PC321 ZHA Clusters and Attributes

Version 1.2.2

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# Acronyms and Abbreviations

|  |  |
| --- | --- |
| ID | Attribute/Command Identifier |
| Name | Attribute Name |
| Type | Data Type |
| M/O | Mandatory/Optional |
| MFG | Manufacture Specific |
| PER | Persistent |
| R/W | Read/Write |
| REP | Reportable |

# Endpoint Description

|  |  |
| --- | --- |
| Endpoint 0x00 | Profile ID: 0x0000 [ZigBee Device Profile] |

|  |  |
| --- | --- |
| Endpoint 0x01 | Profile ID: 0x0104 [ZigBee Home Automation] |
| Device ID | 0x000D (ZHA Consumption Awareness Deivce) |
| Clusters | 0x0000 (Basic Server) |
| 0x0003 (Identify Server) |
| 0x000A (Time Client) |
| 0x0702 (Simple Metering Server) |
| 0xFFE0 (Clear Metering Server) |

# Basic(0x0000)

## Server

### Attributes

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ID | Name | Type | M/O | MFG | PER | Default | R/W | REP | Descriptions |
| 0x0000 | *ZCLVersion* | uint8 | M | No | Yes | - | R | No | Device dependent |
| 0x0001 | *ApplicationVersion* | uint8 | O | No | Yes | - | R | No | Device dependent |
| 0x0002 | *StackVersion* | uint8 | O | No | Yes | - | R | No | Device dependent |
| 0x0003 | *HWVersion* | uint8 | O | No | Yes | - | R | No | Device dependent |
| 0x0004 | *ManufacturerName* | string | O | No | Yes | OWON Technology Inc. | R | No |  |
| 0x0005 | *ModelIdentifier* | string | O | No | Yes | PC321 | R | No |  |
| 0x0006 | *DateCode* | string | O | No | Yes | - | R | No | Device dependent |
| 0x0007 | *PowerSource* | enum8 | O | No | Yes | 0x04 | R | No |  |

### Commands Received

None.

### Commands Generated

None.

# Identify(0x0003)

## Server

### Attributes

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ID | Name | Type | M/O | MFG | PER | Default | R/W | REP | Descriptions |
| 0x0000 | *IdentifyTime* | uint16 | M | No | No | 0x0000 | R/W | No |  |

### Commands Received

|  |  |  |
| --- | --- | --- |
| ID | Description | M/O |
| 0x00 | Identify | M |
| 0x01 | Identify Query | M |

### Commands Generated

|  |  |  |
| --- | --- | --- |
| ID | Description | M/O |
| 0x00 | Identify Query Response | M |

# Time(0x000A)

## Client

For periodically time synchronization.

# Simple Metering(0x0702)

## Server

### Attributes

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ID | Name | Type | M/O | MFG | PER | Default | R/W | REP | Descriptions |
| 0x0000 | current summation delivered | int48u | M | No | No | - | R | Yes | Current summation delivered of the 3 phases |
| 0x0017 | Inlet Temperature | Int24s | O | No | No | - | R | No | Temperature |
| 0x0200 | Status | map8 | O | No | No | - | R | Yes | Reflect the current measurement error conditions  0: No error |
| 0x0300 | unit of measure | enum8 | O | No | Yes | 0x00 | R | No | kWh |
| 0x0301 | Multiplier | Int24u | O | No | Yes | 1 | R | No | Multiplication factor |
| 0x0302 | Divisor | Int24u | O | No | Yes | 1000 | R | No | Divisor factor |
| 0x0303 | summation formatting | map8 | O | No | Yes | 0xFB | R | No | Fifteen decimal digits to the left of the decimal point, three to the right, without a leading zero.  This format is suitable for ‘current summation delivered’ |
| 0x0304 | demand formatting | map8 | O | No | Yes | 0xFB | R | No | Fifteen decimal digits to the left of the decimal point, three to the right, without a leading zero.  This format is suitable for ‘Instantaneous Demand’ |
| 0x0306 | metering device type | map8 | O | No | Yes | 0x00 | R | No | Electric meter |
| 0x0400 | Instantaneous Demand | int24 | M | No | No | - | R | Yes | Instantaneous energy consumed summation of the 3 phases |
| 0x1000 | report map | map8 | O | Yes | No | 0x0F | R/W | No | refer to 6.2.1 |
| 0x2000 | L1 phase power | int24 | M | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x2001 | L2 phase power | int24 | M | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x2002 | L3 phase power | int24 | M | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x2100 | L1 phase reactive power | int24 | O | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x2101 | L2 phase reactive power | int24 | O | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x2102 | L3 phase reactive power | int24 | O | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x2103 | reactive power summation of the 3 phases | int24 | O | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x3000 | L1 phase voltage | int24u | O | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x3001 | L2 phase voltage | int24u | O | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x3002 | L3 phase voltage | int24u | O | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x3100 | L1 phase current | int24u | O | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x3101 | L2 phase current | int24u | O | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x3102 | L3 phase current | int24u | O | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x3103 | current summation of the 3 phases | int24u | O | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x3104 | leakage current | int24u | O | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x4000 | L1 phase energy consumption | int48u | M | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x4001 | L2 phase energy consumption | int48u | M | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x4002 | L3 phase energy consumption | int48u | M | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x4100 | L1 phase reactive energy consumption | int48u | O | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x4101 | L2 phase reactive energy consumption | int48u | O | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x4102 | L3 phase reactive energy consumption | int48u | O | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x4103 | reactive energy summation of the 3 phases | int48u | O | Yes | No | - | R | Yes | refer to 6.2.2 |
| 0x5000 | the latest historical record time | int32u | O | Yes | No | - | R | No | The latest consumed energy record time  The format refer to 6.2.3 |
| 0x5001 | the oldest historical recorded time | int32u | O | Yes | No | - | R | No | The oldest consumed energy record time  The format refer to 6.2.3 |
| 0x5002 | set minimum cycle for report | int32u | O | Yes | No | 10 | R/W | No | 10s ~ 600s, unit: s  The shortest interval time for report |
| 0x5003 | set maximum cycle for report | int32u | O | Yes | No | 60 | R/W | No | 10s ~ 600s, unit: s  The longest interval time for report |
| 0x5004 | sent historical record state | int8u | O | Yes | No | 0x00 | R | No | 0:Idle, no history record to sent  1:historical record is sending |
| 0x5005 | frequency | int8u | O | Yes | No | 50 | R | No | Unit: Hz |
| 0x5006 | the accumulative threshold of energy | int8u | O | Yes | No | 2 | R/W | No | Unit: W  The instantaneous energy below this wattage is displayed as 0 W, the current is displayed as 0 A, and the power is not accumulated |
| 0x5007 | report mode | int8u | O | Yes | No | 0 | R/W | No | 0：In this mode, all data is reported if any of the following conditions are met   1. The time since last report all data >= minimum cycle for report, And the power change >= Δ，Δ refer to attribute(0x5008) 2. The time since last report all data > maximum cycle for report   1：System get into ”quick acquisition” mode，the device report all data by “minimum cycle” |
| 0x5008 | Set Z:percent change in power | int8u | O | Yes | No | 1 | R/W | No | 0<= Z <=100  Δ=percent change in power\*power data of last report |

### Commands Received

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ID | Description | M/O | MFG | Descriptions |
| 0x20 | get history record | O | Yes | Carry the data in turn after the command ID：the start time(4 Bytes), the end data(4 Bytes)  After the gateway sends command to PC321,it will return the historical energy consumption in that period one by one, the format refer to 6.2.3 |
| 0x21 | stop sending historical record | O | Yes | Interrupt the PC321 to sent historical record |

### Commands Generated

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ID | Description | M/O | MFG | Descriptions |
| 0x20 | sent historical record | O | Yes | refer to 6.2.4 |

## Descriptions

### report map

|  |  |  |
| --- | --- | --- |
| name | bit | Descriptions |
| report map | bit8~bit5 | reserve |
| bit4 | 1: enable to report L3 phase all parameters 0: disable |
| bit3 | 1: enable to report L2 phase all parameters 0: disable |
| bit2 | 1: enable to report L1 phase all parameters 0: disable |
| bit1 | 1: enable to report all parameters of the 3 phases 0: disable |

note：All parameters of each phase are included in turn as：active energy consumption, active power, voltage, current, reactive energy consumption, reactive power, power factor

All parameters summated by the 3 phases are included in turn as: active energy consumption, active power, current, reactive energy consumption, reactive power, meter status

### Power, Voltage, Current, Electric energy format

Voltage unit: V

Voltage format: Precision to one decimal place

Current unit: A

Current format: Precision to three decimal places

Energy consumption unit: kWh

Energy consumption format: Precision to three decimal places

Instantaneous power consumption unit: kW

Instantaneous power consumption format：Precision to three decimal places

### Time

Format: timestamp, 4 Bytes. Timestamp is begin with 2000-1-1 00:00

### Sent historical record

Historical record data for sending is included in turn as：command status, record status, time, active energy, reactive energy, sent in 2s interval, only sent a piece of data every time

|  |  |  |
| --- | --- | --- |
| Command status（1 Byte） | bit8~bit5 | reserve |
| bit4 | 1: No historical record during this time |
| bit3 | 1: The starting time and the ending time are both wrong |
| bit2 | 1: The starting time is wrong |
| bit1 | 1: The ending time is wrong |
| Record status（1 Byte） | - | 0: Sending record is over  1: There are still records not sent, and PC321 will keep sending at this time |
| Time（4 Bytes） | - | record energy consumed, the format reference to 6.2.3 |
| A/L1 phase active energy consumption（6 Bytes） | - | The format refer to 6.2.2 |
| B/L2 phase active energy consumption（6 Bytes） | - | The format refer to 6.2.2 |
| C/L3 phase active energy consumption（6 Bytes） | - | The format refer to 6.2.2 |
| A/L1 phase reactive energy consumption（6 Bytes） | - | The format refer to 6.2.2 |
| B/L2 phase reactive energy consumption（6 Bytes） | - | The format refer to 6.2.2 |
| C/L3 phase reactive energy consumption（6 Bytes） | - | The format refer to 6.2.2 |

note：All the above data without indicating the sending order are send in low bit.

# Clear Metering(0xFFE0)

## Server

### Attribute

None.

### Commands Received

|  |  |  |  |
| --- | --- | --- | --- |
| ID | Description | M/O | MFG |
| 0x00 | clear measurement data | O | Yes |

### Commands Generated

None.