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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 M-25 AND COULD CAUSE SERIOUS PERSONAL INJURY, FIRE HAZARD & ELECTRIC SHOCK MAY LEAD TO DEATH.

CAUTION:

To prevent electrical shock and/or equipment damage, disconnect electric power to system at main fuse or circuit breaker box until installation is complete.

PRECAUTION:

Does 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

Celec manufactured component parts that can be used in a wide variety of industrial & commercial applications. The selection and application of Celec products remains the responsibility of the equipment designer or end user. Celec accepts no responsibility for how its products may be incorporated into final design. Under no circumstances should any Celec product be incorporated into any product or design as the exclusive or sole safety control, all controls should be designed to dynamically fault defect and fail safety under all circumstances. Any warning provided by Celec must be passed through to the end user. Celec offers a warranty only as to the quality of its product to confirm to the catalog specifications. No other warranty is offered. Celec assumes no liability for any personal injury, property damage, losses or claims arising out of the misapplication and Non performance of its products.

PRODUCT SPECIFICATIONS

Model: …… M-25

Rated Voltage…… 277/480V AC

Phases…… 3 Phase WYE/DELTA

Rated Frequency…… 60Hz

Maximum Current each phase…… 30 Amp per phase

Rated kVar…… 25

Maximum Ambient Temperature Rating…… 40^0C

Enclosure…… Type 1

Connection Terminal	Connection Type	Size	Wire Type& Temperature	Torque N-m (Lb-in)
T1	Power Circuit	8 AWG	CU 60/75°C	2(17.70)
T2	CT Circuit*	10 AWG, Str./Sol.*	CU 60/75°C	0.5(7)
Earthing Terminals	Bonding Circuit	8 AWG, Str./Sol.	CU 60/75°C	15(133)

***Specified as per UL. Nominal Current in CT Circuit is less then 100 mA. May use 18-22 AWG Str./Sol.**

UNPACKING

1. Un Pack the M-25 from cartoon box & safety wooden packing using Plastic Strip Cutter & Spanner of BSW-17.
2. Collect the Accessories as per the Packing Slip.
3. Remove any cardboard or thermocol packing inside the M-25 given for support during transportation.
4. Do not use M-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 Wall to Install the M-25 taking care conduit connections from Top Right Panel Size is 500 x 500 x 210 mm and weight 28 Kg.
2. Premark the Mounting holes on wall or structure.
3. Make a Drill for the wall plugs.
4. Fix the Enclosure on wall with fasteners.

Connection Type # 1

Use this instruction

If 60 Amp circuit breaker is available in customer sub panel.

M-25 unit is designed for use with Customer Sub Panel-operating at 277/480V WYE/DELTA AC Connection, 100 to 400 Amp.

Power Connections

1. Remove Sub Panel cover exposing internal wiring and breakers. (Check Figure- 1)
2. Locate earth ground connection to panel grounding bar/or to earth ground terminal. Connect earth cable to customer sub panel earth ground rod. Use existing power cable connector for grounding cable. Ensure all mechanical connections are secure and making full contact.
3. Locate existing 3-ϕ, 60Amp circuit Breaker.
    A. Connect the Phase L1 from 60 Amp Breaker to Workbox.
    B. Connect the Phase L2 from 60 Amp Breaker to Workbox.
    C. Connect the Phase L3 from 60 Amp Breaker to Workbox.
4. Qualified Representative must inspect size of cable 8 AWG from Customer Sub Panel L1, L2, and L3 to 60 Amp Breakers.
5. Connect power cables to load breaker switch of M-25 as per items 1, 2, 3 above.

