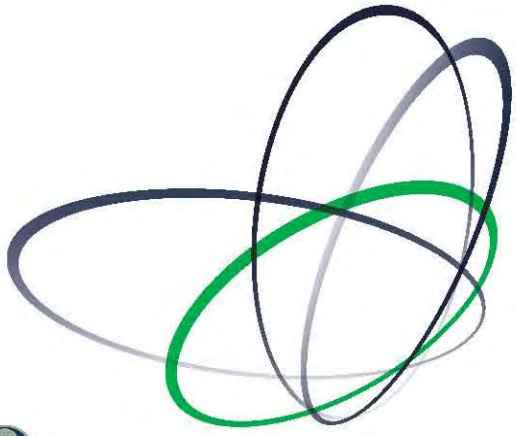
i-meter® EVCMC
USER MANUAL

Ver.2.61



i-meter®
Innovative Metering Solutions

Contents

Page Left Intentionally Blank

Warning

Field electrical installers must follow proper safety precautions and all local electrical code requirements during the EVCMC installation. During normal operation of this device, hazardous voltages are present which can cause severe injury or death. It is strongly recommended that only qualified, properly trained personnel should perform installation and servicing.

Disclaimer

The information presented in this publication has been carefully reviewed and verified; however, Intellimeter assumes no responsibility for inaccuracies and reserves the right to modify, alter and change the information provided in this document without notice Intellimeter does not accept any responsibility and will not be liable for any loss or damage or expense of any kind whatsoever and howsoever caused by improper installation of its products, be it indirect, special, incidental or consequential damages (including but not limited to damages for loss of business, loss of profits, interruption or the like). Please refer to Intellimeter Terms and Conditions of Sale available at https://intellimeter.com/pages/terms-of-service-privacy-statement

Customer Support

To report any issues, please contact Intellimeter at 905-839-9199 or email service@intellimeter.com. Please note that prior to returning any merchandise to Intellimeter, a return material authorization (RMA) number must be obtained.

Statement of Calibration

The accuracy and calibration of our meters are traceable to Measurement Canada, a division of Industry Canada.

Electrical Code

The installer is responsible for ensuring that all safety and local electrical codes are followed.

1. Introduction

The i-meter®EVCMC (Electric Vehicle Charger Meter and demand Controller) manages EVSE (Electric Vehicle Supply Equipment also known as EV Chargers) two-way power flow to optimize grid assets and maintain grid power operational limits. The metering device is a self-contained meter and includes a controlling device mounted in NEMA 1 enclosure suitable for indoor operation. EVCMC consists of a distribution panel with adequate thermo-magnetic circuit breakers, a revenue grade meter module and mechanically latched switching relays (see Fig.1 below), which can be added from 1 to N metering and switching modules. The typical system has one 3-phase main meter[1] with twelve, eighteen or twenty-four 2-phase meters coupled to 2-phase relays (contactors).

2. Description

EVCMC is an integrated EVEMS (Electric Vehicle Energy Management System) with switching control that utilizes a measuring system, designed for Level II EV Chargers, that includes 100:0.1A current transformers for submetering modules (or branch modules) and a set of either three of 200:0.1A, 400:0.1A or 600:0.1A current transformers for measuring the main[2] feed of the distribution panel equivalent to the total load and 40A mechanically magnetic latching relays.

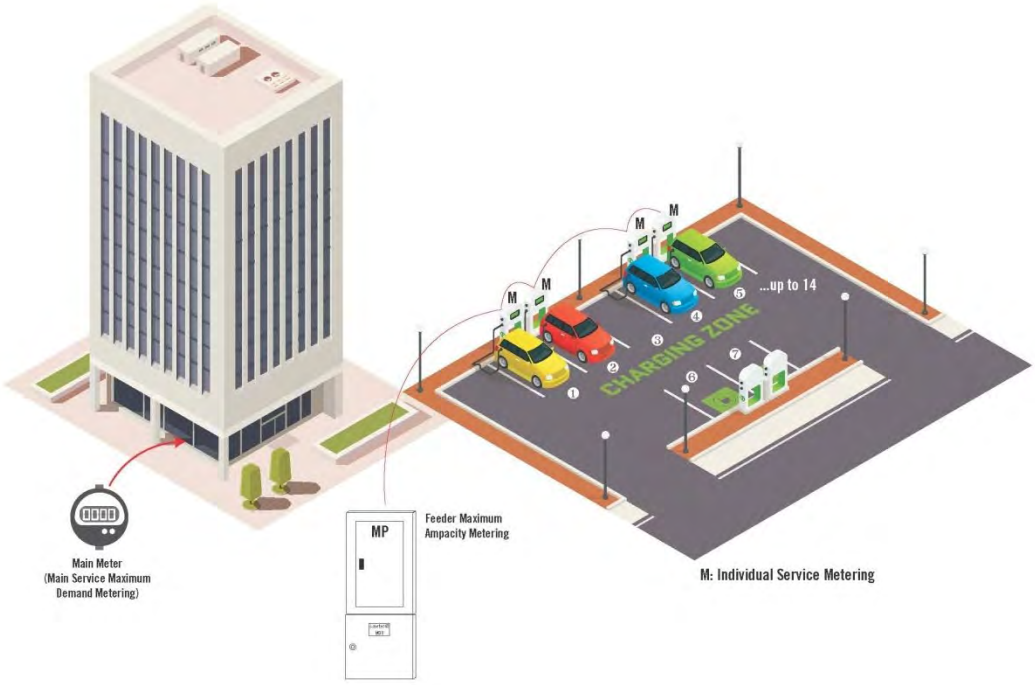


Fig. 1 Overview i-meter®EVCMC applications

[1]The i-meter®EVCMC can be set up to more than one main meters. Total load of all main meters can be used to prevent whole system from over load or exceeded peak kW demand.

[2] This main feed is for a single local panel. EVCMC can have multiple main meters.

Fig.2 Typical i-meter®EVCMC-12 system

The EVCMC can be ordered by one of the series (model number) below.

- EVCMC-12 – For 8- to 12 Level II chargers
- EVCMC-18 – For 13- to 18 Level II chargers

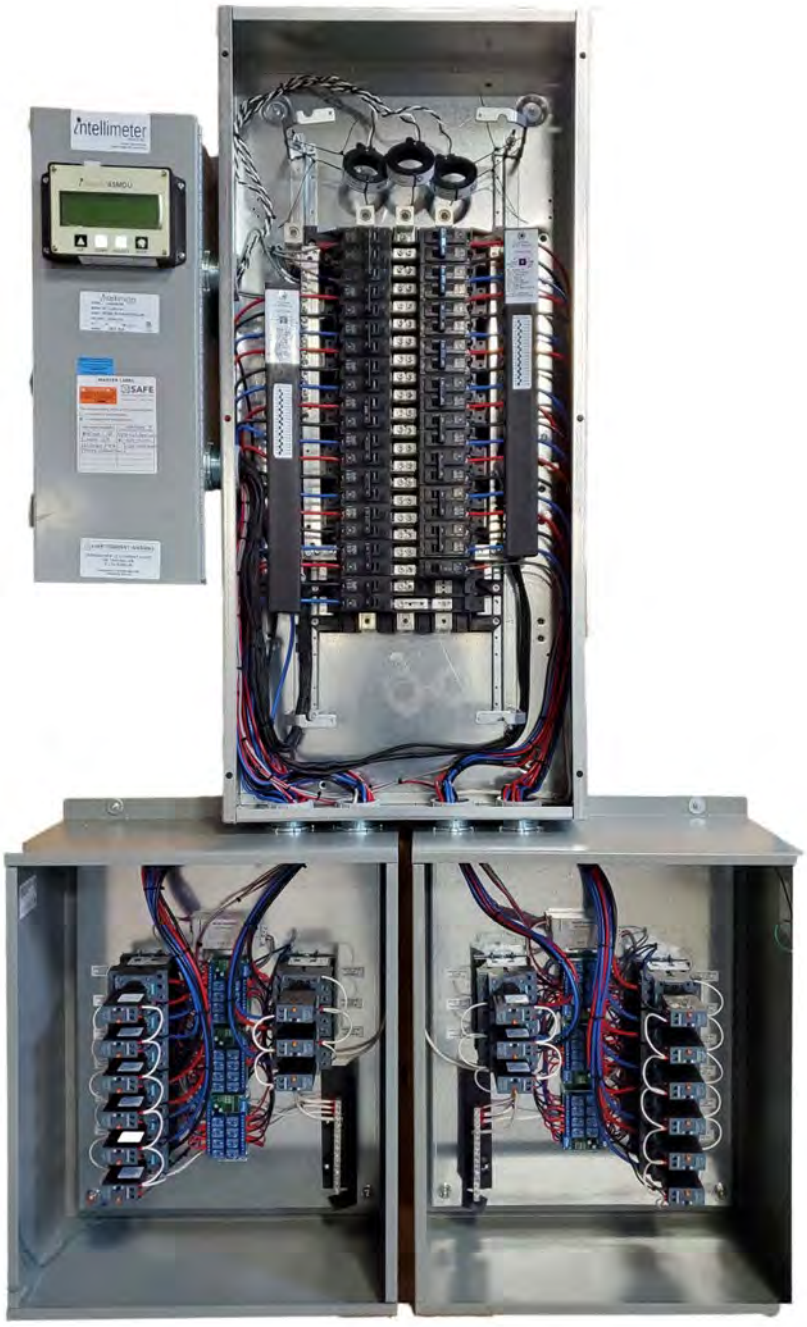


Figure 1Typical EVCMC-18

- EVCMC-24 – For 19- to 24 Level II chargers

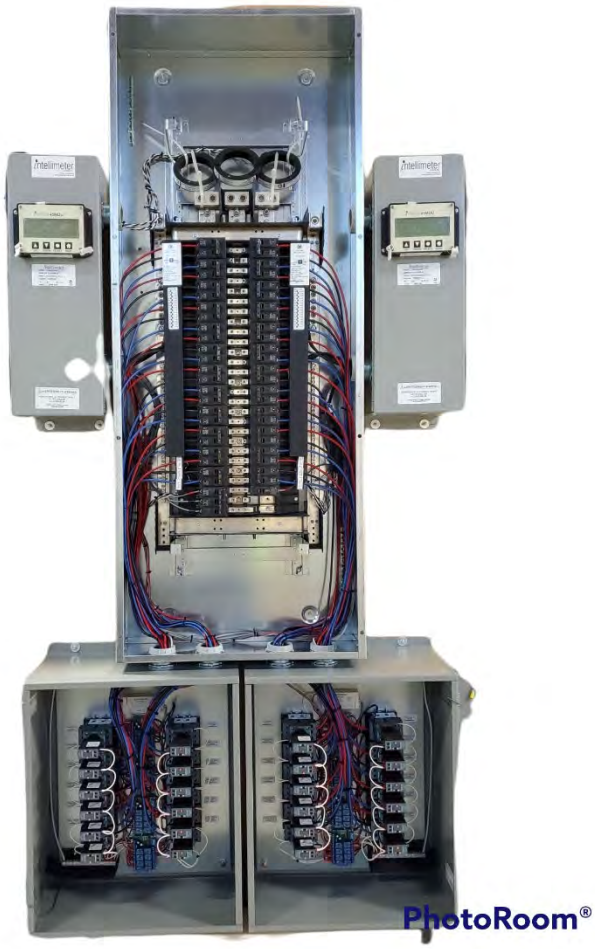


Figure 2Typical EVCMC-24

- EVCMC-30 – For 25- to 30 Level II chargers

2.1.Metering device

The metering device is Intellimeter's i-meter®45 meter. The i-meter® 45 provides critical kWh as well as the ability to monitor Volts, Amps, KiloWatts, Power Factor, Frequency and Harmonics (*V, I, kW, kVA, PF, Hz, THD (V/I)).*

Table 1 EVCMC metering device configuration

Model No.	i-meter®45 meter 1 configuration	i-meter®45 meter 2 configuration
EVCMC-12	2x6 branch meters: 2φ, 3W 1 main meter: 3φ, 4W	n/a
EVCMC-18	2x9 branch meters: 2φ, 3W 1 main meter: 3φ, 4W	n/a
EVCMC-24	12 branch meters: 2φ, 3W	12 branch meters: 2φ, 3W 1 main meter: 3φ, 4W
EVCMC-30	15 branch meters: 2φ, 3W	15 branch meters: 2φ, 3W 1 main meter: 3φ, 4W
Note:		

2.2.Control device

The EVCMC is to optimize grid assets and maintain grid power operational limits for three typical EVSE that they are Level 1, Level 2 and Level 3 EVSE.

- Level 1 EVSE: 120VAC, 15-20A, 1Φ2W, Output – 1.4 kW;
- Level 2 EVSE: 208/240VAC, 20 to 80A, 1Φ3W or 2Φ3W, Output – 3.3 – 19.2kW;
- Level 3 EVSE: 277/480VAC – 347/600VAC, 3Φ3W (this option requires adder potential transformers), 3Φ4W or DC Fast Charging, Output –50kW and up.

Note: For Level 3 EVSE, the service type shall be a custom design.

3. Control Logic

3.1.General

There is an option to have the metering device measures the active power W_{main} of the total incoming power to the building prior to the installation of the EVSE, and the active power

W_{EVSE} of all EVSE installed (all the chargers in the building or facility). The controlling device shall maintain the equation (1) true by switching ON or switching OFF individual EVSE. In a similar way, EVCMC shall maintain the equation (2).

$$W_{peak} \geq W_{main} \quad \text{(1)}$$

$$W_{main} = W_{all\ other\ loads} + W_{EVSE} \quad \text{(1a)}$$

Where W_{EVSE} is the active power of all EVSE in the facility, installed after the W_{main}.
W_{peak} is the limitation kW or Maximum Peak kW demand of incoming power to the facility.

$$I_{max} \geq I_{main} \quad \text{(2)}$$

$$I_{main} = I_{all\ other\ loads} + I_{EVSE} \quad \text{(2a)}$$

Where I_{EVSE} is the total current of all EVSE installed (all the chargers in the building or facility), I_{max} is the limitation of total incoming current at the main point of connection to the building.

3.2. Control Specification

EVCMC power on – All relay switches shall be OFF. The EVCMC control software turns off all relay switches one at a time, one by one, the delay time should be > 50ms (Depending on the type of relay switches.).

- Energize an EVSE – After turning off all relay switches, energize EVSE by turning on the relay-switch 1 to N;
- Measuring/controlling period shall be 1min to 5min;
- Switch ON EVSE, which has the least load, $W_{min}(m)$;
- Switch OFF EVSE, which has the least load, $W_{min}(m)$ and $T_{on}(m)$>30min.

Note: $T_{on}(m)$>30min can be ignored if there is no EVSE to meet the criteria;

- Switch ON the EVSE, which has been OFF for 4 hours. Switch OFF other EVSE if equation 1 is not true.
- Logged parameters for each EVSE with time stamp
  - Total energy consumption (kWh): E_m
  - Time OFF (min): $T_{off}(m)$
  - Time ON (min): $T_{on}(m)$
- Other options (**additional costs may apply**)
  - Voltage, Current and Wattage per phase: $V_a(m)$, $V_b(m)$, $V_c(m)$, $I_a(m)$, $I_b(m)$, $I_c(m)$, $W_a(m)$, $W_b(m)$,$W_c(m)$;
  - Voltage & Current THD per phase: V_a-THD(m), V_b-THD(m), V_c-THD(m), I_a-THD(m), I_b-THD(m), I_c-THD(m)
  - EVSE ID (Reserved for future use): 20 characters

Where the m is the EVSE number, 1 to N.

3.3. Control Threshold

EVCMC prevents relay switches from hunting (vibration) by using a threshold of ±5% of the maximum limitation. For an example, the $W_{peak}$is 90kW, so $W_{peak\text{-}top}$ is 9.45kW, $W_{peak\text{-}bottom}$ is 85.5kW. In this case, the $W_{peak\text{-}top}$ shall be used in equation 1 while in switching OFF control process and the $W_{peak\text{-}bottom}$ shall be used in equation 1 while in switching ON control process. The threshold can be setup to other value depending on the system requirements, but $W_{peak\text{-}top}$ must be less than or equal to the absolute maximum W_{peak} or I_{max}.

4. Control & Measurement Software

4.1. EVCMC Station Online Mode

EVCMC Panel supports three types of Online Mode. The station will detect the internet connection and the connection with the database and then decide which mode it is going to run at when the software is executed.

Online Mode	Priority	Description
[Remote Online] *1	1	The EVCMC station is connecting to the Internet. It can successfully connect into the Remote Database (Intellimeter Cloud Database) by SSH.
[Local Online] *1	2	The EVCMC station is NOT connected to the Internet. But it can successfully into Local MySQL Database.
[Offline] *2	3	The EVCMC station can neither connect to the Internet nor Local MySQL Database.

Note:
*1: On [Remote Online] or [Local Online] mode, the ON/OFF control of the relays can be based on the historical average reading of each meter.

*2: On [Offline] mode, the ON/OFF control of the relays is based on a first-on-first-off and first-off-first-on sequence.

4.2. EVCMC Station Setup

4.2.1. Setup Parameters

EVCMC has the following setup parameters that can be configured into Database or Local Setup File.

No.	Parameter	Data Type	Description
1	station_id	Integer	The Unique Identifier (number) of each EVCMC Station.
2	mac_address	String	MAC address of the station device. To decide if the station will take a new station_id or use an existing station_id of the same MAC address.
3	station_desc	String	Description of the station.
4	station_timezone	String	
5	time_offset	Integer	The time difference between station time zone and UTC time.
6	comm_method	String	Ex) **Modbus-RTU**
7	relay_make	String	Relay Device Make Ex) **Channel Relay**
8	relay_device	String	Relay Device Type Ex) **Channel**
9	relay_com_port	String	The COM port of the relay Ex) **/dev/ttyUSB0** for Linux OS or **COM1**

			for Windows OS.
10	control_method	String	Configure which meter factor EVCMC station will control the relay base on. Option available: **Watts** or **Amperes**
11	watts_max	Float	The Maximum Watts that the station can cover if it is controlled by Watts method. (used in Demand Response Programs)
12	watts_critical_threshold	Float	The Percentage of critical warning threshold Ex) watts_max = 100 (W), watts_critical_threshold = 90 (%) -> 100 * 90% = 90 (W) The station will control the relays not to reach to the calculated critical threshold 90 (W).
13	amp_max	Float	The Maximum Ampere that the station can cover if it is controlled by Ampere method.
14	amp_critical_threshold	Float	The Percentage of critical warning threshold Ex) amp_max = 200 (A), amp_critical_threshold = 95 (%) -> 200 * 95% = 190 (A) The station will control the relays not to reach to the calculated critical threshold 190 (A).
15	meter_minimal_current	Float	The minimal Ampere read. Meter Ampere read below this value Ex) **3.2** (A) will be marked at low power charger and will be switch on at every control cycle.
16	meter_com_port	String	The COM port of the meter Ex) **/dev/ttyUSB0** for Linux OS or **COM1** for Windows OS.
17	meter_main_slave_id	Integer	Modbus Slave ID of the main meter. Default) **5**
18	meter_main_channel	Integer	Channel Number of the main meter. Default) **34**
19	station_cruise_sec	Integer	The station will periodically check the reading of main meter every a few seconds of this value. Default) **15**
20	max_charge_min	Integer	The maximum charge time of a charger. A charger that has charged for over Ex) **30** minutes will be switch OFF.
21	max_queue_min	Integer	The maximum waiting time of a charger. A charger that has waited for over Ex) **5**

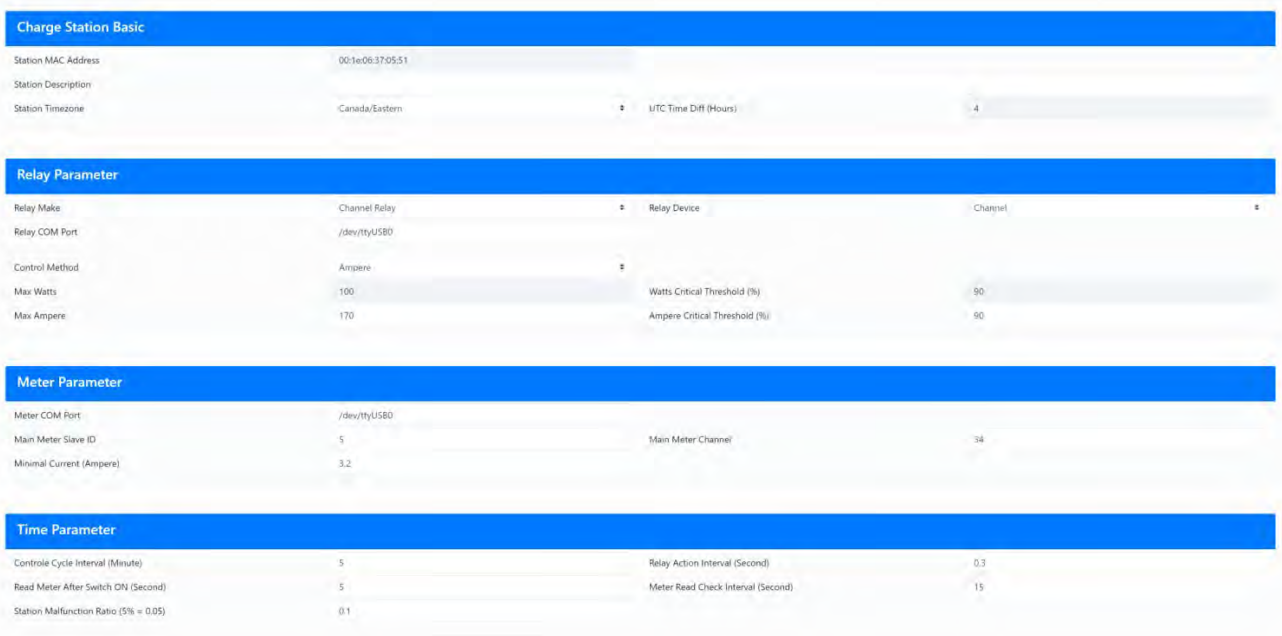
			minutes will be switch ON.
22	control_relay_interval_sec	Float	The interval time between relay controls. Ex) **0.3** second Switch Charger 1 -> Sleep 0.3 second -> Switch Charger 2
23	control_cycle_interval_min	Integer	The interval time of one control cycle. Ex) **5** minutes The station will execute control cycle every 5 minutes.
24	malfunction_ratio	Integer	The station executes malfunction check at the start of every control cycle. Reading gap over this ratio leads malfunction error and the station software will terminate. Ex) **10** (%) means If **main meter reading < total sub meter reading * 90%** OR **main meter reading > total sub meter reading * 110%** will trigger malfunction error.
25	post_switch_sleep_sec	Integer	There needs to be a few seconds to get meter reading after a switch operation. This parameter defines the waiting time to read meter readings. Default) **5** seconds Means when switch on a charger, the station will wait for **5** seconds to read meter.

4.2.2. Setup parameter are saved below

Online Mode	
[Remote Online]	If the EVCMC station is at **[Remote Online]** mode, the configuration is saved in station_setup table of Remote Database (Intellimeter Cloud Database). As the backup, the same setup is saved as file of ./setup/station_setup.json.
[Local Online]	If the EVCMC station is at **[Local Online]** mode, the configuration is saved in station_setup table of Local MySQL Database. As the backup, the same setup is saved as file of ./setup/station_setup.json.
[Offline]	If the EVCMC station is at **[Offline]** mode, the configuration is only saved as file of ./setup/station_setup.json.

4.2.3. [Remote Online] mode

If the EVCMC station is at [Remote Online] mode, the configuration is also available on Intellimeter EVCMC Cloud portal.



4.2.4. Parameters to Setup Charger List

The following parameters need to define an active charger

No.	Parameter	Data Type	Description
1	station_id	Integer	The Unique Identifier of each EVCMC Station.
2	charger_num	Integer	The number of the charger. Must be unique under the same station_id.
3	charger_name	String	Description of the charger. Ex) **Charger #1**
4	enabled_flag	Integer	The EVCMC station will only control chargers that are defined as enabled_flag = 1.
5	relay_device_id	Integer	The Modbus Relay Slave ID. Ex) **1, 2, 3**
6	relay_address	Integer	The address of the relay channel. Ex) 1, 2, 3
7	meter_slave_id	Integer	The Modbus Slave ID of the sub meter. Ex) **5**
8	meter_channel	Integer	The channel number of the sub meter. Ex) **12**

Charger list is saved the same way with station setup:

Online Mode	
[Remote Online]	If the EVCMC station is at **[Remote Online]** mode, charger list is saved in **station_charger_list** table of Remote Database (Intellimeter Cloud Database). As the backup, the same setup is saved as file of **./setup/charger_list.json**.
[Local Online]	If the EVCMC station is at **[Local Online]** mode, charger list is saved in **station_charger_list** table of Local MySQL Database. As the backup, the same setup is saved as file of **./setup/charger_list.json**.
[Offline]	If the EVCMC station is at **[Offline]** mode, the charger list is only saved as file of **./setup/ charger_list.json**.

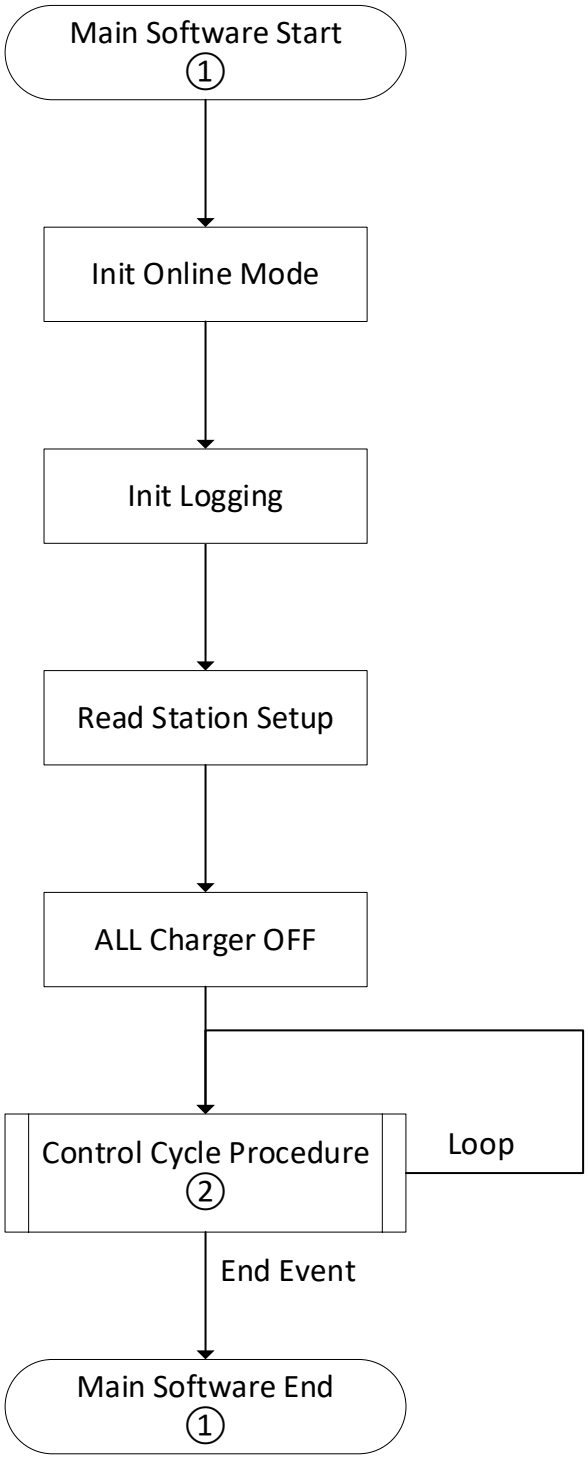
If the EVCMC station is at [Remote Online] mode, the configuration is also available on Intellimeter EVCMC Cloud portal.

Charger List

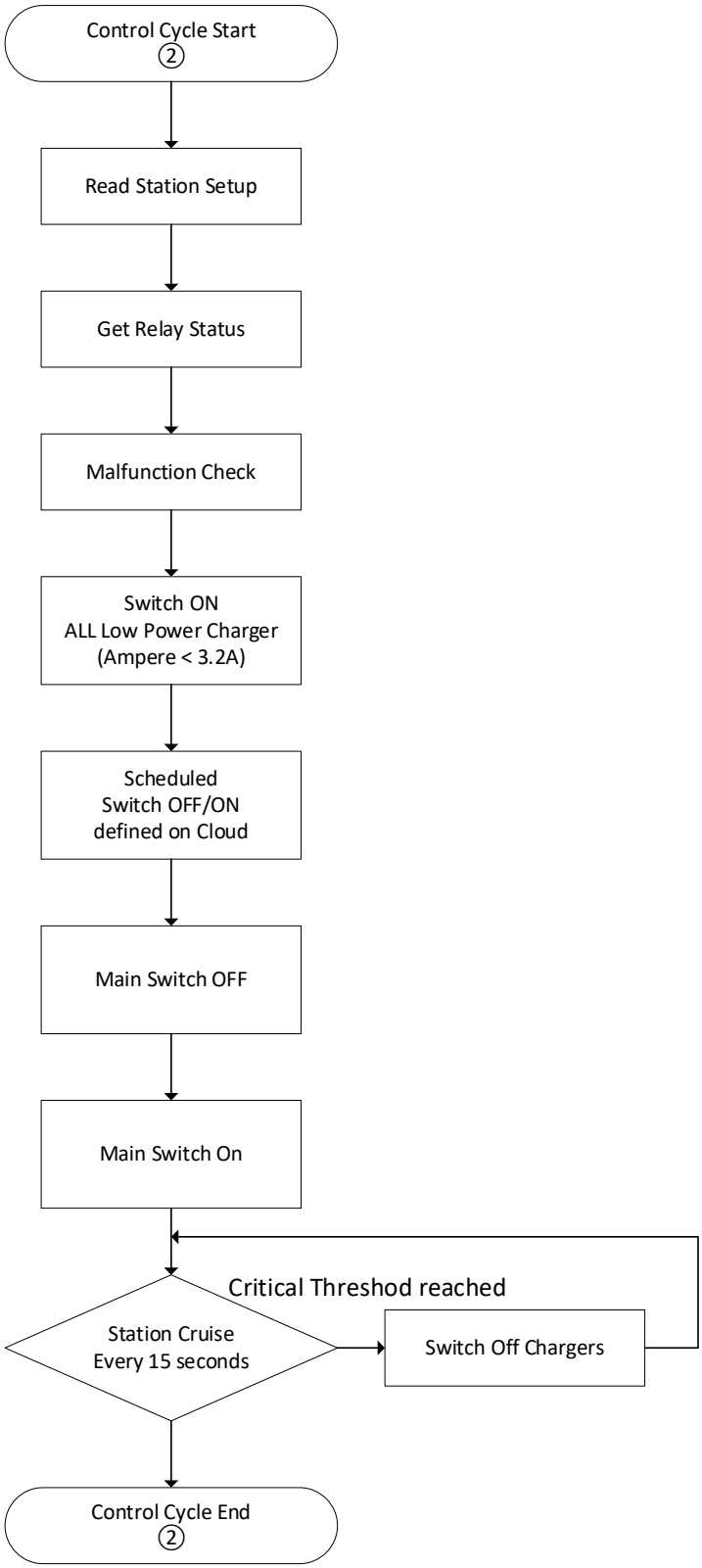
Charger #	Charger Name	Enabled	Relay #	Relay Address 1	Meter Slave ID	Meter Channel
1	Charger #01	1	1		5	12
2	Charger #02	1	1		5	13
3	Charger #03	1	1		5	14
4	Charger #04	1	1		5	15
13	Charger #13	1	2		5	23
14	Charger #14	1	2		5	24
15	Charger #15	1	2		5	25
16	Charger #16	1	2		5	26

4.3.Flowcharts

4.3.1. Main procedure of EVCMC



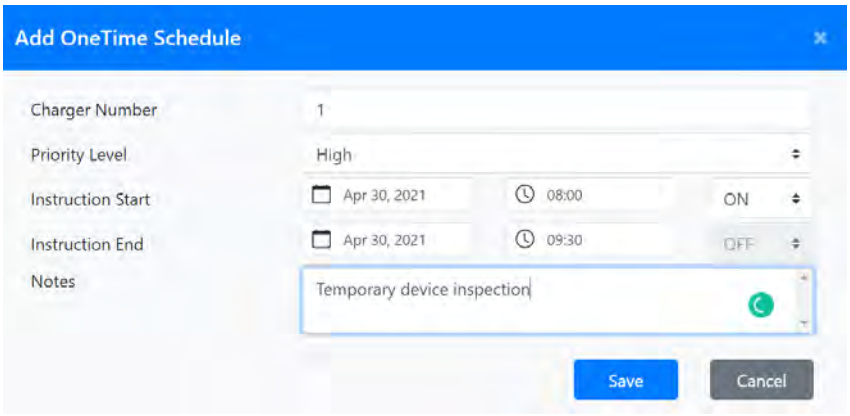
4.3.2. Control Cycle Procedure



4.4.Control charger by schedule

If the EVCMC station is at [Remote Online] mode, Intellimeter EVCMC Cloud portal provides functionalities to schedule charger ON/OFF.

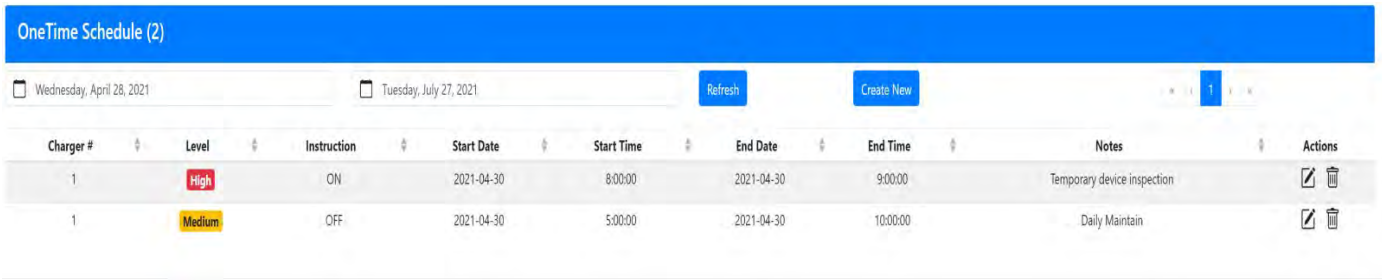
4.4.1. Single One-Time schedule:



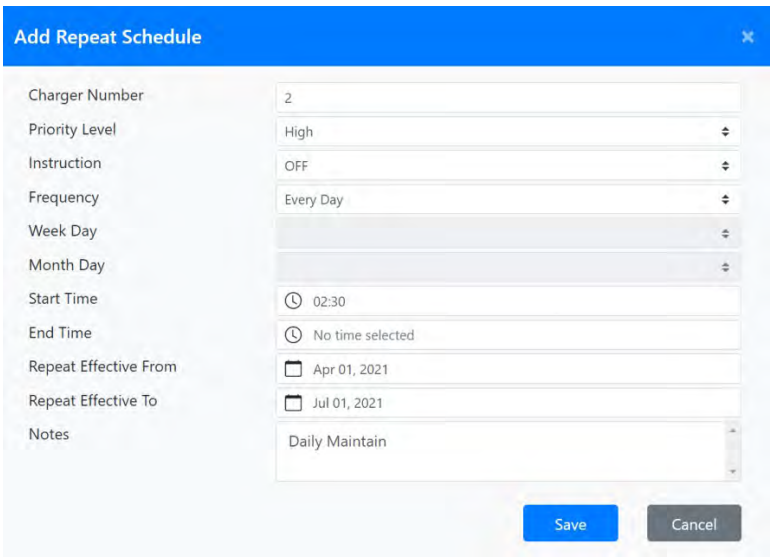
Every Single schedule has Priority Level of [High] / [Medium] / [Low].
The station will take priority of High > Medium>Low.

In the example below, Charger No. #1 will be:

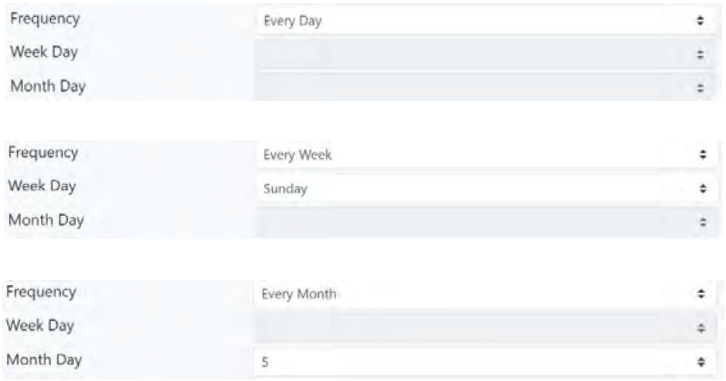
April 30, 2021	05:00 - 08:00	OFF	(Medium Priority Level)
April 30, 2021	08:00 - 09:00	ON	(High Priority Level)
April 30, 2021	09:00 - 10:00	OFF	(Medium Priority Level)



4.4.2. Repeat Schedule:

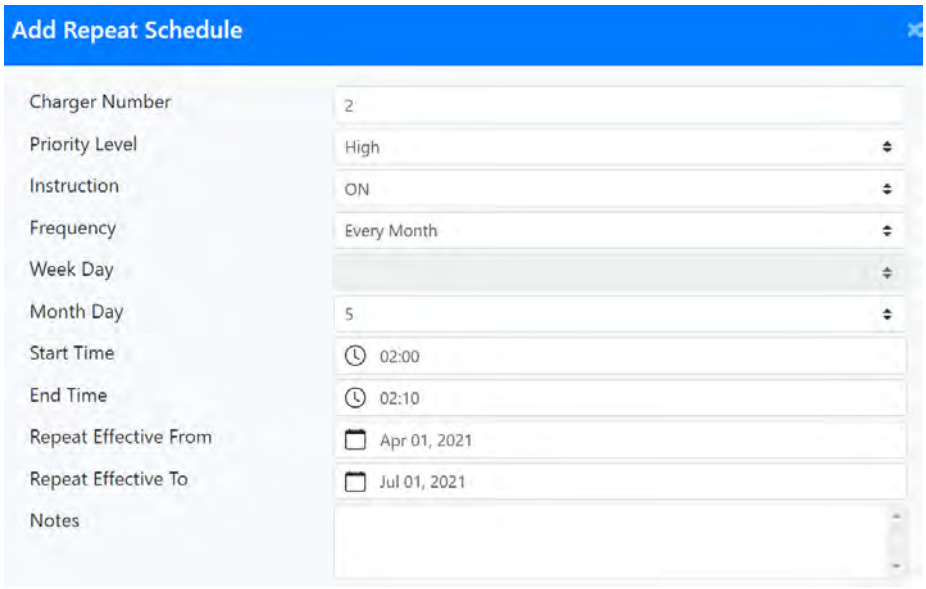


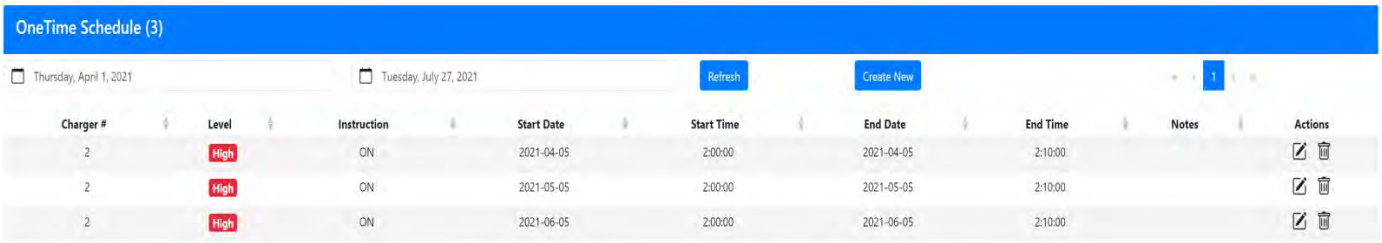
Frequency can be set at [Daily] / [Weekly] / [Monthly]



Start Time and End Time can be every 5 minutes.

Repeat Effective From and To is to define the active period. Example: If we define a repeat schedule below, the portal will automatically create three single one time schedule between April 1st, 2021 and July 1st, 2021.





4.5.Distributed Time Mode

When the EVCMC is setup to the Distributed Time Mode, a period of time (overnight or low-rate schedule) and an ampacity ratio needs to be setup. In this mode, each EVSE shall be distributed a certain period of time following a sequence of FIFO (First In, First Out). See following equation 3 for time distribution.

$$t_d = T_{total} \times R_{load} \quad \text{..... (3)}$$

Where t_d is the period of charging time that each EVSE shall be provided, T_{total} is the total period of time that it can be distributed to all EVSE equally, R_{load} is the ampacity ratio. The R_{load} definition is equation 4 below.

$$R_{load} = \left(\frac{W_{Max}}{W_{EVSE}}\right) \div N_{EVCMC} \quad \text{..... (4)}$$

Where W_{EVSE} is each EVSE rated power, $W_{MAX}$the Maximum Capacity allowable power, N_{EVCMC} is total number of EVSE in an EVCMC panel.
For instance, the EVCMC sets up $T_{total} = \Delta t = t_2 - t_1 = 12\ hrs\ (t_2 = 7{:}00PM, t_1 = 7{:}00AM)$, $W_{MAX} = 45kW W_{EVSE} = 7kW$,$N_{EVCMC} = 24$, so

$$t_d = T_{total} \times R_{load} = 12 \times \left(\frac{45}{7}\right) \div 24 \approx 12 \times (6) \div 24 = 3\ (hrs) \ldots\ldots\ldots\ldots (5)$$

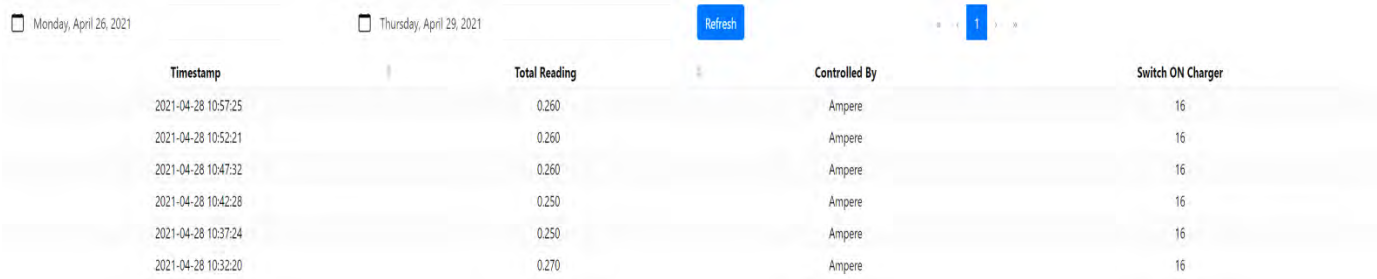
In other words, this example means that

- Use Intellimeter EVCMC-24;
- From 7:00PM to 7:00AM;
- First In 6 cars shall be charged for 3 hours;
- Any car (or cars) reaches 3 hours shall be off charging according to FIFO;
- More car (or cars) shall be added in 6 car charging group,
- And so on, every car will be charged at least 3 hour after 12 hours.

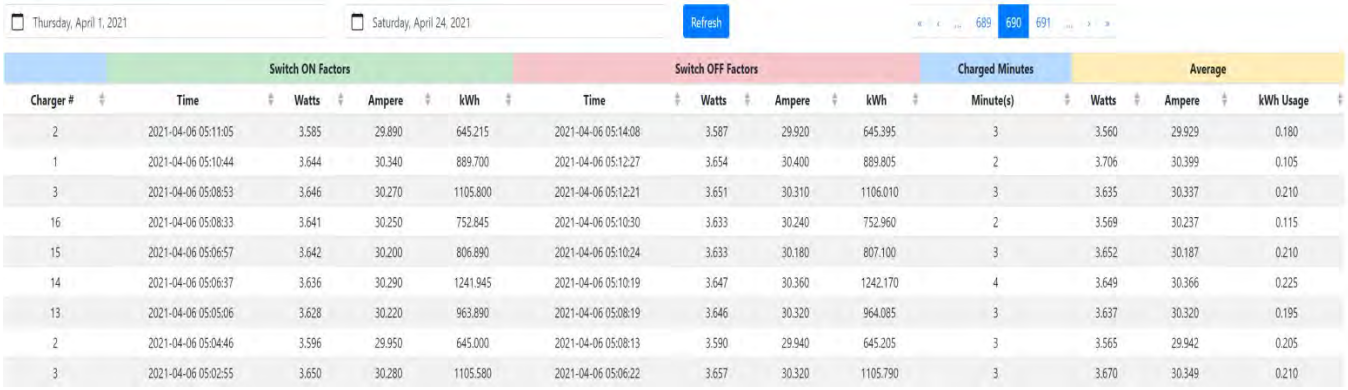
4.6.Other functions on portal

Charger Status: The status of every single charger

Charger Total: The historical total reading of the station

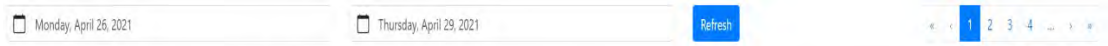


Charger History: The historical reading of each charger.



	Switch ON Factors				Switch OFF Factors				Charged Minutes	Average		
Charger #	Time	Watts	Ampere	kWh	Time	Watts	Ampere	kWh	Minute(s)	Watts	Ampere	kWh Usage
2	2021-04-06 05:11:05	3.585	29.890	645.215	2021-04-06 05:14:08	3.587	29.920	645.395	3	3.560	29.929	0.180
1	2021-04-06 05:10:44	3.644	30.340	889.700	2021-04-06 05:12:27	3.654	30.400	889.805	2	3.706	30.399	0.105
3	2021-04-06 05:08:53	3.646	30.270	1105.800	2021-04-06 05:12:21	3.651	30.310	1106.010	3	3.635	30.337	0.210
16	2021-04-06 05:08:33	3.641	30.250	752.845	2021-04-06 05:10:30	3.633	30.240	752.960	2	3.569	30.237	0.115
15	2021-04-06 05:06:57	3.642	30.200	806.890	2021-04-06 05:10:24	3.633	30.180	807.100	3	3.652	30.187	0.210
14	2021-04-06 05:06:37	3.636	30.290	1241.945	2021-04-06 05:10:19	3.647	30.360	1242.170	4	3.649	30.366	0.225
13	2021-04-06 05:05:06	3.628	30.220	963.890	2021-04-06 05:08:19	3.646	30.320	964.085	3	3.637	30.320	0.195
2	2021-04-06 05:04:46	3.596	29.950	645.000	2021-04-06 05:08:13	3.590	29.940	645.205	3	3.565	29.942	0.205
3	2021-04-06 05:02:55	3.650	30.280	1105.580	2021-04-06 05:06:22	3.657	30.320	1105.790	3	3.670	30.349	0.210

Command Log: The historical command recorded for each charger.



Timestamp	Charger Num	Switch ON/OFF
2021-04-28 10:57:16.576	3	ON
2021-04-28 10:56:57.040	13	ON
2021-04-28 10:56:37.587	4	ON
2021-04-28 10:56:17.988	15	ON
2021-04-28 10:55:58.524	2	ON
2021-04-28 10:55:39.032	14	ON

5. Installation Instructions:

The EVCMC is shipped on a wooden pallet that is slightly larger than the overall size of the EVCMC. Prior to shipping, Intellimeter makes every reasonable effort to ensure safe and secure transportation. Each EVCMC is fully tested prior to packing, and it is packed with warning cones to avoid stacking of any other loads on top of the EVCMC.
Upon receiving the equipment, please inspect the pallet and the packaging to ensure that the panel is not damaged. Intellimeter's terms of sale are EXW, therefore, if the equipment is damaged, please refuse the shipment and file a complaint with the carrier.

The EVCMC is wrapped in cardboard and foam and is strapped to the pallet.
If the option for the EVCMC mounted on a fire-rated plywood is ordered, the EVCMC is bolted to the plywood/pallet. Please remove the covers from the distribution (breaker panel) to unscrew the panel from the pallet. The relay panels at the bottom of the EVCMC are also bolted to the pallet, however, the bolts/screws are located on the edge lips of the relay panel enclosures.

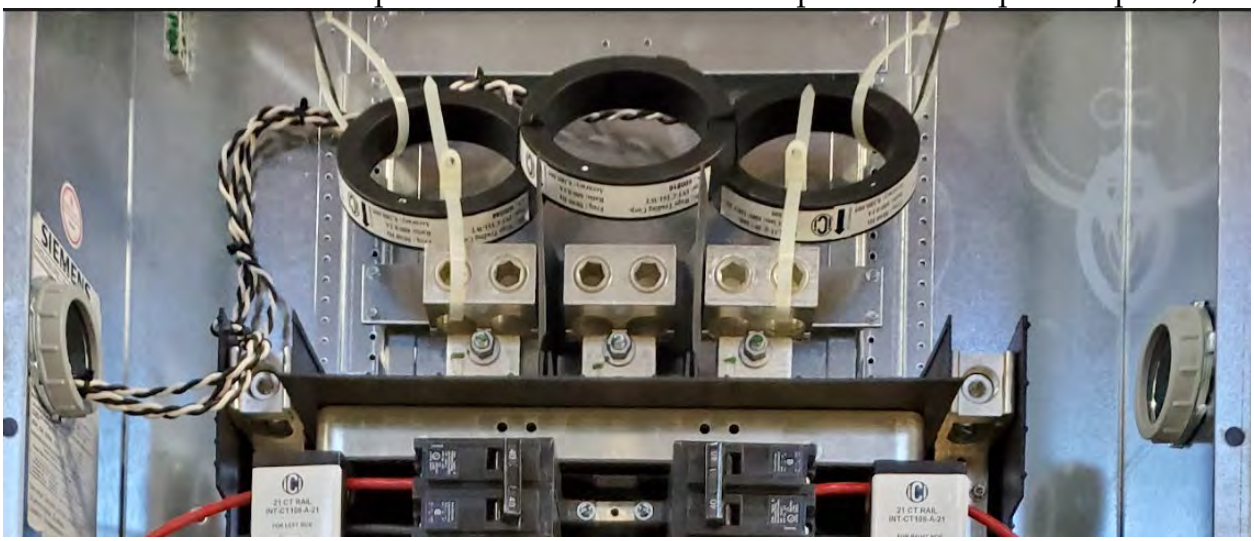
As the equipment is heavy, it cannot and should not be handled by a single individual. Once the equipment is removed from the pallet, please proceed to affix it to the wall using proper hardware for the weight of the equipment.

The approximate weight of the equipment is listed here:

- EVCMC-12 -Size: 60 x32x 16 Weight: 270 Lbs
- EVCMC-18 -Size: 66 x 44 x 16 Weight: 375 Lbs
- EVCMC-24 -Size: 72 X 44 x 16 Weight: 550 Lbs
- EVCMC-30 -Size: 96 X 44 x 16 Weight:600 Lbs

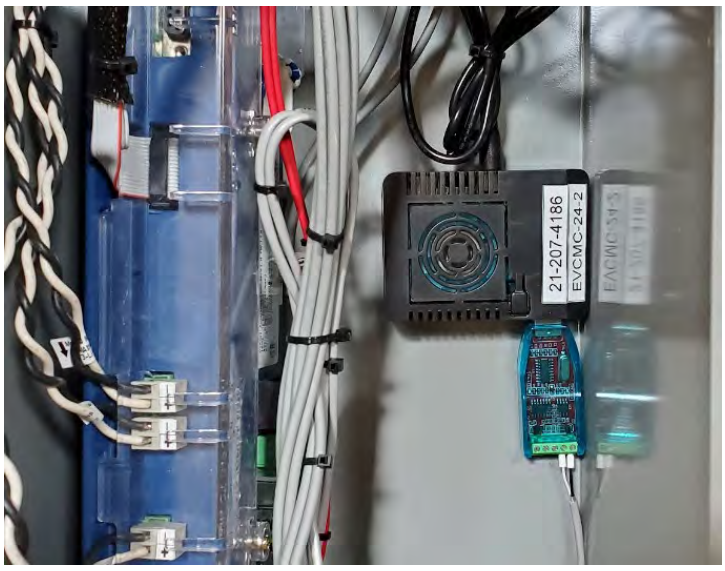
Please remove all the packaging from inside the panels, ensuring that no debris is left inside the panels.

Electrical:
Once the EVCMC is affixed to the wall, please proceed to pass the feeder cables through the Current Transformers provided for the mains of the panel at the top of the panel;



The EVCMC is already pre-wired, once the electrical connection to the mains of the distribution panel is complete, please proceed to install the panel covers.

Data connection:
The EVCMC can operate as a stand-alone system, the control and the consumption data is stored inside the Data Collection Unit. (typically located in the left meter panel)



It is always recommended to bring a TCP/IP drop with a CAT-5 or CAT-6 cable terminated in an RJ-45 connector to connect the DCU to the Local Area Network (LAN) of the building. This will allow the owner to enjoy the following benefits:
Remote access through the Local Area Network to set up the DCU, add, remove, or modify the assignment of specific chargers, and download periodic consumption reports. Additionally, it can provide remote access to individual unit owners, third parties (like existing billing companies), or transfer the system to the Cloud for universal access.

Cloud services can be provided, via subscription through Intellimeter, by sending a request to quotes@intellimeter.com

Once the TCP/IP Connection is completed the meter panels can be closed.

Individual Chargers:

The wiring to the individual chargers takes place from the secondary side of the individual contactors.
Please note that the contactors are labeled and match the meter numbering and the breaker numbering.
The terminal blocks on the contactors allow a maximum wire gauge of #6 AWG Copper or Aluminum cable.

Once all the electrical and data connections are made please proceed to vacuum the interior of all the electrical enclosures prior to energizing the EVCMC.

Initialization:

Upon energization of the breaker or switch feeding the panel the EVCMC, follow a start-up sequence, energizing all contactors, one at a time in sequential order starting from contactor number 1 to the last one.

Once the sequence is completed, your EVCMC is ready to operate.

6. Typical Drawings and Technical Information

Appendix 1 is the EVCMC-12
Appendix 2 is the EVCMC-18
Appendix 3 is the EVCMC-24

For more technical information, please contact Intellimeter:

Address:
1125 Squires Beach Road, Pickering, Ontario, Canada L1W 3T9

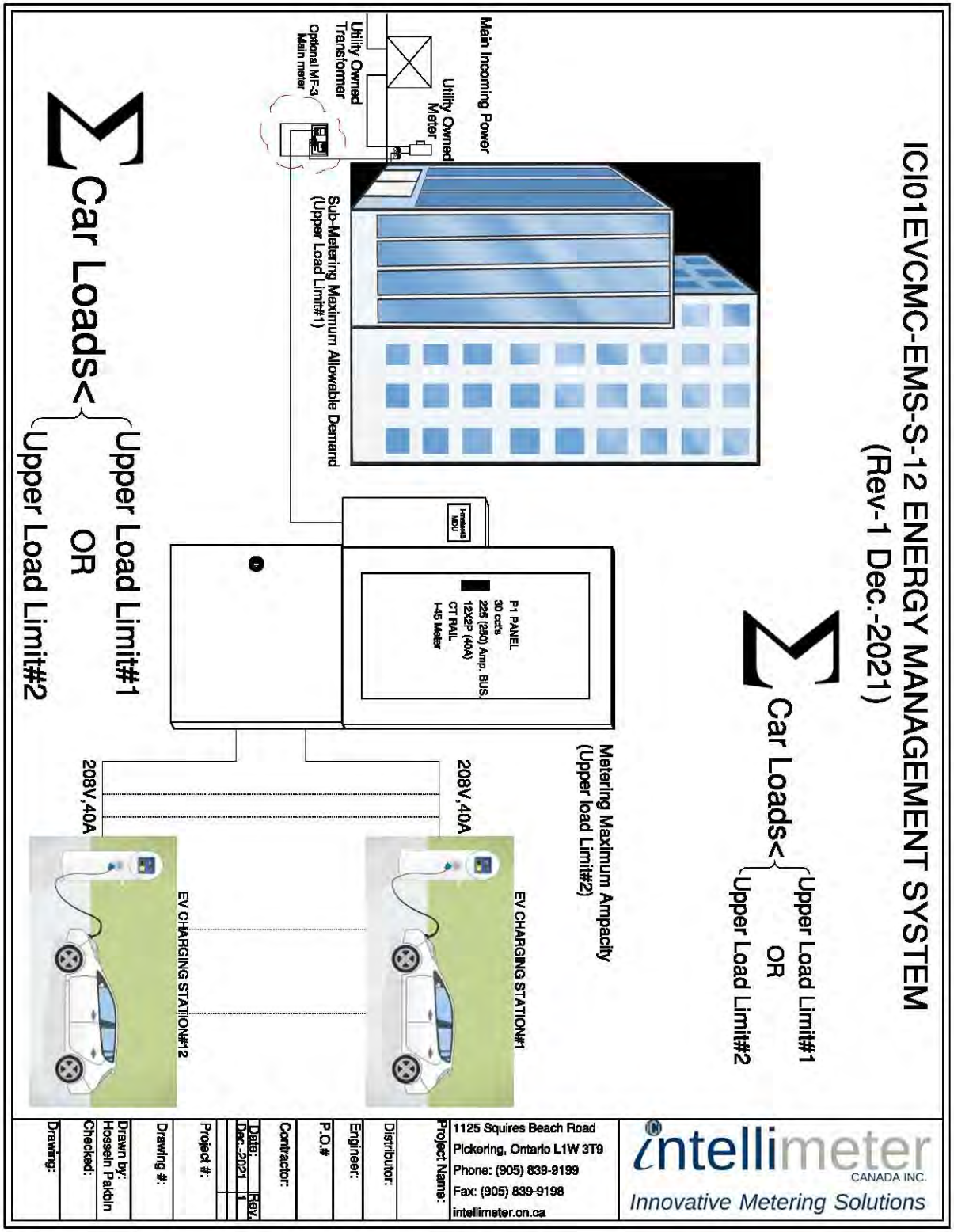
Website:
www.intellimeter.com

Quote Requests: quotes@intellimeter.com

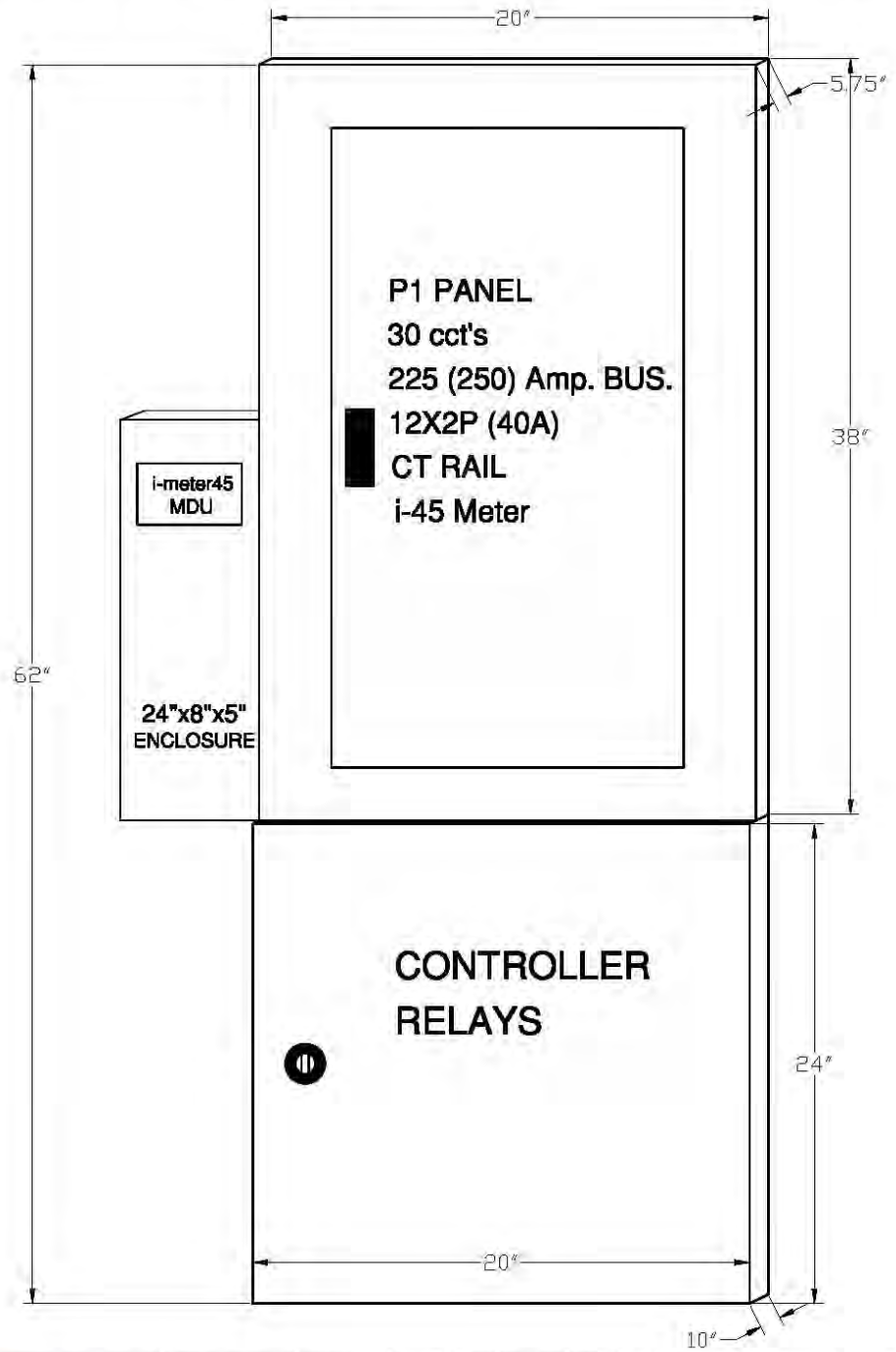
Purchase Orders: orders@intellimeter.com

Service Request: service@intellimeter.com

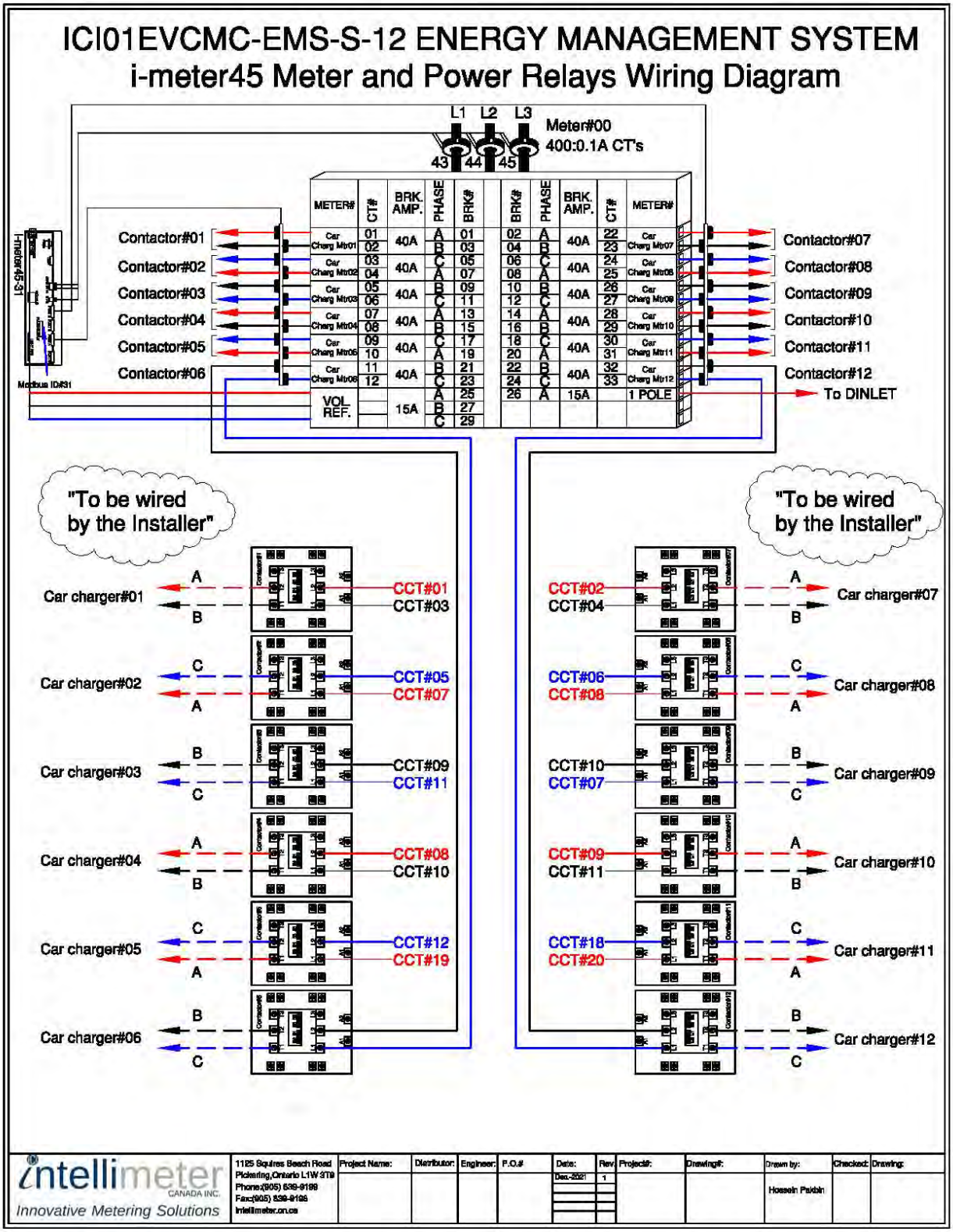
Appendix 1 EVCMC-12 Drawings



ICI01EVCMC-EMS-S-12 ENERGY MANAGEMENT SYSTEM



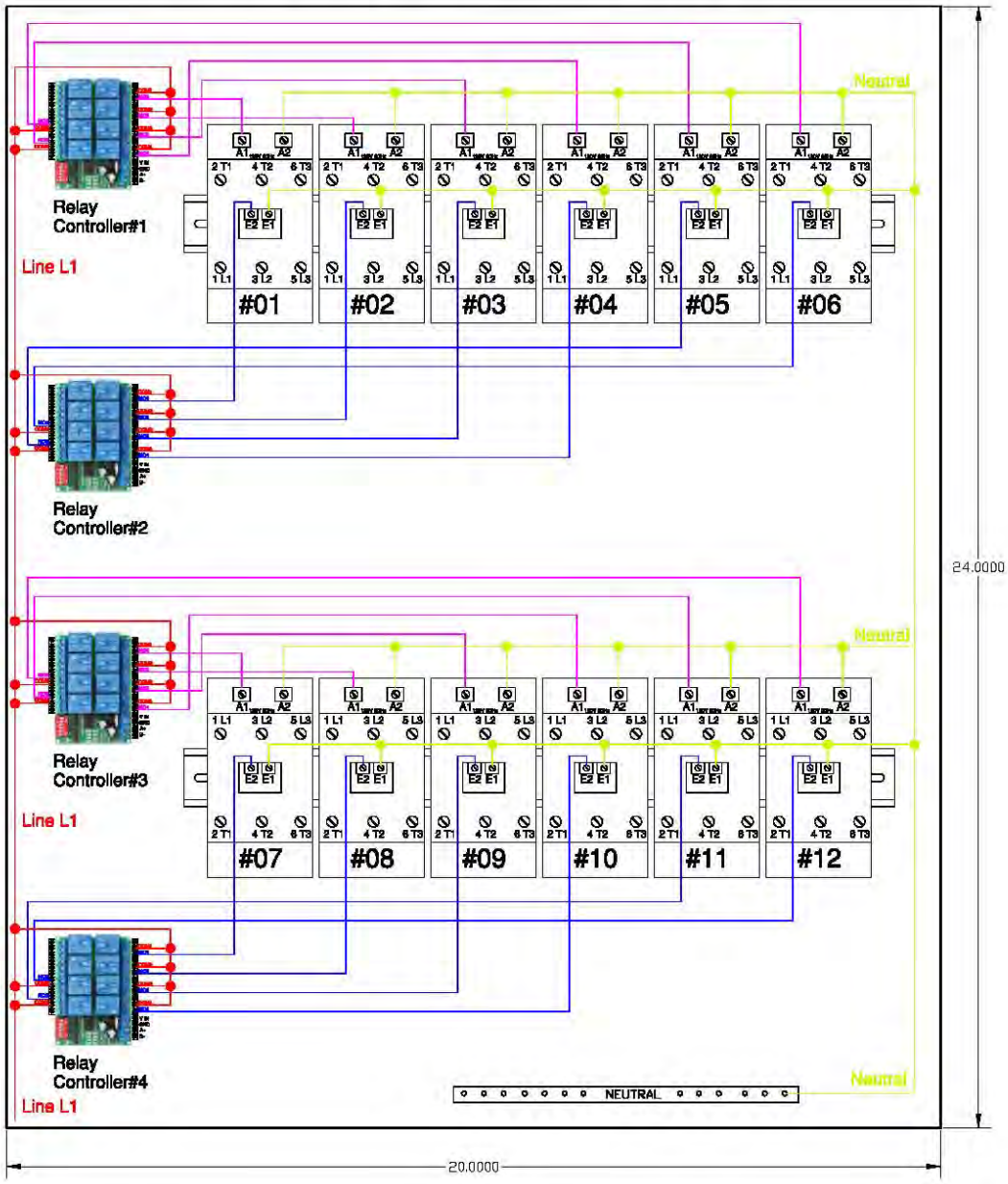
intellimeter CANADA INC. Innovative Metering Solutions	1125 Squires Beach Road Pickering,Ontario L1W 3T9 Phone:(905) 839-9199 Fax:(905) 839-9195 intellimeter.on.ca	Project Name:	Distributor:	Engineer:	P.O.#	Date: Dec.-2021	Rev: 1	Project#:	Drawing#:	Drawn by: Hossein Pakbin	Checked:	Drawing:


ICI01EVCMC-EMS-S-12 ENERGY MANAGEMENT SYSTEM
i-meter45 Meter and Power Relays Wiring Diagram
L1 L2 L3
Meter#00
400:0.1A CT's
43 44 45
i-meter45-31
Modbus ID#31
Contactor#01
Contactor#02
Contactor#03
Contactor#04
Contactor#05
Contactor#06
Contactor#07
Contactor#08
Contactor#09
Contactor#10
Contactor#11
Contactor#12
To DINLET
METER# CT# BRK. AMP. PHASE BRK# BRK# PHASE BRK. AMP. CT# METER#
Car Charg Mtr01 01 02 40A A B 01 03 02 04 A B 40A 22 23 Car Charg Mtr07
Car Charg Mtr02 03 04 40A C A 05 07 06 08 C A 40A 24 25 Car Charg Mtr08
Car Charg Mtr03 05 06 40A B C 09 11 10 12 B C 40A 26 27 Car Charg Mtr09
Car Charg Mtr04 07 08 40A A B 13 15 14 16 A B 40A 28 29 Car Charg Mtr10
Car Charg Mtr05 09 10 40A C A 17 19 18 20 C A 40A 30 31 Car Charg Mtr11
Car Charg Mtr06 11 12 40A B C 21 23 22 24 B C 40A 32 33 Car Charg Mtr12
VOL REF. 15A A B C 25 27 29 26 A 15A 1 POLE
"To be wired by the Installer"
"To be wired by the Installer"
Car charger#01
Car charger#02
Car charger#03
Car charger#04
Car charger#05
Car charger#06
CCT#01
CCT#03
CCT#05
CCT#07
CCT#09
CCT#11
CCT#08
CCT#10
CCT#12
CCT#19
CCT#02
CCT#04
CCT#06
CCT#08
CCT#10
CCT#07
CCT#09
CCT#11
CCT#18
CCT#20
Car charger#07
Car charger#08
Car charger#09
Car charger#10
Car charger#11
Car charger#12
intellimeter CANADA INC.
Innovative Metering Solutions
1125 Squires Beach Road
Pickering,Ontario L1W 3T9
Phone:(905) 839-9199
Fax:(905) 839-9198
Intellimeter.on.ca
Project Name:
Distributor:
Engineer:
P.O.#
Date:
Dec.-2021
Rev.
1
Project#:
Drawing#:
Drawn by:
Hossein Pakbin
Checked:
Drawing:

ICI01EVCMC-EMS-S-12 ENERGY MANAGEMENT SYSTEM

Contactor with Mechanical Latch to Relay board Wiring Diagram

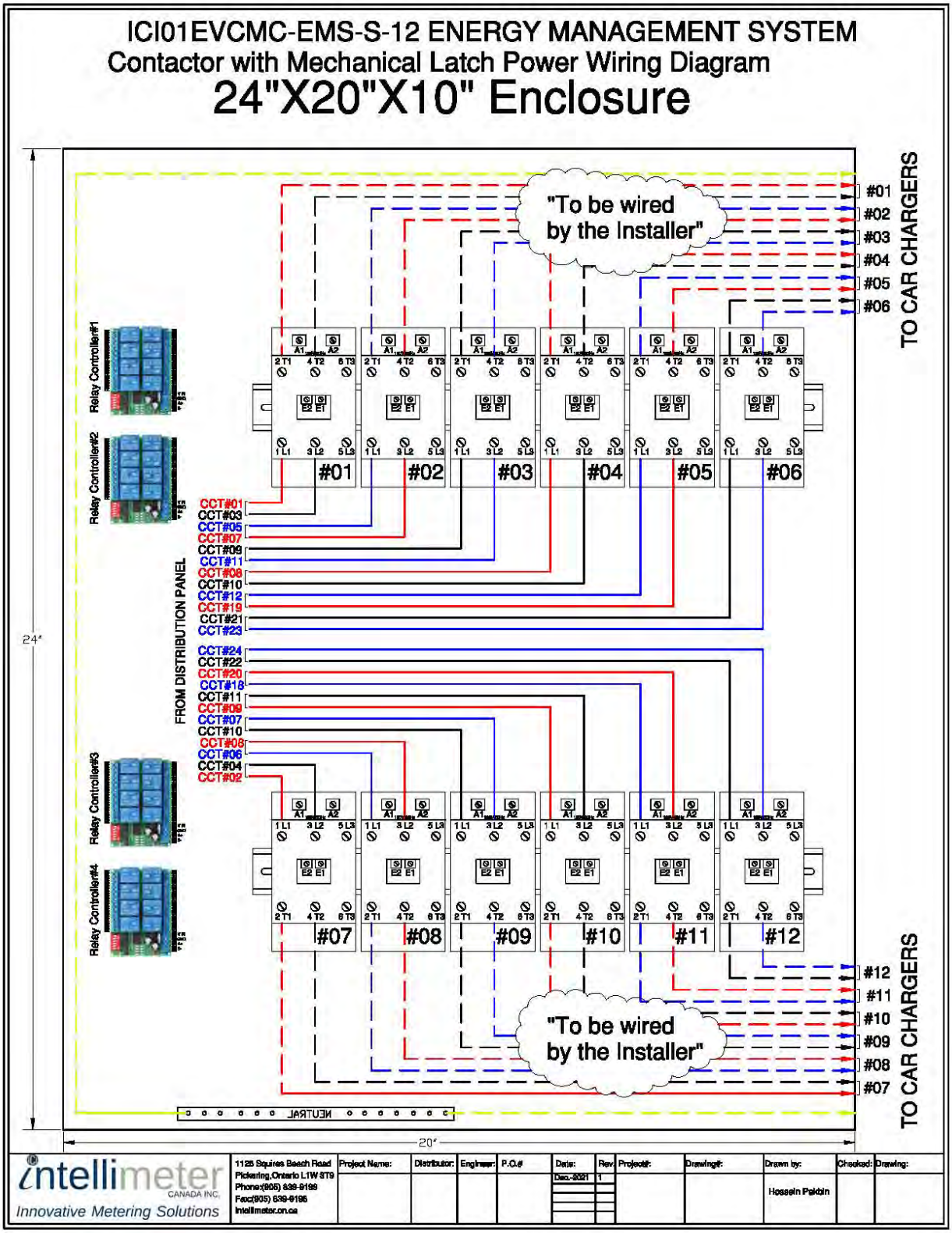
24"X20"X10" Enclosure



intellimeter CANADA INC.
Innovative Metering Solutions

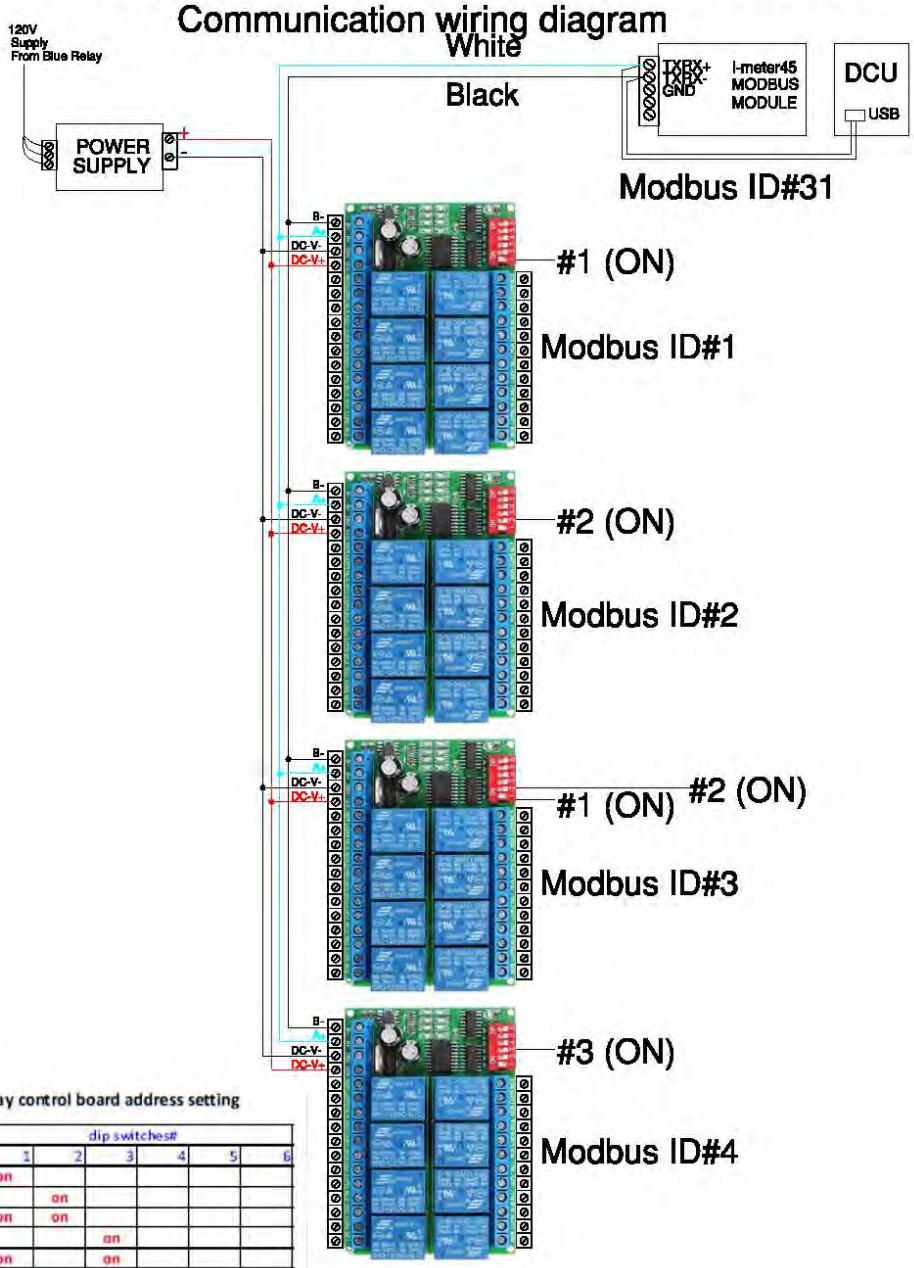
1125 Squires Beach Road
Pickering,Ontario L1W 3T9
Phone:(905) 839-9199
Fax:(905) 839-9198
intellimeter.on.ca

Project Name:	Distributor:	Engineer:	P.O.#	Date:	Rev.	Project#:	Drawing#:	Drawn by:	Checked:	Drawing:
				Dec. 2021	1			Hossein Pakbin		


ICI01EVCMC-EMS-S-12 ENERGY MANAGEMENT SYSTEM
Contactor with Mechanical Latch Power Wiring Diagram
24"X20"X10" Enclosure
"To be wired by the Installer"
TO CAR CHARGERS
#01
#02
#03
#04
#05
#06
Relay Controller#1
Relay Controller#2
Relay Controller#3
Relay Controller#4
FROM DISTRIBUTION PANEL
CCT#01
CCT#03
CCT#05
CCT#07
CCT#09
CCT#11
CCT#08
CCT#10
CCT#12
CCT#19
CCT#21
CCT#23
CCT#24
CCT#22
CCT#20
CCT#18
CCT#11
CCT#09
CCT#07
CCT#10
CCT#08
CCT#06
CCT#04
CCT#02
#07
#08
#09
#10
#11
#12
"To be wired by the Installer"
TO CAR CHARGERS
NEUTRAL
24"
20"
intellimeter
CANADA INC.
Innovative Metering Solutions
1125 Squires Beach Road
Pickering, Ontario L1W 3T9
Phone:(905) 839-9199
Fax:(905) 839-9196
Intellimeter.on.ca
Project Name:
Distributor:
Engineer:
P.O.#
Date:
Dec.-2021
Rev.
1
Project#:
Drawing#:
Drawn by:
Hossein Pakbin
Checked:
Drawing:

ICI01EVCMC-EMS-S-12 ENERGY MANAGEMENT SYSTEM

Communication wiring diagram



relay control board address setting

board address	dip switches# 1	2	3	4	5	6
1	on					
2		on				
3	on	on				
4			on			
5	on		on			
6		on	on			
7	on	on	on			
8				on		
9	on			on		
10		on		on		

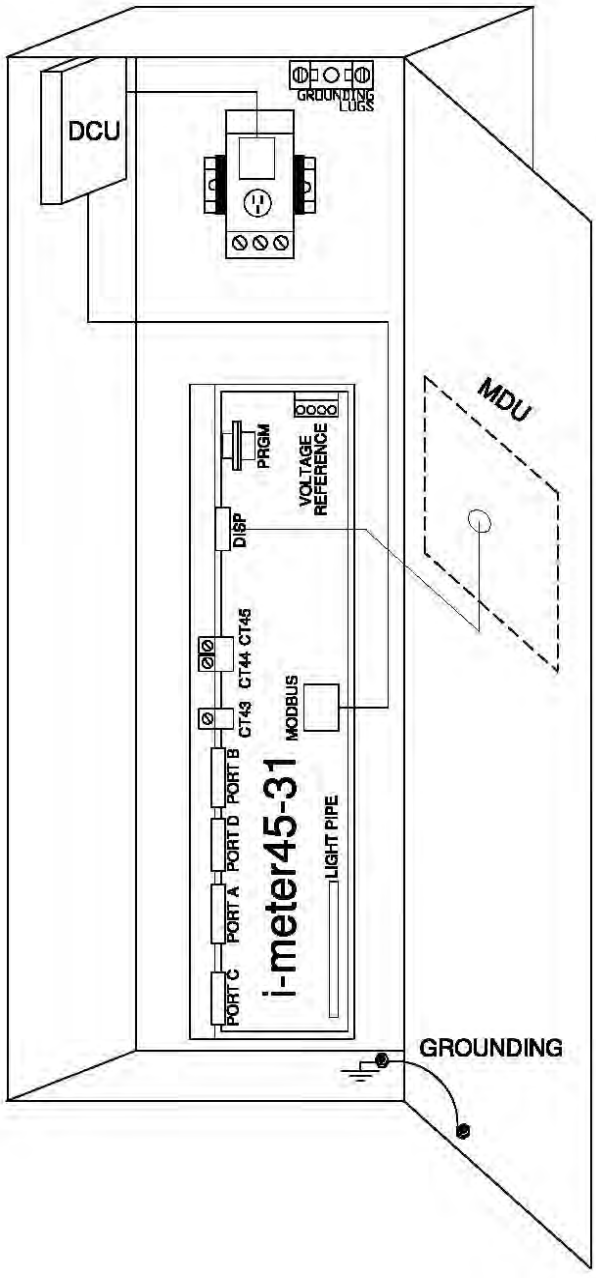
intellimeter CANADA INC.
Innovative Metering Solutions

1125 Squires Beach Road
Pickering,Ontario L1W 3T9
Phone:(905) 839-9199
Fax:(905) 839-9198
intellimeter.on.ca

Project Name:	Distributor:	Engineer:	P.O.#	Date:	Rev.	Project#:	Drawing#:	Drawn by:	Checked:	Drawing:
				Dec.-2021	1			Hossein Pakbin		

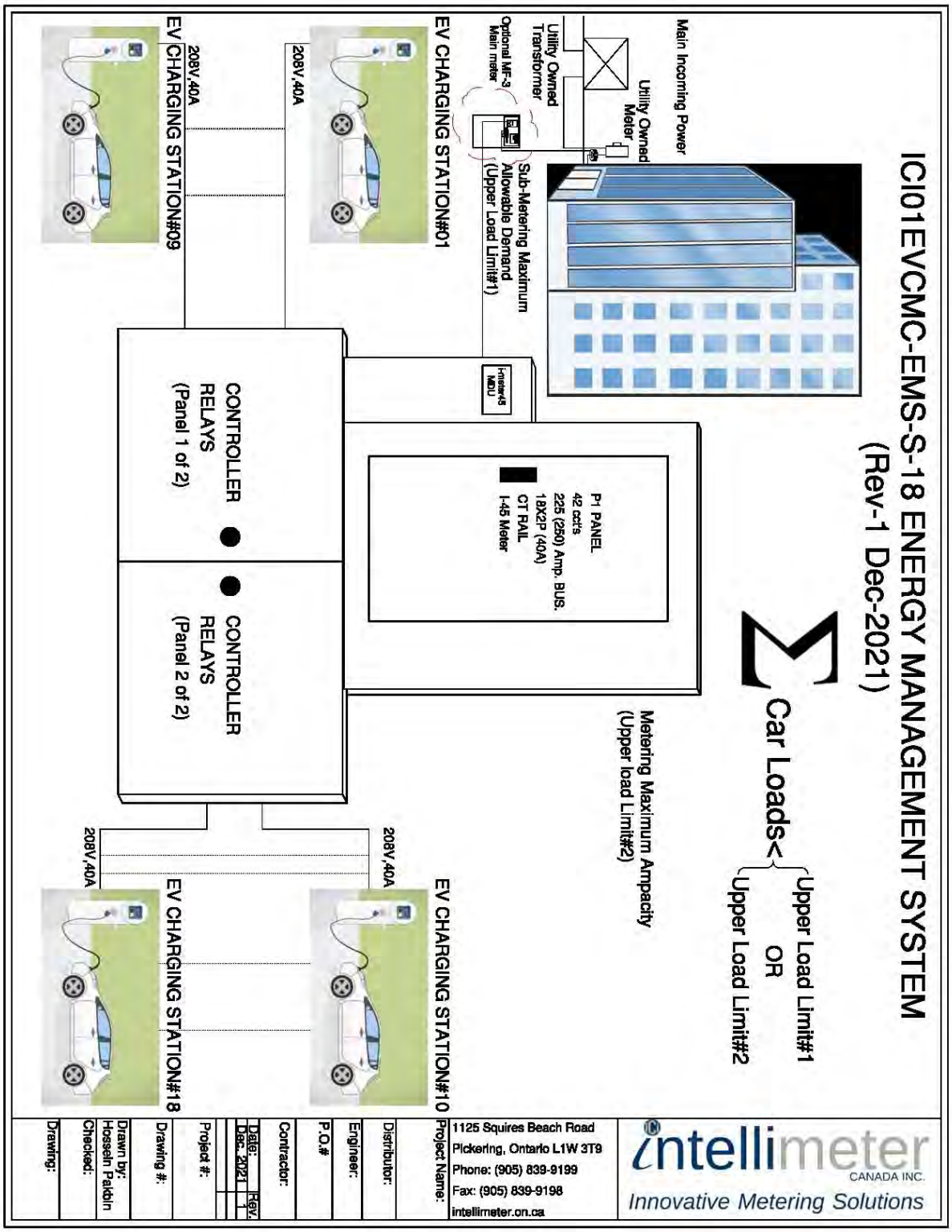
ICI01EVCMC-EMS-S-12 ENERGY MANAGEMENT SYSTEM

i-Meter45 ,DCU and MDU Layout

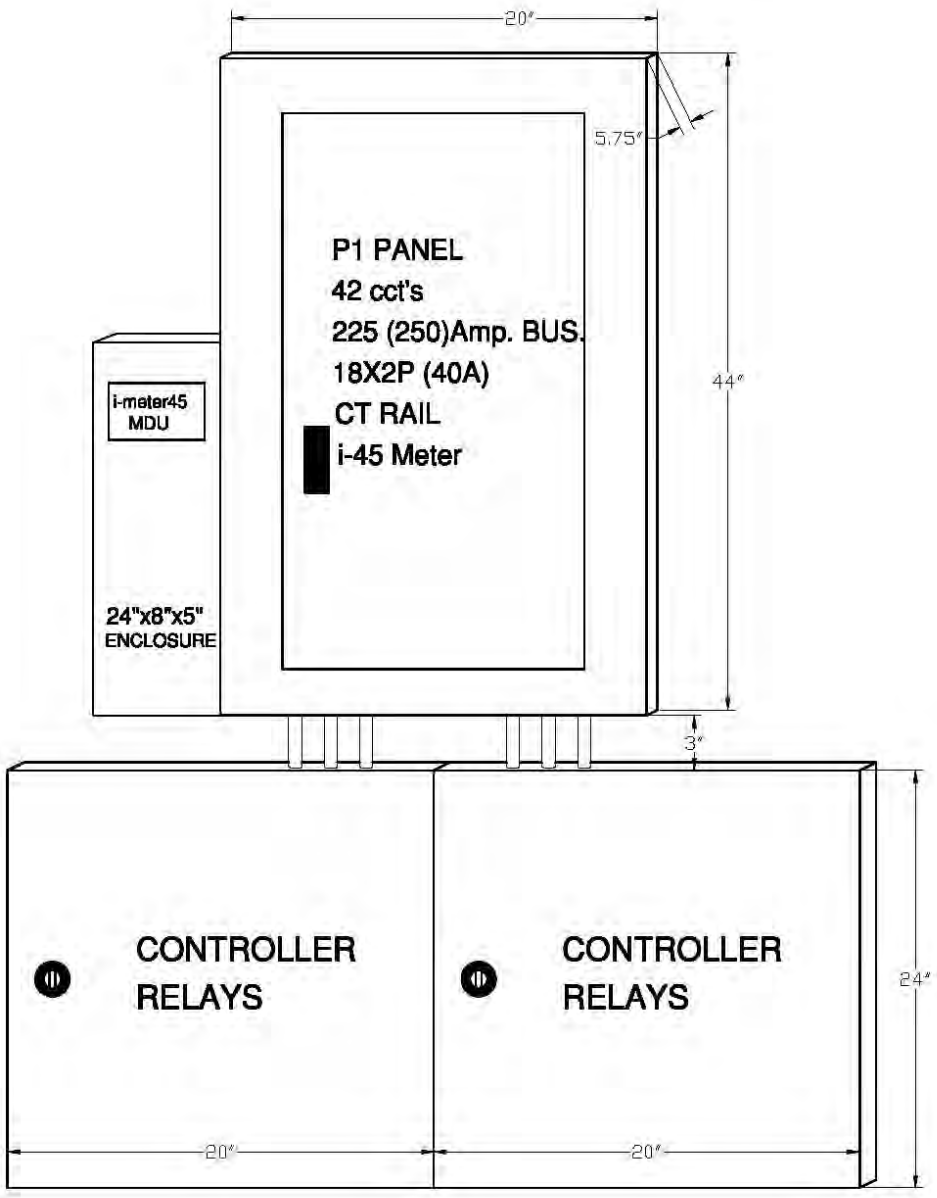


intellimeter CANADA INC. Innovative Metering Solutions	1125 Squires Beach Road Pickering,Ontario L1W 3T9 Phone:(905) 839-9199 Fax:(905) 839-9198 intellimeter.on.ca	Project Name:	Distributor:	Engineer:	P.O.#	Date: Dec.-2021	Rev: 1	Project#:	Drawing#:	Drawn by: Hossein Pakbin	Checked:	Drawing:

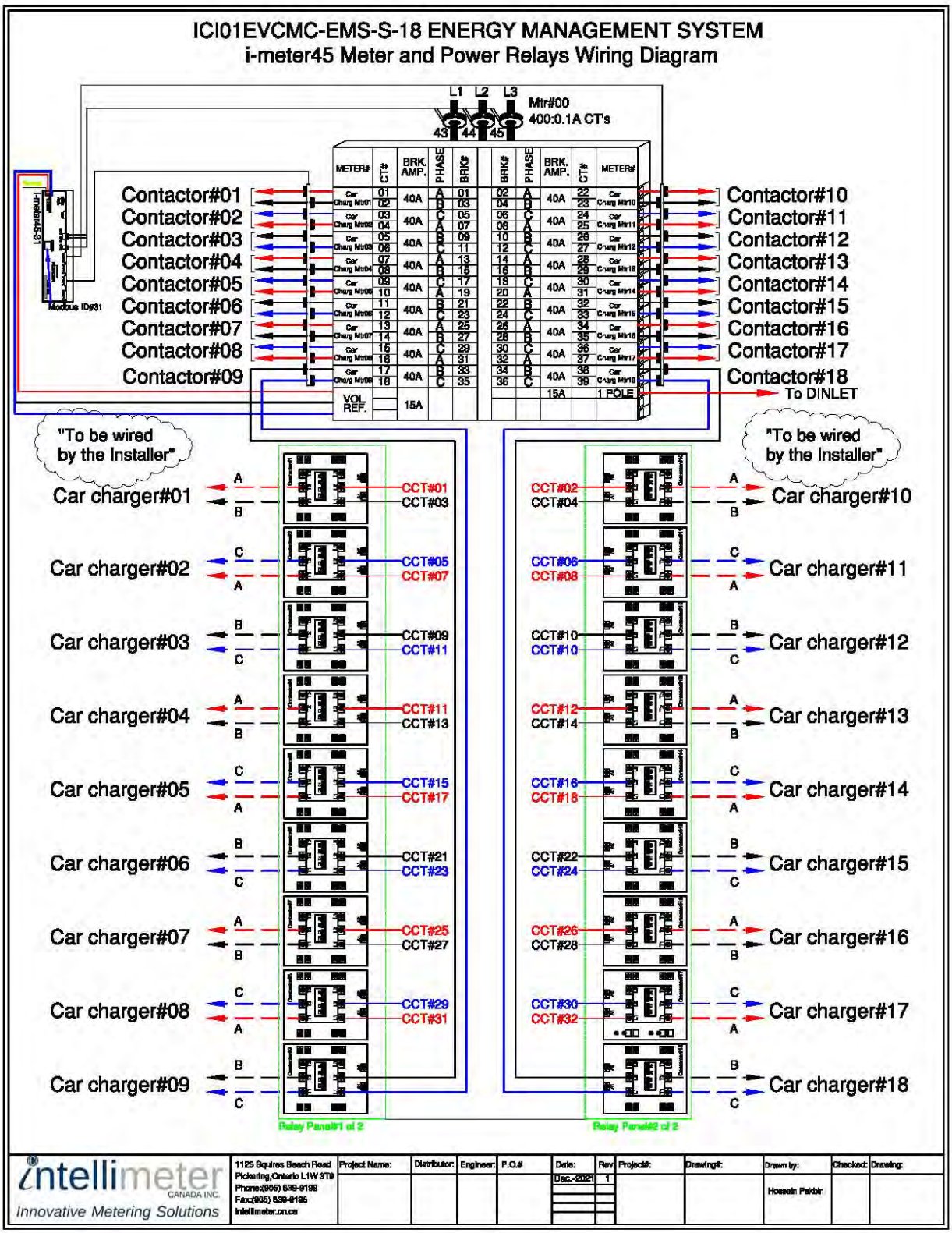
Appendix 2 EVCMC-18 Drawings



ICI01EVCMC-EMS-S-18 ENERGY MANAGEMENT SYSTEM



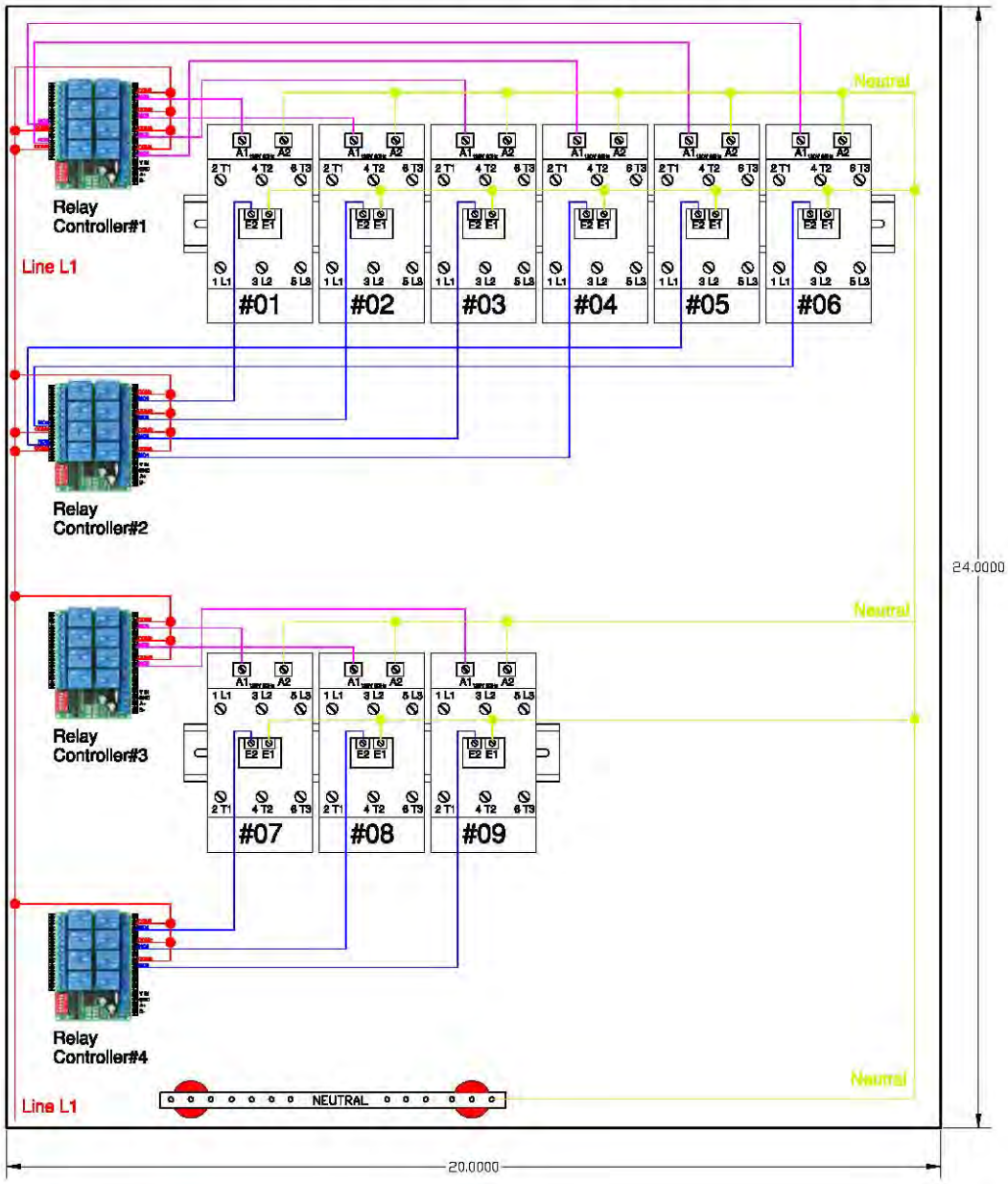
intellimeter CANADA INC. Innovative Metering Solutions	1125 Squires Beach Road Pickering,Ontario L1W 3T9 Phone:(905) 839-9199 Fax:(905) 839-9198 intellimeter.on.ca	Project Name:	Distributor:	Engineer:	P.O.#	Date: Dec./2021	Rev 1	Project#:	Drawing#:	Drawn by: Hossein Pakbin	Checked:	Drawing:


ICI01EVCMC-EMS-S-18 ENERGY MANAGEMENT SYSTEM
i-meter45 Meter and Power Relays Wiring Diagram
L1 L2 L3
Mtr#00
400:0.1A CT's
43 44 45
METER# CT# BRK. AMP. PHASE BRK#
Modbus ID#31
Contactor#01
Contactor#02
Contactor#03
Contactor#04
Contactor#05
Contactor#06
Contactor#07
Contactor#08
Contactor#09
Contactor#10
Contactor#11
Contactor#12
Contactor#13
Contactor#14
Contactor#15
Contactor#16
Contactor#17
Contactor#18
To DINLET
VOL. REF.
15A
1 POLE
"To be wired by the Installer"
"To be wired by the Installer"
Car charger#01
Car charger#02
Car charger#03
Car charger#04
Car charger#05
Car charger#06
Car charger#07
Car charger#08
Car charger#09
Car charger#10
Car charger#11
Car charger#12
Car charger#13
Car charger#14
Car charger#15
Car charger#16
Car charger#17
Car charger#18
CCT#01 CCT#03
CCT#05 CCT#07
CCT#09 CCT#11
CCT#11 CCT#13
CCT#15 CCT#17
CCT#21 CCT#23
CCT#25 CCT#27
CCT#29 CCT#31
CCT#02 CCT#04
CCT#06 CCT#08
CCT#10 CCT#10
CCT#12 CCT#14
CCT#16 CCT#18
CCT#22 CCT#24
CCT#26 CCT#28
CCT#30 CCT#32
Relay Panel#1 of 2
Relay Panel#2 of 2
intellimeter
CANADA INC.
Innovative Metering Solutions
1125 Squires Beach Road
Pickering,Ontario L1W 3T9
Phone:(905) 839-9199
Fax:(905) 839-9198
intellimeter.on.ca
Project Name:
Distributor:
Engineer:
P.O.#
Date:
Dec.-2021
Rev:
1
Project#:
Drawing#:
Drawn by:
Hossein Pakbin
Checked:
Drawing:

ICI01EVCMC-EMS-S-18 ENERGY MANAGEMENT SYSTEM

Contactor with Mechanical Latch to Relay board Wiring Diagram

24"X20"X10" Enclosure (Panel 1 of 2)

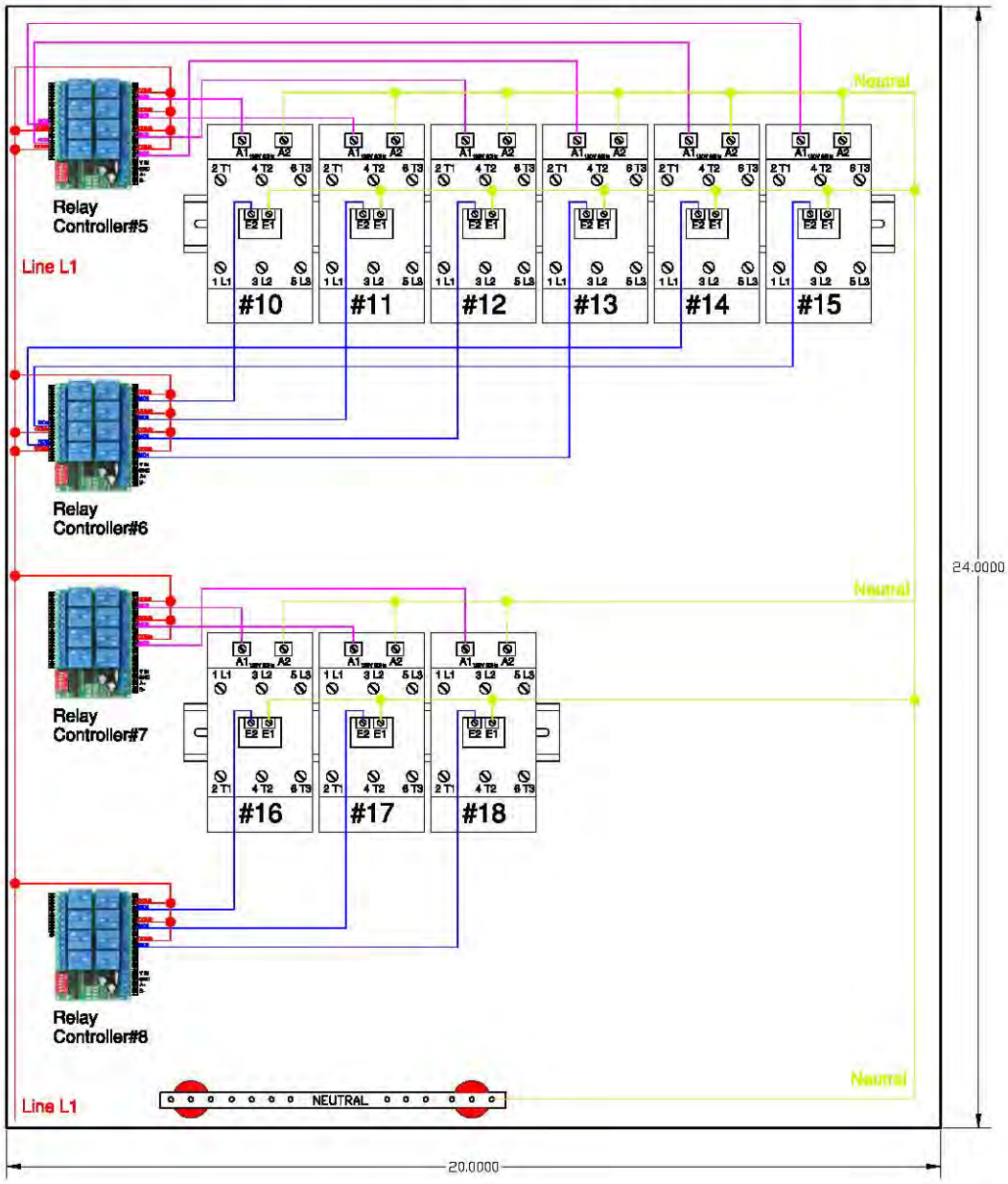


intellimeter CANADA INC. Innovative Metering Solutions	1125 Squires Beach Road Pickering,Ontario L1W 3T9 Phone:(905) 839-9199 Fax:(905) 839-9198 intellimeter.on.ca	Project Name:	Distributor:	Engineer:	P.O.#	Date: Dec.-2021	Rev: 1	Project#:	Drawing#:	Drawn by: Hossein Pakdin	Checked: Drawing:

ICI01EVCMC-EMS-S-18 ENERGY MANAGEMENT SYSTEM

Contactor with Mechanical Latch to Relay board Wiring Diagram

24"X20"X10" Enclosure (Panel 2 of 2)

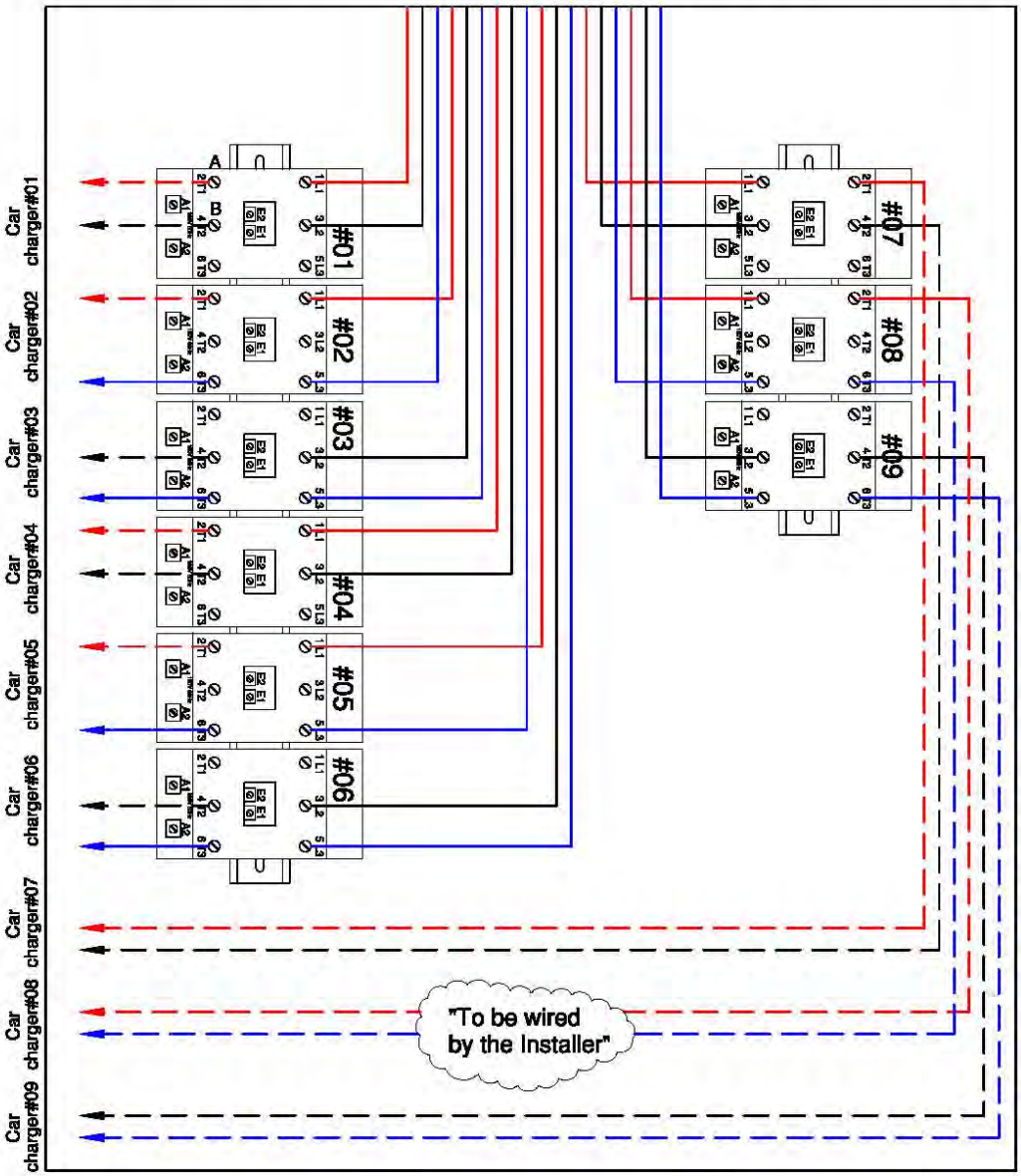


intellimeter CANADA INC. Innovative Metering Solutions	1125 Squires Beach Road Pickering,Ontario L1W 3T9 Phone:(905) 839-9199 Fax:(905) 839-9198 intellimeter.on.ca	Project Name:	Distributor:	Engineer:	P.O.#	Date:	Rev.	Project#:	Drawing#:	Drawn by: Hossein Pakbin	Checked: Drawing:

ICI01EVCMC-EMS-S-18 ENERGY MANAGEMENT SYSTEM

Contactor with Mechanical Latch Power Wiring Diagram

24"X20"X10" Enclosure (Panel 1 of 2)

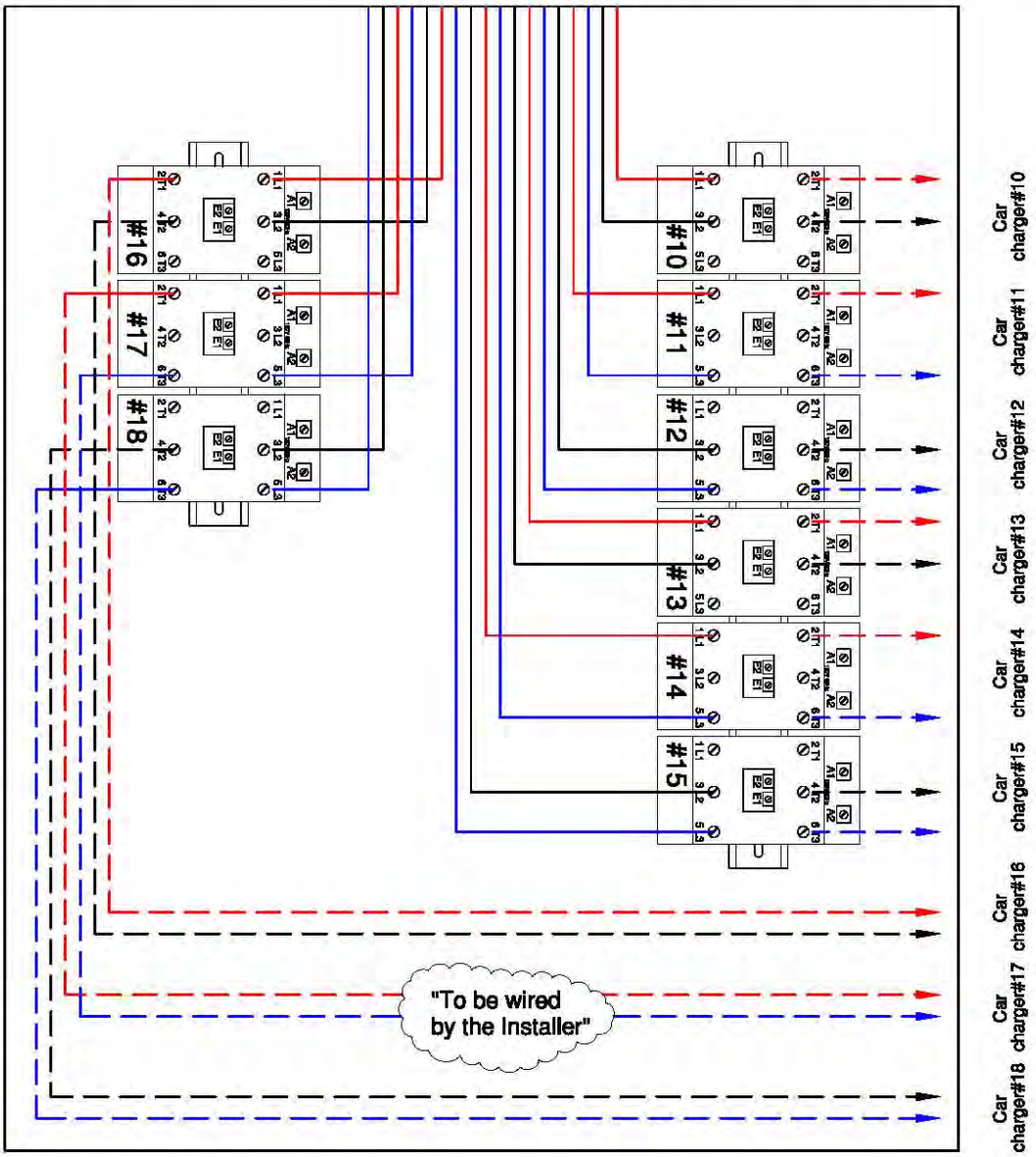


intellimeter CANADA INC. Innovative Metering Solutions	1125 Squires Beach Road Pickering,Ontario L1W 3T9 Phone:(905) 839-9199 Fax:(905) 839-9198 intellimeter.on.ca	Project Name:	Distributor:	Engineer:	P.O.#	Date: Dec.-2021	Rev. 1	Project#:	Drawing#:	Drawn by: Hossein Pakbin	Checked:	Drawing:

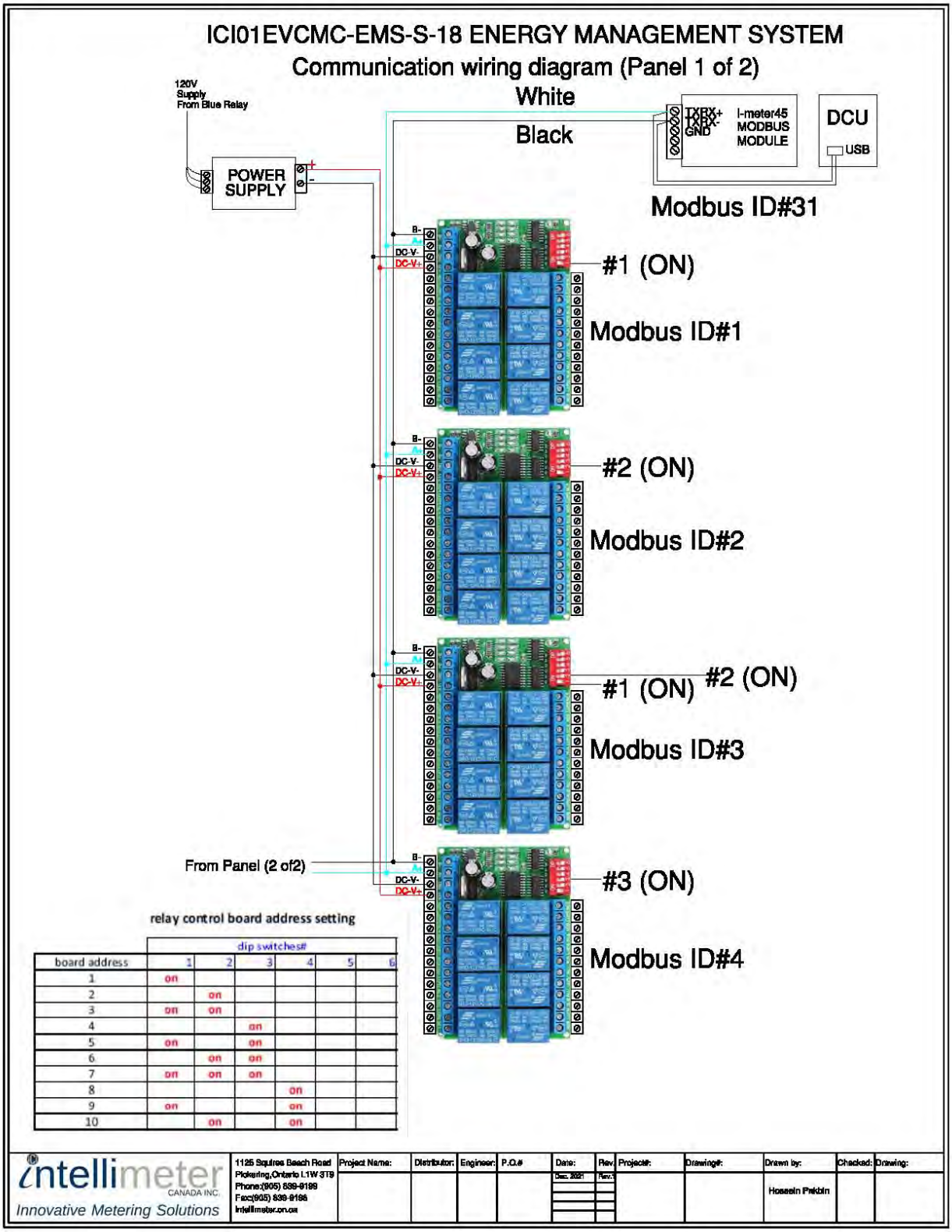
ICI01EVCMC-EMS-S-18 ENERGY MANAGEMENT SYSTEM

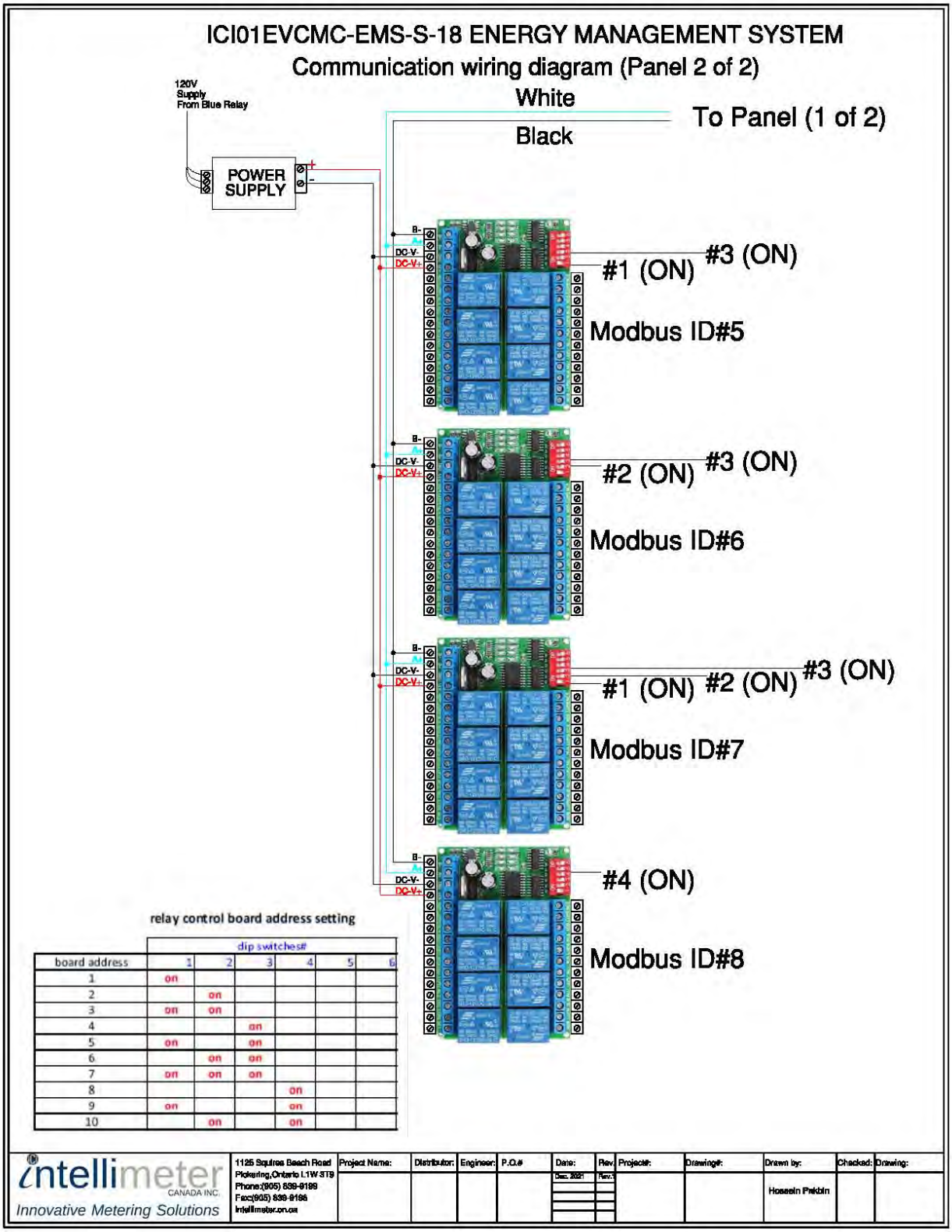
Contactor with Mechanical Latch Power Wiring Diagram

24"X20"X10" Enclosure (Panel 2 of 2)



intellimeter CANADA INC. Innovative Metering Solutions	1125 Squires Beach Road Pickering,Ontario L1W 3T9 Phone:(905) 839-9199 Fax:(905) 839-9198 intellimeter.on.ca	Project Name:	Distributor:	Engineer:	P.O.#	Date: Dec.-2021	Rev: 1	Project#:	Drawing#:	Drawn by: Hossein Pakbin	Checked:	Drawing:

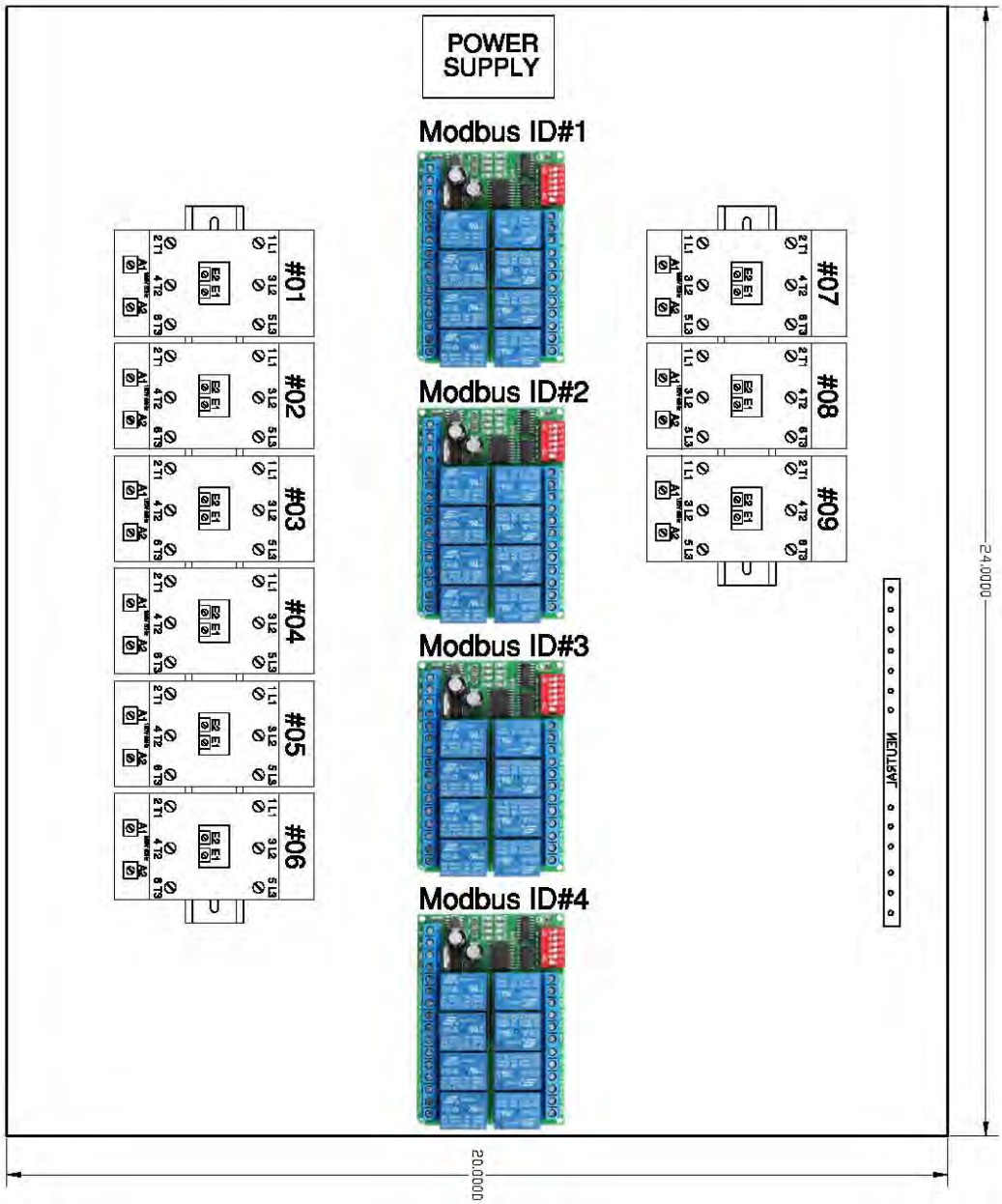

ICI01EVCMC-EMS-S-18 ENERGY MANAGEMENT SYSTEM
Communication wiring diagram (Panel 1 of 2)
120V Supply From Blue Relay
POWER SUPPLY
White
Black
TXRX+
TXRX-
GND
I-meter45 MODBUS MODULE
DCU
USB
Modbus ID#31
B-
A+
DC-V-
DC-V+
#1 (ON)
Modbus ID#1
#2 (ON)
Modbus ID#2
#1 (ON)
#2 (ON)
Modbus ID#3
From Panel (2 of2)
#3 (ON)
Modbus ID#4
relay control board address setting
dip switches#
board address
1 2 3 4 5 6
1 on
2 on
3 on on
4 on
5 on on
6 on on
7 on on on
8 on
9 on on
10 on on
intellimeter CANADA INC.
Innovative Metering Solutions
1125 Squires Beach Road
Pickering,Ontario L1W 3T9
Phone:(905) 839-9199
Fax:(905) 839-9198
Project Name:
Distributor:
Engineer:
P.O.#
Date:
Dec. 2021
Rev.
Project#:
Drawing#:
Drawn by:
Hossein Pakbin
Checked:
Drawing:


ICI01EVCMC-EMS-S-18 ENERGY MANAGEMENT SYSTEM
Communication wiring diagram (Panel 2 of 2)
120V Supply From Blue Relay
POWER SUPPLY
White
Black
To Panel (1 of 2)
#1 (ON)
#3 (ON)
Modbus ID#5
#2 (ON)
#3 (ON)
Modbus ID#6
#1 (ON)
#2 (ON)
#3 (ON)
Modbus ID#7
#4 (ON)
Modbus ID#8
relay control board address setting
dip switches#
board address 1 2 3 4 5 6
1 on
2 on
3 on on
4 on
5 on on
6 on on
7 on on on
8 on
9 on on
10 on on
intellimeter CANADA INC.
Innovative Metering Solutions
1125 Squires Beach Road
Pickering,Ontario L1W 3T9
Phone:(905) 839-9199
Fax:(905) 839-9198
Intellimeter.on.ca
Project Name:
Distributor:
Engineer:
P.O.#
Date:
Dec. 2021
Rev.
Project#:
Drawing#:
Drawn by:
Hossein Pakbin
Checked:
Drawing:

ICI01EVCMC-EMS-S-18 ENERGY MANAGEMENT SYSTEM

Contactor with Mechanical Latch, Relay board and power Supply Layout

24"X20"X10" Enclosure (Panel 1 of 2)

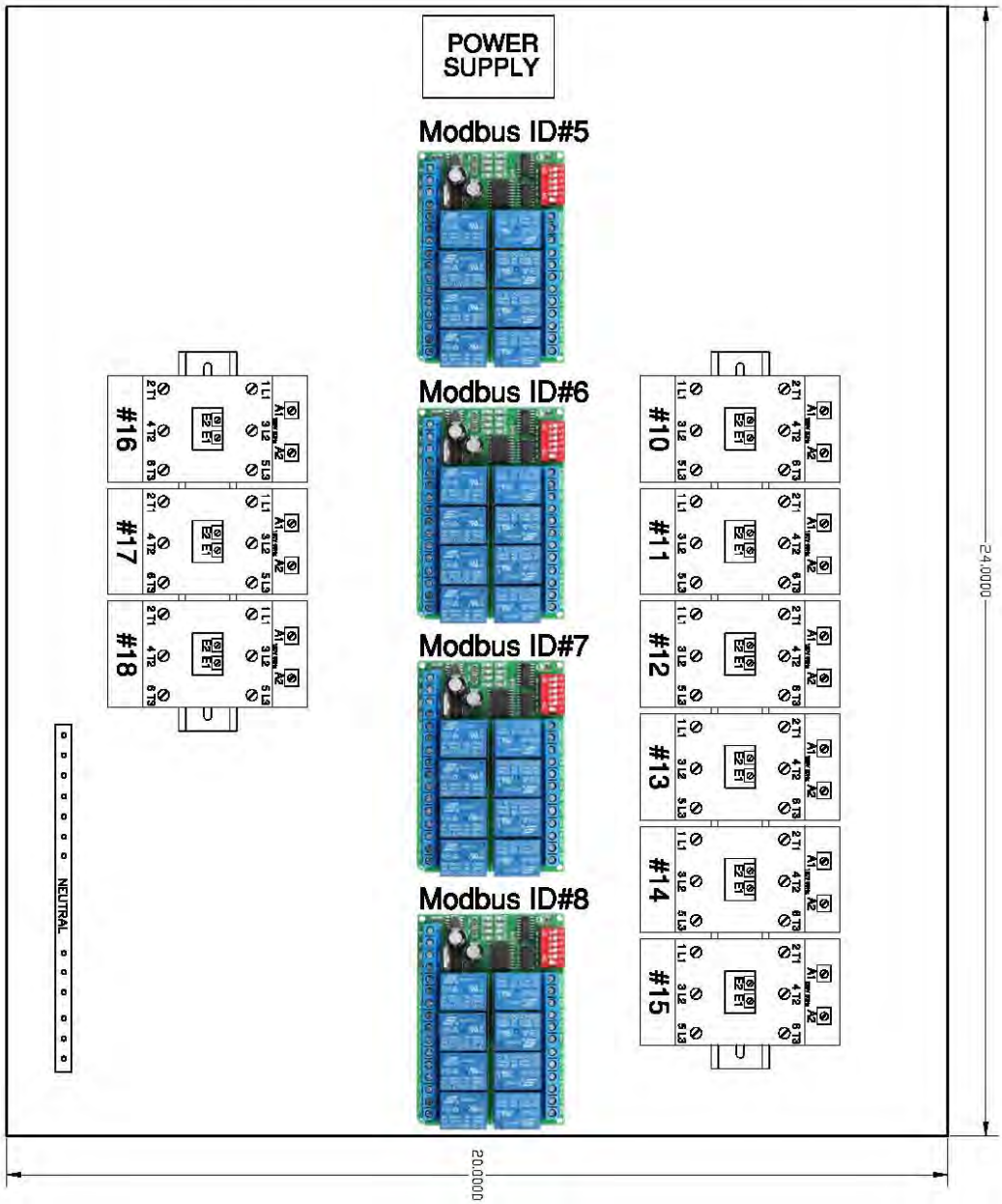


intellimeter CANADA INC. Innovative Metering Solutions	1125 Squires Beach Road Pickering,Ontario L1W 3T9 Phone:(905) 839-9199 Fax:(905) 839-9198 intellimeter.on.ca	Project Name:	Distributor:	Engineer:	P.O.#	Date: Dec. 2021	Rev: Rev.1	Project#:	Drawing#:	Drawn by: Hossein Pakbin	Checked:	Drawing:

ICI01EVCMC-EMS-S-18 ENERGY MANAGEMENT SYSTEM

Contactor with Mechanical Latch, Relay board and power Supply Layout

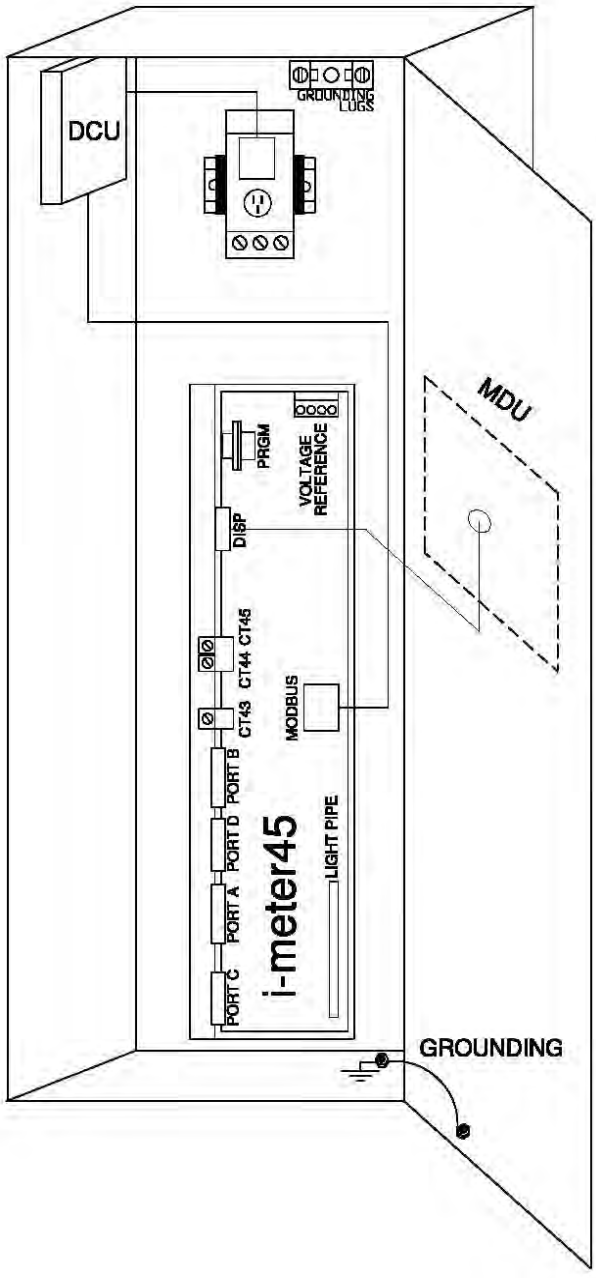
24"X20"X10" Enclosure (Panel 2 of 2)



intellimeter CANADA INC. Innovative Metering Solutions	1125 Squires Beach Road Pickering,Ontario L1W 3T9 Phone:(905) 839-9199 Fax:(905) 839-9198 intellimeter.on.ca	Project Name:	Distributor:	Engineer:	P.O.#	Date: Dec. 2021	Rev. Rev.1	Project#:	Drawing#:	Drawn by: Hossein Pakbin	Checked:	Drawing:

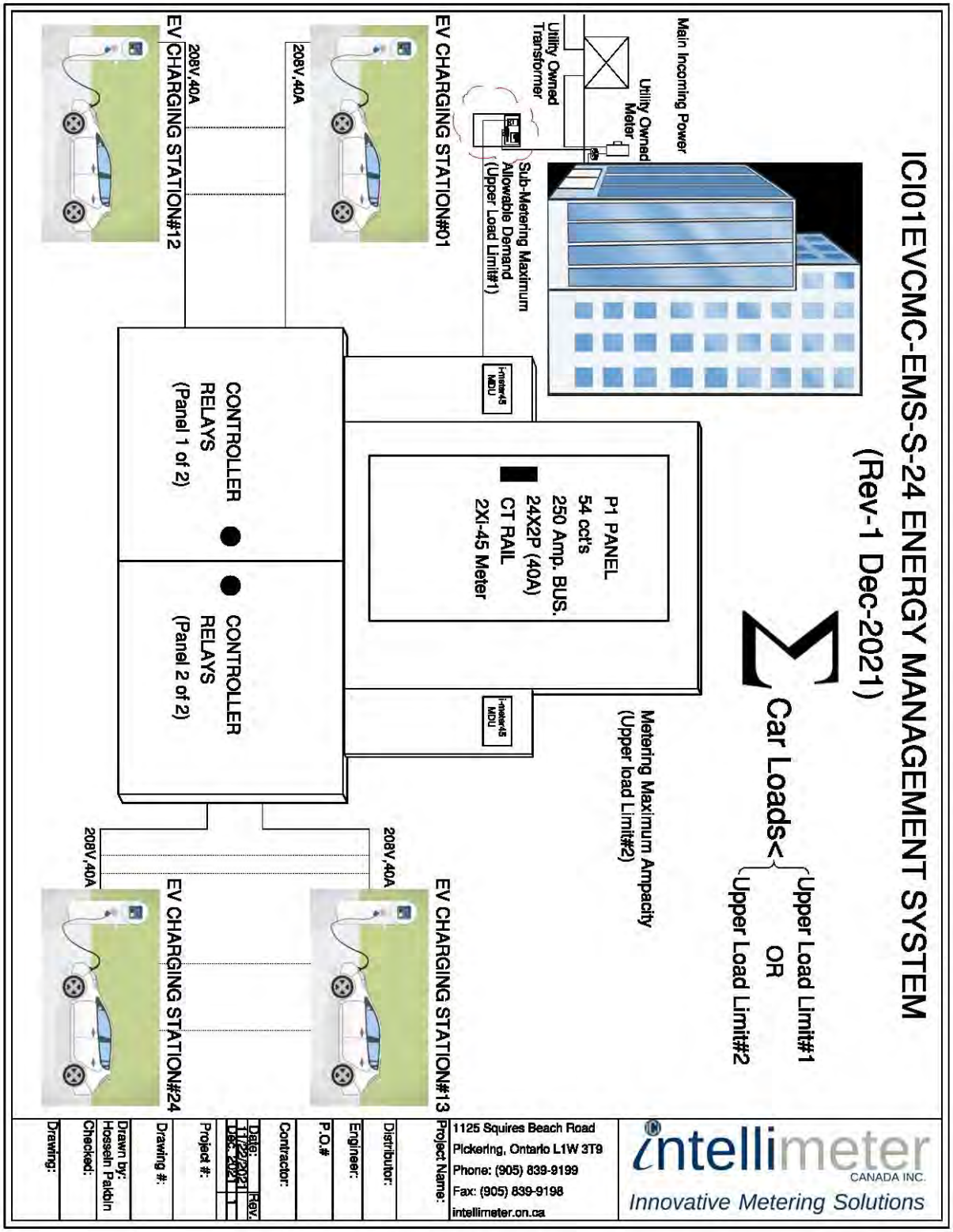
ICI01EVCMC-EMS-S-18 ENERGY MANAGEMENT SYSTEM

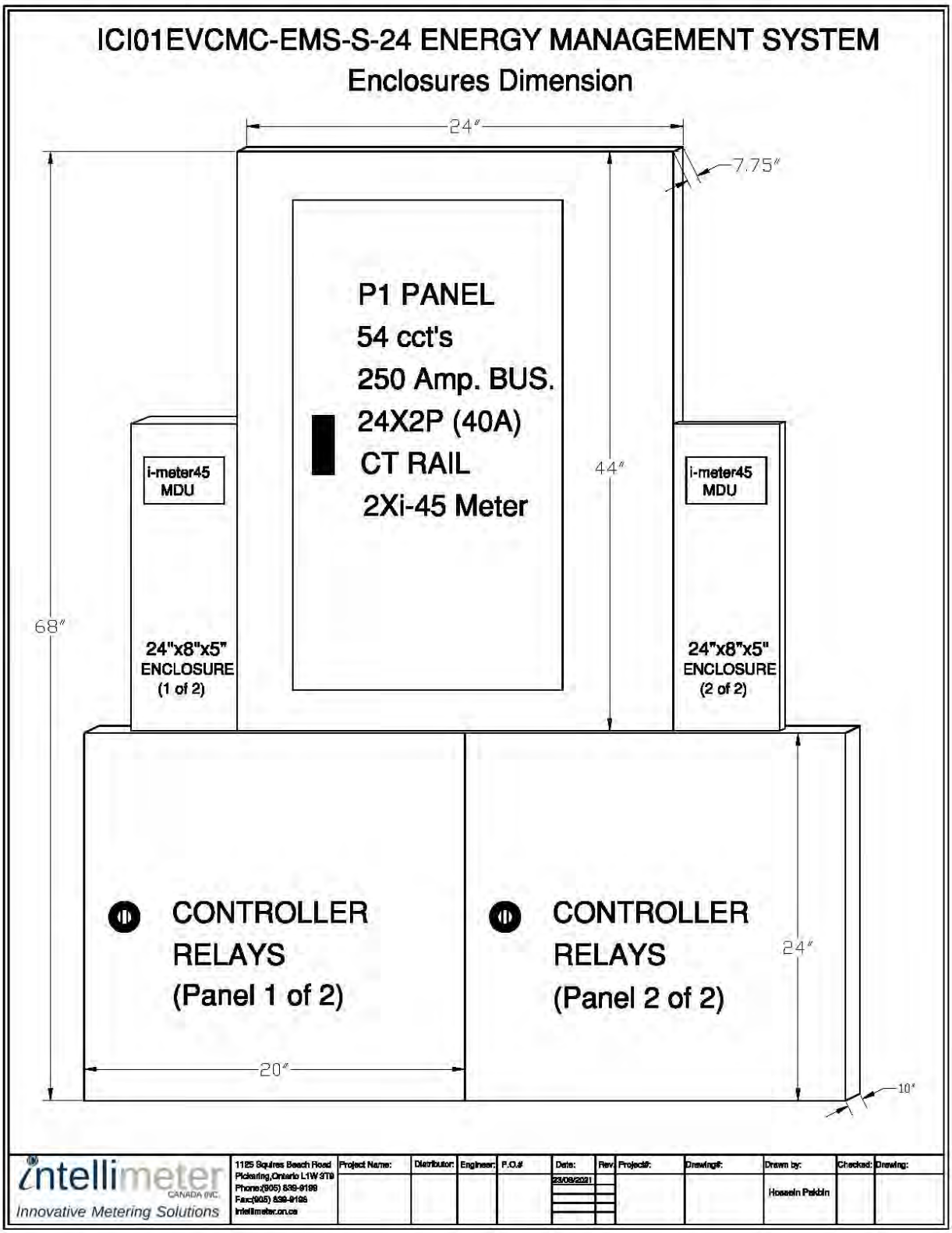
i-Meter45 ,DCU and MDU Layout

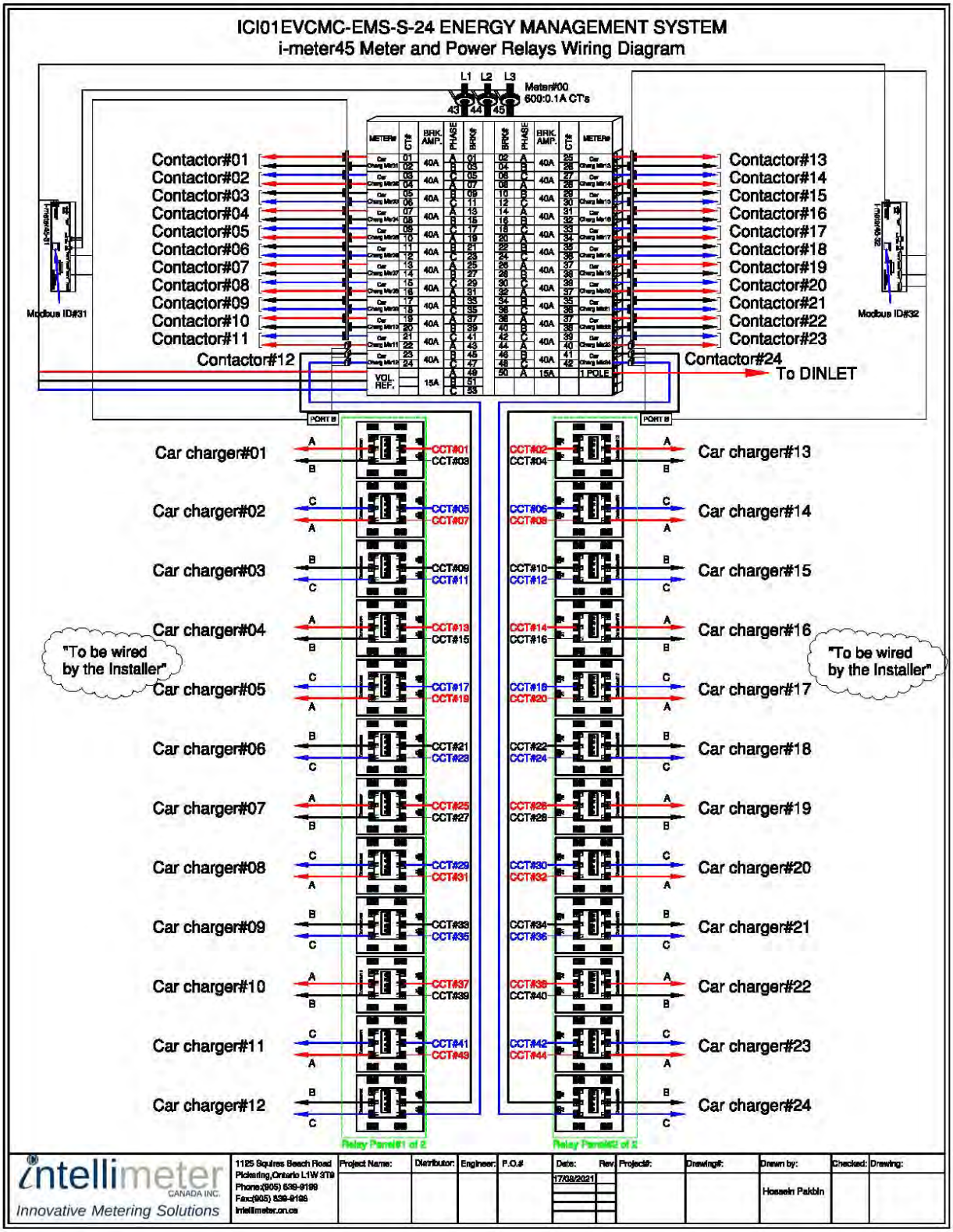


intellimeter CANADA INC. Innovative Metering Solutions	1125 Squires Beach Road Pickering,Ontario L1W 3T9 Phone:(905) 839-9199 Fax:(905) 839-9198 intellimeter.on.ca	Project Name:	Distributor:	Engineer:	P.O.#	Date: 31/12/2020	Rev.	Project#:	Drawing#:	Drawn by: Hossein Pakbin	Checked:	Drawing:

Appendix 3 EVCMC-24 Drawings



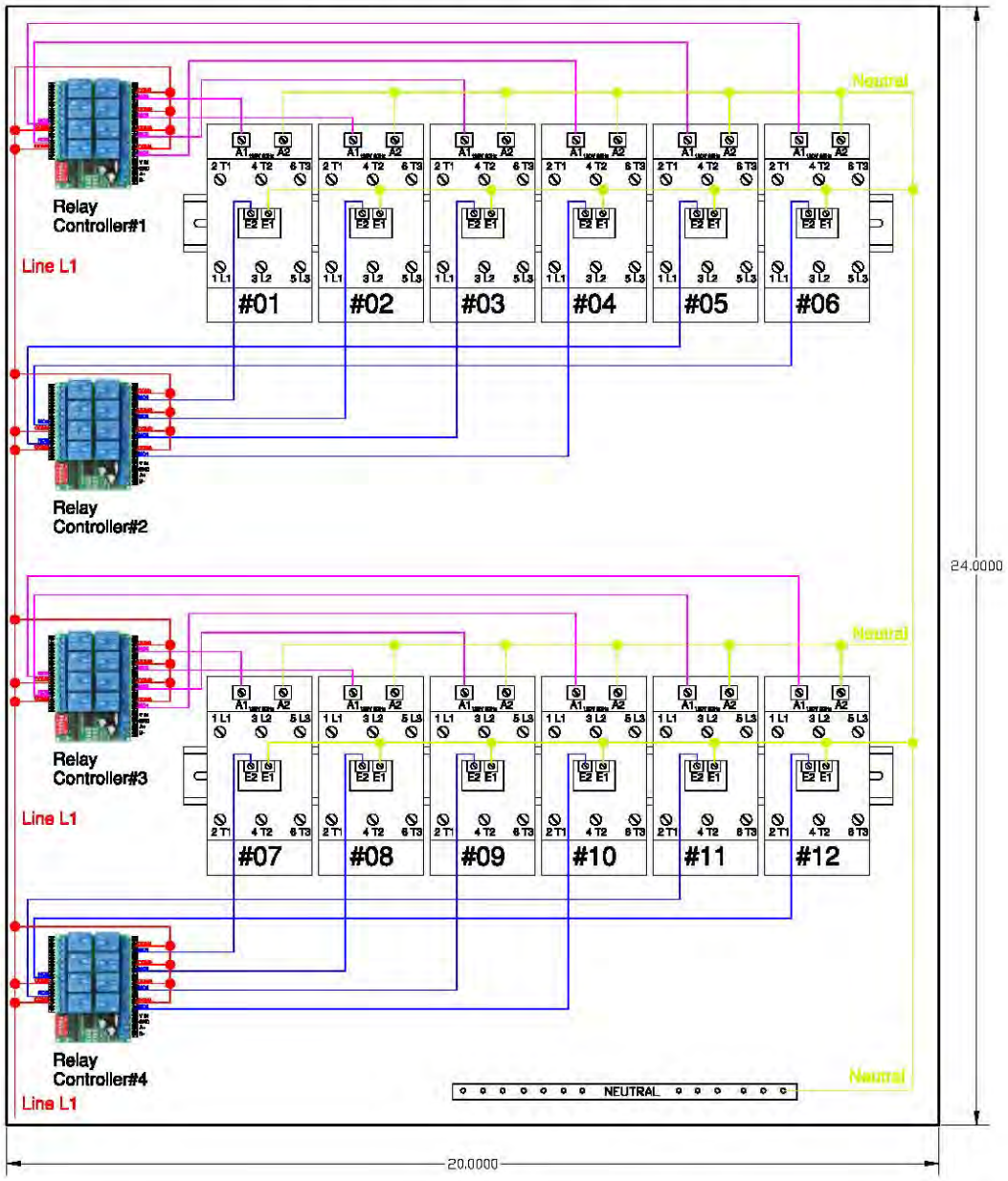

ICI01EVCMC-EMS-S-24 ENERGY MANAGEMENT SYSTEM
Enclosures Dimension
24″
7.75″
P1 PANEL
54 cct's
250 Amp. BUS.
24X2P (40A)
CT RAIL
2Xi-45 Meter
44″
68″
i-meter45 MDU
i-meter45 MDU
24"x8"x5" ENCLOSURE (1 of 2)
24"x8"x5" ENCLOSURE (2 of 2)
CONTROLLER RELAYS (Panel 1 of 2)
CONTROLLER RELAYS (Panel 2 of 2)
24″
20″
10″
intellimeter CANADA INC.
Innovative Metering Solutions
1125 Squires Beach Road
Pickering,Ontario L1W 3T9
Phone:(905) 839-9199
Fax:(905) 839-9198
intellimeter.on.ca
Project Name:
Distributor:
Engineer:
P.O.#
Date:
23/09/2021
Rev:
Project#:
Drawing#:
Drawn by:
Hossein Pakbin
Checked:
Drawing:


ICI01EVCMC-EMS-S-24 ENERGY MANAGEMENT SYSTEM
i-meter45 Meter and Power Relays Wiring Diagram
L1 L2 L3
43 44 45
Meter#00
600:0.1A CTs
Contactor#01
Contactor#02
Contactor#03
Contactor#04
Contactor#05
Contactor#06
Contactor#07
Contactor#08
Contactor#09
Contactor#10
Contactor#11
Contactor#12
Contactor#13
Contactor#14
Contactor#15
Contactor#16
Contactor#17
Contactor#18
Contactor#19
Contactor#20
Contactor#21
Contactor#22
Contactor#23
Contactor#24
To DINLET
Modbus ID#31
Modbus ID#32
PORT B
Car charger#01
Car charger#02
Car charger#03
Car charger#04
Car charger#05
Car charger#06
Car charger#07
Car charger#08
Car charger#09
Car charger#10
Car charger#11
Car charger#12
Car charger#13
Car charger#14
Car charger#15
Car charger#16
Car charger#17
Car charger#18
Car charger#19
Car charger#20
Car charger#21
Car charger#22
Car charger#23
Car charger#24
"To be wired by the Installer"
"To be wired by the Installer"
Relay Panel#1 of 2
Relay Panel#2 of 2
intellimeter
CANADA INC.
Innovative Metering Solutions
1125 Squires Beach Road
Pickering,Ontario L1W 3T9
Phone:(905) 839-9199
Fax:(905) 839-9198
intellimeter.on.ca
Project Name:
Distributor:
Engineer:
P.O.#
Date:
17/09/2021
Rev
Project#:
Drawing#:
Drawn by:
Hossein Pakbin
Checked:
Drawing:

ICI01EVCMC-EMS-S-24 ENERGY MANAGEMENT SYSTEM

Contactor with Mechanical Latch to Relay board Wiring Diagram

24"X20"X10" Enclosure (Panel 1 of 2)

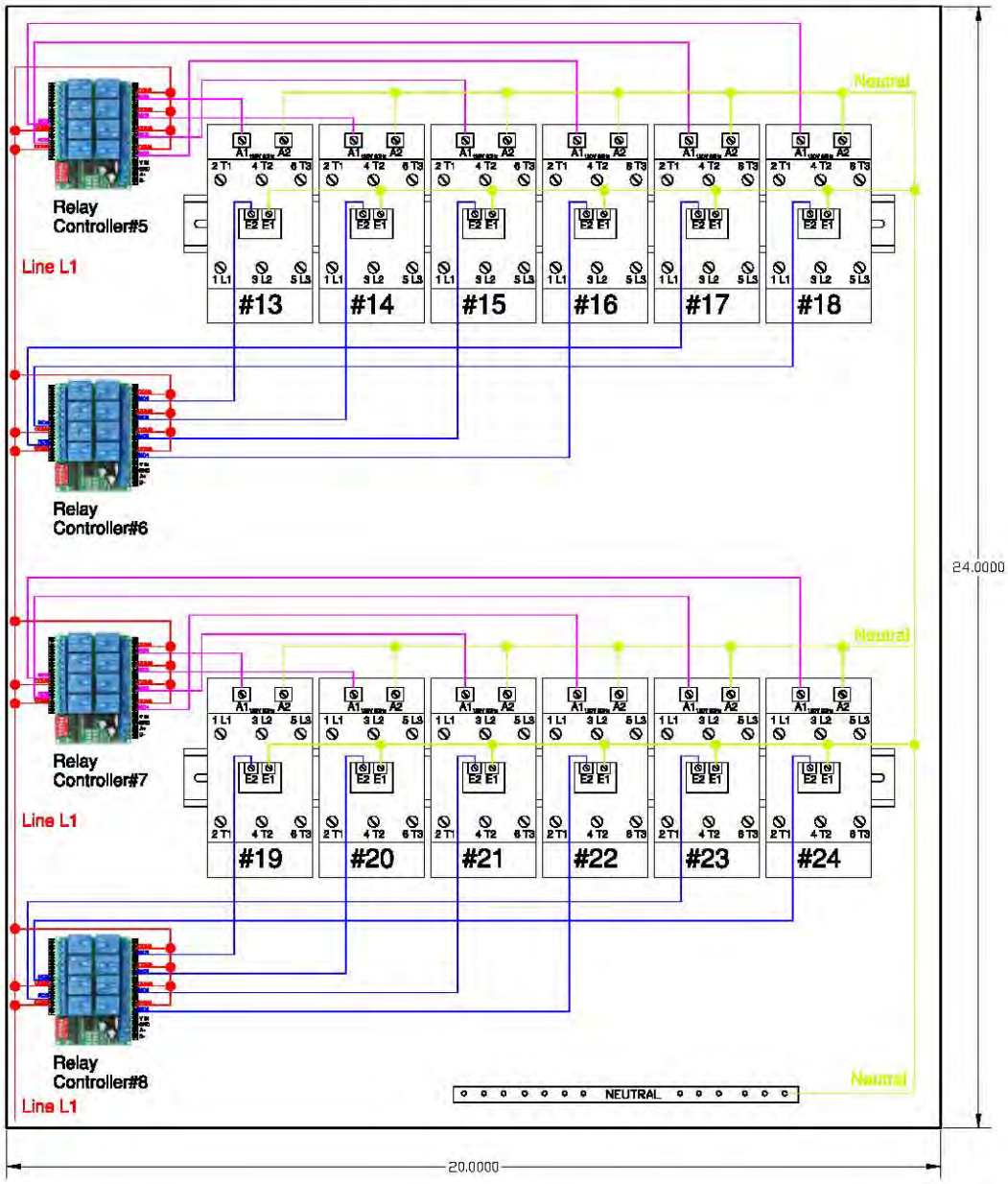


intellimeter CANADA INC. Innovative Metering Solutions	1125 Squires Beach Road Pickering,Ontario L1W 3T9 Phone:(905) 839-9199 Fax:(905) 839-9198 intellimeter.on.ca	Project Name:	Distributor:	Engineer:	P.O.#	Date: 07/07/2021	Rev.	Project#:	Drawing#:	Drawn by: Hossein Pakbin	Checked:	Drawing:

ICI01EVCMC-EMS-S-24 ENERGY MANAGEMENT SYSTEM

Contactor with Mechanical Latch to Relay board Wiring Diagram

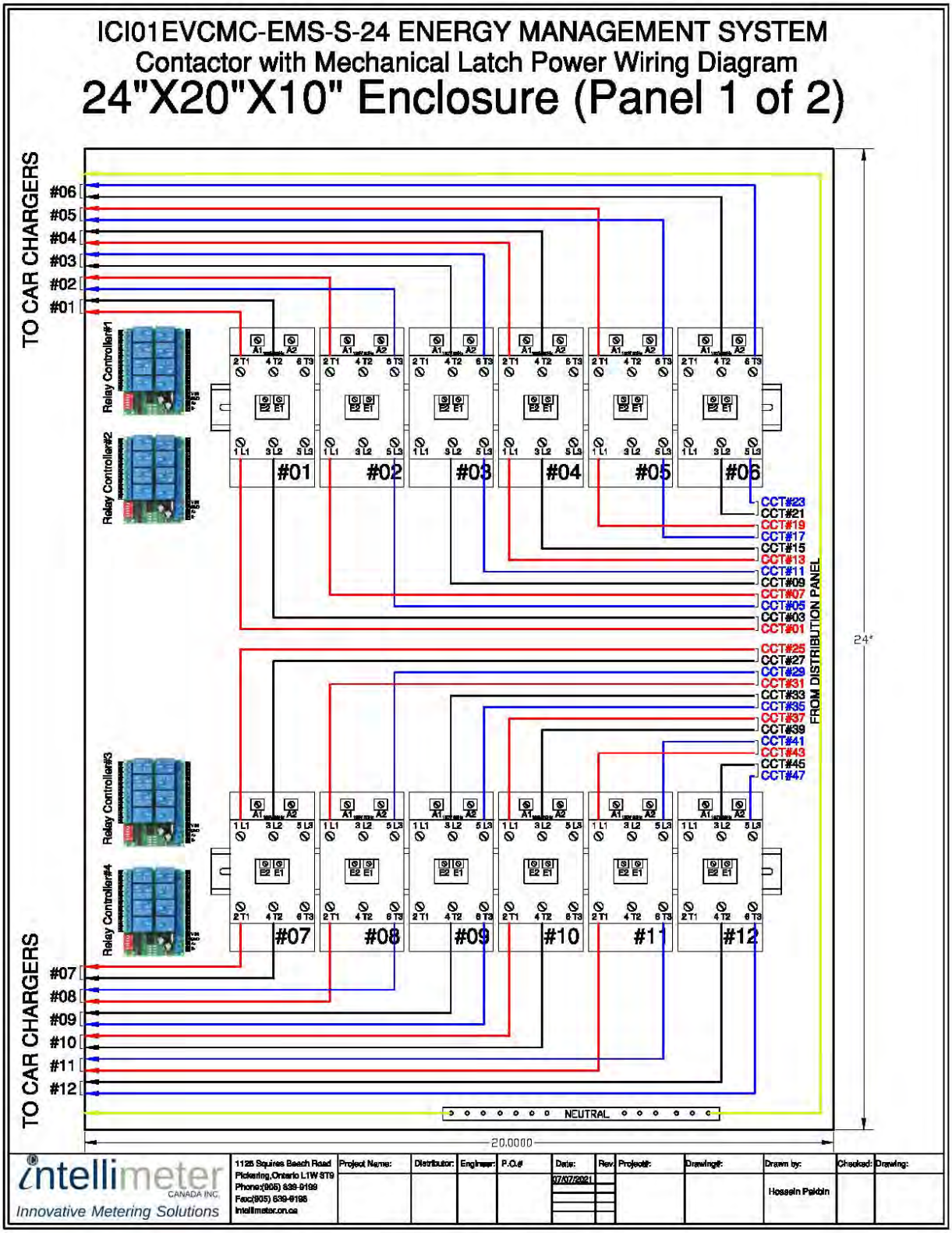
24"X20"X10" Enclosure (Panel 2 of 2)

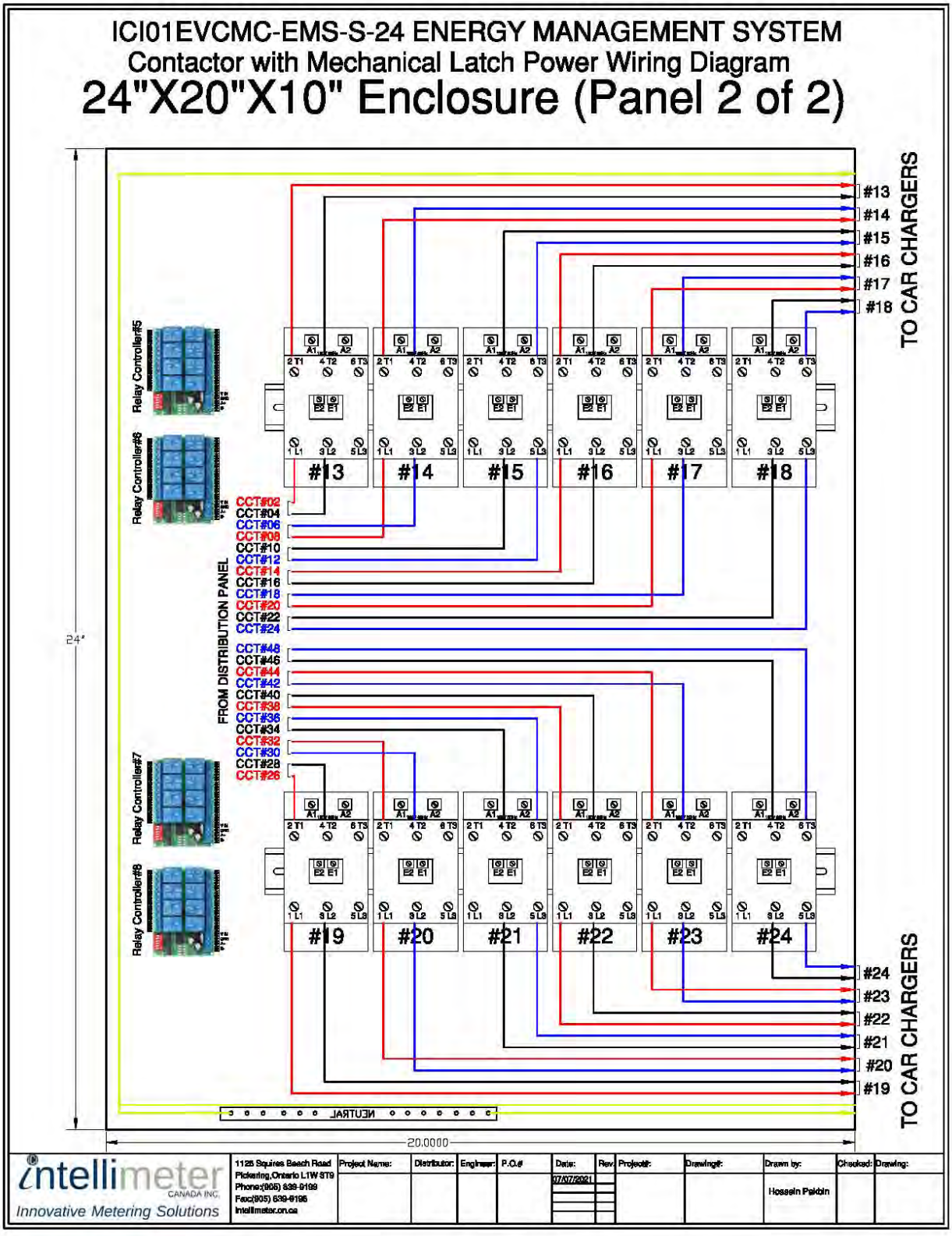


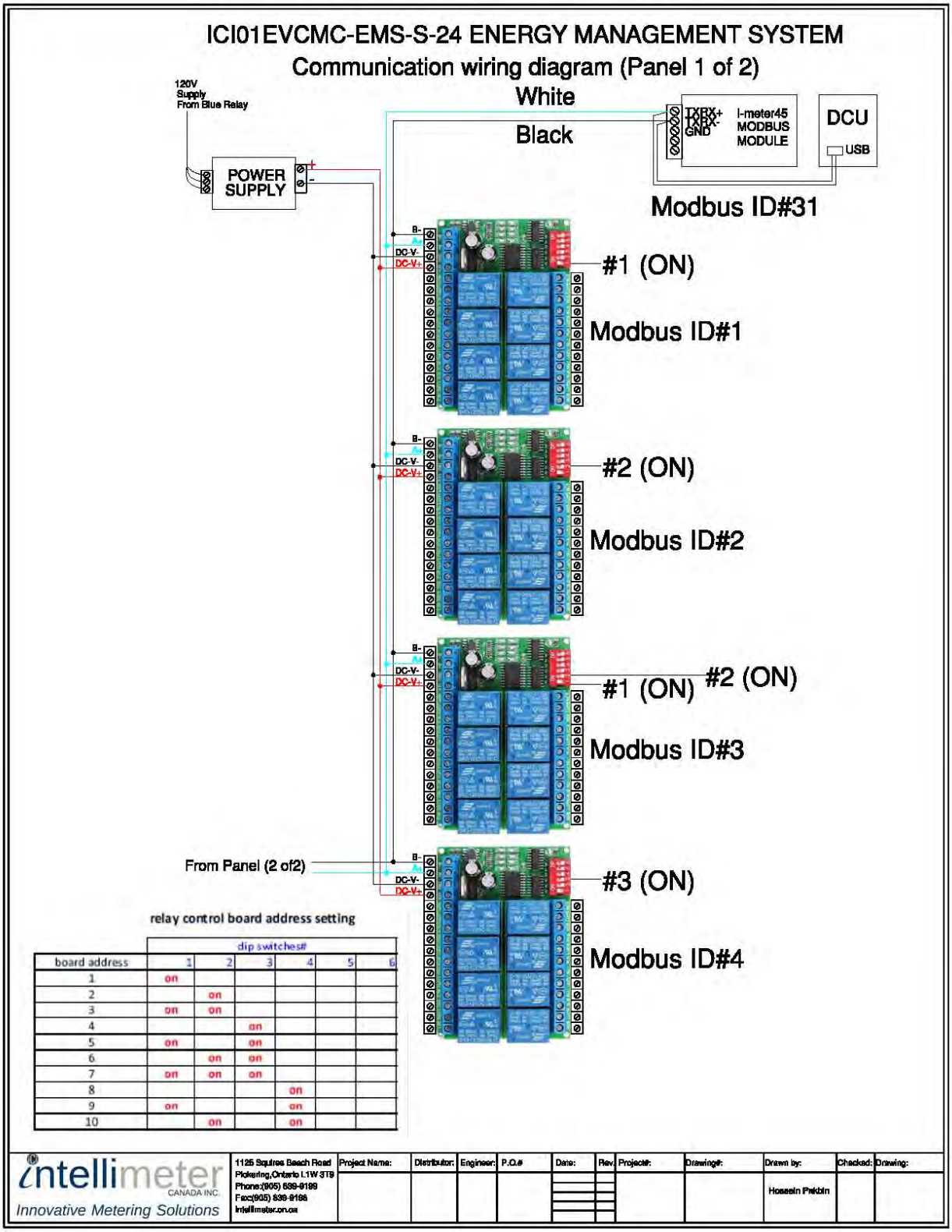
intellimeter CANADA INC.
Innovative Metering Solutions

