

# UNIVERT2 INVERTER

## Modular Inverter designed for Industrial applications

Output Rating from a single Inverter:

1.5 kVA (24 Vdc input)

2.5 kVA (110 Vdc input)

3.3 kVA (220 Vdc input)



### Application

The UniVert2 Inverter is especially designed for industrial voltages 24 V, 110 V and 220 V. It is used where the application requires the supply of AC loads from a secured DC busbar.

### Communication

The UniVert2 offers full functionality in stand-alone mode, but additionally it can be controlled and monitored via the digital CAN –BUS, which is immune to interference. The control function is possible by the use of our control unit (PSM) which is available as an option.

### Parallel operation

The UniVert2 can be paralleled up to a maximum of 8 units for increased power or the setting up of redundant systems using the n+1 principle.

### Static bypass switch

To improve the System reliability the UniVert2 can be operated in parallel redundant mode, with a separate Static Bypass Switch (SBS) as an option. The SBS will change over to the mains with no break in case of (one or all) inverter disturbance. The separate SBS can also communicate with our optionally available central PSM (Power Supply Monitoring) control unit. >>

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## Operating principle

The unit is supplied by an external DC supply. The transistorised stack operates at a switching frequency of approx. 20 kHz and converts the DC voltage into a sine wave AC voltage. The output voltage of the UniVert2 will be finally formed by the use of an isolated transformer.

The transformer output voltage will be smoothed by an AC-filter, and connected to the output terminals via MCCB, current monitoring and the built-in output contactor. The controlled output of the inverter is short circuit proof and protected against voltage feedback by external loads and can also power capacitive, resistive and inductive loads. Non-linear loads with a high crest factor can also be supplied by the UniVert2.

## Key features

- Overload capability up to 160 %
- High frequency stability
- Simple operation
- High efficiency
- Low inrush current
- Resistant to sustained short circuit and protected against power feedback by external loads
- Communication capable (CAN-Bus)
- SBS is available as an option
- Excellent dynamic behaviour
- Can operate in single mode and also parallel mode

## SPECIFICATION

TYPE UniVert2	24 V/1,5 KVA G 24 E230/6,5/2rfg-CFp 1,5	110V/2,5 KVA G 110 E230/10,9/2rfg-CFp 2,5	220 V/3,3 KVA G 220 E230/14,4/2rfg-CFp 3,3
Part number	3 000 000 602	3 000 000 263	3 000 000 601

### INPUT

Nominal input voltage	24 Vdc + 20 % - 15 %	110 Vdc + 20 % - 15 %	220 Vdc + 20 % - 15 %
Current consumption	62 A at 24 Vdc	20.4 A at 110 Vdc	14 A at 220 Vdc
Inrush current	≤ nominal input current		
Required DC input fuse	gL 80 A	gL 25 A	gL 20 A

### OUTPUT

Output (cos φ = 0,8)	1.5 KVA	2.5 KVA	3.3 KVA
Power factor range	0 ind. - 0 cap.		
Rated AC output voltage	230 Vac		
Deviation static / dynamic	± 0.5 % static, ± 3 % dynamic at 100 % load step		
Output Frequency	50 Hz ± 0.05 %		
Total Harmonic Distortion (THD)	< 3 %		

<b>Efficiency, total</b>	> 75 %	> 88 %	> 86 %
<b>Overload behaviour</b>	160 % for 1 minute / 130 % for 10 minutes, without switch-off		
<b>Short circuit response</b>	Resistant to sustained short circuit		
<b>Parallel operation</b>	Up to 8 inverters (with and without SBS)		

## MONITORING AND INDICATION

<b>Monitoring</b>	Output over-/ under-voltage, input-over-/ under-voltage, over temperature heatsink, overload, short circuit, self test of internal voltages		
<b>Indicators</b>	LCD for output voltage and current, LED for operation (green), LED inverter output OK (green), LED input under-voltage (red), LED input over-voltage (red), LED over-temperature (red), LED common alarm (red)		
<b>Remote alarm</b>	Potential free change over relay contact and LED indication		
<b>Communication</b>	Via digital CAN-BUS		

## MECHANICAL

<b>Design</b>	19"- plug-in module		
<b>Ingress protection</b>	IP 20		
<b>Mechanical and vibration Stability</b>	To EN 50178 part 9.4.3.2		
<b>Equipment colour</b>	RAL 7032 (Front)		
<b>Dimensions W x H x D (mm)</b>	483 x 177 x 460 (19" x 4 HU)	483 x 177 x 400 (19" x 4 HU)	483 x 177 x 460 (19" x 4 HU)
<b>Weight</b>	33 Kg	39 Kg	46 Kg
<b>DC-Input connection</b>			
Screw terminals	10 ... 25 mm <sup>2</sup>	0.5 ... 10 mm <sup>2</sup>	0.5 ... 10 mm <sup>2</sup>
<b>AC-Output</b>			
Screw terminals	0.5 ... 10 mm <sup>2</sup>		
<b>Remote connection</b>			
Screw terminals	0.2 ... 2,5 mm <sup>2</sup>		
<b>Earthing connection</b>	M4 screw		
<b>CAN-Bus-interface</b>	10 respectively 16-pole spring contact		
<b>Static Bypass Switch 26.6 kVA</b>	Optional (separate 19"-plug-in module Part Number 3 000 000 646)		

## ENVIRONMENTAL

<b>Type of cooling</b>	Forced air cooling		
<b>Operation temperature range</b>	0 °C to 45 °C, (measured below inverter)		
<b>Storage temperature</b>	- 20 °C to + 70 °C		
<b>Environmental factors</b>	IEC 721 part 3 – 3 class 3K3 / 3Z1 / 3B1 / 3C2 / 3S2 / 3M2		
<b>Installation height</b>	Up to 2000 m above sea level, at nominal load		

## STANDARDS

<b>Interference emission</b>	EN 55081-1 / EN 55022 class 'B'		
<b>Interference resistance</b>	EN 55082-2 / IEC 1000-4 part 2-5		
<b>Low voltage function with safe disconnection</b>	at U <sub>in</sub> 24 Vdc in acc. to Vde 0100 part 41011.83 section 4.3.2/ EN 60950 section 2		
<b>Approvals</b>	CE		
<b>Certification</b>	ISO9001		



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