Ingenuity Design

Pokit

Bluetooth API Definition

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Document Control

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Revision	Description of Changes	Date	Revised	Approved
0.01	Initial release	04-Oct-19	RH	PM
0.02	Add summary of GATT services	02-Jan-19	RH	PM
1.00	Addition of temperature logging, calibration service, battery status. Proof read, minor corrections	11-Nov-19	PS	PM

Contents

1 Introduction

1.1 General

This document describes the implementation of the embedded API to be used on the Pokit project.

The API shall be used for communication between Pokit devices and control applications via Bluetooth®.

1.2 Definitions

1.2.1 Acronyms

The following abbreviations are used in this document:

AC	Alternating Current
ACK	Acknowledge
API	Application Program Interface
BLE	Bluetooth® Low Energy
DC	Direct Current
DFU	Device Firmware Update
DSO	Digital Storage Oscilloscope
GATT	Generic Attribute
MAC	Media Access Control
MM	Multi Meter
NAK	Not Acknowledge
OTA	Over-The-Air
UUID	Universal Unique Identifier

1.2.2 Terms

The following terms are used in this document:

Shall, Must	Indicates a mandatory requirement.
Should	Indicates a recommendation.
Will	Indicates a non-mandatory provision with a declaration of intent.
May	Indicates a permission.
Can	Indicates a possibility or a capability
Note	Used to designate additional information intended to provide guidance, understanding and/or clarification

1.3 Reference Documents

The following documents are referenced in this definition.

Ref.	Title	Doc No.	Author	Rev	Date

2 Bluetooth API

2.1 Protocol Overview

The communication protocol is based on Generic Attributes (GATT) services, which are collections of characteristics used to access the public attributes of the device allowing reading and writing operations.

Pokit consists of seven GATT services in total. Each service contains characteristics that consist of one or more attributes.

Every characteristic has its own UUID (used as an identifier), properties (read/write/notify) and attributes.

Characteristics that have single attributes can be retrieved directly whereas characteristics that have multiple attributes need to be parsed as byte arrays, respecting each attribute type, size and order as presented in this document.

2.2 API Version

The information provided in this section refers to API version 1.1, as provided by Pokit firmware version 1.5.

2.3 MM Service

The MM Service allows access to Pokit's Multimeter Mode. This mode is used to perform measurements of AC/DC Voltage, AC/DC Current, Resistance, Diode, Continuity and Temperature.

To start MM acquisitions, the application needs to set the attributes of the **Settings** characteristic. After initialised, the MM will notify every new measurement through its **Reading** characteristic automatically.

UUID: *e7481d2f-5781-442e-bb9a-fd4e3441dadc*

2.3.1 Settings Characteristic

Description:

Defines the operation mode, range and update interval of Pokit's Multimeter Mode.

After receiving a valid request on this characteristic, an ACK will be sent and Pokit will start measuring using the selected **Mode** and **Range** with the given **Update Interval**.

In the case of receiving invalid values on any attribute, a NAK will be sent in reply and Pokit will be set to IDLE mode.

UUID: *53dc9a7a-bc19-4280-b76b-002d0e23b078*

Properties: *Write*

Size: *6 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Mode	uint8	Desired operation mode.	0 – IDLE 1 – DC Voltage 2 – AC Voltage

			3 – DC Current 4 – AC Current 5 – Resistance 6 – Diode 7 – Continuity 8 – Temperature
Range	uint8	Desired range. Ranges vary according to each operation Mode.	**IDLE Mode:** N/A **AC/DC Voltage Modes:** 0 – 0V to 300mV 1 – 300mV to 2V 2 – 2V to 6V 3 – 6V to 12V 4 – 12V to 30V 5 – 30V to 60V 255 – Auto Range **AC/DC Current Modes:** 0 – 0A to 10mA 1 – 10mA to 30mA 2 – 30mA to 150mA 3 – 150mA to 300mA 4 – 300mA to 3A 255 – Auto Range **Resistance Mode:** 0 – 0Ω to 160Ω 1 – 160Ω to 330Ω 2 – 330Ω to 890Ω 3 – 890Ω to 1K5Ω 4 – 1K5Ω to 10KΩ 5 – 10KΩ to 100KΩ 6 – 100KΩ to 470KΩ 7 – 470KΩ to 1MΩ 255 – Auto Range **Diode Mode:** N/A **Continuity Mode:** N/A **Temperature Mode:** N/A
Update Interval	uint32	Desired update interval in milliseconds.	–

2.3.2 Reading Characteristic

Description:

The reading characteristic contains information regarding the last MM acquisition. This characteristic is notified automatically but it can also be read any time by reading requests.

UUID: *047d3559-8bee-423a-b229-4417fa603b90*

Properties: *Read/Notify*

Size: *7 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Status	uint8	Current MM status. The possible status varies according to each operation mode.	**AC/DC Voltage, AC/DC Current, Resistance:** 0 – Auto Range Off 1 – Auto Range On 255 – Error **Continuity:** 0 – No continuity 1 – Continuity 255 – Error **Temperature, Diode:** 0 – OK 255 – Error
Value	float	Last acquired value.	–
Mode	uint8	Current operation mode.	0 – IDLE 1 – DC Voltage 2 – AC Voltage 3 – DC Current 4 – AC Current 5 – Resistance 6 – Diode 7 – Continuity 8 – Temperature
Range	uint8	Current range. Ranges vary according to each operation mode.	**IDLE Mode:** N/A **AC/DC Voltage Modes:** 0 – 0V to 300mV 1 – 300mV to 2V 2 – 2V to 6V 3 – 6V to 12V 4 – 12V to 30V 5 – 30V to 60V 255 – Auto Range **AC/DC Current Modes:** 0 – 0A to 10mA 1 – 10mA to 30mA 2 – 30mA to 150mA 3 – 150mA to 300mA 4 – 300mA to 3A 255 – Auto Range **Resistance Mode:** 0 – 0Ω to 160Ω

	1 – 160Ω to 330Ω 2 – 330Ω to 890Ω 3 – 890Ω to 1K5Ω 3 – 1K5Ω to 10KΩ 5 – 10KΩ to 100KΩ 6 – 100KΩ to 470KΩ 7 – 470KΩ to 1MΩ 255 – Auto Range **Diode Mode:** N/A **Continuity Mode:** N/A **Temperature Mode:** N/A

2.4 DSO Service

The DSO Service allows access to Pokit's DSO Mode. This mode converts Pokit into a digital oscilloscope allowing capture of Voltage or Current waveforms at up to 10M samples per second.

To start DSO acquisitions, the application needs to set the attributes of the **Settings** characteristic. After initialised, the DSO will start acquiring data. When acquisition is complete, the data will be notified through its **Reading** characteristic automatically. Supplemental information about the last acquisition is notified over the **Metadata** characteristic, and the same data can be retrieved at any time by issuing a read requests.

UUID: *1569801e-1425-4a7a-b617-a4f4ed719de6*

2.4.1 Settings Characteristic

Description:

Defines the main settings required to allow DSO acquisitions.

After receiving a valid request on this characteristic, an ACK will be sent in reply and Pokit will start measuring using the selected **Mode** and **Range** using the given **Sampling Window** and **Number of Samples**. **Trigger Value** may be ignored depending on the selected **Command** attribute.

In the case of receiving invalid values on any attribute, a NAK will be sent in reply and Pokit will be set to IDLE mode.

