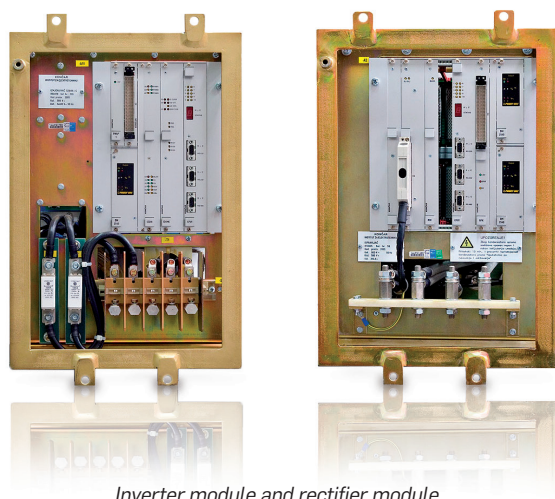


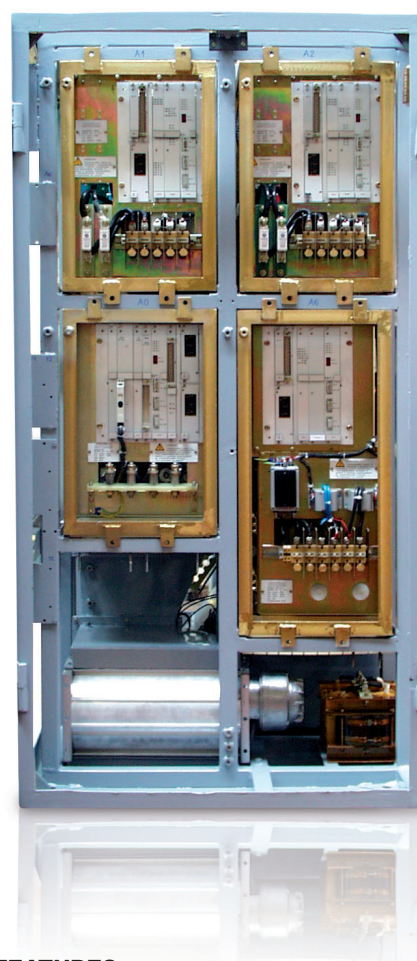
KONTRAC PN170AC

Auxiliary converter for electric locomotives

KONTRAC PN170AC 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.



Inverter module and rectifier module



FEATURES:

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

KONTRAC PN170AC 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

BASIC TECHNICAL DATA

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

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, tramways, EMUs, DMUs). 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 (ZZT) is compatible with all our platforms through many generations of control electronic solutions. Configurable eventdriven data logging and event recording is integrated in the control electronics.

MECHANICAL DESIGN AND COOLING SYSTEM

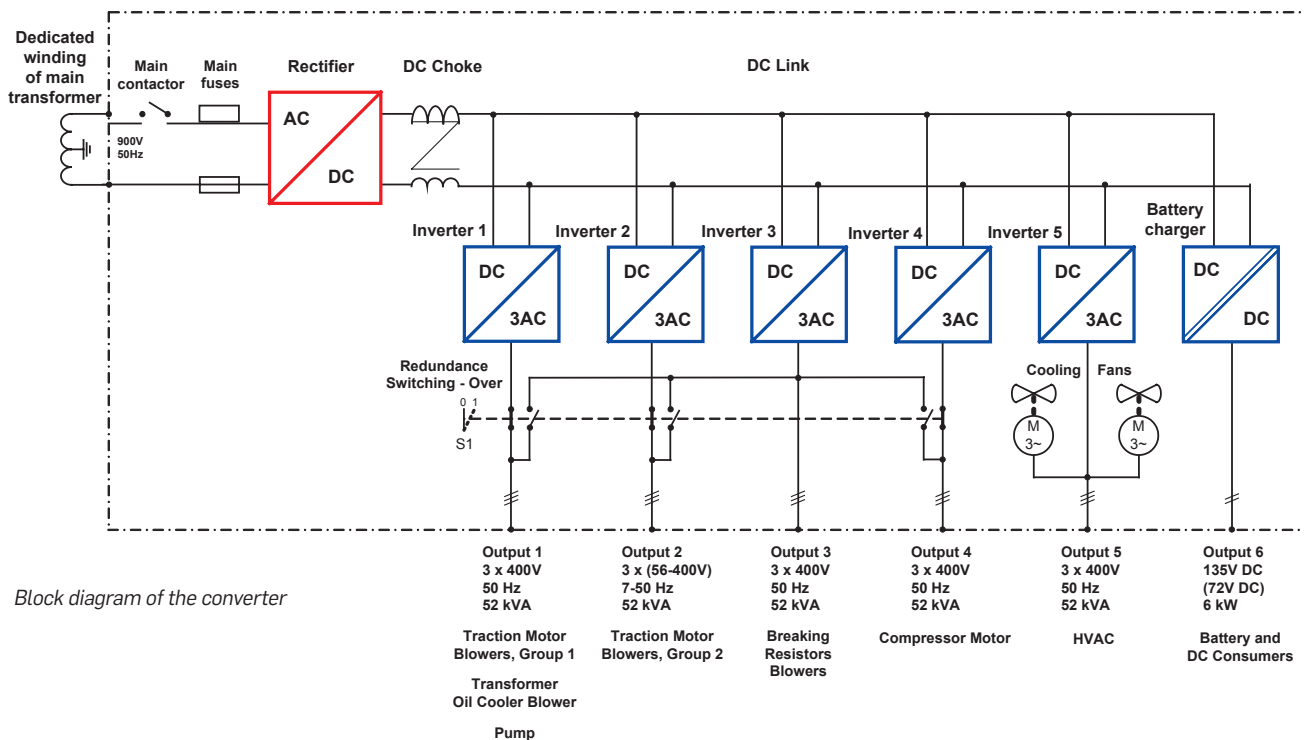
The converter is designed for mounting in machine room with IP54 protection. The modular design of the converter allows an easy maintenance access enabling easy replacement of each power module. The converter is efficiently cooled by forced air.

APPLICATION EXAMPLES

KONTRAC PN170AC 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 PN170AC.



Thyristorized Co'Co' locomotive for Bulgarian Railways



Block diagram of the converter