2025

MINT Data API

VERSION 5.0

EN

PHOENIX CONTACT

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Table of Revisions

Date	Version	Description of Changes	Status	Author
05-10-2023	1.0	Initial draft		Todor Katsarski
16-10-2023	2.0	Reviewed version		Frederik Leempoels
26-01-2024	3.0	Update and rewrite + new template		Bert Vandormael
14-02-2024	3.1	Fix keys in messages		Bert Vandormael
19-02-2024	3.2	Update template and fonts		Bert Vandormael
23-02-2024	3.3	Fix data structure for Advices		Bert Vandormael
21-03-2024	4.0	Separation of concern: Data API		Bert Vandormael
21-04-2024	4.1	Fix state in charge transaction		Bert Vandormael
04-06-2024	4.2	Cleanup of all message bodies + add Battery		Bert Vandormael
10-01-2025	5.0	New template	Release	Marco Cicarelli

1 About

This document will describe which data an external party can receive from de MINT platform.

For any other integrations, please get in touch with your local Phoenix Contact subsidiary for the right documentation.

2 The MINT API

The MINT API is an extension of the MINT platform, allowing external parties to process data from sites in the field.

Technical

The MINT DataHub is set up as a stateless data processing service. This means that the API works in the same manner and data can only be pushed to external parties.

3 Getting started

To connect an application to the MINT API, set up on the side of the external party will be required, before any integration can be set up in the MINT DataHub.

As mentioned in section 2, the API is stateless, so it is expected from the external party to provide an API endpoint. This can be a single endpoint for all data, or an endpoint for each data type.

3.1 API endpoint

The external party is completely free in deciding how the API endpoint will be set up, though considering the following requirements:

- SSL on the external API is required.
- Authentication is preferred through a Bearer token in the Authorization header alternatively, a token in the URL is also possible.
- Data will only be sent in a JSON format (see section 4).
- The API will not resend a data package if the request fails.

3.2 Integration

The next step is for the external party to provide the endpoint details to their Phoenix Contact intermediary. They will start the process to enable the integration on the MINT DataHub to start sending data.

The following should be mentioned in the communication:

- The endpoint URL(s).
- The authentication method.
- Overview of the sites for which data is requested and per site the data types to be sent to the endpoint(s).

Next, the external party will either ...

- ... receive negative feedback, where changes will need to be made to complete the integration.
- ... or positive feedback and the timing on when the integration will be live.

4 Messages

The following is an overview of all the messages an external party can receive on their endpoint(s).

4.1 Charge transaction

Message body

```
{
        "messageType": "ChargeTransaction_V1",
        "equipmentId": "string",
        "transactionId": "string",
        "timestamp": "0000-00-00T00:00:00Z",
        "transactionState": 0 | 1 | 2 | 3,                    // 0 = Started
                                                              // 1 = Updated
                                                              // 2 = Ended
                                                              // 3 = SuspendedEV
        "startTime": "0000-00-00T00:00:00Z",
        "stopTime": "0000-00-00T00:00:00Z",
        "noChargingPhases": "string",
        "usedChargingPins": ["pin1", "pin2", "pin3"],
        "maxPowerDetermined": true | false,
        "maxPower": 0.0,                                      // in W
        "smartCharging": "string",
        "requestedMinEnergy": 0.0,                            // in Wh
        "requestedMaxEnergy": 0.0,                            // in Wh
        "estimatedDepartureTime": "0000-00-00T00:00:00Z",
        "initialEnergyValue": 0.0,                            // in Wh
        "soCMeasurementAvailable": "string",
        "priority": 0,
        "tagId": "string",
        "brokerContext": "string",
        "startEnergy": 0.0,                                   // in Wh
        "stopEnergy": 0.0,                                    // in Wh
        "sessionEnergy": 0.0,                                 // in Wh
}
```

Table 1: Charge transaction

4.2 Energy report

4.2.1 AC charger

Message body

```
{
        "messageType": "EnergyReportAC_V1",
        "equipmentId": "string",
        "locationId": "string",
        "timestamp": "0000-00-00T00:00:00Z",
        "communicationState": 0 | 1 | 2,                    // 0 = Valid
                                                            // 1 = Invalid
                                                            // 2 = Error
        "energy": 0.0,                                      // in Wh
        "power": 0.0,                                       // in W
        "pins": {
                "p1": {
                        "current": 0.0,                     // in A
                        "activePower": 0.0,                 // in W (optional)
                        "energy": 0.0,                      // in Wh (optional)
                        "voltage": 0.0,                     // in V (optional)
                },
                "p2": {
                        "current": 0.0,                     // in A
                        "activePower": 0.0,                 // in W (optional)
                        "energy": 0.0,                      // in Wh (optional)
                        "voltage": 0.0,                     // in V (optional)
                },
                "p3": {
                        "current": 0.0,                     // in A
                        "activePower": 0.0,                 // in W (optional)
                        "energy": 0.0,                      // in Wh (optional)
                        "voltage": 0.0,                     // in V (optional)
                },
        }
}
```

Table 2: AC charger

4.2.2 Collector

Message body

```
{
        "messageType": "EnergyReportCollector_V1",
        "equipmentId": "string",
        "locationId": "string",
        "timestamp": "0000-00-00T00:00:00Z",
        "voltage12": 0.0,                                   // in V (optional)
        "voltage23": 0.0,                                   // in V (optional)
        "voltage31": 0.0,                                   // in V (optional)
        "activePowerTotal": 0.0,                            // in W (optional)
        "reactivePowerTotal": 0.0,                          // (optional)
        "powerFactorTotal": -1.0 to 1.0,                    // (optional)
        "energyPositive": 0.0,                              // in Wh (optional)
        "energyNegative": 0.0,                              // in Wh (optional)
        "dayEnergyPositive": 0.0,                           // in Wh (optional)
        "dayEnergyNegative": 0.0,                           // in Wh (optional)
        "dayMaxPowerPositive": 0.0,                         // in W (optional)
        "dayMaxPowerNegative": 0.0,                         // in W (optional)
        "frequency": 0.0,                                   // in Hz (optional)
        "communicationState": 0 | 1 | 2,                    // 0 = Valid
                                                            // 1 = Invalid
                                                            // 2 = Error
        "pins": {
                "p1": {
                        "current": 0.0,                     // in A
                        "activePower": 0.0,                 // in W
                        "energy": 0.0,                      // in Wh (optional)
                        "voltage": 0.0,                     // in V (optional)
                        "reactivePower": 0.0,               // (optional)
                        "powerFactor": -1.0 to 1.0,         // (optional)
                },
                "p2": {
                        "current": 0.0,                     // in A
                        "activePower": 0.0,                 // in W
                        "energy": 0.0,                      // in Wh (optional)
                        "voltage": 0.0,                     // in V (optional)
                        "reactivePower": 0.0,               // (optional)
                        "powerFactor": -1.0 to 1.0,         // (optional)
                },
                "p3": {
                        "current": 0.0,                     // in A
                        "activePower": 0.0,                 // in W
                        "energy": 0.0,                      // in Wh (optional)
                        "voltage": 0.0,                     // in V (optional)
                        "reactivePower": 0.0,               // (optional)
                        "powerFactor": -1.0 to 1.0,         // (optional)
                }
        }
}
```

Table 3: Collector

4.2.3 PV system

Message body

```
{
        "messageType": "EnergyReportSolar_V1",
        "locationId": "string",
        "equipmentId": "string",
        "timestamp": "0000-00-00T00:00:00Z",
        "activePowerTotal": 0.0,                        // in W (optional)
        "reactivePowerTotal": 0.0,                      // (optional)
        "powerFactorTotal": 0.0,                        // (optional)
        "dayEnergyPositive": 0.0,                       // in Wh (optional)
        "dayMaxPowerPositive": 0.0,                     // in W (optional)
        "communicationState": 0 | 1 | 2,                // 0 = Valid
                                                        // 1 = Invalid
                                                        // 2 = Error
        "pins": {
                "p1": {
                        "current": 0.0,                 // in A
                        "activePower": 0.0,             // in W
                        "energy": 0.0,                  // in Wh (optional)
                        "voltage": 0.0,                 // in V (optional)
                        "reactivePower": 0.0,           // (optional)
                        "powerFactor": -1.0 to 1.0,     // (optional)
                },
                "p2": {
                        "current": 0.0,                 // in A
                        "activePower": 0.0,             // in W
                        "energy": 0.0,                  // in Wh (optional)
                        "voltage": 0.0,                 // in V (optional)
                        "reactivePower": 0.0,           // (optional)
                        "powerFactor": -1.0 to 1.0,     // (optional)
                },
                "p3": {
                        "current": 0.0,                 // in A
                        "activePower": 0.0,             // in W
                        "energy": 0.0,                  // in Wh (optional)
                        "voltage": 0.0,                 // in V (optional)
                        "reactivePower": 0.0,           // (optional)
                        "powerFactor": -1.0 to 1.0,     // (optional)
                }
        }
}
```

Table 4: PV system

4.2.4 Battery

Message body

```
{
        "messageType": "EnergyReportBattery_V1",
        "locationId": "string",
        "equipmentId": "string",
        "timestamp": "0000-00-00T00:00:00Z",
        "soC": 0.0,                                     // in %
        "activePower": 0.0,                             // in W
        "reactivePower": 0.0,                           // (optional)
        "powerFactor": 0.0,                             // (optional)
        "dayMaxPowerPositive":0.0,                      // in W (optional)
        "dayMaxPowerNegative":0.0,                      // in W (optional)
        "maxChargePower": 0.0,                          // in W (optional)
        "maxDischargePower": 0.0,                       // in W (optional)
        "maxReactivePowerPositive":0.0,                 // (optional)
        "maxReactivePowerNegative":0.0,                 // (optional)
        "energyPositive": 0.0,                          // in Wh (optional)
        "energyNegative": 0.0,                          // in Wh (optional)
        "dayEnergyPositive": 0.0,                       // in Wh (optional)
        "dayEnergyNegative": 0.0,                       // in Wh (optional)
        "communicationState":0 | 1 | 2,                 // 0 = Valid
                                                        // 1 = Invalid
                                                        // 2 = Error
        "batteryState": 0 | 1 | 2 | 3 | 4,              // 0 = Idle
                                                        // 1 = Sleep
                                                        // 2 = Standby
                                                        // 3 = Charging
                                                        // 4 = Discharging
        "pins": {
                "p1": {
                        "current": 0.0,                 // in A
                        "activePower": 0.0,             // in W (optional)
                        "energyPositive": 0.0,          // in Wh (optional)
                        "energyNegative": 0.0,          // in Wh (optional)
                        "voltage": 0.0,                 // in V (optional)
                        "reactivePower": 0.0,           // (optional)
                        "powerFactor": -1.0 to 1.0,     // (optional)
                },
                "p2": {
                        "current": 0.0,                 // in A
                        "activePower": 0.0,             // in W (optional)
                        "energyPositive": 0.0,          // in Wh (optional)
                        "energyNegative": 0.0,          // in Wh (optional)
                        "voltage": 0.0,                 // in V (optional)
                        "reactivePower": 0.0,           // (optional)
                        "powerFactor": -1.0 to 1.0,     // (optional)
                },
                "p3": {
                        "current": 0.0,                 // in A
                        "activePower": 0.0,             // in W (optional)
```

```
                    "energyPositive": 0.0,                  // in Wh (optional)
                    "energyNegative": 0.0,                  // in Wh (optional)
                    "voltage": 0.0,                         // in V (optional)
                    "reactivePower": 0.0,                   // (optional)
                    "powerFactor": -1.0 to 1.0,             // (optional)
                }
            }
        }
```

Table 5: Battery

4.2.5 DC charger

Message body

```
{
        "messageType": "EnergyReportDC_V1",
        "locationId": "string",
        "equipmentId": "string",
        "timestamp": "0000-00-00T00:00:00Z",
        "soC": 0.0,                                   // in % (optional)
        "activePower": 0.0,                           // in W
        "sessionEnergy": 0.0,                         // in Wh (optional)
        "dayEnergy": 0.0,                             // in Wh (optional)
        "dayMaxPower": 0.0,                           // in W (optional)
        "energy": 0.0,                                // in Wh (optional)
        "maxChargePower": 0.0,                        // in W (optional)
        "communicationState": 0 | 1 | 2,              // 0 = Valid
                                                      // 1 = Invalid
                                                      // 2 = Error
        "vehicleState"  : "A1" | "A2"
                        | "B1" | "B2"
                        | "C1" | "C2"
                        | "D1" | "D2"
                        | "E" | "F",
        "pins": {
                "p1": {
                        "current": 0.0,               // in A
                        "activePower": 0.0,           // in W (optional)
                        "energy": 0.0,                // in Wh (optional)
                        "voltage": 0.0,               // in V (optional)
                },
                "p2": {
                        "current": 0.0,               // in A
                        "activePower": 0.0,           // in W (optional)
                        "energy": 0.0,                // in Wh (optional)
                        "voltage": 0.0,               // in V (optional)
                },
                "p3": {
                        "current": 0.0,               // in A
                        "activePower": 0.0,           // in W (optional)
                        "energy": 0.0,                // in Wh (optional)
                        "voltage": 0.0,               // in V (optional)
                }
        }
}
```

Table 6: DC charger