

California Type Evaluation Program
Certificate of Approval
For Weighing and Measuring Devices

For:
 Electronic Watthour Meter
 Models: X120-X2 X
 Generic Name: M3 Series Center
 Voltage Rating: 120/208/240 VAC
 Class (CL): 200 (200 Amps Max.)
 Test Amps (TA): 30 Amps
 Watthour Test Constant (Kh) = 10 Wh or 0.01 kWh

Submitted by:
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Standard Features and Options

Model Number Matrix Designation:

X	120	-	X	2		X
S = Standard 1-2 meters per Printed Circuit Board (PCB)	120 VAC	-	T = 2 meters on one PCB	Maximum Current: 200A	Blank Space	M = Microcontroller Based Meter
Q = Quad 1-4 meters per PCB			Q = 4 meters on one PCB			S = Metering Chip type of Meter

M3 Series Center (Generic Name) Designation:

M3-8 = 8 meters max. on 4 PCBs (2 meters per each PCB)
 M3-16 = 16 meters max. on 8 PCBs (2 meters per each PCB)
 M3-24 = 24 meters max. respectively on 6 PCBs (4 meters per each PCB)

External Scrolling Indicator:

Meter Display Unit (MDU): 120 VAC adaptor, 1.0 kWh register.

Current Transformers (CT's):

Intellimeter Canada Inc., Model Number: CT2001, closed loop style, accuracy class 0.3, rating 200A, CTR 200:0.1A or 2000:1 Standard CT.

Intellimeter Canada Inc., Model Number: INTBT201S, closed loop style, accuracy class 0.3, rating 200A, CTR 200:0.1A or 2000:1, mounting sleeve CT.

Options:

Internet access meter registration (sub-metering software not evaluated)

Note: Internet access can be used in conjunction with the MDU, but can not replace it.

This device was evaluated under the California Type Evaluation Program (CTEP) and was found to comply with the applicable requirements of California Code of Regulations for "Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.



Edmund E. Williams, Director

Intellimeter Canada Inc.
Electronic Watt-hour Meter
Models: X120-X2 X

Application: For use as a wathour metering system in legally sub-metered electric service applications.

Identification: The main meter identification information (**examples below**) is on the main ID and on the face of the M3-center case. The serial numbers are on the main meter label and a supplemental serial number label on each individual meter printed circuit board (**Pages 4 and 5**). The meter number is also labeled on the clear plastic cover (**Page 3**). The PT2K (Pulse Tracker) number is also listed on the main ID and it coincides with a group of 1 to 8 meters for each PT2K. For example, PT2K1 coincides with meters 1-8/channels 1-8, PT2K2 coincides with meters 9-16/channels 1-8, and finally PT2K3 coincides with meters 17-24/channels 1-8. **See the note on page 7** for the additional meter number requirements. A legend to assist in identifying which apartment, suite, slip or coach number coincides with a specific PT2K and channel number is provided.

Main ID Labels examples

				<h3>M3-8 CENTER</h3>								<h3>M3-16 CENTER</h3>																			
PT2K SERIAL NUMBER: XXXXX								PT2K 1 SERIAL NUMBER: XXXXX								PT2K 2 SERIAL NUMBER: XXXXX															
MTR/CH	SERIAL NO.	MTR/CH	SERIAL NO.	MTR/CH	SERIAL NO.	MTR/CH	SERIAL NO.	MTR/CH	SERIAL NO.	MTR/CH	SERIAL NO.	MTR/CH	SERIAL NO.	MTR/CH	SERIAL NO.	MTR/CH	SERIAL NO.														
01/01	0700047-1	02/02	0700047-2	03/03	0700144-1	04/04	0700144-2	05/05	0700208-1	06/06	0700208-2	07/07	0700026-1	08/08	0700026-2	01/01	0700008-1	02/02	0700008-2	03/03	0700341-1	04/04	0700341-2	05/05	0700350-1	06/06	0700350-2	07/07	0700185-1	08/08	0700185-2
Manufacturer: Intellimeter Canada Inc. Model: S120-T2 M Voltage Rating: 120/208/240 VAC Test Amperes (TA): 30 A Maximum Amperes (CL): 200 A Watt-hour constant (kh): 10 wh Register ratio (Rr) and multiplier: 1 Frequency rating(Hz): 60/50Hz Number of meter elements: 3 CT Ratio: 200: 0.1A								Manufacturer: Intellimeter Canada Inc. Model: S120-T2 M Voltage Rating: 120/208/240 VAC Test Amperes (TA): 30 A Maximum Amperes (CL): 200 A Watt-hour constant (kh): 10 wh Register ratio (Rr) and multiplier: 1 Frequency rating(Hz): 60/50Hz Number of meter elements: 3 CT Ratio: 200: 0.1A								Manufacturer: Intellimeter Canada Inc. Model: S120-T2 M Voltage Rating: 120/208/240 VAC Test Amperes (TA): 30 A Maximum Amperes (CL): 200 A Watt-hour constant (kh): 10 wh Register ratio (Rr) and multiplier: 1 Frequency rating(Hz): 60/50Hz Number of meter elements: 3 CT Ratio: 200: 0.1A															

