

## CP-SUPPLIES

Uw leverancier voor:

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Referentie-elektroden  
Monitoring en control  
Elektrotechnische materialen  
ZINGA® Filmverzinking  
En meer...

Adresgegevens  
Cathodic Protection Supplies BV  
Dalkruiddaan 142  
2908 KC Capelle aan den IJssel

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KvK nr.: 53450833



# CPS SZ6-20 Zone Power Supply

**Power and monitoring unit for use in Cathodic Protection of concrete using impressed current.**

## General

The CPS SZ Zone Power Supply (6<sup>th</sup> generation) is a power and monitoring unit consisting of an adjustable power supply and a measurement and communication unit in a plastic housing. The adjustable power supply has a maximum useful output power of 20 W. The digital measurement, control, and communication unit has connections for up to six reference electrodes from the field.

CPS SZ Zone Power Supply are used as a power and monitoring system for a cathodic protection zone of reinforcement in concrete that fully complies with EN-ISO 12696:2022. The output power is controlled by automatic limits on voltage and current (adjustable limits up to 10 V and 10 A), a so-called 'envelope' of range.

The control of the protective current has a step size of 0.15 mV/mA. The measurement of the imposed voltage and emitted protective current is done with a resolution of approximately 0.3 mV/mA. The reference electrodes can be measured with a response time of approximately 0.26 ms with a resolution of 0.075 mV.

## Key Features

- ⊕ High-efficiency power system
- ⊕ Stable accurate output voltage (low noise/ripple)
- ⊕ Control on voltage and current limit (envelope)
- ⊕ Complies with EN-ISO 12696:2022
- ⊕ Remote communication via CPS SC Power Source Central
- ⊕ Data-over-power, saves separate data cables



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The power and monitoring capabilities include:

- ⊕ Status measurements: voltage (cathode-anode), delivered current, steel (cathode) potential value relative to 6 reference electrodes.
- ⊕ Adjustable voltage and current to be delivered (envelope: 10 V / 10 A, maximum 20 W).
- ⊕ Switchable bipolar relay for turning the zone on and off.
- ⊕ Instant-off measurement: with automatic measurement of 'on' potential, and immediately after switching off the relay 10x the measurements of the 'off' potential with a 100 ms interval. All values are reported for further analysis.
- ⊕ Depolarization measurement: the 'on' potential of the reference electrodes is measured; then the 'instant-off' value (see previous point); then with a continuously switched off relay 60x the 'off' potential is determined; and finally, the relay is switched on again and the 'on' potential is measured. When reading, all values are reported so that the depolarization per reference electrode can be determined and also the uniformity of the depolarization can be assessed. The measurement interval between the 60 measurements during depolarization (and the one measurement after switching on again) is an adjustable interval. Typically, this interval is set to 24 minutes for a 24-hour depolarization measurement.
- ⊕ Measurements of temperature and relative humidity (ambient and optionally also internally inside the concrete).
- ⊕ The measurements are stored in the memory of the zone power supply during and after the measurement.
- ⊕ Communication based on RS422 protocol via Data-over-Power. This communication is sent over the 24 VDC power line and can be extended and branched as needed to connect multiple CPS SZ Zone Power Supplies. Control and power are usually provided from a CPS SC Power Source Central, but can also be controlled from a Panel PC (optionally provided in the CPS SC), serial-modem or for example a laptop.



## Applications

CPS SZ Zone Power Supply is suitable for all indoor and outdoor exposed reinforced concrete structures that are subject to corrosion of the reinforcement due to mixed or penetrated chlorides and/or carbonation. Examples of typical applications:

- ⊕ Gallery and balcony slabs
- ⊕ Consoles and cantilever beams
- ⊕ Columns and beams
- ⊕ Bridge decks
- ⊕ Parking garages

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## Properties

Dimensions	
Housing without connectors (lxbxh)	21 x 25 x 11 cm
Input	
DC range	10 ~ 36 VDC
Design power requirement	24 W
Output adjustable power supply	
Maximum output power	20 W
Voltage control range	0-10 VDC
Resolution voltage control range	0.15 mV
Current control range	0-10 A
Resolution current control range	0.15 mA
Measurement connections	
Reference electrode inputs	6 simultaneously readable
Response time	0.26 ms
Measurement resolution	0.075 mV
Input impedance	1 GΩ
Depolarization measurement	Power is digitally switched off by a relay and galvanically disconnected on both poles
Operational range	-20 °C to 65 °C without derating
Connections	
Input	Double 3 x 2.5 mm <sup>2</sup> QPD connector
Output	3-fold 4 x 2.5 mm <sup>2</sup> QPD connector Cathode, anode, and 2 reference electrodes per connector

## Design Criteria

CPS SZ Zone Power Supply can be used for corrosion prevention, corrosion control, or cathodic protection applications. The anode design varies according to project specifications. For assistance in system design, please contact CPS.

## Installation Instructions

### Installation

Terminate cables from the fields at designated positions for cathode, anode, and reference electrodes. Termination should only be carried out after completion of installation work and the approval of the necessary control measurements of all connections.

Mount the supply voltage within the intended and permitted range. Start up the CP system by performing start-up tests as described in EN-ISO 12696:2022.

All work related to termination, checking, and starting up should be carried out by a CP specialist of at least level 3 according to EN-ISO 15257:2017 (or equivalent).

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## Use

Data communication can be simplified by using the CPS PS GUI software in conjunction with a CPS CP modem or a CPS CP-IoT modem and the associated platform.

### Control

The CPS SZ Zone Power Supply can operate within an envelope of a maximum of 10 V and 10 A. In practice, control is often based on voltage with a sufficiently high chosen current limit as a safety margin.

### Status measurement

Typically, this measurement is performed daily from the platform, which also serves as a check whether the system is switched on and operational. The values for voltage (cathode-anode), delivered current, value 6 reference electrodes relative to cathode are retrieved.

### Instant-off measurement

Typically, this measurement is performed weekly from the platform. The 'instant-off' value is free to choose from 0.1 – 1 second after switching off according to the standard EN-ISO 12696:2022. Typically, the value after 0.5 s is reported as the 'instant-off' value. The behavior of the reference electrode when switching off can be used to assess the functioning of the reference electrode.

### Depolarization measurement

Typically, this measurement is performed monthly from the platform. The interval is usually set to 24 minutes for a 24-hour depolarization measurement, but values from 1 to 255 minutes are possible, allowing for example a 1 hour, 4 hours, or 7 days (set at 168 minutes measurement interval) period for depolarization.

### Precautions

CPS SZ Zone Power Supply is not intended to address or repair structural damage to structures. If structural damage has occurred, consult a structural engineer.

*The effectiveness of our systems is based on years of practical experience and laboratory research. We guarantee that the quality of the work produced according to our systems meets the properties that CPS has promised, provided that our instructions have been strictly followed, and the work has been carried out according to the requirements of good craftsmanship. We disclaim any liability if the final result is adversely affected by factors and circumstances over which we have no control. The purchaser must use the means normally available to him to check whether the delivered products are suitable for the intended application. Upon the release of a new edition, this technical documentation sheet loses its validity.*

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