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OSKAR® Dynamic Voltage Restorer

TENDER SPECIFICATIONS




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This document aims to provide an overview of functionalities and specifications of OSKAR[®] Dynamic Voltage Restorer (DVR) system which is designed to eliminate voltage fluctuations. OSKAR[®] DVR is an active three-phase voltage stabilizing system which corrects the supply voltage in magnitude and phase to the desired level with the reaction rate in microseconds. It employs the state-of-the-art power electronics which supplies the correction voltage through a robustly designed low-impedance boost transformer. This topology helps enable an almost instantaneous correction of the supply voltage.

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Functional Characteristics

- High dynamic three-phase correction of supply voltage with correction time less than 5 milliseconds.
- Elimination of voltage sag and swell
- Continuous protection against under and over voltage
- Continuous three-phase voltage balancing
- High efficiency of 99% in continuous correction
- Permanently online with continuous correction at 100% nominal voltage
- No interruption due to switching processes
- System is operating without energy storage such as batteries for minimum maintenance and high availability
- Extremely minimal running or maintenance cost
- Expandable rated power up to 4 units in parallel of equal power rating
- No mechanical or movable parts
- Negligible change in network impedance with the addition of voltage stabilizing system
- No change in selectivity criteria or relay settings with the addition of voltage stabilizing system
- 4-quadrant operation with Active Front End for voltage sag/swell or regenerative loads


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Basic Specifications

- Rated power Sr: 300 kVA – 3 MVA
- Rated input voltage: < 1000V
- Rated Frequency: 50/60 Hz
- Rated voltage correction range: 40%, 30%, 20%, 10%
- Continuous correction: +/-10 % of nominal voltage
- Power System: TN-S/TN-C/TN-C-S (3 phase, center ground referenced)
- Efficiency: > 99%
- Overload capability: 150% 30s
- Protection degree: IP20 and IP54
- Brand: Condensator Dominit
- Type: OSK α R 400V – Sr - 40%

Performance specification:

- Regulation accuracy (3-phase): > 99 %
- Response time: 222 μ s
- Correction time (RMS) : typ. 5ms (50Hz)

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4.16 ms (60Hz)


- Three phase sag correction: from 60% to 100% min. 30s
(100% rated power and PF=0,8): from 50% to 90% min. 20s
from 30% to 55% min. 5s
- Single phase sag correction: from 40% to 100% min. 30s
(100% rated power and PF=0,8)

Internal Bypass specification:

- Max. permissible peak current: Max 100 MVA
- Safety factor: 7 x 10⁶ A²s (Sr < 600 kVA)
40 x 10⁶ A²s (Sr > 600 kVA)
- Overload capability: 125% 10 min
200% 1 min
500% 5s
2000% 1s

Ambient specifications:

- Installation location: in closed electrical operation areas
- Altitude (above MSL): ≤ 1000 m
- Ambient temperature: 0 °C (min.),
35° C (recommended max.)
40 °C (max. peak)
- Contamination level: 3C2, 3S2 (IEC 60721-3-3)
- Relative humidity: max. 75% annual average
85% occasional
95% 30days/year

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User Interface:

- On site: 7.0” Capacitive touchscreen
- Data logger: internal via USB possible
(Grid- and load voltages, temperatures,
error codes: utilization, duration and
depth of voltage sags)
- MODBUS-TCP: Web server access via Ethernet
FTP-server, Modbus TCP/ IP
- Remote status: Ethernet and remote client Software
Modbus TCP/IP
Email client
Relays outputs

Electrical Standards

- IEC/EN 50178
- IEC/EN 61000-6-4 (VDE 0839-6-4)
- IEC/EN 55011 (VDE 0839-11)
- CISPR11 Class A, CE Tick.