Smart Wire Grid, Inc.

Distributed Series Reactor
Model DSR-1500b
Product Specification Sheet

ELECTRICAL	Performance at Rated Current
Injection Reactive Impedance	36 uH min Magnetizing Inductance from 200 A to 1200 A in “Injection Mode"
No Load Loss - Monitoring mode	Approx. 780 W @ rated current - See Plot
Load Loss - Injection mode	Approx. 500 W @ rated current - See Plot
Maximum Operational Voltage	Up to 500 kV
Rated Operating Current	1500 A
Maximum Continuous Operating Current	1500 A
Frequency	50 Hz to 60 Hz

OPERATION	
Operating Mode	Monitoring Mode and Injection Mode
Input Power	Transmission line current
Operating Power - Monitoring	1 W
Operating Power - Injection	12 W
Set point Range to enter injection mode	200 - 1500 A RMS line current
Set point Accuracy	+/- 2% average line current
Electronic Power-Up	50 A RMS line current
Minimum line current to enter injection mode	200 A RMS line current
Design Life	20 years

TELEMETRY	
External metrics:	Line current
	Line temperature
	Line frequency
	DSR pitch and roll angles
	Line fault count (above 1800 A RMS)
Internal DSR metrics:	Secondary current
	Secondary voltage
	Internal PCB temperature
	Internal humidity
	Power supply voltage
	Up time
	Software version
	RF diagnostics including RSSI, Link Quality Indicator and packet exchange success history

COMMUNICATION	
Communications Wireless Frequency	915 MHz ISM Band radio frequency, cellular, satellite or other media as specified by customer
Communications Protocol	IEEE 1815 / DNP 3.0 - Customer Specified Encryption
Communications Range	Dependent on communications media

PROTECTION	
Lightning Strike	750 kV BIL
Through Fault Current	63 kA RMS (X:R ratio of 17) for 30 cycles

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MECHANICAL	
Unit Mass	237 lbs [108 kg]
Unit Length	67 in. [170 cm]
Unit Height	8 in. [20 cm]
Unit Width	8 in. [20 cm]

INSTALLATION	
Line Conductor Types	ACSR, ACSR/TW, AAAC, AAC, CU, ACCR, ACCC
Max Line Loading during Installation	<1200 lbs [544 kg]
Attachment Time	Attachment time less than 10 minutes
Installation Tool	Field installation tool available for installation and removal

ENVIRONMENTAL	
Operating Life	20 years
Operating Temperature Range	-40°F [-40°C] to 122°F [50°C]
Humidity	5% up to 100% condensing
Sustained Rain	4 inches per hour
Salt Fog Aging	1000 hours test
Aeolian Vibration	5 Hz to 35 Hz range
Communications EMC/EMI	Communications operate reliably in the high-voltage environment and the magnetic field of the power line

SHIPPING	
Shipping	The DSR unit is packaged in a reusable shipping container

FIELD MAINTENANCE	
Field Maintainability	The DSR is a maintenance free unit

STANDARDS	
Corona/RIV Test	IEEE C37.34™-1994, IEEE C37.32 – 2002, Table 1
Lightning Test	IEEE Standard 4 - 1995
Communication EMI and ESD Immunity Test	IEEE Std 1613-2003
Surge Withstand Capability	IEEE C37.100.1-2007, IEEE C37.32-2002, TABLE 3
Aeolian Vibration	IEEE Std 664-1993, IEEE Std 1368-2006, IEEE Std 563-1978
Slip Test	Testing design by NEETRAC
Fault Current Test	IEEE C37.100.1™-2007
High Temperature Test	MIL STD 810F, MIL-STD-810G
Salt Fog Aging Test	ASTM B117-11
RF Emission	FCC, Part 15.249, ANSI C63.4 (09)

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