

[The SensorTag Story](#)[Getting Started](#)[Teardown](#)[DevPacks](#)[Apps and Partners](#)[Community & Buzz](#)

IoT made easy

By 2020 there will be 50 billion Internet of Things (IoT) devices* – Create yours today!

The SimpleLink™ SensorTag allows quick and easy prototyping of IoT devices. It just works – connect your sensor solution to the cloud in three minutes. Get started with Bluetooth® Smart, 6LoWPAN and ZigBee® development for only \$29.

* Source: Cisco IBSG, 2013

Buy Now



Teardown

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Multi-standard SensorTag

Small size

1.97 x 2.64 x 0.55 inch
5 x 6.7 x 1.4 cm
(WxHxD)

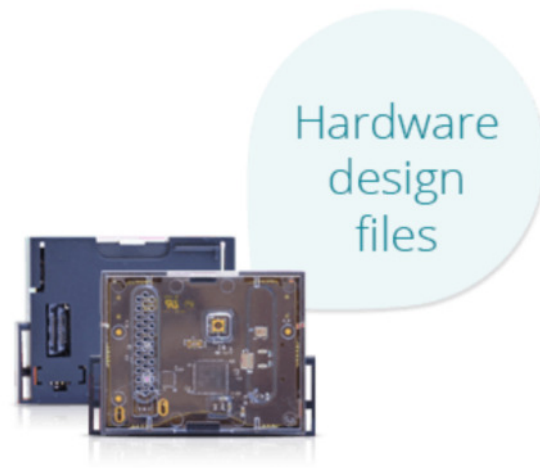


Benefits

- Low-power design
- Easy-to-use, get started in three minutes
- Download app and connect
- No programming required

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SensorTag Resources



Multi-standard SensorTag

Design Files (BOM, Schematic, 3D Design Files)



iOS App

iOS source code example

Android App

Android source code example

BLE-STACK for SensorTag firmware



Cloud-based development tools

Code Composer Studio
Integrated Development
Environment

IAR Embedded Workbench for
ARM®

Bluetooth low energy Device
Monitor

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Sensors and Services*

- | | |
|---|---|
| + | Infrared and Ambient Temperature Sensor |
| + | Ambient Light Sensor |
| + | Humidity Sensor |
| + | Barometric Pressure Sensor |
| + | 9- axis Motion Tracking Device – Accelerometer, Gyroscope and Compass |
| + | Magnet Sensor |
| + | Over The air Download (OAD) |
| – | Full GATT table |

Full GATT table

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|---------------------|----|--------|--|----------------|----------|---|------------------|
| 0x1 | 1 | 0x2800 | GATT Primary Service Declaration | 0x1800 | R | Generic Access Service | |
| 0x2 | 2 | 0x2803 | GATT Characteristic Declaration | 02:03:00:00:2A | R | Device Name | |
| 0x3 | 3 | 0x2A00 | Device Name | | R | | |
| 0x4 | 4 | 0x2803 | GATT Characteristic Declaration | 02:05:00:01:2A | R | Appearance | |
| 0x5 | 5 | 0x2A01 | Appearance | | R | | |
| 0x6 | 6 | 0x2803 | GATT Characteristic Declaration | 02:07:00:04:2A | R | Peripheral Preferred Connection Parameters | |
| 0x7 | 7 | 0x2A04 | Peripheral Preferred Connection Parameters | | R | | |
| 0x8 | 8 | 0x2800 | GATT Primary Service Declaration | 0x1801 | R | Generic Attribute Service | |
| 0x9 | 9 | 0x2803 | GATT Characteristic Declaration | 20:0A:00:05:2A | R | Service Changed | |
| 0xA | 10 | 0x2A05 | Service Changed | | I | | |
| 0xB | 11 | 0x2902 | Client | | RW | Write "01:00" to enable notifications, "00:00" to disable | |

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| 0xC | 12 | 0x2800 | GATT Primary Service Declaration | 0x180A | R | Device Information Service | |
| 0xD | 13 | 0x2803 | GATT Characteristic Declaration | 02:0E:00:23:2A | R | System ID | |
| 0xE | 14 | 0x2A23 | System ID | | R | | |
| 0xF | 15 | 0x2803 | GATT Characteristic Declaration | 02:10:00:24:2A | R | Model Number String | |
| 0x10 | 16 | 0x2A24 | Model Number String | | R | | |
| 0x11 | 17 | 0x2803 | GATT Characteristic Declaration | 02:12:00:25:2A | R | Serial Number String | |
| 0x12 | 18 | 0x2A25 | Serial Number String | | R | | |
| 0x13 | 19 | 0x2803 | GATT Characteristic Declaration | 02:14:00:26:2A | R | Firmware Revision String | |
| 0x14 | 20 | 0x2A26 | Firmware Revision String | 30:2E:38:37:45:20:28:4F:63:74:20:31:36:20:32:30:31:34:29:00 | R | 0.87E (Oct 16 2014) | |
| 0x15 | 21 | 0x2803 | GATT Characteristic Declaration | 02:16:00:27:2A | R | Hardware Revision String | |

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| 0x17 | 23 | 0x2803 | GATT Characteristic Declaration | 02:18:00:28:2A | R | Software Revision String | |
| 0x18 | 24 | 0x2A28 | Software Revision String | | R | | |
| 0x19 | 25 | 0x2803 | GATT Characteristic Declaration | 02:1A:00:29:2A | R | Manufacturer Name String | |
| 0x1A | 26 | 0x2A29 | Manufacturer Name String | | R | | |
| 0x1B | 27 | 0x2803 | GATT Characteristic Declaration | 02:1C:00:2A:2A | R | IEEE 11073-20601 Regulatory Certification Data List | |
| 0x1C | 28 | 0x2A2A | IEEE 11073-20601 Regulatory Certification Data List | | R | | |
| 0x1D | 29 | 0x2803 | GATT Characteristic Declaration | 02:1E:00:50:2A | R | PnP ID | |
| 0x1E | 30 | 0x2A50 | PnP ID | | R | | |
| 0x1F | 31 | 0x2800 | GATT Primary Service Declaration | F000AA00-0451-4000-B000-000000000000 | R | IR Temperature Service | |
| 0x20 | 32 | 0x2803 | GATT Characteristic Declaration | 12:21:00:00:00:00:00:00:00:00:B0:00:40:51:04:01:AA:00:F0 | R | IR Temperature Data | |

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| 0x22 | 34 | 0x2902 | Client Characteristic Configuration | | RW | Write "01:00" to enable notifications, "00:00" to disable | |
| 0x23 | 35 | 0x2803 | GATT Characteristic Declaration | 0A:24:00:00:00:00:00:00:00:B0:00:40:51:04:02:AA:00:F0 | R | IR Temperature Config | |
| 0x24 | 36 | 0xAA02 | IR Temperature Config | | RW | Write "01" to start Sensor and Measurements, "00" to put to sleep | |
| 0x25 | 37 | 0x2803 | GATT Characteristic Declaration | 0A:26:00:00:00:00:00:00:00:00:00:B0:00:40:51:04:03:AA:00:F0 | R | IR Temperature Period | |
| 0x26 | 38 | 0xAA03 | IR Temperature Period | | RW | Period = [Input*10] ms, (lower limit 300 ms), default 1000 ms | |
| 0x27 | 39 | 0x2800 | GATT Primary Service Declaration | F000AA20-0451-4000-B000-000000000000 | R | Humidity Service | |
| 0x28 | 40 | 0x2803 | GATT Characteristic Declaration | 12:29:00:00:00:00:00:00:00:00:00:B0:00:40:51:04:21:AA:00:F0 | R | Humidity Data | |
| 0x29 | 41 | 0xAA21 | Humidity Data | | RN | TempLSB:TempMSB:HumidityLSB:HumidityMSB | |
| 0x2A | 42 | 0x2902 | Client Characteristic Configuration | | RW | Write "01:00" to enable notifications, "00:00" to disable | |
| 0x2B | 43 | 0x2803 | GATT Characteristic Declaration | 0A:2C:00:00:00:00:00:00:00:00:00:B0:00:40:51:04:22:AA:00:F0 | R | Humidity Config | |
| 0x2C | 44 | 0xAA22 | Humidity Config | | RW | Write "01" to start measurements, "00" to stop | |

