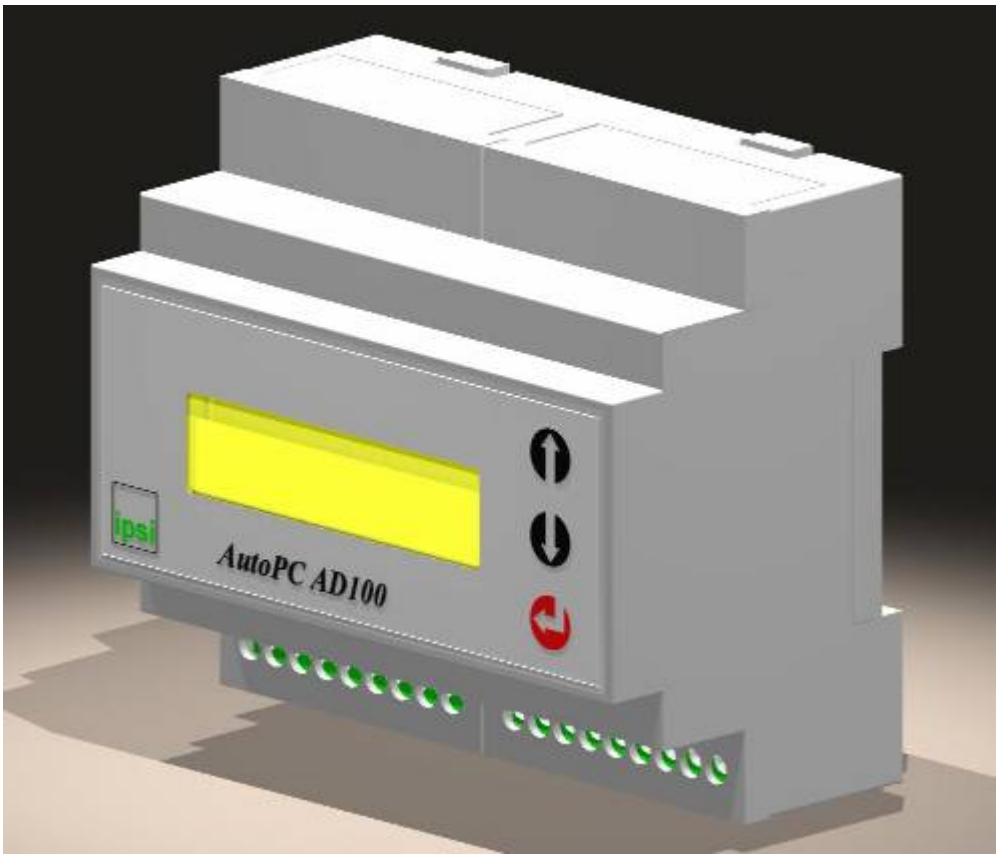
PRESENTATION

AutoPC AD 100



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GENERAL

The AutoPC AD100 is a device used to handle the output parameters of a rectifier transformer according to its operating environment.

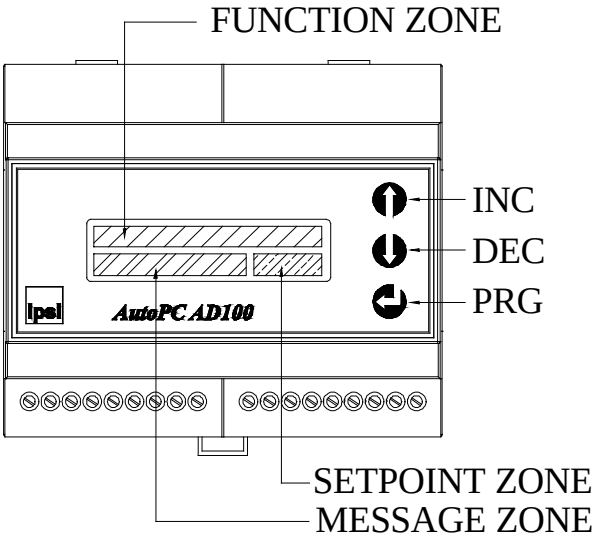
The AutoPC AD100 can handle the following power technologies:

- Chopping
- Switching
- Phase angle
- Control by transistor (amplifier mode)

The AutoPC AD100 is an element of IPSI's new all digital product strategy, which allows the equipment to be upgraded in the future as follows:

- Implementation of functions without hardware changes.
- Continuing improvement of function robustness as soon as the product is released.
- In situ equipment programming or upgrading.

