

# TSI Y-ONE - 120VAC

## User Manual V7.2

### BEYOND THE INVERTER

THE NEW GENERATION OF POWER CONVERTERS

- » **DUAL INPUT INVERTER**  
Commercial Power as default source
- » **AC BACKUP IN A DC ENVIRONMENT**  
Leverage your existing DC infrastructure
- » **ONE STOP SHOP**  
Wide output power range
- » **HARSHEST AC INPUT CONDITIONS**  
Without compromising the quality of the AC output



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*Leading AC Backup Technology*

## 1. Abbreviations

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TSI	Twin Sine Innovation
EPC	Enhanced Power Conversion
REG	Regular
DSP	Digital Signal Processor
AC	Alternating current
DC	Direct current
ESD	Electro Static Discharge
MBP	Manual By-pass
THD	Total Harmonic Distortion
PE	Protective Earth
N	Neutral
PCB	Printed Circuit Board
TRS	True Redundant Structure



## 2. Warranty and Safety Conditions\*

### WARNING:

The electronics in the power supply system are designed for an indoor, clean environment.

When installed in a dusty and/or corrosive environment, outdoor or indoor, it is important to:

- Install an appropriate filter on the enclosure door, or on the room's air conditioning system.
- Keep the enclosure door closed during operation.
- Replace the filters on a regular basis.

### Important Safety Instructions and Save These Instructions.

#### 2.1 Disclaimer

- The manufacturer declines all responsibilities if equipment is not installed, used or operated according to the instructions herein by skilled technicians according to local regulations.
- Warranty does not apply if the product is not installed, used and handled according to the instructions in the manuals.

#### 2.2 Technical care

- This electric equipment can only be repaired or maintained by a “qualified employee” with adequate training. Even personnel who are in charge of simple repairs or maintenance are required to have knowledge or experience related to electrical maintenance.
- Please follow the procedures contained in this Manual, and note all the “DANGER”, “WARNING” AND “NOTICE” marks contained in this Manual. Warning labels must not be removed.
- Qualified employees are trained to recognize and avoid any dangers that might be present when working on or near exposed electrical parts.
- Qualified employees know how to lock out and tag out machines so the machines will not accidentally be turned on and injure employees working on them.
- Qualified employees also know safety related work practices, including those by OSHA and NFPA, as well as knowing what personal protective equipment should be worn.
- All operators are to be trained to perform the emergency shut-down procedure.
- Never wear metallic objects such as rings, watches, or bracelets during installation, service and maintenance of the product.
- Maximum operating ambient temperature is 50° C (122° F).
- Insulated tools must be used at all times when working with live systems.
- When handling the system/units pay attention to sharp edges.

\* These instructions are valid for most CE+T Products/Systems. Some points might however not be valid for the product described in this manual

## 2.3 Installation

- This product is intended to be installed only in restricted access areas as defined by UL60950 and in accordance with the National Electric Code, ANSI/NFPA 70, or equivalent agencies.
- The Inverter System may contain output over current protection in the form of circuit breakers. In addition to these circuit breakers, the user must observe the recommended UL listed upstream and downstream circuit breaker requirements as defined in this manual.
- Please use extreme caution when accessing circuits that may be at hazardous voltages or energy levels.
- The modular inverter rack is a dual input power supply. The complete system shall be wired in a way that both input and output leads can be made power free.
- REG systems and EPC systems that have no AC input wired and connected can be seen as independent power sources. To comply with local and international safety standards N (output) and PE shall be bonded. The bonded connection between N (output) and PE must be removed once the AC input is connected.
- AC and DC circuits shall be terminated with no voltage / power applied.
- The safety standard IEC/EN62040-1-1 requires that, in the event of an output short circuit, the inverter must disconnect in 5 seconds maximum. The parameter can be adjusted on T2S; however, if the parameter is set at a value > 5 seconds, an external protection must be provided so that the short circuit protection operates within 5 seconds. Default setting is 60 seconds.
- The system is designed for installation within an IP20 or IP21 environment. When installed in a dusty or humid environment, appropriate measures (air filtering ...) must be taken.

### 2.3.1 Handling

- The cabinet shall not be lifted using lifting eyes.
- Remove weight from the cabinet by unplugging the inverters. Mark inverters clearly with shelf and position for correct rebuild. This is especially important in dual or three phase configurations.
- Empty inverter positions must not be left open. Replace with module or cover.

### 2.3.2 Surge and transients

The mains (AC) supply of the modular inverter system shall be fitted with Lightning surge suppression and Transient voltage surge suppression suitable for the application at hand. Manufacturer's recommendations of installation shall be adhered to. Selecting a device with an alarm relay for function failure is advised.

Indoor sites are considered to have a working lightning surge suppression device in service.

- Indoor sites Min Class II
- Outdoor sites Min Class I + Class II or combined Class I+II. The modular inverter system/rack can reach hazardous leakage currents. Earthing must be carried out prior to energizing the system. Earthing shall be made according to local regulations.

### 2.3.3 Other

- Isolation test (Hi-Pot) must not be performed without instructions from the manufacturer.



## Leading AC Backup Technology

### 2.4 Maintenance

- The modular inverter system/rack can reach hazardous leakage currents. Earthing must be carried out prior to energizing the system. Earthing shall be made according to local regulations.
- Prior to any work conducted on a system/unit make sure that AC input voltage and DC input voltage are disconnected.
- **Caution:** Inverter modules and shelves contain capacitors for filtering and energy storage. Prior to accessing the system/modules after power down, wait at least 5 minutes to allow capacitors to discharge.
- Some components and terminals carry high voltage during operation. Contact may result in fatal injury.