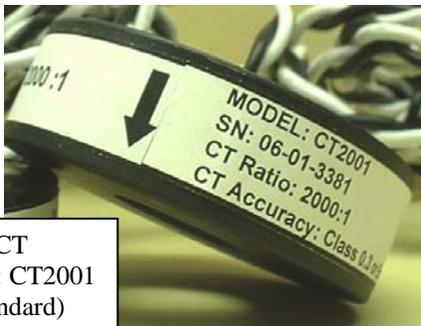
Meter and Channel numbers

PT2K tracker numbers 1, 2 or 3

Meter serial number

								<h3>M3-24 CENTER</h3>																							
PT2K 1 SERIAL NUMBER: XXXXX								PT2K 2 SERIAL NUMBER: XXXXX								PT2K 3 SERIAL NUMBER: XXXXX															
MTR/CH	SERIAL NO.	MTR/CH	SERIAL NO.	MTR/CH	SERIAL NO.	MTR/CH	SERIAL NO.	MTR/CH	SERIAL NO.	MTR/CH	SERIAL NO.	MTR/CH	SERIAL NO.	MTR/CH	SERIAL NO.	MTR/CH	SERIAL NO.														
01/01	0700660-1	03/03	0700660-3	04/04	0700660-4	02/02	0700660-2	05/05	0700711-1	07/07	0700711-3	08/08	0700711-4	06/06	0700711-2	09/01	0700652-1	11/03	0700652-3	12/04	0700652-4	10/02	0700652-2	13/05	0700678-1	15/07	0700678-3	16/08	0700678-4	14/06	0700678-2
Manufacturer: Intellimeter Canada Inc. Model: Q120-Q2 M Voltage Rating: 120/208/240 VAC Test Amperes (TA): 30 A Maximum Amperes (CL): 200 A Watt-hour constant (kh): 10 wh Register ratio (Rr) and multiplier: 1 Frequency rating(Hz): 60/50Hz Number of meter elements: 3 CT Ratio: 200: 0.1A								Manufacturer: Intellimeter Canada Inc. Model: Q120-Q2 M Voltage Rating: 120/208/240 VAC Test Amperes (TA): 30 A Maximum Amperes (CL): 200 A Watt-hour constant (kh): 10 wh Register ratio (Rr) and multiplier: 1 Frequency rating(Hz): 60/50Hz Number of meter elements: 3 CT Ratio: 200: 0.1A								Manufacturer: Intellimeter Canada Inc. Model: Q120-Q2 M Voltage Rating: 120/208/240 VAC Test Amperes (TA): 30 A Maximum Amperes (CL): 200 A Watt-hour constant (kh): 10 wh Register ratio (Rr) and multiplier: 1 Frequency rating(Hz): 60/50Hz Number of meter elements: 3 CT Ratio: 200: 0.1A															

The external CT identification is on each CT (See pictures below).



CT Model: CT2001 (standard)

Approved Current Transformers (CT's)



CT Model: INTBT201S (with mounting sleeve)

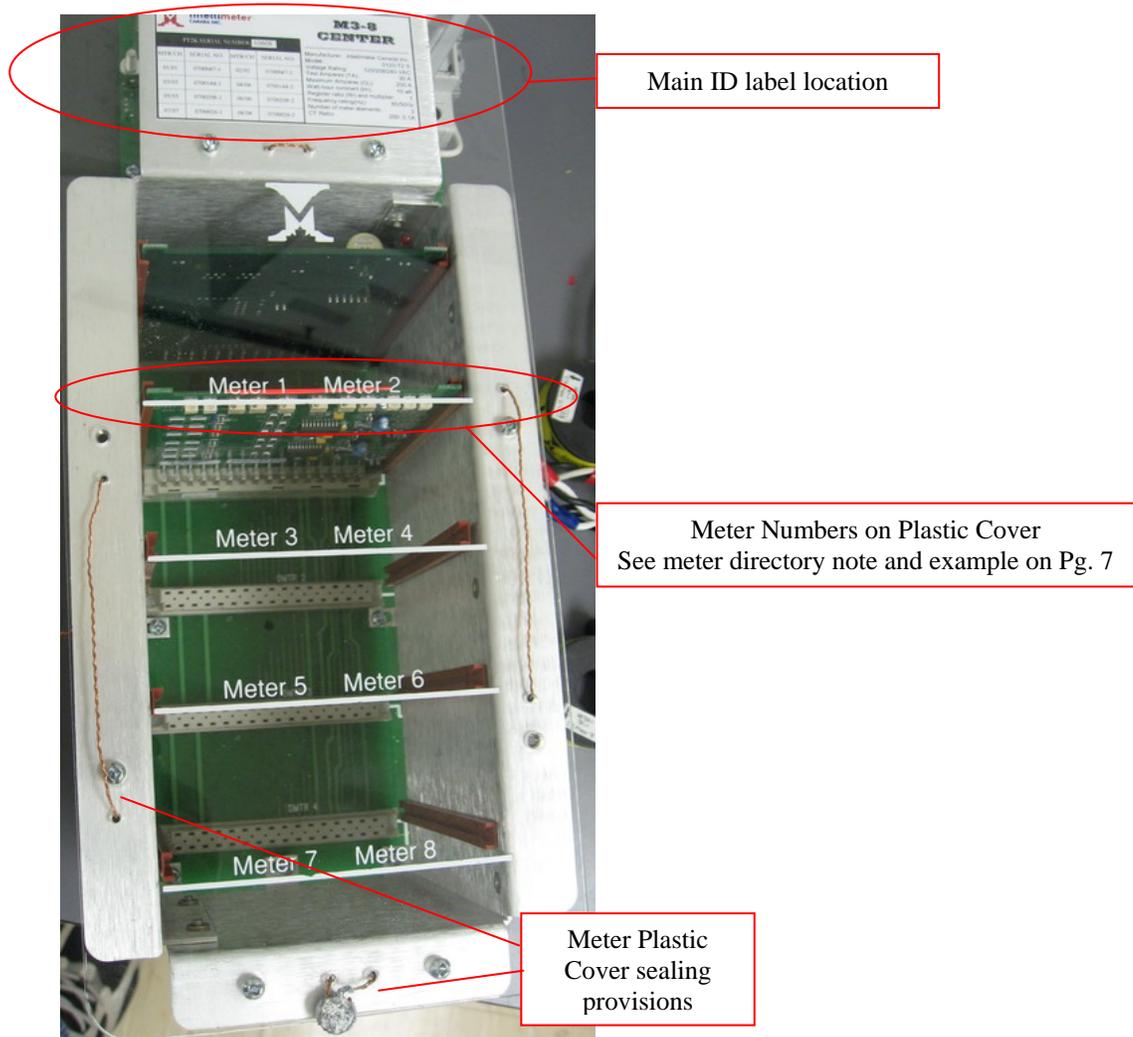
Mounting sleeve

Intellimeter Canada Inc.
Electronic Watt-hour Meter
Models: X120-X2 X

Sealing: The Metering Chip PCB type “S” sealing provision is as follows: The M3 Center meter case and clear plastic cover may be secured with wire security seals to prevent access to the adjustable potentiometers inside. Factory adhesive tamper evident seals cover the CT wire terminals plug connection for securing the plug to the meter box. The meter may also be installed in a NEMA enclosure that shall have its own sealing provisions. A properly sealed NEMA enclosure can replace the previously mentioned CT and M3 Center provisions. **See picture below.**

