

## KONTRAC PN35DC

### Auxiliary converter for trams

---

**KONTRAC PN35DC is used as the auxiliary power supply converter in tram vehicles. It converts 600 Vdc or 750 Vdc line voltage into three-phase AC voltage intended for supplying of tram's air-conditioning unit, single-phase AC voltage for service purposes and DC voltage intended for charging batteries and supplying of all DC consumers on board the trams.**

#### **FEATURES:**

- Input line voltage 600 Vdc or 750 Vdc
- Latest IGBT technology
- Galvanic insulation input / outputs and among outputs
- High-frequency resonant converter
- Easy maintenance
- Light and compact design
- Roof mounting
- Extended ambient temperature range from -40 °C to +40 °C

#### **KONTRAC PN35DC CONSISTS OF:**

- Input filter
- Pre-charging circuit
- Buck converter
- Resonant converter
- Three-phase inverter
- Sinus filter
- Battery charger
- Cooling system
- Control unit



BASIC TECHNICAL DATA	
<b>Input voltage</b>	600 / 750 V <sub>DC</sub>
<b>AC output</b>	3 x 400 V, 50 Hz, 25 kVA 230 V, 50 Hz, 2,2 kVA
<b>DC output</b>	24 V <sub>DC</sub> , 12 kW
<b>Cooling</b>	Forced air-cooling
<b>Size (W x D x H)</b>	1715 x 555 x 520 mm
<b>Weight</b>	300 kg
<b>Mounting position</b>	Roof
<b>Connecting interface</b>	CAN / MVB / Ethernet



KONČAR tram in Zagreb

### 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, EMUs, DMUs). DCU is responsible for all sequence control, regulation, protection, communication, supervision and diagnostics tasks.

### DIAGNOSTIC AND VISUALIZATION

Proprietary powerful diagnostic and visualization tool (ZZT) is compatible with all our platforms through many generations of control electronic solutions. Remote diagnostic functions allow monitoring of all intelligent units from one connection point.

### MECHANICAL DESIGN AND COOLING SYSTEM

The converter is designed for roof mounting with IP54 protection. High-frequency resonant converter enables use of transformers and chokes with smaller dimensions and mass which significantly decreases mass and size of the converter, resulting in minimized vehicle weight. Converter box is made from stainless steel and is intended for use in extended ambient temperature range from -40 °C to +40 °C. The converter is efficiently cooled by forced air.

### APPLICATION EXAMPLES

KONTRAC PN35DC is mounted on the roof of 100% low-floor KONČAR tram TMK 2200 that operates in City of Zagreb, the capital of Croatia and on tram TMK 2300 that operates in City of Liepaja in Latvia. The tram car series TMK 2200 and TMK 2300 are distinguished by its modern and attractive design, superior technical characteristics and comfortable ride. These modern vehicles significantly contribute to efficient and comfort public transport in City of Zagreb and City of Liepaja. For new fleet of trams TMK 2400 for City of Zagreb and TMK 2500 for City of Osijek, both in Croatia, KONTRAC PN35DC are going to be installed.

