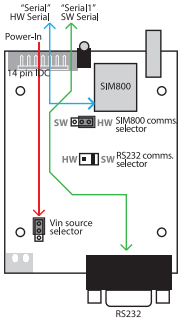
INSTALLATION

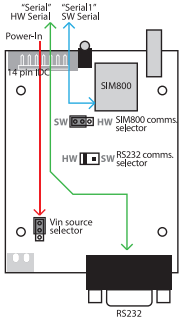
1. Open the enclosure, insert a SIM card and connect the antenna.

2. Set Vin power source jumper to the top position, facing towards the 14pin IDC connector.

3. Set the serial interface jumpers to your preferred configuration.



IDC mode 1:
Primary UART for GSM functions, secondary UART as RS232 port.



IDC mode 2:
Secondary UART for GSM functions, primary UART as RS232 port.

4. Connect the GSM/GPRS module to the Industruino controller via the 14pin connector.

For more detailed documentation please visit our tech support page:
industruino.com/support

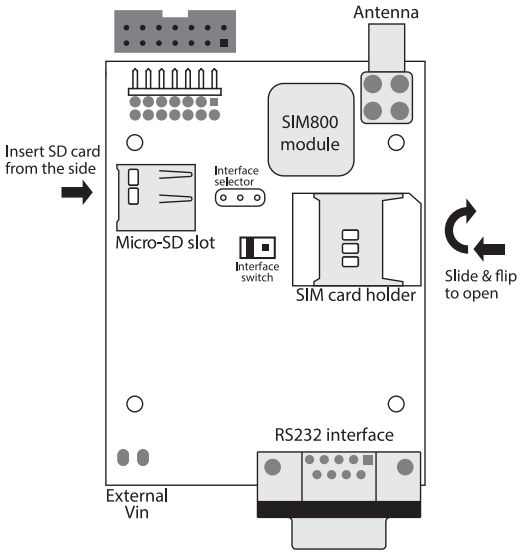
IDE SET UP

1. Open the library manager (Sketch->Include library->Manage libraries)

2. Search for "TinyGSM" and install the library

3. Search for "StreamDebugger" and install the library

4. Use the library example sketches as a starting point for your application
   - GSM functions: File->Examples->TinyGSM
   - SD functions: File->Examples->SD



SKETCH CONFIGURATION

1. For IDC mode 1: Set the SIM800 module serial port (SerialAT) to "Serial" to select the primary UART. The secondary UART will be connected to the RS232 port.

```
// Use Hardware Serial on Mega, Leonardo, Micro
#define SerialAT Serial
```

For IDC mode 2: Set the SIM800 module serial port (SerialAT) to "Serial1" to select the secondary UART. The primary UART will be connected to the RS232 port.

```
// Use Hardware Serial on Mega, Leonardo, Micro
#define SerialAT Serial1
```

2. The module can be turned on/off manually by pressing the 'PWR' button next to the antenna connector for 1 second, or in software by generating a 1 second positive pulse on pin D6.

```
void setup() {
pinMode(6, OUTPUT);
digitalWrite(6, HIGH);
delay(1000);
digitalWrite(6, LOW);
```

3. In the example sketches make sure to change all serial output console instances from "Serial" to "SerialUSB".

```
void setup() {
// Set console baud rate
SerialUSB.begin(115200);
delay(10);

// Set GSM module baud rate
SerialAT.begin(115200);
delay(3000);

// Restart takes quite some time
// To skip it, call init() instead of restart()
SerialUSB.println(F("Initializing modem..."));
modem.restart();
```

GSM / GPRS MODULE

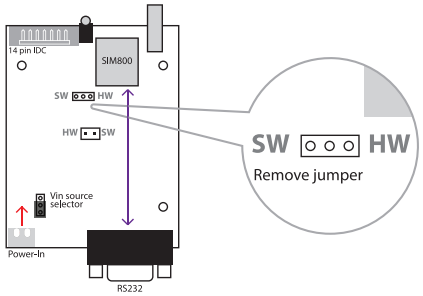
14P IDC Expansion Port

+5V	MOSI/D16	GND	S-RX/D5	PWR/D6	H-RX/D1	SCL/D3
MISO/D14	SCLK/D15	S-TX/D10	SD/D4	RI/D7	H-TX/D0	SDA/D2

When using the GSM / GPRS module with the Industruino PROTO, it is important to be aware of the I/O pins it is using, and which should not be used for other I/O functions.