UUID: *a81af1b6-b8b3-4244-8859-3da368d2be39*

Properties: *Write*

Size: *13 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Command	uint8	Custom operation request. This attribute defines whether the DSO will operate in free running	0 – Free Running 1 – Rising Edge Trigger 2 – Falling Edge Trigger 3 – Resend data

		mode or wait for a Rising/Falling edge to occur. It may also be used to resend the last acquired data. In this case, all other attributes will be ignored.	
Trigger Level	float	Trigger threshold level in Volts or Amperes, depending on the operation mode. Note: This field is required only if Command is set to *Rising/Falling Edge Trigger*. It will be ignored in all other cases.	–
Mode	uint8	Desired operation mode.	0 – IDLE 1 – Voltage (DC Coupling) 2 – Voltage (AC Coupling) 3 – Current (DC Coupling) 4 – Current (AC Coupling)
Range	uint8	Desired range. Ranges vary according to each operation Mode.	**IDLE Mode:** N/A **Voltage Mode:** 0 – 0V to 300mV 1 – 300mV to 2V 2 – 2V to 6V 3 – 6V to 12V 4 – 12V to 30V 5 – 30V to 60V **Current Mode:** 0 – 0A to 10mA 1 – 10mA to 30mA 2 – 30mA to 150mA 3 – 150mA to 300mA 4 – 300mA to 3A
Sampling Window	uint32	Desired sampling window in microseconds.	–
Number of Samples	uint16	Desired number of samples to acquire.	1 to 8192

2.4.2 Metadata Characteristic

Description:

Contains general information regarding the last DSO acquisition.

This characteristic is notified automatically after each request, but it can also be read at any time by issuing a read request.

UUID: *970f00ba-f46f-4825-96a8-153a5cd0cda9*

Properties: *Read/Notify*

Size: *17 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Status	uint8	Current DSO status.	0 – Done 1 – Sampling 255 – Error
Scale	float	Acquired data points are always converted to values between -2048 and 2047 for transfer efficiency. For this reason, a scale factor is generated so the application can reconstruct the actual values.	–
Mode	uint8	Operation mode used during the last acquisition.	0 – IDLE 1 – Voltage (DC Coupling) 2 – Voltage (AC Coupling) 3 – Current (DC Coupling) 4 – Current (AC Coupling)
Range	uint8	Range used during the last acquisition. Ranges vary according to each operation Mode.	**IDLE Mode:** N/A **Voltage Mode:** 0 – 0V to 300mV 1 – 300mV to 2V 2 – 2V to 6V 3 – 6V to 12V 4 – 12V to 30V 5 – 30V to 60V **Current Mode:** 0 – 0A to 10mA 1 – 10mA to 30mA 2 – 30mA to 150mA 3 – 150mA to 300mA 4 – 300mA to 3A
Sampling Window	uint32	Sampling window used during the last acquisition (in microseconds).	–
Number of Samples	uint16	Number of samples used during the last acquisition.	1 to 8192
Sampling Rate	uint32	Sampling rate used during the last acquisition (in Hertz). Note: The *Sampling Rate* is calculated based on the requested *Sampling Window* and *Number of Samples*.	1 to 10000000 (Hz)

2.4.3 Reading Characteristic

Description:

The reading characteristic is used to transmit all stored data values sequentially to the application. This characteristic is notified automatically after the acquisition is finished or whenever a *resend* command is requested.

UUID: *98e14f8e-536e-4f24-b4f4-1debfed0a99e*

Properties: *Notify*

Size: *Up to 20 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Samples [10]	int16	Acquired data points transmitted in sequence. The whole data frame is fragmented and transmitted in packages of up to 10 samples. The transmission of these packages is sequential. To achieve better throughput, the transmission is performed without sequence validation. The application can verify the data is complete by reading the *Number of Samples* attribute of the **Metadata** characteristic. Note: Values are converted to int16. The *Scale* attribute needs to be applied over each sample in order to reconstruct the real values.	-2048 to 2047

2.5 Data Logger Service

The Data Logger Service allows access to Pokit's Data Logger Mode. This mode converts Pokit into a logger tool, allowing capture of low frequency Voltage, Current or Temperature signals over long periods of time.

To start Data Logger acquisitions, the application needs to set the attributes of the **Settings** characteristic. After initialised, Pokit will start acquiring data periodically according to the given interval. All captured data points can be retrieved via the *Refresh* command and are then notified through its **Reading** characteristic. Supplemental information about the current Logger configuration is notified over the **Metadata** characteristic after each *Refresh* command, and the same can be retrieved any time by issuing a read request.

UUID: *a5ff3566-1fd8-4e10-8362-590a578a4121*

2.5.1 Settings Characteristic

Description:

Defines the main settings required to start Data Logger acquisitions.

After receiving a valid start request on this characteristic, an ACK will be sent in reply and Pokit will start measuring using the selected **Mode** and **Range** using the given **Update Interval**. **Trigger Value** will be ignored depending on the selected **Command** attribute.

In case of receiving invalid values on any attribute, a NAK will be sent in reply and Pokit will be set to IDLE mode.

Stop and *Refresh* requests are also achieved via this characteristic. In those cases, all attributes except *Command* are ignored.

UUID: *5f97c62b-a83b-46c6-b9cd-cac59e130a78*

Properties: *Write*

Size: *11 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Command	uint8	Custom operation request. This attribute is used to request that Pokit start or stop acquiring data. May also be used to request the existing stored data be notified through the **Reading** characteristic.	0 – Start 1 – Stop 2 – Refresh
Arguments	uint16	Reserved for future use.	–
Mode	uint8	Desired operation mode.	0 – IDLE 1 – Voltage (DC Coupling) 2 – Voltage (AC Coupling) 3 – Current (DC Coupling) 4 – Current (AC Coupling) 5 – Temperature
Range	uint8	Desired range. Ranges vary according to each Operation Mode. Temperature has only a single range and when in this Mode this attribute shall be ignored.	**IDLE Mode:** N/A **Voltage Mode:** 0 – 0V to 300mV 1 – 300mV to 2V 2 – 2V to 6V 3 – 6V to 12V 4 – 12V to 30V 5 – 30V to 60V **Current Mode:** 0 – 0A to 10mA 1 – 10mA to 30mA 2 – 30mA to 150mA 3 – 150mA to 300mA

			4 – 300mA to 3A **Temperature Mode:** Ignored
Update Interval	uint16	Desired logging interval in seconds.	–
Timestamp	uint32	Custom timestamp reflecting the logging start time that can be retrieved from the **Metadata** characteristic afterwards. This is useful for application internal control.	–

2.5.2 Metadata Characteristic

Description:

Contains general information regarding the current logging parameters.

This characteristic is notified automatically after each start request, but it can also be read any time by reading requests.

UUID: *9acada2e-3936-430b-a8f7-da407d97ca6e*

Properties: *Read/Notify*

Size: *15 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Status	uint8	Current Data Logger status.	0 – Done 1 – Sampling 2 – Buffer Full 255 – Error
Scale	float	Acquired data points are always converted to values between -2048 and 2047 for transfer efficiency. For this reason, a scale factor is generated in order that the application can reconstruct the actual values afterwards.	–
Mode	uint8	Current operation mode.	0 – IDLE 1 – Voltage (DC Coupling) 2 – Voltage (AC Coupling) 3 – Current (DC Coupling) 4 – Current (AC Coupling) 5 – Temperature
Range	uint8	Current range being used. Ranges vary according to each Operation Mode. Temperature only has a single range.	**IDLE Mode:** N/A **Voltage Mode:** 0 – 0V to 300mV 1 – 300mV to 2V 2 – 2V to 6V 3 – 6V to 12V 4 – 12V to 30V

			5 – 30V to 60V **Current Mode:** 0 – 0A to 10mA 1 – 10mA to 30mA 2 – 30mA to 150mA 3 – 150mA to 300mA 4 – 300mA to 3A
Update Interval	uint16	Current logging interval (in microseconds).	–
Number of Samples	uint16	Number of acquired samples.	1 to 6192
Timestamp	uint32	Timestamp stored at the beginning of current logging section.	–

2.5.3 Reading Characteristic

Description:

The reading characteristic is used to transmit all stored data values sequentially to the application. This characteristic is notified automatically after a *stop* or *refresh* command is requested.

UUID: *3c669dab-fc86-411c-9498-4f9415049cc0*

Properties: *Notify*

Size: *Up to 20 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Samples [10]	int16	Acquired data points transmitted in sequence. The whole data frame is fragmented and transmitted in packages of up to 10 samples. The transmission is of these packages is sequential. To achieve better throughput, the transmission has no sequence validation. The application can verify the data is complete by reading the *Number of Samples* attribute of the **Metadata** characteristic. Note: Values are converted to int16. The *Scale* attribute needs to be applied to each sample in order to reconstruct the actual values.	-2048 to 2047

2.6 Pokit Status Service

The Pokit Status Service allows access to Pokit's general information and status.

UUID: *57d3a771-267c-4394-8872-78223e92aec4*

2.6.1 Device Characteristics

Description:

This characteristic is read only and contains general information related to the device characteristics.

UUID: *6974f5e5-0e54-45c3-97dd-29e4b5fb0849*

Properties: *Read*

Size: *20 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Version Major	uint8	Firmware version major.	0 – 255
Version Minor	uint8	Firmware version minor.	0 – 255
Max Voltage	uint16	Device max input voltage.	60 (V)
Max Current	uint16	Device max input current.	2 (A)
Max Voltage	uint16	Device max input resistance.	1000 (KΩ)
Max Sampling Rate	uint16	Device max sampling rate.	1000 (KHz)
Sampling Buffer Size	uint16	Device sampling buffer size.	8192
Capability Mask	uint16	Reserved.	–
Mac Address [6]	uint8	Device's MAC Address.	–

2.6.2 Status Characteristic

Description:

This characteristic is read only and contains general information regarding current Pokit status and battery voltage.

UUID: *3dba36e1-6120-4706-8dfd-ed9c16e569b6*

Properties: *Read*

Size: *6 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Status	uint8	Current Pokit status.	0 – IDLE 1 – MM meas. DC Voltage 2 – MM meas. AC Voltage 3 – MM meas. DC Current

			4 – MM meas. AC Current 5 – MM meas. Resistance 6 – MM meas. Diode 7 – MM meas. Continuity 8 – MM meas. Temperature 9 – DSO Mode (Sampling) 10 – Logger Mode (Sampling)
Battery Voltage	float	Current battery voltage level.	0.0 – 3.3 (V)
Battery Status	uint8	Logical interpretation of the battery voltage level.	0 - Low (Replace Battery) 1 - Good

2.6.3 Device Name Characteristic

Description:

This characteristic allows read and write access to the device name.

UUID: *7f0375de-077e-4555-8f78-800494509cc3*

Properties: *Read/Write*

Size: *Up to 11 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Device Name [11]	uint8	Device name.	From 1 to 11 alphanumeric characters.

2.6.4 Flash LED Characteristic

Description:

This characteristic allows LED flashing control.

UUID: *ec9bb1f3-05a9-4277-8dd0-60a7896f0d6e*

Properties: *Write*

Size: *1 byte*

Attributes:

Attribute Name	Type	Description	Possible Values
LED	uint8	LED flashing control. Writing the number 1 to this attribute will cause the LED to flash twice. Note: Any value other than 1 will be ignored.	1

2.7 Calibration Service

The Device Info Service is a standard BLE service used to access general device information.

UUID: *180A*

2.7.1 Temperature Characteristic

Description:

This characteristic allows the current temperature to be calibrated.

UUID: *6f53be2f-780b-49b8-a7c3-e8a052b3ae2c*

Properties: *Write*

Size: *4 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Temperature	float	Current ambient temperature.	–

2.8 Device Info Service

The Device Info Service is a standard BLE service used to access general device information.

UUID: *180A*

2.8.1 Manufacturer Name String Characteristic

Description:

This standard BLE characteristic is read only and contains the manufacturer name in string format.

UUID: *2A29*

Properties: *Read*

Size: *16 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Manufacturer Name	utf8	Manufacturer name.	Ingenuity Design

2.8.2 Model Number String Characteristic

Description:

This standard BLE characteristic is read only and contains the model number in string format.

UUID: *2A24*

Properties: *Read*

Size: *5 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Model Number	utf8	Model number.	XX.XX

2.8.3 Firmware Revision String Characteristic

Description:

This characteristic is read only and contains the firmware revision in string format.

UUID: *2A26*

Properties: *Read*

Size: *5 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Firmware Revision	utf8	Firmware revision.	XX.XX

2.8.4 Software Revision String Characteristic

Description:

This standard BLE characteristic is read only and contains the API version in string format.

UUID: *2A28*

Properties: *Read*

Size: *5 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
API Version	utf8	API version.	XX.XX

2.8.5 Hardware Revision String Characteristic

Description:

This standard BLE characteristic is read only and contains the hardware revision in string format.

UUID: *2A27*

Properties: *Read*

Size: *5 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Hardware Revision	utf8	Hardware revision.	XX.XX

2.9 Generic Access Service

The Generic Access Service is a standard BLE service used to access general device information.

UUID: *1800*

2.9.1 Device Name Characteristic

Description:

This standard BLE characteristic can be used to read or write the device name in string format.

UUID: *2A00*

Properties: *Read/Write*

Size: *Up to 11 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Device Name	utf8	Device name.	From 1 to 11 alphanumeric characters.

2.9.2 Appearance Characteristic

Description:

This standard BLE characteristic is read only and contains the appearance code for this device type.

UUID: *2A01*

Properties: *Read*

Size: *4 bytes*

Attributes:

Attribute Name	Type	Description	Possible Values
Appearance	uint16	Device appearance code. Note: Code 0 represents “Unknown Appearance”	0

2.10 Summary of GATT Characteristics

MM Service — UUID: e7491d2f-5781-442e-b99a-fd4e3441dadc

Settings (Size: 6 bytes)			
Properties: W		53dc9a7a-bc19-4280-b76b-002d0e23b078	
Type	Attribute	Possible Values	
uint8	Mode	0 - 8	
uint8	Range	0 - 7*, 255	
uint32	Update Interval	? (ms)	

Reading (Size: 7 bytes)			
Properties: R/Notify		047d3559-8bee-423a-b229-4417fa603b90	
Type	Attribute	Possible Values	
uint8	Status	0 - 1, 255	
float	Value		
uint8	Mode	0 - 8	
uint8	Range	0 - 7*, 255	

DSO Service — UUID: 1569801e-1425-4a7a-a617-a4f4ed719de6

Settings (Size: 13 bytes)			
Properties: W		a81af1b6-b8b3-4244-8859-3da368d2be39	
Type	Attribute	Possible Values	
uint8	Command	0- 3	
float	Trigger Value	(V/A)	
uint8	Mode	0 - 4	
uint8	Range	0 - 5*	
uint32	Sampling Window	(us)	
uint16	Number of Samples	1 - 8192	

Meta (Size: 17 bytes)			
Properties: R/Notify		970f00ba-f46f-4825-96a8-153a5cd0cda9	
Type	Attribute	Possible Values	
uint8	Status	0 - 1, 255	
float	Scale		
uint8	Mode	0 - 4	
uint8	Range	0 - 5*	
uint32	Sampling Window	(us)	
uint16	Number of Samples	1 - 8192	
uint32	Sampling Rate	1 - 1000000 (Hz)	

Reading (Size: Up to 20 bytes)			
Properties: Notify		98e14f8e-536e-4f24-b4f4-1debfed0a99e	
Type	Attribute	Possible Values	
int16	Samples[10]	-2048 - 2047	