The Microcontroller PCB based meter type “M” sealing provision is as follows:

The same wire security seal as above except the clear plastic cover protects configuration jumpers. Meter is factory calibrated prior to sealing. Meter is incapable of field calibration. **See picture below.**



Operation: M3-Series Meters: Meter PCB’s have one “Green” LED per board to indicate power is at the meter. A “red and yellow” LED is provided for each meter on the PCB. The red LED pulse indicates 0.01 kWh or 10 watt-hours per increment one cycle (on/off/on) is 10wh. This is used for meter accuracy testing. **(See Page 4&5)**

The CT’s line and load are direction sensitive. When a CT is connected incorrectly, the yellow LED blinks on the “M” type and is on continuously on the “S” type (the CT arrow points toward the load).

**Intellimeter Canada Inc.
Electronic Watt-hour Meter
Models: X120-X2 X**

Approved Meters PCB's

Figure 1 Model Q120-Q2 M (Quad Microcontroller Type)

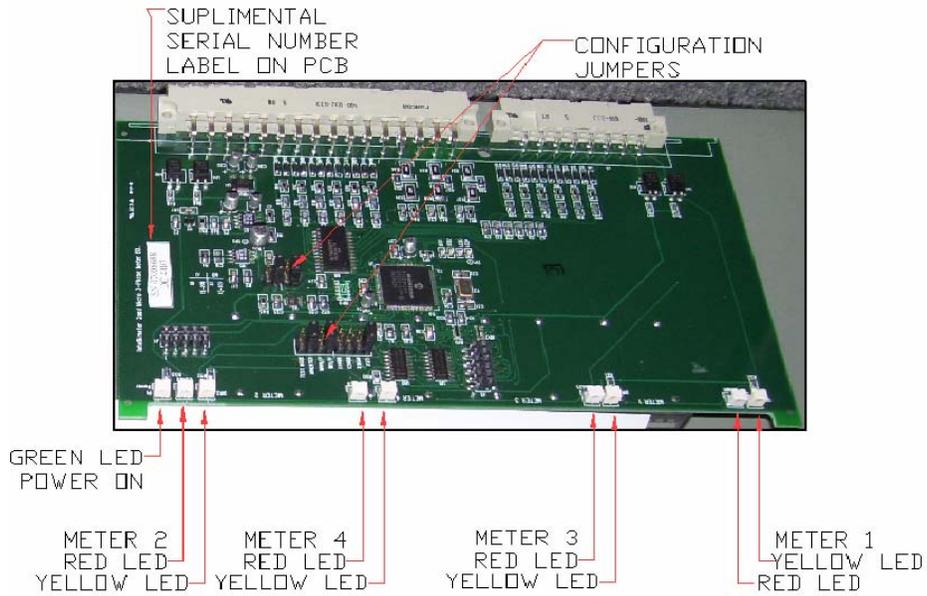
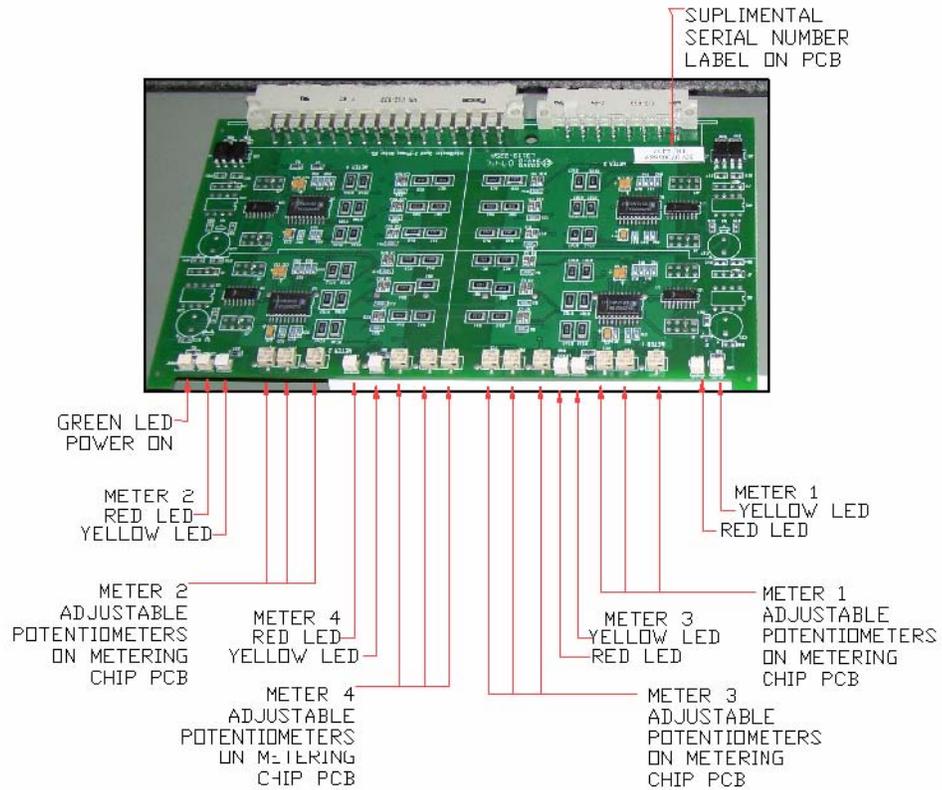


Figure 2 Model Q120-Q2 S (Quad Metering Chip Type)



**Intellimeter Canada Inc.
Electronic Watt-hour Meter
Models: X120-X2 X**

Figure 3
Model S120-T2 M (Standard Microcontroller Type)

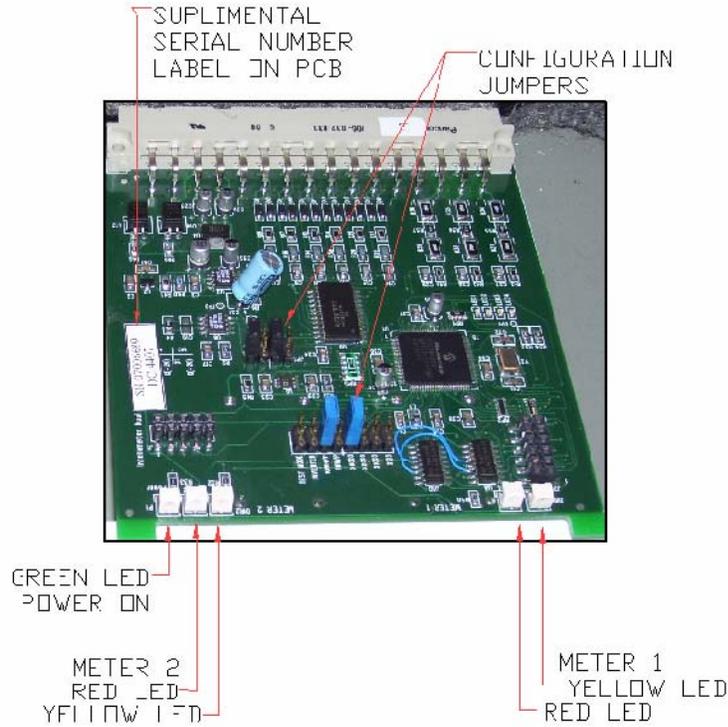
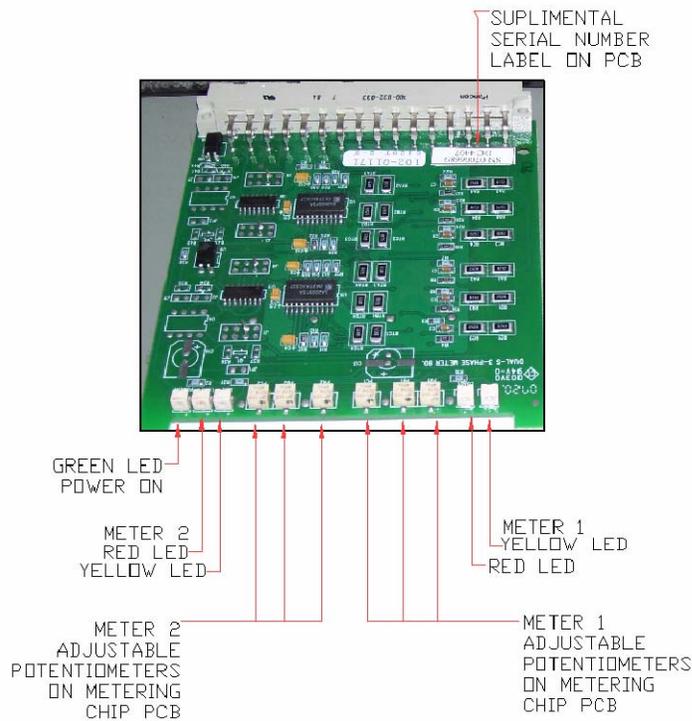


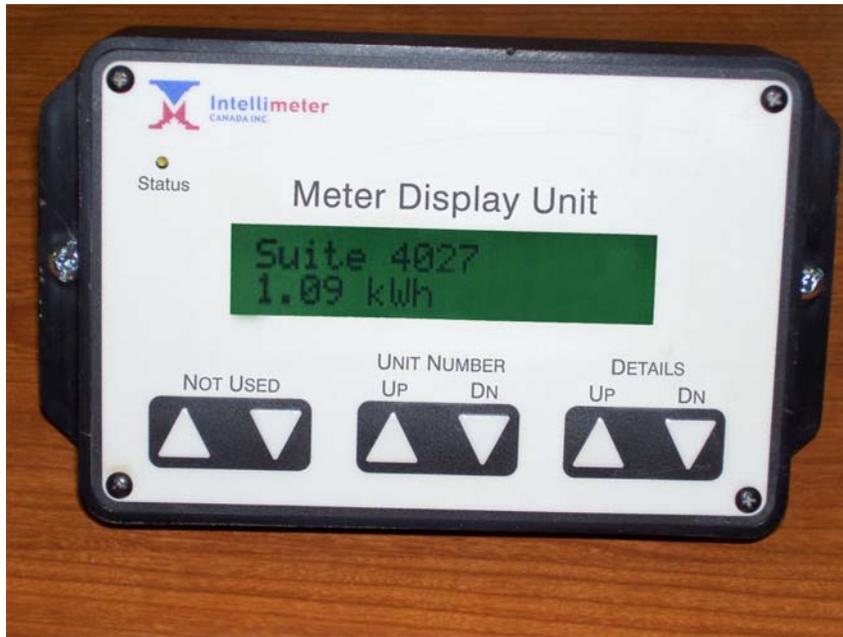
Figure 4
Model S120-T2 S (Standard Metering Chip Type)



**Intellimeter Canada Inc.
Electronic Watt-hour Meter
Models: X120-X2 X**

Meter Display Unit

The Meter Display Unit (MDU) is a tenant display for registration that automatically cycles through the customer identifier (Unit, Suite, Apt., Slip or Coach) at a three second interval. A tenant can wait for their unit number to come up or they could press the up/down “Unit Number” buttons until their unit and registration are displayed.



Sample Main Window (showing lines one and two)

The MDU has four lines of information, up to 16-characters per line. Only two lines of information are viewed in the window at one time.

Line 1 “customer identifier” Line 2 “meter reading”
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The Meter Display Unit is also equipped with “Detail” push buttons for the convenience of the installer and inspectors. After selecting the “Unit Number” using the up/down scroll buttons, the inspector can use the detail button to access the following detailed information:

Line 3 “meter number and location of meter” Line 4 “PTracker number”

Lines 1 and 3 are programmable text and can be entered into the PTracker text fields and displayed by the MDU. “Customer Identifier” is entered as Unit, Suite, Apt., Slip or Coach or the appropriate description to site requirements. “Meter number (also displayed on the sealable plastic cover) and location” are specific to site requirements.

Lines 2 and 4 display secure meter information from the PTracker and are ***not*** programmable

**Intellimeter Canada Inc.
Electronic Watt-hour Meter
Models: X120-X2 X**

Press the “Detail Button” once and the total KWH plus the meter number and power panel designation as shown below:

430.23 kWh
Meter 15 PNL 57

Press the “Detail Button” twice. The meter number, power panel designation, PTracker and channel is shown as shown below:

Meter15 PNL 57
PT8053-3

Note: “Meter 15 and PT8053-3 is an example showing the required information for confirming the customer identifier (Unit, Suite, Apt., Slip or Coach) to a specific meter ID badge. This is important to know when testing to help insure that the correct watt-hour registration going to the MDU is coming from the correct meter.

