

# **S-50**

## **Field Installation Manual**

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# S-50

## IMPORTANT INSTRUCTIONS

**ATTENTION:** After completing the installation and testing, it is essential that this booklet is drawn to the attention of the person responsible for its future operation and maintenance and is available for ready reference all the time.

**FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLATION & OPERATION WILL VOID WARRANTY OF S-50 AND COULD CAUSE SERIOUS PERSONAL INJURY, FIRE HAZARD & ELECTRIC SHOCK MAY LEAD TO DEATH.**

### **CAUTION:**

To prevent electric shock, disconnect electric power to system at main fuse or circuit breaker box until installation or rework is complete.

### **PRECAUTION:**

Do not use on circuits exceeding specified voltage.

Do not short main terminals to test.

Electrical Installation and all components of the installation must be UL listed / UL approved and as per NEC code.



## **WARNING**

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# PRODUCT SPECIFICATIONS



**Model:** ..... **S-50**  
**Rated Voltage**..... **208V AC**  
**Phases**..... **3**  
**Rated Frequency**..... **60Hz**  
**Maximum Current**..... **140 Amp per phase**  
**Maximum kVar**..... **50**  
**Maximum Ambient Temperature**..... **40°C**  
**Enclosure**..... **Type 1**

Terminals	Wire Size	Connection Type	Torque N-m (Lb-in)
T1	3/0 AWG, Str.	MCCB	31(275)
T2	18-22 AWG, Str.	CT Terminal Block	0.5 (7)
Earthing Terminals	10 AWG, Str.	Bonding	15 (133 )

# UNPACKING

1. Un Pack the S-50 from box using Plastic Strip Cutter & 17 No. Spanner.
2. Collect the Accessories as per the Packing Slip.
3. Remove any cardboard or thermocol packing inside the S-50 given for support during transportation.
4. Do not use S-50 in case of any Breakage or loose connections or Oil Spill inside.

# MOUNTING

**CAUTION:** - Indoor Use Only, Type-1 Enclosure.

1. Choose the dry and Clean Floor to Install the S-50 taking care conduit connections from Bottom side  
Enclosure Size is 800 x 1000 x 300 mm and weight 84kg (186 Pounds).
2. Premark the Mounting holes on floor or structure.
3. Tighten the Foundation bolts.

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## Connection Type # 1

### Use this instruction

*If 200 Amp circuit breaker is available in customer Main Breaker Panel.*

**S-50 is designed for use with Main Breaker Panel Three Phase 208V AC WYE/Delta Connection, up to 1600 Ampere.**

**S-50 unit should be mounted with four appropriate sized fasteners before connect to Main Breaker Panel.**

### **1.1 Power Connections**

1.11 Using panel key open the door of S-50 exposing connections.

1.12 Locate Earth Terminal in S-50, connect the earth wire to S-50 Earth Terminal. Connect the other side of earth wire to main breaker panel ground rod. Ensure all mechanical connections are secure and making full contact.

1.13 Locate existing 3 Pole 200 Amp Circuit Breaker in the Main Breaker Panel.

Connect the wire L1 to Phase 1 of 200 Amp circuit breaker.

(b) Connect the wire L2 to Phase 2 of 200 Amp circuit breaker.

(C) Connect the wire L3 to Phase 3 of 200 Amp circuit breaker.

1.14 Qualified Representative must inspect size of cable minimum 3/0 AWG.

1.15 Connect power cables to BUS BAR of S-50.

### **1.2 Current Sensor Connections**

1.21 Open one side of Split CT (Current Sensor). Clip the CT on the wire L3 before main Circuit Breaker Panel.

1.22 Locate Terminal Block T2 (S1-S2) in S-50.

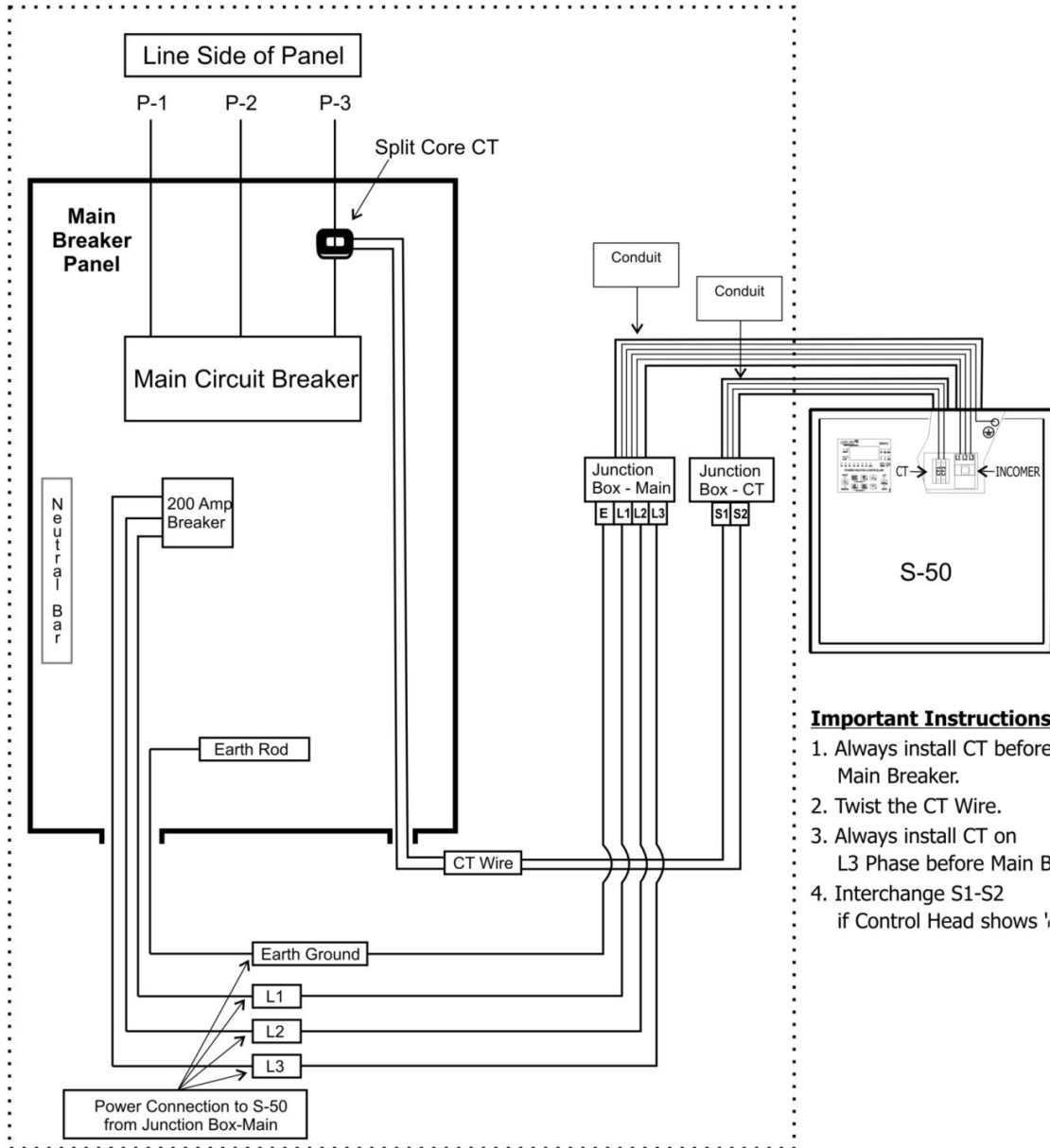
1.23 Qualified Representative line side of Main Panel should connect the wires 18-22 AWG from external CT to T2 (S1-S2), preferably twisted together.

1.24 Firmly secure current sensor to line side (L3) of main circuit breaker.

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### Connection Diagram



**Important Instructions:**

1. Always install CT before Main Breaker.
2. Twist the CT Wire.
3. Always install CT on L3 Phase before Main Breaker.
4. Interchange S1-S2 if Control Head shows 'L3'.

