



S/N: 2025-0950

Certificate of Equipment

No.: ICR Polska/NC_RfG/3/2025/D/A2replaces **ICR Polska/NC_RfG/3/2025/D****Name and address of Applicant**Advant sp. z o.o.
Obrońców Wybrzeża 9/4, 80-398 Gdańsk, Polska**Name and address of manufacturer:**Advant sp. z o.o.
Obrońców Wybrzeża 9/4, 80-398 Gdańsk, Polska**Product name:**

PPC (Power Plant Controller)

Product types:

EMS Supernode, EMS Supernode Plus

Power-generating module: type A, type B, type C, type D**The detailed data on the hardware and software of equipment are presented in Annex 1.****Product trademark:**

EMS Supernode



EMS Supernode Plus

This document confirms that the product sample meets the requirements of the following:

- COMMISSION REGULATION (EU) 2016/631 of 14 April 2016 establishing a network code on requirements for grid connection of generators (O.J. UE L 112/1 of 27.4.2016).
- Requirements of General Application (WOS) resulting from the Commission Regulation (EU) 2016/631 of 14 April 2016 establishing the network code on the requirements for connecting generators - approved by the Decision of the President of the Energy Regulatory Office (URE) DRE.WKP.744.18.15.2024.WŻ.MKo4 of 15 May 2025.
- Conditions and procedures for the use of certificates in the process of connecting power generation modules to power grids (PTPIREE v.1.3 of 2024.10.01).

The certification process has been carried out in accordance with program PC-P-07-10 (1a acc. EN ISO/IEC 17067:2013).

Evaluation has been carried out in accordance with test report(s):

Test report(s):

OG/118/25, OG/OG/222/26

Reference standard(s):VDE-AR-N 4110:2018-11; VDE-AR-N 4120:2018-11
EN 50549-1:2019+AC:2019 [idt PN-EN 50549-1:2019-02+AC:2019-05]
EN 50549-2:2019+AC:2024 [idt PN-EN 50549-2:2019-04+AC:2024-08]
EN 50549-10:2022 [idt PN-EN 50549-10:2023-02]**Tests conducted by:**Institute of Power Engineering, Gdańsk Branch, under the supervision of ICR Polska Co., Ltd.
on June 24, 2025 and August 5, 2026**Change A2 issue date:**

12.08.2026

Change A1 issue date:

29.07.2025

Initial issue date:

04.07.2025

Expiration date:

03.07.2030

Remarks

1. The responsibility for maintaining the certificate rests with the Applicant.
2. The certificate remains valid as long as the conditions set out in the Annex 1 are met.
3. Any changes to the design or software of the certified equipment must be assessed and approved by the Certification Body.

document status can be checked: <https://cert.icrpolska.com/>

AC 197

Dyrektor: Rafał Kalinowski

Warszawa, 12.08.2026



Edition: 2.0.0.A of 02.01.2023

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Annex 1 to certificate replaces ICR Polska/NC_RfG/3/2025/D

[1] Description of equipment:

EMS Supernode and EMS Supernode Plus are advanced PPC-class controllers integrated with an Energy Management System (EMS), designed for monitoring and controlling photovoltaic installations, battery energy storage systems (BESS), and CHP/DG units. They enable energy flow optimization, increased self-consumption, implementation of Zero Export functionality, SiteLogger (inverter monitoring and control), reactive power compensation, and intelligent management of battery charging and discharging. Thanks to their open architecture, it integrates devices from multiple manufacturers, ensuring reliable, safe, and efficient operation of the entire system.



[1][a] Version of hardware:

4

[1][b] Software:

2.3.6

The device software allows you to select a defined set of protection settings and criteria, as well as configuration parameters for the control characteristics, as specified in the Polish Setpoint Bank for Type A and B Power Generation Modules.

The set of settings is factory-predefined by the manufacturer and can also be entered by uploading dedicated definition files:

for Type A Power Generation Modules: SetPointsBank_type_A.xml

for Type B Power Generation Modules: SetPointsBank_type_B.xml

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[2]

Technical parameters:**EMS Supernode**

- Two RS485 interfaces
- Option for three more RS485 interfaces with USB adapters
- Gigabit Ethernet RJ45 interface and WiFi connectivity (optional)
- Option for second Ethernet interface with USB adapter
- Three USB 2.0 interfaces
- LTE Cat-1 or Cat-4 modem (optional)
- Real-time clock (RTC) with battery backup
- USB Type-C interface for backup power supply and as service connector
- 7-36V DC power supply
- Dimensions (WxDxH) 145 x 40 x 90 mm, DIN rail mounting
- Operating temperature range from -10°C to 50°C

EMS Supernode Plus

- Four RS485 interfaces
- Option for two more RS485 interfaces with USB adapters
- Gigabit Ethernet RJ45 interface and Fast Ethernet RJ45 interface
- Two USB 2.0 interfaces
- Real-time clock (RTC) with battery backup
- USB Type-C interface for backup power supply and as service connector
- 7-36V DC power supply
- Dimensions (WxDxH) 135 x 37 x 110 mm, DIN rail mounting
- Operating temperature range from -10°C to 50°C

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[3] Detailed parameters according to NC RfG and WOS requirements:

Parameter	WOS 2025	Type				Result
		A	B	C	D	
Implementation of SunSpec models and RS-485/Modbus communication	13.6 14.2 b)	☒	☒	N/A	N/A	Pass
Remote cessation of active power generation	13.6	☒	☒	N/A	N/A	Pass
Remote control of active power	14.2 b)	N/A	☒	N/A	N/A	Pass
Reactive power control – in constant power factor $\cos \varphi$ mode	21.3 d (vii)	N/A	N/A	☒	N/A	Pass
Power generating module operating mode in which the generated active power decreases in response to an increase in system frequency above a specified value (LFSM-O)	13.2 a), b), f)	☒	☒	☒	☒	Pass
Power generating module operating mode in which the generated active power increases as the system frequency drops below a specified value (LFSM-U)	15.2 c) (i)	N/A	N/A	☒	☒	Pass

[4] Specific conditions / additional information:

- The PPC type Supernode EMS and Supernode EMS Plus communicate with devices using the Modbus RTU protocol via the RS485 port.
- It is confirmed that the devices operate as a Modbus Master and SunSpec Client, communicating via the RS-485 interface (Modbus RTU). The controller correctly reads the SunSpec data models provided by the inverters and writes setpoint values into the appropriate control registers.

Remote control has been implemented and functions correctly, at minimum in the scope of the following features:

- remote stopping and resumption of active power generation,
- active power control by setting a value expressed as a percentage of the inverter's rated power,
- reactive power control / setting the $\cos \varphi$ value.

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