



Universal test bench inverter UPI800

Inverter for 3/6-phase electrical motors



19" rack with MicroLabBox®

Main features

- Power electronics with SiC modules with suitable driver control.
- Control and data acquisition via dSPACE MicroLabBox® with 50-pin DSub connectors
- AC and DC voltage acquisition ($\pm 0,6\%$, 0 – 800 kHz)
- DC current acquisition ($\pm 1\%$, 0 – 140 kHz) and AC current acquisition ($\pm 1\%$, 0 – 240 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)

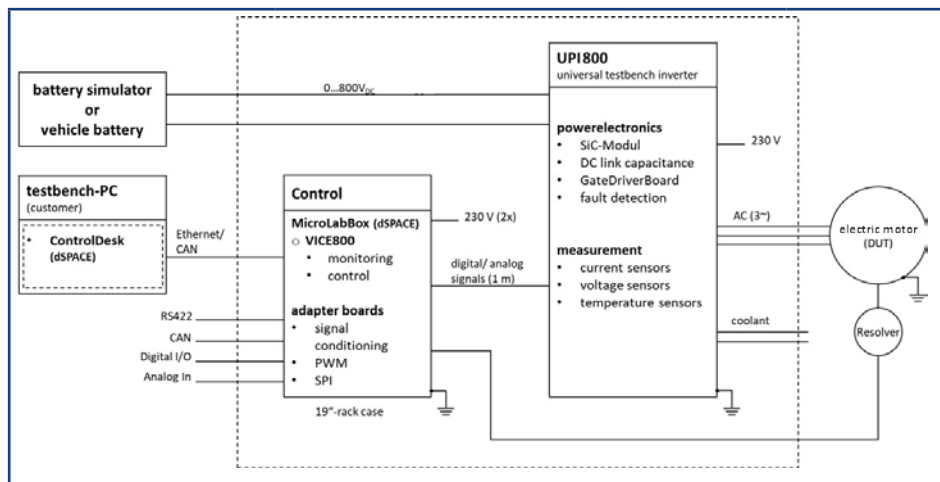
Technical data:

Max. voltage DC:	800 V																																																						
Continuous output AC:	490 kVA @ 560 V																																																						
Continuous current AC:	500 Arms																																																						
Overload current AC:	650 Arms for 30s/750 Arms for 10s																																																						
Switching frequency:	1 kHz – max. 20 kHz																																																						
Continuous current AC vs. rotating field frequency	<p>UPI800-3 Continuous current I_{rms} @ 800VDC (14.05.2024)</p> <table border="1"> <caption>Data points from the graph</caption> <thead> <tr> <th>Output Frequency (Hz)</th> <th>1kHz (Arms rms)</th> <th>5kHz (Arms rms)</th> <th>10kHz (Arms rms)</th> <th>15kHz (Arms rms)</th> <th>20kHz (Arms rms)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>300</td> <td>300</td> <td>300</td> <td>300</td> <td>300</td> </tr> <tr> <td>20</td> <td>500</td> <td>500</td> <td>500</td> <td>500</td> <td>500</td> </tr> <tr> <td>50</td> <td>500</td> <td>500</td> <td>500</td> <td>500</td> <td>500</td> </tr> <tr> <td>100</td> <td>500</td> <td>500</td> <td>500</td> <td>500</td> <td>500</td> </tr> <tr> <td>200</td> <td>500</td> <td>500</td> <td>500</td> <td>500</td> <td>500</td> </tr> <tr> <td>300</td> <td>500</td> <td>500</td> <td>500</td> <td>500</td> <td>500</td> </tr> <tr> <td>500</td> <td>500</td> <td>500</td> <td>500</td> <td>500</td> <td>500</td> </tr> <tr> <td>1000</td> <td>500</td> <td>500</td> <td>500</td> <td>500</td> <td>500</td> </tr> </tbody> </table>	Output Frequency (Hz)	1kHz (Arms rms)	5kHz (Arms rms)	10kHz (Arms rms)	15kHz (Arms rms)	20kHz (Arms rms)	0	300	300	300	300	300	20	500	500	500	500	500	50	500	500	500	500	500	100	500	500	500	500	500	200	500	500	500	500	500	300	500	500	500	500	500	500	500	500	500	500	500	1000	500	500	500	500	500
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DC link capacity:	1,2 mF																																																						
Protection class:	1, PE connection with min. 70 mm ²																																																						
Protection:	IP30																																																						
Permitted ambient temperature:	5 – 40 °C, non condensing humidity																																																						
Auxiliary power supply:	230 V (max. 500 VA) for inverter 230 V (max. 100 VA) for MicroLabBox®																																																						

Housing dimensions and cooling water connection:

Housing:	approx. 610x605x240 mm (L x W x H)
Weight:	approx. 50 kg
Cooling water:	50:50 water-glycol, max. flow temperature: 25 °C, 20 L/min
Dimensions MicroLab-Box housing:	approx. 450x450x140 mm (L x W x H)

Schematic representation:



EESM extension



Main features

- Extension module to the UPI800 for supplying externally excited machines (the module is integrated into the UPI800 and must therefore be taken into account when ordering)
- Control and measured value acquisition via the UPI800's control module
- Monitoring of coolant temperature, overcurrent and overvoltage
- Internal communication with the UPI800 control board
- DC power supply directly from UPI800 or externally via additional source possible
- Integrated buck converter to reduce the excitation voltage
- Current regulator for setting the excitation current
- Prepared for contactless and transformer-based transmission of the excitation current

Technical data:

Max. voltage DC:	800 V
Exciting current:	-40 A ... +40 A
Continuous output AC:	max. 4 kW
Current dynamics:	depending on the regulation approx. 3A/ms (>500 V @ $L_{exc} = 140 \text{ mH}$ and $R = 2,9 \Omega$)
Switching frequency:	10 ... 50 kHz
Housing:	approx. 610x605x340 mm (LxWxH)
Weight:	approx. 65 kg