**Note:**

- All Components used for installation must be UL listed or UL recognized.
- Earth Terminal in S-50 must be connected to Panel earth rod.
- All external connections and additional work must be performed by qualified representative in accordance with NEC.
- Failure to comply will void warranty.

Figure-1

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### **Connection Type#2**

#### **Use these instructions**

*If 200 Amp circuit breaker is unavailable, existing blanks are available.*

**S-50 unit is designed for use with Customer Main Breaker Panel Three Phase 208V AC WYE/Delta Connection, up to 1600 Ampere.**

S-50 units should be mounted with appropriate sized fasteners before connect to Main Breaker Panel.

1. Using panel key open the door of S-50 exposing connections.
2. Remove existing 3 Pole breaker blanks and install new 3 Pole 200 Amp circuit Breakers.
3. For rest of connection follow the Connection type#1 on page 5.

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### **Connection Type#3**

#### **Use this instruction**

*If 200 Amp circuit breaker is unavailable and require a new disconnect switch or other approved device.*

**S-50 unit is designed for use with Customer Main Breaker Panel Three Phase 208V AC WYE/Delta Connection, up to 1600 Ampere.**

**Representative must purchase 200 Amp Blade-Fused Disconnect Switch or 200 Amp Circuit Breaker for connection of S-50 to Customer Main Breaker Panel.**

1. Install new 200 Amp Blade-Fused disconnect or External Circuit Breaker switch to wall or existing backboard. Qualified Representative should note if codes allow for direct connection to bus bars in main breaker panel or requires installation of an additional sub panel.
2. Wire in rigid conduit between customer main breaker panel & external disconnect switch.
3. Locate earth ground connection in S-50 and connect to grounding bar or to earth ground rod in main breaker panel.
4. For rest of connection follow the Connection type#1 on page 5.



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## Field Installation Manual

### Electrical Data Sheet

Model	S-50
Phase Configuration	Three Phase 208V AC WYE/Delta
Maximum Line Voltage	208V AC
Maximum Power	50 kVar
Steps	8
Monitoring	PF, kVA, kVar, Volt, Current, KW, %THD-V Internal Temperature & Capacitor Status
Accuracy	1 kVar
Frequency	60Hz
Protection	Capacitor Inbuilt Protection P2, capacitor short circuit 10,000A Capacitor over current protection.
Equipment Protection	Internal design has adequate clearance and creepage distance against line transients. MOVs not required.
Circuit breaker Required	200 Amp 3 pole
Low Losses	1.5 Watt each step
Human Protection	All High voltage shielded from contact.
Operating temperature range	40°C Ambient
Dimensions(L X H X D)	( 800 x 1000 x 3000 mm) Metal Enclosure Type 1
Operating Life	Switching tested up to 25,000 times,
Dielectric Strength	Tested up to 3.5 kV, 1.42 kV for 1 min.
Wire Gauge & Rating	3/0 AWG Str for Power, 18-22 AWG Str for CT, 8 AWG Str for Bonding
Unit Weight	84 kg (186 Pounds)

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### Recommended Parts List

<b>Item</b>	<b>Make</b>	<b>Part No.</b>	<b>Qty.</b>
Main Wire      3/0 AWG Str. 600v	Any *	UL1015	As required
CT Wire          18-22 AWG Str. 600v	Any *	UL1015	As required
Bonding Wire    8 AWG Str. 600v	Any *	UL 1015	As required
CT (Current Sensor)	Megnelab	SCT-1250-1000	1
Floor Plug (pin type)    Size 10 x 75 mm	Any	---	4
Conduit Connector	Any *	---	4
Tube/Conduit	Any *	---	As required

**\*All the Parts used in installation must be UL recognized or UL listed.**

#### **NOTE**

Installation of material and workmanship at the customer's Main Breaker Panel shall be the responsibility of the qualified Electrician in accordance with NEC. Any and all connections exterior to the S-50 unit shall be the responsibility of the qualified Electrician.