MAN-MACHINE INTERFACE



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OPERATING MODES

CONSTANT VOLTAGE

When the AutoPC AD100 is operated in constant voltage mode, your rectifier transformer behaves like a rectifier transformer equipped with a variable autotransformer.
The output voltage is fixed and the output current varies with the load (I = U/Z).

CONSTANT CURRENT

When the AutoPC AD100 is operated in constant current mode, your rectifier transformer behaves like a current generator.
The output current is fixed and the output voltage varies with the load (U = ZI).

CONSTANT POTENTIAL

When the AutoPC AD100 is operated in constant potential mode, the potential of the reference electrode associated to the AutoPC AD100 remains invariable under any load conditions and variations (impedance) and passive protection status of the structure to be protected (faults).

It should be reminded that:

- Output current and voltage are variable.
- Potential is constant as long as the voltage or current capacity of your rectifier transformer is not exceeded.

DV/DT FUNCTION

Any servo control system has a certain reaction time with respect to the reference data. In the AutoPC AD100, each step has a minimum increment or decrement time of 100 msec, with a 1000-step resolution.
The DV/DT corresponds to the time needed by the regulated output to rise from 0 to 100% (duration = variable).
The DV/DT function of the AutoPC AD100 is used to set the rise time between 10 and 1000 sec, which allows:

- Masking stray / induced currents or noise.
- Avoiding oscillations due to loads with an oscillatory behavior, a slow rise time, or a significant phase shift.
- Not overfeeding the structures to be protected with slow biasing (energy loss, concrete).

ON/OFF FUNCTION

The systems and methods used for ON/OFF campaigns may suffer from the following drawbacks:

- Bouncing due to the servo control (trend towards 100% during a T_{off} then abrupt fall during a T_{on}).
- Significant, potentially destructive current spikes (emf) during ON/OFF interruptions of rectifier transformer main power supply.
- Expensive time switches, specific to the power levels to be interrupted.

To overcome the above-described drawbacks, the AutoPC AD100 includes an automatic ON/OFF handling function with the following features:

- Possibility of interfacing with any type of time switch.
- No power (break at logic level, 5 V / 500 µA).
- Memory storage of parameters and deactivation of servo control upon first T_{off} (HOLD, fixed output);
- No ON/OFF detection in a powered installation (for your safety!).
- Loss of first T_{off} then synchronization with time switch.
- Automatic restart of servo control if no T_{off} is detected within 2 minutes.

TECHNICAL SPECIFICATIONS

ELECTRICAL

Mains supply	:	230 V 50 Hz
Power consumption	:	Max. 2.3 VA
Protection	:	MOV on mains input, 250 V / 21 J Quick blow fuse on mains input, 250 mA Zener diode on electrode input upstream of filter, 5.6 V
0 – +5 V output	:	0 to 5 V / 100 mA
PWM output	:	5 V / 10 mA, duty cycle 0.001 to 1
Sync (+/–) input	:	Self-powered, 5 V / 500 µA, active at "0" (contact closed)
I (+/–) input	:	Differential 100 mV; max –10 V/ground and 80 V/ground
Electrode input (ER/STRUCTURE)	:	For $Cu/CuSO_4$ only, max. 5.6 V peak, 4 µA @ 5 V

MECHANICAL

Dimensions	:	DIN 6 modules (106 x 90 x 58 mm)
Mass	:	300 grams
Material	:	Polycarbonate UL 94V-0
Mounting method	:	DIN EN 60 715 rail
Protection index	:	IP 21

ENVIRONMENTAL

Operating temperature	:	–20° to +70°C
Storage temperature	:	–30° to + 80°C

MISCELLANEOUS

ON/OFF	:	Loss of one T_{on}/T_{off} cycle (detection) Hysteresis 1 msec max.
Servo control response time	:	Adjustable from 10 to 1000 sec for 0 to 100% sweep
Servo control accuracy	:	Error ± bit, slope error 2.4% for a perfect DC input. Max. output limited to ~97% of maximum rectifier transformer capacity with servo control mode in use.