Cathodic Protection Power Supply Unit with remote control
Mod. CT36

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Performance

The unit can supply a current equal to the value indicated in the rating plate with a max output voltage adjustable from 0 to 50 V, to adapt the unit to the most different load conditions, maintaining a very high efficiency.

Load impedance can variate down to Ω fractions.

Operation

The electric power needed for cathodic protection is drown from the electric 230 Vac ± 10% net through an insulating transformer, meanwhile a switching device convert the AC Voltage to DC Voltage.

The switching device is managed by an electronic controller that have three different mode available.

Operating Modalities

1) CONSTANT CURRENT MODE :

By putting the central switch toward the “CURR” potentiometer, it allows to regulate the selected current value to be impressed to the system (structure-anodes ground-bed).

Such value holding is confirmed by the lighting of the Constant Current Yellow warning led (its switching-off indicates that the controller is no more able to hold constant the current having max available output voltage achieved).

“Base Curr” potentiometer must be to “zero” position turned (anticlockwise).

2) CONSTANT POTENTIAL DIFFERENCE MODE :

By putting the central switch toward the “DDP” potentiometer, it is allowed to set the selected potential difference value (between structure to be protected and ground) that must be hold constant.

The lighting of the green constant D.P. warning led shows this running mode (the possible warning light switching-off indicated that the controller is no more able to hold constant the potential difference).

In the Potential Difference mode, the “Curr” potentiometer is enabled allowing the operator to set the current value that must not be surpassed: in the case the current request exceeds such limit, the controller will be automatically switched to constant current mode (yellow warning light) during the whole higher load time.

“Base Curr” must be to “zero” position turned (anticlockwise)

3) CONSTANT POTENTIAL DIFFERENCE MODE with BASE CURRENT:

The "Base Curr" adjustment allows the base current value setting; that is, the current value below which the DC power supply unit must not go down, operating in the constant Potential Different mode.
The lighting of the lower Yellow warning led shows that the base current mode is on-service.

Adjusting a trimmer placed inside the unit, it is possible to set the max output Voltage (from 0 up to 50V) independently from the selected running mode.

The lighting of the upper Red warning led "V_{out}" shows the output voltage set value is achieved.

"Local-Remote" Working modality

The unit CT36, when connected via RS485 connector to a remote control unit, can transmit the working data via GSM to a remote computer.

Moving the switch "LOCAL REMOTE" in "Local" position the data will be anyway transmitted however it will be possible to regulate the CT36 unit only using the controls on the control panel.
When in LOCAL modality, the yellow "data" led diode is on and blinks off when transmitting data.
Once executed the needed regulations, the user can store the new values by pressing the switch "STORE".
Moving the "LOCAL REMOTE" switch in "REMOTE", the unit can be controlled only by the remote computer, that continue also to receive the working parameters from the power supply unit itself.
The yellow LED diode is OFF and blinks ON when transmitting data.
The computer is provided of a proper software with interfaces for data acquisition and to send control signals to drive the power supply unit. In both working modalities, LOCAL-REMOTE, when the yellow LED diode is solid there is not communication with the data transmission unit. After one hour, the power supply unit will return atomaticly in REMOTE modality and this is helpful when the operator, after the adjustments, forgets to move the switch from "L" to "R".

Instruments

The unit is equipped with the most complete instrumentation that includes:

- voltmeter for the potential difference reading
- voltmeter for the output voltage reading
- ammeter with output shunt 50mV, full scale on terminals

All instruments are by the "Instr" switch controlled.

The Green "Output" warning led lighting indicates that the unit is on-service

Protections

The unit is equipped with automatic bipolar magneto-thermic switch on the 230 Vac ± 10% side and with automatic delayed single pole magneto-thermic switch on the DC output side.

Both power input and output are adequately protected against over voltage (of atmospheric origin) by means of solid state varistors.

Timer

Timer can be inserted both in local that in remote modalities.
In LOCAL, by switching-on the mini-switch “Timer”, the unit is put on-service in the cyclic mode

ON = 57 seconds ab.
OFF = 3 seconds ab.

In REMOTE, the timer can be set directly from the central computer, On and OFF times can be different, and it is possible to synchronize together different CT36 Power Supply units.

Optionals

- 4 ÷ 20mA output for remote monitoring of:

POTENTIAL DIFFERENCE
OUTPUT CURRENT
OUTPUT VOLTAGE

- Failure Alarm
- Power line lack alarm
- Output switch trip alarm

Technical data

Max continuous output current	5/10/15/20/25 A
Max output Voltage	50 V
Max Ripple Voltage	0,1 V_{eff}
Minimum out impedance	0,2 Ω
Dynamic P.D. shift	± 10 mV
Static P.D. shift	± 1 mV
Current regulation (at steady state)	± 100 mA
Dimensions (19" x 6U)	445 x 320 x h 270 mm
Weight	13 Kg.