



ECO POWER
EQUIPMENT

Installation and User Instructions

SBP-1200 Disconnect



March 2021
Version 1.0



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All pertinent state, regional, and local safety regulations must be observed when installing and using this product.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to observe this information can result in injury or equipment damage.

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Product Modifications

Year	Type	Modifications
2021	1	SBP-1200D V1

Document Revisions

Date	Version Number	Document Changes



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1. PREFACE

1.1 Description of the User

This manual is intended to support end users of the Eco Power Equipment SBP power distribution products. Our products are designed and intended to provide site power solutions for temporary and prime rated power on a variety of applications including construction job site, oil, and gas job sites, pipelines, events, security, and government or military operations.

The user will deploy and set up the SBP and should be qualified and follow all instructions contained in this operating manual.

1.2 Conventions Used in This Manual

The following style conventions are used in this document:

Bold

Names of product elements, commands, options, programs, processes, services, and utilities Names of interface elements (such windows, dialog boxes, buttons, fields, and menus)

Interface elements the user selects, clicks, presses, or types

Italic

Publication titles referenced in text

Emphasis (for example a new term)

Variables

`Courier`

System output, such as an error message or script

URLs, complete paths, filenames, prompts, and syntax

User input variables

< > Angle brackets surround user-supplied values

[] Square brackets surround optional items

| Vertical bar indicates alternate selections - the bar means "or"

1.3 Explanation of Safety Warnings

⚠ DANGER

Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury

⚠ WARNING

Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ CAUTION

Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates information considered important, but not hazard-related.

1.4 Retaining Instructions

Read and understand this manual and its safety instructions before using this product. Failure to do so can result in serious injury or death.

Follow all the instructions. This will avoid fire, explosions, electric shocks or other hazards that may result in damage to property and/or severe or fatal injuries.

The product shall only be used by persons who have fully read and understand the contents of this user manual and understand the safe operation of the machine.

Ensure that each person who uses the product has read these warnings and instructions and follows them.

Keep all safety information and instructions for future reference and pass them on to subsequent users of the product.

The manufacturer is not liable for cases of material damage or personal injury caused by incorrect handling or non-compliance with the safety instructions. In such cases, the warranty will be voided.



1.5 Obtaining Documentation and Information

1.5.1 Internet

The latest version of the documentation is available at the following address: <http://www.ecopowerequip.com>

1.5.2 Ordering Documentation

Documentation, user instructions and technical information can be ordered by calling Eco Power Equipment Ltd. at 1-888-483-4843

1.5.3 Other languages

This is the English user manual. Manuals in other languages are available upon request. Not all languages are covered.

1.5.4 Documentation Feedback

If you are reading Eco Power Equipment Ltd. product documentation on the internet, any comments can be submitted on the support website. Comments can also be sent to support@ecopowerequip.com

We appreciate your comments.

1.5.5 Support and service

For information about special tools and materials please contact:

Eco Power Equipment

Address: #8, 26004 TWP 544, Sturgeon County, AB, T8T 0B6

Phone: 1-844-332-0924

Web: www.ecopowerequip.ca

For other questions, information, technical assistance, ordering user instructions, and service related information please contact the manufacturer:

Eco Power Equipment Ltd.

Address: #8, 26004 TWP 544, Sturgeon County, AB, T8T 0B6

Phone: 1-888-483-4843

Web: www.ecopowerequip.com



2 Description of the product

2.1 Intended Use and Reasonably Foreseeable Misuse

The machine is a mobile, skid-mounted power distribution panel. The Eco Power Equipment SBP unit consists of a skid with power distribution equipment mounted within a sheet metal enclosure. This unit has been designed to provide temporary power distribution.

This machine is intended for prime rated power requirements and has been designed to operate 24/7. This equipment is also intended for the purpose of supplying electrical power to connected loads. Refer to the product rating plate for the output voltage and frequency of the unit, and for the maximum output power limit of the panel.

This machine has been designed and built strictly for the intended use described above. Using the machine for any other purpose could permanently damage the machine or seriously injure the operator or other persons in the area. Machine damage caused by misuse is not covered under warranty.

