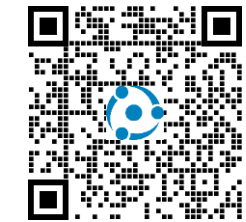


DESCRIPTION:  
NETWORKING SINGLE LINE - 480V

SYSTEM TYPE:  
SOCOME HES L

REV.	DESCRIPTION	DATE	BY
1	SINGLE LINE PUBLISHED	05.10.22	KM
2	QR CODE ADDED	10.11.22	KM
3	ETB CONTROLLER UPDATE	07.16.24	LL



Scan QR for  
ETB Controller  
Installation  
Manuals

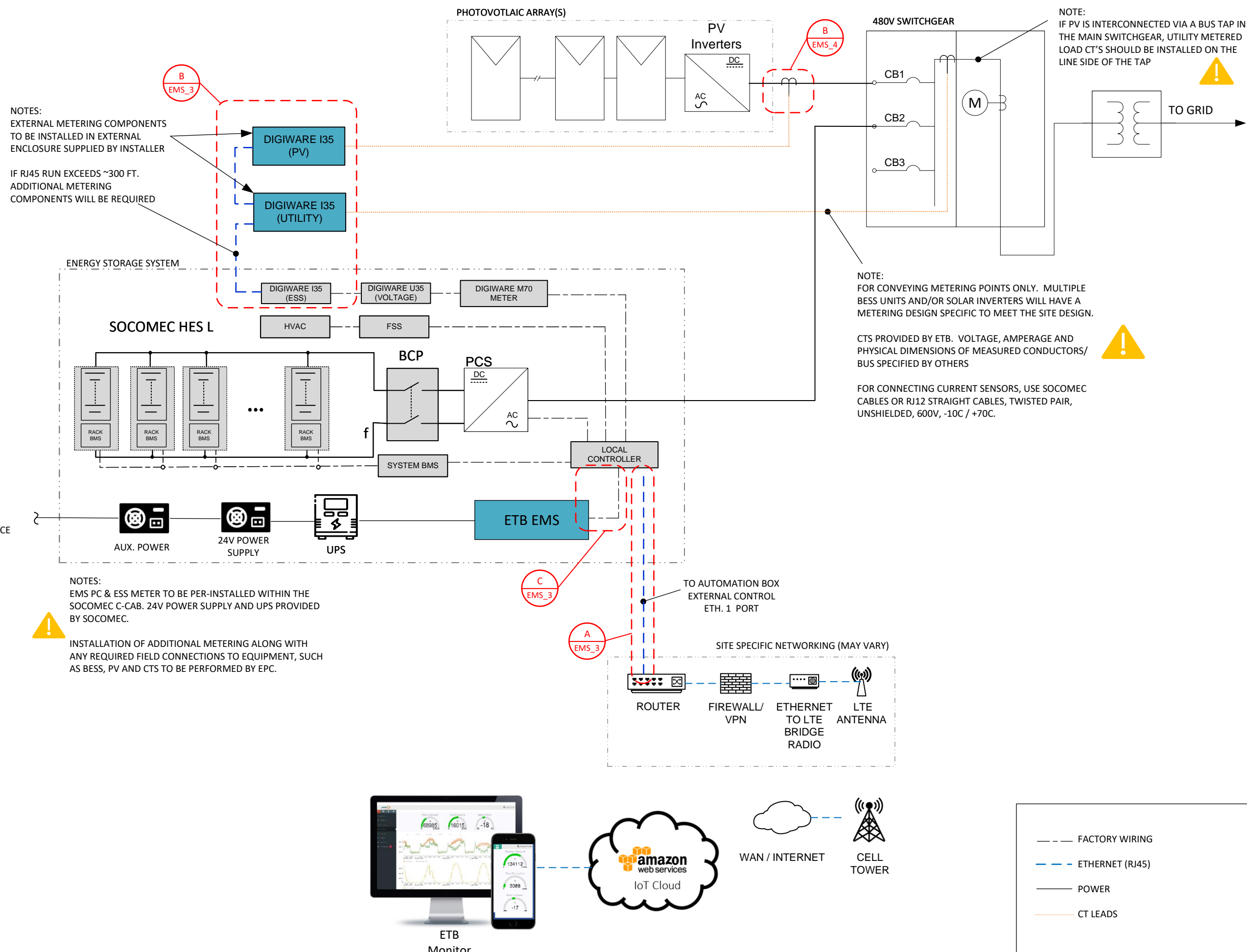
TITLE:  
ETB CONTROLLER  
SINGLE LINE

DRAWING NUMBER:  
EMS\_1

SCALE:  
NS

SHEET:  
1 OF 4

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CONDITIONS ELECTRICAL  
CODES, UTILITY  
REQUIREMENTS AND LOCAL  
CODE ENFORCEMENT.



NOTES:  
EXTERNAL METERING COMPONENTS TO BE INSTALLED IN EXTERNAL ENCLOSURE SUPPLIED BY INSTALLER  
IF RJ45 RUN EXCEEDS ~300 FT. ADDITIONAL METERING COMPONENTS WILL BE REQUIRED



NOTE:  
IF PV IS INTERCONNECTED VIA A BUS TAP IN THE MAIN SWITCHGEAR, UTILITY METERED LOAD CT'S SHOULD BE INSTALLED ON THE LINE SIDE OF THE TAP



NOTE:  
FOR CONVEYING METERING POINTS ONLY. MULTIPLE BESS UNITS AND/OR SOLAR INVERTERS WILL HAVE A METERING DESIGN SPECIFIC TO MEET THE SITE DESIGN.



CTS PROVIDED BY ETB. VOLTAGE, AMPERAGE AND PHYSICAL DIMENSIONS OF MEASURED CONDUCTORS/ BUS SPECIFIED BY OTHERS

FOR CONNECTING CURRENT SENSORS, USE SOCOME CABLES OR RJ12 STRAIGHT CABLES, TWISTED PAIR, UNSHIELDED, 600V, -10C / +70C.

NOTE:  
208VAC 3P/3W EXTERNAL POWER SOURCE. MUST BE SUPPLIED BY INSTALLER. REFERENCE SOCOME C MANUAL FOR AMPERAGE REQUIREMENTS.



NOTES:  
EMS PC & ESS METER TO BE PER-INSTALLED WITHIN THE SOCOME C-CAB. 24V POWER SUPPLY AND UPS PROVIDED BY SOCOME C.



INSTALLATION OF ADDITIONAL METERING ALONG WITH ANY REQUIRED FIELD CONNECTIONS TO EQUIPMENT, SUCH AS BESS, PV AND CTS TO BE PERFORMED BY EPC.



---	FACTORY WIRING
---	ETHERNET (RJ45)
---	POWER
---	CT LEADS

DESCRIPTION:  
NETWORKING SINGLE LINE - 208V

SYSTEM TYPE:  
SOCOMECHES L

REV.	DATE	BY	DESCRIPTION
1	05.10.22	KM	SINGLE LINE PUBLISHED
2	10.11.22	KM	QR CODE ADDED
3	07.16.24	LL	ETB CONTROLLER UPDATE

REV.	DATE	BY	DESCRIPTION
1	05.10.22	KM	SINGLE LINE PUBLISHED
2	10.11.22	KM	QR CODE ADDED
3	07.16.24	LL	ETB CONTROLLER UPDATE



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ETB Controller  
Installation  
Manuals

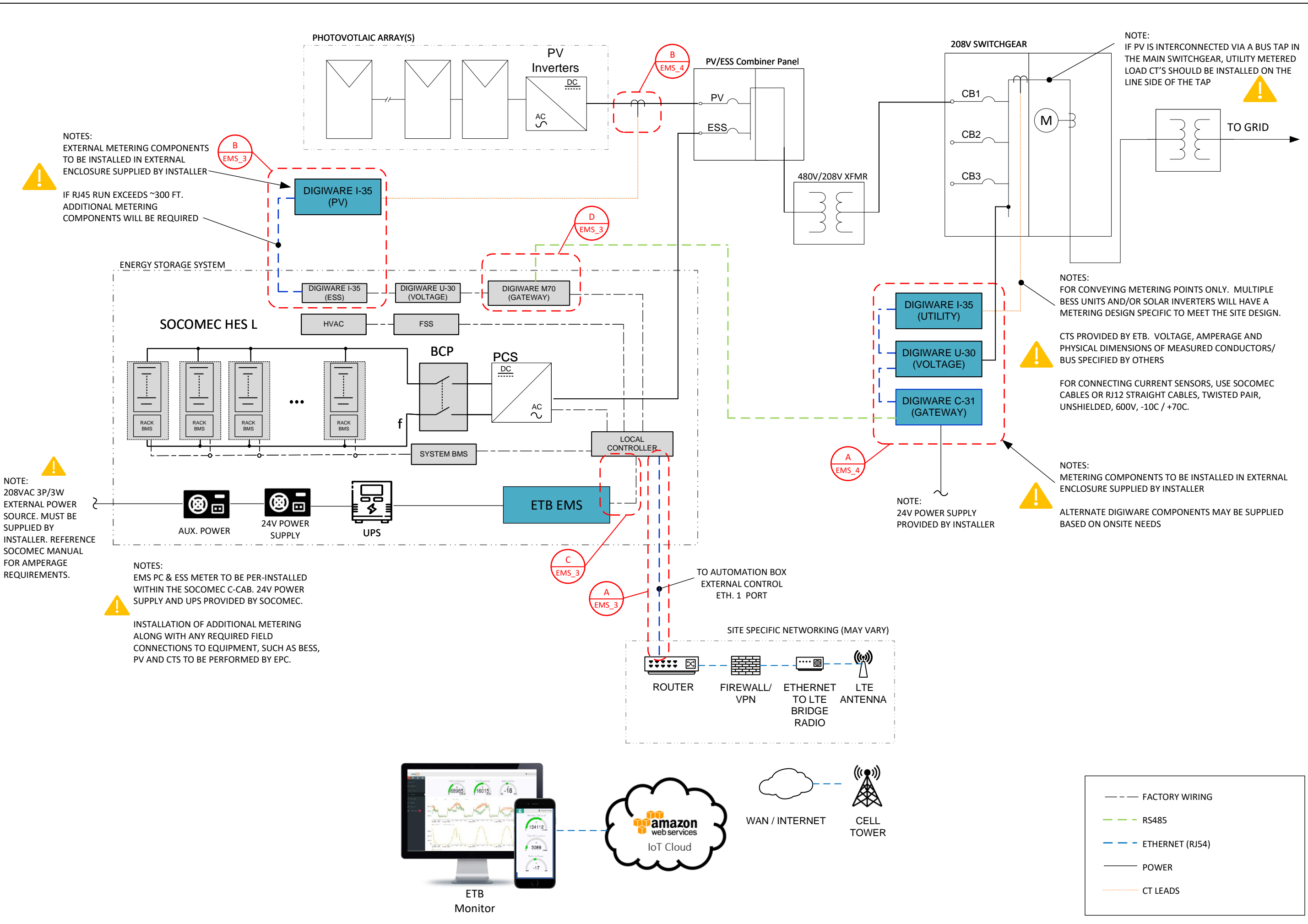
TITLE:  
ETB CONTROLLER  
SINGLE LINE

DRAWING NUMBER:  
EMS\_2

SCALE:  
NS

SHEET:  
2 OF 4

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REQUIREMENTS AND LOCAL  
CODE ENFORCEMENT.



NOTES:  
EXTERNAL METERING COMPONENTS  
TO BE INSTALLED IN EXTERNAL  
ENCLOSURE SUPPLIED BY INSTALLER

NOTE:  
208VAC 3P/3W  
EXTERNAL POWER  
SOURCE. MUST BE  
SUPPLIED BY  
INSTALLER. REFERENCE  
SOCOMECHES MANUAL  
FOR AMPERAGE  
REQUIREMENTS.

NOTES:  
EMS PC & ESS METER TO BE PER-INSTALLED  
WITHIN THE SOCOMECHES C-CAB. 24V POWER  
SUPPLY AND UPS PROVIDED BY SOCOMECHES.

INSTALLATION OF ADDITIONAL METERING  
ALONG WITH ANY REQUIRED FIELD  
CONNECTIONS TO EQUIPMENT, SUCH AS BESS,  
PV AND CTS TO BE PERFORMED BY EPC.

NOTE:  
IF PV IS INTERCONNECTED VIA A BUS TAP IN  
THE MAIN SWITCHGEAR, UTILITY METERED  
LOAD CT'S SHOULD BE INSTALLED ON THE  
LINE SIDE OF THE TAP

NOTES:  
FOR CONVEYING METERING POINTS ONLY. MULTIPLE  
BESS UNITS AND/OR SOLAR INVERTERS WILL HAVE A  
METERING DESIGN SPECIFIC TO MEET THE SITE DESIGN.

