



## GS780M Ultra-Low Power Bluetooth® Smart Module



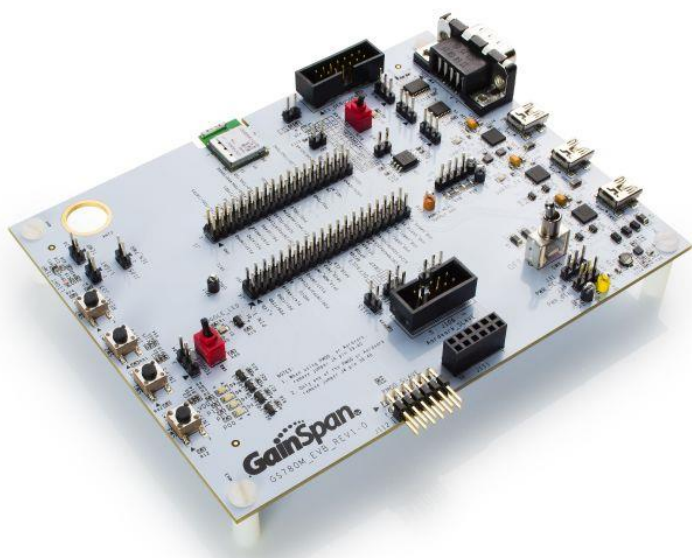
The GS780M is among the lowest power consumption Bluetooth Smart module available on the market today. It provides a quick, easy, and cost-effective way for device manufacturers to add Bluetooth low energy connectivity to their products. The module minimizes RF design time and certification and reduces time to market.

This module could operate in a standalone mode with the customer application code running on the module, or connect through UART or SPI to a microcontroller running the application code.

The module includes a Bluetooth SIG qualified stack. Sample source code and API for custom profile are provided and most common Bluetooth Smart profiles are also available.

The module meets regulatory certification including US/Canada (FCC/IC), Europe (CE/ETSI), and Japan (TELEC).

### *GS780M Evaluation Development Board*



#### **BENEFITS:**

- Adds low power Bluetooth Smart / Bluetooth Low Energy (BLE) connectivity to any device
- Certified module reduces development time, testing, and certification, accelerating time to market
- Best-in-class power consumption for increased battery life
- Standalone applications can be created with IAR Embedded Workbench SDK

#### **FEATURES:**

- Bluetooth® Smart V4.2-qualified by Bluetooth SIG but does not support long data packet and the latest privacy encryption features, which are optional.
- Operates in hostless mode (no MCU required) or Serial to BLE mode (with external MCU)
- GATT Server and Client
- Up to 8 connections in server mode
- BT SIG qualified stack: GAP, GATT, Security Manager, L2CAP, HCI, LL
- Bluetooth Smart profiles and Custom profiles
- Outstanding peak Tx current of 4.3mA and Rx current of 3.5mA
- Automatically optimizes power consumption based on range
- Over-the-air firmware upgrade
- Bluetooth Developer Studio Plug-in

#### **TYPICAL APPLICATIONS:**

- Healthcare and Fitness: glucose and blood pressure monitors, activity monitors, thermometers
- Smart Homes: door locks, security systems
- Commercial: beacons, tags

GS780M MODULE SPECIFICATIONS

<b>Radio Protocol</b>	IEEE 802.15.1, Bluetooth Smart v4.2
<b>Pin Count</b>	30 pins
<b>RF Output Power (Typical)</b>	0 dBm on GS780MIZ, 20 dBm on GS780MEZ
<b>Rx Sensitivity</b>	-91 dBm on GS780MIZ, -102 dBm on GS780MEZ
<b>RF Operating Frequency</b>	2.4 GHz
<b>Antenna</b>	Ceramic
<b>Operating Temperature</b>	-40° to +85°C
<b>Encryption</b>	AES128
<b>Stack</b>	Embedded Bluetooth Smart stack including GAP, GATT, Security Manager, L2CAP and BLE profiles
<b>Certifications and Compliance</b>	Planned FCC, IC, TELEC, CE/ETSI
<b>I/O Interfaces</b>	SPI, UART, I <sup>2</sup> C, GPIO, PWM, 10bit A/D
<b>Host Connections</b>	SPI, UART
<b>Internal Flash</b>	256KB program flash (of which 110KB used by stack), 8KB data flash
<b>RAM</b>	20KB (of which 8KB used by stack)
<b>MCU Core</b>	Renesas RL78, 16 bits
<b>Frequency</b>	32 MHz
<b>Outline Dimensions</b>	GS780MIZ: 12.5mm x 17mm x 2.2mm, GS780MEZ: 12.5mm x 20mm x 2.2mm
<b>Operating Voltage</b>	1.8-3.6V

BLE Software Stack (BT SIG qualified)

