Outdoor Power Station

Technical Description
1. General statements

**Purpose:** Power supplying telecom equipment
**Technology:** switch mode rectifiers

2. Configuration

**Max. 200A output:** 1 to 5 rectifier modules with 48V/50A output each
**Rectifier module type:** OM-1S50-XE

3. Characteristics

**Normal Operation**

During normal operation, the power station feeds simultaneously the telecom equipment and the batteries. All the rectifiers are working in parallel, regardless of the loads (input and output parameters of the rectifiers are not dependent on load).

At the same time, the batteries remain charged to the voltage buffer.

**Batteries discharge and recharge**

In the event of power input failure, the load is continuously supplied from batteries.

After the power input restoration, the station resumes its normal operation of rectifiers, and the batteries are automatically recharged with 2,33v/cell.

The recharging current could be limited or set from the controller, by the user. The recommended value of the recharging current is 10%C10.
Input characteristics
The nominal input voltage of the power station is 400V (3 phases, null, ground).
Input voltage of rectifier module: 90 – 290V ac
Nominal frequency: 50Hz.
Frequency range: 45 – 65 Hz
Overvoltage protection: acc. EN 61000-4-5
Current harmonic distortion factor THD: < 10%.
Power factor cosφ (for any load): > 0.99

Output characteristics
Nominal output voltage for batteries VLRA (2,27 V/cell): U nom = 54.48V
Output voltage stability: 1%
Output voltage dynamic stability at load step from 5% to 50%, respectively from 50% to 100%: < ± 0.5% U nom
Recovery time for ± 1% U nom range: < 5msec
Effective value of the output voltage wave ≤ 50mV
Output voltage wave in disconnected batteries mode: IU < 100mV pp
Output power equal repartition between rectifiers in parallel operation: ± 10% I nom
Global efficiency of the system > 96%

Operational characteristics
The undesirable growth of output current of the rectifier modules (beyond the current limit) automatically reduces the output voltage.
The rectifier modules have input overvoltage/lightning protection. If this voltage exceeds 290V or is less than 90V, the rectifier module shuts down. When the input voltage restores its accepted values, the rectifier is automatically started.

Protection class of the rectifier module: EN60555 class B.
Input current of the rectifier module: sinusoidal, acc. IEC 555, IEC 1000-3 (EN 60555).
Acoustic level noise: < 50dB (A) at 1m distance (acc. ISO 3746)

Operation conditions
Operational temperature: -33 – +55°C
Air humidity: 5% - 95%
Operational height beyond sea level: 0 – 3000m
Cooling: forced with 1 fan/rectifier module

**Alarms**

The power station provides local optical and acoustical alarms, and remote alarms on the IP interface.

The monitored events are as following:

- Batteries temperatures
- Mains Fault
- Vcc minimal on batteries
- Batteries in discharge
- Smoke
- Flood

**AC Distribution**

- Single phase input for each rectifier module
- General circuit breaker
- There is a single breaker MCB for every group of three rectifier modules input.

**DC Distribution**

Loads: there are two “plus” and “minus” bars for the distribution frame connection

Batteries: there are two outputs for batteries with magnetothermic breakers (3P x 800A each) on the “minus” polarity. The “plus” is connected at the common bar.

**Mechanical Characteristics:**

See attached drawing: