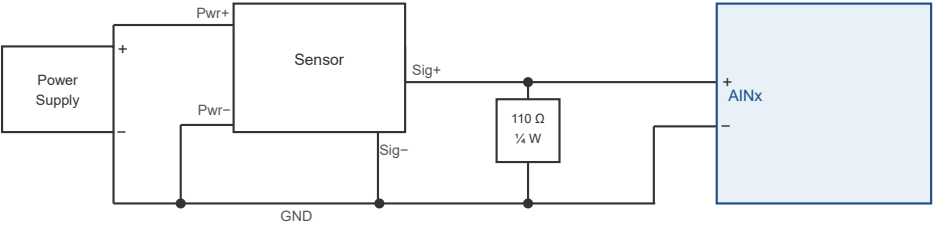
4–20 mA sensors — external 110 Ω shunt required

Analogue Input Wiring — Current Loop

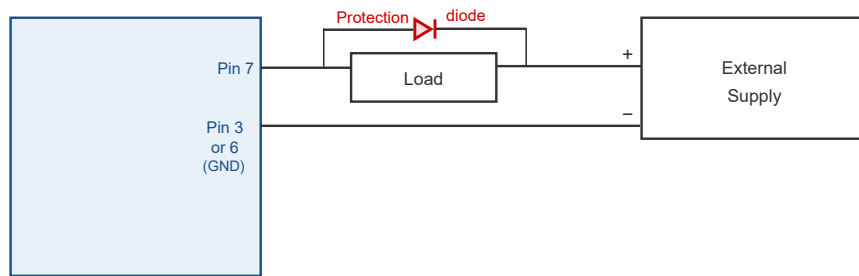
2-wire — 0–20 mA / 4–20 mA
(110 Ω ¼ W shunt REQUIRED — supplied with the unit; no internal shunt fitted)



4-wire — 0–20 mA / 4–20 mA
(110 Ω ¼ W shunt REQUIRED — supplied with the unit)



Open Collector Output Wiring



Protection diodes must be installed when driving inductive loads
(relay coils, solenoids). Omitting the diode may damage the transistor output.

Max nominal 10 mA — for low-current switching only (relay coils, LEDs, accessories)

For full wiring details and terminal assignments refer to the User Manual.

Before leaving site, ensure the Halytech Comm Port is fitted with its supplied sealing cap.

9. Configure

Complete these steps in order on first setup:

1. **Set location** — enter a short name and optionally a long name — Change Setup → Location
2. **Confirm date and time** — set in Section 6 via NTP sync; mobile devices auto-sync once per day. Verify it is still correct here.

See also: *User Manual — Clock and Time Synchronisation*

3. **Configure inputs** — name, type, units, and logging period for each channel

See also: *User Manual — Input Configuration*

4. **Calibrate inputs** — set the scaling for each analogue or counter channel:

- **Voltage input** (e.g. a low-voltage level or pressure sensor): set scaler and offset to convert the sensor's output voltage to engineering units — navigate to **Change Setup → Select Input to Calibrate**
- **Counter input** (e.g. a rain gauge): set the pulse scale factor — e.g. 0.2 mm per pulse for a standard tipping bucket gauge
- Channels that do not require scaling (switch inputs, system channels) can be skipped

See also: *User Manual — Input Calibration*

5. **Configure controls** — Change Setup → Controls — name each control; set warmup time if used for sensor power

See also: *User Manual — Output and Control Configuration*

6. **Configure email** — navigate to **Change Setup → Email:**

- **"From" email address:** an address that identifies the unit, e.g.
`your.microspider2lite@yourcompany.com.au`
- **SMTP mail server:** your preferred SMTP server, e.g. `your.preferred.smtp.server`
- Leave **Authentication** disabled (most common case)
- Click **Save**, then enter your address and click **Send Test Email** to confirm delivery

SSL and TLS connections are not supported. If using a corporate mail server, confirm it accepts connections on port 25 without encryption. Gmail is not compatible.

See also: *User Manual — Email Configuration*

7. **Configure alarms** — set trigger source, condition, and notification recipients

See also: *User Manual — Alarm Configuration*

8. **Configure reports** — set report period, format, and destination

See also: *User Manual — Report Configuration*

9. **Save setup to disk** — keep a backup copy

10. **Reset report starting point** — excludes test data from the first real report

There is a built-in help button on most configuration pages. For full detail on each step, refer to the User Manual.

10. Verify and Hand Over

Before leaving site, confirm:

- Mobile signal $\geq 40\%$ (check under Change Setup → Modem Diagnostics → Mobile Signal Test)
- Location set correctly
- Date and time correct
- All inputs reading correctly
- Password changed from default
- APN configured and modem connected
- Test report sent and received
- Halytech Comm Port fitted with sealing cap
- Setup saved to disk as backup

Signal strength reference:

Level	Threshold	Action
Excellent	≥75%	No action
Good	≥50%	No action
Acceptable	≥40%	No action
Poor	<40%	Reposition antenna

11. Site Visit Checks

On each site visit, check:

- **Battery voltage** — view on the web interface; contact Halytech to arrange a replacement battery if low
- **Signal strength** — should be ≥40%; reposition antenna if below threshold
- **Connectors** — inspect for corrosion or damage; ensure the sealing cap is fitted to the Halytech Comm Port when the dongle is disconnected
- **Sensor readings** — verify readings and address any issues before leaving site

12. Troubleshooting

For detailed troubleshooting refer to the microSpider2 lite User Manual.

Symptom	Likely cause	Action
No signal strength shown	SIM not activated, or poor coverage at this location	Confirm the SIM is activated with the carrier; reposition the unit and repeat the Mobile Signal Test. External antenna variants only: check the external antenna is connected to the SMA connector and the connection is sealed
Registration failed	Incorrect APN or SIM not activated	Verify APN matches your carrier; confirm SIM is activated
Signal present but SMS fails	SIM plan does not allow SMS	Contact carrier to enable SMS on the SIM
Signal present but report not received	Report destination, APN, or format incorrect	Check report settings; confirm APN; verify destination server
Web interface not accessible	Wrong IP address or Easy Connect issue	Try both 192.168.0.177 (LANlink) and 192.168.2.177 (HLink); check network settings

13. Accessories

Item code	Description
HML-006	Stainless steel pipe mounting bracket — includes 4 screws (no hose clamps)
RBT-004	Spare battery pack — 7.2V Li-SOCl ₂ 13 Ah
HME-018	Input cable — 8-way, 1 m
HME-019	Input cable — 8-way, 2 m
HME-017	Input cable — 8-way, 10 m

Contact sales@halytech.com.au for ordering.

microSpider2 lite Quick Start Guide — Halytech For full installation and configuration detail, refer to the microSpider2 lite User Manual.



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