



SOLID-STATE DECOUPLER



Cathtect
U.S.A. INC.

The SSD is Cathtect USA's solid-state decoupler designed to provide DC isolation while allowing AC fault, lightning, and steady-state currents to pass safely to ground. Compact and cost-effective, the SSD is ideal for insulating joints, grounding interfaces, AC mitigation points, and pipeline test stations.

It offers reliable performance in standard applications and is available with an optional survey isolation switch — enabling accurate DCVG and CIS testing without disconnecting the unit or compromising cathodic protection. The SSD delivers dependable protection and flexibility for both everyday and survey-critical installations.

Brand Mission & Values

Cathtect USA builds trusted cathodic protection solutions backed by over 30 years of field expertise. Every unit reflects our commitment to:

- ◆ Solution-Driven Innovation
- ◆ Disciplined Execution
- ◆ Customer Focus
- ◆ Results-Oriented Performance
- ◆ Trust
- ◆ Accountability
- ◆ Team Alignment

We're technical leaders advancing the CP industry and protecting critical infrastructure with precision and integrity.

Common Applications

SSD units provide DC isolation while allowing AC fault current and lightning surge diversion. They are commonly deployed at:

- ◆ Insulating joints and grounding interfaces
- ◆ AC mitigation points
- ◆ Pipeline test stations
- ◆ Utility grounding transitions
- ◆ Remote or cost-sensitive installations requiring compact form factors



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Optional Survey Isolation Switch

Cathtect USA offers a purpose-built solution for survey accuracy and regulatory compliance: an external isolation switch that allows technicians to temporarily remove the decoupler's reactive capacitance from the circuit — without disconnecting the unit or compromising cathodic protection.

This feature is especially valuable under the PHMSA Mega Rule, which mandates regular and accurate data collection for pipeline integrity management. During interrupted surveys such as Close Interval Surveys (CIS) and DC Voltage Gradient (DCVG) testing, standard decouplers can distort readings due to their capacitive response.

Benefits of the Isolation Switch:

- ◆ Accurate survey data, free from capacitive interference
- ◆ Continuous DC isolation during surveys
- ◆ Operator safety with no exposure to live terminals or arcing
- ◆ Preserved AC mitigation, avoiding voltage spikes during survey mode

Switch Design Highlights:

- ◆ Rated to match the decoupler's fault current capacity
- ◆ Double-insulated with arc diffusion and venting
- ◆ Mounted externally alongside the Fat Fink aluminum enclosure
- ◆ Positioned at the test station terminal board for easy access
- ◆ Available as an optional feature at the time of order

No need to camouflage interference — Cathtect USA enables precision diagnostics without compromising protection.

Key Features & Filtering Architecture

The SSD leverages Cathtect USA's advanced filtering approach, engineered for broad-spectrum AC mitigation and superior surge resilience. Unlike conventional decouplers with limited filtering capability, it delivers cleaner signals, reduced interference, and more stable system performance.

Advanced Filtering Benefits:

- ◆ Sharper attenuation of unwanted frequencies
- ◆ Reduced harmonic interference
- ◆ Improved fault current diversion
- ◆ Cleaner electrical signals
- ◆ More stable system performance during surges or faults
- ◆ Lower heat buildup, extending device lifespan



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Fault Current & Surge Protection

Every DCD model integrates a coordinated spark gap to safely divert high-energy impulses and fault currents, protecting internal components and extending service life.

Surge Protection Ratings:

- ◆ 100 kA @ 10/350 μ s (direct strike model)
- ◆ Spark gap ensures low clamping voltage and safe diversion path
- ◆ Designed to withstand fast di/dt events – rapid current surges that can induce damaging voltage spikes.
- ◆ Installation best practice: Use short, properly sized cables to reduce inductive effects and ensure safe, efficient fault current diversion.

Tested to the 10/350 μ s waveform, the DCD meets IEC standards for direct lightning strikes – delivering up to 20x more energy than 8/20 μ s surges. This ensures robust performance in high-risk environments.



Specification	Value / Description
AC Fault Current Rating	1.2 kA; 2.0 kA; 3.7 kA; 5.0 kA; 7.0 kA; 10.0 kA for 30 cycles
DC Threshold Voltage Range	+2/-2 V; +1/-3 V; +1/-4 V; +1/-6 V
DC Leakage Function	Designed for continuous DC leakage to ground
AC Impedance (60 Hz)	Verified low impedance: ~3 m Ω typical, \leq 0.04 Ω guaranteed
AC Steady-State Current	45 A @ 50/60 Hz
Overload Handling	60 A for 15 minutes
Lightning Impulse Current Rating	100 kA (10/350 μ s) – Class 1 per EN61643-1
DC Sparkover Voltage	\geq 650 V per IEC 61643-11
Compliance	Includes IEC 61643-11 and RoHS-compliant surge protection components
Environmental Rating	-20°C to +40°C operating range; enclosure options for standard and hazardous locations



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Testing & Documentation

- ◆ Verified steady-state current tests and threshold verification
- ◆ Unit-level certificates and batch test reports
- ◆ Transparent performance data available upon request

Physical & Electrical Characteristics

- ◆ Terminal polarity clearly marked for installation
- ◆ Unlimited switching cycles
- ◆ Weight: 5.8 lbs. (3.7kA, +1/-3V DC)

Technical Advantages

- ✔ High Fault Current, Overload, and Surge Ratings
- ✔ Wide DC Clamping Voltage Range
- ✔ Low AC Impedance for efficient mitigation
- ✔ Compact, installer-friendly design
- ✔ Maintenance-free solid-state construction
- ✔ Historical testing legacy: 60A for 1 hour per unit
- ✔ Optional survey isolation switch for CIS/DCVG testing

Part Number Breakdown:

CUSSD-[AC FAULT][DC]-FS

Segment	Description
CU	Cathtect USA identifier
TYPE	Product type: SSD
AC FAULT	AC fault current rating (@ 30 cycles): 12 = 1.2 kA, 20 = 2.0 kA, 37 = 3.7 kA, 50 = 5.0 kA, 70 = 7.0 kA, 10 = 10.0 kA
DC	DC threshold voltage: 2 = +2V/-2V, 3 = +1V/-3V, 4 = +1V/-4V, 6 = +1V/-6V
ENCLOSURE	Enclosure style: FF = Fat Fink aluminum, FS = Fat Fink with iso. switch



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