The following are some examples of misuse:

Connecting a load that has voltage and frequency requirements that are incompatible with the rating

Overloading the machine with a device that draws excessive power during either continuous running or start-up

Operating the device in a manner that is inconsistent with all federal, provincial and local codes and regulations

Operating the machine outside of factory specifications

Operating the machine in a manner inconsistent with all warnings found on the machine and in the Operator's Manual

This machine has been designed and built in accordance with the latest Canadian safety standards. It has been engineered to eliminate hazards as far as practicable and to increase operator safety through protective guards and labeling. However, some risks may remain even after protective measures have been taken. They are called residual risks. On this machine, they may include exposure to:

Electric shock and arc flash

To protect yourself and others, make sure you thoroughly read and understand the safety information presented in this manual before operating the machine



Follow safe Electrical Work Practices:

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, or NOM-029-STPS.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside the equipment.
- Always use a properly rated voltage sensing device to confirm all power is off.
- Read and understand this entire instruction bulletin and the latest edition of the included NEMA PB 1.1 standards publication before installing, operating, or maintaining this equipment.
- Local codes vary, but are adopted and enforced to promote safe electrical installations. A permit may be needed to do electrical work, and some codes may require an inspection of the electrical work.
- Replace all devices, doors, and covers before turning on power to this equipment.

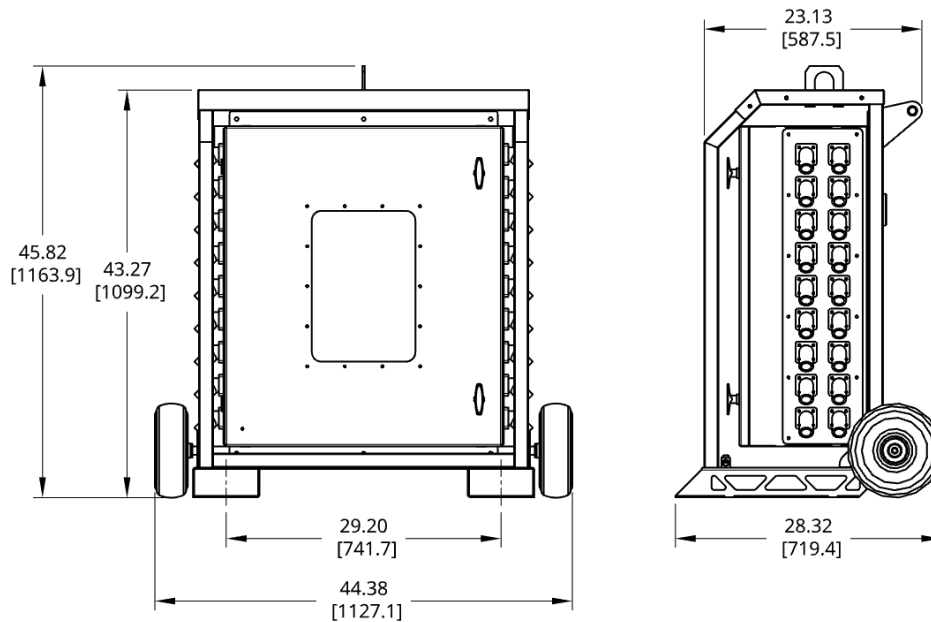
Failure to follow these instructions will result in death or serious injury.

2.2 Product Specifications

Enclosure	Unit
Gross Weight	215 KG / 475 LBS
Lifting Bail	Yes, Engineered and Rated, See Decal
Enclosure	Powder Coated Carbon Steel
Doors	1 Swing Out Door
Protection Class	Nema 3R

Electrical	Unit
Compliance	CSA, UL 489 - See Decal
Voltage	208-600V
Main Circuit Breaker	1200
Connection Type	Flexibar
Wiring Insulation Rating	1000V
Pole	3

Dimensions:



2.3 Maintenance

Eco Power Equipment Recommends all customers integrate a routine maintenance for all mobile power distribution equipment. This equipment has been designed to provide mobile power distribution and as such we recommend our customer implement a routine maintenance program:

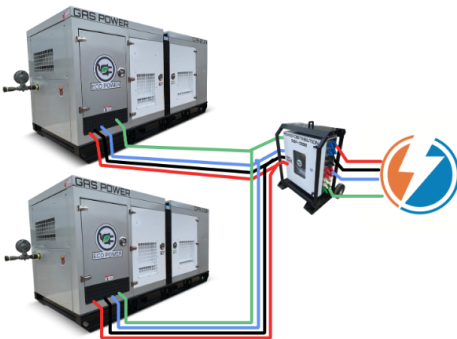
1. Torque Check Procedure: All mobile power distribution should undergo regular torquing procedures before use. This procedure should be developed based on the movement and usage of the equipment. With regular checking and verification of critical connection points
 - a. Hubbell Bus Tab Connection Points: 107-inch lb (9 ft-lb)
 - b. MCCB Tab to Flexibar Bolts: 310 in-lb (25 ft-lb)
 - c. MCCB Tab to Breaker Bolts: 288 in-lbs (24 ft-lb)
2. Thermal Inspection: Abnormal heating associated with high resistance or excessive current flow is the main cause of many problems in electrical systems. Infrared thermography allows us to see these invisible thermal signatures of impending damage before the damage occurs. When current flows through an electric circuit, part of the electrical energy is converted into heat energy. This is normal. But, if there is an abnormally high resistance in the circuit or abnormally high current flow, abnormally high heat is generated which is wasteful, potentially damaging and not normal.

2.4 Setup Process

The setup and deployment process involved for the SBP power distribution panel involves locating the unit on a level, suitable terrain, connecting earth ground, and connecting electrical distribution.

Before using the unit, be sure to read and understand all of the instructions. This equipment was designed for specific applications; DO NOT modify or use this equipment for any application other than which it was designed for. Equipment operated improperly or by untrained personnel can be dangerous.

Before using a unit visually inspect the unit for damage. A complete visual inspection of all power distribution connections.





Setup Guide:

1. Inspect the unit, before connecting it to a load.
2. Check that all safety guards are in their correct position and secure.
3. Read and understand ALL safety sections at the beginning of this manual.
4. Ensure all maintenance procedures are up to date.
5. Ensure the unit is set up on firm and level ground, with the area around the unit clean
6. Ground unit in accordance with local grounding requirements, the green cam locks are bonded to the enclosure, there is also a mechanical lug provided on the chassis for bonding purposes.
7. Warn personnel on site of pending startup.
8. Set Shunt Trip System (if equipped) to appropriate voltage for the application
9. Connect de energized camlocks, following Hubbell recommendations found on the decal of the unit
10. Ensure main breakers are in the OFF / Green position
11. Inspect all electrical connections; repair or replace any that are cut, worn, or bare. This includes inspecting cords external to the panel to the load-use safe electrical practices in accordance with local guidelines and best practices
12. Ensure MCCB dip switch settings are suitable for your application (see page 14)
13. Verify voltage and frequency are correct before turning on the main circuit breaker, this machine is designed to operate at multiple voltages and phases

WARNING:

It is the operator's responsibility to ensure that the panel is properly and safely positioned at the location. This includes setting MCCB switches properly for your application.

DANGER:

Entering the electrical compartment while equipment is in operation can result in death or serious injury.

Safety Instructions

⚠️ WARNING

Read and understand this manual and its safety instructions before using this product. Failure to do so can result in serious injury or death.

PROPER MATING of HUBBELL® SINGLE POLE DEVICES

Connecting

1. Align large arrows, & insert female into male device.
2. Push together & bottomed, 50 lb (222 N) maximum, with gap between shoulders.



3. Twist clockwise by hand in the direction of the arrow, locking between 30° and 180°.

Disconnecting

1. Twist counter clockwise by hand, until large arrows are aligned.
2. Pull devices apart.

Replacement parts of HUBBELL® SINGLE POLE DEVICES

Part #	Description

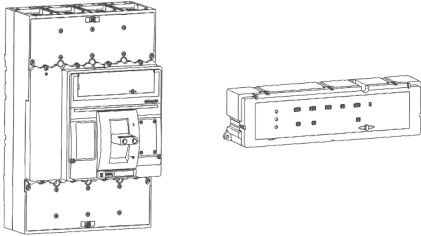
WARNING: Use only replacement part Cat. No. HBLMBXX or HBLFBXX series with Attachment Plug or Cord connector Cat Nos. HBL300MXX, HBL400MXX or HBL300FXX, HBL400FXX series only.

WARNING: Risk of Fire or Electric Shock. Do not use this replacement enclosure housing (plug body) with any attachment plug or cord connector, (as appropriate), other than the one specified on the replacement mark packaging and in these instructions.

