

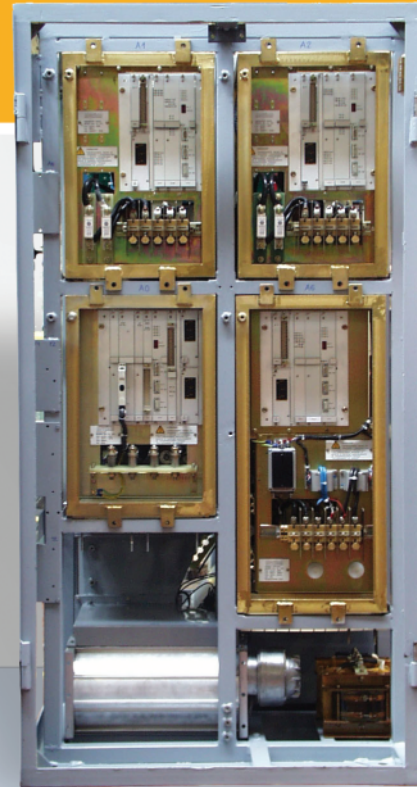


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Končar Electronics and Informatics, Inc

KONTRAC PN 170 AC

Auxiliary converter for electric locomotives



KONTRAC PN 170 AC for electric locomotives

KONTRAC PN 170 AC is used as the auxiliary power supply converter in electric locomotives. It is fed from a dedicated winding of the main transformer, converts single-phase voltage into three-phase stabilized voltage and supplies electrical loads such as traction motor blowers, brake resistor blowers, transformer oil cooler blowers, pump, compressors, HVAC etc.

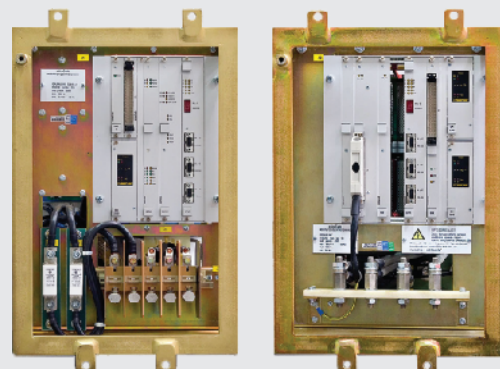
The battery charger which is integral part of converter is used for charging locomotive batteries and for supplying of all DC consumers on board the vehicle.

Features

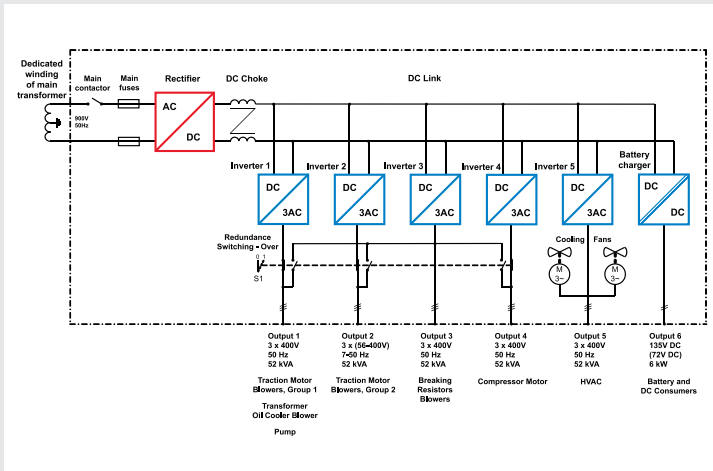
- Modular design of power units
- High energy efficiency
- Machine room mounting
- Easy maintenance
- Latest IGBT technology

KONTRAC PN 170 AC consists of:

- Input contactor and precharging circuit
- Input rectifier module
- DC link choke
- Four or five output inverter modules
- Battery charger
- Cooling system
- Control unit



Inverter module and rectifier module



Block diagram of the converter

Digital control unit

Digital control unit (DCU) is based on proprietary embedded control platform which has been used for years in our rail solutions (locomotives, coaches, trams, EMU, DMU).

DCU is responsible for all sequence control, regulation, protection, communication, supervision and diagnostics tasks. Special care is put on obsolescence issues, and modularity.

Diagnostic and visualization

Proprietary powerful diagnostic and visualization tool (ZDT) is compatible with all our platforms through many generations of control electronic solutions. Configurable event-driven data logging and event recording is integrated in the control electronics.



Thyristorized Co'Co' locomotive for Bulgarian Railways

Basic technical data

Input voltage:	900 V, 50 Hz
AC outputs:	3 x 400 V, 50 Hz, 4 (5) x 52 kVA
DC output:	72 / 135 V _{DC} , 6 kW
Cooling:	Forced air-cooling
Size (L x W x H):	1360 x 900 x 1675 mm
Weight:	1450 kg
Mounting position:	Machine room
Connecting interface:	CAN / MVB / Ethernet

Mechanical design and cooling system

The converter is designed for mounting in machine room with IP54 protection. The modular design of the converter allows an easy maintenance access enabling easy replacement of each power module.

The converter is efficiently cooled by forced air.

Application examples

KONTRAC PN 170 AC in its several variants, is used as an auxiliary 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 6-axle locomotive type Co' Co' series 46200 for Bulgarian Railways, equipped with KONTRAC PN 170 AC.

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