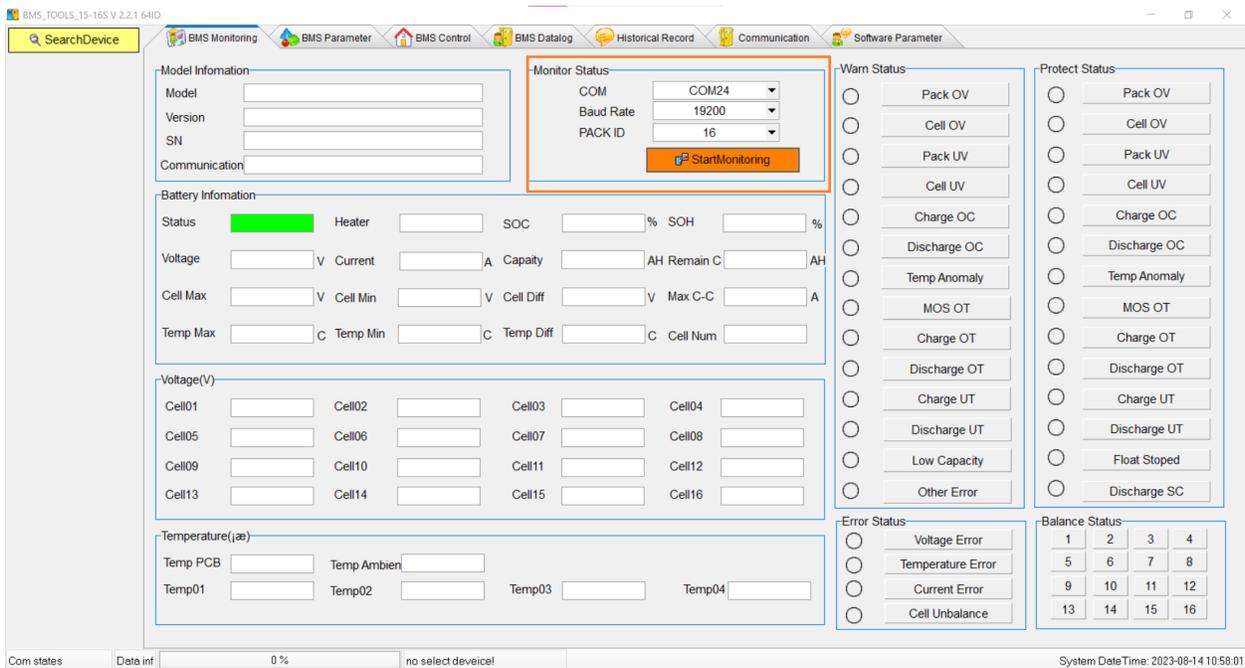
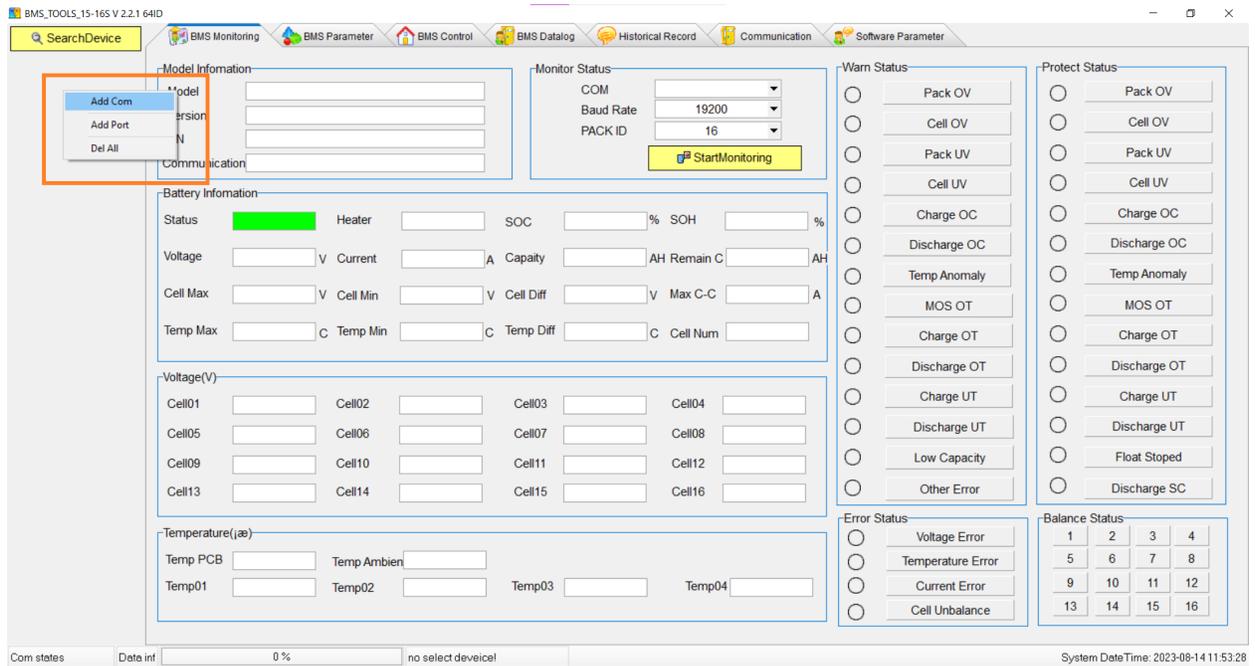


# Guide on using BMS Tools to view multiple EG4 LL V2 batteries

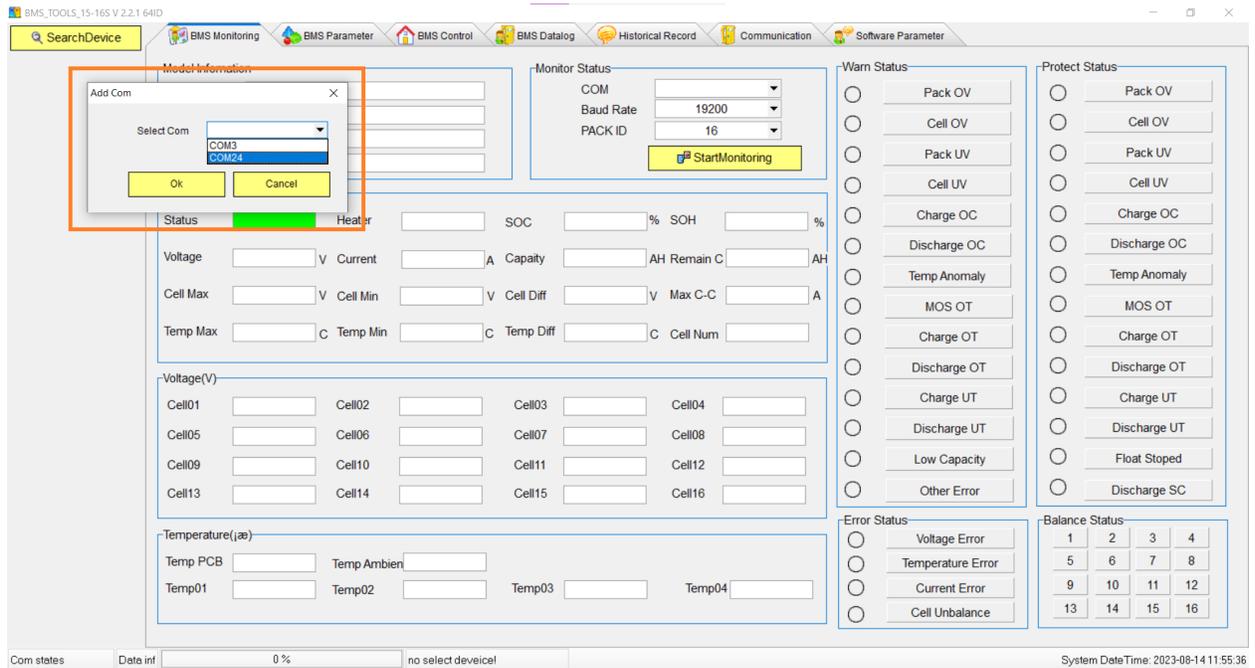
1. After updating the EG4LL V2 (4 dip or 6 dip) batteries with the multipack firmware, connect the USB-A to RS-485 (RJ45 pins, 1-B, 2-A) to the computer, and then to the **battery-com port** on the EG4LL V2.
2. Using device manager, confirm that the RS-485 cable has been recognized as a COM port.
3. ID:1 cannot be used in the multipack, Start the master battery at (ID:16 for 4 dip switch) (ID:64 for 6 dip switch) for pc communication.
4. Skip dip switch (ID:1 Inverter communication) and the next battery will begin at ID:2. From here you can use numerical order for the batteries dip switch ID: numbers.
5. If the dip switch ID: is changed while the battery is powered ON, reset the EG4 LL V2 battery for the dip switch ID: to take place.
6. Open the program BMS Tools V2.2.1, Under the monitor status column, change the baud-rate to 19200, and the COM: to the same COM address the RS485 cable is assigned by Windows.



