

# AC Formblatt html

## Battery System

# Requirements for Park Controller Integration

This document defines the minimum communication and performance requirements for integrating a Battery Energy Storage System (BESS) into the EcoData Park Controller.

The purpose of this questionnaire is to determine whether the battery system can be controlled fast and accurately enough for active power management, reactive power control and grid support applications according to VDE-AR-N 4105 and VDE-AR-N 4110.

# General Information

<b>Manufacturer / System</b>	<input type="text"/>
<b>Model / Type</b>	<input type="text"/>
<b>Technical Contact</b>	<input type="text"/>
<b>Phone</b>	<input type="text"/>
<b>E-Mail</b>	<input type="text"/>

# Required Data Points and Control Functions

The following measured values and control values must be available via Modbus TCP, Modbus RTU or another documented communication interface.

## Measured Values

Data Point	Supported	Register Address	Comment / Scaling / Unit
Actual charge/discharge power (AC side)	<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	kW
Actual reactive power (AC side)	<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	kVar
State of Charge (SOC)	<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	%
State of Health (SOH)	<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	%
Available charging power (actual available charging capability)	<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	kW
Available discharging power (actual available discharging capability)	<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	kW
Nominal charging power	<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	kW
Nominal discharging power	<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	kW
Nominal reactive power	<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	kVar

## Available Power Requirements

The available charging and discharging power registers shall represent the actual currently available power.

These values must reflect limitations caused by:

- Battery temperature
- State of Charge limitations

- BMS restrictions
- PCS restrictions
- Protection functions
- Any other temporary limitation of charging or discharging capability

**Example:**

A 1 MW battery system may only be able to charge with 200 kW because the battery is almost full. In this case the available charging power register shall report 200 kW and not the nominal 1 MW.

## Control Values

Control Function	Supported	Register Address	Comment / Scaling / Unit
Charge/discharge power setpoint (AC side)	<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	kW
Reactive power setpoint (underexcited / overexcited)	<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>	% Qnom / var / kVar

## Reactive Power Setpoint Format

The reactive power setpoint must support one of the following input formats:

- % of nominal reactive power
- var
- kVar

**Not acceptable:**

- cos φ setpoint
- power factor setpoint only

Reactive power control via cos φ or power factor setpoint only is not sufficient and cannot be used for integration.

If the reactive power setpoint is specified as a percentage, an additional register providing the nominal reactive power is required.

# Dynamic Performance Requirements

The battery system shall follow externally provided active power and reactive power setpoints directly.

The battery inverter, PCS, EMS and BMS shall not apply additional ramp limits, smoothing functions, filtering functions, averaging functions or delayed execution mechanisms that modify the requested setpoint.

The EcoData Park Controller generates all required ramps and gradients. The battery system shall therefore execute the received setpoints as requested.

Requirement	Supported	Specification
Active power setpoints can be implemented without internal ramp limitation	<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>
Reactive power setpoints can be implemented without internal ramp limitation	<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>
Setpoint shall affect AC power output/input directly	<input type="radio"/> Yes <input type="radio"/> No	<input type="text"/>
Active power response time		<input type="text"/> ms
Maximum charging ramp rate		<input type="text"/> %Pn/s
Maximum discharging ramp rate		<input type="text"/> %Pn/s
Maximum read cycle time		<input type="text"/> ms
Maximum write cycle time		<input type="text"/> ms

## Internal Ramp Limitation

Does the system apply any internal ramp limitation, power smoothing, slew-rate limitation, filtering or averaging function to active or reactive power setpoints?

No  Yes



# Response Time Requirement

The EcoData Park Controller typically updates setpoints every **500 ms**.

The response time is defined as the time between receipt of a new active power setpoint and achievement of the requested active power level.

Maximum acceptable response time VDE4105: **≤ 500 ms**

Maximum acceptable response time VDE4110: **≤ 200 ms**

Manufacturer specified response time:  ms

# Communication Performance

Parameter	Value
Maximum read cycle time	<input type="text"/> ms
Maximum write cycle time	<input type="text"/> ms
Recommended polling interval	<input type="text"/> ms
Supported communication protocols	<input type="text"/>

# Notes

Integration can only be performed if a real test system is available.

A technical contact person from the battery system manufacturer must be available during the integration process and must be familiar with the communication interface, register map and controller configuration of the battery system.

The manufacturer is responsible for providing complete and correct documentation of all registers, scaling factors, units and communication parameters required for integration.

Revision #1

Created 3 June 2026 11:10:29 by Philipp Kreutzer

Updated 3 June 2026 11:24:08 by Philipp Kreutzer