Helen Project Service

Base UUID: 4F770000ED7D-11E4-840E-0002A5D5C51B

Service UUID: 0x0301

Abstract:

This service exposes measurement and control methods

Summary:

TODO

Service Dependencies:

This service is not dependent upon any other service.

GATT Requirements

Sub-Procedure	Server Requirement
Write Characteristic Value	Mandatory
Notifications	C1
Indications	Mandatory
Read Characteristic Descriptors	Mandatory
Write Characteristic Descriptors	Mandatory

C1: Mandatory if the Helen Measurement characteristic is supported, otherwise excluded for this service.

Transport Dependencies

Transport	Supported
Classic	false
Low Energy	true
High Speed	false

Error Codes

Name	Code	Description

Service Characteristics

Overview	Properties		Security	Descriptors			
Name: Helen Measurement **Requirement:** Optional	**Property**	**Requirement**	None	**Overview**	**Permissions**		
	Read	Excluded		**Name:** Client Characteristic Configuration **Requirement:** Mandatory	**Perm.**	**Req.**	
	Write	Excluded			Read	Mandatory	
	WriteWithoutResponse	Excluded			Write	Mandatory	
	SignedWrite	Excluded					
	Notify	Mandatory					
	Indicate	Excluded					
	WriteableAuxiliaries	Excluded					
	Broadcast	Excluded					
	ExtendedProperties						
Name: Helen Feature **Requirement:** Mandatory	**Property**	**Requirement**	None	None			
	Read	Mandatory					
	Write	Excluded					
	WriteWithoutResponse	Excluded					
	SignedWrite	Excluded					
	Notify	Excluded					
	Indicate	Excluded					
	WriteableAuxiliaries	Excluded					
	Broadcast	Excluded					
	ExtendedProperties						
Name: Helen Modes **Requirement:** Mandatory	**Property**	**Requirement**	Optional for write property	None			
	Read	Mandatory					
	Write	Optional					
	WriteWithoutResponse	Excluded					
	SignedWrite	Excluded					
	Notify	Excluded					
	Indicate	Excluded					
	WriteableAuxiliaries	Excluded					
	Broadcast	Excluded					
	ExtendedProperties						

Name: Helen Control Point **Requirement:** Mandatory	Property	Requirement	Optional	Overview	Permissions		
	Read	Excluded		**Name:** Client Characteristic Configuration **Requirement:** Mandatory	Perm.	Req.	
	Write	Mandatory			Read	Mandatory	
	WriteWithoutResponse	Excluded			Write	Mandatory	
	SignedWrite	Excluded					
	Notify	Excluded					
	Indicate	Mandatory					
	WriteableAuxiliaries	Excluded					
	Broadcast	Excluded					
	ExtendedProperties						

Helen Measurement

Characteristic UUID: 0x0302

Summary:

The Helen Measurement characteristic is a variable length structure containing a Flags field and, based on the contents of the Flags field, may contain one or more additional fields as shown in the table below.

Value Fields

Names	Field Req.	Format	Additional Information
tbd.	Mandatory	8bit	set to 0 until defined
Flags	Mandatory	8bit	Bit Field
Mode	Mandatory	8bit	OFF: 255; SOS: 254; ON: $0..n_{-1}$
Output Power **Information:** Unit is in watts with a resolution of 1/1000. **Unit:** org.bluetooth.unit.power.watt **Exponent:** Decimal, -3	Optional	uint16	
Temperature **Information:** Unit is in degree Cesius with a resolution of 1.. **Unit:** org.bluetooth.unit.thermodynamic_temperature.degree_celcius **Exponent:** Decimal, 0	Optional	int8	

Bit Field for Flags:

Bit	Size	Name	Definition	
0	1	output power present	0	False
			1	True
1	1	temperature present	0	False
			1	True
2	1	input voltage present	0	False
			1	True
3	1	SOC present	0	False
			1	True
4	4	reserved for future use		

Input Voltage **Information:** Unit is in volts with a resolution of 1/1000. **Unit:** org.bluetooth.unit.electric_potential _difference.volt **Exponent:** Decimal, -3	Optional	uint16	
State of charge **Information:** Unit is in percent with a resolution of 0.5 **Unit:** org.bluetooth.unit.percentage **Exponent:** Binary, -1	Optional	uint8	

Helen Feature

Characteristic UUID: 0x0303

Summary:

The Helen Feature characteristic is used to report a list of features supported by the device.

Value Fields

Names	Field Req.	Format	Additional Information
Mode Count	Mandatory	8bit	the number of available modes
Channel Count	Mandatory	8bit	the number of available channels
Channel Size	Mandatory if Channel Count > 0, otherwise excluded	16bit	this field is present as array, one for each channel Bit Field <table><tr><th>Bit</th><th>Size</th><th>Name</th><th colspan="3">Definition</th></tr><tr><td>0</td><td>8</td><td>channel bitsize</td><td colspan="3">the total size in bits of the Channels Configuration Field for this channel</td></tr><tr><td>8</td><td>4</td><td>special feature bitsize</td><td colspan="3">the number of bits used for special feature</td></tr><tr><td>12</td><td>4</td><td>channel description</td><td><table><tr><th>Key</th><th>Name</th><th>Additional Information</th></tr><tr><td>0</td><td>User</td><td>user specific channel</td></tr><tr><td>1</td><td>Current</td><td>current regulated channel</td></tr><tr><td>2</td><td>Voltage</td><td>voltage regulated channel</td></tr><tr><td>3</td><td>PWM</td><td>PWM channel</td></tr><tr><td>4</td><td>Switch</td><td>on/off channel</td></tr><tr><td>5-15</td><td>reserved for future use</td><td></td></tr></table></td><td></td><td></td></tr></table>
Features	Mandatory	16bit	Bit Field <table><tr><th>Bit</th><th>Size</th><th>Name</th><th colspan="2">Definition</th></tr><tr><td>0</td><td>1</td><td>mode set supported</td><td>0</td><td>False</td></tr><tr><td></td><td></td><td></td><td>1</td><td>True</td></tr><tr><td>1</td><td>1</td><td>search request supported</td><td>0</td><td>False</td></tr><tr><td></td><td></td><td></td><td>1</td><td>True</td></tr><tr><td>2</td><td>1</td><td>factory reset supported</td><td>0</td><td>False</td></tr><tr><td></td><td></td><td></td><td>1</td><td>True</td></tr><tr><td>3</td><td>13</td><td>reserved for future use</td><td></td><td></td></tr></table>

Helen Modes

Characteristic UUID: 0x0304

Summary:

The Helen Modes characteristic is used to modify the modes of the device.

Value Fields

Names	Field Req.	Format	Additional Information
Mode Configuration	Mandatory	16bit	This field is present as array, one field for each mode Bit Field <table><tr><th>Bit</th><th>Size</th><th>Name</th><th colspan="2">Definition</th></tr><tr><td>0</td><td>1</td><td>ignore</td><td>0</td><td>False</td></tr><tr><td></td><td></td><td></td><td>1</td><td>True</td></tr><tr><td>1</td><td>1</td><td>First_In_Group</td><td>0</td><td>False</td></tr><tr><td></td><td></td><td></td><td>1</td><td>True</td></tr><tr><td>2</td><td>1</td><td>Last_In_Group</td><td>0</td><td>False</td></tr><tr><td></td><td></td><td></td><td>1</td><td>True</td></tr><tr><td>3</td><td>1</td><td>Is_Preferred_Mode</td><td>0</td><td>False</td></tr><tr><td></td><td></td><td></td><td>1</td><td>True</td></tr><tr><td>4</td><td>1</td><td>Is_Temporary_Mode</td><td>0</td><td>False</td></tr><tr><td></td><td></td><td></td><td>1</td><td>True</td></tr><tr><td>5</td><td>1</td><td>Is_Off_Mode</td><td>0</td><td>False</td></tr><tr><td></td><td></td><td></td><td>1</td><td>True</td></tr><tr><td>6</td><td>10</td><td>reserved for future use</td><td></td><td></td></tr></table>

Channels Configuration	Optional	Variable	This field is present as two-dimensional array, one for each channel and mode.
			[channel 0][mode 0]
			[channel 0][mode 1]
			[channel 0][mode 2]
			…
			[channel 1][mode 0]
			[channel 1][mode 1]
			[channel 1][mode 2]
			…
			[channel 2][mode 0]
			[channel 2][mode 1]
			[channel 2][mode 2]
			…
			…
			Bit Field

Bit Field

Bit	Size	Name
0	channel bitsize – special feature bitsize	intensity
channel bitsize – special feature bitsize	special feature bitsize	modus

Helen Control Point

Characteristic UUID: *0x0305*

Summary:

The Helen Control Point characteristic is used to request a specific function to be executed on the receiving device.

Value Fields

Names	Field Req.	Format	Additional Information		
Op codes	Mandatory	uint8	Enumerations		
			Key	**Value**	**Description**
			1	request mode	Request the current mode. The response to this control point is Op Code 0x20 followed by the current mode
			2	set mode	Set mode command. The response to this control point is Op Code 0x20
			3	request search	Initiate the procedure to start the search for a remote or other compatible light. The response to this control point is Op Code 0x20.
			5	factory reset	Initiate the procedure to perform a factory reset The response to this control point is Op Code 0x20. If the current connection is bonded, the device will disconnect.
			32	Response Code	The response code is followed by the requested Op Code, the response value and optionally the response parameter
			0, 4, 6-31, 33-255	Reserved for future use	
mode	Mandatory for "set mode" Op code, otherwise excluded	uint8_t			
Request Op Code	Mandatory for "Response Code" Op Code, otherwise this field is Excluded.	uint8	Refer to the Op Code table above for additional information on the possible values for this filed		

Response Value	Mandatory for "Response Code" Op Code, otherwise this field is Excluded.	uint8	Enumerations		
			Key	**Value**	**Description**
			1	Success	Response for successful operation.
			2	Op Code not supported	Response if unsupported Op Code is received.
			3	Invalid Parameter	Response if Parameter received does not meet the requirements of the service or is outside of the supported range
			4	Operation Failed	Response if the requested procedure failed
			0-0	Reserved for future use	
			5-255	Reserved for future use	
mode	Mandatory for "Response Code" Op Code with "request mode" Request Op Code, otherwise this field is Excluded.	uint8_t			