MCCB Dip Switch Settings:

M6 800A-1200A dial-type trip units

M6 Electronic Molded Case Circuit Breaker



The manufacturer assumes no responsibility for unfavourable consequence resulting from the non-application or incorrect application of the instructions provided herein.

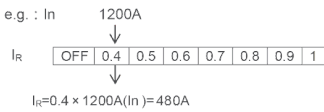
NOARK

Long-time delay protection current setting

- OFF
- .4
- .5
- .6
- .7
- .8
- .9
- 1



Long-time delay current setting dials, customer use proper tools for 8 specific settings including OFF + (0.4-1)I_n



Thermal memory function: protect load circuits against the affects of repeated overload conditions. When circuit breaker immediately closes after a long-time trip, and the continuous current exceeds the long-time setting value (I_R), thermal memory function will automatically reduce the trip time. Given repeated overload current, thermal memory function will make circuit breaker trip in gradually reduced time. When the load current resumes normally, thermal current function will start to reset. It will totally reset in about 1 hour. So next long-time trip time will correspond to the setting value. Thermal memory function will be cleared in OFF setting.

Long-time delay protection time setting

- 3
- 6
- 12
- 18



Long-time delay time setting dials, customer use proper tools for 4 specific settings (3-18)s of overcurrent at 6I_R

T _R	T _R
≤1.05I _R	≥2h not trip
≤1.3I _R	<1h trip
6I _R	3s
	6s
	12s
	18s

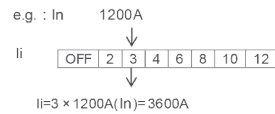
@6I_R

Instantaneous protection current setting

- OFF
- 2
- 3
- 4
- 6
- 8
- 10
- 12



Instantaneous current setting dials, customer use proper tools for 8 specific settings including OFF + (2-12)I_n

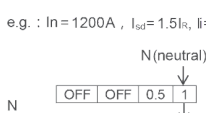


Neutral protection setting

- OFF
- OFF
- .5
- 1

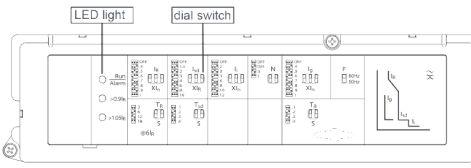


Neutral setting dials, customer use proper tools for 4 specific settings including (OFF + OFF + 0.5I_n + 1I_n)



Neutral long-time delay protection
Neutral short-time delay protection
Neutral instantaneous protection

Operation panel



LED indication

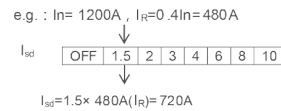
- Monitor status**
In normal mode, "Working" light flashes, when there is any error in magnetic flux connection, sensor connection, control voltage or MCU unit, "Working" light will stop flashing and remain OFF.
- Alarm indication**
If actual current I ≥ 90%I_R, LED indicates Yellow. I < 90%I_R, Yellow is OFF.
- Overload indication**
If actual current I ≥ 105%I_R, LED indicates Red. I < 105%I_R, Red is OFF.

Short-time delay protection current setting

- OFF
- 1.5
- 2
- 3
- 4
- 6
- 8
- 10



Short-time delay current setting dials, customer use proper tools for 8 specific settings including OFF + (1.5-10)I_R



Short-time delay protection time setting

- .1
- .2
- .3
- .4



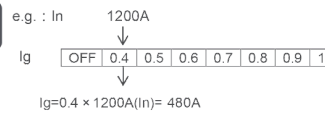
Short-time delay time setting dials, customer use proper tools 4 specific settings 0.1s, 0.2s, 0.3s and 0.4s.

Ground fault protection current setting

- OFF
- 4
- .5
- .6
- .7
- .8
- .9
- 1



Ground fault current setting dials, customer use proper tools for 8 specific settings including OFF + (0.4-1)I_n



Ground fault protection time setting

- .1
- .2
- .3
- .4



Ground fault current setting dials, customer use proper tools for 4 specific settings 0.1s, 0.2s, 0.3s and 0.4s.

Frequency selection setting

- 50Hz
- 60Hz



Frequency setting dials, customer use proper tools for setting 50Hz and 60Hz according to the actual grid frequency.

2.5 How to Use the Product Safely

2.5.1 Safety information

- High voltage is present in the system while on, never attempt to service the electrical system while the engine is on, or the system is on - qualified technicians should only setup this equipment
- Do not a unit if there are signs of wear or damage
- Never permit anyone to operate the unit without proper training
- Never modify equipment without the written consent of Eco Power Equipment

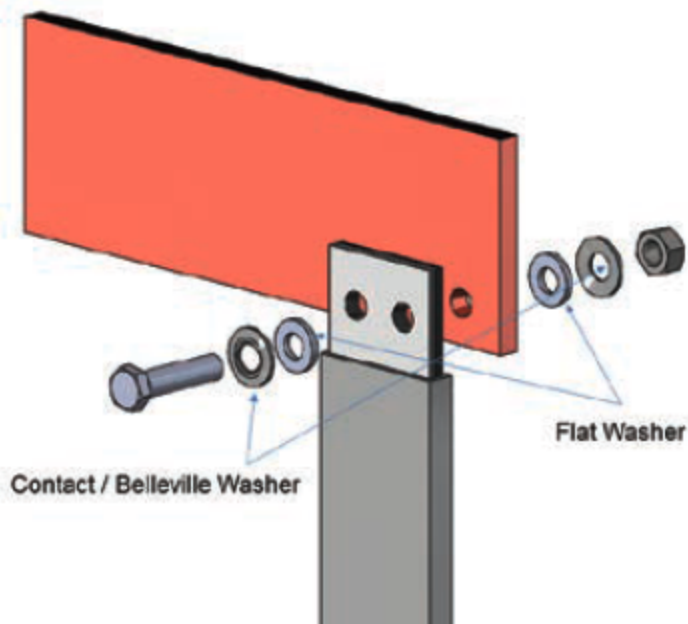
Flexible Busbar Connection:

- Always ensure to use proper fastener and washer type for installation

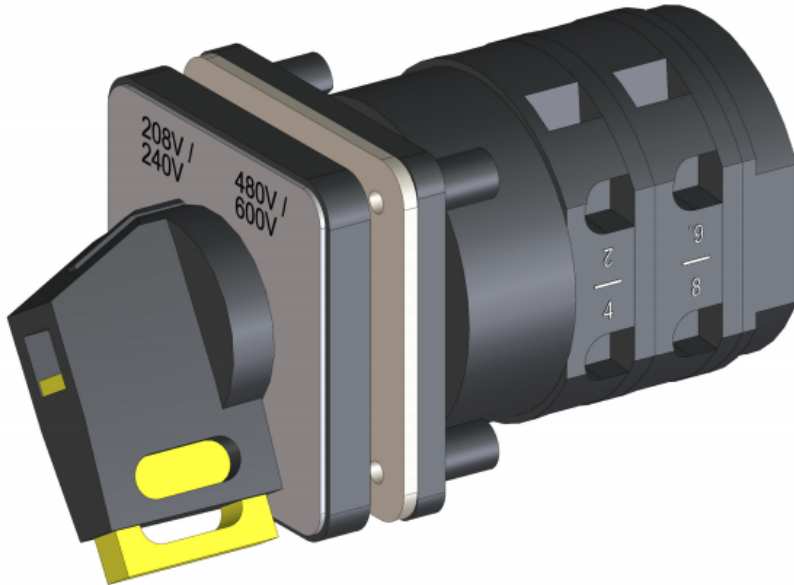
CLAMPING TORQUE CALCULATION

Use a class 8.8 ZN8C zinc plated bolt or a class coated bichromated bolt (SAE Grade 5), using "Contact/Belleville" and "Flat" washers tightened with a torque wrench, without lubrication.

Note: Belleville washers also called "Contact Disc Springs".



Voltage Selector Switch



- Always set to the appropriate voltage for your application
- We recommend to lockout by pushing in the yellow tab and locking out for your specific application

2.5.2 Technical life span

- Unit Lift Space: 5+ Years Mobile Applications
- Eco Power recommends that our customers implement an inspection process regularly on equipment to ensure long life and successful operation: regular torque procedures on mobile equipment are required for long term success, either with a regular schedule torque between maintenance, or advising customer to torque check before each application setup

2.5.3 Personal Protective Equipment

- Always wear personal protective equipment: follow CSA Z462& NFPA 70E for guidelines



