

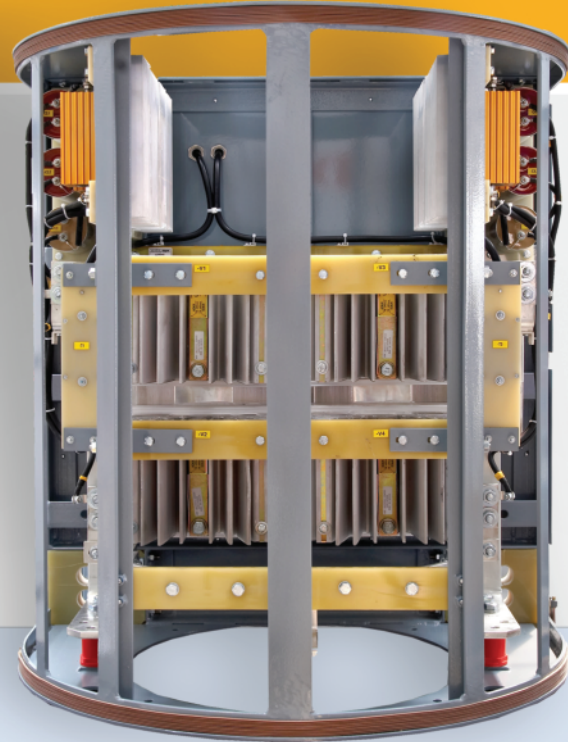


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Končar Electronics and Informatics, Inc

KONTRAC GP 1000 AC

Propulsion converter for locomotives



KONTRAC GP 1000 AC for locomotives

KONTRAC GP 1000 AC is a thyristor propulsion converter which converts AC network electric power fed from a transformer output into propulsion power for DC traction motors.

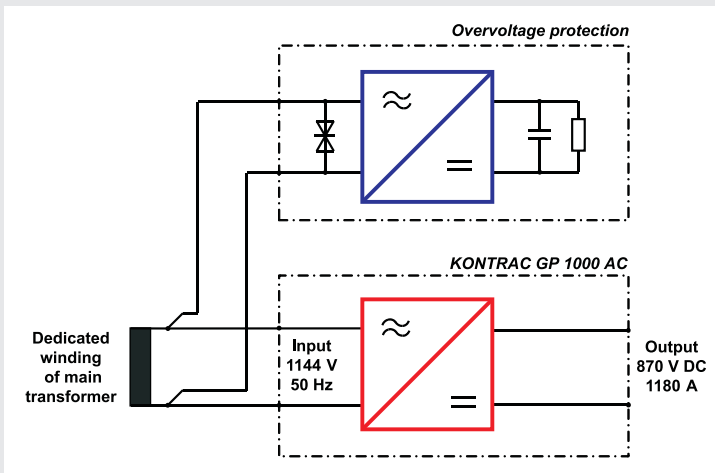
The converter is used in the process of modernization of old diode locomotives into thyristorized locomotives as well as for building new locomotives.

Features

- Easy maintenance
- Machine room mounting
- Robust and powerful semiconductors
- Air cooled cooling system
- Electrically and mechanically compatible with the existing diode locomotive power supply equipment

Replacement of diode converters with thyristor converters and implementation of vehicle control unit for traction application (VCU) ensures conversion of old diode locomotives to modern thyristor locomotives with superior traction and exploitation characteristics:

- Continuous speed and torque control of traction motors (both at traction and braking mode) which optimizes adhesion, saves energy, decreases wear of vital parts and provides electronic overload, sliding and torsion vibrations protection.
- Sequential control of thyristor bridges limits consumption of reactive power.



Block diagram of the converter and overvoltage protection

Mechanical design and cooling system

The converter KONTRAC GP 1000 AC is designed for mounting in ventilation tunnel in a locomotive's machine room. The converter is efficiently cooled by forced air. The cubicles with overvoltage protection are put next to the main transformer and protection circuits are connected directly to secondary terminal blocks of the main transformer.



Bo' Bo' locomotive for Croatian Railways

Basic technical data

Input voltage:	1144 V, 50 Hz
Propulsion output:	1000 kW
Cooling:	Forced air-cooling
Size (L x W x H):	575 x 770 x 840 mm
Weight:	150 kg
Mounting position:	Machine room

Overvoltage protection

A good protection of semi-conductor valves against transient voltages is very important for reliable and safe operation of a thyristor converter supplied by contact line. The overvoltages are the result of atmospheric discharges and switching of the inductive circuits in the contact line.

The overvoltage protection, in two equal cubicles, contains units for the overvoltage protection of the whole thyristor converter of the locomotive.

Application examples

KONTRAC GP 1000 AC is used as a propulsion converter in numerous locomotives which have been modernized and delivered for Croatian Railways, Railways of the Federation of Bosnia and Herzegovina, Macedonian Railways, Serbian Railways, Bulgarian State Railways, etc.

The photo shows modernized 4-axle locomotive type Bo' Bo' series 1.141.300 for Croatian Railways, equipped with KONTRAC GP 1000 AC.

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