

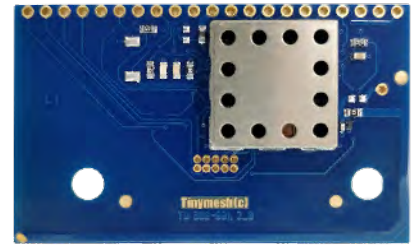
# Tinymesh

CONNECT · COMMUNICATE · CONTROL

## TM4170 Point-to-Point Plug-in Board

### Unique Technology Features

- ▶ Ready to use plug-in board with Tinymesh application stack.
- ▶ Up to 8 GPIOs; Analog, digital and pulse counter inputs; dimmer and digital outputs
- ▶ No external components required
- ▶ RF frequency - license free 865-867, 868-870 or 902-927 MHz
- ▶ Tx Power: Up to 11dBm
- ▶ Serial Port, 256-byte buffer, hardware or software handshake
- ▶ Performance optimized on-board PCB antenna
- ▶ Immunity support for 35kV and jammer test
- ▶ Support for DLMS over RF
- ▶ Provision for RSSI and connect LED for deployment assistance
- ▶ Power Supply Tx: 37 mA, Rx: 24 mA, sleep: 0.3 uA
- ▶ Supply voltage 2.0V - 3.6V



TM4170-000 -Size: 33x55mm (21-pin Through Hole)

TM4170-210 -Size: 22x35mm (12-pin Through Hole)

TM4170-310 -Size: 19x36mm (16-pin SMT)

### Tinymesh Point-to-Point Stack Highlights

- ▶ Point-to-Point communication
- ▶ Wireless OTA configuration
- ▶ AES 128 encryption
- ▶ Link level and application level acknowledgement
- ▶ IEEE 802.15.4.g compatible PHY mode

### Key Applications

- ▶ Smart Energy Meters
- ▶ Smart Water Meters
- ▶ Smart Gas Meters
- ▶ Smart Cities
- ▶ Smart Buildings
- ▶ Industrial M2M
- ▶ Wireless Sensor Networks

### Tinymesh Cloud

- ▶ Open source, REST API for application development
- ▶ Mesh connectors for GPRS, Ethernet, UNIX, Windows, Apple
- ▶ On-line workbench for remote configuration and support
- ▶ Supports redundancy, retry, buffering and data storage
- ▶ Built in end-to-end security



| Parameter                    | TM4170-XXX | TM4180-XXX | TM4190-XXX | Units  |
|------------------------------|------------|------------|------------|--------|
| Frequency                    | 865-867    | 868-870    | 902-927    | MHz    |
| Channels                     | 15         | 18         | 50         |        |
| Data rate                    | 1.2-100    | 1.2-100    | 1.2-250    | kbit/s |
| Max TX Power                 | 11         | 11         | 11         | dBm    |
| Sensitivity @ 1.2/100 kbit/s | -110 / -97 | -110 / -97 | -110 / -97 | dBm    |
| Supply voltage               | 2.0 - 3.6  | 2.0 - 3.6  | 2.0 - 3.6  | Volt   |
| RX/TX Current                | 24/37      | 24/37      | 24/37      | mA     |
| SLEEP Current                | 0.3        | 0.3        | 0.3        | uA     |
| Temp. range                  | -40 to +85 | -40 to +85 | -40 to +85 | C      |

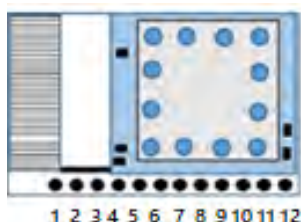
# TM4170 Point-to-Point Plug-in Board

## Pin Description

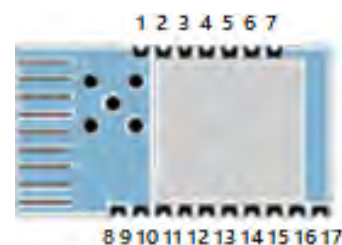
TM4170-000



TM4170-210



TM4170-310



| Pin Name       | Pin No.  |          |             | Pin Type                      | Description  |
|----------------|----------|----------|-------------|-------------------------------|--|
|                | 4170-000 | 4170-210 | 4170-310    |                               |  |
| VDD            | 1, 11    | 3        | 8           | Power Supply                  | Supply voltage input. Internally regulated.                                    |
| GND            | 2, 17    | 4        | 1,2,3,4,5,9 | Power Supply                  | System Ground.   |
| RESET          | 3        | 9        | 14          | Input                         | Main reset (active low). Should normally be left open.                         |
| PULSE INPUT    | 4        | NA       | NA          | Digital                       | Pulse counter input with selectable pull -up. Counting on Hi - Low transition. |
| GPIO 0         | 21       | NA       | NA          | Digital In/out or Analogue In | Individually configurable as Digital Input or Output or as Analogue input.     |
| GPIO 1         | 20       | NA       | NA          | Digital In/out or Analogue In | Individually configurable as Digital Input or Output or as Analogue input.     |
| GPIO 2/DC*     | 19       | 12       | 17          | Digital In/Out                | Configurable as Digital input or output.                                       |
| GPIO 3/DD*     | 18       | 11       | 16          | Digital In/Out                | Configurable as Digital input or output.                                       |
| GPIO 4         | 8        | NA       | NA          | Digital In/Out                | Configurable as Digital input or output.                                       |
| GPIO 5         | 7        | NA       | NA          | Digital In/Out                | Configurable as Digital input or output.                                       |
| GPIO 6         | 5        | NA       | NA          | Digital In/Out                | Configurable as Digital input or output.                                       |
| GPIO 7         | 6        | NA       | NA          | Digital In/Out                | Configurable as PWM output.  |
| RSSI/TX LED    | 9        | 1        | 7           | Output                        | Direct LED drive output. Refer Data Sheet                                      |
| CONNECT/RX LED | 10       | 2        | 6           | Output                        | Direct LED drive output. Refer Data Sheet<br>Alternate function - PWM Output.  |
| CTS/RXTX       | 12       | 6        | 11          | Output                        | UART CTS or RTX Active Low.  |
| RTS/SLEEP      | 13       | 5        | 10          | Input                         | UART RTS or Sleep.   |
| CONFIG         | 14       | 10       | 15          | Input                         | Configuration Enable.Active low. Should normally be set high.                  |
| TXD            | 15       | 8        | 13          | Output                        | UART TX Data   |
| RXD            | 16       | 7        | 12          | Input                         | UART RX Data   |

\*Pins 11,12 of 4070-210 and pins 16,17 of 4070-310 are used for device programming.

# Tinymesh

EASIER & SMARTER

DOC TM4170-IN001

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