- Dual SIM for redundancy
- Custom SMS messages, user configurable using a web browser
- 16 Modbus Coil configuration
- 16 Modbus Holding Register configuration
- Dual diversity antennas
- DIN rail mountable
- Certified for use in Australia. Compatible with all carriers: Telstra, Optus, Vodafone

The ULC-351 is a 3G/4G SMS alarm kit that can be used to trigger custom messages for remote monitoring of equipment. By default, this unit is factory set for the first 16 channels to be Coils, and the next 16 channels to be Holding Registers. The device can accommodate up to 64 channels, where the user is free to configure the remaining available channels. Text messages are easily set by the user using a web browser and can be triggered by the Modbus data registers. More details on user settings can be found on the Appendix below.

Modbus Registers and Channels

Coil Address	Channel	Type
0	CH0	Coil
1	CH1	Coil
2	CH2	Coil
3	CH3	Coil
4	CH4	Coil
5	CH5	Coil
6	CH6	Coil
7	CH7	Coil
8	CH8	Coil
9	CH9	Coil
10	CH10	Coil
11	CH11	Coil
12	CH12	Coil
13	CH13	Coil
14	CH14	Coil
15	CH15	Coil

Register Address	Channel	Type
0	CH16	Holding Register
1	CH17	Holding Register
2	CH18	Holding Register
3	CH19	Holding Register
4	CH20	Holding Register
5	CH21	Holding Register
6	CH22	Holding Register
7	CH23	Holding Register
8	CH24	Holding Register
9	CH25	Holding Register
10	CH26	Holding Register
11	CH27	Holding Register
12	CH28	Holding Register
13	CH29	Holding Register
14	CH30	Holding Register
15	CH31	Holding Register

Alarm Settings:

All Coils have been pre-configured to send out a SMS when the output is HIGH (TRUE). For example, when CH5 Coil is HIGH, the SMS will say “CH5 is HIGH”.

All Holding Registers have been pre-configured to send out a SMS when the current value greater than (>) 0. For example, when CH25 goes from a value of 0 to 10, the SMS will say “CH25 holds 10”

The phone numbers for the SMS alarms can be added by Ocean Controls prior to shipment, or the user may configure it as they wish. More details can be found on the Appendix below.

RS-485 Modbus Communication Parameters:

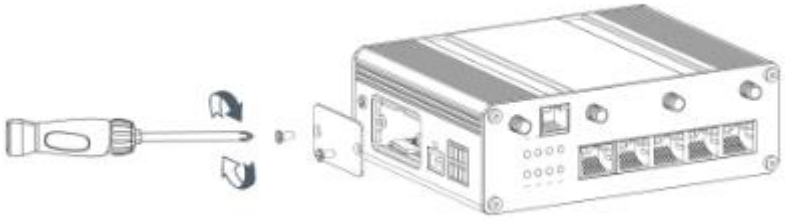
By default, the ULC-351 communicates with these settings:

Modbus Default Parameter	Modbus Default Parameter Value
Slave ID	1
Baud Rate	9600
Parity	None
Stop bit	1

Appendix:

Quick Start

Install your SIM card(s) in the ULC-035 by removing the small screw and sliding away the side cover. You will find this screw adjacent to the power terminals. Only one SIM card is necessary, but two can be used to provide redundancy.



Attach at least one antenna to the ULC-035. The provided antenna is adequate for most situations.

Connect both devices via RS-485. Shielded cable is preferred, but any will suffice over a short distance. 'A' goes to 'DATA+' and 'B' goes to 'DATA-'.

Device	RS-485 Terminals
ULC-035	A and B
Modbus Slave Unit	DATA+ and DATA-

Apply power to both devices. They can both share the same power supply if they have a similar range. POWER LED illuminates on the ULC-035 (among others).