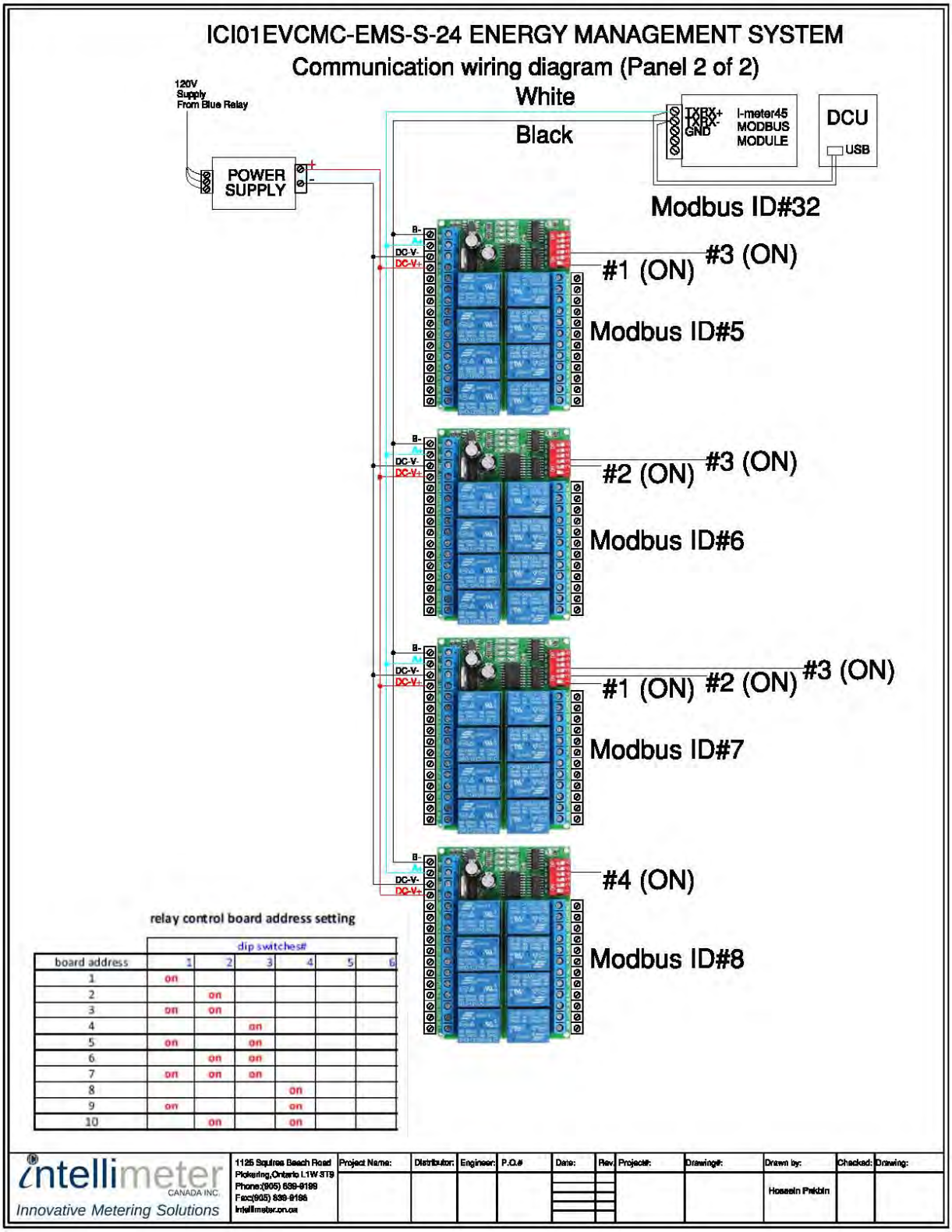
1125 Squires Beach Road
Pickering,Ontario L1W 3T9
Phone:(905) 839-9199
Fax:(905) 839-9198
intellimeter.on.ca

Project Name:	Distributor:	Engineer:	P.O.#	Date:	Rev.	Project#:	Drawing#:	Drawn by:	Checked:	Drawing:
				12/09/2021				Hossein Pakbin		


ICI01EVCMC-EMS-S-24 ENERGY MANAGEMENT SYSTEM
Contactor with Mechanical Latch Power Wiring Diagram
24"X20"X10" Enclosure (Panel 1 of 2)
TO CAR CHARGERS
#06
#05
#04
#03
#02
#01
Relay Controller#1
Relay Controller#2
Relay Controller#3
Relay Controller#4
#01
#02
#03
#04
#05
#06
#07
#08
#09
#10
#11
#12
CCT#23
CCT#21
CCT#19
CCT#17
CCT#15
CCT#13
CCT#11
CCT#09
CCT#07
CCT#05
CCT#03
CCT#01
CCT#25
CCT#27
CCT#29
CCT#31
CCT#33
CCT#35
CCT#37
CCT#39
CCT#41
CCT#43
CCT#45
CCT#47
FROM DISTRIBUTION PANEL
NEUTRAL
24"
20.0000
intellimeter
CANADA INC.
Innovative Metering Solutions
1125 Squires Beach Road
Pickering,Ontario L1W 3T9
Phone:(905) 839-9199
Fax:(905) 839-9198
Intellimeter.on.ca
Project Name:
Distributor:
Engineer:
P.O.#
Date:
07/07/2021
Rev.
Project#:
Drawing#:
Drawn by:
Hossein Paldin
Checked:
Drawing:


ICI01EVCMC-EMS-S-24 ENERGY MANAGEMENT SYSTEM
Contactor with Mechanical Latch Power Wiring Diagram
24"X20"X10" Enclosure (Panel 2 of 2)
TO CAR CHARGERS
#13
#14
#15
#16
#17
#18
Relay Controller#5
Relay Controller#6
Relay Controller#7
Relay Controller#8
FROM DISTRIBUTION PANEL
CCT#02
CCT#04
CCT#06
CCT#08
CCT#10
CCT#12
CCT#14
CCT#16
CCT#18
CCT#20
CCT#22
CCT#24
CCT#48
CCT#46
CCT#44
CCT#42
CCT#40
CCT#38
CCT#36
CCT#34
CCT#32
CCT#30
CCT#28
CCT#26
#19
#20
#21
#22
#23
#24
TO CAR CHARGERS
#24
#23
#22
#21
#20
#19
NEUTRAL
24"
20.0000
intellimeter
CANADA INC.
Innovative Metering Solutions
1125 Squires Beach Road
Pickering,Ontario L1W 3T9
Phone:(905) 839-9199
Fax:(905) 839-9196
Intellimeter.on.ca
Project Name:
Distributor:
Engineer:
P.O.#
Date:
07/07/2021
Rev.
Project#:
Drawing#:
Drawn by:
Hossein Pakbin
Checked:
Drawing:

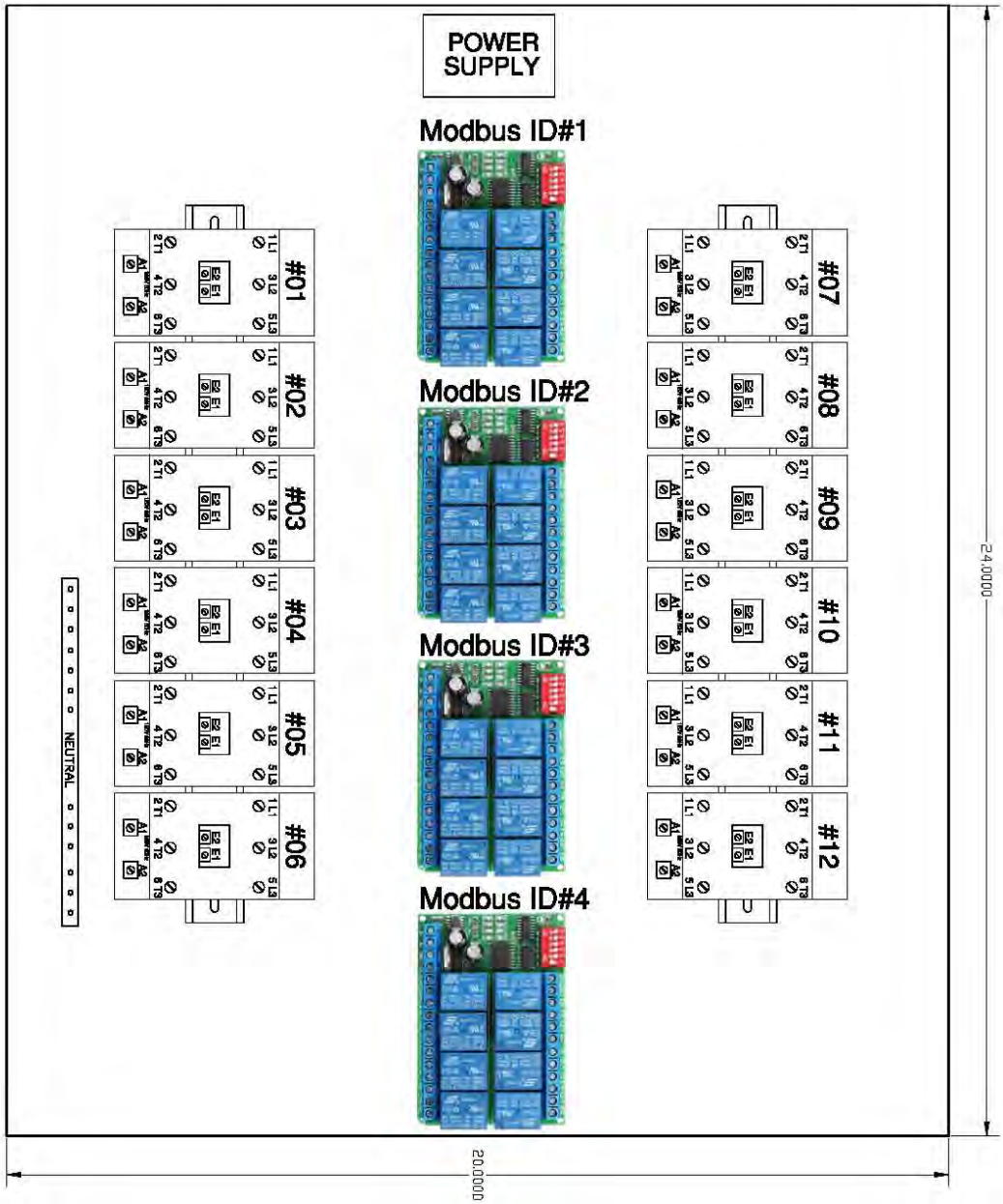

ICI01EVCMC-EMS-S-24 ENERGY MANAGEMENT SYSTEM
Communication wiring diagram (Panel 1 of 2)
120V Supply From Blue Relay
POWER SUPPLY
White
Black
TXRX+
TXRX-
GND
I-meter45 MODBUS MODULE
DCU
USB
Modbus ID#31
B-
A+
DC-V-
DC-V+
#1 (ON)
Modbus ID#1
#2 (ON)
Modbus ID#2
#1 (ON)
#2 (ON)
Modbus ID#3
From Panel (2 of2)
#3 (ON)
Modbus ID#4
relay control board address setting
dip switches#
board address 1 2 3 4 5 6
1 on
2 on
3 on on
4 on
5 on on
6 on on
7 on on on
8 on
9 on on
10 on on
intellimeter CANADA INC.
Innovative Metering Solutions
1125 Squires Beach Road
Pickering,Ontario L1W 3T9
Phone:(905) 839-9199
Fax:(905) 839-9198
Intellimeter.on.ca
Project Name:
Distributor:
Engineer:
P.O.#
Date:
Rev.
Project#:
Drawing#:
Drawn by:
Hossein Pakbin
Checked:
Drawing:


ICI01EVCMC-EMS-S-24 ENERGY MANAGEMENT SYSTEM
Communication wiring diagram (Panel 2 of 2)
120V Supply From Blue Relay
POWER SUPPLY
White
Black
TXRX+
TXRX-
GND
I-meter45 MODBUS MODULE
DCU
USB
Modbus ID#32
B-
A+
DC-V-
DC-V+
#1 (ON)
#3 (ON)
Modbus ID#5
#2 (ON)
#3 (ON)
Modbus ID#6
#1 (ON)
#2 (ON)
#3 (ON)
Modbus ID#7
#4 (ON)
Modbus ID#8
relay control board address setting
dip switches#
board address 1 2 3 4 5 6
1 on
2 on
3 on on
4 on
5 on on
6 on on
7 on on on
8 on
9 on on
10 on on
intellimeter CANADA INC.
Innovative Metering Solutions
1125 Squires Beach Road
Pickering,Ontario L1W 3T9
Phone:(905) 839-9199
Fax:(905) 839-9198
intellimeter.on.ca
Project Name:
Distributor:
Engineer:
P.O.#
Date:
Rev.
Project#:
Drawing#:
Drawn by:
Hossein Pakbin
Checked:
Drawing:

ICI01EVCMC-EMS-S-24 ENERGY MANAGEMENT SYSTEM

Contactor with Mechanical Latch, Relay board and power Supply Layout

24"X20"X10" Enclosure (Panel 1 of 2)

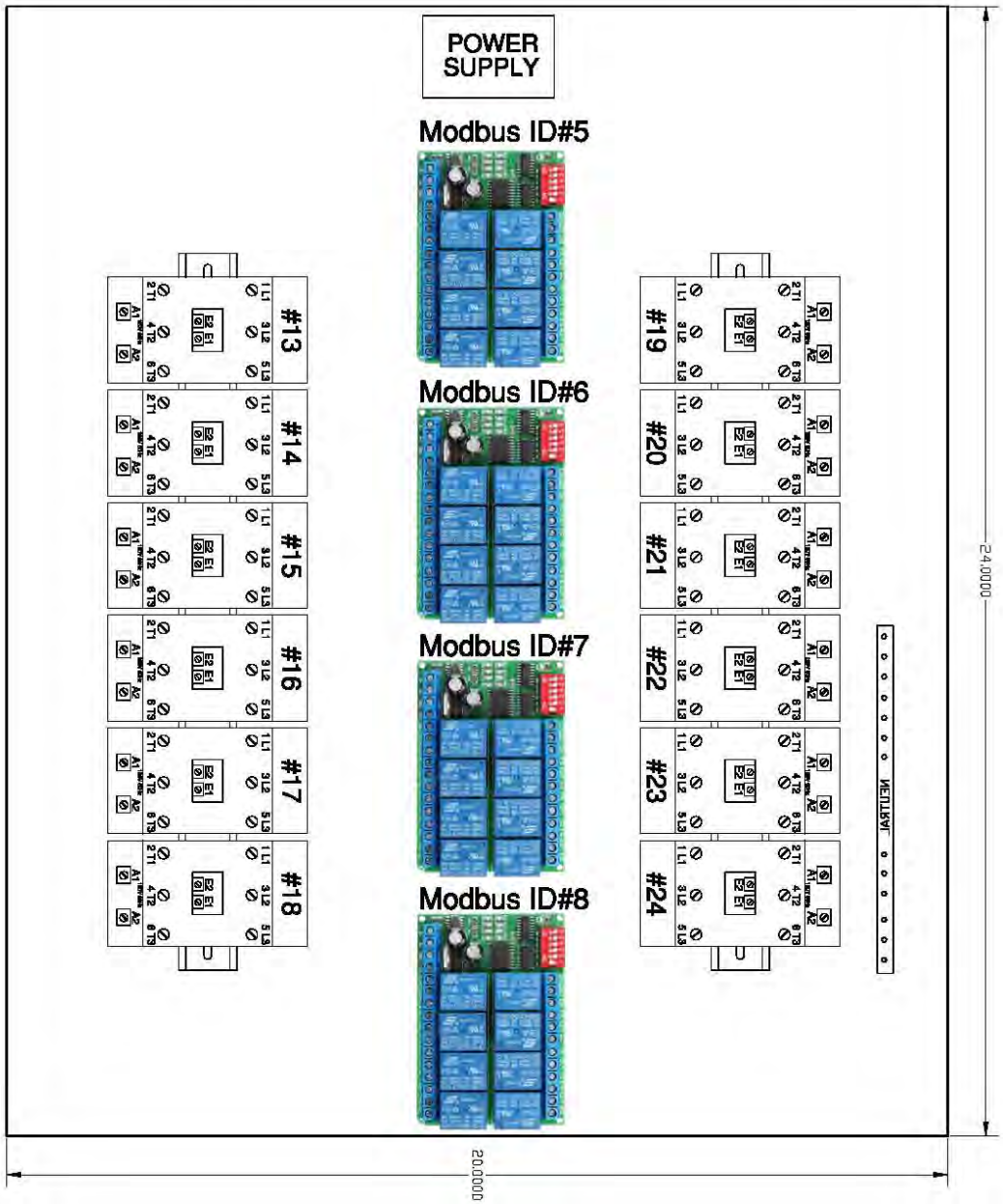


intellimeter CANADA INC. Innovative Metering Solutions	1125 Squires Beach Road Pickering,Ontario L1W 3T9 Phone:(905) 839-9199 Fax:(905) 839-9198 intellimeter.on.ca	Project Name:	Distributor:	Engineer:	P.O.#	Date:	Rev.	Project#:	Drawing#:	Drawn by: Hossein Pakbin	Checked:	Drawing:

ICI01EVCMC-EMS-S-24 ENERGY MANAGEMENT SYSTEM

Contactor with Mechanical Latch, Relay board and power Supply Layout

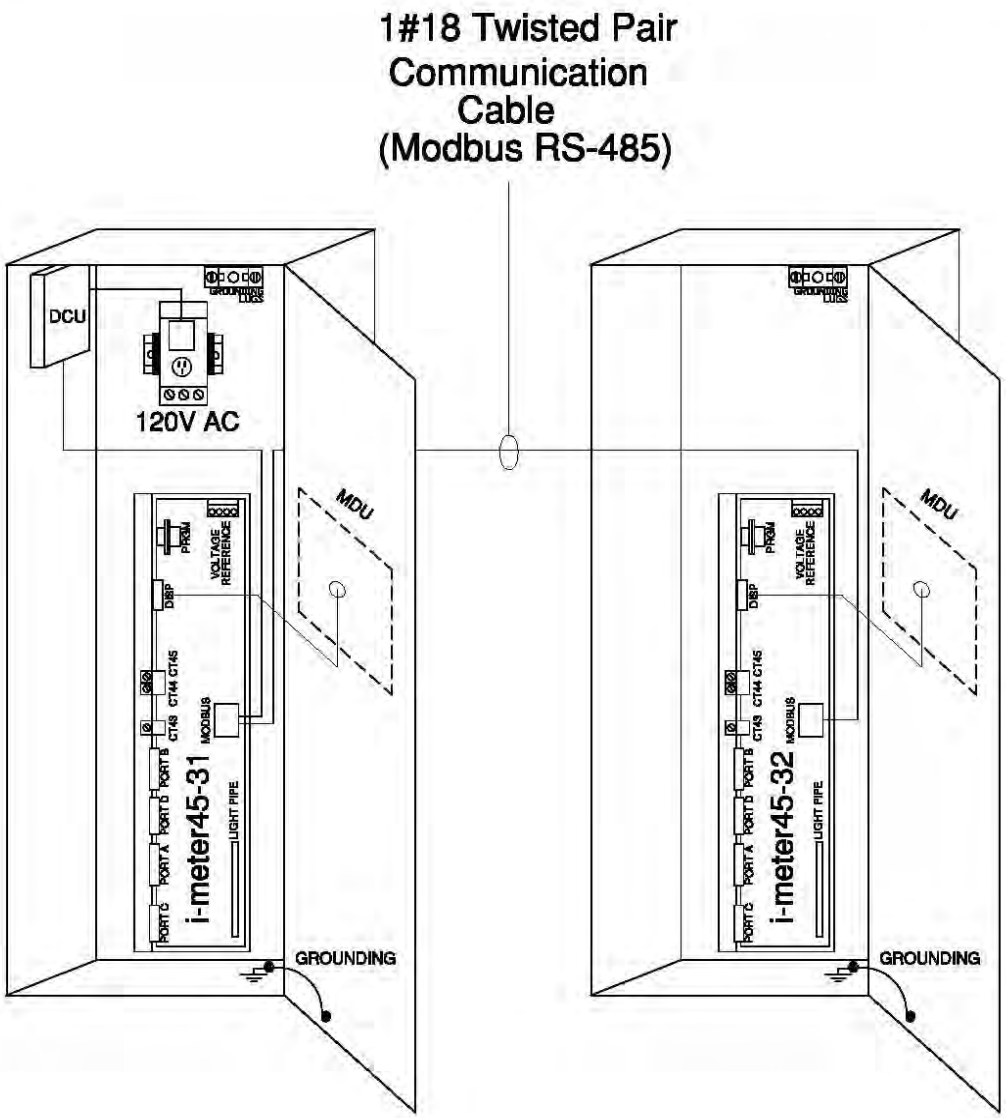
24"X20"X10" Enclosure (Panel 2 of 2)



intellimeter CANADA INC. Innovative Metering Solutions	1125 Squires Beach Road Pickering,Ontario L1W 3T9 Phone:(905) 839-9199 Fax:(905) 839-9198 intellimeter.on.ca	Project Name:	Distributor:	Engineer:	P.O.#	Date:	Rev.	Project#:	Drawing#:	Drawn by: Hossein Pakbin	Checked:	Drawing:

ICI01EVCMC-EMS-S-24 ENERGY MANAGEMENT SYSTEM

i-Meter45 ,Data Collection Unit (DCU) and Meter Display Unit (MDU) Layout



intellimeter CANADA INC. Innovative Metering Solutions	1125 Squires Beach Road Pickering,Ontario L1W 3T9 Phone:(905) 839-9199 Fax:(905) 839-9198 intellimeter.on.ca	Project Name:	Distributor:	Engineer:	P.O.#	Date:	Rev	Project#:	Drawing#:	Drawn by: Hossein Pakbin	Checked:	Drawing: