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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-300 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

Celec Energy manufactured component parts that can be used in a wide variety of industrial & commercial applications. The selection and application of Celec Energy products remains the responsibility of the equipment designer or end user. Celec Energy accepts no responsibility for how its products may be incorporated into final design. Under no circumstances should any Celec Energy 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 Energy must be passed through to the end user. Celec Energy offers a warranty only as to the quality of its product to confirm to the catalog specifications. No other warranty is offered. Celec Energy 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-300

Rated Voltage…… 480V AC

Phases…… Three phase Wye/Delta

Rated Frequency…… 60Hz

Maximum Current…… 362 Amp each phase

Rated kVar …… 300

Maximum Ambient Temperature …… 40^0C

Enclosure…… Type 1

Terminals	Wire Size	Connection Type	Torque N-m (Lb-in)
T1	**2 Wires of 250 KCMIL (on Each Phase)**	**Circuit Breaker (**Use Compression Lugs CT L250-12**)**	31 (274)
T2	18-22 AWG, Str.	CT Terminal Block	0.5 (7)
T3	18-22 AWG,Str.	RS 485 Terminal Block	0.5(7)
Earthing Terminals	2 AWG, Str.	Bonding	15 (133)

UNPACKING

1. Un Pack the M-300 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 M-300 given for support during transportation.
4. Install the Circuit Break handle on the door.
5. Do not use M-300 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 Place to Install the M-300 taking care conduit connections from Top Right side. Enclosure Size is 1000 x1400* x 300mm (W X H X D)
2. Fix the panel on floor or wall with appropriate sized fasteners.

*** Height With Feet 1500mm**

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Connection Type # 1

Use this instruction

*If 600 Amp. MCCB/SFU(*Switch Fuse Unit) *is available in customer Main Breaker Panel.*

M-300 is designed for use with Main Breaker Panel Three Phase 480V AC WYE/Delta Connection, up to 2000 Ampere. M-300 unit should be mounted on the wall or the floor with four appropriate sized fasteners before connect to Main Breaker Panel.

1.1 Power Connections

1.11 Using panel key open the door of M-300 exposing connections. Open the Busbar Shield.

1.12 Locate Earth Terminal in M-300 on the top, connect the earth wire to M-300 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 600 Amp MCCB/SFU(Switch Fuse Unit) in the Main Breaker Panel.

1.14 Connect 2 Power Cables of 250 KCMIL to each phase of MCCB/SFU.

1.15 Qualified Representative must inspect size of cable

1.16 Locate the Terminal T1 (L1,L2,L3) in M-300 Panel.

1.17 Connect Power cables of 250 KCMIL to Busbar in phase Sequence using copper compression lugs on both

Sides of Busbar.

1.18 Ensure the Torque to tight lugs on Busbar.

1.19 Reinstall the Busbar shield.

1.20 Make sure that No Spacing Error from Phase to Phase and phase to earth.

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 as shown in (figure 1) page 6.

1.22 Locate Terminal Block T2 (S1-S2) in M-300.

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.

1.3 RS 485 Connections

1.31 Locate the terminal T3(A-B).

1.32 Connect the wires 18-22 AWG from external RS 485 master due to preferably twisted together.

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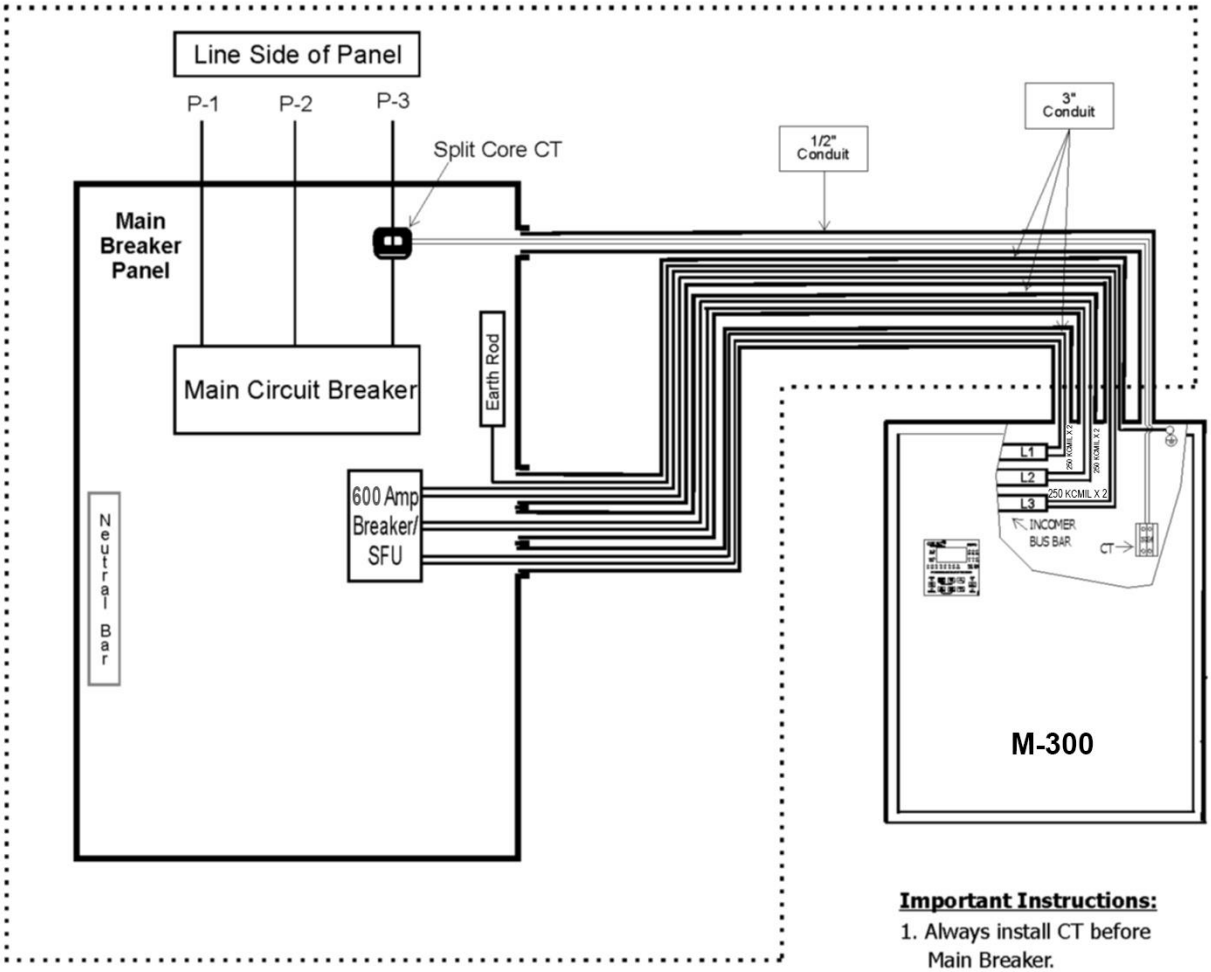
Connection Diagram



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 'rCE'.

Note:

- All Components used for installation must be UL listed or UL recognized.
- Earth Terminal in M-300 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 600 Amp MCCB / SFU is unavailable, existing blanks are available.

M-300 unit is designed for use with Customer Main Breaker Panel Three Phase 480V AC WYE/Delta Connection, up to 2000 Ampere.

M-300 units should be mounted with four appropriate sized fasteners before connect to Main Breaker Panel.

1. Remove existing 3 Pole breaker blanks and install new 3 Pole 600 Amp MCCB / SFU.
2. For rest of connection follow the Connection type#1 on page 5.

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Connection Type#3

Use this instruction

If 600 Amp. MCCB / SFU is unavailable and require a new disconnect switch or other approved device.

M-300 unit is designed for use with Customer Main Breaker Panel Three Phase 480V AC WYE/Delta Connection, up to 2000 Ampere.

Representative must purchase 600 Amp Blade-Fused Disconnect Switch or 600 Amp MCCB for connection of M-300 to Customer Main Breaker Panel.

1. Install new 600 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. Connect to M-300 using conduit.
3. Locate earth ground connection in M-300 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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Electrical Data Sheet

Model	M-300
Phase Configuration	Three Phase 480V AC WYE/Delta
Maximum Line Voltage	480V AC
Maximum Power	300 kVar
Steps	12
Monitoring	PF, kVA, kVar, Volt, Current, KW, & Capacitor Status
Accuracy	20 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.
MCCB / SFU Required	600 Amp 3 pole
Low Losses	1.5 Watt each step
Human Protection	All High voltage shielded from contact.
Operating temperature range	40^{o}C Ambient
Dimensions (W X H X D)	1000 x 1400* x 300 mm Metal Enclosure Type 1
Operating Life	Switching tested up to 6,000 times,
Dielectric Strength	1.96 kV for 1 min.
Unit Weight	

*__Height With Feet 1500mm__

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Recommended Parts List

Item	Make	Part No.	Qnty.
Cable 2X 250 KCMIL 600V	Any *	UL1015	As required
CT Wire 18-22 AWG Str. 600v	Any *	UL1015	As required
Foundation Bolts	Any *	UL 1015	As required
CT (Current Sensor)	Megnelab	SCT-2000-1000	1
Wall Plug (pin type) Size 10 x 75 mm	Any	---	4
1/2" Conduit Connector	Any *	---	4
1/2" Tube/Conduit	Any *	---	As required
Conduit Connector	Any *	---	As required
Tube/Conduit	Any *	---	As required
Compression Lugs CTL250-12	Any*	CTL250-12	6 Pcs.

***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-300 unit shall be the responsibility of the qualified Electrician