Trasformer Rectifier Mod. LS SWT Switching Power Supply

The **SWT stabilized switching power supply** offers an energy saving of 150 watts/hour, calculated at its maximum current and voltage output, and is suitable for installation in any street cabinet.

Aluminum Frame Dimensions:

- (LxWxH) 420 x 300 x 300 mm
- Weight: 5 kg

Operation

- Automatic constant current
- Automatic constant potential
- Automatic constant potential with base current

Electrical Characteristics

- Permitted Supply Voltage: 230V ±15%; 50Hz ±2% single-phase
- Maximum Output Voltage: 48 V
- Maximum Output Current: 25 A
- Full Load Efficiency: ≥ 85%
- Construction: Anodized aluminum frame, lightweight and highly resistant to oxidation
- Dimensions (LxWxH): 420 x 300 x 300 mm
- Front Panel: Vetronite
- Connection Panel: Vetronite
- Operation: Fully electronic switching control with continuous parameter adjustment:
- Maximum Output Current: from 1.5 A to maximum value
- Maximum Base Current: 10 A
- Pipe-to-Earth Protection Potential: 0 to -5V
- Current Adjustment: in pause-work mode
- All parameters are adjustable via a multi-turn potentiometer with a graduated index knob.
- Operating Mode: Constant current or automatic.

Measurement Instruments and Devices

- Digital Voltmeter: for measuring output voltage (Vu)
- Digital Voltmeter: for measuring potential difference (Vddp)
- Digital Ammeter: for measuring output current (Iu)

Adjustments

- Output Current (Iu)
- Pipe-to-Electrode Potential (Vddp)
- Base Current (Ib)
- Constant Current with faulty regulation board

Overcurrent Protection on Circuits

- AC input to the power supply: via a magnetothermic circuit breaker.
- DC output from the power supply: via a fuse and series diode.
- Input to the rectifier bridge: via a fuse.
- Input-side DC overvoltage protection (Anode - Structure): via an internal spark gap.
- Cathodic potential measurement input-side overvoltage protection (Structure - Reference electrode): via an internal spark gap.
- Radio interference emission protection (filters).
- Output polarity reversal protection.

Comparative Analysis of Cathodic Protection Power Supply Efficiency

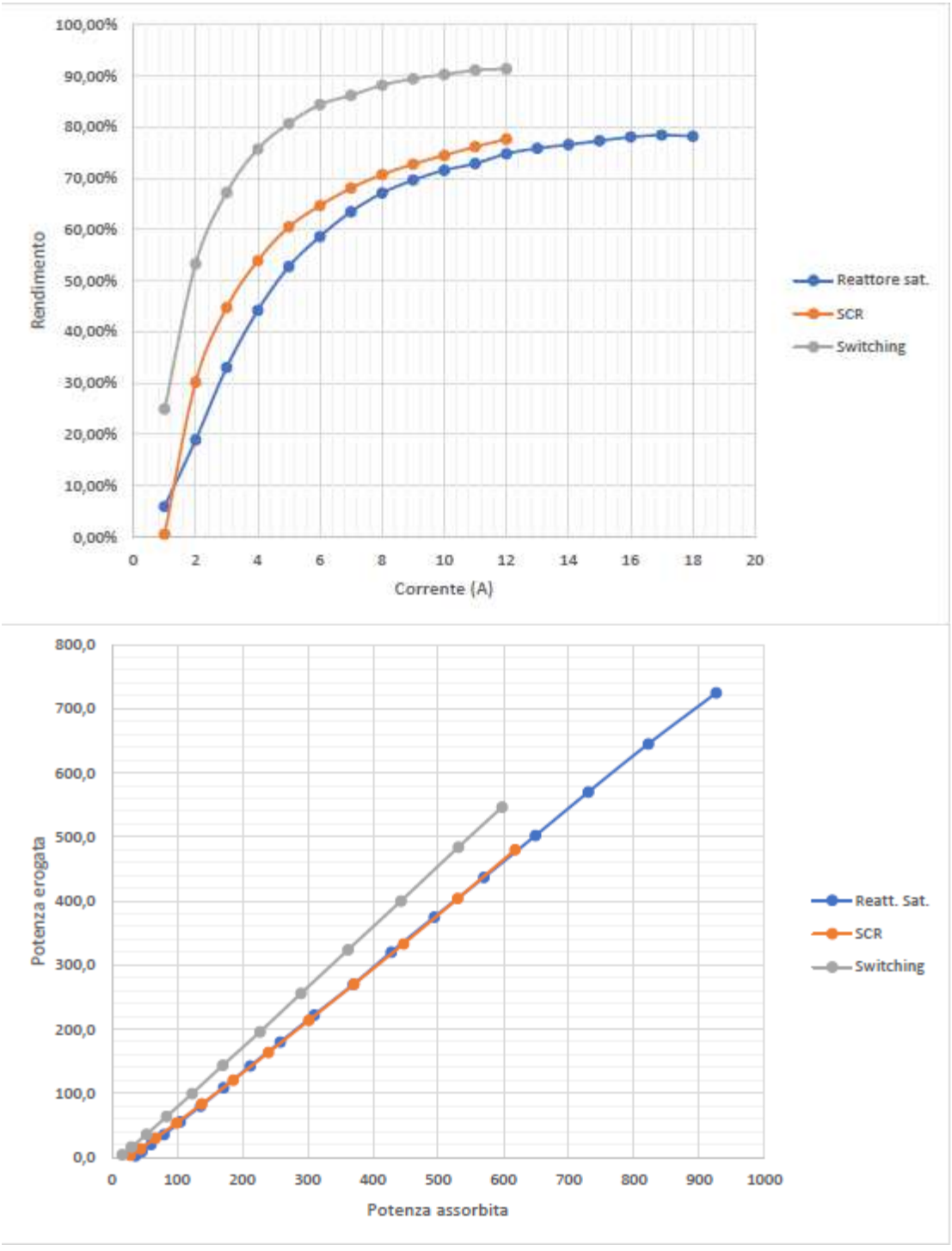
There are three main technologies currently used for manufacturing cathodic protection power supplies. The characteristics of each technology can be evaluated from various perspectives; the following provides some assessments related to efficiency and, therefore, to energy savings.

The types of power supplies considered are:

- Saturable reactor power supplies
- Low-frequency switching power supplies (SCR)
- Switching power supplies (mod. LSW)

The graph above shows the efficiency trends as a function of output current for all three types of power supplies.

From the graph, it's clear that the SCR and Saturable Reactor power supplies have very similar efficiency, reaching around 77-78% at full power. The performance of our LSW Switching power supply is distinctly different from the other two, not only because its full-load value exceeds 91% but also at lower power values.



The graph below makes it easy to evaluate the difference in power consumption for the same output power. For example, if we consider a power output of 400W, we can see that the power consumed is 443W for our LSW Switching power supply and 530W for the other two types of power supplies.

Therefore, considering a value at the maximum deliverable power of 12 Amperes and a maximum output voltage of 50 Volts, the energy saving is **150 Watt/hour**.

Model	Maximum Output Voltage	Maximum Output Current
LSW 12	50 V	12A
LSW 25	50 V	25A