## Version Changes

| Date/Rev | Description |
|---|---|
| *18-April-2023/Rev 1* | Initial release. |
| *29-May-2023/Rev 2* | Update Command/Feature |
| *13-Jun-2023/Rev 3* | Corrected mistake on input port/button input mode number |

## Peripheral

The peripheral name is as below,

On JSON Key under d.sys.perip array,

| Key | Value Type | Value |
|---|---|---|
| *Keycmd* | String | relayoutput |
| *feature* | String | 4ch |

| Key | Value Type | Value |
|---|---|---|
| *Keycmd* | String | inputport |
| *feature* | String | 12ch |

| Key | Value Type | Value |
|---|---|---|
| *Keycmd* | String | envsensor |
| *feature* | String | ntctemp |

Peripheral "envsensor" with feature hardware "ntctemp" is a NTC Temperature Sensor input port that allows to install an external NTC Temperature Sensor to detect the environment temperature. If the NTC Temperature Sensor is not installed, it will have output value "999".

# Attribute

## Device Only Attribute

| Key | Value Type | Description |
|---|---|---|
| *d. relayoutput.ch* | Integer | Indicate total number of output port available in this device |
| *d.inputport.ch* | Integer | Indicate total number of input channel available in the device |

## Share Attribute

| Key | Value Type | Description |
|---|---|---|
| *s.relayoutput.setup* | Array of object | Each object will be representing each output port, attribute available in each object are as below, <ul><li>ch : Output Port Channel number</li><li>mode : Output signal mode, value 0 and 1.<ul><li>Mode = 0, Normal Mode</li><li>Mode = 1, Pulse Mode.</li></ul></li><li>fperiodon : On period, only valid for Mode=1 (Each count represent a period of 100ms)</li><li>fperiodoff ; Off period, only valid for Mode=1 (Each count represent a period of 100ms)</li><li>pulsecnt : Total output pulse, only value for Mode=1</li></ul> |
| *s.inputport.setup* | Array of object | Define the on state of each channel, each element will contain value as below,<br><br>{<br>   "ch": 0,<br>   "onishigh": false,<br>   "mode" : 0,<br>   "debounce": 10<br>}<ul><li>ch (Must provide) = Channel index</li><li>onislow (optional) = if true, on will be during the input is in LOW state.</li><li>Mode (optional) = Input port mode,<ul><li>0 = Push Button Mode, Push Button input that will publish out once when the switch is press/pushed.</li></ul></li></ul> |

| | | |
|---|---|---|
| | | ○ 1 = normal input port that publishes out the on/off state when input port changes the state.<br>• debounce (optional) = debounce delay count index. The higher the index, the longer the device delays. Value = 2 to 50 (default 10). Only available when Mode=0 (button input mode) |
| *s.envsensor.ratectrl* | Boolean | When set to true, it will fix the environment sensor value update by period. If set to false, it will immediately update the sensor value when there are any value changes. |
| *s.envsensor.ratectrlperiod* | Integer (5~3600) | Only valid when "s.envsensor.ratectrl"=true. Set the sensor value update period in second. E.g., if the value is 60, it will update the sensor value every 60 seconds. |

Attribute Example (Attribute output snippet):

```
"d.relayoutput.ch": 4,
  "s.relayoutput.setup": [
    {
      "ch": 0,
      "mode": 0,
      "fperiodon": 5,
      "fperiodoff": 5,
      "pulsecnt": 4
    },
    {
      "ch": 1,
      "mode": 0,
      "fperiodon": 5,
      "fperiodoff": 5,
      "pulsecnt": 1
    },
    …
  ],
```

```
"d.inputport.ch": 12,
  "s.inputport.setup": [
    {
      "ch": 0,
      "onishigh": false,
      "mode": 0,
      "debounce": 10
    },
    …
  ]
```