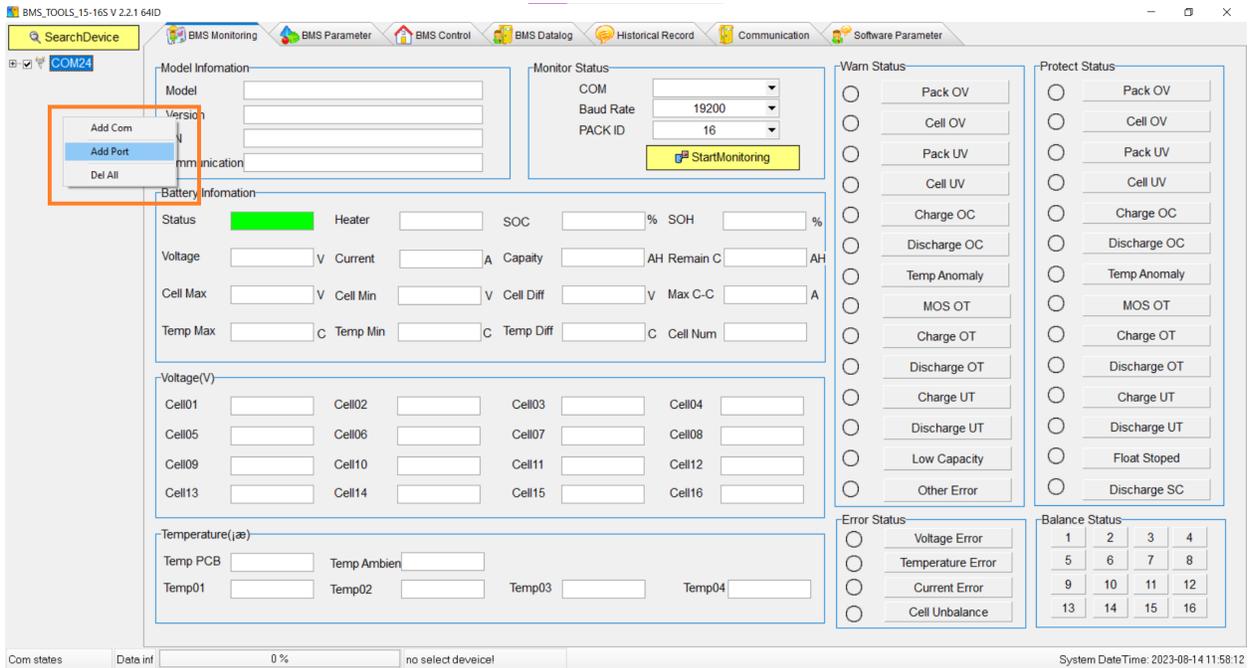
1. In the top left corner under Search Device, right click and select Add Com,



