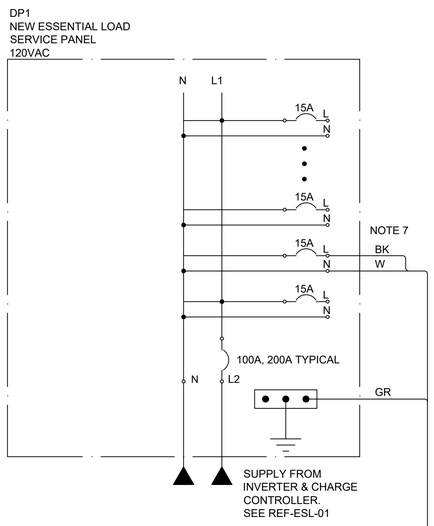
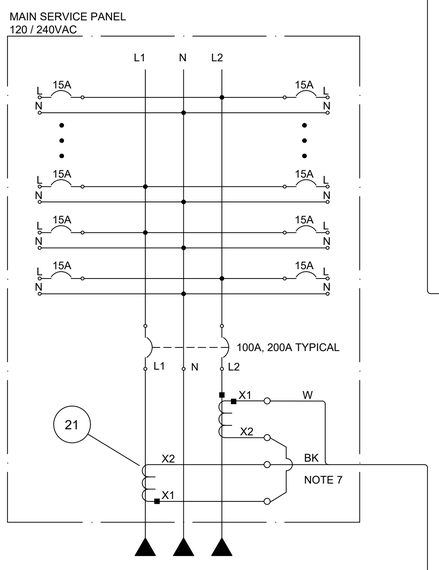
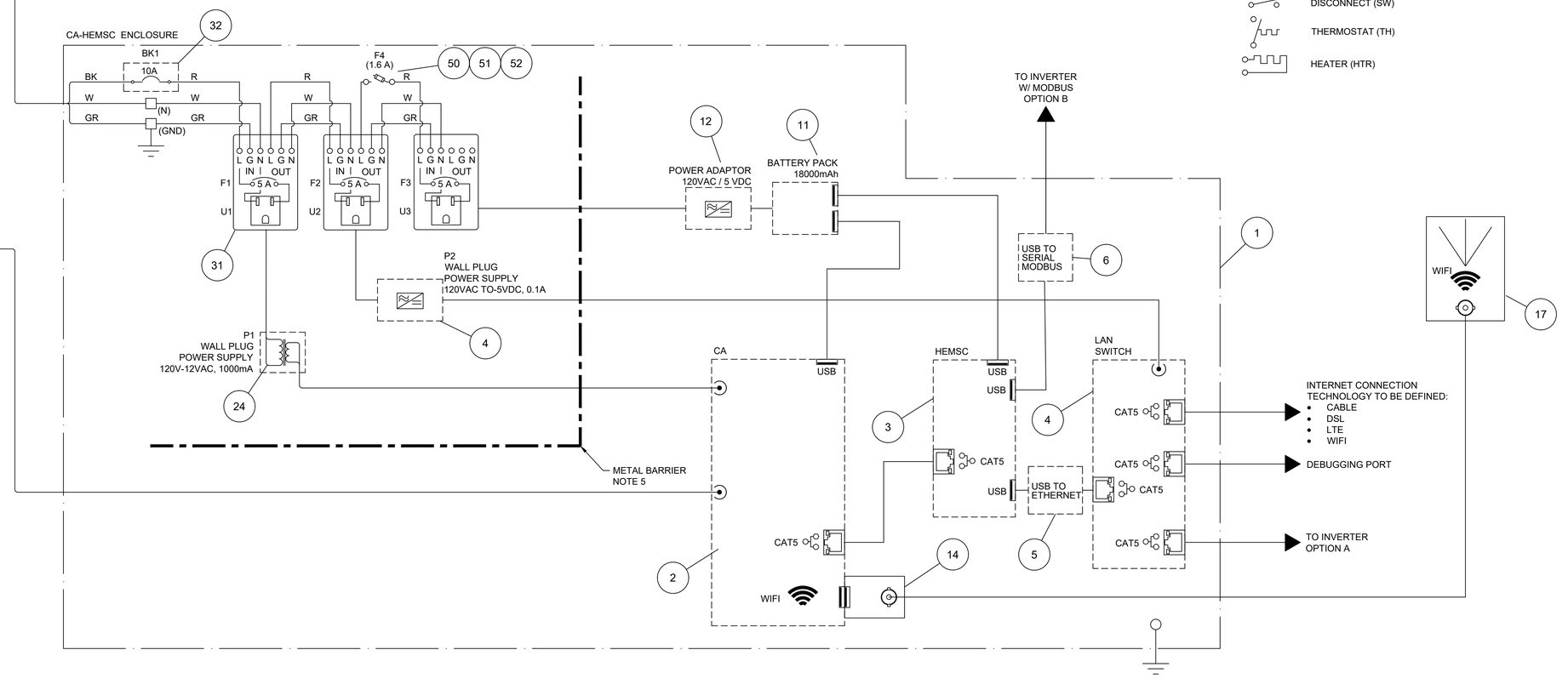
## BILL OF MATERIALS

| ITEM | QTY | DESCRIPTION | MANUFACTURER / MODEL | PART NUMBER |
|---|---|---|---|---|
| 1 | 1 | METAL ENCLOSURE, | | |
| 2 | 1 | TRANSFORMER / CUSTOMER AGENT<br>- CUSTOM MOLDED CASE: 3D PRINTING URETHANE RESIN<br>- SINGLE BOARD COMPUTER WITH WIRELESS LAN, BLUETOOTH, ETHERNET, PoE, 5V / 2.5 A DC<br>- MEMORY CARD, 16GB | BY SYSTEM INTEGRATOR | Smooth Cast ONYX Raspberry Pi3 Model B+ microSD |
| 3 | 1 | HEMSC<br>- CUSTOM MOLDED CASE: 3D PRINTING URETHANE RESIN<br>- SINGLE BOARD COMPUTER WITH WIRELESS LAN, BLUETOOTH, ETHERNET, POE, POWER SUPPLY: 5V / 3 A DC | BY SYSTEM INTEGRATOR | Smooth Cast ONYX TINKER BOARD S |
| 4 | 1 | 5 PORT 10/100Mbps DESKTOP SWITCH WITH EXTERNAL POWER ADAPTOR, 120VAC/5.0VDC, 0.1A | NETGEAR | FS205 |
| 5 | 1 | USB TO ETHERNET ADAPTOR | | |
| 6 | 1 | USB TO SERIAL ADAPTOR | | |
| 11 | 1 | BATTERY PACK, INPUT: 19.5VAC, 4.62A, OUTPUT: 5VDC USB PORT, 2.1A, 65W | DELL | PW7015M |
| 12 | 1 | POWER ADAPTER, Input:AC100-240V Output: DC 19.5V 4.62A 90W | DELL | 6C3W2 |
| 14 | 1 | WIRELESS N USB ADAPTER W/ HIGH GAIN ANTENNA, 300Mbps, 802.11n STANDARD | PANDA WIRELESS | PAU06 |
| 17 | 1 | 5dBi HIGH GAIN Wi-Fi SWIVEL ANTENNA | PROXICAST | ANT-130-002 |
| 21 | 2 | SPLIT CORE CURRENT TRANSFORMER WITH BUILT-IN OPEN CIRCUIT PROTECTION, 200A - 0.033V PART NUMBER PROVIDED FOR INFORMATION. INTEGRATOR TO VALIDATE AMPACITY, BURDEN AND ACCURACY ACCORDING TO THE APPLICATION. | YHDC | SCT019 |
| 24 | 1 | WALL PLUG POWER SUPPLY, 120VAC - 12VAC, 2000mA | TRIAD MAGNETICS | WAU120-2000 |
| 31 | 3 | DIN RAIL MOUNT OUTLET RECEPTACLE WITH BREAKER, 5A/120VAC | WEIDMULLER | 9915480001 |
| 32 | 1 | BREAKER, 120/240VAC, 10A, 10KA S.C., SINGLE POLE, 35 MM DIN RAIL REAR MOUNTING | EATON | QCR1015 |
| 40 | As Required | TERMINAL BLOCK, 6 mm2, 600V, 50A, AWG 22 TO 8 | WEIDMULLER / WDU6 | 1020200000 |
| 41 | As Required | TERMINAL BLOCK, END PLATE | WEIDMULLER / WAP 2.5-10, WM, BG | 1050000000 |
| 42 | As Required | TERMINAL BLOCK, END BRACKET | WEIDMULLER / WEW 35/2 | 1061200000 |
| 43 | As Required | TERMINAL BLOCK, GROUP MARKER | WEIDMULLER / WAD 8 MC NE WS | 1112940000 |
| 44 | As Required | GROUNDING TERMINAL BLOCK, | WEIDMULLER / WPE 6 | 1010200000 |
| 50 | 1 | FUSE TERMINAL, 30A, 250 V DC/AC FOR 1/4" X 1-1/4" FUSE | WEIDMULLER WSI 4/2/LD 140-250 V AC/DC | 1880390000 |
| 51 | 1 | END PLATE (FOR FUSE HOLDER WSI 4) | WEIDMULLER WAP WSI4/2 | 1880450000 |
| 52 | 1 | ELECTRONIC GLASS FUSE, FAST ACTING, 1/4' X 1-1/4" , 1.6 A, 250V 200A I.R. | MERSEN | GGC1-6/10 |
| 58 | As Required | SYMMETRICAL DIN3 MOUNTING RAIL, TS 35 x 7.5, STEEL, GALVANIZED WITH SLOTTED HOLE | WEIDMULLER TS 35X7.5/LL 1M/ST/ZN | 0514510000 |




## NOTE:

1. ALL WORK SHALL BE ACCORDING TO APPLICABLE CODES AND STANDARDS AND SHALL BE SUBJECT TO APPROVAL BY AUTHORITY HAVING JURISDICTION ON THE WORK. ALL MATERIAL SHALL BE APPROVED BY THE APPLICABLE STANDARDS AUTHORITY.
2. PART NUMBER IS AN INDICATION OF THE QUALITY OF THE MATERIAL, EQUIVALENT MATERIAL WILL BE CONSIDERED. CHANGE OF MATERIAL SHALL BE APPROVED BY THE DER PROGRAM MANAGER.
3. THE CONTRACTOR IS RESPONSIBLE TO COMPLETE THE BILL OF MATERIAL FOR ALL SMALL HARDWARE.
4. QUANTITY AND MATERIAL PART NUMBER TO BE VALIDATED BY CONTRACTOR.
5. FOR THE PROTOTYPE PROJECT, THE CA AND THE HEMSC WERE DESIGNED AROUND AN OFF THE SHELF SINGLE BOARD COMPUTER ADAPTED TO THE APPLICATION. IT DID NOT REQUIRE ELECTRICAL AUTHORITY APPROVAL AS IT OPERATED AT OR BELOW 5VDC. TO GET SPECIAL ELECTRICAL SAFETY AUTHORITY APPROVAL, A GROUNDED METAL BARRIER WAS USED TO SEPARATE THE 120/240VAC COMPONENTS THAT REQUIRE AUTHORITY APPROVAL FROM THE LOWER VOLTAGE COMPONENTS. IT SHOULD NOT BE ASSUMED THAT THIS WILL BE ACCEPTED FOR SUBSEQUENT SPECIAL APPROVAL.
6. COMMUNICATION TO INVERTER, MANAGED DEVICES, ETC., COULD USE DIFFERENT COMMUNICATION MODE, EX. MODBUS, WiFi, CAT5, ETC.
7. LOCATION OF THE CURRENT AND VOLTAGE MONITORING DEVICES SHALL BE PLACED TO MONITOR THE INTENDED CIRCUIT BEING MANAGED.

## LEGEND AND DEFINITION:

| | |
|---|---|
| TA | TRANSFORMER AGENT |
| CA | CUSTOMER AGENT |
| HEMSC | HOME ENERGY MANAGEMENT SYSTEM CONTROLLER |
| DG | DISTRIBUTED GENERATION |
| DP | DISTRIBUTION PANEL |
| MET | METERING RELAY |
| 29 | CT ISOLATION SHORTING SWITCH |

TRANSFORMER (TX)
CURRENT TRANSFORMER (CT)
BREAKER (BK)
FINGER SAFE FUSE HOLDER (F)
DISCONNECT (SW)
THERMOSTAT (TH)
HEATER (HTR)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https://github.com/MigenTransactiveGrid/MiGen1.0/blob/master/LICENSE

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|---|---|---|---|
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Project Manager: E. Cantin, tech.


Client: HYDRO OTTAWA

Project title: MiGen TRANSACTIVE GRID REFERENCE DRAWING

Drawing title: SINGLE PHASE SYSTEM CA-HEMSC ENCLOSURE CONNECTION WIRING DIAGRAM

Project number: A000597B
Designed by: R.Langlois
Drawn by: A. Teranun
Verified by: E.Cantin
Revision: 0
Drawing N°: REF-ECW-03


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