### 2.5 Replacement and Dismantling

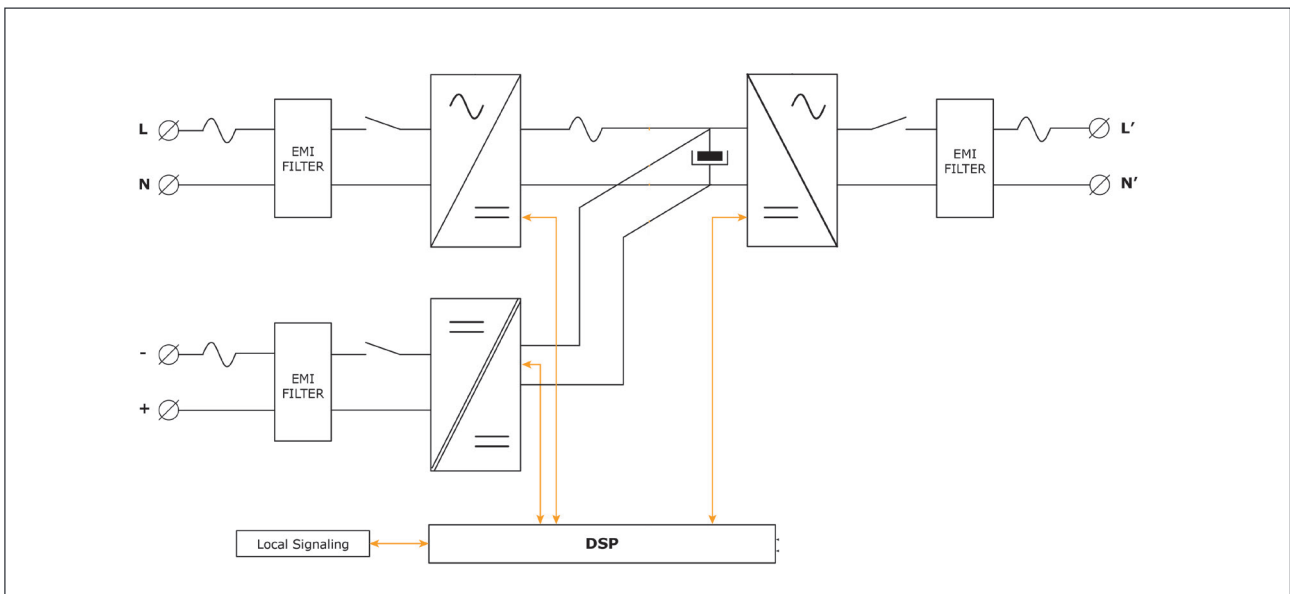
- ESD Strap must be worn when handling PCB's and open units.
- CE+T cannot be held responsible for disposal of the Inverter system and therefore the customer must segregate and dispose of the materials which are potentially harmful to the environment, in accordance with the local regulations in force in the country of installation.
- If the equipment is dismantled, to dispose of its component products, you must comply with the local regulations in force in the country of destination and in any case avoid causing any kind of pollution.

To download the latest documentation and software, please visit our website at [www.cet-power.com](http://www.cet-power.com).

## 3. TSI TECHNOLOGY \*

Inverter modules carrying the TSI logo and the EPC mark are triple port converters (AC in, DC in, AC out). Sinusoidal output is converted from Mains or/and DC.

The block diagram below gives an explicit description of the topology and operation.



The module is built around the following sub-converters

- AC to DC at input
- DC to DC at input
- DC to AC at output

The energy can flow either from the AC source or the DC source under the control of the local DSP controller. Thanks to internal energy buffering, the output sine wave is constant and disturbance free regardless of the active source.

The TSI output Voltage, Frequency, and Operation Mode selectable in the field. For the Y-One these parameters are controlled by selector switches. Y-One inverter can be turned ON and OFF using front switch or through remote ON/OFF signal.

The Y-One has a PFC alarm (major and Minor) to indicate the status of the module.

The TSI Y-One can deliver full rated power up to 50°C (122°F) environment. Beyond the DSP derates automatically the available power and ultimately shut off at 65°C (149°F).

\* Information and data given in this chapter is intended to serve as an overview of the TSI Technology. Detailed features and parameters for each individual module type in the range may differ and should be referred to in the dedicated data sheet.



## 3.1 On-line Mode

DC is the primary source of supply whilst Mains (AC) works as the secondary source. Switching time between DC input and AC input is 0 ms (source transfer). The power delivered by the DC source (usually a battery, but possibly any other type of DC generator) is converted to provide regulated and transient-free power to the load. In the event of a short circuit on the load side, the boost is automatic, timely and energized for a specific duration to trip downstream protective devices.

## 3.2 Safe mode

Safe mode uses DC as the primary source of supply while Mains (AC) is on standby.

Mains (AC) is normally disconnected through an internal inlet relay and is only connected when down stream clearance is required (boost) or if DC is unavailable.

The transfer between DC and AC results in a typical transfer time of 10 ms.

Typically the safe mode is used in extremely harsh environments such as railways. Under such conditions, it provides extra isolation against mains-borne disturbances.

## 3.3 EPC-mode

Mains input (AC) is the primary source whilst DC works as backup.

The TSI is designed to operate on Mains on a permanent basis and to deliver output voltage conditioned with low THD.

The output sine wave is physically independent of whether the source is AC (or) DC. If the Mains is out of tolerance or goes down, the converter seamlessly switches to DC and the converter operates in “Back-up mode” (Changeover switching time is 0 ms).

As soon as the Mains returns to its valid range, the EPC mode is automatically resumed.

The EPC mode offers higher efficiency (up to 96% depending on the model) without compromising the purity of the output sine wave.

### Remarks: REG modules:

Inverter modules carrying the TSI logo together with the REG mark work only with DC input. Sinusoidal output is converted from DC with the module operating as a traditional inverter. EPC mode and the boost are not available with REG modules.

## 3.4 Mix mode & Walk-in mode

Under some circumstances the DC and AC sources can be combined. The sequence is defined by a user selectable set of parameters. Start, control and exit are fully automatic.

A specific example of Mix-mode is the Walk-in mode where the transfer from DC source to AC source is ramped up within a fixed and adjustable period of time.