2.6 Inspection Tasks

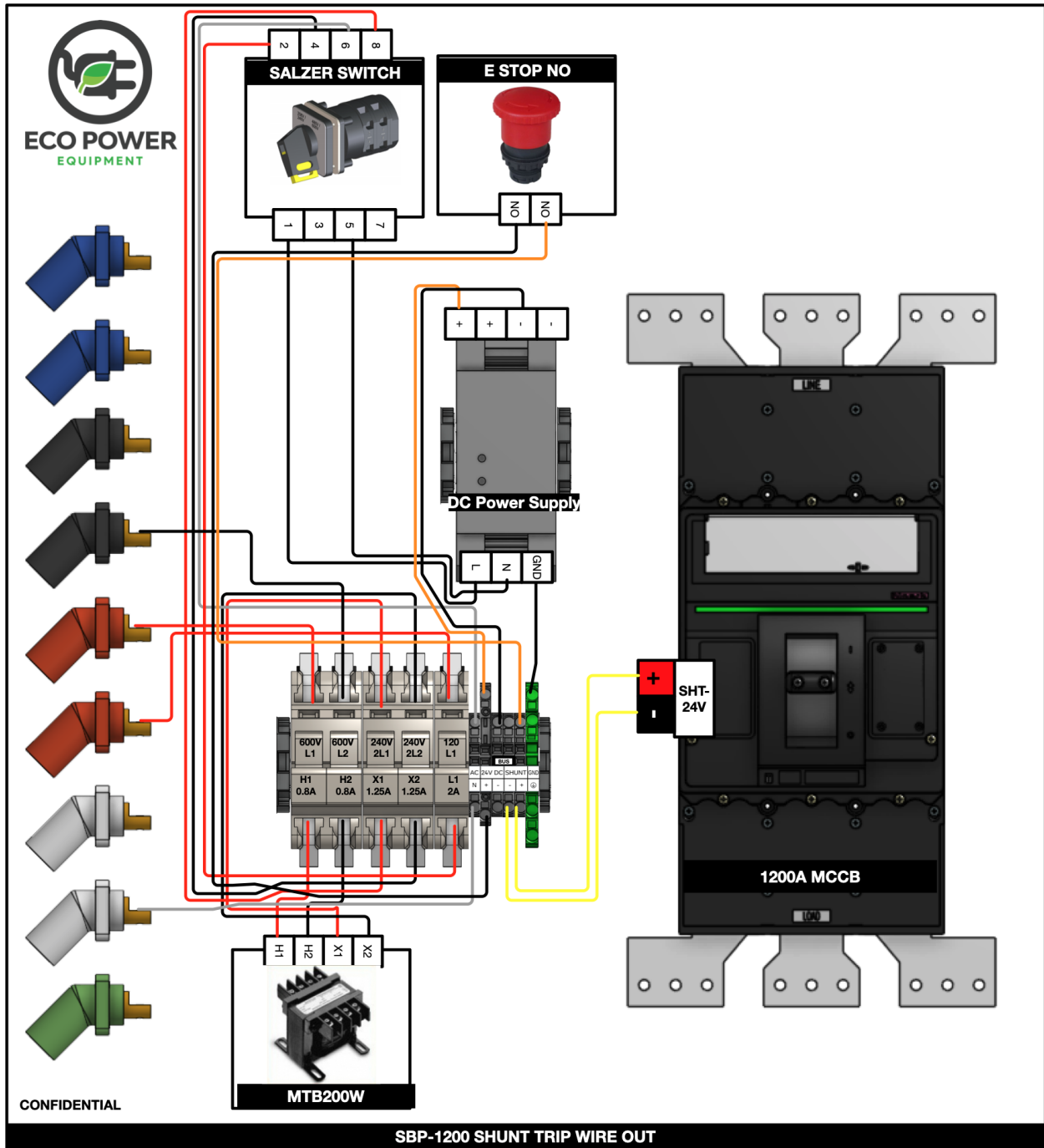
2.6.1 Before use inspection tasks (never open a live panel, see above safety recommendations)

Task	Action
Visual inspection of the unit	Remove front cover panel and inspect all items
Torque all connections	MCCB tabs and cam lock points
Cam lock connections and torque	Ensure proper mating
MCCB switch settings	Set dip switches properly for your application

2.6.2 Quarterly Inspection tasks

Task	Action
Thermal inspection	On location during application review and testing for long term applications

Shunt Trip Schematic:



Power Distribution Layout:

