

## Single-phase Inverter type IMD

### Operating principle

The IGBT transistors single-phase inverters type IMD are power electronic equipment based on the principle of synthesizing a sinusoidal voltage wave by pulse width modulation (PWM).

The power unit is structured on the voltage inverter (with steady voltage in the output circuit) and includes: capacitive input filter, IGBT module single-phase bridge inverter, higher harmonics filter and a thyristor module static contactor.

Electronics control circuits use up-to-date numerical control technique based on LSI circuits and signal processors (DSP).

By using the static contactor, the consumers' transfer from inverter to mains and vice versa: from mains to inverter, is carried through without break upon power supply.

### Applications

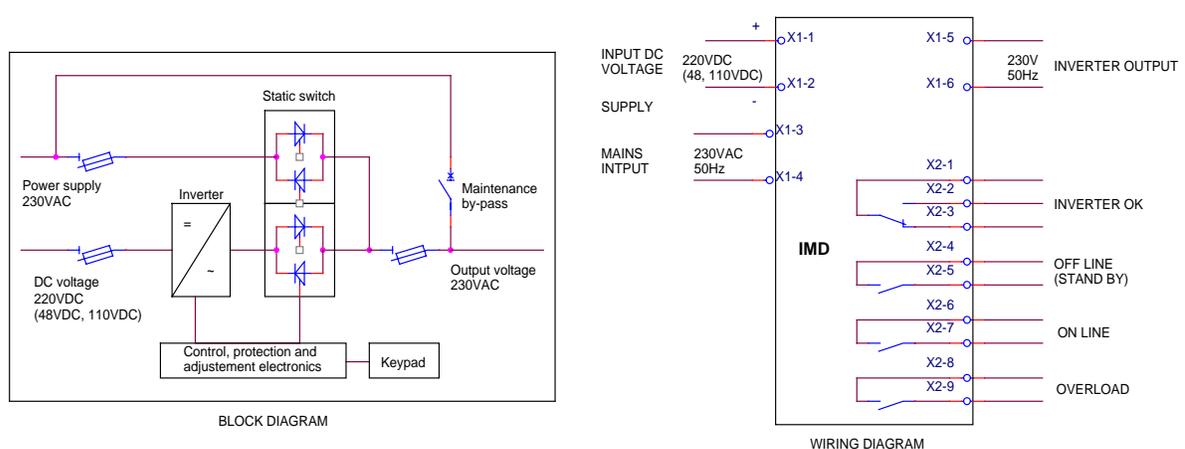
The inverters type IMD are DC and AC supplied and ensure the consumer's protection against: short-time breakdown of the supply alternative voltage, AC mains failure, inadmissible variations of the supply alternative voltage, voltage interferences, high frequency variations, distorted voltage of the supply mains.

The inverters type IMD are recommended for the supply of:

- Computing systems and data processing equipment;
- Telecommunications equipment;
- Air traffic monitoring and coordination equipment;
- Railway signalling equipment;
- Measuring and control equipment in power stations, chemical works and other fields;
- Vital equipment in hospitals.



### Electrical diagram



## Technical parameters

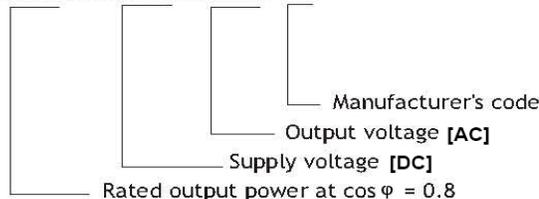
Table 1

Rated power at $\cos \varphi = 0.8$ ind	according to the Table 2
Supply voltage	according to the Table 2, with variations within: -15 ... +20 %
Output voltage	230 VAC
Output voltage frequency	50 Hz
Output voltage stabilization	$\pm 1$ %
Output voltage frequency stabilization	$\pm 0.1$ Hz when the inverter operates independently from the mains
Output voltage deviation at load variations	20 % (first peak) at load variations from zero to rated value or, inversely; the recovery time is less than 200 ms
	10 % (first peak) at load variations of 50 % out of the rated value; the recovery time is less than 200 ms
Inverter synchronization	48 ... 52 Hz
Distorsion factor	< 3 %
Efficiency	> 0.8
Load power factor ( $\cos \varphi$ )	0.8ind ... 1
Max. break time	0 ms; 5 ms in case of a short-circuit at the inverter output
Rated current IN	according to the Table 2
Overload capacity	1.2IN for max. 10 min.
	1.5IN for max. 10 s.
Operation (at option)	a) as a basic source (on line); b) as a reserve source (off line); c) as inverter (without the reserve AC line); d) maintenance
Protections	- DC supply voltage outside the assumed range; - output alternative voltage outside the assumed thresholds; - preset max. output overcurrent (2IN); - overload: 1.2IN after a selected period (max. 10 min.) 1.5IN after a selected period (max. 10s.) - output short-circuit; - heatsink overtemperature
Optical signalings by using LED's which are placed on the electronic cards	operating under synchronized regime, general OK (inverter and mains), 5V voltage on, mains static contactor operating, inverter static contactor operating
Signalings by relay contacts	inverter OK, ON LINE (inverter static switch operating), OFF LINE (mains static switch operating), overload
Sound signalling in case of failure	overload or battery operating with mains off
Displayed values on the control board	operating regime, output current, mains voltage, voltage at inverter output, mains frequency, output frequency; alarms
Constructive characteristics	- protection degree: IP21 (IP31 ... IP54 at option); - equipment front access
Environmental conditions	- application temperature: 0 ... +40°C; - storage temperature: -25 ... +55°C; - max. relative humidity: 80% at +20°C; - max. altitude: 1000m; - the inverters manufactured under IP21 protection degree will be installed in special, dry electrical distribution rooms, without actively chemical agents, dust, electricity well-conducting powders

## Choice / Denomination

IMD Category Part Number  
30013201

IMD xxxkVA/xxxV/xxxV-zz



## IMD Variants

Table 2

Trade denomination	Supply voltage [VDC]	Rated current [A]	Overall dimensions [mm]			Weight [kg]
			L	W	H	
IMD 2,5 kVA/ 48V/ 230V	48	11	600	500	1600	150
IMD 2,5 kVA/ 110V/ 230V	110	11	600	500	1600	150
IMD 2,5 kVA/ 220V/ 230V	220	11	600	500	1600	150
IMD 5 kVA/ 220V/ 220V	220	22	600	500	1600	200
IMD 6,3 kVA/ 220V/ 230V	220	27	600	500	1600	200
IMD 10 kVA/ 220V/ 230V	220	44	600	700	1800	250
IMD 12 kVA/ 220V/ 230V	220	52	600	700	1800	300
IMD 15 kVA/ 220V/ 230V	220	66	800	800	2000	400
IMD 20 kVA/ 220V/ 230V	220	87	800	800	2000	450

NOTE: Other variants of powers, supply voltages, constructive types can be also produced, on client's demand.