



- 2kVA-Inverter with integrated static switch
- 19"-subrack 4u

Technical Data

DC- Input

Voltage	210 – 280VDC
Input fuse	two-pole 16A slow blow external
Ripple allowed	5% rms
EMC- Surges	acc. EN 61000-4-5 gradient 3
EMC- Bursts	acc. EN 61000-4-4 gradient 3
Ripple feed back	<2 mV pschoometrical CISPR
RFI	acc. EN 55011
Softstart	0,5s typ.

AC- Input

Voltage	185 - 264VAC
Input fuse	two-pole 16A slow blow external
Softstart	0,5s typ.

Output

Voltage	230VAC single phase, sinusoidal
Regulation	static±2% dynamic±3% max. / 2ms 0<->90% load step
Frequency	50 Hz ±0,1% crystal stabilized
Power	2000VA
Over load	100% for 1s
Distortion	< 5% at cosφ 1
Crest factor	3 permitted
Power factor	0,8 ind.to 0,9 cap. permitted
Over load-/ short circuit prot.	electronic
RFI	acc. EN 55011 class A
Switch over times	- Line to Inverter ≤ 4msin line priority operation, max. time includes line failure analyses - Inverter to Line ≤ 4msin inverter priority operation, max. time includes line failure analyses - Inverter to Line ≤ 4msin line priority operation - Line to Inverter ≤ 4msin inverter priority operation
Switch back times	0,8 < U _{mains} < 1,15
Switch over level	short circuit proof
Output	

Control elements

Priority switch	to select between mains or inverter priority operation (s. page 4)
Inhibit	external, remote ON / OFF

Indicators, Alarm

Status indicators	green LED' s for:
Line operation	load is supplied by the line voltage
Inverter operation	load is supplied by the inverter
Inverter synchronous	Inverter synchronous with line frequency, independent if line or inverter priority operation

Alarm or fault indicators
 Line- over voltage
 Line- low voltage
 Inverter- over voltage
 Inverter- low voltage
 Summary alarm

red LED's for:
 - Line voltage > $U_{NOM} + 15\%$
 - Line voltage < $U_{NOM} - 20\%$
 - Inverter voltage > $U_N + 15\%$
 - Inverter voltage < $U_N - 20\%$
 change over contact if:
 - Line or inverter voltage out of tolerance
 - Active inhibit
 - Output current static switch to high
 - Int. auxiliary voltage low
 - Static switch fault

Environmental

Operating temperature
 Storage temperature
 Relative humidity
 Cooling
 Mechanical protection
 Efficiency
 EMC
 Isolation

-10 °C to +45 °C
 -30 °C to +70 °C
 90 %, without condensation
 forced cooling with DC-fan
 IP20
 > 85%
 acc. EN 61000-6-4 / EN 61000-6-2
 Input / Output 3500VDC for 1 min.
 Input / Output / Case 2100VDC for 1 min.
 19'' unit 21U, 4U high

Construction

PIT- Series

General Description

Figure 1 shows the connection of a switch mode inverter and a transformer

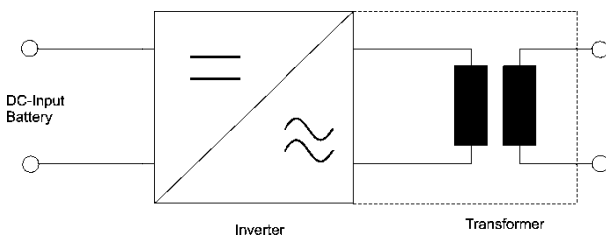


Figure 1

Figure 2 shows the circuit of the inverter:

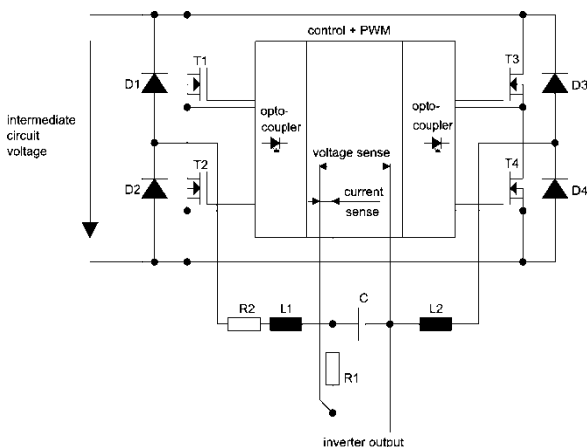


Figure 2

The intermediate circuit voltage (DC-input voltage) is transformed by the power transistor T1-T4 with the parallel inverse diodes D1-D4 in a pulse - width square-wave voltage. The choke with the windings L1 and L2 integrates this voltage, and at the capacitor C there is a sinusoidal output voltage.

The power transistors are controlled by the opto-coupler, making sure, that not both transistors of one branch are switched on at the same time by the control pulses. The output voltage is connected via sense leads to the control circuit and controls, after a comparison with a reference, the control pulses for the power transistors. The voltage drop of the output current at shunt R1 is also supplied to the control circuit and serves for current limiting.

Alternating voltage at the output of the inverter is transformed by means of a transformer to the requested output voltage with galvanic isolation.

Static Switch

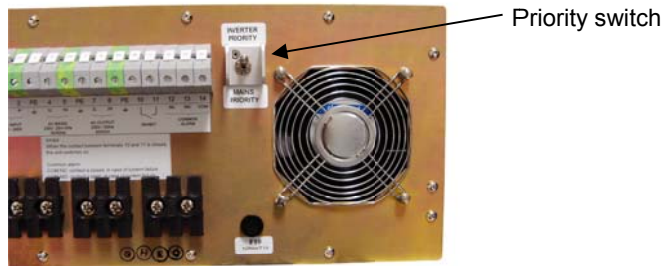
General Description

The static switch transfers the AC supply to the load from the inverter or mains. It synchronizes the inverter to the mains frequency when mains voltage is present.

To achieve logically correct operation, the static switch monitors and evaluates:

- under- and over voltage of the mains
- under- and over voltage of the inverter
- short circuit at the output
- present mode of operation
- faults

To adapt the static switch to different requirements, it is possible to select priority for mains- or inverter operation. The system could be set by a switch on the rear side of the unit. LED's and potential- free contacts indicate the mode of operation.



When priority for mains operation is selected and the mains voltage is present, the load is supplied from the mains. When mains failure occurs, the static switch transfers the load to the inverter which now runs at its own frequency. Upon return of the mains, the inverter is automatically synchronized to the mains again and the output load is transferred back to the mains without an interruption. When the priority for inverter operation is selected the inverter normally supplies the load and synchronised to the mains. If the sensing circuit detects a failure of the inverter output it transfers the load to the mains.