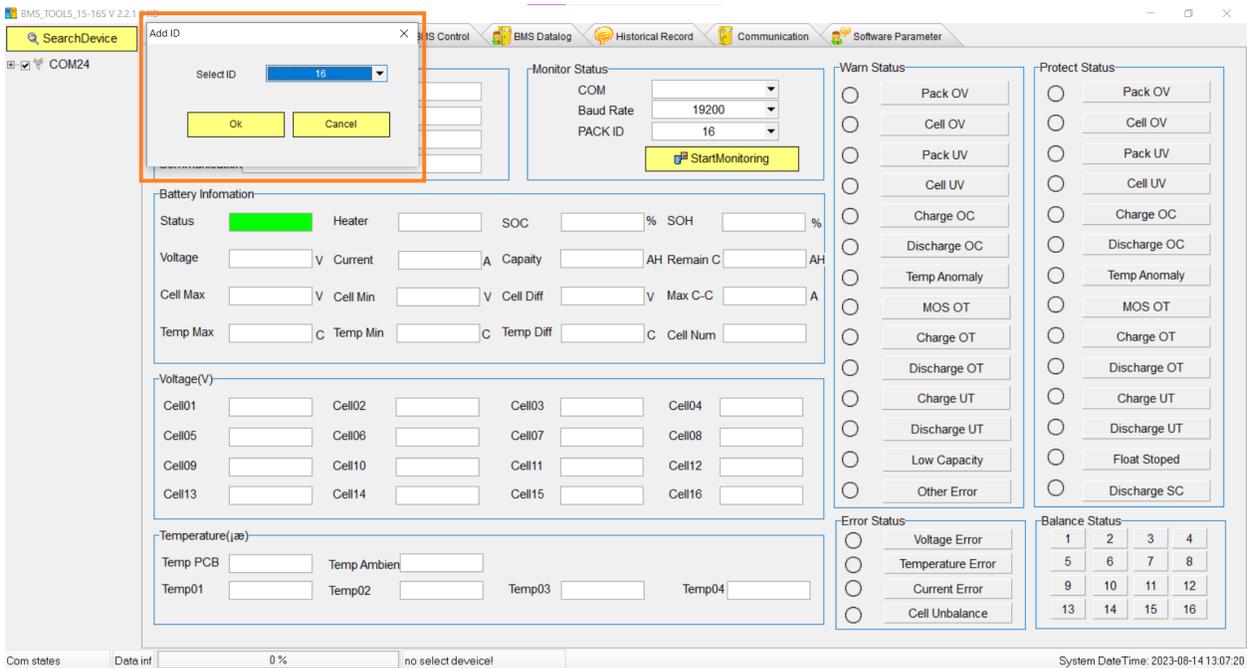
2. Select the correct COM that Windows has assigned the RS485 cable. Now click ok and then click the exit button in the top right corner of this box.



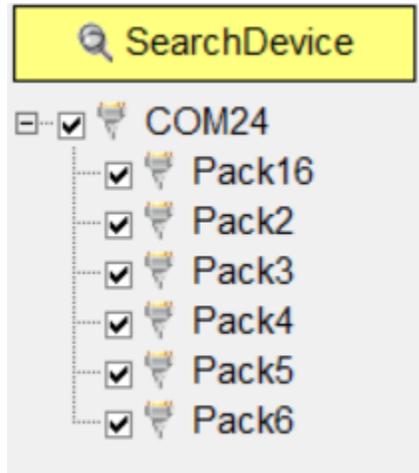
- Now that the COM port has been added, left click on the COM: until it is highlighted blue, and then right click and select add port.



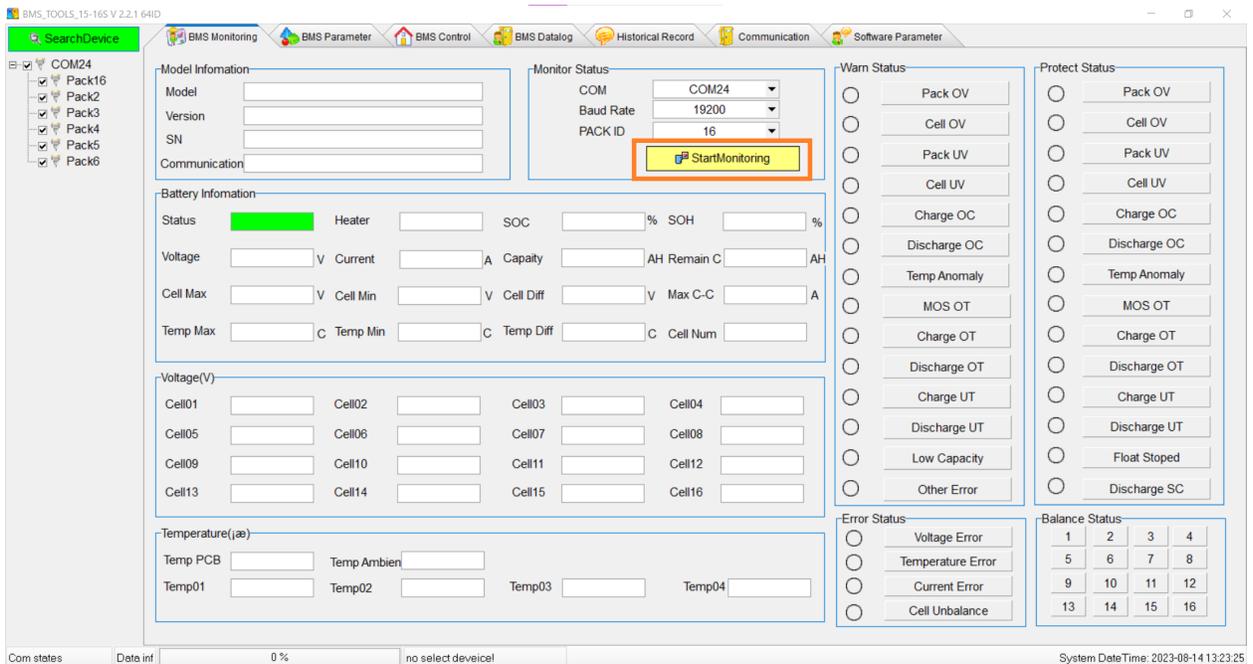
- Select either (ID:16 for the EG4 LL V2 4 dip) or (ID:64 for the EG4 LL V2 6 dip) as the first address. (ID:1 is skipped due to being the Inverter communication) From here manually enter the dip switch ID: numbers that you are going to be monitoring.



- After adding the amount of pack ID: numbers you are wanting to monitor, check each one.



- Now click Start Monitoring, The bms data will now be populated depending on the exact pack ID: that is selected.



7. Select the pack ID: drop down and select the ID: number you would like to view. After changing the ID: number the BMS information will automatically populate.

The screenshot displays the BMS monitoring software interface. The 'Monitor Status' section is highlighted with an orange box. It contains the following fields:

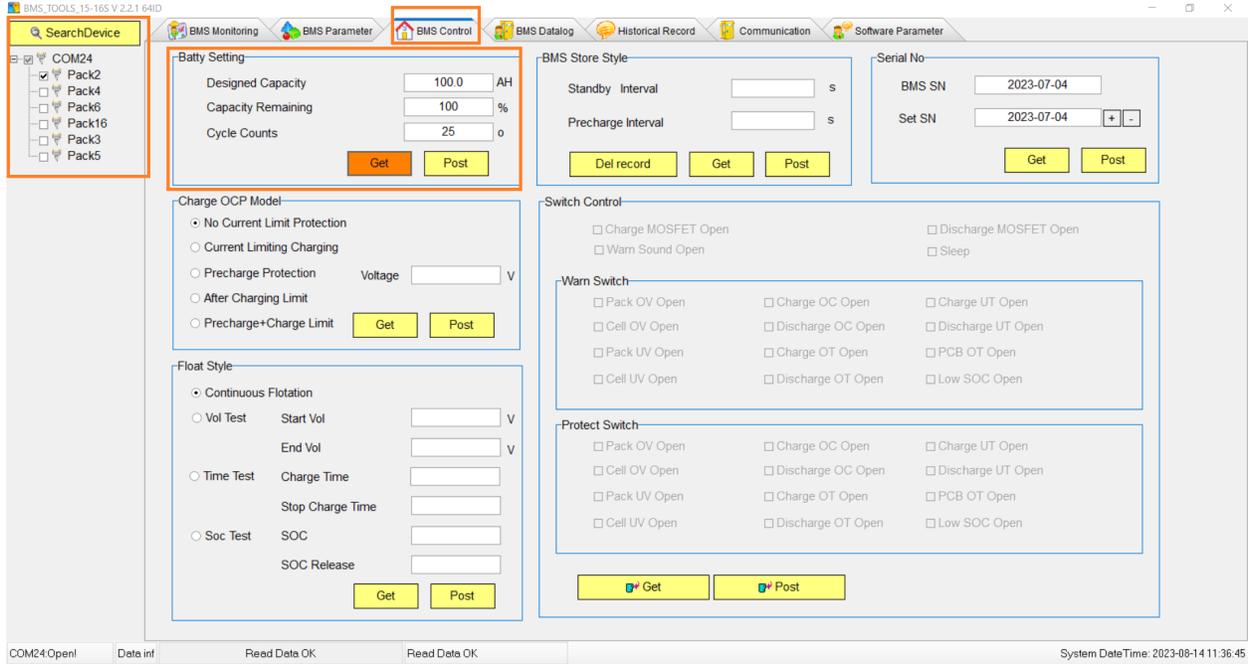
- COM: COM24
- Baud Rate: 19200
- PACK ID: 16

A dropdown menu is open for the PACK ID field, showing a list of numbers from 1 to 8. The number 2 is currently selected. The rest of the interface shows various BMS parameters:

- Model Information:** Model (LFP-51.2V100Ah-V1), Version (Z01T16), SN (2023-07-04), Communication (Online).
- Battery Information:** Status (Stand by), Heater (Off), SOC (100%), Voltage (53.340 V), Current (0.000 A), Capacity (100%), AH Remain C (99 AH).
- Voltage(V):** Cell voltages for Cell01 through Cell16, ranging from 3.332 V to 3.335 V.
- Temperature(°C):** Temp PCB (25), Temp Ambient (26), Temp01 (25), Temp02 (24), Temp03 (24), Temp04 (23).
- Warn Status:** Pack OV, Cell OV, Pack UV, Cell UV, Charge OC, Discharge OC, Temp Anomaly, MOS OT, Charge OT, Discharge OT, Charge UT, Discharge UT, Low Capacity, Other Error.
- Protect Status:** Pack OV, Cell OV, Pack UV, Cell UV, Charge OC, Discharge OC, Temp Anomaly, MOS OT, Charge OT, Discharge OT, Charge UT, Discharge UT, Float Stopped, Discharge SC.
- Error Status:** Voltage Error, Temperature Error, Current Error, Cell Unbalance.
- Balance Status:** A 4x4 grid of values from 1 to 16.

The bottom status bar shows: COM24:Open! Date Inf Read Data OK System Date Time: 2023-08-14 13:36:30

- On the BMS Control tab, To view the cycle counts of one battery, only check mark the battery you are wanting to view the cycle counts.  
You can click GET to see the amount of cycles the battery you are monitoring has.



- On the Historical Record tab, Select only the battery ID: number you would like to monitor in real time. You can currently only view the real time data from each battery due to using the RS-485 cable in the battery-com port. To view back logged data, use the RS-485 cable into the RS-485 port on an individual battery and use the BMS Datalog tab.

The screenshot displays the BMS Monitoring software interface. The 'Historical Record' tab is active, showing a table of battery data. The table has the following columns: RecordID, Address, Date\_Time, Status, Meter, Warning, Protection, ErrorCode, CycleNum, Current\_I, AX\_Curren, Total\_Voltage, SOC, SOH, Temp\_PCB, ip\_inter, Temp\_MAX, Temp01, Temp02, Temp03, and Temp04. The data shows 39 records for battery COM24\_16, all with a status of 'Stand by' and a cycle number of 26. The temperature readings (Temp01-04) are consistently 24 or 25 degrees Celsius. Below the table, there are query filters for 'Query By Date' (Begin Date: 2023-08-14, End Date: 2023-08-14) and 'Query By Address' (Select Address: COM24\_16). Action buttons include 'Query Data', 'Print Data', 'Export Data', and 'Clear Data'.

