

# Titan Products Technical Document

---

## Zigbee 3.0 End Point, Cluster and Attribute list.

Version 1.3

Document Ref: TITAN\_010619\_TPZ3\_1.3

2019

## Issue Record

<b>Date</b>	<b>Version</b>	<b>Authors</b>	<b>Details</b>
11/06/19	1.0	IT	Version 1.0
31/07/19	1.1	KP	List of Clusters and attributes were updated.
27/11/19	1.2	KP	Section 4 was added to the document.
02/12/2019	1.3	KP	End point information added in the bound clusters.

## 1. Introduction

This document highlights all the end points, clusters and attributes implemented within the below Zigbee 3.0 products from Titan Products:

- TPZRHT-Z3 Combined Room Humidity and Temperature Sensor
- TPZRCO2HT-Z3 Combined Room Co2, Humidity and Temperature

*Note: The following clusters will need to be bound in order for the sensors to provide valid data:*

*[0x0402] Measurement: Temperature*

*[0x040D] Concentration Cluster\**

*[0x0405] Measurement: Relative Humidity*

*[0x0001] General: Power Configuration*

## 2. End Point 0x01: Temperature Sensor

Endpoint:	0x01
Application Profile ID:	[0x0104] ZigBee Home Automation
Application Device ID:	[0x0302] HVAC: Temperature Sensor
Application Input Clusters Count:	6

Cluster 0: [0x0000] General: Basic	Server
Cluster 1: [0x0001] General: Power Configuration	Server
Cluster 2: [0x0003] General: Identify	Server
Cluster 3: [0x0402] Measurement: Temperature	Server
Cluster 4: [0x040D] Concentration Cluster*	Server
Cluster 5: [0x0020] General: Poll Control	Server

Application Output Clusters Count:	1
Cluster 0: [0x0019] General: OTA Upgrade	Client

*\*Note: The Concentration Cluster is only available with the TPZRCO2HT-Z3 Room Sensor.*

## 2.1 Server Clusters with supported Attributes

<b>Cluster 0: [0x0000] General: Basic Attributes</b>		
<b>Attribute ID</b>	<b>Name</b>	<b>Type return</b>
0x0000	ZCL Version	Unsigned 8-bit Int
0x0001	Application Version	Unsigned 8-bit Int
0x0002	Stack Version	Unsigned 8-bit Int
0x0003	Hardware Version	Unsigned 8-bit Int
0x0004	Manufacturer Name	Character String
0x0005	Model Identifier	Character String
0x0006	Date Code	Character String
0x0007	Power Source	8-bit Enumeration
0x0012	Device Enabled	Boolean
0xFFFD	Cluster Revision	Unsigned 16-bit Int

<b>Cluster 1: [0x0001] General: Power Configuration Attributes</b>		
<b>Attribute ID</b>	<b>Name</b>	<b>Type return</b>
0x0020	Battery Voltage	Unsigned 8-bit Int
0x0031	Battery Size	8-bit Enumeration
0x0033	Battery Quantity	Unsigned 8-bit Int
0x0034	Battery Rated Voltage	Unsigned 8-bit Int
0x0035	Battery Alarm Mask	8-bit Bitmap
0x0036	Battery Voltage Minimum Threshold	Unsigned 8-bit Int
0x0037	Battery Voltage Threshold 1	Unsigned 8-bit Int
0x003E	Battery Alarm State	32-bit Bitmap
0xFFFD	Cluster Revision	Unsigned 16-bit Int

<b>Cluster 2: [0x0003] General: Identify Attributes</b>		
<b>Attribute ID</b>	<b>Name</b>	<b>Type return</b>
0x0000	Identify Time	Unsigned 16-bit Int
0xFFFD	Cluster Revision	Unsigned 16-bit Int

<b>Cluster 3: [0x0402] Measurement: Temperature Attributes</b>		
<b>Attribute ID</b>	<b>Name</b>	<b>Type return</b>
0x0000	Measured Value	Signed 16-bit Int
0x0001	Minimum Measured Value	Signed 16-bit Int
0x0002	Maximum Measured Value	Signed 16-bit Int
0xFFFD	Cluster Revision	Unsigned 16-bit Int

<b>Cluster 4: [0x040D] Concentration Cluster Attributes</b>		
<b>Attribute ID</b>	<b>Name</b>	<b>Type return</b>
0x0000	Measured Value	Float Point, Single-Precision
0x0001	Minimum Measured Value	Float Point, Single-Precision
0x0002	Maximum Measured Value	Float Point, Single-Precision
0xFFFD	Cluster Revision	Unsigned 16-bit Int

*\*Note: The Concentration Cluster is only available with the TPZRCO2HT-Z3 Room Sensor.*

<b>Cluster 5: [0x0020] General: Poll Control</b>		
<b>Attribute ID</b>	<b>Name</b>	<b>Type return</b>
0x0000	Check in Interval	Unsigned 32-bit Int
0x0001	Long Poll Interval	Unsigned 32-bit Int
0x0002	Short Poll Interval	Unsigned 16-bit Int
0x0003	Fast Poll Interval	Unsigned 16-bit Int
0x0004	Check in Interval Min	Unsigned 32-bit Int
0x0005	Long Poll Interval Min	Unsigned 32-bit Int
0x0006	Fast Poll Timeout Max	Unsigned 16-bit Int
0xFFFD	Cluster Revision	Unsigned 16-bit Int

