

GENERAL

The NoxVolt CP25-5A Rectifier is a compact and robust switch-mode power supply specifically designed for cathodic protection applications. Its passively cooled design provides reliable operation with minimal maintenance. The unit can be powered from either a standard AC supply or a 12/24 V DC battery system, providing flexibility for both fixed and off-grid installations.

Both output voltage and output current are fully controllable, allowing the rectifier to operate in Constant Voltage (CV), Constant Current (CC), and Constant Potential (CP) modes.

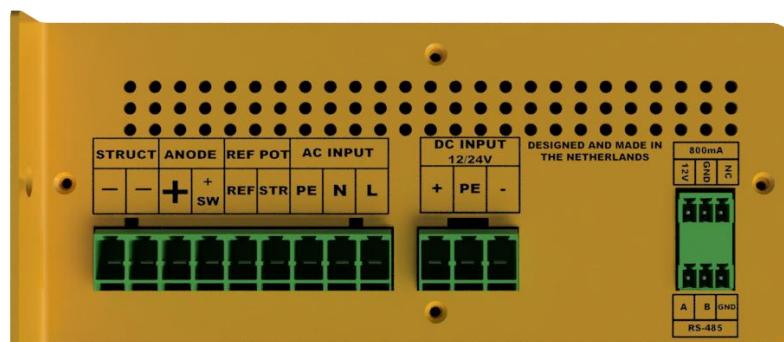
Operating parameters, limits, and control settings can be configured locally using the rotary control interface or through the NoxVolt parameter software. The software also provides data logging and graphical visualization of register values, making it easy to analyse system behaviour, perform diagnostics, and gain insight into field operation.

For remote monitoring and control, the CP25-5A supports Modbus communication and can be integrated into virtually any SCADA, PLC, or third-party control system.

MAIN FEATURES:



- Wide input range: 170–264 VAC
- Low-voltage DC operation from 12/24 V battery systems
- Fully controllable and monitorable via Modbus
- Constant Voltage (CV), Constant Current (CC), and Constant Potential (CP) operation
- Passive natural convection cooling
- Withstands up to 300 VAC input for 5 seconds
- Overvoltage Category III
- Integrated overtemperature protection
- Switchable output for pulse operation and instant-off reference potential measurements.
- Local configuration through rotary control interface
- PC-based parameter configuration, monitoring, data logging, and graphical analysis



PRELIMINARY TECHNICAL DATA

Power source

	Value	Unit	Note
<i>Nominal input voltage</i>	170–264	Vac	AC grid
	50/60	Hz	
<i>Inrush current 230Vac</i>	60	A	Cold start
<i>Leakage AC current</i>	<1	mA	230Vac
<i>High-Voltage DC input</i>	240–370	DC	Application dependent – contact NoxVolt
<i>Low-voltage DC input</i>	12/24	V	Battery systems Absolute max 30V

Output

	Value	Unit	Note
<i>Output voltage</i>	0-25	Vdc	
<i>Output current</i>	0-5	Adc	
<i>Ripple</i>	<60	mV	Full range
<i>Voltage output accuracy</i>	<2	%	1-10V
	<1	%	10-25V
<i>Current output accuracy</i>	<1,5	%	Full range
<i>Reference range</i>	-1700 to 1700	mV	
<i>Maximum power</i>	125	W	

Safety & EMC

<i>AC/DC isolation</i>	4 kVAC input-to-output	
<i>Overvoltage</i>	Category III AC input stage	
<i>compliant</i>	AC/DC stage EN 55032 Class B	
<i>AC/DC stage</i>	Heavy-industry EMC immunity standards supported	
	CP25-5A final-system EMC validation pending	

Mechanical

Width	75	mm	
Height	250	mm	
Depth	200	mm	Inc button
IP	20		
Weight	2700	gram	

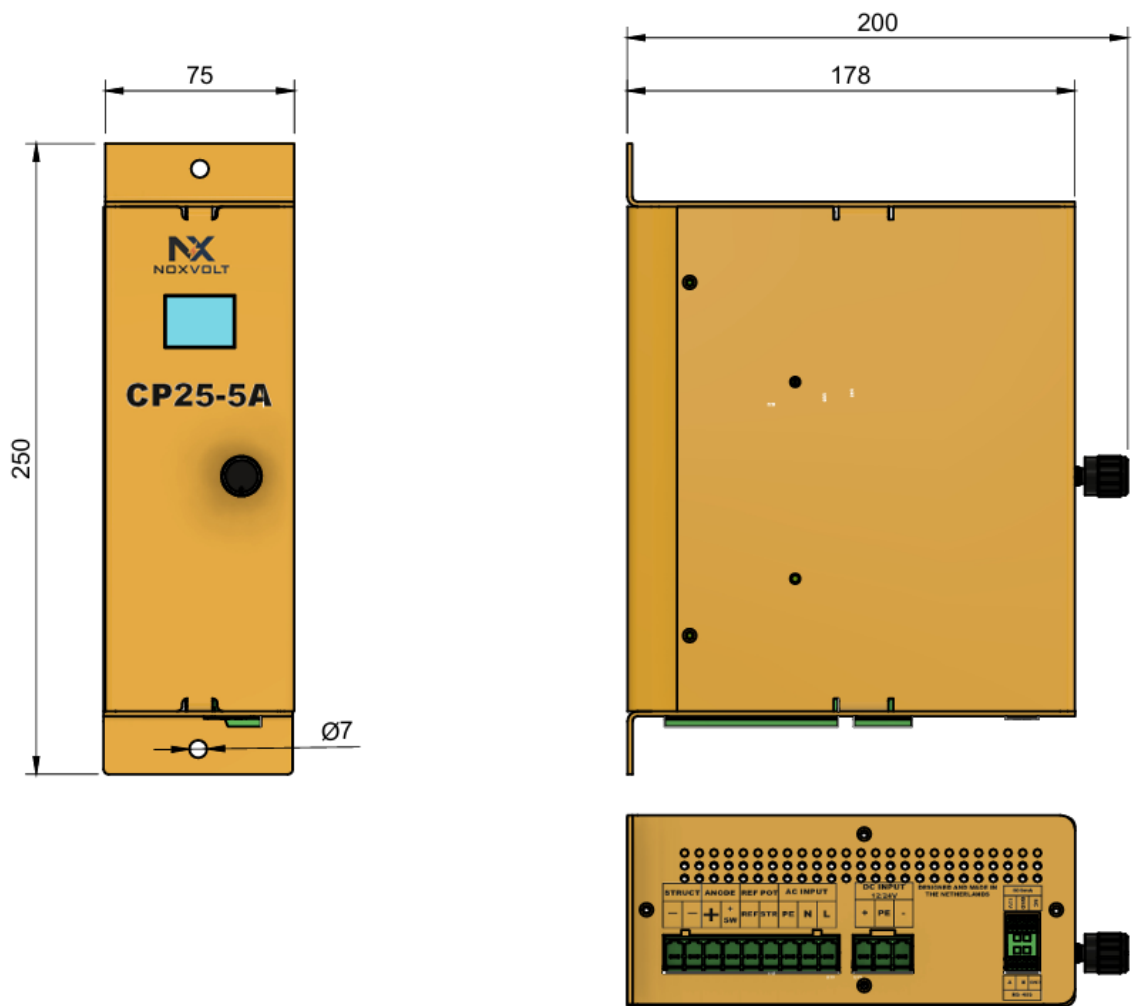
Electrical connection

Main connector	0.25-4	mm ²	
Modbus	0.25-1	mm ²	
12V external	0.25-1	mm ²	

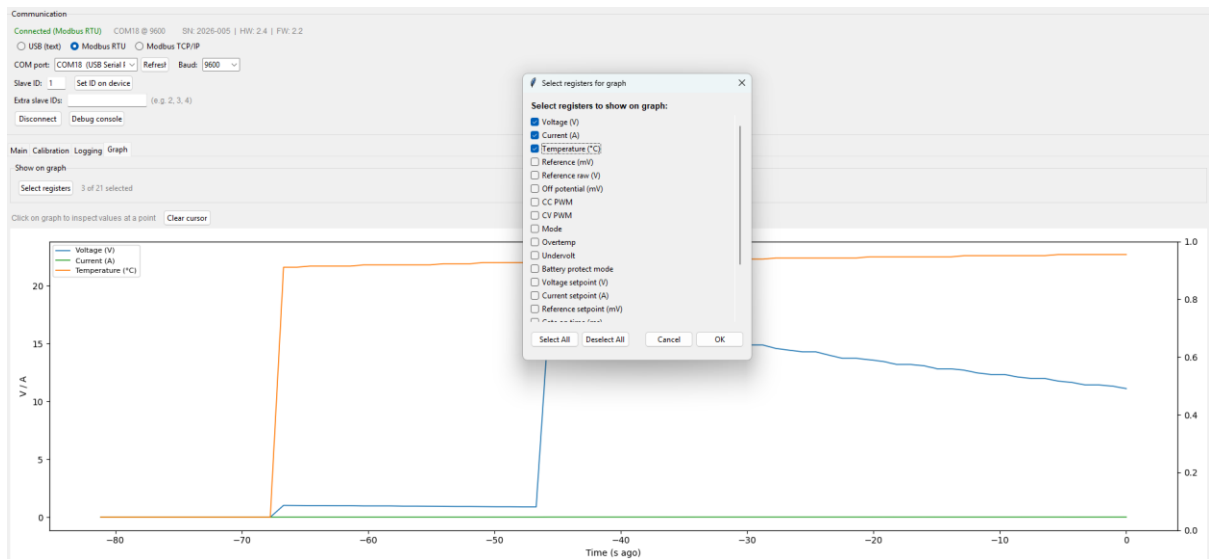
Environmental conditions

	Value	Unit	Note
Max ambient full power	45	°C	Automatic derating will take place
Min ambient	-20	°C	
Humidity operation	90	%	Noncondensing
Storage	-20 to 75	°C	
Typical enclosure temperature	40	°C	Full power @ T ambient 25

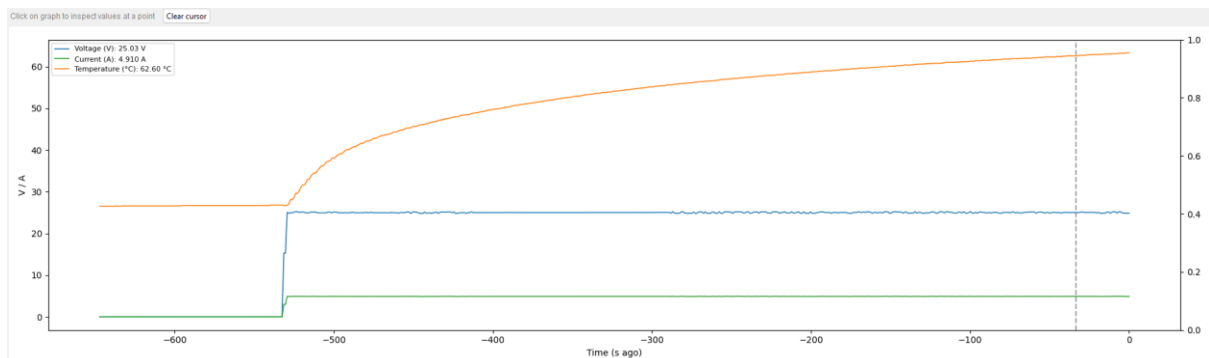
MACHANICAL



CONTROL AND CONFIGURATION SOFTWARE



Select any available register for real-time graphical visualization.



The graph cursor displays the recorded value at any selected point in time.

In the parametrising page you have one simple overview to set all necessary values. In the sensor reading area you see directly the results.

The screenshot shows the 'Main' tab of the NoxVolt CP25-5A interface. At the top, there are tabs for 'Main', 'Calibration', 'Logging', and 'Graph'. Below the tabs is a 'View slave:' dropdown menu set to '1'. The interface is divided into several sections:

- Sensor Readings:** Displays real-time data: Voltage: 10.14 V, Current: 1.986 A, Temperature: 32.3 °C, Input voltage: 30.27 V, Reference: 977 mV, and Reference raw (A2): 1.580 V.
- Regulation:** Shows control parameters: CC PWM: 81, CV PWM: 57, Mode: CV, Overtemp: OK, and Undervoltage: OK.
- Setpoints:** Allows setting target values: Voltage setpoint: 10.00 V, Current setpoint: 3.000 A, and Reference setpoint: 0 mV. Each has a 'Set' button.
- Control:** Includes a 'Save settings' button, a checked checkbox for 'Gate (A3) enable', an unchecked checkbox for 'Identify device', and a 'Battery protect mode' dropdown set to 'Off' with a 'Set' button.
- Off-potential measurement:** Features an unchecked checkbox for 'Off-potential measurement', an 'Off potential' value of 0 mV, and settings for 'Gate on time' (1000 ms), 'Gate off time' (1000 ms), and 'Off-potential timer (min)' (0 min), each with a 'Set' button.

The integrated logging function can be used for long-term performance analysis and on-site diagnostics. Logging duration is limited only by available storage capacity. Data can be exported in CSV format for further analysis.

The screenshot shows the 'Logging' tab of the NoxVolt CP25-5A interface. It contains the following sections:

- Parameters to log:** A 'Select registers' button and a status '0 of 21 selected'.
- File settings:** Includes a 'Base name' field with 'log' (filename: basename_YYYY-MM-DD_HH-MM-SS.csv), a 'Folder' field with 'C:\Users\' and a 'Browse' button, and 'Max file size (MB)' set to 50 and 'Rotate every' set to 12 h (0 = size limit only).
- Intervals:** Shows 'Poll device every' as 1 s (updates GUI and data for logging), 'Log row every' as 1 min, and 'Write to disk every' as 10 min (buffered rows flushed on Stop).
- Buttons:** At the bottom, there are 'Start logging', 'Stop logging', and 'Stopped' buttons.

Just select your registers and start logging.