## Telematics Data

| Key | Value Type | Description |
|---|---|---|
| *t.relayoutput.param* | Array of Object | Return the output status when the output change state. Each object will be representing the state of each output port. Attribute available for each object is,<br>• ch : (integer) The port channel number<br>• ison: (boolean) if true, the relay now is in on status.<br>• ts: (integer) system current timestamp |
| *t.inputport.param* | Array of object | Return the status of each port in the array. Each element of array will consist of value listed below during Mode=1,<br><br>{<br>  "ch": 0,<br>  "ison": true,<br>  "ts": 34245324,<br>  "count": 554<br>}<br>    • ch = Input Channel Index.<br>    • ison = true if it is on and false when it is off.<br>    • ts = System timestamp in millisecond.<br>    • count = number of on/off cycle count. Add 1 when the input turn from off to on.<br>If the Mode=0 (Button Mode), the Status return will be in format below for each input,<br><br>{<br>  "ch": 0,<br>  "btnpress": 1,<br>  "ts": 34245323,<br>  "count": 554<br>}<br>    • ch = Input Channel Index.<br>    • ts = System timestamp in millisecond.<br>    • btnpress can be either,<br>       o 1 for normal press,<br>       o 2 for double click the button,<br>       o 3 for triple click the button,<br>       o 4 for long press for more than 4~5 second.<br>    • count = number of buttons press cycle count according. Add 1 on each button press. |
| *t.envsensor.param* | Object | Return the current temperature value when temperature value changes. The return value is in degree Celsius.<br><br>{<br>  "ntctemp" = 31.1<br>} |

Example Telematic Message

Relay Output Port and Input Port status update return value.

```json
{
    "deviceid": "WIRIO3_F412FA515204",
    "pktno": 2079521238,
    "sec": 1677206731,
    "t.relayoutput.param": [
        {
            "ch": 1,
            "ison": true,
            "ts": 2401411
        }
    ]
}
```

```json
{
    "deviceid": "WIRIO3_F412FA515204",
    "pktno": 2079846216,
    "sec": 16677205054,
    "t.inputport.param": [
        {
            "ch": 0,
            "ison": true,
            "ts": 34245324,
            "count": 554
        }
    ]
}
```

Temperature reading return from NTC Temperature Sensor.

```json
{
    "deviceid": "WIRIO3_ .....",
    "pktno": 4258383125,
    "t.envsensor.param": {
        "ntctemp": 31.1
    }
}
```

# RPC Call and Response

| Key | Value Type | Description |
|---|---|---|
| *r.relayoutput.param* | Array of Object | Request to change the output port state. Each object representing 1 output state.<br>• ch : The port channel number<br>• ison: (boolen) if true, the relay is to on status<br>If the RPC request format is correct and accepted, it will return true and schedule in the system for the requested action. When the output status is changed, it will send out the result in the telematic topic under t.relayoutput.param.<br> When the output is set to pulse mode, setting ison=true, will start the pulse output according to the attribute parameter configured in fperiodon/fperiodoff/pulsecnt. Once pulse output count is finished, it will auto set to off and update the off state in the Telematic topic. If RPC request ison=false is sent before the pulse counting is finished, it will immediately stop the pulse output and set to off state.<br> Please take note that if the relay channel is already in the state/condition that same with the request state, it will not output any update in the Telemetry topic. It will only send out the Telemetry topic when there is a status/condition changes in the Output Relay Channel. |
| *r.relayoutput.getstate* | Boolean | True/false will cause the device to resend out the last telemetry data for all the relay output port in telemetry topic. |
| *r.inputport.getstate* | Boolean | True/false will cause the device to resend out the last telemetry data for all the input port in telemetry topic. |
| *r. envsensor.getstate* | Boolean | True/false will cause the device to resend out the all the latest environment sensors value in telemetry topic. If the NTC sensor is NOT installed, it will not send out the any data in the telemetry topic. |

Example RPC request to set the output port,

```
1  {
2    "r.relayoutput.param": [
3      {
4        "ch": 0,
5        "ison": true
6      },
7      {
8        "ch": 1,
9        "ison": true
10     },
11     {
12       "ch": 2,
13       "ison": true
14     }
15   ]
16 }
```

Sending RPC request into topic

W3/WIRIO3_..../rpc/request/0.

If the request is accepted, it will return value true in topic W3/WIRIO3_..../rpc/response/0 for further processing.

```
1  {
2    "deviceid": "WIRIO3_68B6B32E5BA0",
3    "pktno": 4258383136,
4    "r.relayoutput.result": true
5  }
```

```
1  {
2    "deviceid": "WIRIO3_....",
3    "pktno": 4258383145,
4    "t.relayoutput.param": [
5      {
6        "ch": 0,
7        "ison": true,
8        "ts": 1585616
9      },
10     {
11       "ch": 1,
12       "ison": true,
13       "ts": 1585616
14     },
15     {
16       "ch": 2,
17       "ison": true,
18       "ts": 1585616
19     }
20   ]
21 }
```

After the request is processed, if the state of the output relay changed, it will return the latest status in topic W3/WIRIO3_..../telemetry