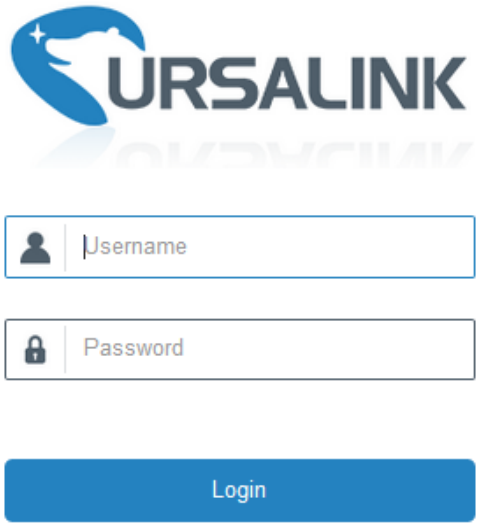
Device	Power Terminals
ULC-035	+ and -
Modbus Slave Unit	+VS and GND

Connect a computer via the included Ethernet cable to any port among LAN1-LAN4 on the ULC-035. The default IP address is:

192.168.1.1

If you are on this subnet, you should be able to enter 192.168.1.1 in your web browser and be served out the configuration page.
For more information, including changing your subnet on Windows, see the ULC-035 user manual (page 13).

You will be greeted with a login screen.
Default username: ***admin***
Default password: ***password***



Router Configuration

Most of the control has already been set up in the factory, but you will need to add your own phone number(s), and optionally change the SMS alarm message.

- **Configure the Cellular Connection**

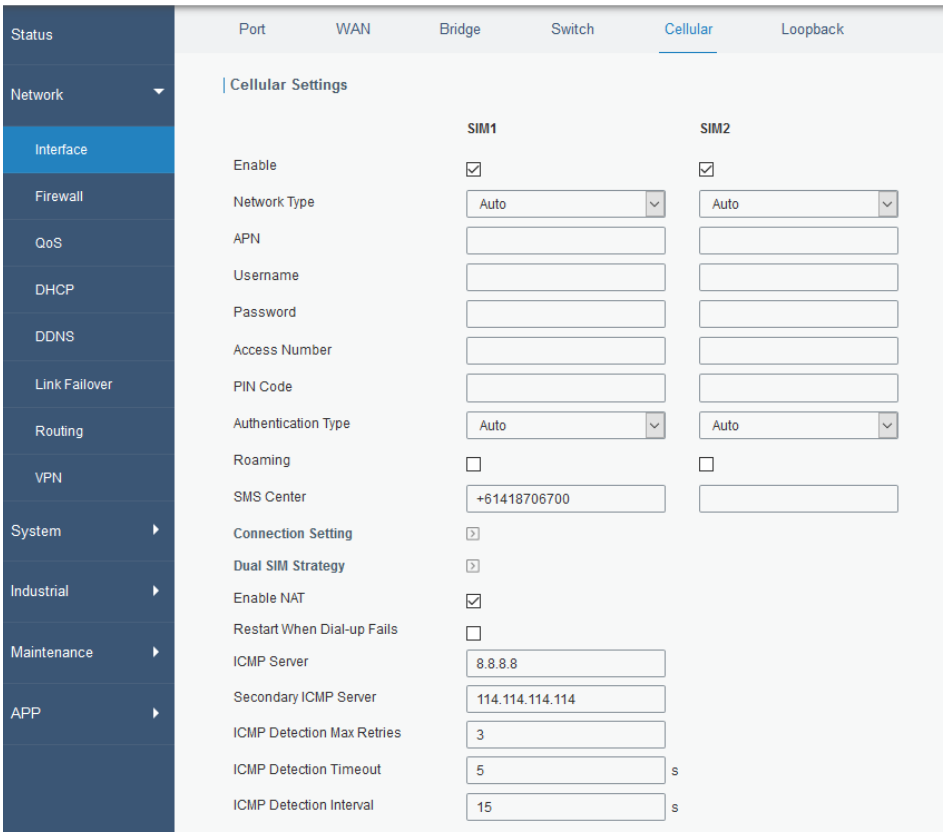
Click on “Network” -> “Interface” -> “Cellular” to configure the cellular setting.

Enable SIM1 (and SIM2), and set “Network Type” to “Auto”. Enter the corresponding SMS centre number for your cellular.

Carrier	SMS Centre Number
Telstra	+61418706700
Optus	+61411990001
Vodafone	+61415011501

Enter APN for your cellular. E.g. APN for Telstra Sim, “telstra.extranet”

Click “Save” and “Apply” to update the changes to ULC-035.

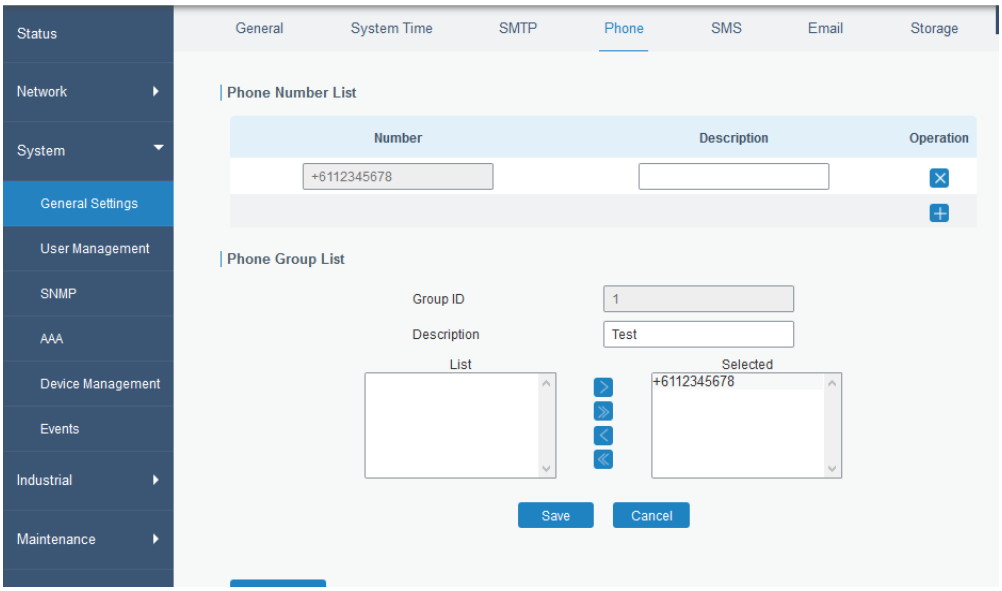


- **Adding/Changing Phone Numbers**

Navigate to “System -> General Settings -> Phone” using the left side menu.

Add phone numbers to the “Phone Number List”. In “Phone Group List”, create a phone group and select phone numbers. Multiple numbers can be grouped together such that more than one person is notified of an alarm. Different groups can even be created and assigned to different alarms.

Click “Save” and “Apply” to finalize your update.

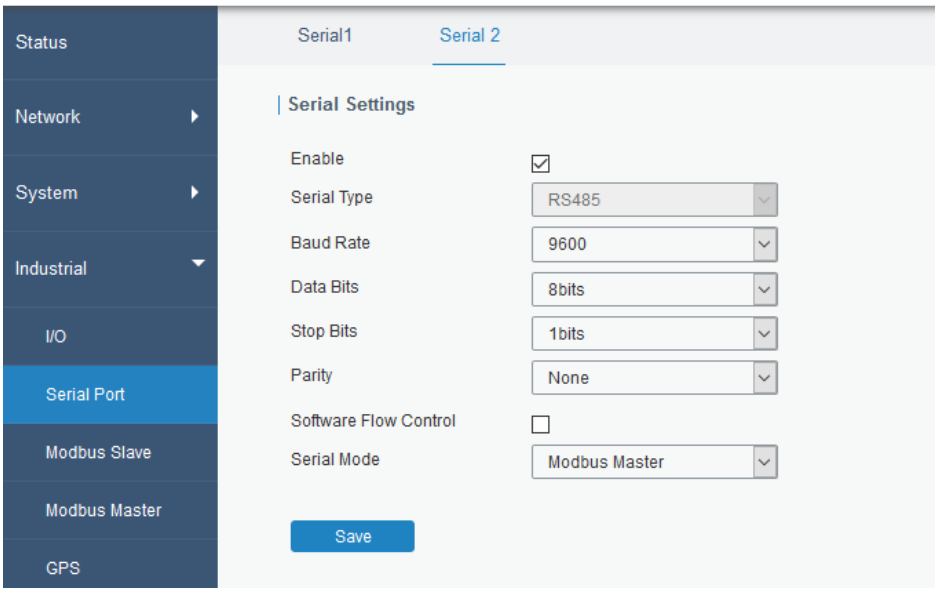


- **Serial Port Setup**

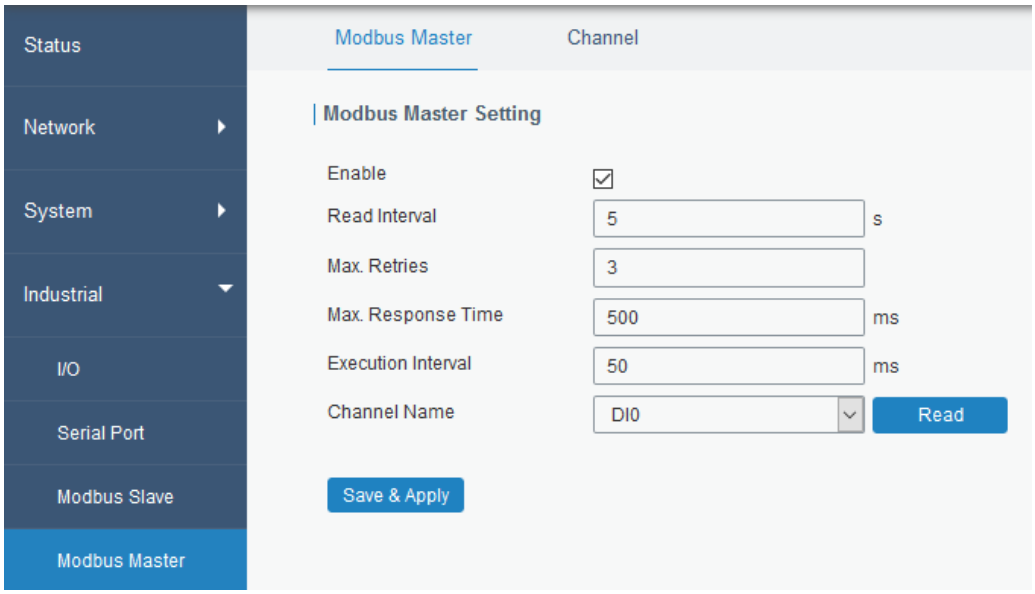
  Under “Industrial” section, enable “Serial Port 2” for communicating via RS485. Choose the required values for the communication parameter. For example:

  - Baud Rate: 9600
  - Data Bits: 8 bits
  - Stop Bits: 1 bit
  - Parity: None

  Set “Serial Mode” to be “Modbus Master”, then “Save” and “Apply” all configuration.



Go to “Modbus Master -> Modbus Master”, enable “Modbus Master Setting” and Set up preferred values for the Modbus Master’s parameters. Remember to press “Save & Apply”.



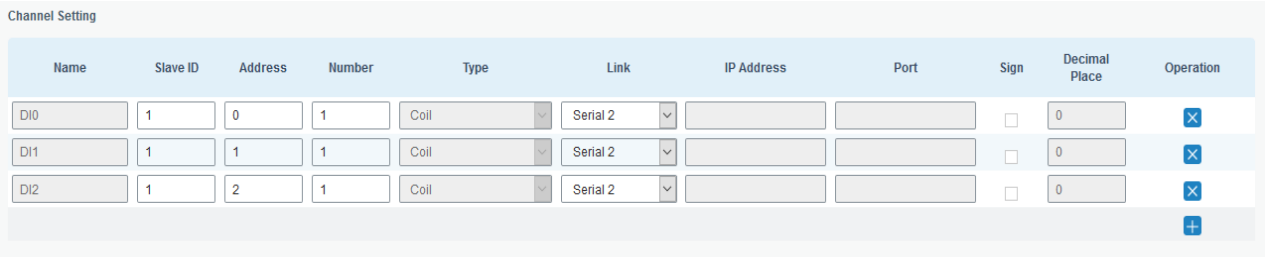
- **Create Channels & Set up Alarm**

  Click on “Industrial -> Modbus Master->Channel”, add channels and configure alarm setting on this page.

  In “Channel Setting”, fill up information for each channel, where

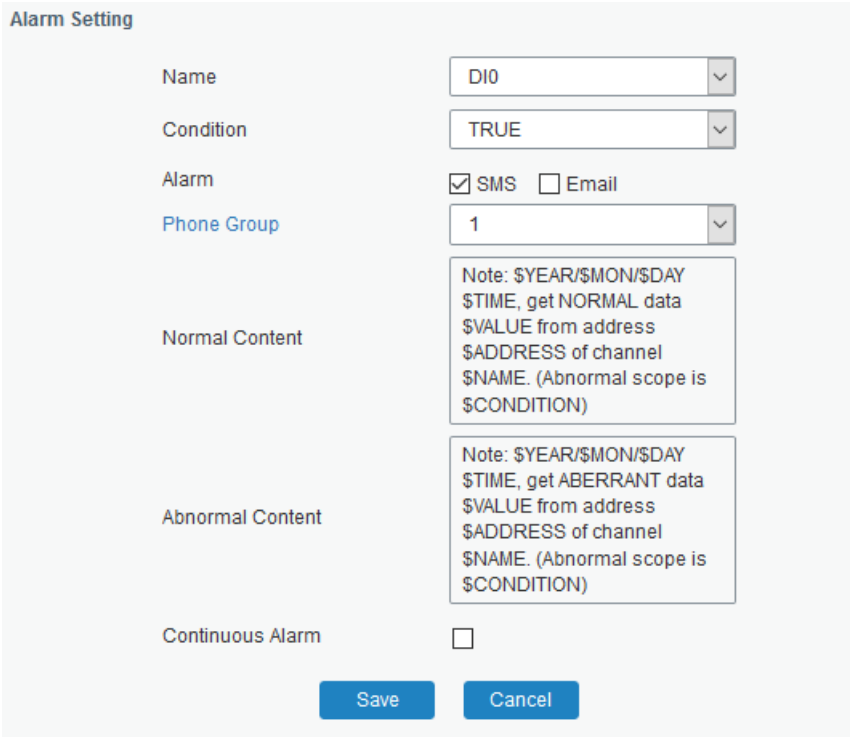
Name	Set the name to identify the remote channel. It cannot be blank
Slave ID	Address of Modbus Slave unit
Address	The starting address for reading
Number	The length of registers this channel will contain
Type	Read command, options are "Coil", "Discrete", "Holding Register (INT16)", "Input Register (INT16)", "Holding Register (INT32)" and "Holding Register (Float)".

Link	Serial 2



In "Alarm Setting", set up the alarm for each channel. You can add up to 64 Modbus channels.

If you click on the "pen" icon on each one, a box will appear with the alarm settings. Towards the bottom of the box there is a text box called "Abnormal Content "and this is the message you will receive when the set condition is met. By default, the SMS is a detailed message with time, condition, and current status of the channel. These messages can be altered to say something more descriptive for your application, EG "pump room 4 VFD fault", or "Eastern Chook shed under temperature."



Once you have finished all changes, press "Save" and "Apply".

Your equipment is now ready.