After a one-minute pause, the display will automatically resume cycling through the customer identifier (Unit, Suite, Apt., Slip or Coach) at a three second interval.

Installation or testing

When connected to the sub-metering system, the MDU will discover the PTrackers attached to the system, and record the programmed information corresponding to their exact installation, (Unit number {line 1} and Meter number/Panel Number, {line 3})

If a meter is taken out of service or does not report, a “Not Found” message is displayed on line two.

Sample of main window if PTracker is removed from service

Unit 3052
NOT FOUND

After the initial start up, the Meter Display Unit will discover any new meters entered into or removed from the system by power cycling the Meter Display Unit which initiates automatic discovery.

**Intellimeter Canada Inc.
Electronic Watt-hour Meter
Models: X120-X2 X**

Test Conditions: The M3-8, M3-16 and M3-24 centers, Meter Models S120-T2 M, S120-T2 S, Q120-Q2 M and Q120-Q2 S with external current transformers and a Data Display LCD indicator were submitted for evaluation. The meters were initially tested at the Division of Measurement Standards (DMS) lab. The meters were then installed on a test bench and subjected to various test loads. After a permanence period of approximately 28 days the meters were retested. The meters were subjected to accuracy tests from 3 amps to 30 amps at both unity and 0.5 power factors. Starting load and creep tests were also conducted.

Results of the evaluation indicate the devices comply with applicable requirements.

Type Evaluation Criteria Used: Title 4, California Code of Regulations, 2008 Edition

Tested By: John Roach (CA)

NOTE: Each additional ID and instruction is required on or near the clear plastic cover indicating unit, suite, apartment, slip or coach number, so the tenant knows which meter is theirs and how to scroll to their specific meter register. (See meter legend below)

M3-24 METER CENTER DESIGNATION

Meter#	Suite#	Meter#	Suite#	Meter#	Suite#	Meter#	Suite#
MTR#01		MTR#03		MTR#04		MTR#02	
MTR#05		MTR#07		MTR#08		MTR#06	
MTR#09		MTR#11		MTR#12		MTR#10	
MTR#13		MTR#15		MTR#16		MTR#14	
MTR#17		MTR#19		MTR#20		MTR#18	
MTR#21		MTR#23		MTR#24		MTR#22	

Meter Numbers

Unit, Suite, Apt., Slip or Coach

M3-16 METER CENTER DESIGNATION

Meter#	Suite#	Meter#	Suite#
MTR#01		MTR#02	
MTR#03		MTR#04	
MTR#05		MTR#06	
MTR#07		MTR#08	
MTR#09		MTR#10	
MTR#11		MTR#12	
MTR#13		MTR#14	
MTR#15		MTR#16	

Meter Legend Examples

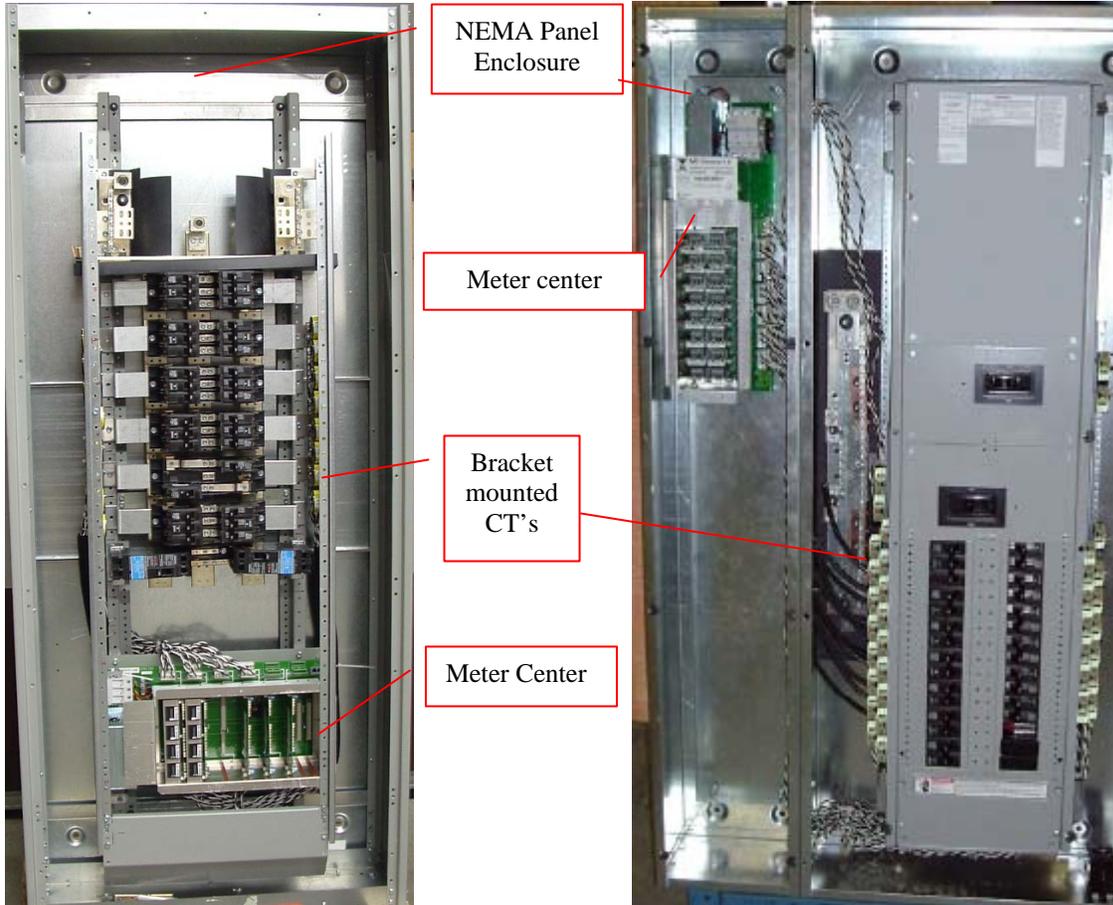
After the Suite number is written in the by the service agent, a tenant can find which meter belongs to a specific suite number.

M3-8 METER CENTER DESIGNATION

Meter#	Suite#	Meter#	Suite#
MTR#01		MTR#02	
MTR#03		MTR#04	
MTR#05		MTR#06	
MTR#07		MTR#08	

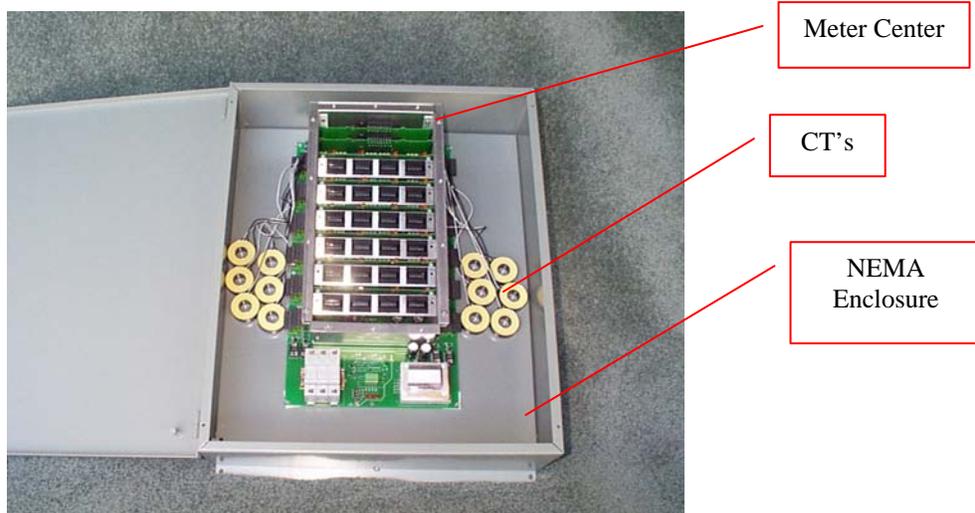
**Intellimeter Canada Inc.
Electronic Watt-hour Meter
Models: X120-X2 X**

Installation Applications



Embedded Meter Center

Integrated Meter Center



Meter Center in NEMA Enclosure

Intellimeter Canada Inc.
Electronic Watt-hour Meter
Models: X120-X2 X

Wiring Overview