Data Logger Service — UUID: a5ff3566-1fd8-4e10-8362-590a578a4121

Settings (Size: 11 bytes)			
Properties: W		5f97c62b-a83b-46c6-b9cd-cac59e130a78	
Type	Attribute	Possible Values	
uint8	Command	0 - 2	
uint16	Arguments		
uint8	Mode	0 - 5	
uint8	Range	0 - 5*	
uint16	Update Interval	1 - 3600 (s)	
uint32	TimeStamp		

Meta (Size: 15 bytes)			
Properties: R/Notify		9acada2e-3936-430b-a8f7-da407d97ca6e	
Type	Attribute	Possible Values	
uint8	Status	0 - 2, 255	
float	Scale		
uint8	Mode	0 - 5	
uint8	Range	0 - 5*	
uint16	Update Interval	1 - 3600 (s)	
uint16	Number of Samples	0 - 6192	
uint32	TimeStamp		

Reading (Size: Up to 20 bytes)			
Properties: Notify		3c669dab-fc86-411c-9498-4f9415049cc0	
Type	Attribute	Possible Values	
int16	Samples[10]	-2048 - 2047	

Pokit Status Service — 57d3a771-267c-4394-8872-78223e92aec4

Device Characteristics (Size: 20 bytes)			
Properties: R		6974f5e5-0e54-45c3-97dd-29e4b5fb0849	
Type	Attribute	Possible Values	
uint8	Version Major	0-255	
uint8	Version Minor	0-255	
uint16	Max Voltage	60	
uint16	Max Current	2	
uint16	Max Resistance	1000 (Kohms)	
uint16	Max Sampling Rate	1000 (KHz)	
uint16	Sampling Buffer Size	8192	
uint16	Capability Mask		
uint8	Mac Address[6]		

Status (Size: 6 bytes)			
Properties: R		3dba36e1-6120-4706-8dfd-ed9c16e569b6	
Type	Attribute	Possible Values	
uint8	Status	0 - 10	
float	Battery Voltage	0.0 - 3.3 (V)	
uint8	Battery Status	0 - 1	

Device Name (Size: Up to 11 bytes)			
Properties: R/W		7f0375de-077e-4555-8f78-800494509cc3	
Type	Attribute	Possible Values	
utf8	Device Name		

Flash LED (Size: 1 byte)			
Properties: W		ec9bb1f3-05a9-4277-8dd0-60a7896f0d6e	
Type	Attribute	Possible Values	
uint8	LED	1	

Calibration Service — 6f53be2f-780b-49b8-a7c3-e8a052b3ae2c

Temperature (Size: 4 bytes)			
Properties: W		0cd0f713-f5aa-4572-9e23-f8049f6bcaaa	
Type	Attribute	Possible Values	
float	Temperature	(°C)	

Device Info — UUID: 180A

Manufacturer Name String (Size: 16 bytes)			
Properties: R		UUID: 2A29	
Type	Attribute	Possible Values	
utf8	Manufacturer Name	Ingenuity Design	

Model Number String (Size: 5 bytes)			
Properties: R		UUID: 2A24	
Type	Attribute	Possible Values	
utf8	Model Number	XX.XX	

Firmware Revision String (Size: 5 bytes)			
Properties: R		UUID: 2A26	
Type	Attribute	Possible Values	
utf8	Firmware Revision	XX.XX	

Software Revision String (Size: 5 bytes)			
Properties: R		UUID: 2A28	
Type	Attribute	Possible Values	
utf8	Software Revision	XX.XX	

Hardware Revision String (Size: 5 bytes)			
Properties: R		UUID: 2A27	
Type	Attribute	Possible Values	
utf8	Hardware Revision	XX.XX	

Generic Access — UUID: 1800

Device Name (Size: Up to 11 bytes)			
Properties: R/W		UUID: 2A00	
Type	Attribute	Possible Values	
utf8	Device Name		

Appearance (Size: 4 byte)			
Properties: R		UUID: 2A01	
Type	Attribute	Possible Values	
uint16	Appearance	0	