RecordID	Address	Date_Time	Status	Meter	Warning	Protection	ErrorCode	CycleNum	Current_I	AX_Curren	Total_Voltage	SOC	SOH	Temp_PCB	ip_inter	Temp_MAX	Temp01	Temp02	Temp03	Temp04
1	COM24_16	2023-08-14 13:43:48	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
2	COM24_16	2023-08-14 13:43:51	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
3	COM24_16	2023-08-14 13:43:53	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
4	COM24_16	2023-08-14 13:43:56	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
5	COM24_16	2023-08-14 13:43:58	Stand by	0E6	0000	0000	0000	26	0.000	100	53.330	100	100	25	27	25	25	24	24	23
6	COM24_16	2023-08-14 13:44:01	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
7	COM24_16	2023-08-14 13:44:03	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
8	COM24_16	2023-08-14 13:44:06	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
9	COM24_16	2023-08-14 13:44:09	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
10	COM24_16	2023-08-14 13:44:11	Stand by	0E6	0000	0000	0000	26	0.000	100	53.330	100	100	25	27	25	25	24	24	23
11	COM24_16	2023-08-14 13:44:14	Stand by	0E6	0000	0000	0000	26	0.000	100	53.330	100	100	25	27	25	25	24	24	23
12	COM24_16	2023-08-14 13:44:17	Stand by	0E6	0000	0000	0000	26	0.000	100	53.330	100	100	25	27	25	25	24	24	23
13	COM24_16	2023-08-14 13:44:19	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
14	COM24_16	2023-08-14 13:44:49	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
15	COM24_16	2023-08-14 13:44:52	Stand by	0E6	0000	0000	0000	26	0.000	100	53.330	100	100	25	27	25	25	24	24	23
16	COM24_16	2023-08-14 13:44:54	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
17	COM24_16	2023-08-14 13:44:57	Stand by	0E6	0000	0000	0000	26	0.000	100	53.330	100	100	25	27	25	25	24	24	23
18	COM24_16	2023-08-14 13:44:59	Stand by	0E6	0000	0000	0000	26	0.000	100	53.330	100	100	25	27	25	25	24	24	23
19	COM24_16	2023-08-14 13:45:02	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
20	COM24_16	2023-08-14 13:45:04	Stand by	0E6	0000	0000	0000	26	0.000	100	53.330	100	100	25	27	25	25	24	24	23
21	COM24_16	2023-08-14 13:45:07	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
22	COM24_16	2023-08-14 13:45:10	Stand by	0E6	0000	0000	0000	26	0.000	100	53.330	100	100	25	27	25	25	24	24	23
23	COM24_16	2023-08-14 13:45:13	Stand by	0E6	0000	0000	0000	26	0.000	100	53.330	100	100	25	27	25	25	24	24	23
24	COM24_16	2023-08-14 13:45:15	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
25	COM24_16	2023-08-14 13:45:18	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
26	COM24_16	2023-08-14 13:45:20	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
27	COM24_16	2023-08-14 13:45:23	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
28	COM24_16	2023-08-14 13:45:25	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
29	COM24_16	2023-08-14 13:45:28	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
30	COM24_16	2023-08-14 13:45:30	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
31	COM24_16	2023-08-14 13:45:33	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
32	COM24_16	2023-08-14 13:45:36	Stand by	0E6	0000	0000	0000	26	0.000	100	53.330	100	100	25	27	25	25	24	24	23
33	COM24_16	2023-08-14 13:45:38	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
34	COM24_16	2023-08-14 13:45:41	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
35	COM24_16	2023-08-14 13:45:43	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
36	COM24_16	2023-08-14 13:45:46	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
37	COM24_16	2023-08-14 13:45:49	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
38	COM24_16	2023-08-14 13:45:52	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23
39	COM24_16	2023-08-14 13:45:54	Stand by	0E6	0000	0000	0000	26	0.000	100	53.340	100	100	25	27	25	25	24	24	23