## 2.2 Client Clusters with supported Attributes

<b>Cluster 0: [0x0019] General: OTA Upgrade Attributes (Client)</b>		
<b>Attribute ID</b>	<b>Name</b>	<b>Type return</b>
0x0000	Upgrade Server ID	IEEE Address
0x0002	Current File Version	Unsigned 32-bit Int
0x0006	Image Upgrade Status	8-bit Enumeration
0xFFFD	Cluster Revision	Unsigned 16-bit Int

### 3. End Point 0x02: Humidity Sensor

Endpoint: 0x02  
 Application Profile ID: [0x0104] ZigBee Home Automation  
 Application Device ID: [0x0307] HVAC: Reserved  
 Application Input Clusters Count: 4

Cluster 0: [0x0000] General: Basic Server  
 Cluster 1: [0x0001] General: Power Configuration Server  
 Cluster 2: [0x0003] General: Identify Server  
 Cluster 3: [0x0405] Measurement: Relative Humidity Server

Application Output Clusters Count: 0

#### 3.1 Server Clusters with supported Attributes

Cluster 0: [0x0000] General: Basic Attributes		
Attribute ID	Name	Type return
0x0000	ZCL Version	Unsigned 8-bit Int
0x0001	Application Version	Unsigned 8-bit Int
0x0002	Stack Version	Unsigned 8-bit Int
0x0003	Hardware Version	Unsigned 8-bit Int
0x0004	Manufacturer Name	Character String
0x0005	Model Identifier	Character String
0x0006	Date Code	Character String
0x0007	Power Source	8-bit Enumeration
0x0012	Device Enabled	Boolean
0xFFFD	Cluster Revision	Unsigned 16-bit Int

<b>Cluster 1: [0x0001] General: Power Configuration Attributes</b>		
<b>Attribute ID</b>	<b>Name</b>	<b>Type return</b>
0x0020	Battery Voltage	Unsigned 8-bit Int
0x0031	Battery Size	8-bit Enumeration
0x0033	Battery Quantity	Unsigned 8-bit Int
0x0034	Battery Rated Voltage	Unsigned 8-bit Int
0x0035	Battery Alarm Mask	8-bit Bitmap
0x0036	Battery Voltage Minimum Threshold	Unsigned 8-bit Int
0x0037	Battery Voltage Threshold 1	Unsigned 8-bit Int
0x003E	Battery Alarm State	32-bit Bitmap
0xFFFD	Cluster Revision	Unsigned 16-bit Int

<b>Cluster 2: [0x0003] General: Identify Attributes</b>		
<b>Attribute ID</b>	<b>Name</b>	<b>Type return</b>
0x0000	Identify Time	Unsigned 16-bit Int
0xFFFD	Cluster Revision	Unsigned 16-bit Int

<b>Cluster 3: [0x0405] Measurement: Relative Humidity Attributes</b>		
<b>Attribute ID</b>	<b>Name</b>	<b>Type return</b>
0x0000	Measured Value	Unsigned 16-bit Int
0x0001	Minimum Measured Value	Unsigned 16-bit Int
0x0002	Maximum Measured Value	Unsigned 16-bit Int
0xFFFD	Cluster Revision	Unsigned 16-bit Int

#### 4. Guidelines for reading the sensor values

When the End Device is successfully commissioned to a network, the user will need to bind the following clusters which contain reportable attributes:

EP1 - [0x0402] Measurement: Temperature

EP1 - [0x040D] Concentration Cluster (available only on TPZRCO2HT-Z3 Room Sensor)

EP2 - [0x0405] Measurement: Relative Humidity

EP1 and EP2 - [0x0001] General: Power Configuration

***It is not possible to read the sensor's reportable attributes without binding the above clusters.***

If the binding of an individual cluster is successful, the End Device will start transmitting attribute reports based on the default report interval of each cluster. If the user would like an immediate sensor reading after binding, a read attribute command can be sent to the End Device. However, an adequate time should be given to the End Device in order to sample the on-board physical sensor otherwise, the End Device would return invalid sensor readings.

The following table provides the minimum amount of time needed by each cluster to provide valid readings after it was bound.

Cluster	Minimum Wait period
0x0402	0.5 second
0x0405	0.5 second
0x040D	10 seconds
0x0001	1 second

When binding the power configuration cluster [0x0001], the End Device will attempt to sample and read the battery voltage which can be found in the battery voltage attribute [0x0020]. The sampling will continue based on the default reporting intervals.

The End Device implements two alarm thresholds, *BatteryVoltageMinThreshold* and *BatteryVoltageThreshold1* which will be set or cleared based on the battery voltage read from the End Device.

The *BatteryVoltageMinThreshold* alarm is an indication that the battery is too low to allow normal operation of the End Device.

The *BatteryVoltageThreshold1* alarm is an indication that the battery is going to be depleted soon.

We recommend that the threshold values in attribute *BatteryVoltageMinThreshold* [0x0036] and *BatteryVoltageThreshold1* [0x0037] are not modified at any time.

*Titan Products Ltd. reserves the right to alter / change the specification of their products without notification*

**END.**