## 4. Description

TSI Y-One 120V is a standalone Inverter with following capacities

- Standalone model 500VA
- Standalone model 1000VA

120Vac and 48Vdc as Input and 120Vac as Output fitted with Enhanced Power Conversion (EPC) mode.

TSI Y-One 500VA and 1000VA are available with bulk output on terminal blocks at the back.

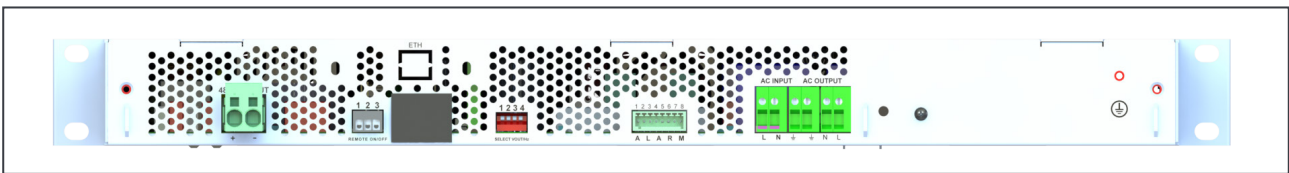
Front and rear presentation:



Y-One 500VA - Front View



Y-One 1000VA - Front View



Y-One 500VA and 1000VA - Rear View

### 4.1 Typical load

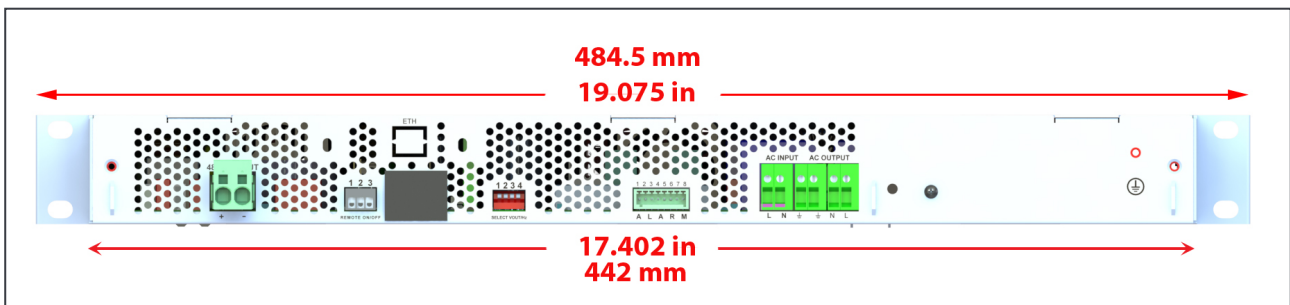
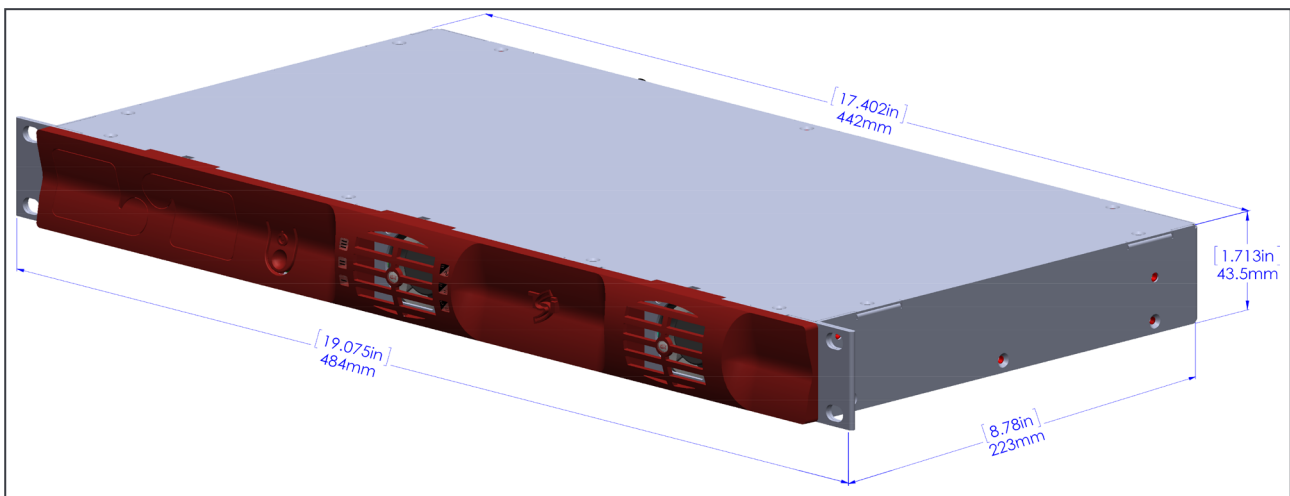
- Resistive.
- Inductive and resistive.
- Capacitive and resistive.
- Non linear load with a maximum crest factor of 2.0 for Y-One.

## 5. Installation

The system is designed for installation in an IP20 or IP21 environment. When installed in a dusty or humid environment, appropriate measures (air filtering ...) must be taken.

The Y-One is foreseen to be recessed into an electrical cabinet of 19" and 1U height standard. Product weight is 9 Lbs (4 Kg)

### 5.1 Y-One dimensions



#### 5.1.1 Mounting KIT

Make sure that you have received the right accessories for Y-One which consist 4 number of M6 x 16 mm Screws with spring and plate washer.