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| | | | Declaration | 12:10:42:37:AA:00:F0 | | | |
| 0x2E | 46 | 0xAA23 | Humidity Period | | RW | Period = [Input*10] ms, (lower limit 100 ms), default 1000 ms | |
| 0x2F | 47 | 0x2800 | GATT Primary Service Declaration | F000AA40-0451-4000-B000-000000000000 | R | Barometer Service | |
| 0x30 | 48 | 0x2803 | GATT Characteristic Declaration | 12:31:00:00:00:00:00:00:00:00:B0:00:40:51:04:41:AA:00:F0 | R | Barometer Data | |
| 0x31 | 49 | 0xAA41 | Barometer Data | | RN | TempLSB:TempMSB:PressureLSB:PressureMSB | |
| 0x32 | 50 | 0x2902 | Client Characteristic Configuration | | RW | Write "01:00" to enable notifications, "00:00" to disable | |
| 0x33 | 51 | 0x2803 | GATT Characteristic Declaration | 0A:34:00:00:00:00:00:00:00:00:B0:00:40:51:04:42:AA:00:F0 | R | Barometer Configuration | |
| 0x34 | 52 | 0xAA42 | Barometer Configuration | | RW | Write "01" to start Sensor and Measurements, "00" to put to sleep, "02" to read calibration values from sensor | |
| 0x35 | 53 | 0x2803 | GATT Characteristic Declaration | 0A:36:00:00:00:00:00:00:00:00:B0:00:40:51:04:44:AA:00:F0 | R | Barometer Period | |
| 0x36 | 54 | 0xAA44 | Barometer Period | | RW | Period = [Input*10] ms, (lower limit 100 ms), default 1000 ms | |
| 0x37 | 55 | 0x2800 | GATT Primary Service Declaration | F000AA80-0451-4000-B000-000000000000 | R | Movement Service | |
| 0x38 | 56 | 0x2803 | GATT Characteristic Declaration | 12:39:00:00:00:00:00:00:00:00:B0:00:40:51:04:81:AA:00:F0 | R | Movement Data | |

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| 0x3A | 58 | 0x2902 | Client Characteristic Configuration | | RW | Write "01:00" to enable notifications, "00:00" to disable | | |
| 0x3B | 59 | 0x2803 | GATT Characteristic Declaration | 0A:3C:00:00:00:00:00:00:00:00:B0:00:40:51:04:82:AA:00:F0 | R | Movement Config | | |
| 0x3C | 60 | 0xAA82 | Movement Config | | RW | Axis enable bits:gyro-z=0,gyro-y,gyro-x,acc-z=3,acc-y,acc-x,mag=6 Range: bit 8,9 | | |
| 0x3D | 61 | 0x2803 | GATT Characteristic Declaration | 0A:3E:00:00:00:00:00:00:00:00:B0:00:40:51:04:83:AA:00:F0 | R | Movement Period | | |
| 0x3E | 62 | 0xAA83 | Movement Period | | RW | Period = [Input*10]ms (lower limit 100ms), default 1000ms | | |
| 0x3F | 63 | 0x2800 | GATT Primary Service Declaration | F000AA70-0451-4000-B000-000000000000 | R | Luxometer Service | | |
| 0x40 | 64 | 0x2803 | GATT Characteristic Declaration | 12:41:00:00:00:00:00:00:00:00:B0:00:40:51:04:71:AA:00:F0 | R | Luxometer Data | | |
| 0x41 | 65 | 0xAA71 | Luxometer Data | | RN | LSB:MSB | | |
| 0x42 | 66 | 0x2902 | Client Characteristic Configuration | | RW | Write "01:00" to enable notifications, "00:00" to disable | | |
| 0x43 | 67 | 0x2803 | GATT Characteristic Declaration | 0A:44:00:00:00:00:00:00:00:00:B0:00:40:51:04:72:AA:00:F0 | R | Luxometer Config | | |
| 0x44 | 68 | 0xAA72 | Luxometer Config | | RW | Write "01" to start Sensor and Measurements, "00" to put to sleep | | |

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| | | | Declaration | IO Service | | | |
| 0x46 | 70 | 0xAA73 | Luxometer Period | | RW | Period = [Input*10]ms (lower limit 1000ms), default 2000ms | |
| 0x47 | 71 | 0x2800 | GATT Primary Service Declaration | 0xFFE0 | R | Simple Keys Service | |
| 0x48 | 72 | 0x2803 | GATT Characteristic Declaration | 10:49:00:E1:FF | R | Key press state | |
| 0x49 | 73 | 0xFFE1 | Key press state | | N | | |
| 0x4A | 74 | 0x2902 | Client Characteristic Configuration | | RW | Write "01:00" to enable notifications, "00:00" to disable | |
| 0x4B | 75 | 0x2901 | Characteristic User Description | | R | | |
| 0x4C | 76 | 0x2800 | GATT Primary Service Declaration | F000AA64-0451-4000-B000-000000000000 | R | IO Service | |
| 0x4D | 77 | 0x2803 | GATT Characteristic Declaration | 0A:4E:00:00:00:00:00:00:00:00:B0:00:40:51:04:65:AA:00:F0 | R | IO Data | |
| 0x4E | 78 | 0xAA65 | IO Data | 5F | RW | Local and remote mode: bit 0 - red led; bit 1 - green led; bit 2 - buzzer. In test mode: sensor self test result (exp. 0x5F) | |
| 0x4F | 79 | 0x2803 | GATT Characteristic Declaration | 0A:50:00:00:00:00:00:00:00:00:B0:00:40:51:04:66:AA:00:F0 | R | IO Config | |
| 0x50 | 80 | 0xAA66 | IO Config | | RW | 0:local mode; 1:remote mode; 2:test mode | |

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| 0x52 | 82 | 0x2803 | GATT Characteristic Declaration | 1A:53:00:00:00:00:00:00:00:00:B0:00:40:51:04:01:AC:00:F0 | R | Register Data | | |
| 0x53 | 83 | 0xAC01 | Register Data | | RWN | Data from serial device, variable length (see Register Address) | | |
| 0x54 | 84 | 0x2902 | Client Characteristic Configuration | | RW | Write "01:00" to enable notifications, "00:00" to disable | | |
| 0x55 | 85 | 0x2803 | GATT Characteristic Declaration | 0A:56:00:00:00:00:00:00:00:00:B0:00:40:51:04:02:AC:00:F0 | R | Register Address | | |
| 0x56 | 86 | 0xAC02 | Register Address | | RW | length(byte, max 16);internal addr (1 to 4 bytes) | | |
| 0x57 | 87 | 0x2803 | GATT Characteristic Declaration | 0A:58:00:00:00:00:00:00:00:00:B0:00:40:51:04:03:AC:00:F0 | R | Register Device ID | | |
| 0x58 | 88 | 0xAC03 | Register Device ID | | RW | byte 1 (interface): 0=I2C0,1=I2C1,2=SPI1,3=SPI2,4=SPI3,5=MCU; byte 2: device addr | | |
| 0x59 | 89 | 0x2800 | GATT Primary Service Declaration | F000CCC0-0451-4000-B000-000000000000 | R | Connection Control Service | | |
| 0x5A | 90 | 0x2803 | GATT Characteristic Declaration | 12:5B:00:00:00:00:00:00:00:00:B0:00:40:51:04:C1:CC:00:F0 | R | Connection Parameters | | |
| 0x5B | 91 | 0xCCC1 | Connection Parameters | | RN | ConnInterval,SlaveLatency,SupervisionTimeout (2 bytes each) | | |
| 0x5C | 92 | 0x2902 | Client Characteristic | | RW | Write "01:00" to enable notifications, "00:00" to disable | | |

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| | | | Characteristic Declaration | 0:00:00:00:B0:00:40 :51:04:C2:CC:00:F0 | | | |
| 0x5E | 94 | 0xCCC2 | Request Connection Parameters | | W | MinConnInterval,MaxConnInterval,SlaveLatency,SupervisionTimeout (2 bytes each) | |
| 0x5F | 95 | 0x2803 | GATT Characteristic Declaration | 08:60:00:00:00:00:0 0:00:00:00:B0:00:40 :51:04:C3:CC:00:F0 | R | Disconnect request | |
| 0x60 | 96 | 0xCCC3 | Disconnect request | | W | Change the value to disconnect | |
| 0x61 | 97 | 0x2800 | GATT Primary Service Declaration | F000FFC0-0451-400 0-B000-0000000000 00 | R | OAD Service | |
| 0x62 | 98 | 0x2803 | GATT Characteristic Declaration | 1C:63:00:00:00:00:0 0:00:00:00:B0:00:40 :51:04:C1:FF:00:F0 | R | OAD Image Identify | |
| 0x63 | 99 | 0xFFC1 | OAD Image Identify | | WN | Write '0' to identify image type 'A', '1' to identify 'B'. Data in notification 8 bytes: image type (2), size/4 (2), user data (4). | |
| 0x64 | 100 | 0x2902 | Client Characteristic Configuration | | RW | Write "01:00" to enable notifications, "00:00" to disable | |
| 0x65 | 101 | 0x2901 | Characteristic User Description | | R | | |
| 0x66 | 102 | 0x2803 | GATT Characteristic Declaration | 1C:67:00:00:00:00:0 0:00:00:00:B0:00:40 :51:04:C2:FF:00:F0 | R | OAD Image Block | |
| 0x67 | 103 | 0xFFC2 | OAD Image Block | | WN | Image block (18 bytes). Block no. (2 bytes), OAD image block (16 bytes) | |

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| | | | Configuration | | | | |
| 0x69 | 105 | 0x2901 | Characteristic User Description | | R | | |