Current Sensor Connections

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

7 Locate Terminal Block T2 (S1-S2) in M-25.

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

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

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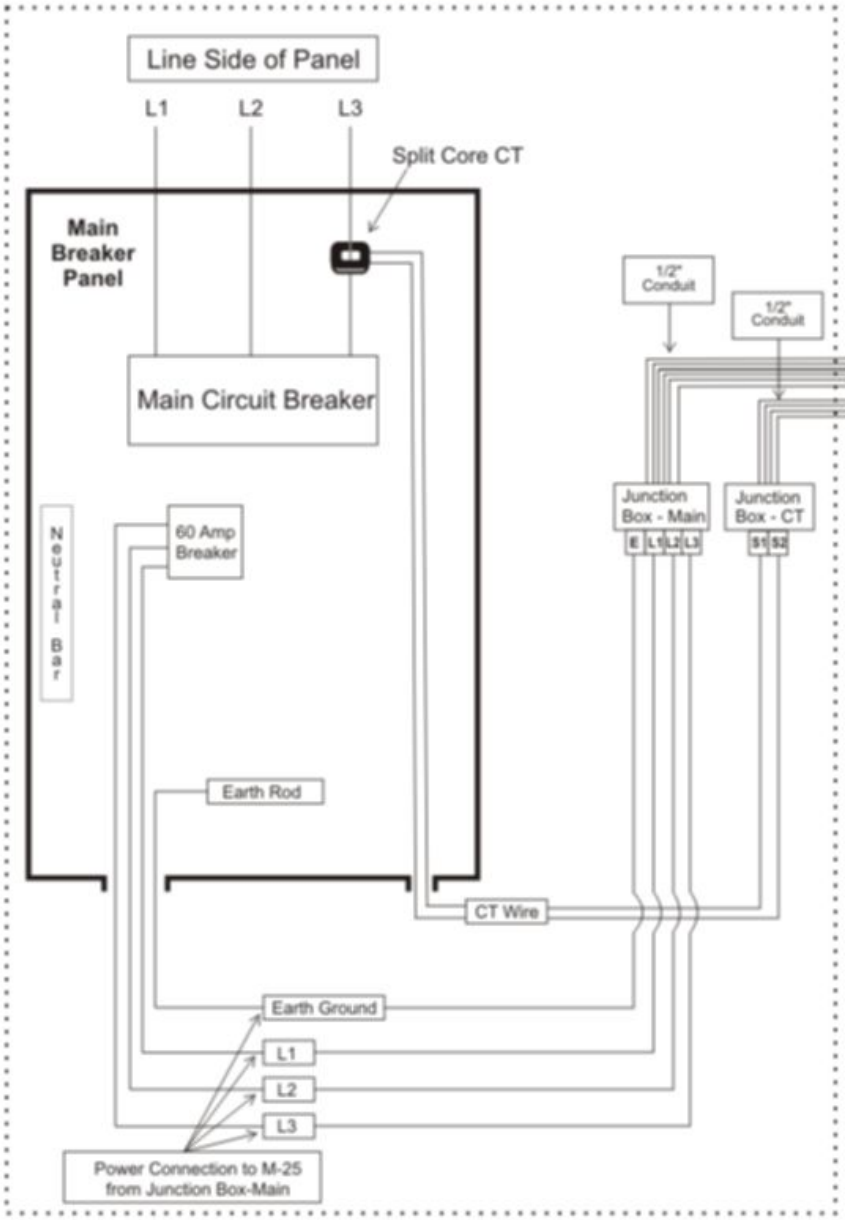
Connection Diagram



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 'rCt'.

Note:

- All Components used for installation must be UL listed or UL recognized.
- Earth Terminal in M-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 60 Amp circuit breaker is unavailable, existing blanks are available.

M-25 unit is designed for use with Customer Sub Panel-operating at 277/480 WYE/DELTA VAC Delta Connection, 100 to 400 Amp.

M-25 units should be mounted with four appropriate sized fasteners before connector to customer Sub Panel.

1. Remove Sub Panel covers exposing internal wiring and breakers. (Check Figure-1)
2. Remove existing 3-ϕ breaker blanks and install new 3-ϕ 60 Amp circuit Breakers.
   A. Connect the Phase L1 from 60 Amp Breaker to Workbox.
   B. Connect the Phase L2 from 60 Amp Breaker to Workbox.
   C. Connect the Phase L3 from 60 Amp Breaker to Workbox.
   D. Connect to Customer Sub Panel Ground bar or Grounding Rod.
3. For rest of connection follow the Connection type#1 on page 5.

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Connection Type#3

Use this instruction

If 60 Amp circuit breaker is unavailable and require a new disconnect switch or other approved device.

Customer Sub Panel- 277/480 WYE/DELTA VAC Connections, 100 to 400 Amp.

Representative must purchase 3-ϕ, 60 Amp Blade-Fused Disconnect Switch or 60Amp Circuit Breaker for connection of M-25 to Customer Sub Panel.

1. Install new 3-ϕ, 60 Amp Blade-Fused or Circuit Breaker external disconnect switch to wall or existing backboard. Qualified Representative should note if codes allow for direct connection to bus bars in sub panel or requires installation of an additional sub panel.
2. Wire in rigid conduit or equal between customer's sub panels, external disconnect switch and junction box. Connect to M-25 using 1/2" conduit or equivalent.
3. Locate earth ground connection to panel grounding bar or to earth ground rod.
4. Locate 24" power cable. When installing the power cable do not use sensor connectors. Uses knock out at different location.
5. Connect ground earth cable from M-25 unit to Customer Sub Panel earth ground rod. Use existing power cable connectors for grounding cable. Ensure all mechanical connector secure and making full contact.
6. For rest of connection follow the Connection type#1 on page 5.

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Electrical Data Sheet

Model	M-25
Phase Configuration	277/480 WYE/DELTA AC 3Phase
Maximum Line Voltage	480V AC
Rating	25 kVar
Monitoring	PF,I,V, kVa,kVar, KW On Status Of Capacitors
Accuracy	2 kVar
Frequency	60Hz
Protection	3 Pole Circuit Breaker, Capacitor Inbuilt Protection P2
Lighting Strike	Circuit design with clearance and creep age distance/MOVs adequate MOVs not required.
Circuit breaker Required	60 Amp
Low Losses	0.5 Watt per kVar
Dissipation Factor	0.1% at 50 Hz and 25^0C
Human Protection	All High voltage shielded from contact.
Operating temperature range	50^oC Ambient
Max. Humidity	95% (Non Condensing)
Dimensions(L X H X D)	20” X 20” X 8.5” Metal Enclosure
Operating Life	Switching tested up to 90,000 times
Wire Gauge & Rating	8 AWG, 600V
Unit Weight	28 Kg

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Recommended Parts List

Item	Make	Part No.	Qnty.
Main Wire 8 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-1250-600	1
Wall Plug	Any	---	4
1/2” Conduit Connector	Any *	---	4
1/2” 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 M-25 unit shall be the responsibility of the qualified Electrician.