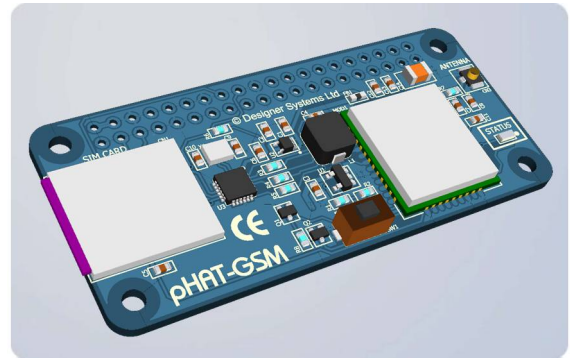


# pHAT-GSM

## Quad-band 2G GSM modem module

for Raspberry-Pi boards



pHAT-GSM is a quad-band GSM/GPRS module that works on frequencies GSM850MHz, EGSM900MHz, DCS1800MHz and PCS1900MHz supporting GPRS class 12 data and Small-Message-System (SMS) functionality. Specifically designed for the Raspberry-Pi Zero user (can also be used on all the other Raspberry-Pi variants) the pHAT-GSM features I<sup>2</sup>C communication to leave the Raspberry-Pi UART for other functions eg. sensors etc.

pHAT-GSM features full AT command control over the embedded I<sup>2</sup>C to UART bridge allowing the Raspberry-Pi to create GPRS sessions with uplink and downlink transfers at up to 85.6kbps to support standard Internet service protocols.

The compact form factor, low power consumption and extended temperature range make pHAT-GSM a best choice for M2M and M2H applications when using the Raspberry-Pi modules.



### Key Benefits

- ✓ Compact quad-band GSM solution for worldwide use.
- ✓ GPRS multi-slot class 12 data transfer at 85.6kbps supporting embedded Internet service protocols for M2M applications.
- ✓ Text and PDU mode Small-Message-System (SMS) support.
- ✓ Standard 3GPP TX 27.00x AT command set with extended commands for power saving modes.
- ✓ Manual power on/off button or IO controlled power on/off for embedded applications.
- ✓ SC16IS750 I<sup>2</sup>C to UART bridge supports serial speeds up to 115.2kbps.
- ✓ U.F.L antenna and micro-SIM interface for 1.8/3.0V SIM cards.



Quad-band



External UFL  
Antenna



Extended temperature  
Range: -20°C ~ +85°C



Fully Raspberry-  
Pi compatible



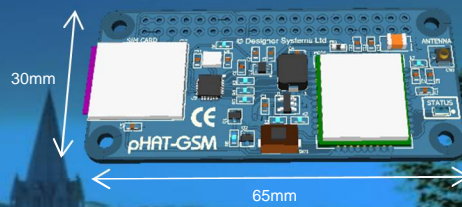
Supports M2H  
interfacing



Supports M2M  
interfacing

# pHAT-GSM

## Quad-band 2G GSM modem module



### Frequency Band

Quad-band:

850/900/1800/1900MHz

### Data

GPRS Class 12:

Uplink speed 85.6kbps max.

Downlink speed 85.kbps max.

Integrated TCP/IP protocol

Coding:

CS-1 to CS-4

### SMS

Text and PDU mode

SMS Cell Broadcast

Point-to-point MO and MT

### USSD

Supported

### SIM Card

Support:

Micro SIM (3.0/1.8V)

Type:

Push-push card

### Antenna

Impedance:

50ohm

Connection:

U.F.L socket

### I<sup>2</sup>C and IO:

I<sup>2</sup>C Signals:

SDA, SCL & IRQ (GPIO24)

IO Signals:

PWR\_CTL (GPIO23) [power on/off]

Voltage level:

3.3V

I<sup>2</sup>C Pullups:

None (within Raspberry-Pi)

I<sup>2</sup>C Speed:

100kHz and 400kHz

I<sup>2</sup>C address:

0x4D

Connection:

40pin Raspberry-Pi header

### Indication

Blue STATUS LED:

Flash@800mS – Not registered

Flash@3S – Registered on network

Flash@300mS – GPRS data mode

### Controls

Power Button:

Tactile (Hold to power on/off)

### I<sup>2</sup>C-UART Modem Bridge

Bridge device:

SC16IS750

Modem serial speed:

1200 – 115200 bps

Modem protocol:

8 data, no parity, 1 stop

Modem flow control:

RTS/CTS

### Electrical & Sensitivity

Supply Voltage:

4.5V – 5.5VDC

Power Consumption:

10mA @ 5VDC Idle

50mA @ 5VDC Peak

Output Power:

Class 4 (2W @ 850/900MHz)

Class 1 (1W @ 1800/1900MHz)

Sensitivity:

GSM850: -109dBm Typ.

EGSM900: -109dBm Typ.

DCS1800: -109dBm Typ.

PCS1900: -109dBm Typ.

### General Features

Supplied with U.F.L antenna

GPRS Multi-slot Class: Class 12

3GPP TX 27.00x AT command set

Temperature range: -20°C – +85°C

Dimensions: 65 x 30 x 4mm

Weight: 12g approx.

### Approvals

RoHS Compliant

RED Compliant

CE (Europe)

UKCA (UK)