

# RUSTROL® DC DECOUPLER

## Surge Protection



**Product:** Rustrol® DC Decoupler™ Model DCD  
**End Users:** Oil & Gas Transmission Pipelines  
 Refinery & Petrochemical Industries  
 Electrical Utilities  
 Tank Farm/Oil Depot Facilities

**Background:** The Rustrol® **DC-Decoupler™** Model: **DCD** is a recent development to the Rustrol® Product Line. The DC-Decoupler™'s unique features are based on the proven Rustrol® technology utilizing solid-state design and superior test proven, quality components throughout the construction. The DC-Decoupler™ Model: **DCD** is typically utilized within applications of light/moderate (*ie. non-continuous*) exposure of AC mitigation. The standard **DCD** Product Line provides an economical engineered solution in a compact, lightweight, ready to mount assembly.

**Applications:** The Rustrol® **DC-Decoupler™** Model: **DCD** device is designed to protect personnel and equipment from electrical disturbances. The DC-Decoupler™ device blocks DC current associated with cathodically protected structures, (*ie. Pipelines, On-Grade or Buried Storage Tanks, etc.*) and provides an effective and continuous conductive path to the Utilities Grounding/Earthing Network for all other forms of Electrical Exposures, such as:

- Lightning/Surge Currents
- AC Fault Currents
- AC Induced Voltages
- Over-Voltage Protection

The Rustrol® **DC-Decoupler™** Model: **DCD** is capable of reducing the potential difference across Isolating Flange Assemblies and/or Monolithic Isolating Joints to well below the industry accepted criteria (*ie. <10 volts AC rms*).

The Rustrol® **DC-Decoupler™** Model: **DCD** is versatile and can be used in numerous applications, including coupling the primary structure (*ie. pipes, valves, pumps, etc.*) in series through the DC-Decoupler™ to Gradient Control Systems.

**Typical Applications include:**

- Pipeline AC Mitigation/AC Discharger
- Isolating Joint Protection
- Decoupling from the Gradient Control Systems
- Product Certification—ATEX/IECEX
- Rustrol®, an Industry Leader for Safe DC Isolation
- Fail-Safe Design; Grounding Criteria Assured
- Compact; Ready to Mount Design
- Maintenance-Free Performance
- Eliminate "Step & Touch" Potential Risk
- Maintains coating Stress Voltages within Acceptable Limits
- No additional Mounting Accessories required for Installation
- No Structure Compromise Required for Installation (*ie. Flange Drilling*)

**Advantages:**





All written data and statements herein are provided in good faith and believed to be reliable and appropriate at the time of drafting this document. However it is given without implied or express guarantee. Potential users are urged to trial and /or conduct conformity tests of the product to determine its suitability in application for a particular end use prior to purchase.

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Rustrol® DC-Decoupler™ Model: DCD, Operating Characteristics

	Rustrol® DC-Decoupler™ Model: DCD-02.5	Rustrol® DC-Decoupler™ Model: DCD-06.3	Rustrol® DC-Decoupler™ Model: DCD-07.0	Rustrol® DC-Decoupler™ Model: DCD-10.0						
AC Fault Current Ratings	<i>rms</i>	50 Hz	60 Hz	<i>rms</i>	50 Hz	60 Hz	<i>rms</i>	50 Hz	60 Hz	
	1 cycle	2.3kA	2.5kA	1 cycle	5.8kA	6.3kA	1 cycle	6.5kA	7.0kA	
	3 cycles	1.7	1.8	3 cycles	5.0	5.4	3 cycles	5.0	5.4	
	10 cycles	1.5	1.6	10 cycles	4.1	4.4	10 cycles	4.2	4.5	
	30 cycles	1.3	1.4	30 cycles	2.2	2.4	30 cycles	3.7	4.0	
DC Leakage Current	≤ 7.5 mA		≤ 7.5 mA		≤ 7.5 mA		≤ 7.5 mA		≤ 7.5 mA	
Fail-Safe Design	Yes		Yes		Yes		Yes		Yes	
Connection Terminals	Standard - Flange Mount Assembly (FMA) Distinctive Design: Compact, Lightweight Ready to Install Optional - Optional Terminal (OT), Dual Terminal Post (DT) Bottom Side of Enclosure, Internal Terminal (IT)									
Certification	ATEX and IECEx		II 3G Ex nA IIC T6 Gc (-20°C ≤ Ta ≤ +50°C)		ATEX and IECEx		II 3D Ex tc IIIB T60°C Dc (-20°C ≤ Ta ≤ +50°C)		ATEX and IECEx	
	CE Mark				CE Mark				CE Mark	

### Model: DCD Selection Guide

**Rustrol® DC-Decoupler™ - Model: DCD**  
Standard assembly is installed in a performance test rated moulded Non-Metallic enclosure, suitable for indoor/outdoor applications (IP67 Certified; Equivalent to NEMA 4, 4X, 6P), complete with access cover and cable termination fittings.

**AC Fault Current Exposure - 1 cycle @ 60 Hz rms:** (1 cycle @ 50 Hz rms, Refer to Drawing DCD-00)

02.5 kA       07.0 kA  
 06.3 kA       10.0 kA

(Refer to Drawing No. DCD-00 for Detailed Specifications @ 1, 3, 10 & 30 cycle @ 50 or 60 Hz rms: visit web site)

**Surge/Lightning Protection:**  
Standard assembly, peak surge current rating  
 Primary @ • 100kA @ 4/10 μs • 75kA @ 8/20 μs • 50kA @ 10/350 μs  
 (Optional Lightning (OL) • 150kA @ 4/10μs • 100kA @ 8/20μs • 100kA @ 10/350μs)

**DC Voltage Threshold**  
Standard assembly @ -3.0/+1.0 volts DC  
 Optional Voltage Threshold Settings Available (i.e. -6/+6, -4/+4, -4/+2, -6/+1 volts DC or other)

**Mitigation of Induced AC-Steady State (@ 50 or 60 Hz rms)**  
Selection range 0-100 Amperes, as specified by the customer.  
 0 amp (no AC Mitigation)  
 12 amps     24 amps     36 amps     48 amps     75 amps     100 amps  
 (Intermittent Non-Continuous Exposure for AC Mitigation)

**Optional (As Specified by the Customer):**

- ATEX/IECEx Certified
- cETLus Certified Enclosure
- Cable Termination - Standard - FMA  
- Optional - OT, DT or IT
- Optional Lightning - OL
- Submersible Enclosure (NEMA 6P/IP68 certified)
- Free-Standing Fibreglass Pedestal Mount
- Special finishes

**DCD - 02.5 - SL - 03 - A48 - specify**  
(Typical Ordering Code)

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