##### 5.1.1.1 Mounting steps:

STEP A:

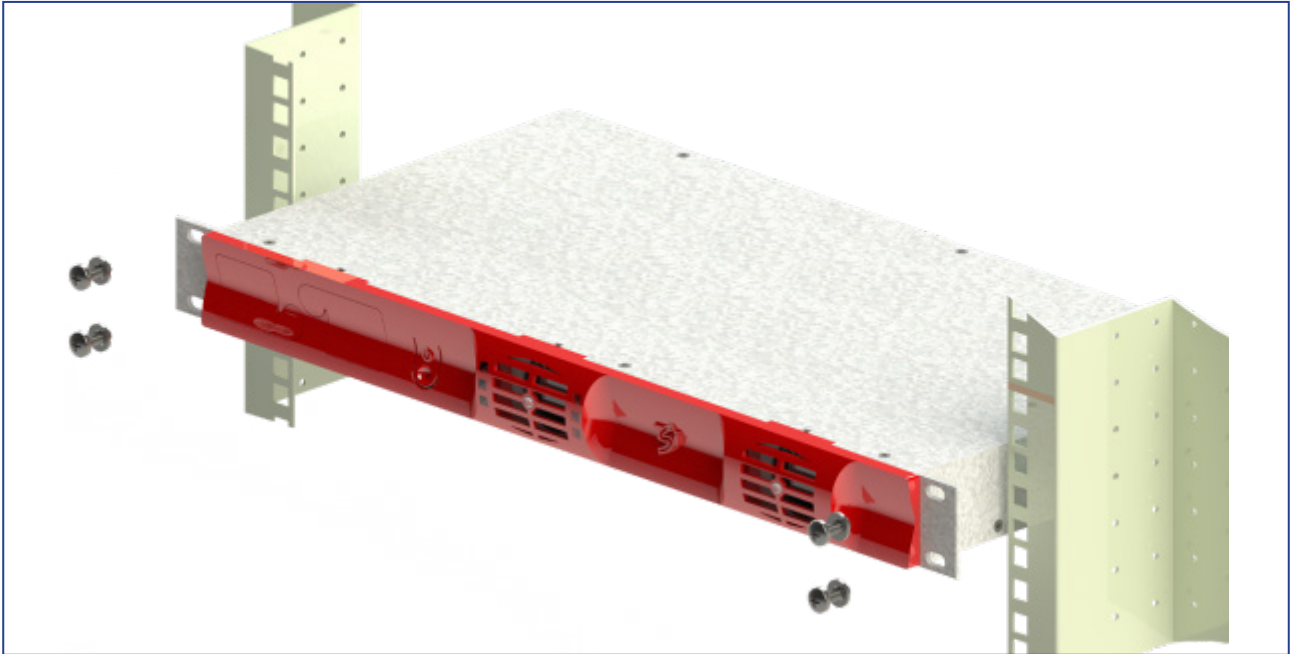
Insert the Y-One module inside the cabinet horizontally.

STEP B:

Fix the brackets and slider on the frame, using supplied screws.

STEP C:

Do it for all 4 corners.



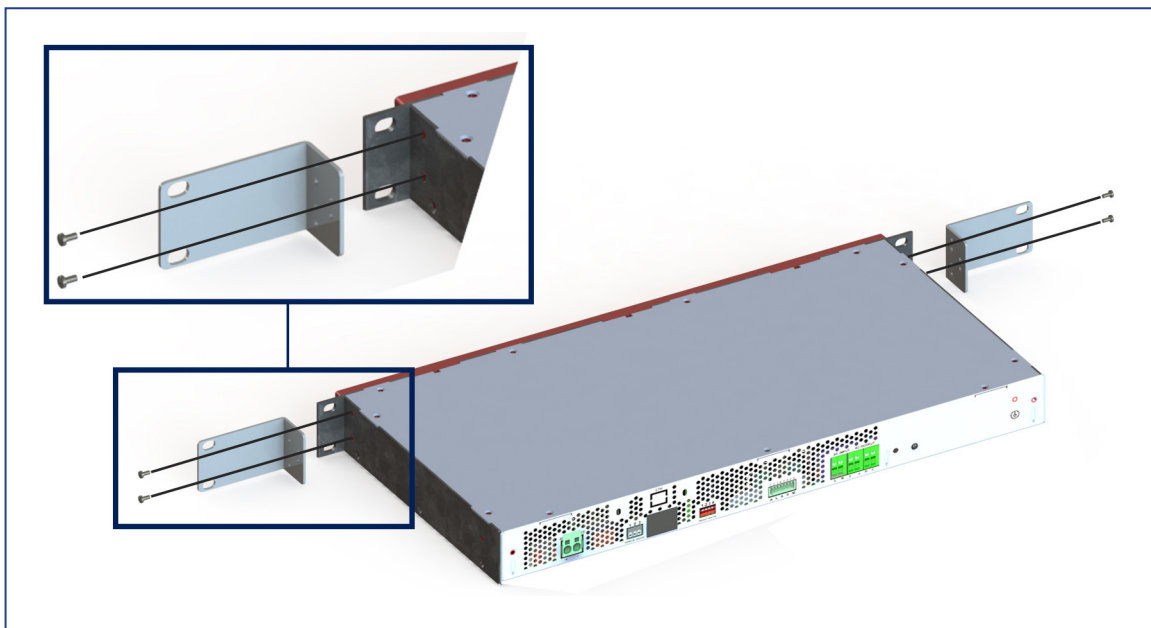
### 5.1.2 Mounting in 23 inch Open Relay Rack\Network Frame

CE+T offers additional brackets for mounting the Y-One into 23 inch open relay racks. These can be ordered by contacting CE+T.

**NOTE: Mounting adapters defined herein are not intended for use in 4 post relay rack.**

The brackets are fixed to the Inverter module as shown below with screws fixed from the side. (Screws are supplied in the kit).

Follow section 5.1.1.1 for the mounting steps.



## 5.2 Wiring

**Caution:**

The TSI Y-One has internal fuses (not user replaceable) on both DC & AC inputs.

Those devices do not protect the upstream cables connected to DC & AC inputs and Upstream breakers or fuses shall be set up in accordance with AC & DC wires ratings, to meet the local national electrical code standard.

All breakers, cables and wires should be classified for min 90°C (194°F) operation.

Matching respectively Line / Neutral feeder to Line / neutral input connections is required.

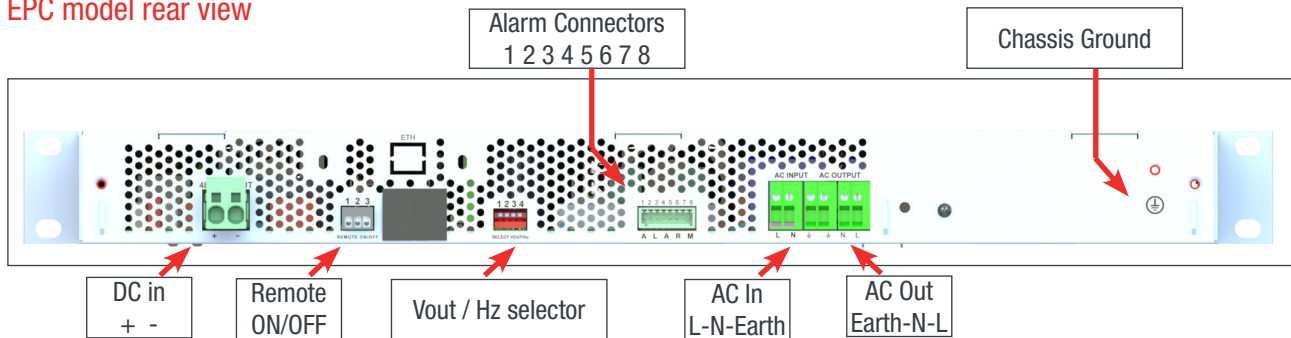
Before any intervention on the TSI Y-One terminals, operator has to make sure that power is switched off on both DC leads and AC input mains.

Some safety labels are stuck on the TSI Y-One. They must not be removed.

It is strongly recommended to install external surge arrestors upstream to the AC input terminal at the cabinet & the room/building levels with related energy ratings.

The insulation cover of conductors must meet the local and international standards and the cross section must be related to the upstream protections.

**EPC model rear view**



- DC and AC conductors connected to screw terminals must be tied with torque between 0.4 - 0.5 Nm.
- Ground conductors connected to copper plates with bolts must be tied with torque between 5 and 7 Nm

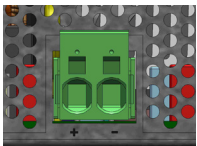
## 5.2.1 Disconnecting and protecting devices

### 5.2.1.1 DC input connection

Integrator must provide branch circuit protection with breaking capacity related to short circuit capacity of upstream DC source and cable impedance.

- It must be installed close enough to permit easy “Break Before Make”.
- Appropriate type can be chosen within the table here below.
- Y-One is supplied with safety labels, which must be applied to the breaker in a visible way.

The insulation cover of connecting cables must meet the local and international standards and the cross section related to the upstream protections.

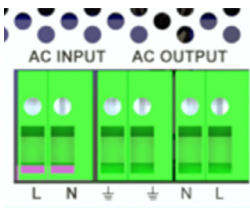


Model	DC input current	DC breaker	Cable size Min
500 VA	12 A	16 A (C Curve)	12 AWG (2.5 mm <sup>2</sup> )
1000 VA	20 A	32 A (C Curve)	10 AWG (4 mm <sup>2</sup> )

The +DC\_48V supply could be earthed (this earth connection must be made upstream of the shelf) or work in float mode.

### 5.2.1.2 AC Input connection

AC input connection only exists whenever Y-One system has been foreseen with Enhanced Power Conversion feature (EPC mode).



Model	AC Input Current	AC breaker	Cable size Min
500 VA	3.85 A	6 A (C Curve)	14 AWG (1.5 mm <sup>2</sup> )
1000 VA	7.3 A	16 A (C Curve)	14 AWG (1.5 mm <sup>2</sup> )

Y-One is supplied with 6 pin 1.5 mm<sup>2</sup> Connector: AC IN Line – Neutral – PE – PE – Neutral – AC OUT Line

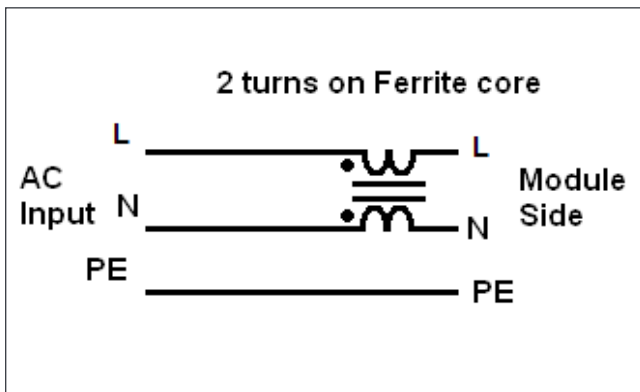


### 5.2.1.3 Ferrite core connection

Wind 2 turn of AC input phase and neutral on supply

TUBE FERRITE (17.5 x 9.5 x 28.5 AL = 2790 VHF

EMC \*WURTH ELEC 742 700 9\*) as shown in figure. Ensure the core is near to the inverter backside.



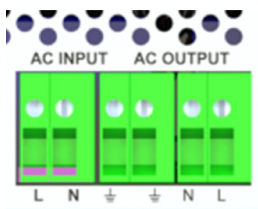
### 5.2.1.4 AC output distribution

#### Caution:

Prior any intervention on AC output make sure DC input and AC input have been actually disconnected or, no output voltage is present.

=> Prior any handling of the Y-One, wait a few minutes (min 5 minutes) for complete discharge of internal capacitors that have been energized

#### Output on terminal



Model	AC output current	AC breaker	Cable size
500 VA	4.2 A	6 A (C Curve)	14 AWG (1.5 mm <sup>2</sup> )
1000 VA	8.3 A	16 A (C Curve)	14 AWG (1.5 mm <sup>2</sup> )

#### Remark:

- TSI Y-One without AC input connection (REG type or EPC model operated in DC only) can be seen as independent power sources.

## 5.2.2 Grounding

**Caution:**

Current leakages can reach hazardous values.

For your personal, SAFETY earth connections must be done before energizing the system.

Earth connection must be done to the point referenced with symbol  
Input ground must be connected to the appropriate terminal

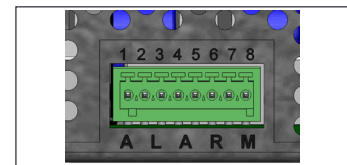


## 5.2.3 Remote Monitoring and Control

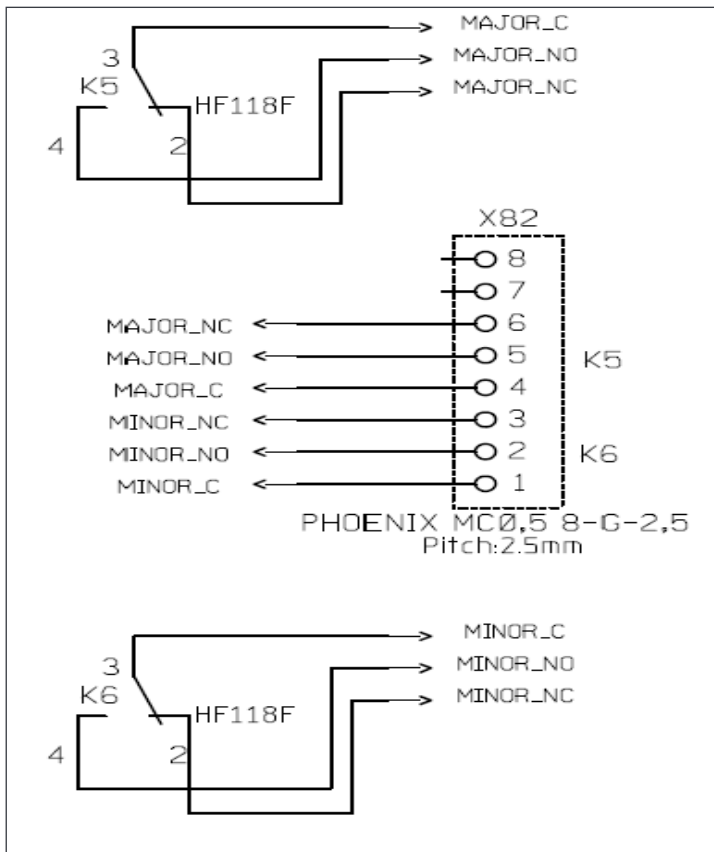
### 5.2.3.1 Alarm Connector

There are 2 free potential changeover contacts provided. Maximum wire size is 0,5mm<sup>2</sup>. It can be used for Alarm indication purposes. It has one Major Alarm relay and one Minor Alarm relay

N.B. : Relays are energized while idle (i.e. relays de-energized when event occur).



MAJOR, MINOR and selectable relay provide an open or close free potential contact



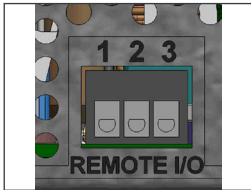
**Relay characteristics:**

- Maximum switching capacity: 2A @ 30VDC or 1A @ 60VDC
- Maximum switching power: 60W
- Maximum voltage: 60VDC
- Maximum switching current: 2A



### 5.2.3.2 Remote ON/OFF

TSI system can be remotely activated or stopped (stand-by mode).



Changeover contacts must be used.

For transition the TSI checks actually that one input is released whilst the other is short circuited.

If both transitions are not picked up the inverter does not change its operating status.

The voltage present on terminal 1 and 3 is +5V (galvanically insulated). Care should be taken to avoid connecting any external voltage on terminal 1 to 3. Maximum wire size is 1 mm<sup>2</sup>

Functional table for remote ON/OFF function

States	Pin 1-3	Pin 2-3	System status
1	Open	Open	System working normally
2	Closed	Open	TSI output switched off DC-AC LED off DC-DC LED solid green AC-DC LED solid green
3	Open	Closed	System working normally
4	Closed	Closed	System working normally

The 3 wires must be used for the redundancy on the remote ON/OFF. Use NO/NC relay contact.

**Warning: If remote ON/OFF not used, pin 2 and 3 MUST be bridged together!**

### 5.2.4 Connecting Manual By-Pass (Optional)

Install the MBP box by, ideally on top of the Y-One.

Mounting is similar and can be achieved by following instructions of section 5.1.1, page 11

Proceed with DC input connections as per indications in section 5.2.1.1, page 14.

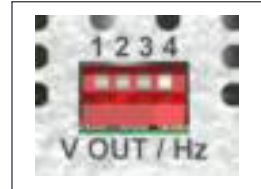
Y-One AC Input and Output are connected to MBP box as per drawing following page.

AC Input connection is installed from the MBP to the main distribution panel as per indications of section 5.2.1.2, page 14.

AC Output connection is installed from the MBP to the main distribution panel as per indications of section 5.2.1.4, page 15.

## 5.2.5 Dip switch configuration

TSI Y-One has a facility to select the output voltage and frequency. V out / Hz Selector has 4 mini switches. 1st and 2nd switches are for voltage selection and 3rd switch is for frequency selection. 4th switch is for EPC / ONLINE mode selection. This functionality is explained below



**Caution:**

Do not configure or change the V out / Hz / EPC Selector while module is in working condition. It will cause severe damage to the inverter.

New setting will apply after a reboot or restart by ON/OFF action.

Switch 1 and Switch 2 are used to change the output level voltage

State	Switch 1	Switch 2
120V Output	Bottom	Bottom
Factory reserved	Top	Bottom
130V Output	Bottom	Top
Factory reserved	Top	Top

Switch 3 is used to change the output frequency (!! Input frequency must be in same range !!)

State	Switch 3
50 Hz Operation	Bottom
60 Hz Operation	Top

Switch 4 is use to change the EPC mode configuration (see TSI section for detailed explanation about EPC and On-Line EPC Mode)

State	Switch 4
EPC Mode	Bottom
On-Line Mode	Top

Changing DIP switch Positions:

Before changing the V out / Hz switching OFF “AC out”

- The output voltage will slowly increase or decrease until it matches the new output voltage setting.
- The output frequency in free running mode will also slowly vary until it matches new frequency setting.

For EPC/On line mode selection

- Inverter must be completely switched OFF by disconnecting both AC and DC sources

Default Factory setting done in module:

SW1	SW2	SW3	SW4	Function
Bottom	Bottom			Vout= 120V
		Top		60Hz
			Bottom	EPC Mode

## 6. Manual By-pass (optional)

Manual By-Pass has to be operated by trained people only.

When system is in manual by-pass the load is subjected to mains voltage disturbances.

Output alarm is activated when system is in manual by-pass.

The Manual By-Pass cannot be operated remotely.

**Manual By-Pass is optional and must be ordered separately.**

### 6.1 Pre requisites

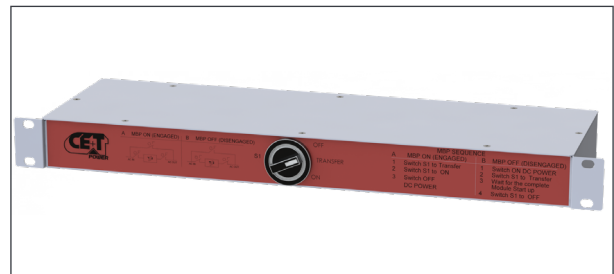
Before engaging the MBP following conditions have to be fulfilled and actively checked.

- Commercial AC power must be present, and the inverter must be synchronized with it, before operating MBP.
- LED indication available in MBP front face to indicate “Mains present”(AC input).
- The upstream AC & DC breaker must be correctly sized (Refer page 14) to accept possible overload, the inverter might be overloaded during MBP operation, depending on voltage network and output inverter voltage setting and if the AC is supplied by a Gen-set, the minimal required power will be twice the nominal power of the inverter.

#### 6.1.1 Manual by-pass

##### 6.1.1.1 Normal to By-pass.

1. Turn switch to ON passing TRANSFER.
2. Switch DC OFF.



##### 6.1.1.2 By-pass to Normal

1. Switch DC ON.
2. Turn switch to TRANSFER (mid position).
3. PAUSE, wait until the inverter modules reach full operation (30 - 60 seconds).
4. Complete turn to OFF.

Please note that instructions is printed in text (English) on front of MBP.

## 7. Getting started

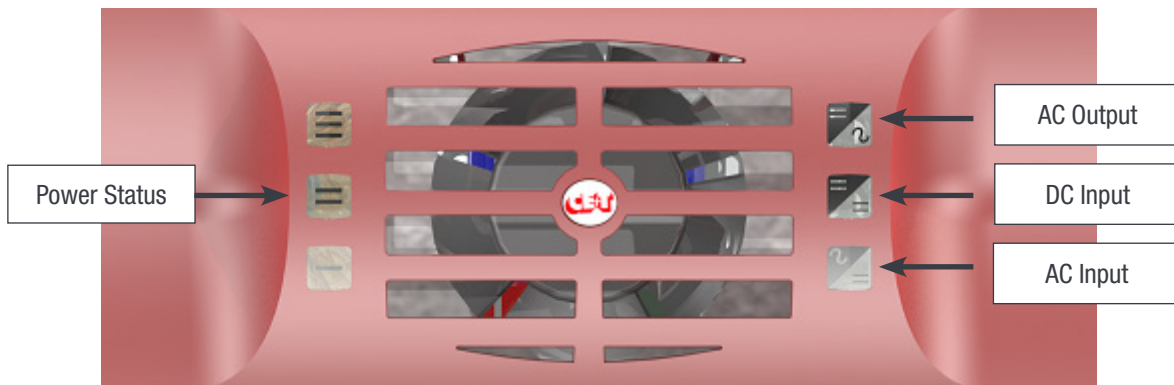
### 7.1 Starting procedure

1. Check that both AC input and output breakers are switched off.
2. Apply the DC and/or AC power to the system.
3. Push on the ON/OFF front touch to start the inverter.
4. Output voltage should present on terminal or IEC socket.
5. Check that system is operating under normal conditions.





Mains failure alarm detection is not available until the AC input voltage is not detected for the first time.

### 7.2 Front Panel LED Display

There are 6 LEDs in front panel for input output status and power level indication



### 7.3 LED indication for Power Level

LED Indications	Percentage of Nominal Power
 Blinking	<5%
 Continual	Between 3 and 40%
 Continual	Between 35 and 75%
 Continual	Between 70 and 95%
 Continual	Between 90 and 105%
 Blinking	Overload

## 7.4 LED indication- Alarm status

Status LED	LED AC/DC (in)		LED DC/DC (in)		LED DC/AC (out)	
	Description	Alarm	Description	Alarm	Description	Alarm
OFF	Source not present.	Minor	Source not present.	Major	Forced Stop	Major
Permanent Green	Working fine	No alarm	Working fine	No alarm	Working fine	No alarm
Blinking Green	Source out of range, power available	Minor	Source out of range, power available	Major	Derating (Over Load/ Over Temperature)	Major
Blinking Orange	Source out of range, no power	Minor	Source out of range, no power	Major	Derating (Lower Vout and SC)	Major
Permanent Orange	Starting mode	No alarm	Starting mode	No alarm	Starting mode	No alarm
Blinking Orange/Red	BackFeed error	Major	Not used		BackFeed error	Major
Blinking Red	Not used	Major	Not used		Recoverable Fault	Major
Permanent Red	Module AC/DC Fault	Major	Module DC/DC Fault	Major	Not recoverable Module Fault	Major

## 7.5 Disable alarm mains failure

AC input alarms are enabled only if AC source was available and in range (AC/DC LED permanent green) during more than 5 seconds. Before this condition happens, there is no alarm on AC input. Once AC input alarms are enabled, they can be reset to disabled state by restarting the system.

**Warning: Action on ON/OFF button power OFF the output. Use it with care.**

## 8. Finishing

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- Make sure that the inverter is properly mounted in the cabinet/floor.
- Make sure that the inverter is connected to Ground.
- Make sure that all DC and AC input breakers are switched OFF.
- Make sure that all cables comply with recommendations and local regulations.
- Make sure that all cables strain relieved.
- Make sure that all breakers comply with recommendations and local regulations.
- Make sure that DC polarity complies with marking.
- Re tighten all electrical terminations.
- Make sure that no inverter/controller positions are left open.
- Cover empty inverter positions with blanks.
- Make sure that the Remote ON/OFF is wired appropriately for local regulations.
- Make sure that the point of AC supply meets local regulations.

## 9. Disassembly & Disposal

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### 9.1 Disassembly

Switch off the upstream and downstream protective elements to stop the function of Inverter system.

- Disconnect the wires from the terminals.
- Ensure that all the cables (including PE, communication etc) are removed.
- Check that all the cables are moved away from the system.
- Unscrew the system from the mounting position.
- Dismantle the system completely and segregate the materials.
  - Enclosure & accessories.
  - Cables.
  - Wound components.
  - PCBA etc.

### 9.2 Disposal

CE+T cannot be held responsible for disposal of the Inverter system and therefore the customer must segregate and dispose the materials which are potentially harmful to the environment, in accordance with the local regulations in force in the country of installation.

If the equipment is dismantled, to dispose of the products it consists of, you must stick to the local regulations in force in the country of destination and in any case avoid causing any kind of pollution.



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## 10. Commissioning

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Installation and commissioning must be done and conducted by trained people fully authorized to do so. Performing any isolation test is prohibited without instructions from the manufacturer.

Equipment is not covered by warranty if procedures are not respected.





10.1 Check list

DATA	
Date	
Performed by	
Site	
Inverter serial number	
ACTION	
	OK/ N.OK
Check the commercial AC power before closing the AC input breaker.	
Switch the commercial AC ON	
Check if inverters are working (Green LED)	
Check the DC power supply and switch the DC breakers ON	
Check output voltage (on bulk output or on breaker)	
Check if inverter is working properly	
Check if system has no alarm	
Switch OFF AC in and check if system is working on DC	
Switch ON AC in and check if system correctly transferred load on AC	
Switch OFF system and start on AC only	
Switch OFF system and start on DC only	
Test on load (if available)	
ALARM	
Switch OFF AC input (commercial power failure) and check the LED indication	
Switch OFF DC input (DC power failure) and check the LED indication	

## 11. Trouble shooting

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Inverter does not power up:	Check that the inverter terminals are properly connected. Check AC input present and in range (AC breakers) Check DC input present and in range (DC breakers) Check for loose terminations
Inverter does not start:	Check remote ON/OFF terminal Check that Manual By-pass is in normal position Check the setting Check threshold level
Inverter only run on AC or DC:	Check the configuration and setting Check threshold level(s)
No output power:	Check output breaker

## 12.Maintenance

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Maintenance shall only be performed by properly trained people.

### 12.1 Manual check

- Validate input voltage (AC input, DC input, AC output) with multi-meter
- Replace dust filter(if present)
- Take a snap shot of the inverter

### 12.2 Optional


- With an infrared camera check termination hot spots  
- Tighten terminations


### 12.3 Manual by-pass

- If mains failure during operation the load is lost
- Perform a manual by-pass operation

## 13. Defective modules

- A repair request should follow the regular logistics chain:  
End-user => Distributor => CE+T Power.
- Before returning a defective product, a RMA number must be requested through the <http://my.cet-power.com> extranet. Repair registering guidelines may be requested by email at [repair@cet-power.com](mailto:repair@cet-power.com).
- The RMA number should be mentioned on all shipping documents related to the repair.
- Be aware that products shipped back to CE+T Power without being registered first will not be treated with high priority! (Label shown here is only for representation)

<b>Y-ONE-EPC</b> <b>48V-120VAC-500VA</b>
P/N: T351A30101 S/N: 000104
<b>INPUT:</b> Vdc in : 48 V (40-60) Idc in : 10A --- Vac in : 120 V (95V-150V) 50/60Hz Iac in: 3.85A
<b>OUTPUT:</b> Vac out : 120 V 50/60Hz Iac out : 4.17A Power: 400W/500VA

BURN IN STAMP 40/13
MADE IN INDIA

<b>Y-ONE-EPC INVERTER</b> <b>48V-120VAC-1000VA</b>
P/N: T351A30301 S/N: 000006
<b>INPUT:</b> Vdc in : 48 V (40-60) Idc in : 20 A --- Vac in : 120 V (95V-150V) 50/60Hz Iac in: 7.3A
<b>OUTPUT:</b> Vac out : 120 V 50/60Hz Iac out : 8.3A Power: 800W/1000VA

BURN IN STAMP 25/16
MADE IN CE+T PSI



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## 14. Service

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For Service

- Check Service Level Agreement (SLA) of your vendor. Most of the time they provide assistance on call with integrated service. If such SLA is in place, you must call their assistance first.
- If your vendor doesn't provide such assistance (\*) you may call CE+T directly. Toll free Number **1(855) 669 - 4627(\*\*)**

Service is available from 8:00 A.M. to 10:00 P.M. EST, Monday through Friday, except closing periods for holidays or inclement weather.

Major Incidents and Emergency conditions can be invoked for immediate handling of same number or by dropping a mail on [customer.support@cetamerica.com](mailto:customer.support@cetamerica.com) (\*\*\*)

- (\*) CE+T will redirect your call to your vendor if he has such SLA in place.
- (\*\*) Valid in USA and Canada only.
- (\*\*\*) Messages that are not Major Incident or Emergency will be served at the next scheduled working a day.

