microSpider2 Environmental Quick Start Guide

This guide is not a replacement for the User Manual. Please refer to the complete microSpider2 manual available from our website: www.halytech.com.au
Once on the website, go to Products → Data Loggers → microSpider, and at the bottom of the page select the 'Downloads' tab. From there you will be able to download the manual to suit your microSpider2 software version.

Parts List (included in the box)

- 1 x microSpider2 bottom assembly (electronics and metal protector bar)
- 1 x microSpider2 top assembly (batteries and antenna)
- Set of 4 screws & nuts
- 1 x greased rubber O-ring
- 1 x IO connector (8-pin)
- 2 x connector sealing caps
- 1 x Quick Start Guide (this document)

NOTE: A new microSpider2 is shipped without a SIM card and with the main battery disconnected from the circuit.

Tools/Parts Required for Installation (purchased separately)

- 3mm Hex head screw driver
- External aerial (External Aerial units only)
- LanLink Comms cable (required for initial setup only)
- Extra IO connector

Installing a SIM Card

You need a SIM card to receive automatic e-mail and/or FTP reports from your microSpider2 over the phone network. Halytech can provide fully functioning SIM cards for you. Alternatively, you can source your own SIM card by contacting your preferred mobile phone carrier and requesting a SIM card provisioned with a plan enabling internet access.

microSpider2 units are fitted with two different type of SIM card holders. They are easily distinguishable by the colour of their cover - either black of silver. Please follow the instructions relevant to the type of SIM card holder installed in your unit.

IMPORTANT: Before installing a SIM card into a microSpider2, put it in a standard mobile phone and disable its PIN, if it has one.

To install a SIM card into a microSpider2 fitted with a **BLACK** SIM card holder:

1. Remove the metal bar protecting the circuit board by gently lifting it out of the grooves.

2. If connected, disconnect the battery from the circuit board by squeezing the locking latch and gently pulling the connector upwards.

3. Insert the SIM card:
   a. Slide the SIM card cover holder to the "OPEN" position
   b. Lever it upwards on its hinge to open it.
   c. Slide the SIM card into the groove of the cover, observing the proper notch orientation.
   d. Close the cover and slide the cover into the "LOCK" position.

a.

b.

c.

d.
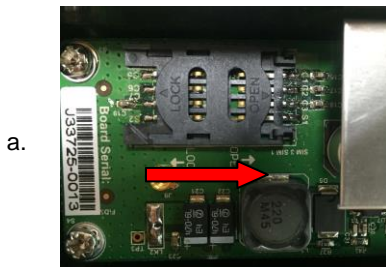
To install a SIM card into the microSpider2 fitted with a **SILVER** SIM card holder:

1. Remove the metal bar protecting the circuit board by gently lifting it out of the grooves.

2. If connected, disconnect the battery from the circuit board by squeezing the locking latch and gently pulling the connector upwards.

3. Insert the SIM card:
   a. Slide the SIM card cover holder to the "OPEN" position
   b. Lever it upwards on its hinge to open it.
   c. Lay the SIM card flat onto the base of the SIM socket, observing the proper notch orientation.
   d. Close the cover
   e. Slide the cover into the "LOCK" position.
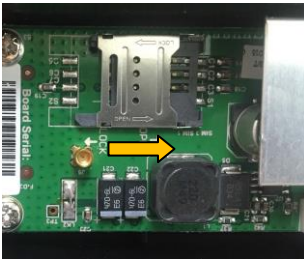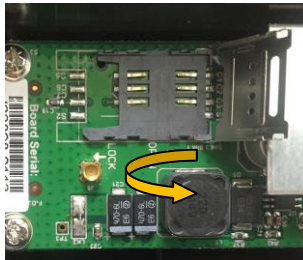
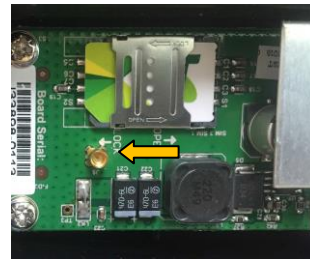a.   b.   c.

d.   e.

Connecting the Antenna and Power

1. Take the pre-greased O-ring out of the plastic bag and feed the antenna and power cables through it.

   (Fitting the O-ring into the case will be discussed in the next section.)

2. Connect the antenna by pressing the flying lead connector squarely onto the gold circuit board antenna connector until it "clicks-in".

Connect the battery lead by pushing it onto a free battery connector on the circuit board (usually BATT1) until it clicks into place.
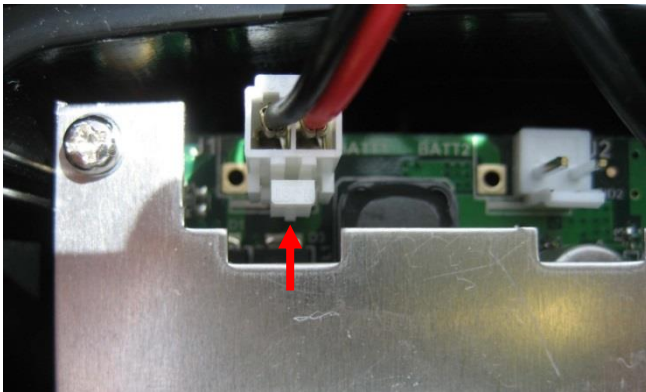
3. EXTERNAL ANTENNA UNITS ONLY

   These units are fitted with an SMA male connector on the top of the case. Once the external antenna is connected, it is recommended to seal the connection by using self-vulcanising rubber tape.

Case Assembly

NOTE: A video clip showing the case assembly is available at
www.halytech.com.au/images/downloads/microspider/o-ring.wmv

1. Re-Insert the metal bar protecting the circuit board into the case grooves. Make sure that antenna cable passes the bar on the same side as the battery lead

2. Insert the O-ring into the groove of the top (battery) half of the case – see illustration below. The easiest way is to hold one corner in and then run a finger around the groove a few times.
The O-ring is pre-greased when shipped to ensure a good seal and easy assembly. If you need more lubrication use tap grease "Fix-a-tap", available at your local hardware store.

3. Align the two halves while making sure the cables are not caught in-between. Using a hand at each end, pinch the flange at both ends with thumb and forefinger and squeeze gently until the halves slide together.

When correctly assembled, the two halves will remain together when finger pressure is removed. **If the O-ring is pushing them apart then something is wrong – you must repeat the assembly procedure.**

4. Insert the four screws and nuts but do not over-tighten. Force is not required to maintain the seal.

Connecting Inputs and Outputs

I/O CONN 1   **I/O CONN 2**

BACK (SOLDER) END VIEW

Pin numbers are as shown above, when looking at the back (solder end) of the connector with the notch facing upwards. Both connectors have identical pinouts.

I/O CONNECTOR 1

PIN	FUNCTION	COMMENT
1	SWITCH 1 / COUNTER 1 / QUADRATURE 1A	Active is short to GROUND
2	ANALOGUE 1	0 – 2.4V or 4-20 mA range
3	GROUND	
4	SWITCH 2 / COUNTER 2 / QUADRATURE 1B	Active is short to GROUND
5	ANALOGUE 2	0 – 2.4V or 4 - 20 mA range
6	GROUND	
7	SWITCHED POWER OUT	Driven by CONTROL 1, max 1A
8	EXTERNAL POWER IN	Nominal 12V 1A DC

I/O Connector 1 is located in the middle of the case.

I/O CONNECTOR 2

PIN	FUNCTION	COMMENT
1	SWITCH 3 / COUNTER 3 / QUADRATURE 2A	Active is short to GROUND
2	ANALOGUE 3	0 – 2.4V or 4 - 20 mA range / short to GND
3	GROUND	
4	SWITCH 4 / COUNTER 4 / QUADRATURE 2B	Active is short to GROUND
5	ANALOGUE 4	0 – 2.4V or 4 - 20 mA range / short to GND
6	GROUND	
7	OPEN COLLECTOR OUTPUT	Driven by CONTROL 2, nominal 10 mA
8	INTERNAL LOW VOLTAGE SENSOR POWER SUPPLY	User selectable as 3.3V or 5V, supplied by internal battery, max 100 mA

I/O Connector 2 is located on the right hand side of the case when viewed from the front.

NOTE: all of the GROUND pins are equivalent and all inputs and outputs are referenced to this common ground.

Using the Connectors

Some usage scenarios of the microSpider2 I/O connectors are outlined below:

- Connect inputs as per manual:
    - Switch, event, counter and quadrature inputs - connected directly to appropriate input and GROUND.
    - 4-20mA – Connect directly between an available analogue input and GROUND. External resistors are NOT required.
    - Voltage inputs with a range of up to 2.4V – connected directly between an available analogue input and GROUND
    - Voltage inputs with a range over 2.4V – connected via dividing resistors (not supplied – see the manual for details)

- "SWITCHED POWER OUT" on I/O Connector 1 can be used to power sensors from an external power supply connected to "EXTERNAL POWER IN". The microSpider2 will switch the power to the sensor when required. If an external power supply is connected, it will also power the microSpider in preference to its internal battery pack as long as its voltage is above approximately 7.5V

- "OPEN COLLECTOR OUTPUT" on I/O Connector 2 can be used to control external devices such as samplers and power supplies. When activated, this output will create a connection to GROUND through a 440 Ohm resistor.

- "INTERNAL LOW-VOLTAGE SENSOR POWER SUPPLY" on I/O Connector 2 can be used to power low power sensors directly from the microSpider2 internal battery pack. This output is user settable as either 3.3V or 5V and is current limited to approximately 100mA. Please note that using this power supply will increase the system power consumption and reduce the microSpider2 battery life.

Prior to leaving a site, you must ensure that any unused I/O connector and the communications connector (see below) are fitted with supplied sealing caps to prevent contact contamination.

Connecting the microSpider2 to your PC

1. You must use the special LANlink Communications cable.

2. Turn your computer on and disconnect it from your network.

3. Plug the round connector end of the cable into the communications connector of the microSpider2. (When viewed from the front, the communication connector is on the left.)

Red washer identifying microSpider2 communications connector - please see NOTE 2 below

4. Connect the Y-end of the cable into your computer by plugging the RJ-45 connector into the LAN port and plugging the USB connector into a free USB port.

5. Wait 60 seconds.

6. Open a web browser (e.g. Internet Explorer, Firefox, Chrome, Safari) and request the following page: http://192.168.0.177

7. Log in with the default username "user" and password "changeme" (without quotation marks)

NOTE 1: Your PC will supply power to the microSpider2 while it is connected as described above. Therefore, there is no need to minimise PC connection times since there will be no additional drain on the internal battery pack. The only exception to this is modem communications for which the internal battery pack is always used. However, you will be notified in your browser when the modem is active.

NOTE 2: microSpider2 and the original microSpider use different communications cables. Corresponding communication connectors on the two units are also different, preventing you from plugging in a wrong cable. The microSpider2 communications connector is clearly identified with a red washer.

Configuring your microSpider2

Continuing on from the previous section, follow these steps to begin configuring your microSpider2:

1. Go to the "Change Setup" page

2. Set the location name (E.g. to your site name)

3. Set the date and time

4. Set the username and password for security

5. Configure and name the microSpider2 inputs as required

6. Calibrate the analogue inputs

7. Set the scaler and offset for any counter or event inputs

8. Set the control names

9. Set up alarms as required

10. Set up the network parameters

11. Set up the e-mail parameters

12. Set up automatic report sending as required

13. Save setup

These steps should get you started, but make sure to read through the full manual to find out how to configure the microSpider2 features not mentioned above. There is a help button on most pages that provides additional information and tips.

Testing your microSpider2

Once you have set up and configured your microSpider2, you can test its inputs, outputs, and communications functionality. The inputs and outputs can be tested in the standard manner by connecting either real or simulated sensors to the microSpider2 and observing the readings on relevant web pages.

Modem communications can be tested through the web browser by accessing the "Modem Diagnostics" page from Change Setup. This page provides interactive diagnostics capable of testing most of the microSpider2 communication features such as signal strength, sending test SMS, sending test e-mail, etc.

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