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All about e-mobility

Test bench inverter UPI850-3L

Inverter for 3-phase electrical motors

19" rack with MicroLabBox®

Main features

- 3-Level (T-Type) topology
- Power electronics with IGBT and suitable driver control
- Control and data acquisition via dSPACE MicroLabBox® with 50-pin DSub connectors
- AC and DC voltage acquisition (± 0,6%, 0 – 800 kHz)
- DC and AC current acquisition (± 1%, 0 – 72 kHz)
- Heat sink temperature sensing
- Connection possibilities for resolver and incremental encoders via interface cards
- Protection against overcurrent and overvoltage
- DC power supply via battery simulator or vehicle battery possible
- Internal FPGA logic for self-protection (max. frequency, hot branch, heat sink temperature)
- Balancer for balancing the DC circuits

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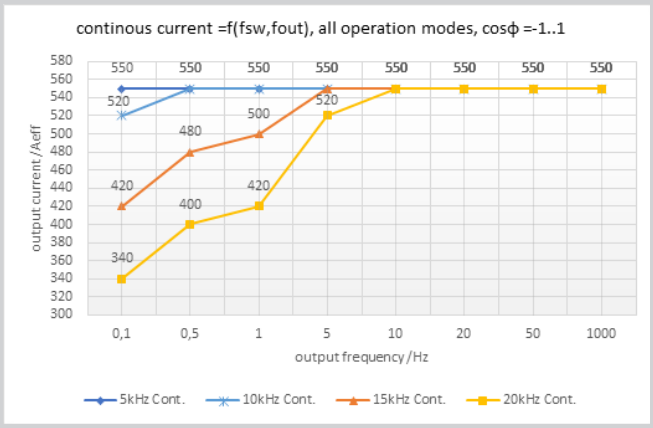
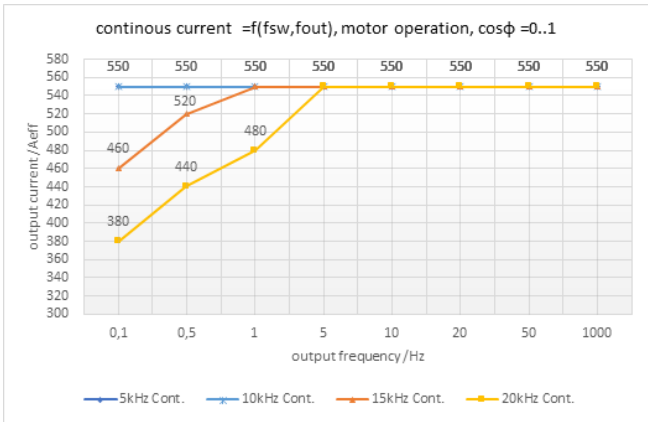
Technical data:

Supply DC:	48 ... 850 VDC (no voltage pulsed to ground!)
Output power AC:	max. 570 kVA (continuous operation)
Output current AC:	max. 550 Arms continuous operation or 850 Arms for max. 10 s duration Note derating with regard to switching and output frequency!
Switching frequency:	1 kHz – 20 kHz
Optional current direction including reactive current, cos Φ = –1 ... +1:	
Motor operation including reactive current, cos Φ = 0 ... +1:	
Accuracy of voltage sensors (AC + DC):	± 0,6% of full scale (1500V)
Bandwidth voltage sensors (AC + DC):	0 ... 800 kHz (–1 dB)
Accuracy of current (AC + DC):	± 0,4% of full scale (1500 A)
Bandwidth current sensors (AC + DC):	0 ... 72 kHz (–3 dB), low signal
External temperature sensors:	NTC 10 kΩ, more on request
DC link discharge:	When activated by control input: Discharge time approx. 10 s
Intercircuit capacity:	approx. 2,88 mF
Protection class:	1, PE connection with min. 70 mm²
Protection:	IP30
Ambient temperature:	5 – 40 °C, non-condensing humidity
Emergency supply:	100 ... 240 VAC; 50 ... 60 Hz; approx. 300 VA

Housing dimensions and cooling water connection:

Housing:	750 mm x 610 mm x 710 mm (L x W x H), including rollers
Weight (mass):	approx. 172 kg
Cooling water connection:	customized, (standard 3/4” internal thread)
Cooling water requirements:	50:50 water-glycol, max. flow temperature: 25 °C, 30 L/min

Technical data Balancer:

Current:	– 400 A ... +400 A
Voltage:	DC link max. 850 V
Clock frequency:	12 kHz
Accuracy voltage sensors (AC, Uexc):	± 0,6% of full scale (1500 V)
Accuracy current sensor (I_Bal):	± 3% of full scale (800 A)
Bandwidth current sensors (AC + DC):	0 ... 72 kHz (– 3 dB)

Schematic representation: