

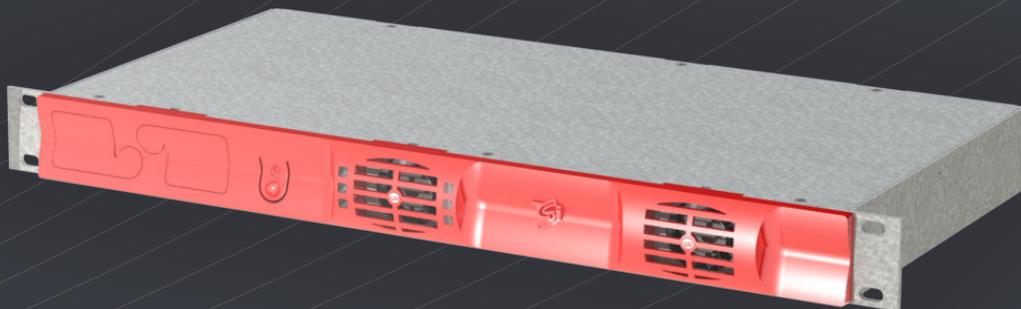
TSI Y-ONE - 120VAC-UL

User Manual V7.0

BEYOND THE INVERTER

THE NEW GENERATION OF POWER CONVERTERS

- » **DUAL INPUT INVERTER**
The 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



Important Safety Instructions and Save these Instructions



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Leading AC Backup Technology

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1. Abbreviations

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. Safety Instructions*

Important Safety Instructions. Save these Instructions.

- This product is intended to be installed only in a restricted access area as defined by UL 60950 and in accordance with the National Electrical Code ANSI/NFPA 70 or equivalent local agencies.
- The inverter module 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 to a system/unit make sure that AC input voltage and DC input voltage are disconnected.
- **CAUTION** – Risk of electric shock. Capacitors store hazardous energy. Do not remove cover until 5 minutes after disconnecting all sources of supply.
- **CAUTION** – Risk of electric shock. This Inverter / UPS receives power from more than one source. Disconnection of the AC source and DC source is required to de-energize this unit before servicing.
- Maximum operating ambient temperature is 50° C (122° F).
- AC and DC circuits shall be terminated with no voltage / power applied.
- Some components and terminals carry high voltage during operation. Contact may result in fatal injury.
- Warning labels must not be removed.
- Use 90°C copper wires / conductors only.
- When AC Mains is not connected, the output AC circuit is considered as a separately-derived source. If local codes require grounding of this circuit, use the identified terminal for bonding this circuit to the enclosure. Ground the enclosure to a suitable grounding electrode in accordance with local code requirements.
- Remove output neutral-to-ground jumper when input AC MAINS is connected.
- This unit is intended for installation in a temperature-regulated, indoor area that is relatively free of conductive contaminants.
- Never wear metallic objects such as rings, watches, bracelets during installation, service and maintenance of the product.
- Insulated tools must be used at all times when working with live systems.
- When handling the system/units pay attention to sharp edges.
- ESD Strap must be worn when handling PCBs and open units.
- The inverter module is not supplied with internal disconnect devices on input nor output.
- The inverter module is a dual input power supply. The complete system shall be wired in a way that both input and output leads can be made powerless in a single action.
- REG systems can be seen as independent power sources. To comply with local and international safety standards N (output) and PE shall be bonded.
- EPC system that have no AC input wired and connected to comply with local and international safety standards N (output) and PE shall be bonded. The bonded between N output and PE must be removed once the AC input is being connected.
- The safety standard IEC/EN62040-1-1 requires that, in case of output short circuit, the inverter must disconnect in maximum 5 seconds. However, if the parameter is set at a value > 5 seconds, an external protection must be provided in order that the short circuit protection operates within 5 seconds. Default setting is 60s.

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

- The equipment must be installed and commissioned by skilled technicians according to instructions in this manual.
- This product is suitable for use in a computer room.
- **CAUTION** - For continued protection against risk of fire, replace only with same type and rating of fuse.
- Local regulations must be adhered.
- The manufacturer declines all responsibilities if equipment is not- installed according to -instructions herein -by skilled technicians -according to local safety regulation.
- Warranty does not apply if the product is not installed, used and handled according to the instructions in the manuals.
- 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 enforced 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.

2.1 Surge and transients

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

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.

Note:

Choosing and installing surge arrestors obey to precise technical rules. Distance to equipments to protect, cable gage and cable routing have significant influence on proper device service.

Some areas are more susceptible to be hit by electrical strikes, especially when altitude increases.

Good earthing is also crucial for surge arrestors to work properly.

CE+T decline any liability in regard to damaged caused to equipments not correctly or not sufficiently protected.

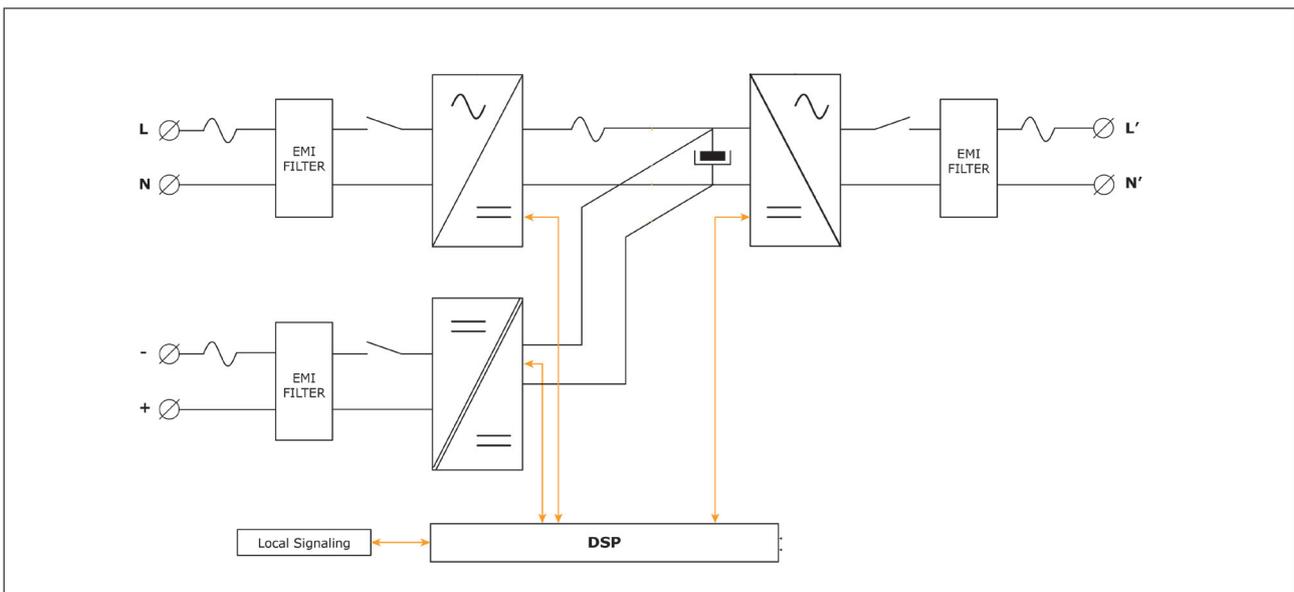
2.2 Other

- Isolation test must not be performed without instructions from the manufacturer.

3. TSI TECHNOLOGY ¹

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 here 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).

1) Information and data given in this chapter is intended to serve as an overview on the technology. Detailed features and parameters for each individual module type of the range may differ and should be referred 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 of supply. Switching time between DC input and AC input is 0ms (source transfer). The power delivered by the DC source (usually a battery, but it could be any other type of DC generator) is converted to provide regulated and transient free power to the load. In case of short circuit at the load side, the boost is automatically, timely and energized for a specific duration to trip downstream protective devices.

NOTE: Y-One is not foreseen to operate in On-Line mode but rather in Safe Mode (see below) when set with DC as primary source.

3.2 Safe mode

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

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

NOTE: Y-One is not featured with a “boost” circuit. It switches over to AC source only if DC fails.

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

Typically the safe mode is used in extremely harsh environments such as railways. Under such conditions it provides extra isolation against disturbances carried by the Mains.

NOTE: Y-One is small power inverter. It is mainly designed to be deployed in outside plants with potentially harsh environments. Hence Safe Mode is appropriate for operation in DC primary.

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 permanent basis and to deliver output voltage conditioned with low THD.

There is no physical difference on the output sine wave 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” (Switching time back and forth is 0ms).

As soon as the Mains returns into 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.

NOTICE: REG modules:

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

4. Description

Y ONE is an inverter derived from TSI technology operating in stand alone only (no parallel operation possible).

- 500VA model.
- Full TSI operation with 120Vac and 48Vdc as Input and 120Vac as Output supports Enhanced Power Conversion (EPC) mode.
- REG model with 48Vdc as Input and 120Vac as Output.

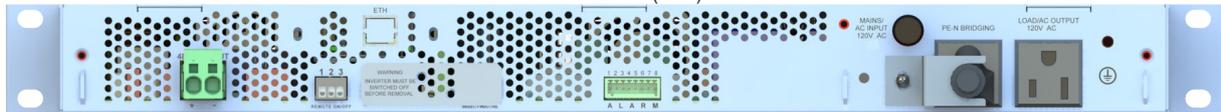
TSI Y-One 500VA is provided with one output NEMA Receptacle (5-15R) at the back, AC Input with NEMA cord and DC input by connector.

Front and rear presentation:

Front View



Rear View (EPC)



Rear View (REG)



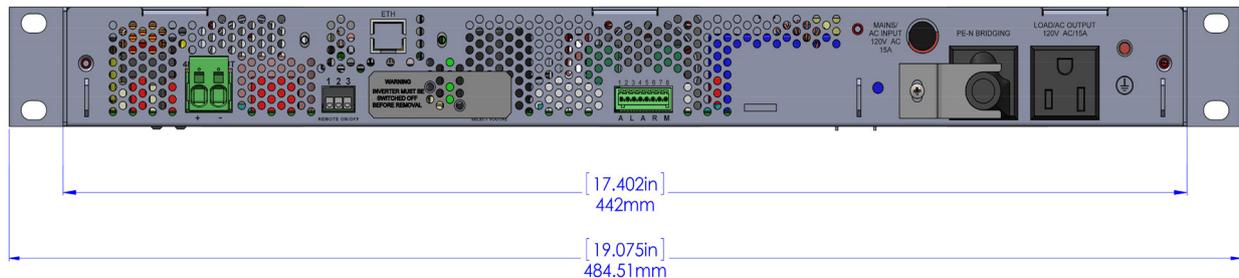
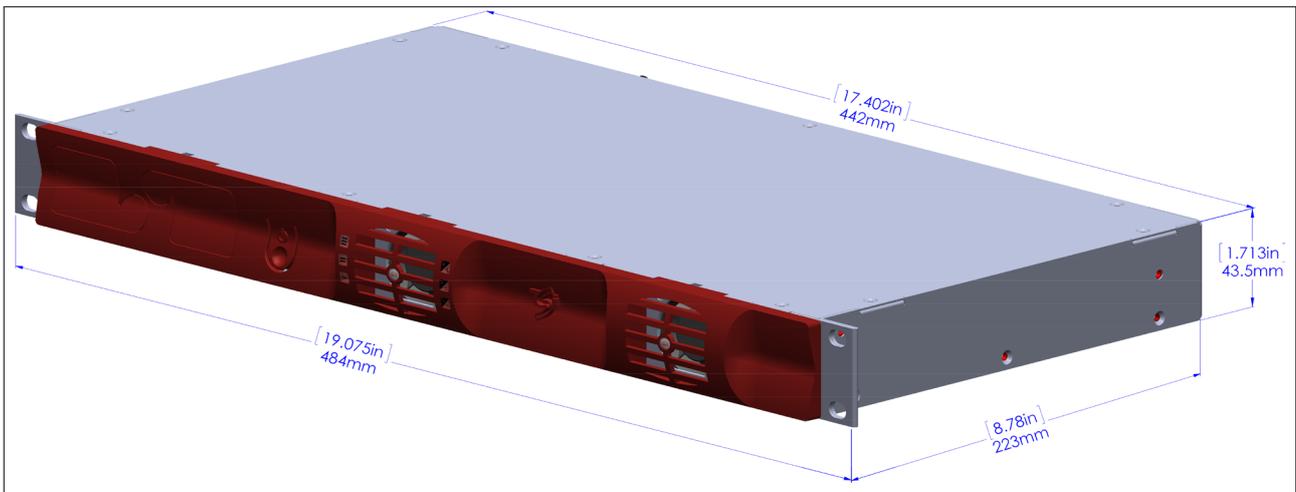
Y-One proposes an advanced and robust technology for low power operation in harsh electrical environment. It handles a large variety of loads:

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

5. Installation

The Y-One is foreseen to be recessed into an electrical cabinet built according to 19 inch standard. It takes 1RU height. Product weight is 10 lbs (4.3 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 of 4 number of M6 x 16 mm screws with spring and plate washer.

5.1.1.1 Mounting steps:

STEP A:

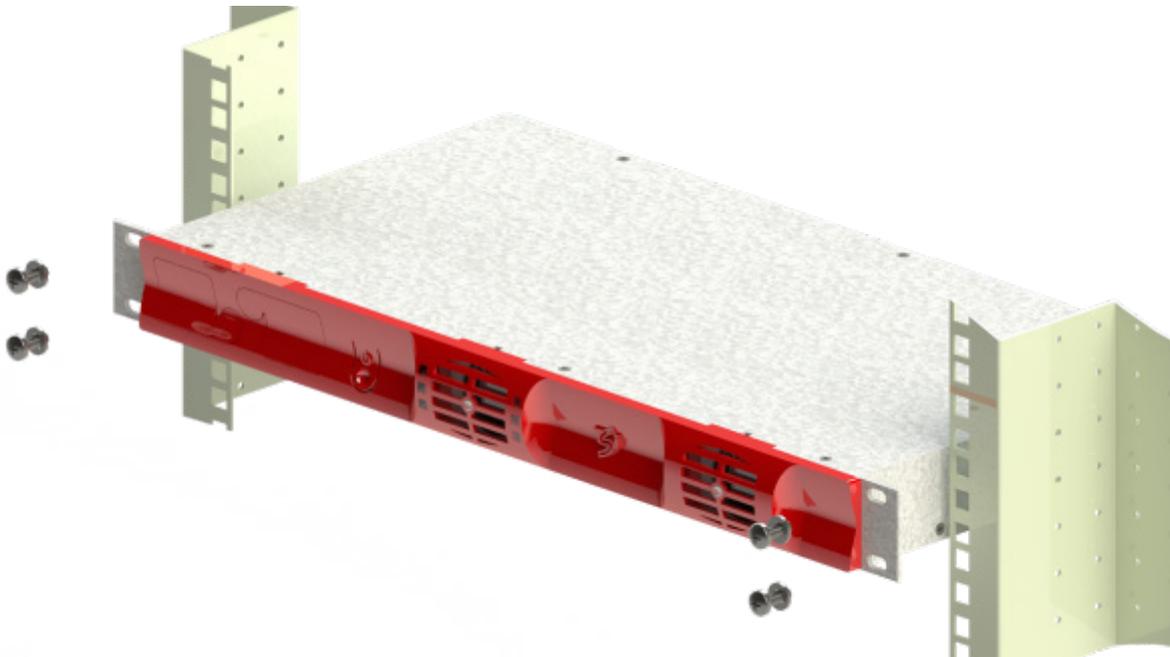
Insert the Y-One module inside the cabinet horizontally.

STEP B:

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

STEP C:

Do it for all 4 corners.



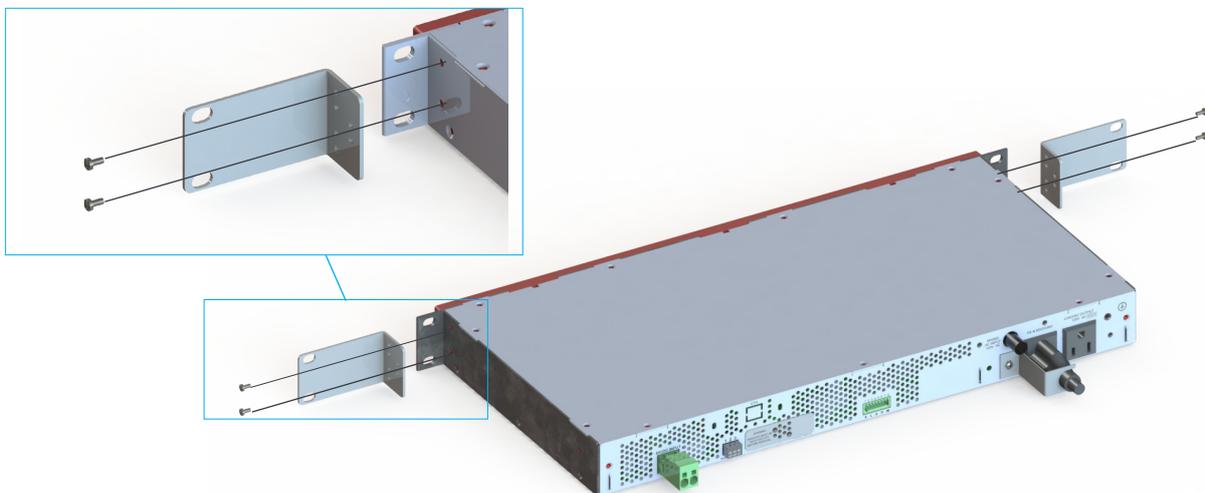
5.1.2 Mounting in 23 inch Open Relay Rack\Network Frame

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.

These devices do not protect the upstream cables connected to DC & AC inputs. 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.

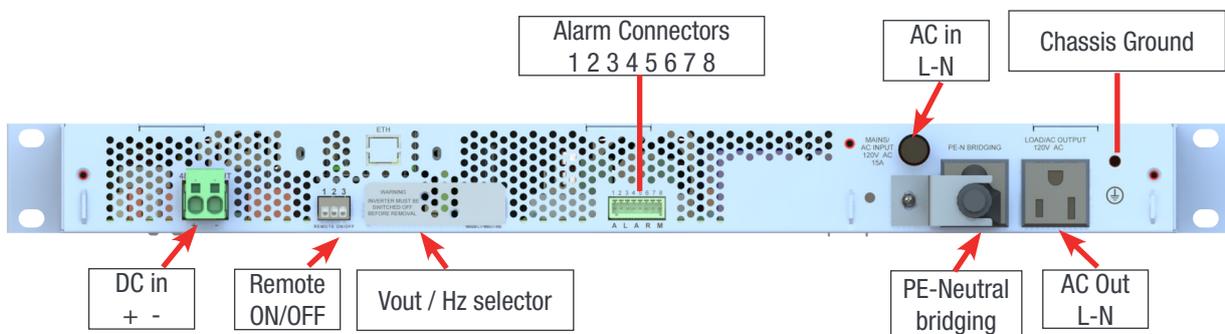
Before any intervention on the TSI Y-One terminals, operator has to make sure that power is switched off on both DC leads and AC input mains.

Some safety labels have been placed 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 conductors connected to screw terminals must be tied with torque between 1.2 and 1.5 Nm.
- Ground conductors connected to copper plates with bolts must be tied with torque between 5 and 7Nm.

REG Model Rear View:



NOTE:

Dipswitch (Vout / Hz selector) is closed by a mechanical part, this part should be always present while module is in ON status.

In REG model AC in cable and PE-N neutral bridging socket will not be present , this location is covered with mechanical part. This mechanical part should not be removed.

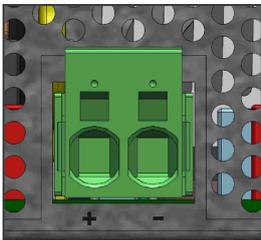
5.2.1 Disconnecting and Protecting devices

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
500VA	12A	16A (C Curve)	14AWG (2.5 mm ²)

The +DC_48V supply could be earthed (this earth connection must be made upstream of the shelf) or work in float mode.

DC upstream breaker has to be switched OFF before removing the DC connector.

5.2.1.2 AC input connection

AC input connection always exists whenever Y-One is used with double source of power, AC and DC.

(EPC model).



Model	AC Input Current	AC breaker	Cable size
500VA	3.85A	6A (C Curve)	14AWG (2,5 mm ²)

Y-One is supplied with NEMA cord for ACin. This cord will not be present in REG model.

- If for whatever reason the AC input plug must be removed, the upstream breaker has to be switched OFF before doing so.
- If inverter is used with MBP rack, MBP has to be engaged to BY PASS mode and the inverter has to be switched off before removing inverter AC input plug from MBP rack (see section 6).

5.2.1.3 PE-Neutral Bridging connection

If the Y-One EPC model must be used in DC only (no AC input present), then AC input cord (NEMA) shall be connected to the PE-N bridging NEMA receptacle. Furthermore the NEMA plug shall be clamped with 'Z' plate (Z plate is an accessory coming along with product package).



AC input plug and Z plate should not be removed from the PE-N bridging when inverter is running.

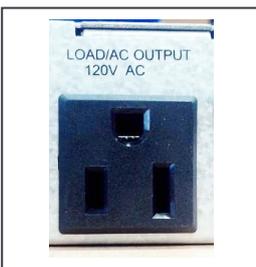
In REG model the PE-N bridging is factory made internally, so this connector will not be present. This location will be closed with mechanical part and it should not be removed.

5.2.1.4 AC Output Connection

Caution:

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

=> Prior to 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 receptacle

Model	AC output current	AC breaker	Cable size
500VA	4.2A	6A (C Curve)	14AWG (2,5 mm ²)

When inverter is used with MBP rack, the plug connected on inverter output can only be removed after engaging the MBP switch to BY PASS mode and the inverter is switched OFF completely(see section 6).

Note:

- TSI Y-One not connected to AC source can be seen as independent power source.

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.

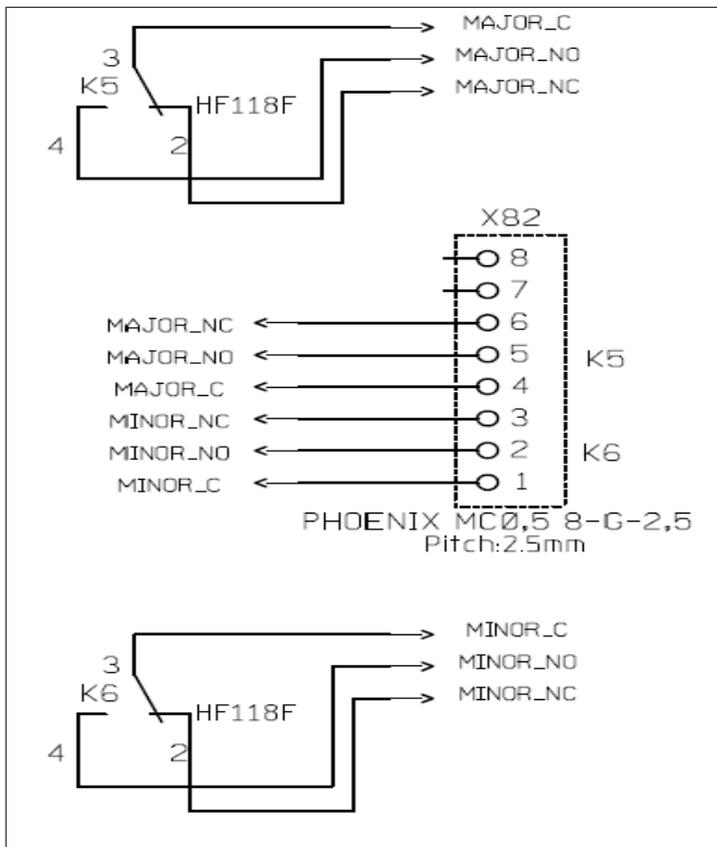


5.2.3 Remote Monitoring and Control signal circuits

5.2.3.1 Alarm Connector

There are 2 free potential changeover contacts provided. Maximum wire size is 20 AWG (0,5mm²). 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 occurs).



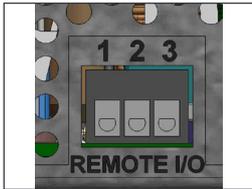
MAJOR, MINOR and selectable relay provide an open or close free potential contact.

Relay characteristics:

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

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 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 17 AWG (1 mm²).

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 close by, ideally on top of the Y-One.

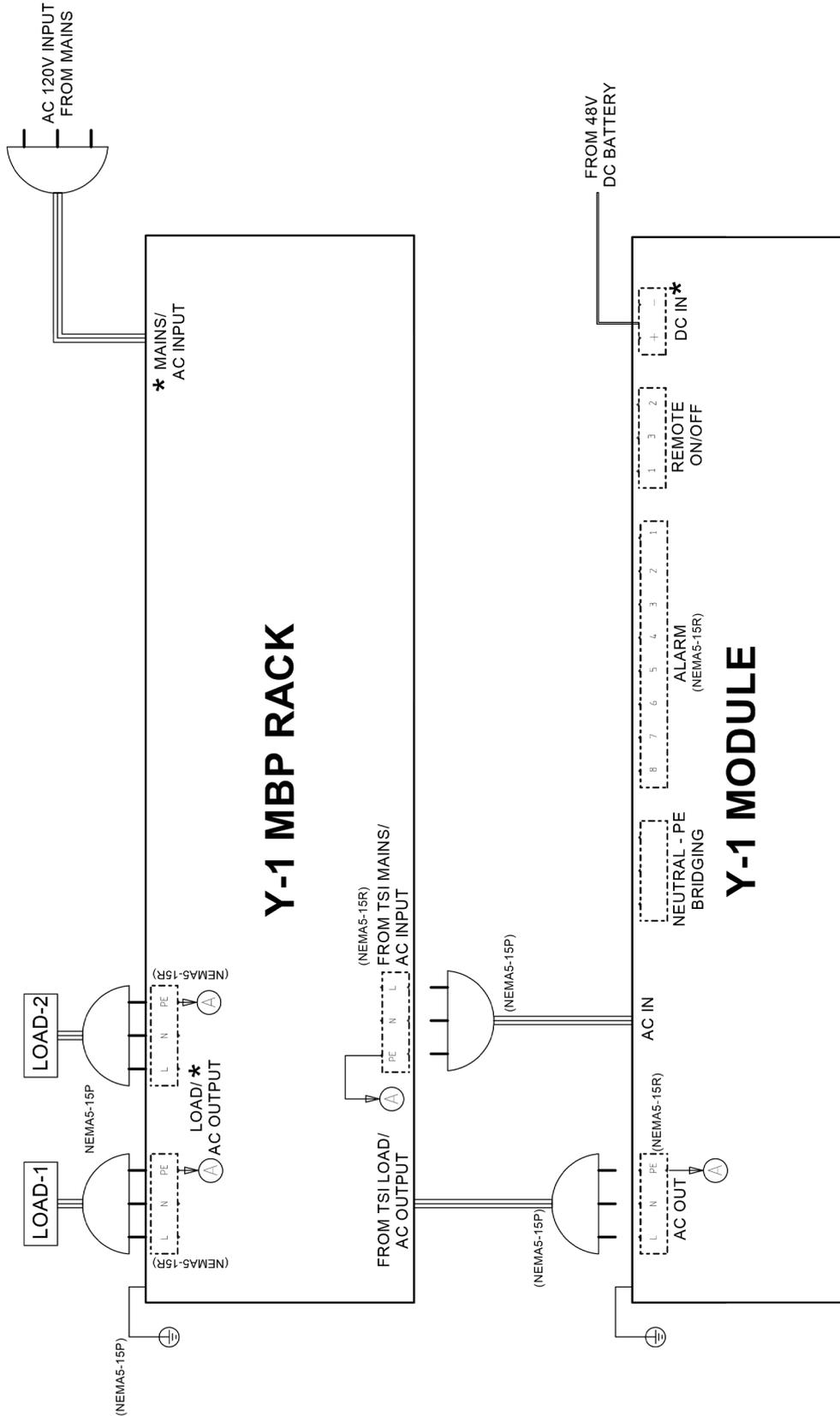
Mounting is similar and can be achieved following instructions of section 5.1.1

Proceed with DC input connections as per indications in section 5.2.1.1

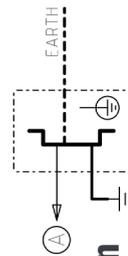
Y-One AC input and output are connected to MBP box as per drawing following page.

AC input connection is installed from the MBP to the main distribution panel as per indications of section 5.2.1.2

AC output connections are available from the MBP (with a second extra NEMA socket) following instructions given in section 5.2.1.4



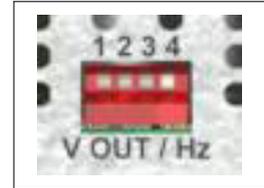
* CUSTOMER INPUT LOCATION



Power connection configuration

5.3 Dipswitch 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 primary source 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

NOTE:

Dipswitch is closed by a mechanical part, this part should always be present while module is in ON status.

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 used to change the primary source configuration (see TSI section for detailed explanation about EPC and On-Line EPC Mode)

State	Switch 4
AC primary source (EPC Mode)	Bottom
DC primary source (On-Line Mode)	Top

Changing DIP switch Positions:

- Inverter must be completely switched OFF by disconnecting both AC and DC sources before changing selection.

Default Factory setting done in module:

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

6. Manual By-Pass Operation (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 AC voltage disturbances. The manual by-pass is not possible to operate 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.

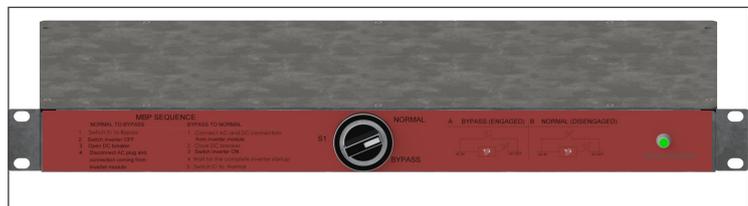
- Commercial AC must be present, and inverter must be synchronized with it before operating MBP.
- LED indication available in MBP front face to indicate “Mains present”(AC input).
- The upstream AC & DC breaker must be correctly sized (Refer page 14) to accept possible overload, The inverter might be 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 nominal power of the inverter.

6.1.1 Manual By-Pass operation

The by-pass switch does not disconnect AC and the DC feeding of the inverter. So disconnect inverter only after upstream breakers of DC inputs are switched OFF and AC input cable disconnected, ensure the inverter is completely OFF.

6.1.1.1 Normal to By-Pass.

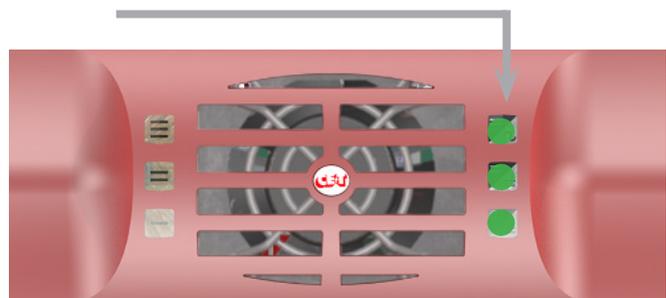
1. Turn switch S1 to BYPASS position.
2. Switch inverter OFF.
3. Open DC breaker.
4. Remove all interconnections between MBP shelf and inverter module.



After the inverter module is completely OFF, remove DC and all other connections. The module is safe to be dismantled.

6.1.1.2 By-Pass to Normal

1. Put back all interconnections between inverter and MBP shelf (see section 5.2.4, page 17). Re-connect DC feed¹.
2. Close DC breaker.
3. Switch inverter ON.
4. Wait for all 3 LEDs on Y-ONE module to be green (30-60seconds).
5. Turn switch S1 to NORMAL position.



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

¹ Connect first the AC output, DC input connector (with DC upstream breaker OFF) and AC input plug of inverter to MBP with Z plate fixed to it.

Note:

The by-pass switch does not disconnect AC and the DC feeding on inverter . So disconnect inverter only after upstream breakers of DC inputs is switched OFF and AC input cable disconnected,ensure the inverter is completely OFF.

7. Getting started

7.1 Starting procedure

1. Check that all AC output distribution breakers are switched OFF.
2. Apply the DC and/or AC power to the system by switching ON respective breaker(s).
3. Press front ON/OFF button on the front to start the inverter.
4. Output voltage should be present on terminal.
5. Check that system is operating under normal conditions.

Mains failure alarm detection is not available until the AC input voltage has been 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 as indicated below:



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 (AC input)		LED DC/DC (DC input)		LED DC/AC (AC output)	
	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. While this has not happened, there is no alarm on AC input. Once AC input alarms are enabled, they can be reset to disabled state by restarting the inverter with DC source only.

8. Finishing

- Make sure that the inverter is properly fixed to 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 are according to recommendations and local regulations.
- Make sure that all cables strain are relieved.
- Make sure that all breakers are according to recommendation and local regulations.
- Make sure that DC polarity is according to marking.
- Re tighten all electrical terminations.
- Make sure that no inverter/controller positions are left open.
- Make sure that the Remote ON/OFF is appropriately wired according to local regulations.
- Make sure that the point of AC supply meets local regulations.

9. Disassembly & Disposal

9.1 Disassembly

Switch off the upstream and downstream protective elements to stop the function of Inverter system and wait for complete discharge of internal capacitor that have been energized.

- 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

Installation and commissioning must be done and conducted by trained people fully authorized to act on installation.

It is prohibited to perform any isolation test without instruction from manufacturer.

Equipments are 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 before closing the AC input breaker.	
Switch ON the commercial AC	
Check if inverters are working (Green led)	
Check the DC power supply and ON switch on the DC breakers	
Check output voltage (on bulk output or on breaker)	
Check if inverter is working properly	
Check if system has no alarm	
Switch OFF ACin and check if system is working on DC	
Switch ON ACin 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

Inverter does not power up:	<ul style="list-style-type: none">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:	<ul style="list-style-type: none">Check remote ON/OFF terminal.Check that Manual By-pass is in normal position.
Inverter only run on AC or DC:	<ul style="list-style-type: none">Check the Dip switch position.
No output power	<ul style="list-style-type: none">Check output breaker.Check Remote ON is not enabled.

12.Maintenance

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. (This task is not really recommended*, but could be demanded by site manager).

13. Defective modules

Unless input power is down all LEDs on the inverter should be green (see section 7.2).

No light, orange light, red or flashing light are abnormal conditions. Refer to section 7.4 troubleshoot the inverter. If no fix can be found, replace the inverter.

Y-ONE-EPC INVERTER 48V-120VAC-500VA
P/N: T351330101 S/N: 000110
INPUT: Vdc in : 48 V (40-60) Idc in : 10A --- Vac in : 120V (95V-150V) 50/60Hz Iac in: 3.85A
OUTPUT: Vac out : 120 V (50-60 Hz) Iac out : 4.17 A Power : 400W/500VA
 
BURN IN STAMP 20/14
MADE IN CE+T PSI

Instructions to return to CE+T for servicing

- A repair request should follow the regular logistics chain:
End-user => Reseller=> 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.
- 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).



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14. Service

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 (***)

- (*) 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 day.

