Transnet Freight Rail
Rail Network Telecommunications
Specifications

for

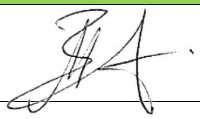
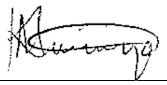
Generator Changeover Switch

Specification number:
Version 1.0

Circulation Restricted To: ICTM Telecommunications
Transnet Freight Rail
Transnet

Contents

I. DOCUMENT AUTHORISATION

FUNCTION	TITLE & DIVISION	NAME	SIGNATURE	DATE
Compiled by:	Technical Manager: Telecoms	Paul Braaf		15/08/2022
Reviewed by:	Chief Engineering Technician	Khunjulwa Mniniyo		16/08/2022
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II. DISTRIBUTION

Once updated, a copy of the latest revision will be published in the document management system in use. E-mail to this effect will be sent to the relevant personnel or heads of department.

III. DOCUMENT CHANGE HISTORY

ISSUE NO.	DATE ISSUED	ISSUED BY	HISTORY DESCRIPTION
1	5 August 2022	P Braaf	

IV. CHANGES SINCE LAST REVISION

CLAUSES	DESCRIPTION

V. ABBREVIATIONS, ACRONYMS AND DEFINITIONS

ABBREVIATIONS AND ACRONYMS	DESCRIPTION
AC	Alternating Current
Amp	Amperes

ABBREVIATIONS AND ACRONYMS	DESCRIPTION
V	Voltage
ROHS	Restriction of Hazardous Substances
ISO	International Organization for Standards
UL	Underwriters Laboratories
IEC	Independent Electoral Commission
NEC	National Electrical Code

VI. RELVANT DOCUMENTATION

DOCUMENT NO.	DESCRIPTION	LOCATION

1. GENERAL

1.1. SCOPE

1.1.1. This specification contains the operational requirements and technical specifications for the supply, installation and testing of a generator changeover switch.

1.2. COMPLIANCE AND STANDARDS

1.2.1. RoHS certification.
1.2.2. Compliance to ISO 9001 quality standards.
1.2.3. Compliance with UL 94 standard for safety of flammability of plastic materials.
1.2.4. Compliance with IEC 62262 standard for impact resistance.
1.2.5. Compliance with CENELEC (European) EMC standards.
1.2.6. Compliance with SANS 10142 Code of Practice for the Wiring of Premises.

2. OPERATIONAL REQUIREMENTS

2.1. GENERAL

2.1.1. The generator changeover switch is used to switch power from Main's power to Generator power and back whenever there is a mains power failure.
2.1.2. All equipment supplied shall be new.
2.1.3. Generator changeover switches shall be moulded case circuit breaker type, note that knife switch or fused switches are not acceptable.
2.1.4. High quality materials should be used in the construction of the generator change over switches.
2.1.5. All specifications must be supplied with relevant test results to confirm compliance to the required specification.
2.1.6. All electrical requirements need to adhere to the relevant standards and certifications and test methods listed in section one of the document.

All products need to be ROHS certified

All electrical systems within the Generator Changeover Switch needs to be tested according to the following MIL-STD 810F test methods:

- Test Method 501.6 High Temperature
- Test Method 502.6 Low Temperature
- Test Method 503.6 Temperature Shock
- Test Method 507.6 Humidity

2.1.7. All the technical specifications relating to mechanical requirements listed in section three of the document should be met.

All mechanical systems need to be impact tested according to IEC 66262 standard and need to be IK07 rated.

2.1.8. All the technical specifications relating to environmental requirements listed in section three of the document should be met.

2.1.9. The generator changeover switch should be durable for South African weather conditions and operate in humid and salty environments.

2.1.10. All environmental requirements need to adhere to the relevant standards and test methods listed in section one of the document.

2.2. GENERATOR CHANGEOVER SWITCH

2.2.1. All technical requirements listed in section three of this document should be met.

2.2.2. The following conditions must be indicated externally on the front panel of the generator changeover switch by means of clear labelling

Mains

Off

Gen

2.3. INSTALLATION

2.3.1. Prior to installation of manual transfer switches, Contractor shall examine the areas and conditions under which the manual transfer switch is to be installed and notify the Engineer in writing if unsatisfactory conditions exist.

2.3.2. The installation shall meet the requirements of local codes, the National Electrical Code and National Electrical Contractors Association's "Standard of Installation".

2.3.3. Conduit entry into the generator changeover switch shall be done by Contractor; Contractor shall furnish and install UL listed watertight conduit hubs. The incoming hub size shall match the conduit size for feeders and ground.

2.3.4. Any conduit penetrations that are above live parts must be properly sealed to prevent moisture intrusion from the conduit. A UL Listed or Classified expanding foam sealant, or other sealing product meeting local codes and NEC requirements should be used to seal the interior of the conduit around the cables. The product selected must be able to permanently seal around all wires and the. The sealing shall be done at the entry into the enclosure so the seal can be verified and inspected from inside the enclosure. Failure to seal may allow water to drip on live parts and will void warranty.

2.3.5. It shall be the contractor's responsibility to terminate feeder conductors, load conductors and ground as per the manufacturer's instructions.

2.4. TESTING

2.4.1. Prior to energizing the generator changeover switch, the Contractor shall perform the following checks and tests as a minimum:

Verify mounting and connections are complete and secure.

Verify internal components and wiring are secure.

Perform continuity check of all circuits.

Verify and check that generator changeover switch and conduit is watertight.

Certificate of compliance to be issued on completion of installation.

3. TECHNICAL SPECIFICATIONS

3.1. GENERATOR CHANGEOVER SWITCH

3.1.1. Electrical

Input voltage

The Generator Changeover Switch must be capable of satisfactory operation from a 230 VAC ±10 % 50 Hertz ±2 % single-phase mains supply.

Output voltage

230 VAC ±10 %

Maximum current rating

63 Amps

3.1.2. Monitoring/communication

Communication protocol

None, only visual indication if switch is on Mains or Generator

3.1.3. Mechanical

Outer casting of housing must be IP56 plastic.

Physical size

Width: 300 mm

Height: 220 mm

Depth: 120 mm

3.1.4. Environmental

Operating temperature

-10°C to +60°C

IP rating

IP56

Humidity

Up to 95%
Cooling
Natural cooling

END OF DOCUMENT