Python config file

**Should be added to the Python config file**

IP : 180.64.29.99

PORT : 1883

D-ID : Solar1

Topic

Pub : /Solar/state/D-ID

Sub : /Solar/cmd/D-ID

Battery Volume : xxAh

**Json 1**

{

“Solar” : {

“D-ID” : Solar1,

“PV”:{

“Volt” : 12.55,

“Current”:0.5,

“Power”:6.27,

},

“Battery”:{

“Volt” : 12.55

“Current”: 0.5

“Remaining”: 65,

}

“Load”:{

“Volt” : 12.55,

“Current”:0.5,

“Power”:6.27,

},

“Status”:{

“Controller Temperature”:27.5,

“UPTIME”:2021-09-02 09:07:05,

“Available Time”:1

}

}

}

**Json 2**

{

“Today”:{

“PV”:{

“Generate”:100,

“Peak”:100,

},

“Battery”:{

“Efficiency”:90,

}

“Load”:{

“TotalCurrent”:50,

“Average”:10,

},

“Status”:{

“Estimated Charge Time”:2

}

}

}

**Web -> Raspberry Pi**

When receiving sub command “**RESET0x3FF**”, Reboot Control Board power

**MSB LSB**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 12\_ch6 | 12\_ch5 | 12\_ch4 | 12\_ch3 | 12\_ch2 | 12\_ch1 | 5\_ch3 | 5\_ch2 | 5ch1 | 9 |

example)

RESET0x2A3

2A3 : 1010100011

12\_ch6, 12\_ch4, 12\_ch2, 5\_ch1, 9 Reset

**How to calculate**

Battery efficiency = (((((23:00 measuring - 00:00 hourly measurement) / 100) \* battery capacity) \* voltage) / power generated per day - power consumption per day) \* 100

**Calculation of available time**

Remaining capacity (Wh) = (Remaining capacity / 100) \* (Total battery capacity (Ah) \* Voltage)

Available time (hour) = Remaining amount (Wh) / Power consumption (one hour)

Available hours (Day) = Available hours (hours) / 24

**Calculation of estimated time of full charge**

Estimated charging time = ((total battery capacity (Ah) \* voltage) - remaining amount (Wh)) / daily power generation (Wh) - daily power consumption (Wh)