

**INSTALLATION NOTES**

Applicable for the following catalog numbers\*:

- 45-MC5 120VX CL10 03R (CDN 2EL/3M 120/208VX)
- 45-MC5 120VX CL10 06R (CDN 2EL/6M 120/208VX)
- 45-MC5 120VX CL10 09R (CDN 2EL/9M 120/208VX)
- 45-MC5 120VX CL10 12R (CDN 2EL/12M 120/208VX)

\*These instructions are also applicable when the same meter model number has the suffix: -E, -P or EP.

**CRITICAL:** The installation of the current transformer must be correct or the meter will not read properly. The load-current carrying wires must pass through the CT in the correct orientation, and the CT wires must be connected to the proper MCI screw terminals. Please see wiring diagram for reference.

Current transformers (CTs) are used to measure the current drawn by the loads to be metered. Within the meter, the current reading from the CT is combined with the voltage reading for the correct voltage phase to calculate the energy reading. CTs must be in phase with the reference voltage. The MCI inputs are each associated with a particular voltage phase in an A-B-C order. Input 1 is a phase A CT, input 2 is a phase B CT, input 3 is a phase C CT, input 4 is a phase A CT, and so on in A-B-C-A-B-C order.

For example, a CT which measures a load supplied by phase A must be installed on CT1, CT4, CT7, etc.. Current transformers which measure a load supplied by phase B must be installed on CT2, CT5, CT8, etc.. Lastly, current transformers which measure a load supplied by phase C must be installed on CT3, CT6, CT9, etc.

1. For the catalog numbers specified above, each A-B, C-A, and B-C combination is a single meter point (see Table 1 for full listing):

- Meter #1 (M#1) is CT1 and CT2
- Meter #2 (M#2) is CT3 and CT4
- repeat for M#3 to M#12

2. After completing all CT terminations, connect the four (4) current connectors and then remove the the twenty-four (24) shorting links.

3. Follow local codes for installation requirement, e.g. conduit, fused disconnect, distance, and wiring.

4. Installation of 0.1A inputs and CL10 or 5A inputs are the same.

5. For three (3), six (6), and nine (9) 3-phase metering points, model numbers:

- 45-MC5 120VX CL10 03R
- 45-MC5 120VX CL10 06R
- 45-MC5 120VX CL10 09R

use meter points M#1-M#3, M#1-M#6, and M#1-M#9, respectively. M#4-M#12, M#7-M#12, and M#10-M#12 are not functional for three (3), six (6), and nine (9) 3-phase metering points, respectively.



**CAUTION:** If breakers are energized, shorting links must be installed before:

- a) disconnecting the CT headers or
- b) replacing or installing meter heads on the panel.

**WARNING:** Bodily injury or damage may result if shorting links are not installed.

| Meter # (M#) | MCI Board CT # | Reference Voltage Phase |
|--------------|----------------|-------------------------|
| 1            | 1              | A                       |
|              | 2              | B                       |
| 2            | 3              | C                       |
|              | 4              | A                       |
| 3            | 5              | B                       |
|              | 6              | C                       |
| 4            | 7              | A                       |
|              | 8              | B                       |
| 5            | 9              | C                       |
|              | 10             | A                       |
| 6            | 11             | B                       |
|              | 12             | C                       |
| 7            | 13             | A                       |
|              | 14             | B                       |
| 8            | 15             | C                       |
|              | 16             | A                       |
| 9            | 17             | B                       |
|              | 18             | C                       |
| 10           | 19             | A                       |
|              | 20             | B                       |
| 11           | 21             | C                       |
|              | 22             | A                       |
| 12           | 23             | B                       |
|              | 24             | C                       |

Table 1. Phase Association Table

|   |      |                                |  |   |              |
|---|------|--------------------------------|--|---|--------------|
|  |      | Quadlogic Controls Corporation |  | TITLE   |              |
| SIGNATURES  |      | DATE                           |  | 1-PHASE, 3-WIRE 2EL 120/208V WIRING DIAGRAM (NETWORK)  |              |
| MODEL   | JREA | 04/01/07                       |  | SIZE DRAWING  |              |
| APPROVED  | JKIM | 04/24/07                       |  | 17-MC5120VRESCDN1.6R  |              |
| APPROVED  |      |                                |  | SCALE:  | REV 1.6.R    |
|   |      |                                |  |   | SHEET 1 of 3 |

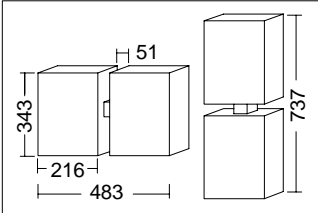
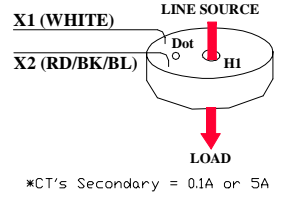
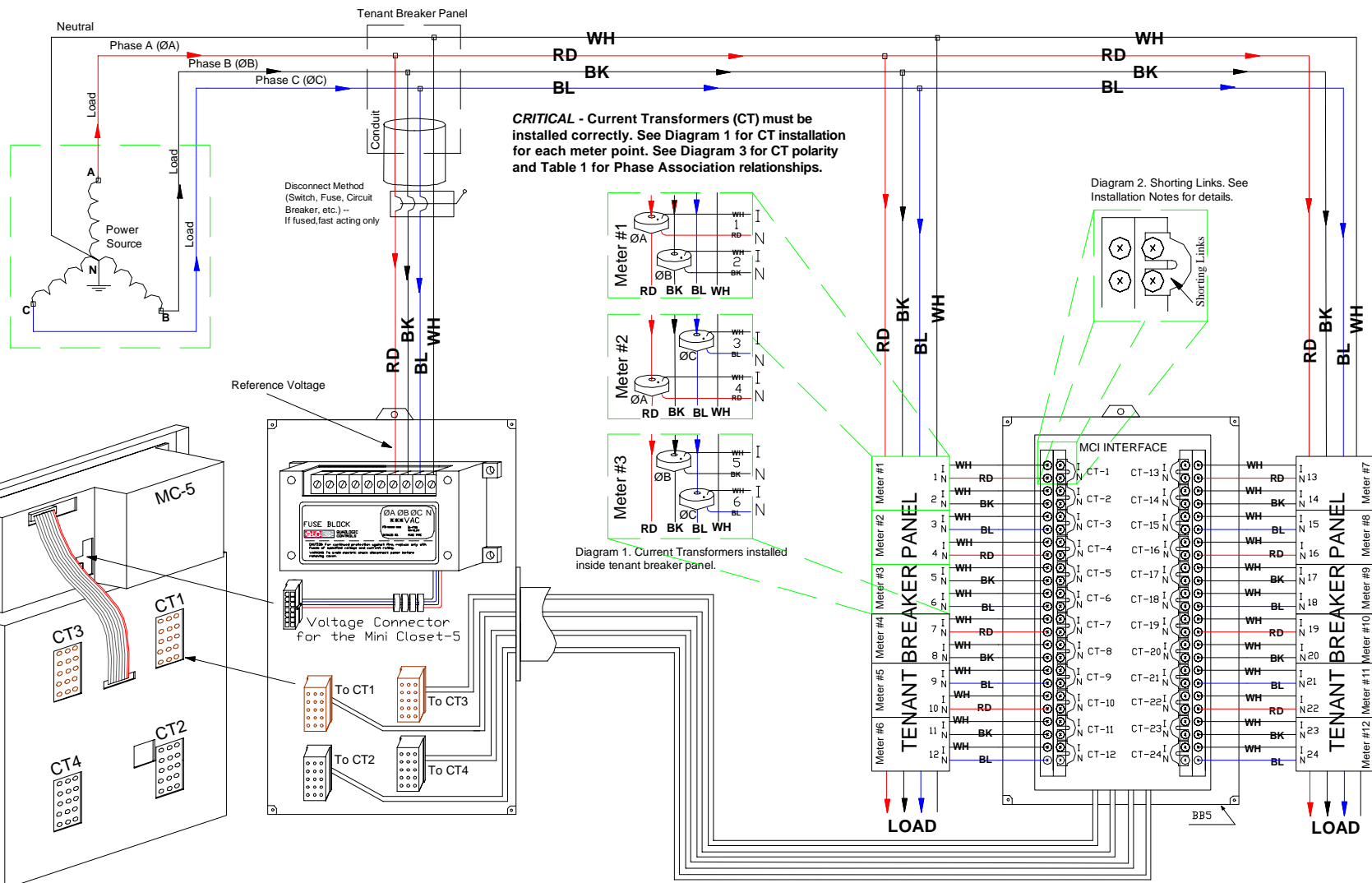


Diagram 4. Typical box orientation and dimensions (in cm).

|                      |      |                                |
|----------------------|------|--------------------------------|
| <b>QC</b> QUAD LOGIC |      | Quadlogic Controls Corporation |
| SIGNATURES           | JKIM | DATE 04/01/07                  |
| MODEL                | JKIM | DATE 04/01/07                  |
| DETAIL               |      |                                |
| APPROVED             | JREA | DATE 04/24/07                  |
| APPROVED             |      |                                |

|              |   |  |              |
|--------------|---|--|--------------|
| TITLE        | 1-PHASE, 3-WIRE 2EL 120/208V WIRING DIAGRAM (NETWORK) |  |              |
| SIZE DRAWING | 17-MC5120VRESCDN1.6R                                  |  |              |
| SCALE:       |   |  | REV 1.6.R    |
|              |   |  | SHEET 2 of 3 |

## BEFORE READING THE DISPLAY FOR ANY MC5 PRODUCT

CAUTION: When reading the meter display, all consumption and demand values must be multiplied by the correct multiplier to calculate true value. This includes all register values (kWh, kW, kVARHLg, kVARHLd, etc.) and Phase Diagnostic values (real time Amps, Watts, etc.).

Volts, phase angle, frequency and power factor are displayed on the LCD as their true values and should not be multiplied.

The multiplier value is dependent upon the ratio of the external Current Transformers (CTs) and can be different for different meter points. Please consult Table 1 CT Multipliers for the appropriate value dependent upon the rating (or size) of the CT.

### HOW CT MULTIPLIERS ARE CALCULATED:

#### 0.1AMP CTs

The multiplier values for CTs with 0.1A secondary ratings are derived by dividing the primary side rating by 100. For example, a 50:0.1A-rated CT will have a multiplier of  $50 \div 100$ , which is 0.50. A 100:0.1A rated CT will have a multiplier of  $100 \div 100$  which is 1.)

#### 5AMP CTs

For CTs with 5A secondary ratings, the multipliers are derived by dividing the primary side rating by 5. For example, a 200:5A-rated CT will have a multiplier of  $200 \div 5$ , which is 40.

#### EXAMPLE:

Meter point with 400:0.1A CT

LCD reading for meter is 3422.119kWh

The correct cumulative consumption (kWh) for this meter is **13688.476** kWh.

( $400 \div 100 = 4$ . Multiply face value for consumption and demand values by 4.  $3422.119 \times 4 = 13688.476$ )

**NOTE: Failure to use the appropriate multiplier will result in an incorrect diagnosis of the meter's functionality and incorrect revenue billing.**



| Meter Voltage Ratings                                    | CT Rating | Multiplier for 5.0A CT |
|--|-----------|------------------------|
| FOR<br>120V,<br>208V,<br>277V,<br>347V,<br>480V,<br>600V | 200A      | x40.0                  |
|  | 400A      | x80.0                  |
|  | 600A      | x120.0                 |
|  | 800A      | x160.0                 |
|  | 1200A     | x240.0                 |
|  | 1500A     | x300.0                 |
|  | 1600A     | x320.0                 |
|  | 2000A     | x400.0                 |
|  | 3000A     | x600.0                 |
|  | 3200A     | x640.0                 |
| 4000A  | x800.0    |                        |

|             |      |       |
|-------------|------|-------|
| FOR<br>240V | 100A | x20.0 |
|             | 200A | x40.0 |

Note: Contact Quadlogic for 0.1A CT multipliers.

Table 1. CT Multipliers

| REVISIONS |             |      |          |
|-----------|-------------|------|----------|
| REV.      | DESCRIPTION | DATE | APPROVED |
| 2         |             |      |          |
|           |             |      |          |
|           |             |      |          |

|   |  |   |  |
|---|--|---|--|
|  |  | Quadlogic Controls Corporation<br>SIGNATURES      DATE<br>MODEL      JKIM      04/01/07<br>DETAIL<br>APPROVED      JREA      04/24/07<br>APPROVED | TITLE<br>1-PHASE, 3-WIRE 2EL 120/208V WIRING DIAGRAM (NETWORK)  |
|   |  | SIZE DRAWING<br>17-MC5120VRESCDN1.6R  | REV<br>1.6.R   |
|   |  | SCALE:  | SHEET 3 of 3   |