



PRODUCT DESCRIPTION

The IWP series inverters are devices for convert the three phase alternate voltage into a single phase square wave voltage to drive a single phase medium frequency transformer, the secondary windings of the transformer are rectified with fast power diode, then the DC output voltage can be used for welding application.

The IWP series inverter consists of 3 parts:

1. the AC/DC converter with a three phase uncontrolled diode rectifier,
2. the DC/AC converter with an H-bridge inverter,
3. the auxiliary electronic board.

This 3 parts are assembled in the same devices, for this reason the inverter is an AC/AC converter.

The output load of the inverter is a single phase transformer suitable to work with a PWM voltage type at fixed switching frequency from 0.5 kHz to 1.5 kHz (square wave type), at secondary winding of the transformer a fast diode rectifier must be used for obtain the DC output voltage.

The control system can modify the output voltage, varying duty cycle of the output voltage at a fixing switching frequency.

The inverter can be managed with the following interfacing:

- 2 direct optical pulse input for the 2 branch of H-bridge inverter, this pulses come from the external control system,
- 1 optical pulse for inverter short circuit fault, this output pulse is connected to the external control system,
- 2 external digital input for pulse enable and reset fault,
- 3 external digital input from transformer and diode thermal trip and a third external fault,
- 7 digital output status/fault,
- 2 analog output (current, dc voltage) for the control feedback and overcurrent protection by the external control system, and a third spare analog output (for a second current sensor)

The fault are resumed below:

driver fault of phase U (or short-circuit)
transformer over temperature,
diode over temperature,
internal dc fuses (optional),
internal ac fuses (optional),
internal heatsink over temperature,

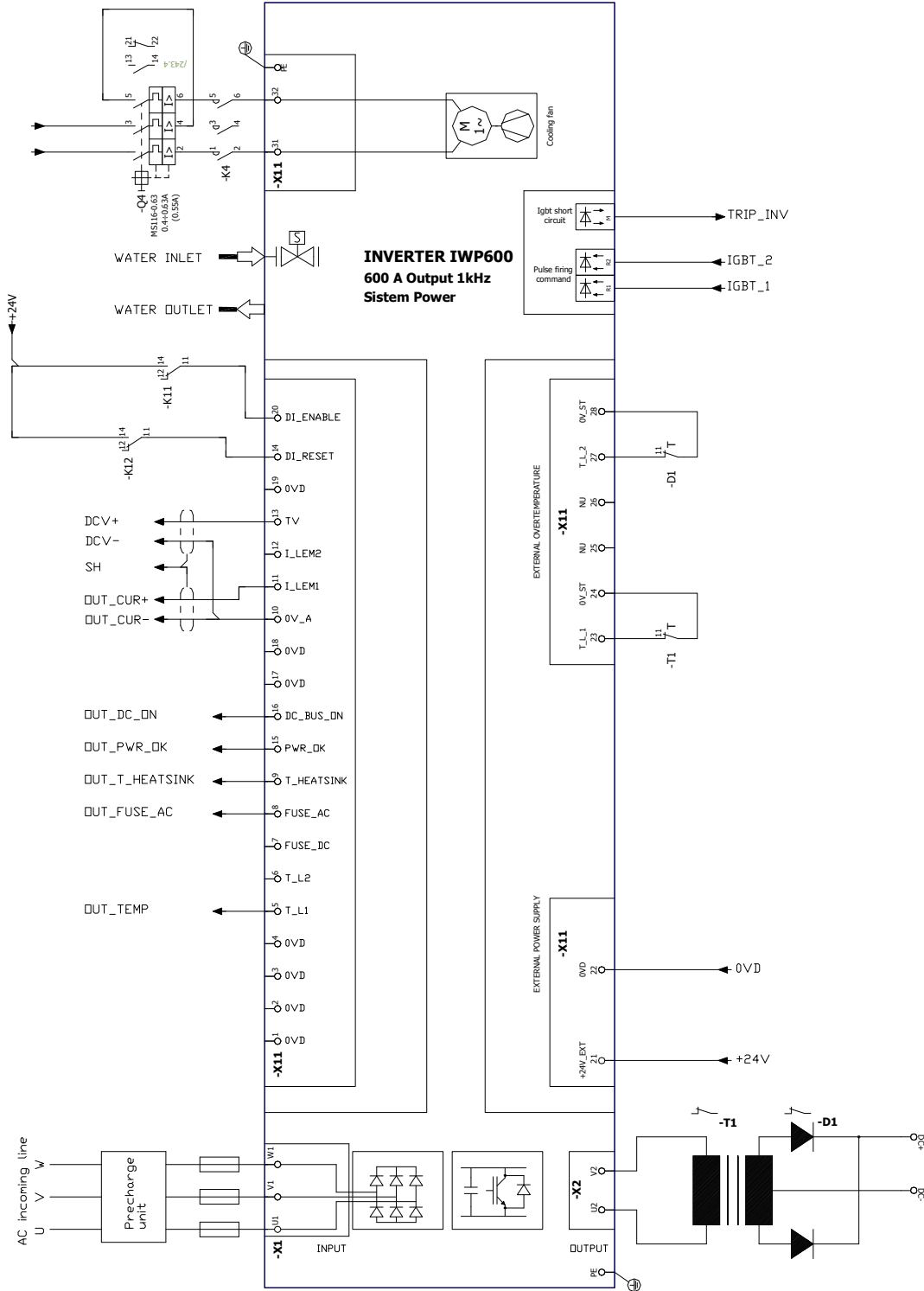
The output status are:
Internal power supply ok,
Dc voltage on,

The input command are:
external enable pulses,
reset fault.

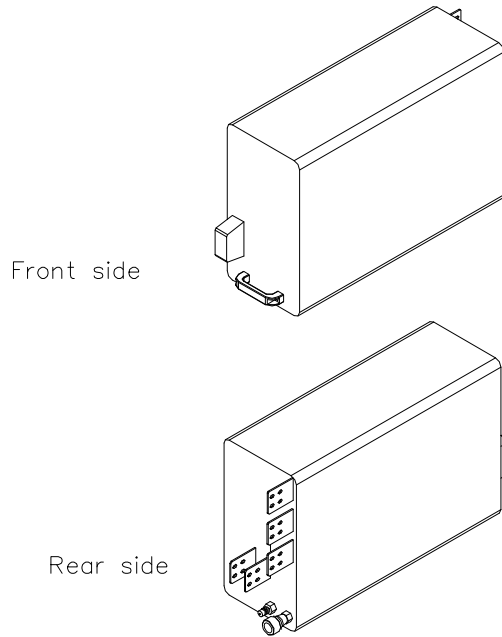
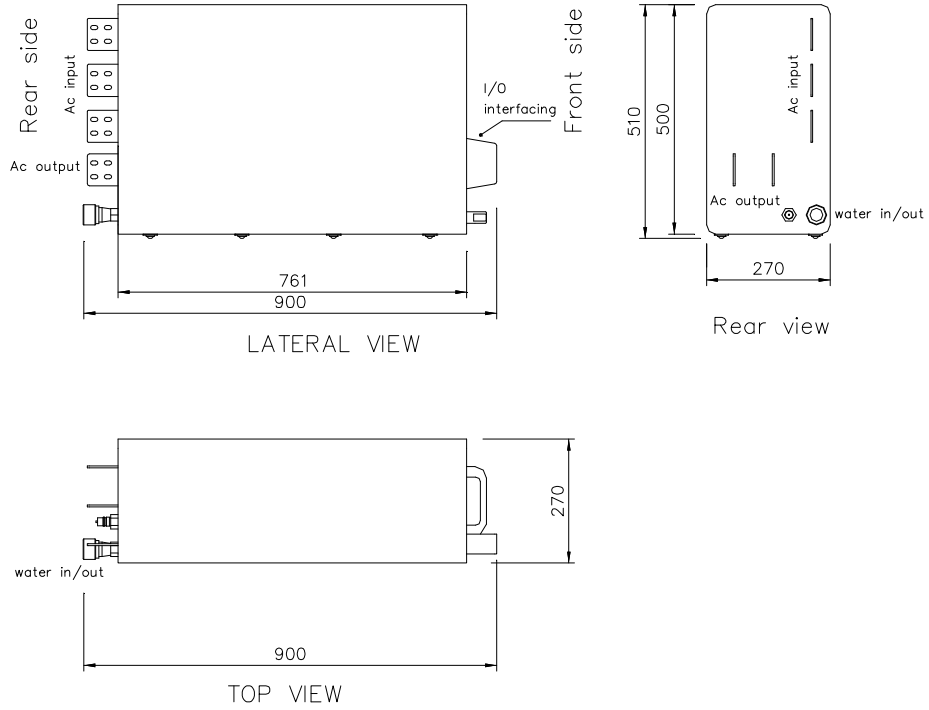
The input status are:
transformer over temperature thermal contact,
diode over temperature thermal contact,

The analog output are:
Output current,
Dc voltage level,
Output current of $2^{\circ}I_{em}$ (optional),

Below is possible to see the inverter connection diagram:



Below is possible to see the external layout of the inverter.



	IWP Inverter series for welding application	Document Nr	Rev. 00
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TECHNICAL FEATURES

AC/AC INVERTER

Here below is possible to see technical data of the AC/AC inverter IWP type

IWP CODE →	IWP400	IWP600	IWP800
Input voltage	400-440 Vac +-10%	400-440 Vac +-10%	400-440 Vac +-10%
Output voltage	500V, square wave	500V, square wave	500V, square wave
Output switching frequency (kHz)	0.5 to 1.5	0.5 to 1.5	0.5 to 1.5
Output current (A continuous)	400	600	800
Output current (A pk)	800	1200	1600
Output power (kVA)	200	300	400
Input command	2 optical pulse	2 optical pulse	2 optical pulse
Output shortcircuit fault	1 optical pulse	1 optical pulse	1 optical pulse
External temperature protection	3 (transformer, diode, spare)	3 (transformer, diode, spare)	3 (transformer, diode, spare)
Internal heatsink protection	Yes	Yes	Yes
Dedicated input command from PLC	2 (enable, reset flt)	2 (enable, reset flt)	2 (enable, reset flt)
Dedicated output fault to PLC	5	5	5
Dedicated output status to PLC	2	2	2
Input analog measures	Output current, Dc link voltage	Output current, Dc link voltage	Output current, Dc link voltage
PLC interfacing connector	32 pole IP67	32 pole IP67	32 pole IP67
Cooling type	Water	Water	Water
Flow rate required (l/min)	8	8	8
Water cooling temperature range	From 10°C to 40°C	From 10°C to 40°C	From 10°C to 40 °C
Automatic water disconnection during standby operation	Yes	Yes	Yes
Operating temperature (°C)	0 to 40°C	0 to 40°C	0 to 40°C
Operating humidity	Up to 90% non condensing	Up to 90% non condensing	Up to 90% non condensing
Degree of protection	IP31	IP31	IP31
Dimension (WxHxD) mm			
Weight (Kg)	40	45	55