

# **S-25**

## **Field Installation Manual**

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## 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-25 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-25**  
**Rated Voltage:**..... **208V AC**  
**Phases:**..... **3**  
**Rated Frequency:**..... **60Hz**  
**Maximum Current:**..... **70 Amp per phase**  
**Maximum kVar:**..... **25**  
**Maximum Ambient Temperature:**..... **40°C**  
**Enclosure:**..... **Type 1**

| Terminals          | Wire Size       | Connection Type   | Torque N-m (Lb-in) |
|--------------------|-----------------|-------------------|--------------------|
| T1                 | 2 AWG, Str.     | ISOLATOR          | 2.5 N-m            |
| T2                 | 18-22 AWG, Str. | CT Terminal Block | 0.5 (7)            |
| Earthing Terminals | 10 AWG, Str.    | Bonding           | 15 (133 )          |

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## UNPACKING

1. Un Pack the S-25 from box using Plastic Strip Cutter & 16 No. Spanner.
2. Collect the Accessories as per the Packing Slip.
3. Remove any cardboard or thermocol packing inside the S-25 given for support during transportation.
4. Do not use S-25 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-25 taking care conduit connections from Bottom side  
Enclosure Size is 600 x 760 x 210 mm and weight 49 kg (108 Pounds).
2. Premark the Mounting holes on floor or structure.
3. Tighten the Monting bolts.

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### Connection Type # 1

#### Use this instruction

*If 100 Amp circuit breaker is available in customer Main Breaker Panel.*

**S-25 is designed for use with Main Breaker Panel Three Phase 208V AC WYE/Delta Connection, up to 1600 Ampere.**

**S-25 unit should be mounted with four appropriate sized fasteners before connect to Main Breaker Panel.**

#### **1.1 Power Connections**

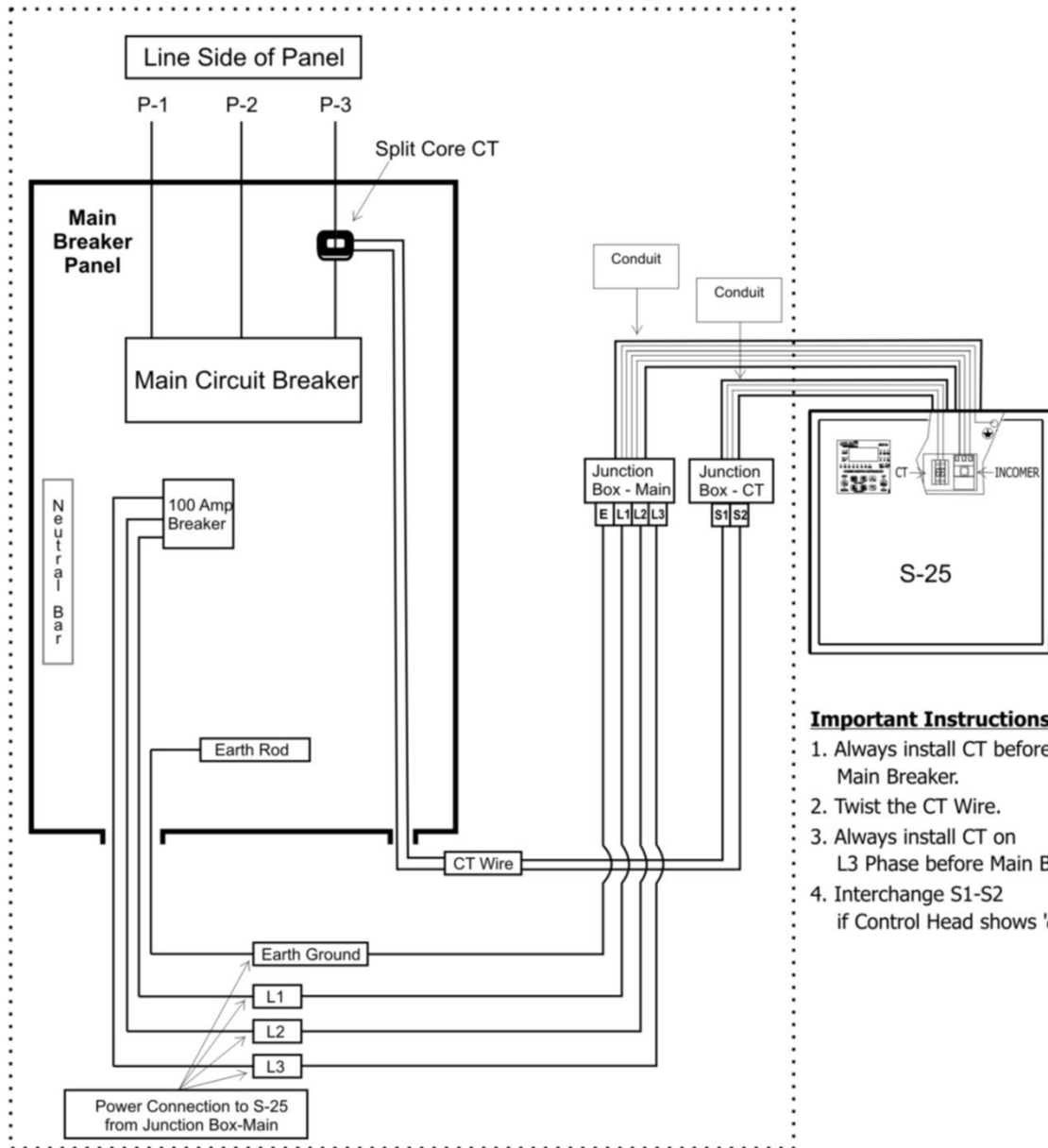
- 1.11 Using panel key open the door of S-25 exposing connections.
- 1.12 Locate Earth Terminal in S-25 , connect the earth wire to S-25 Earth Terminal. Connect the other side of earth wire to main breaker panel ground rod. Ensure all mechanical connections are secure and making full contact.
- 1.13 Locate existing 3 Pole 100 Amp Circuit Breaker in the Main Breaker Panel.  
Connect the wire L1 to Phase 1 of 100 Amp circuit breaker.  
(b) Connect the wire L2 to Phase 2 of 100 Amp circuit breaker.  
(C) Connect the wire L3 to Phase 3 of 100 Amp circuit breaker.
- 1.14 Qualified Representative must inspect size of cable minimum 2 AWG.
- 1.15 Connect power cables to ISOLATOR of S-25.

#### **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-25.
- 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 'r-ct'.

### Note:

- All Components used for installation must be UL listed or UL recognized.
- Earth Terminal in S-25 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 100 Amp circuit breaker is unavailable, existing blanks are available.*

**S-25 unit is designed for use with Customer Main Breaker Panel Three Phase 208V AC WYE/Delta Connection, up to 1600 Ampere.**

S-25 units should be mounted with appropriate sized fasteners before connect to Main Breaker Panel.

1. Using panel key open the door of S-25 exposing connections.
2. Remove existing 3 Pole breaker blanks and install new 3 Pole 100 Amp circuit Breakers.
3. For rest of connection follow the Connection type#1 on page 5.

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## Field Installation Manual

### Connection Type#3

#### Use this instruction

*If 100 Amp circuit breaker is unavailable and require a new disconnect switch or other approved device.*

**S-25 unit is designed for use with Customer Main Breaker Panel Three Phase 208V AC WYE/Delta Connection, up to 1600 Ampere.**

**Representative must purchase 100 Amp Blade-Fused Disconnect Switch or 100 Amp Circuit Breaker for connection of S-25 to Customer Main Breaker Panel.**

1. Install new 100 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-25 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-25  |
| Phase Configuration         | Three Phase 208V AC WYE/Delta   |
| Maximum Line Voltage        | 208V AC   |
| Maximum Power               | 25 kVar   |
| Steps                       | 6   |
| Monitoring                  | PF, kVA, kVar, Volt, Current, KW, %THD-V<br>Internal Temperature & Capacitor Status                         |
| Accuracy                    | 1 kVar  |
| Frequency                   | 60Hz  |
| Protection                  | Capacitor Inbuilt Protection P2, capacitor short circuit 10,000A<br>Capacitor over current protection.      |
| Equipment Protection        | Internal design has adequate clearance and creepage distance<br>against line transients. MOVs not required. |
| Circuit breaker Required    | 100 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)       | ( 600 x 700 x 210 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         | 2 AWG Str for Power, 18-22 AWG Str for CT, 8 AWG Str for Bonding  |
| Unit Weight                 | 49 kg (108 Pounds)  |

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### Recommended Parts List

| <b>Item</b>                              | <b>Make</b> | <b>Part No.</b> | <b>Qty.</b> |
|--|-------------|-----------------|-------------|
| Main Wire      2 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-25 unit shall be the responsibility of the qualified Electrician.