When used as RS232 GSM modem:

1. Set Vin power source jumper to the bottom position, facing towards the external 2 pin power connector.



2. Remove the jumper from the serial interface selector. Insert a SIM card and connect the antenna.

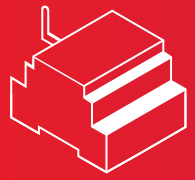
3. Connect the module to your equipments via the RS232 interface.

4.Supply the module with 3-32V via the external power connector.

5. Turn the module on/off manually by pressing the 'PWR' button next to the antenna connector for 1 second, or in software by generating a 1 second positive pulse on the RTS line.

6. Issue AT commands via the RS232 port to communicate with the GSM module. For an overview of supported AT commands please download the "SIM800 Series_AT Command Manual_V1.10" from the SIMCOM website:
http://simcomm2m.com/En/module/detail.aspx?id=75

GUIDE BOOK:
GSM / GPRS MODULE



INDUSTRUINO

INDUSTRUINO®

Operation instructions

Before using Industruino GSM/GPRS Expansion Module please read the manual carefully, and pay full attention to safety to handle the product correctly.
For the full manual and instructions regarding installation, usage and operation of the ethernet module please visit: **www.industruino.com/support**

Before using Industruino GSM/GPRS Expansion Module please refer to our conditions of use: **www.industruino.com/conditions-of-use**

Safety instructions

WARNING:

- Always power down the Industruino controller before connecting or disconnecting the GSM/GPRS Expansion Module via the 14 pin IDC connector.
- Always power down the Industruino controller before inserting or removing a MicroSD card.
- When accessing the MicroSD card slot, avoid touching nearby components to avoid ESD damage
- Do not operate with suspected failures. If suspected damage occurs with the device, have it inspected by qualified service personnel before further operations.
- Do not operate in an explosive atmosphere.
- Do not use in wet/damp conditions.
- Keep device surfaces clean and dry.
- Use only for applications described in the catalog and the manual, and only with third party devices or components if they have been approved or recommended by Industruino.
- The device can only function correctly and safely if it is transported, stored, set up, and installed correctly, and operated and maintained as recommended.
- The device must be installed and wired by a trained technician following the applicable local safety standards and regulations.

Conditions of use

(1) Industruino GSM/GPRS Expansion Module ("the PRODUCT") shall be used in conditions; i) where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and ii) where the backup and fail-safe function are systematically or automatically provided outside of the PRODUCT for the case of any problem, fault or failure occurring in the PRODUCT.

(2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.
ES GEAR LTD. OR ITS DISTRIBUTORS SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT THAT ARE OPERATED OR USED IN APPLICATION NOT INTENDED OR EXCLUDED BY INSTRUCTIONS, PRECAUTIONS, OR WARNING CONTAINED IN ES GEAR LTD. OR ITS DISTRIBUTORS' USER, INSTRUCTION AND/OR SAFETY MANUALS, TECHNICAL BULLETINS AND GUIDELINES FOR the PRODUCT.

("Prohibited Application")
Prohibited Applications include, but not limited to, the use of the PRODUCT in;

Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.

Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.

Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

Notwithstanding the above, restrictions ES Gear Ltd. may in its sole discretion, authorize use of the PRODUCT in one or more of the Prohibited Applications, provided that the usage of the PRODUCT is limited only for the specific applications agreed to by ES Gear Ltd. and provided further that no special quality assurance or fail-safe, redundant or other safety features which exceed the general specifications of the PRODUCTs are required. For details, please contact an ES Gear Ltd. representative.

REGULATORY

CE COMPLIANCE

This product meets the essential requirements of applicable European Directives as follows:

2014/53/EU; Radio Equipment Directive (RED).

2011/65/EU; Restriction of Hazardous Substances Directive (RoHS).

FCC COMPLIANCE

This device complies with the following FCC rules:
FCC CFR Title 47 Part 2: 2015
FCC CFR Title 47 Part22 Subpart H: 2015
FCC CFR Title 47 Part24 Subpart E: 2015

FCC ID: 2AMXJGSM-EXP

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
This device may not cause harmful interference.

This device must accept any interference received, including interference that may cause undesired operation.

All Industruino products that are subject to the WEEE directive shipped from September 1, 2014 are compliant with the WEEE marking requirement. Such products are marked with the "crossed-out wheelie bin" WEEE symbol (shown, above) in accordance with European Standard EN50419.

Manufacturer: ES Gear Limited
9B, Amtel Building, 148 Des Voeux Road, Central, Hong Kong

Importer in EU: BTL cvba
Jan Mioenstraat 13, 8610 Kortemark, Belgium

Product: Industruino GSM / GPRS Expansion Module