CTS PROVIDED BY ETB. VOLTAGE, AMPERAGE AND  
PHYSICAL DIMENSIONS OF MEASURED CONDUCTORS/  
BUS SPECIFIED BY OTHERS

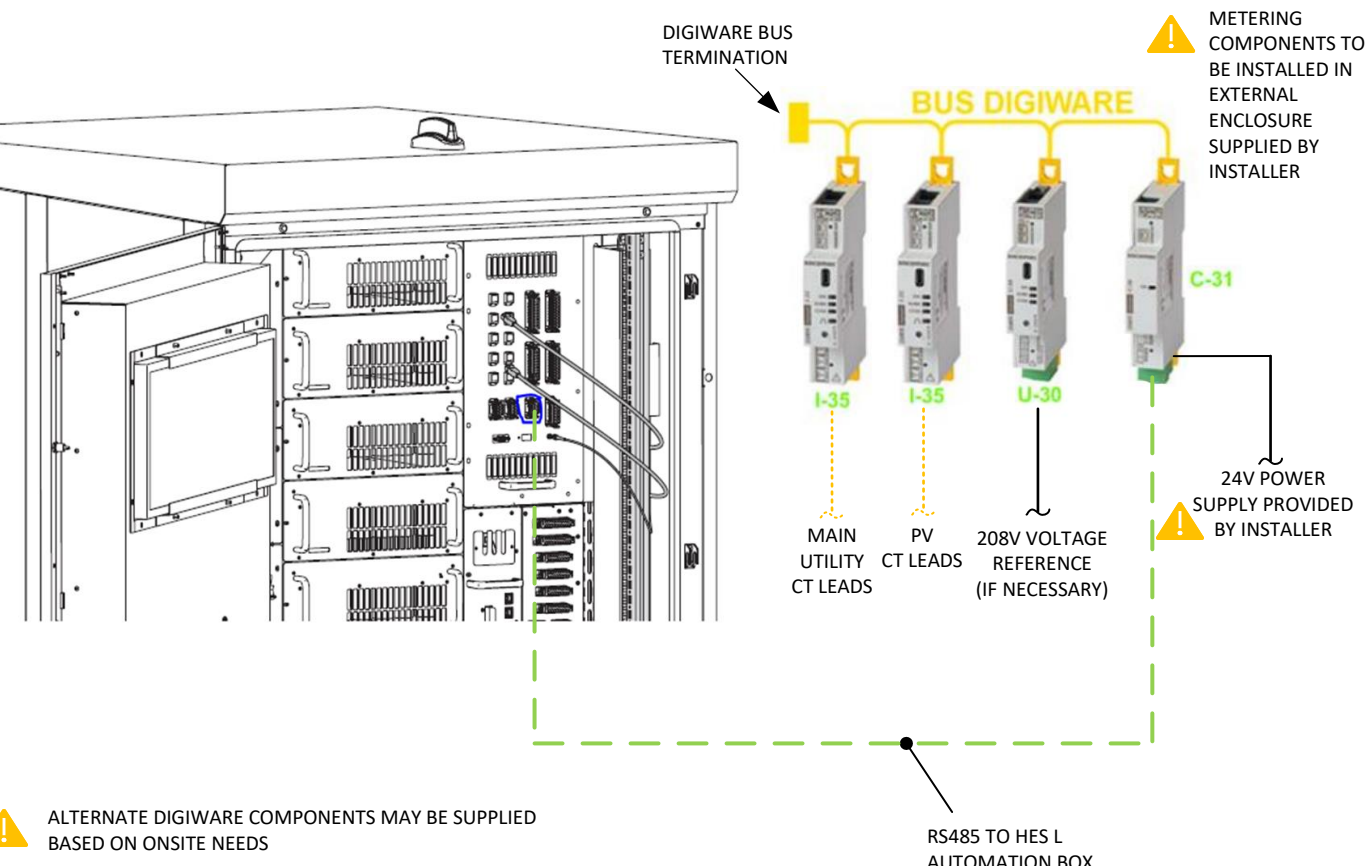
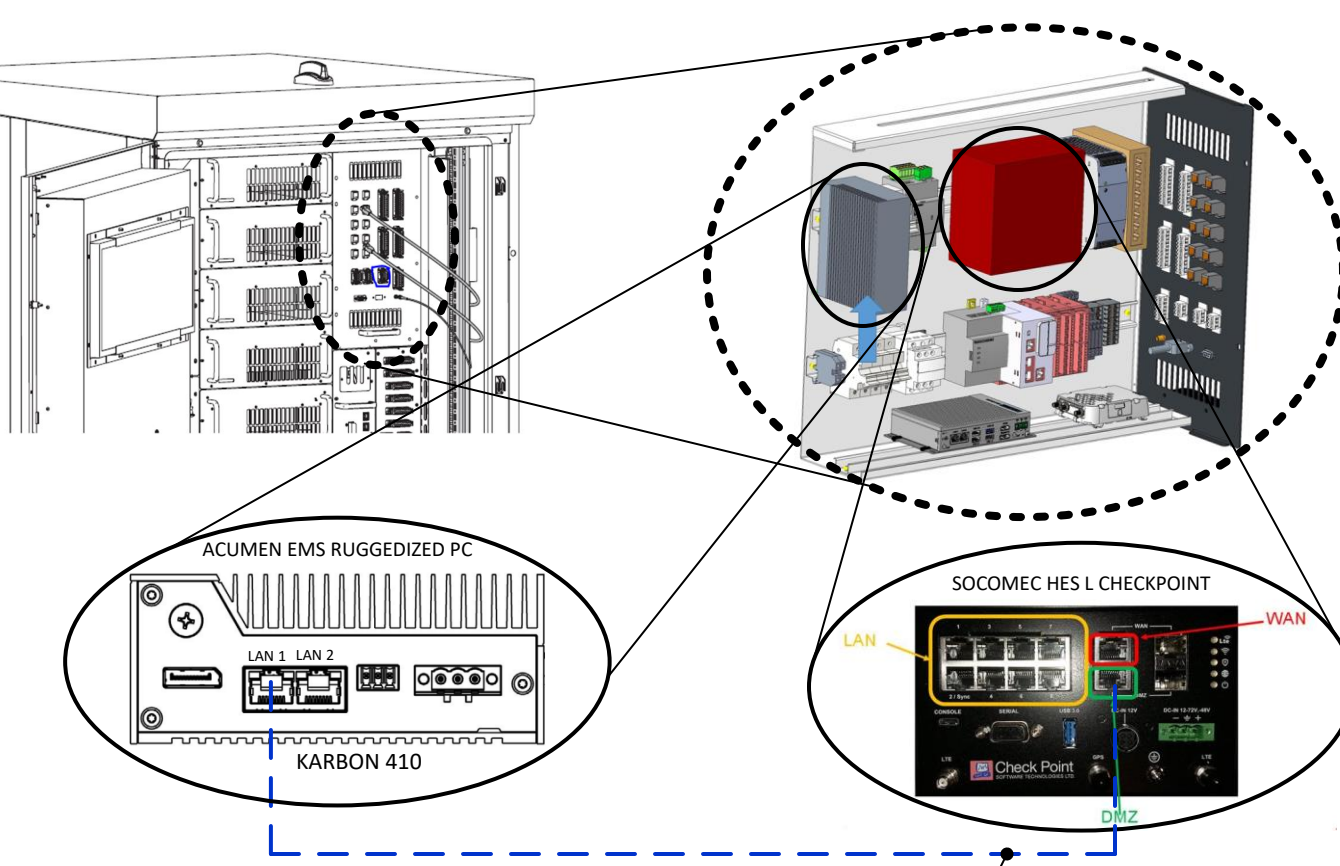
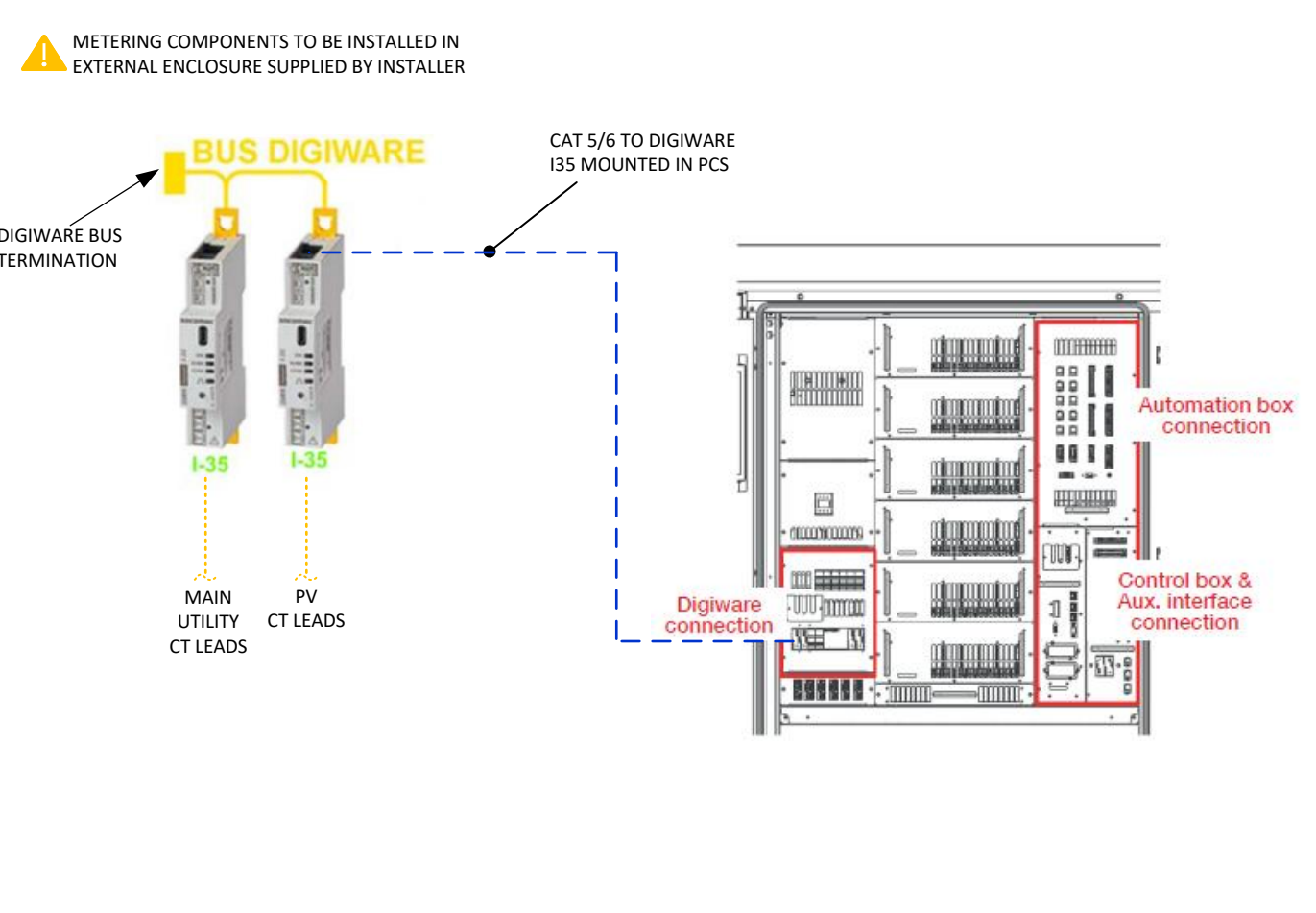
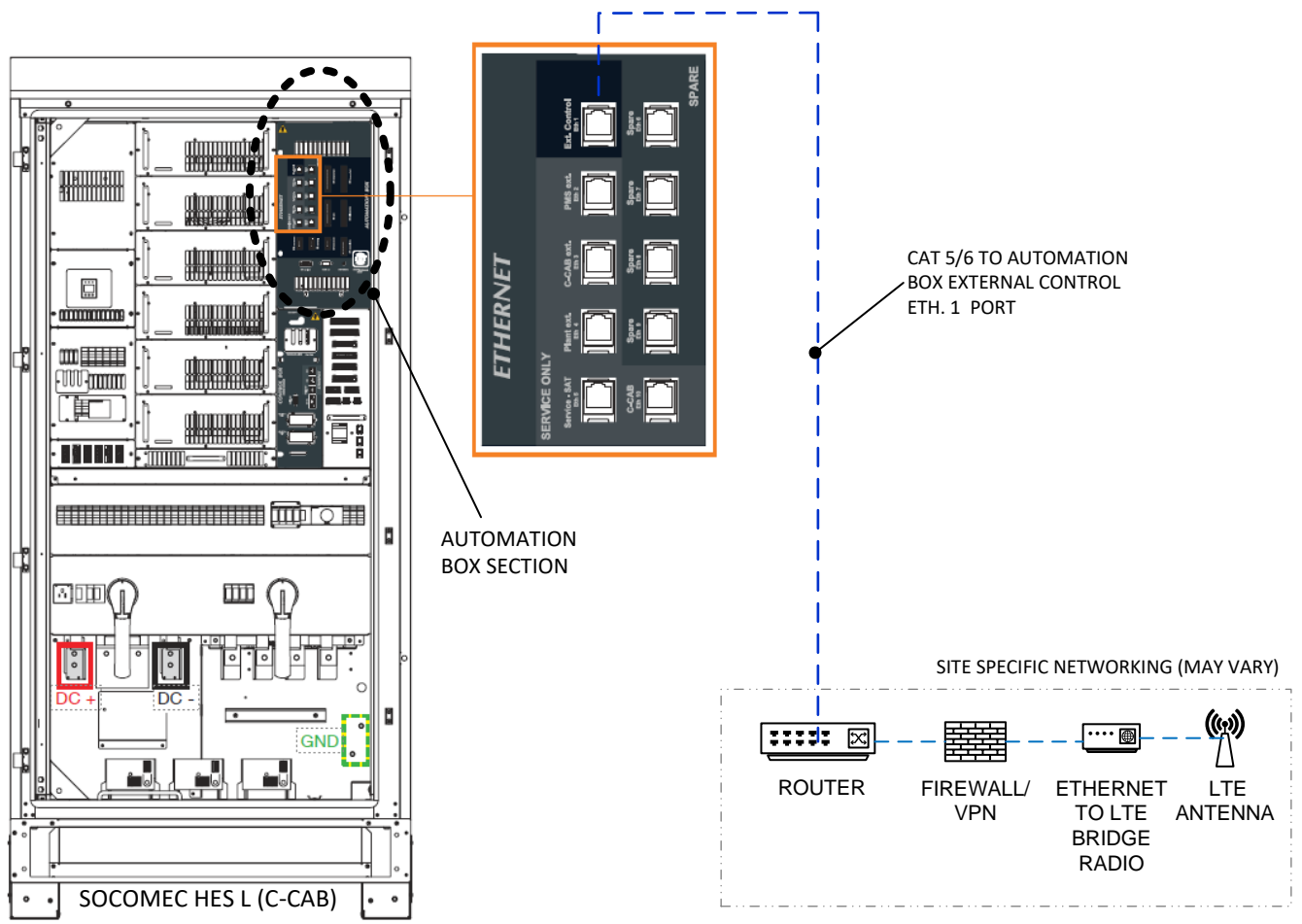
FOR CONNECTING CURRENT SENSORS, USE SOCOMECHES  
CABLES OR RJ12 STRAIGHT CABLES, TWISTED PAIR,  
UNSHIELDED, 600V, -10C / +70C.

NOTES:  
METERING COMPONENTS TO BE INSTALLED IN EXTERNAL  
ENCLOSURE SUPPLIED BY INSTALLER

ALTERNATE DIGIWARE COMPONENTS MAY BE SUPPLIED  
BASED ON ONSITE NEEDS

NOTE:  
24V POWER SUPPLY  
PROVIDED BY INSTALLER





DESCRIPTION:		INTERNET & METERING CONNECTION DETAILS			
SYSTEM TYPE:		SOCOMECS HES L			
REV.	DESCRIPTION	DATE	BY	KM	LL
1	DETAILS PUBLISHED	05.10.22			
2	QR CODE ADDED	10.11.22			
3	ETB CONTROLLER UPDATE	07.16.24			



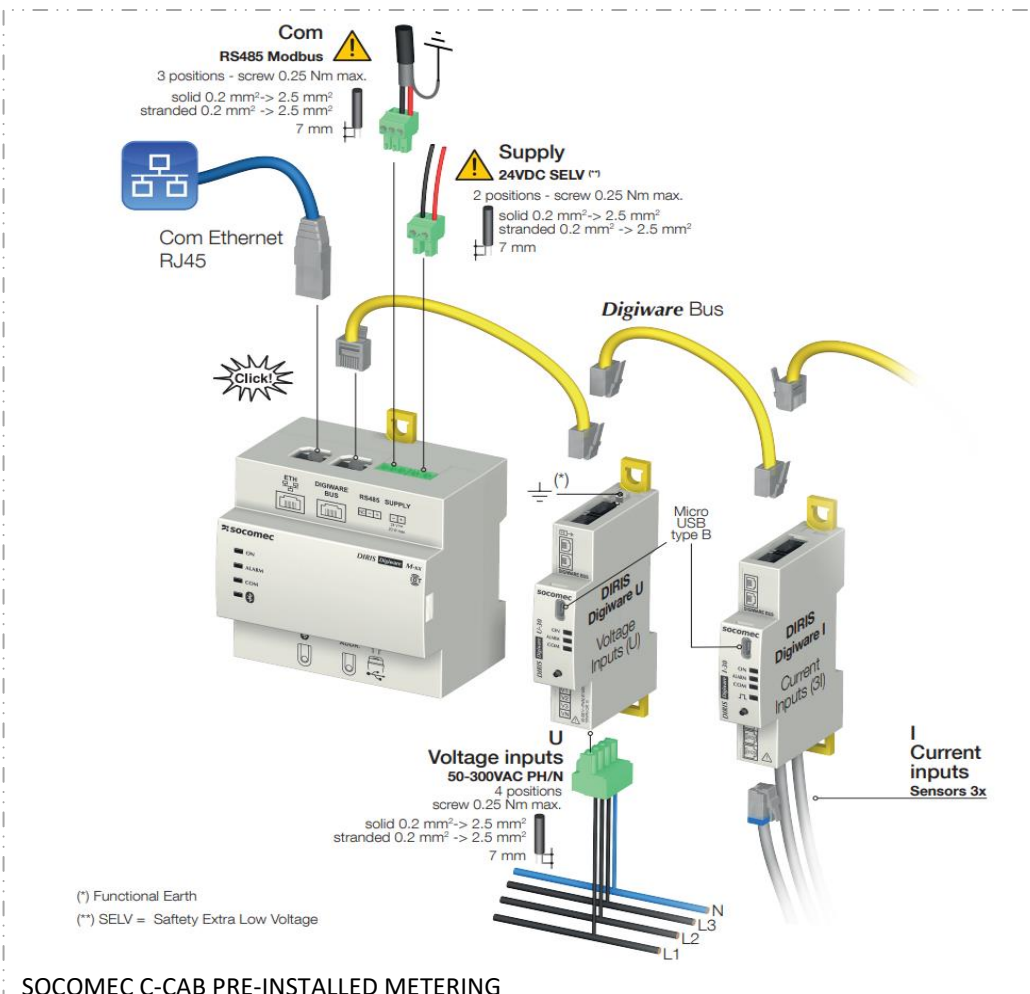
Scan QR for ETB Controller Installation Manuals

TITLE:	ETB CONTROLLER SINGLE LINE
DRAWING NUMBER:	EMS_3
SCALE:	NS
SHEET:	3 OF 4

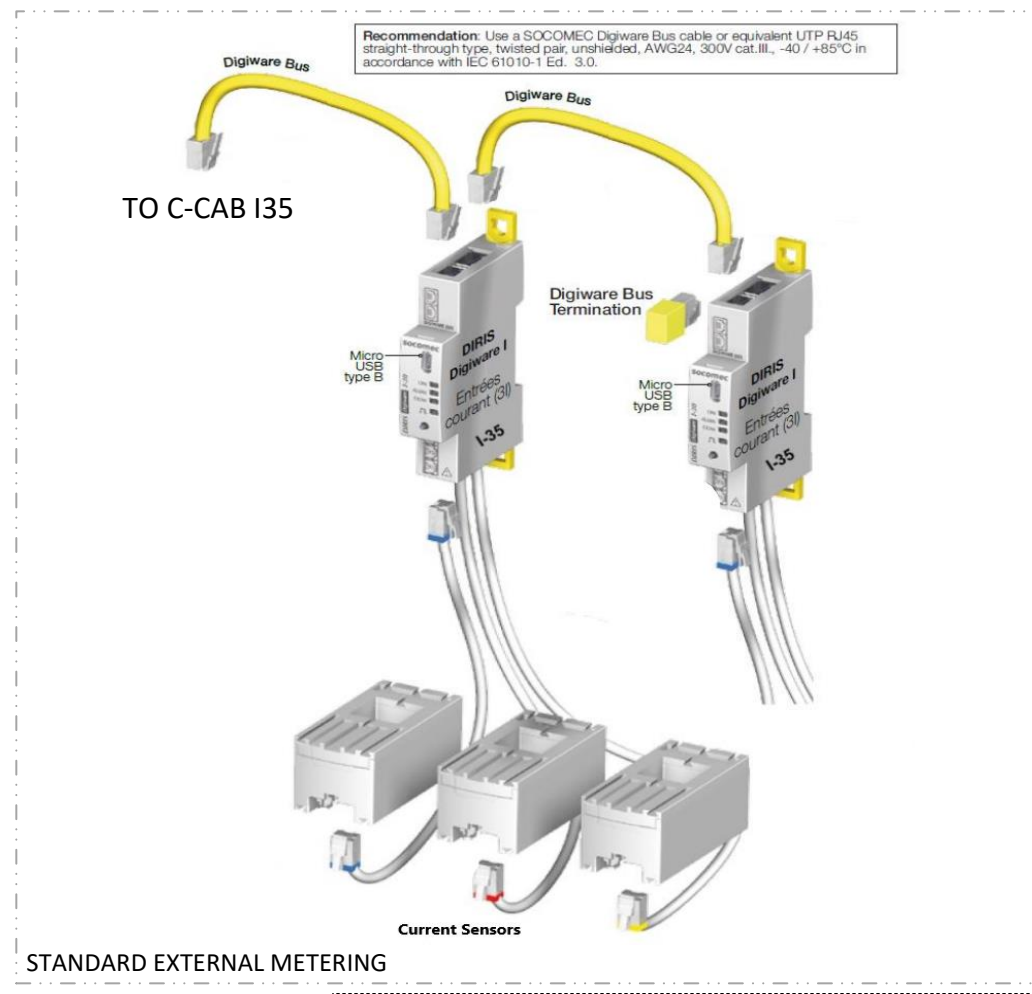
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BY	DATE	DESCRIPTION
KM	05.10.22	DETAILS PUBLISHED
KM	10.11.22	QR CODE ADDED
LL	07.16.24	ETB CONTROLLER UPDATE

REV.	DESCRIPTION
1	DETAILS PUBLISHED
2	QR CODE ADDED
3	ETB CONTROLLER UPDATE



SOCOME C-CAB PRE-INSTALLED METERING



STANDARD EXTERNAL METERING

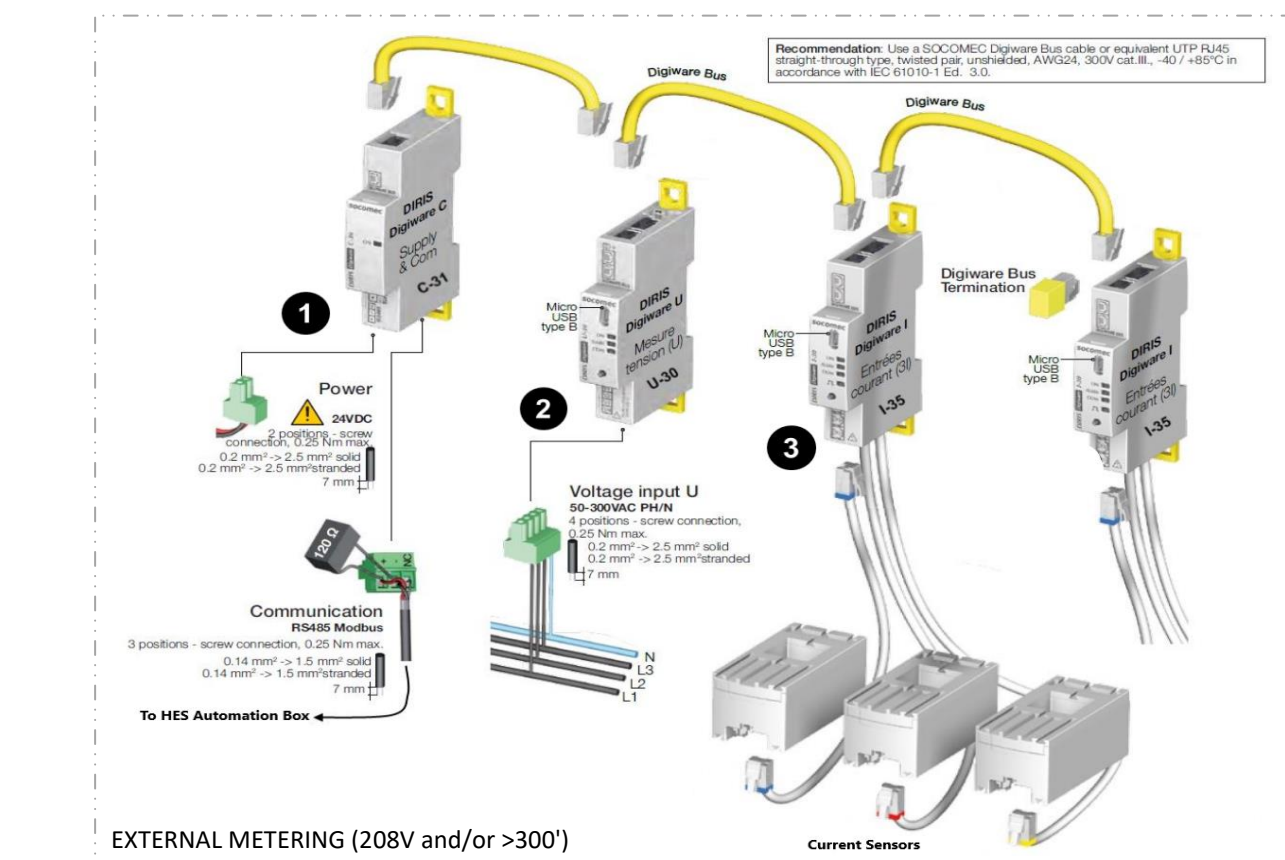
NOTE:  
VOLTAGE REFERENCE CONDUCTORS MAY BE BROWN/  
ORANGE/YELLOW OR OTHER COLOR SCHEMES BASED ON  
CONNECTION VOLTAGE.

VOLTAGE TAPS **MUST** BE TAKEN AT THE SAME REFERENCE  
VOLTAGE (LOAD) THE CTS ARE MEASURING. IDEALLY THIS  
WOULD BE WITHIN THE SAME PANELBOARD THAT THE CTS  
ARE LOCATED.

DIGIWARE BUS TERMINATION MUST BE INSTALLED ON  
LAST UNIT IN THE DIGIWARE BUS

ALTERNATE DIGIWARE METERING COMPONENTS MAY BE  
SUPPLIED BASED ON ONSITE NEEDS

- 1 DIGIWARE C-31 GATEWAY. REQUIRED WHEN ADDING  
ADDITIONAL VOLTAGE SENSORS OR IF DIGIWARE BUS  
EXCEEDS 300'
- 2 DIGIWARE U-30 VOLTAGE SENSOR. REQUIRED WHEN  
MEASURING VOLTAGE OTHER THAN 480V
- 3 DIGIWARE I-35 CURRENT SENSOR. USED TO MEASURE  
CURRENT AT ESS, PV, MAIN OR OTHER MEASURED  
POINTS

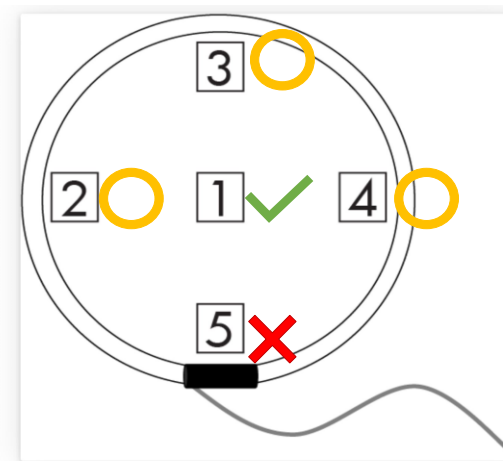


EXTERNAL METERING (208V and/or >300')

A METER DETAILS

**ROPE CT INSTALLATION**

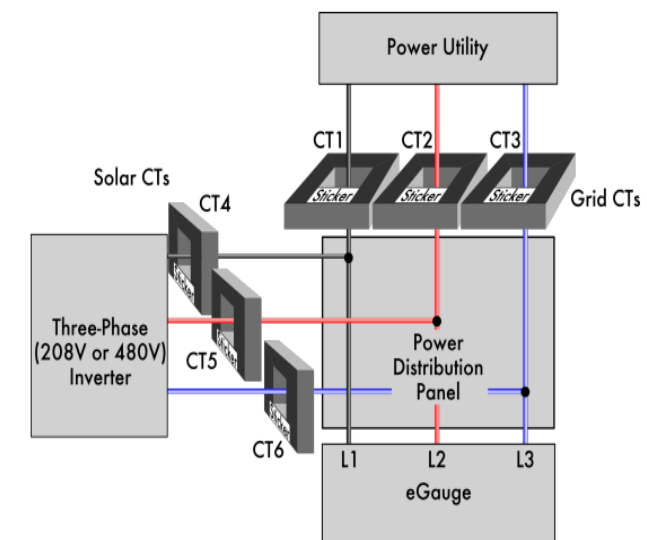
ROPE CTS SHOULD BE INSTALLED PROPERLY TO REDUCE THE  
MAXIMUM ERROR BASED ON POSITIONING. IDEALLY THE  
CONDUCTOR BEING MONITORED WILL BE PERPENDICULAR TO THE  
ROPE CT LOOP, AND PASS THROUGH THE CENTER OF THE ROPE CT AS  
SHOWN BELOW. TIE-WRAPS OR OTHER NON-CONDUCTIVE  
FASTENERS CAN BE USED TO CENTER THE ROPE CT AROUND THE  
CONDUCTOR.



Position Number	Position Description	Error
1	Centered	< 0.4%
2, 3, 4	Near outer edge	< 2.0%
5	Near connector	< 4.0%

B CT INSTALLATION INFORMATION

**SOLID & SPLIT CORE CT  
INSTALLATION**



SPLIT AND SOLID CORE CT'S SHOULD BE INSTALLED  
WITH THE STICKER SIDE FACING THE LOAD BEING  
MEASURED. CERTAIN CT'S MAY HAVE AN ARROW, IN  
WHICH CASE ENSURE THE ARROW IS POINTING  
TOWARDS THE LOAD BEING MEASURED.



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Manuals

TITLE:  
ETB CONTROLLER  
SINGLE LINE

DRAWING NUMBER:  
EMS\_4

SCALE:  
NS

SHEET:  
4 OF 4

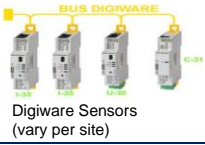
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REQUIREMENTS AND LOCAL  
CODE ENFORCEMENT.



# Quick Start Guide – ETB Controller

## For Integration with SOCOMEC HES L

**SHIPPED FROM ENERGY TOOLBASE SOFTWARE, INC.**



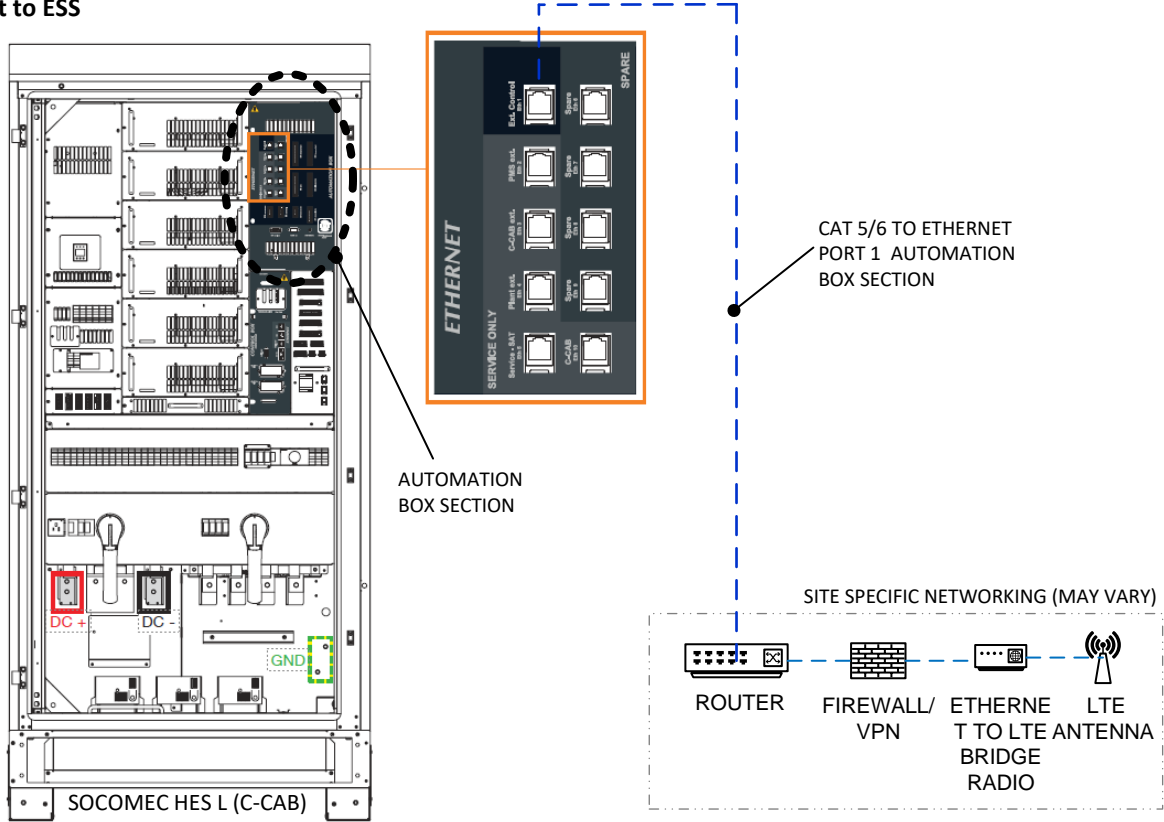
**TOOLS AND EQUIPMENT YOU MAY NEED:**

- Flat-head Screwdriver
- Philips-head Screwdriver
- Drill and Bits
- Adjustable Wrench
- Wire Cutters
- Wire Strippers
- Volt-meter
- DIN rail, self tapping screws
- Comms cabling

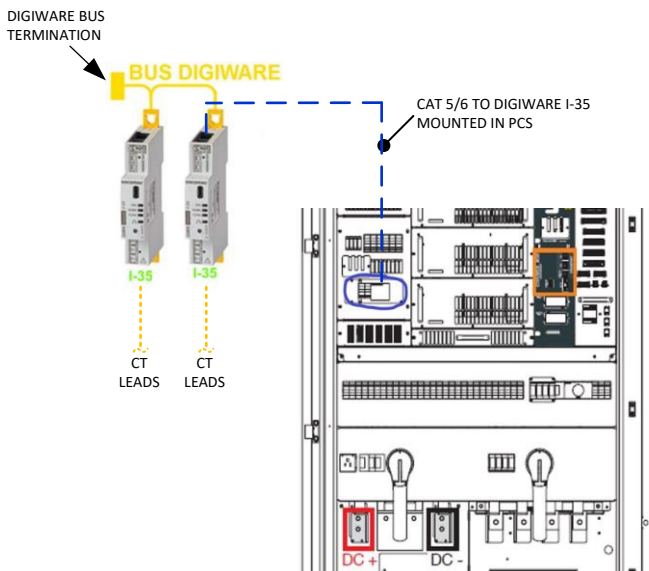
### INSTALLATION STEPS:

Follow these installation steps and then contact Energy Toolbase Software, Inc. (866-415-1445) for further commissioning activities. The steps below represent a typical installation, unique site features might warrant adjustment or additional steps. For more detailed instructions please reference the ETB Controller installation manual.

#### 1. Connect internet to ESS

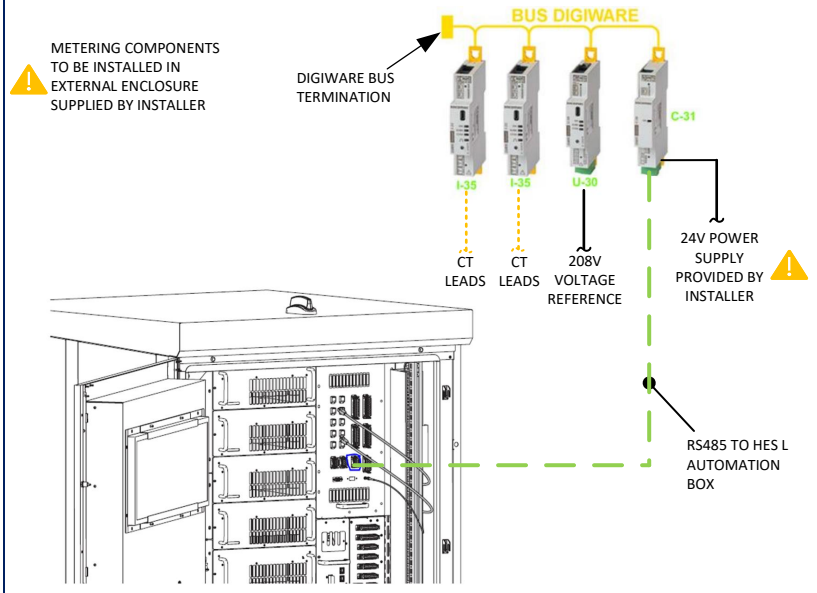


#### 3. Connect standard metering to Digiware bus



**!** METERING COMPONENTS TO BE INSTALLED IN EXTERNAL ENCLOSURE SUPPLIED BY INSTALLER

#### 4. Connect RS485 metering to Automation box (if applicable)



**!** VOLTAGE TAPS **MUST** BE TAKEN AT THE SAME REFERENCE VOLTAGE (LOAD) THE CTS ARE MEASURING. IDEALLY THIS WOULD BE WITHIN THE SAME PANELBOARD THAT THE CTS ARE LOCATED.