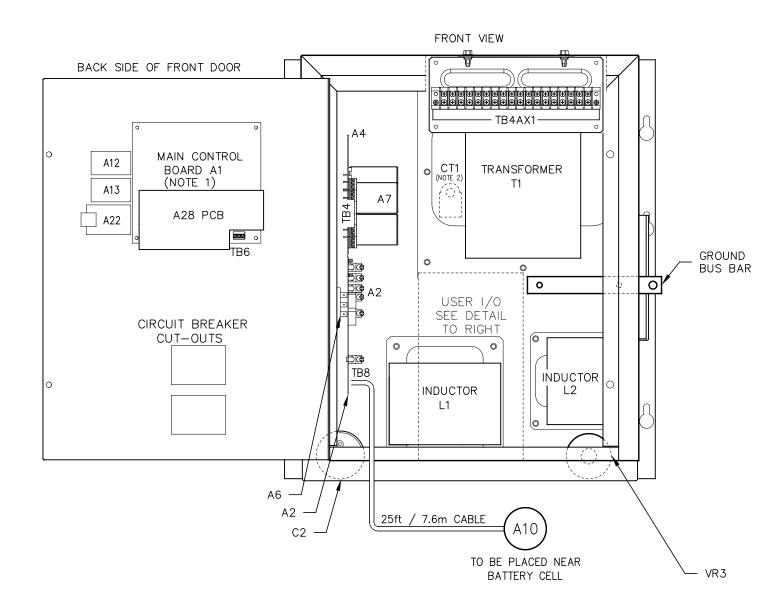


NOTES:

- 1. ENCLOSURE IS A NEMA TYPE 1 / IP20 TOP-VENTED STEEL CABINET WITHOUT GASKETS. FINISH IS ANSI-61 GRAY EPOXY POWDERCOAT. BASE IS 14 GA. SHROUD IS 18 GA. DOOR IS 16 GA.
- 2. ALLOW 6in / 152mm OF FREE AIR ON ALL VENTED SURFACES (TOP, SIDES & REAR) FOR COOLING.
- 3. SIX (6) KEY-HOLE SLOTS ARE PROVIDED ON BACK OF ENCLOSURE AS SHOWN. FOR WALL-MOUNTING WITH 0.25in / 6.25mm HARDWARE.
- 4. SIX (6) 1.31in / 33mm DIA KNOCKOUTS ARE PROVIDED AS SHOWN, WITH TWO (2) ADDITIONAL KNOCKOUTS FEATURED ON BOTTOM PANEL OF ENCLOSURE. USE OF ANY OF THESE FOUR (4) LOWER CONDUIT KNOCKOUTS WILL ALLOW REMOVAL OF CABINET SHROUD WITHOUT REMOVAL OF EXTERNAL WIRING.
- 5. DATA NAMEPLATE DECAL (WITH CHARGER RATINGS) APPLIED TO DOOR.
- 6. BATTERY CHARGER INSTALLATION WEIGHT: SEE PRODUCT LITERATURE.
- 7. GROUND BUS BAR WITH 0.375 in / 9.52 mm DIA HOLE.

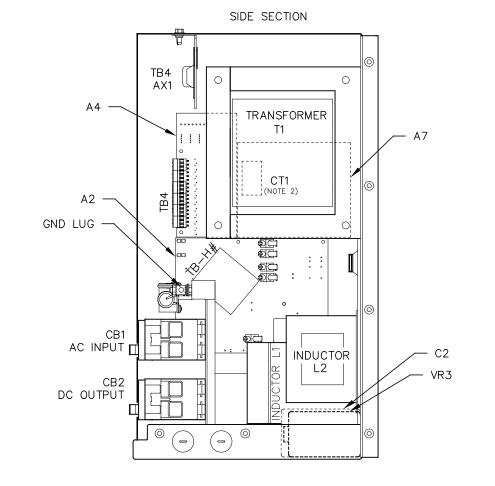
DUAL DIMENSIONS in [mm]

| ['''''] | | |
|--|---|---|
| REV DRN BY CHK BY APP BY DATE 1 KMW MCR MCR 02142024 DESCRIPTION Rev. 1 (02/2024) | CHK BY DATE 12/1/2021 APP BY DATE 12/1/2021 | TITLE ATEVO BATTERY CHARGER OUTLINE: NEMA-1 STYLE-5054 ENCL |
| | NOTICE: UNCONTROLLED DOCUMENT CHANGES / DIGITAL SIGNATURES MAINTAINED BY MANUFACTURER | 1 φ W/ COMMON OPTIONS 6-25A |
| | | B NTS JE5251-21 1A 1 OF 1 |



- 1. FOR DETAIL VIEWS OF ALL PC BOARDS (A1, A2, A4 etc.) SEE DRAWING JE5253-01.
- 2. CURRENT TRANSFORMER (CT1) AFFIXED TO LINE 1 BETWEEN AC INPUT BREAKER (CB1) AND POWER ISOLATION TRANSFORMER (T1).

| I/O TERMINAL | DESCRIPTION - TYPE | CONNECTION |
|--|--|--|
| CB2 (+/-) GND LUG CB1 (L1/L2) GND BUS | USER GROUND TERMINAL — CU—ALUMINUM COMPRESSION LUG AC INPUT TERMINALS — CKT BREAKER COMPRESSION LUG | #14-2/0 AWG #14-6 AWG #14-2/0 AWG 0.38in/9.7mm RING LUG |
| (A2) TB1 (A2) TB8 (A2) TB8 (A1) TB6 TB4AX1 | POS/NEG REMOTE SENSE TERMS (A2) - SOLDERLESS COMP SCREW TEMPCO PROBE (A10) TERM BLK - SOLDERLESS COMP SCREW SUMMARY ALARM TERMINAL BLOCK (A1) - SOLDERLESS COMP SCREW BARRIER TYPE AUX ALARM (A4) CONTACT - 6-32 BNDR HD SCREW | #22-14 AWG #22-14 AWG #22-14 AWG #16-14 AWG |



DESCRIPTION

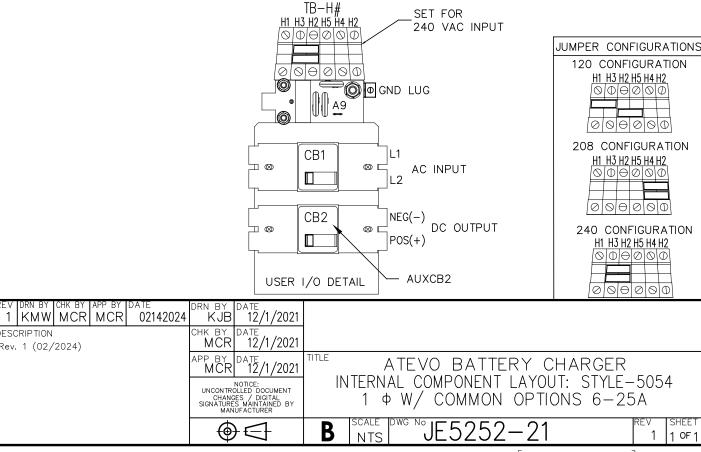
Rev. 1 (02/2024)

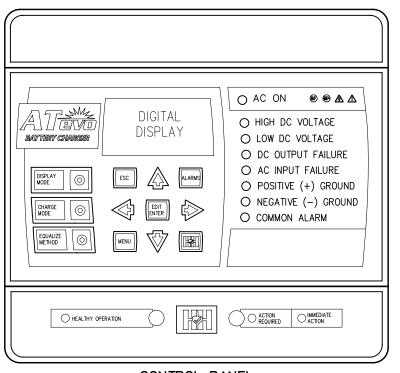
SYM STANDARD COMPONENT DESCRIPTION

- A1 MAIN CONTROL PCB
- A6 RECTIFIER H/S ASSEMBLY
- A2 POWER BOARD A9 MOV PCB
- A7 FILTER BOARD (C1x/R9x)
- CB1 AC INPUT CIRCUIT BREAKER (Bx)
- CB2 DC OUTPUT CIRCUIT BREAKER (Bx)
- AUXCB2 DC CKT BKR (CB2) AUXILIARY CONTACTS
 - L1 MAIN INDUCTOR
 - L2 FILTER INDUCTOR
 - T1 POWER ISOLATION TRANSFORMER
 - TB6 COMMON ALARM RELAY (A1) CONTACTS

SYM SUPPLIED OPTION COMP DESCRIPTION

- A4 AUXILIARY I/O BOARD
- A10 TEMPERATURE COMPENSATION PROBE
- A12 SERIAL COMMUNICATION ADAPTER A13 FORCED LOAD SHARING PCB
- A22 ETHERNET COMMUNICATION ADAPTER
- A28 AC METER MODULE PC BOARD
- C2 BATTERY ELIMINATOR FILTER CAP
- CT1 CURRENT TRANSFORMER
- TB4 AUX ALARM PCB (A4) TERM BLOCK
- VR3 AC INPUT LIGHTNING ARRESTOR

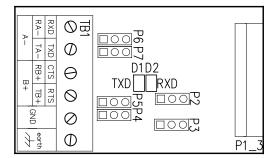




CONTROL PANEL (p/n FK5047-00)

NOTE: UNLESS OTHERWISE SPECIFIED, ALL USER ALARM TERMINAL BLOCKS ARE SOLDERLESS COMPRESSION SCREW TERMINALS, ACCEPTING #22-14 AWG WIRE. ALARM CONTACTS SHOWN IN NON-ALARM STATE, WITH CHARGER ENERGIZED AND RELAYS ENERGIZED (FAIL SAFE). ALL ALARM CONTACTS WILL CHANGE STATE WHEN ATEVO POWERED DOWN. CONTACT RATING IS 0.5A @ 125VAC/VDC RESISTIVE.

SERIAL COMMUNICATION ADAPTER (A12)



CONNECTORS (A12): P1 - MAIN CONTROL BOARD

JUMPERS & CONFIGURATION SWITCHES (A12);
P2 - RECIEVER ENABLE CONTROL SELECTION
P3 - MEDIA CONTROL SELECTION (RS-234 OR RS-485)
P4 - RS-485 TERMINATION RESISTOR ENABLE (RECIEVE)
P5 - RS-485 TERMINATION RESISTOR ENABLE (TRANSMIT) P7 - RS-485 INTERFACE 2 WIRE/4 WIRE SELECTION (B)

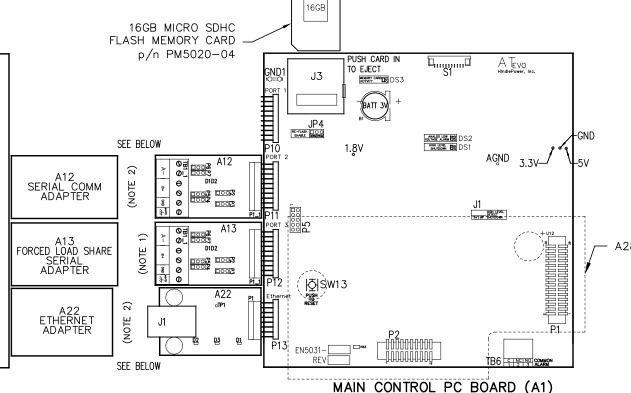
TERMINAL BLOCKS (A12): TB1 — USER CONNECTIONS TO SERIAL INTERFACE

INDICATOR LIGHTS (A12): TXD (D1) — SERIAL DATA BEING SENT RXD (D2) — SERIAL DATA BEING RECEIVED

ETHERNET ADAPTER (A22) oTP1

○ LED1 O LED2 O LED3 O LED4 LCD1 O LED5 O LED6 [의 SW1 SW7 O LED7 O LED8 (의 SW2 SW8 SW11 [실 SW3 SW9 ŚŴ12 SW6 LED10 LED9 MAIN CONTROL PC BOARD (A1)

FRONT VIEW - FACING CHARGER DOOR WHEN INSTALLED



NOTES:

1. SEE JE5257-21 FOR FORCED LOAD SHARING AND A13 PC BOARD DETAIL.

2. SERIAL COMMUNICATIONS ADAPTER (A12) AND ETHERNET ADAPTER (A22) SUPPORT DNP3 LEVEL 2 AND MODBUS PROTOCOLS. SEE ATEVO COMMUNICATIONS MANUAL JA0102-54 FOR DETAILS.

CONNECTORS (A5):
P1 — MAIN CONTROL BOARD
J1 — RJ-45 ETHERNET USER CONNECTION

INDICATOR LIGHTS (A5 LEDS):
D1 — ORANGE — ETHERNET SPEED INDICATION 10/100 MBPS
D2 — YELLOW — ETHERNET ACTIVITY (FLASHING)
D3 — RED — ETHERNET LINK

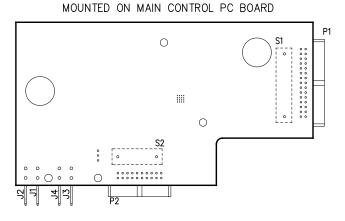
TEST POINTS (A5): TP1 - CLOCK OUT

D1 SPEED

D3 LINK

AC METER MODULE PC BOARD (A28)

BACK VIEW - FACING CHARGER COMPONENTS WHEN INSTALLED



| I/O_TERMINAL DESCRIPTION - TYPE | CONNECTION |
|---|---------------|
| (A1) TB6 COMMON ALARM TERMINAL BLOCK (A1) - SOLDERLESS COMP SCREV | W #22-14 AWG |
| (A12) TB1 RS-232 / RS-485 USER CONNECTIONS - SOLDERLESS COMP SCRE | EW #22-14 AWG |
| (A13) TB1 FORCED LOAD SHARE SIGNAL - SOLDERLESS COMP SCREW | #22-14 AWG |
| (A22) J1 SERIAL ETHERNET CONNECTION - RJ45 PLUG | CAT5 |
| IRRN DV ICHIK DV IARD DV IDATE | ' |

KJB 12/1/2021 1 KMW MCR MCR 02142024 DESCRIPTION Î 12/1/2021 Rev. 1 (02/2024) DATE 12/1/2021 ATEVO BATTERY CHARGER CONTROL PANEL / PC BOARD DETAIL NOTICE: UNCONTROLLED DOCUMENT 1 Φ W/ COMMON OPTIONS 6-25A UE5253 $\bigoplus \bigoplus$ 1 OF 2

MAIN CONTROL PC BOARD (A1)

JUMPERS:

TEST POINTS:

1.8V - 1.8 VOLTS

3.3V - 3.3 VOLTS

5V - 5.0 VOLTS

GND - GROUND

AGND - ANALOG GROUND

SDA - MAIN BOARD 12C DATA

SCL - MAIN BOARD 12C CLOCK

LED1 - GREEN - AC ON J1 - ANALOG HIGH VOLTAGE SHUTDOWN JUMPER LED2 - RED - HIGH DC VOLTAGE ALARM J3 - SD CARD PORT

LED3 - RED - LOW DC VOLTAGE ALARM JP4 - RE-FLASH (FIELD PROGRAMMING) JUMPER LED4 - RED - DC OUTPUT FAILURE ALARM TERMINAL BLOCKS:

LEDS - RED - AC INPUT FAILURE ALARM TB6 - COMMON ALARM RELAY CONTACTS

LED6 - RED - POSITIVE (+) GROUND ALARM

LED7 - RED - NEGATIVE (-) GROUND ALARM

LED8 - RED - COMMON ALARM

INDICATOR LIGHTS (LEDs):

LED9 - RED - ACTION REQUIRED ALARM LED10 - GREEN - HEALTHY OPERATION

DS1 - RED - HIGH LEVEL SHUTDOWN (HLD)

DS2 - RED - ANALOG LOW VOLTAGE ALARM (LLD)

DS3 - RED - MEMORY CARD ACTIVITY

SWITCHES:

SW1 - DISPLAY BUTTON

SW2 - CHARGE MODE BUTTON

SW3 - EQUALIZE METHOD BUTTON

SW4 - ESCAPE (ESC) BUTTON

SW5 - LEFT ARROW BUTTON

SW6 - MENU BUTTON

SW7 - UP ARROW BUTTON

SW8 - EDIT / ENTER BUTTON

SW9 - DOWN ARROW BUTTON

SW10 - ALARM BUTTON SW11 - RIGHT ARROW BUTTON

SW12 - HINDLE HEALTH (HHS) BUTTON

SW13 - SYSTEM RESET BUTTON (BACK OF BOARD)

P13 - ETHERNET INTERFACE PORT P17 - GENERAL EXPANSION PORT

P10 - SERIAL INTERFACE PORT #1

P11 - SERIAL INTERFACE PORT #2

P12 - SERIAL INTERFACE PORT #3

CONNECTORS:

P1 - POWER BOARD RIBBON

P3 - USB EXPANSION PORT

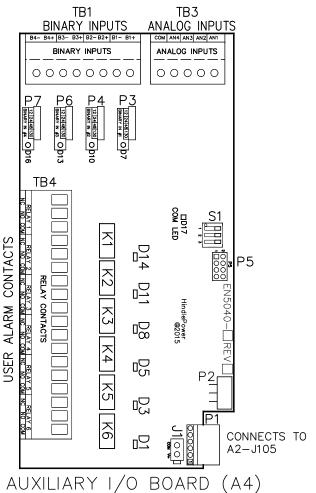
P6 - DISPLAY SPI PORT

P7 - DISPLAY JTAG PORTS

P2 - 3 PHASE RECTIFIER RIBBON

P4 - SPI & I2C EXPANSION PORT #1

P5 - SPI & I2C EXPANSION PORT #2



JUMPERS & CONFIGURATION SWITCHES FOR AUX I/O BOARD (A4)

J1 - AUXILIARY POWER INPUT

P1 - POWER BOARD (PRIMARY POWER & COMM SOURCE)

P5 - PROGRAMMING HEADER

USER TEMINALS ON RELAY BOARD (A4):

D1 - RED - RELAY #6 IN ALARM STATE D3 - RED - RELAY #5 IN ALARM STATE

D5 - RED - RELAY #3 IN ALARM STATE
D7 - YELLOW - BINARY INPUT #1 IS ABOVE THRESHOLD
D8 - RED - RELAY #3 IN ALARM STATE
D10 - YELLOW - BINARY INPUT #2 IS ABOVE THRESHOLD

D11 - RED - RELAY #2 IN ALARM STATE

D11 - RED - RELAT #2 IN ALARM STATE
D13 - YELLOW - BINARY INPUT #3 IS ABOVE THRESHOLD
D14 - RED - RELAY #1 IN ALARM STATE
D16 - YELLOW - BINARY INPUT #4 IS ABOVE THRESHOLD
D17 - GREEN - COMMUNICATION TO MAIN BOARD (FLASHING)

USER TEMINALS ON RELAY BOARD (A4):

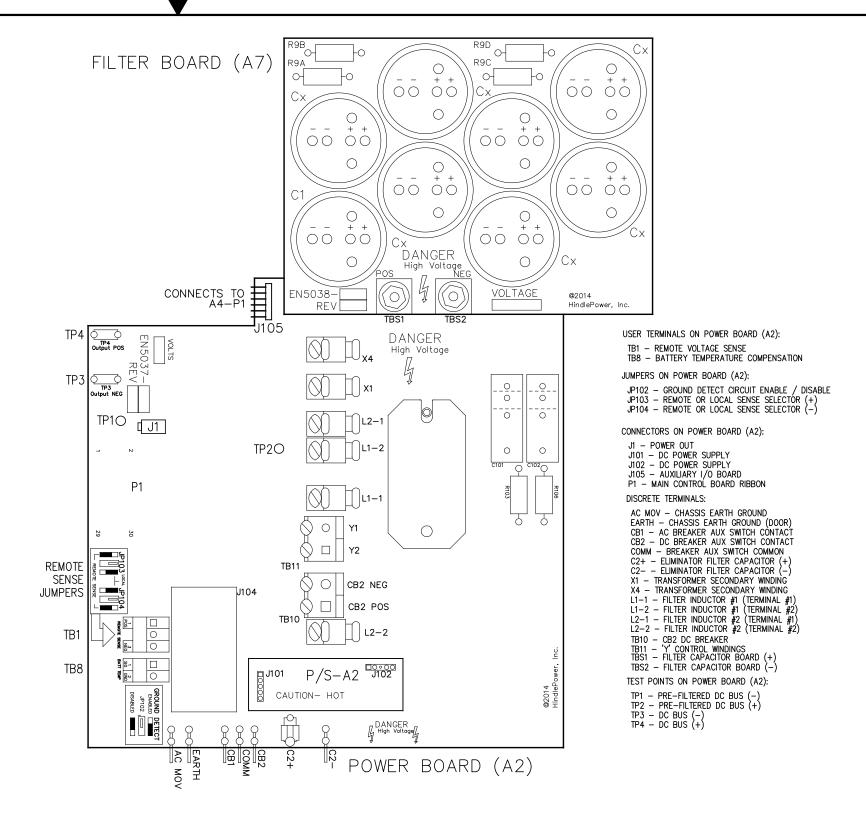
TB1 - BINARY INPUTS

TB2 - SERIAL INTERFACE TB3 - ANALOG INPUTS

TB4 - AUXILIARY I/O RELAY CONTACTS

JUMPERS & CONFIGURATION SWITCHES

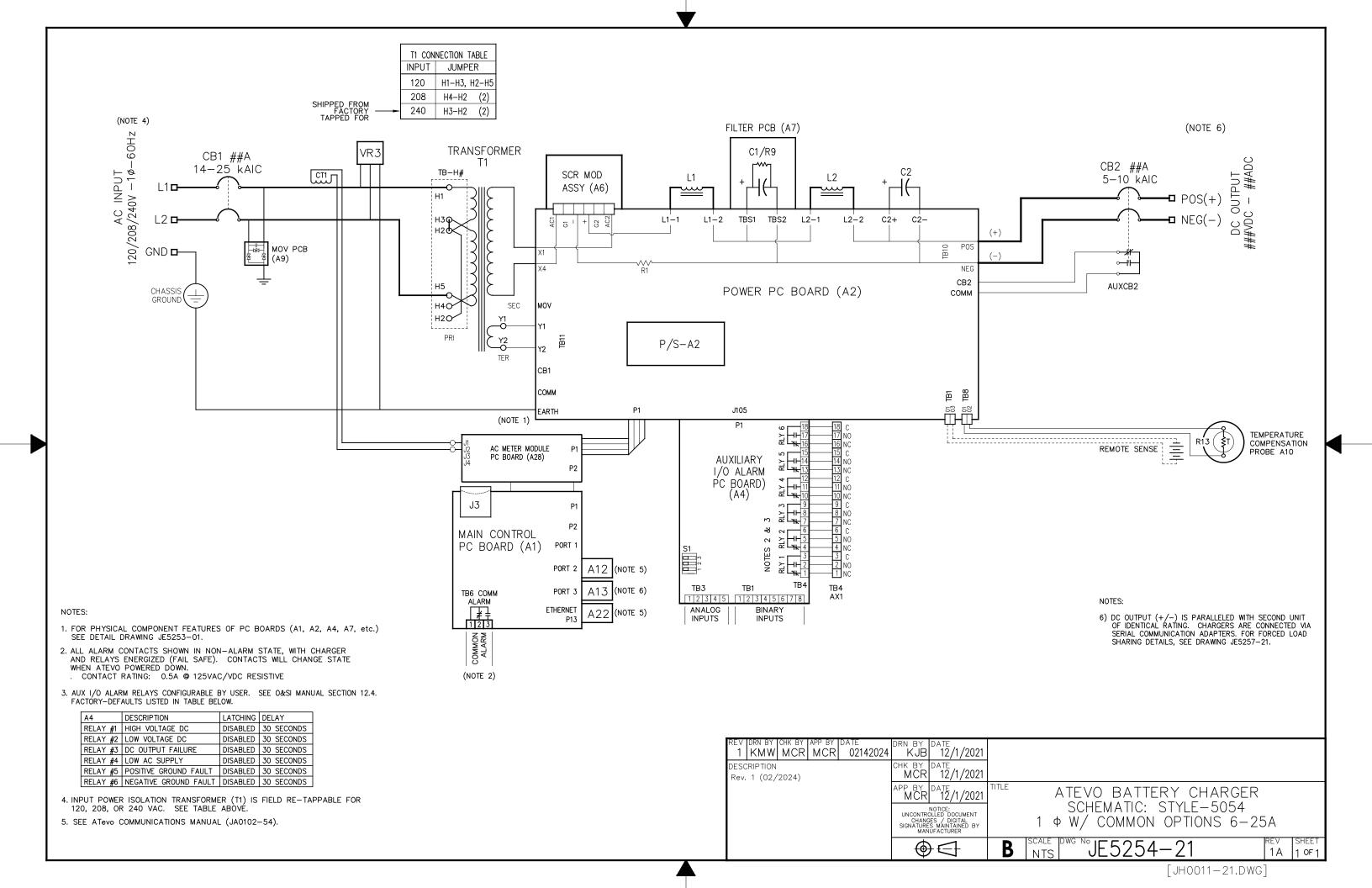
| I/O TERMINAL | DESCRIPTION - TYPE | CONNECTION |
|--------------|---|------------|
| (A2) TB1 | POS/NEG REMOTE SENSE TERMS (A2) - SOLDERLESS COMP SCREW | #22-14 AWG |
| (A2) TB8 | TEMPCO PROBE (A10) TERM BLK - SOLDERLESS COMP SCREW | #22-14 AWG |
| (A4) TB1 | AUX I/O BINARY INPUTS (A4) - SOLDERLESS COMP SCREW | #22-14 AWG |
| (A4) TB2 | AUX I/O RELAY CONTACTS (A4) - SOLDERLESS COMP SCREW | #22-14 AWG |
| (A4) TB3 | AUX I/O ANALOG INPUTS (A4) - SOLDERLESS COMP SCREW | #22-14 AWG |
| (A4) TB4 | AUX I/O RELAY CONTACTS (A4) - SOLDERLESS COMP SCREW | #22-14 AWG |
| | | |
| | | |

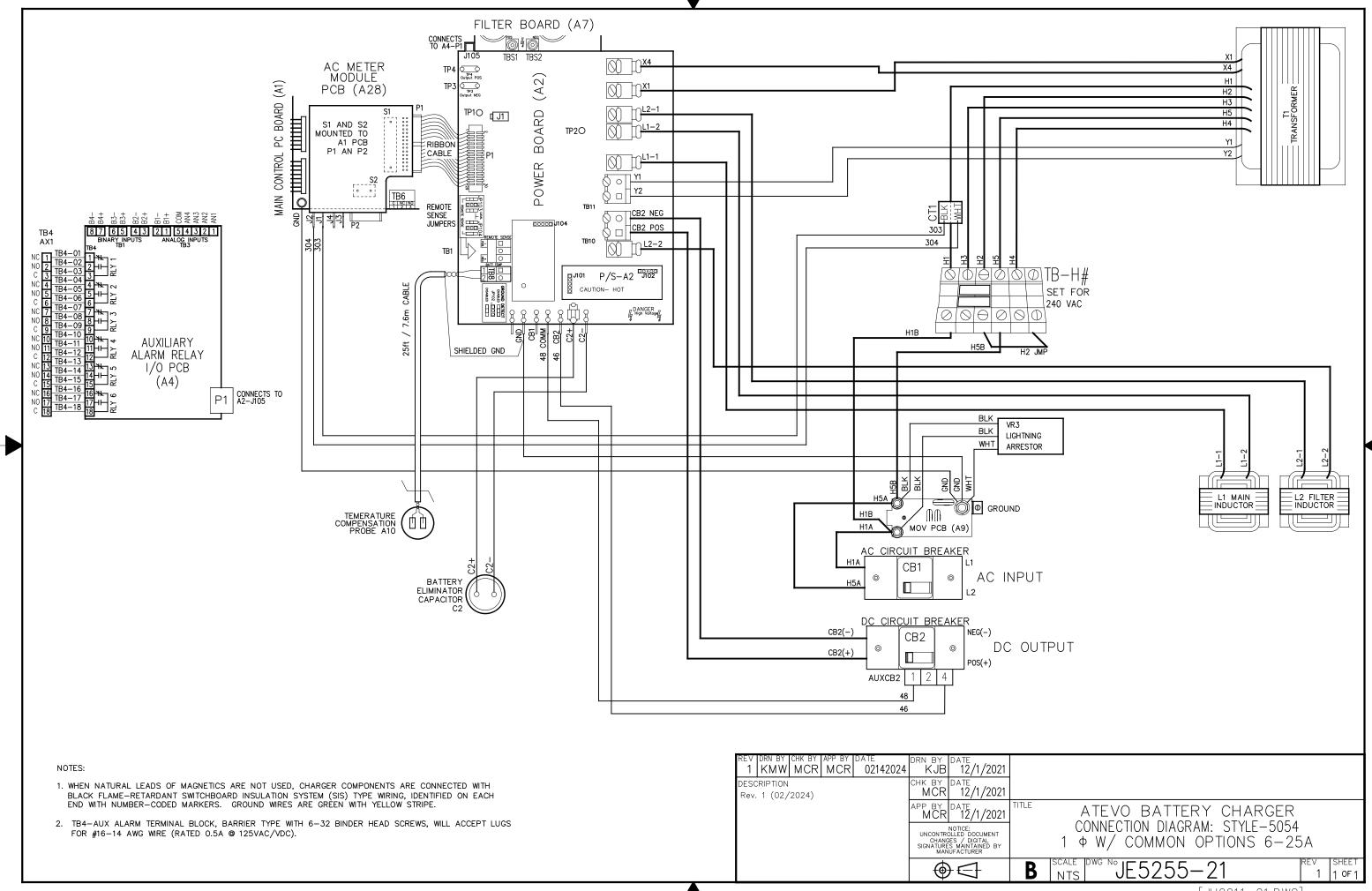


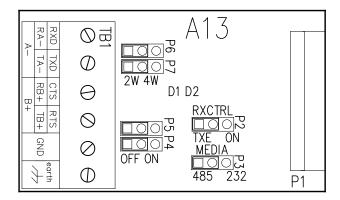
ATEVO BATTERY CHARGER CONTROL PANEL / PC BOARD DETAIL 1 Φ W/ COMMON OPTIONS 6-25A

[№]JE5253-B

1 2 of 2







THE JUMPERS ON THE SERIAL COMMUNICATIONS ADAPTER (A13) MUST BE CONFIGURED TO OPERATE IN 2-WIRE RS-485 MODE.

JUMPER P2 (RXCNTRL) MUST BE SET TO TXE - LEFT TWO PINS

JUMPER P3 (MEDIA) MUST BE SET TO 485 - LEFT TWO PINS

JUMPERS P4 & P5 (485-TERM) MUST BE SET TO OFF - LEFT TWO PINS

JUMPERS P6 & P7 (# WIRES) MUST BE SET TO 2W - LEFT TWO PINS

INTRODUCTION

Multiple battery chargers are sometimes employed in dc power systems to provide redundancy. Two (2) or more chargers of the same voltage rating can be connected in parallel, each of them capable of powering the connected dc load and charging the battery. When two (2) or more chargers operate in parallel, they normally will not share the load current equally. Since any two (2) chargers will usually have slightly different connection paths, one of the chargers in a system will typically have a slightly higher dc output voltage, and will therefore assume more of the burden of providing the necessary load current.

The ATevo forced load sharing feature supports a single "Primary" charger, and a "Secondary" charger. The Primary charger communicates with the Secondary charger over a serial connection. Each charger requires a Serial Communications Adapter (A13) set for RS—485, wired to thel other charger to create the forced load sharing communication network.

SYSTEM REQUIREMENTS

Both battery chargers must be ATevo Series. The ATevo forced load sharing feature will not operate with older style AT10.1 and AT30 Series battery chargers. Both connected chargers must have the same voltage settings, have the same output current rating, and have the same version of ATevo Main Control PC Board (A1) firmware.

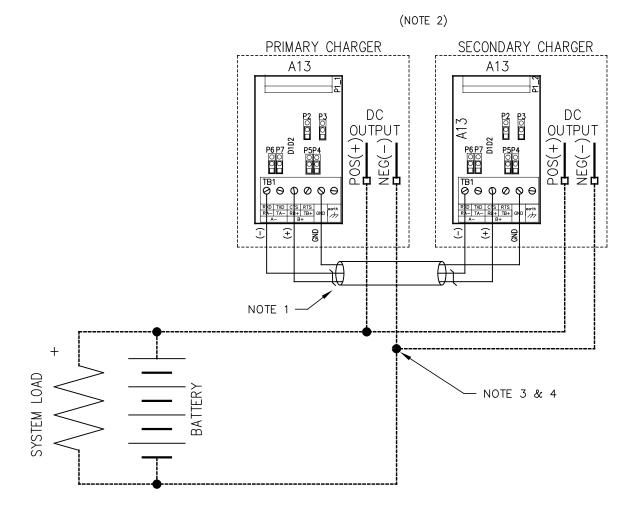
Each ATevo requires a Serial Communications Adapter (A13) to be installed in either Port 2 or Port 3 of the Main Control PC Board (A1).

ATEVO CHARGER LOAD SHARING CONFIGURATION

If the ATevo is ordered with the forced load sharing feature, the hardware and software configuration will be completed at the factory. The forced load sharing Serial Communications Adapters (A13) and software will be verified during the charger production test. The signal interconnection cable will be supplied in a bagged kit, to be connected to the chargers in the field after installation. If forced load sharing is added to the ATevo in the field, the following hardware and software configuration will be required.

INSTALLING THE SERIAL COMMUNICATIONS ADAPTER (A13)

Refer to the Serial Communication Adapter section of the ATevo Communications Manual for instructions on how to install the Serial Communications Adapter. Refer to JA5054—50 or the Forced Load Share section of the ATevo Operating and Service Instructions for instructions on how to configure the chargers to operate in load share.



NOTES:

- 1. FOR TWO (2) UNITS TO LOAD SHARE, CONNECT A13—TB1 OF "PRIMARY" CHARGER TO A13—TB1 OF "SECONDARY" CHARGER USING SUPPLIED 25ft / 7.62m INTERCONNECTION CABLE (EH5052—02).
- 2. ATevo SERIES FORCED LOAD SHARING FEATURE FUNCTIONAL ONLY WITH BATTERY CHARGERS OF IDENTICAL RATING.
- 3. ATevo BATTERY CHARGERS OPERATING IN FORCED LOAD SHARING MODE MUST BE CONNECTED TO COMMON DC BUS.
- 4. CHARGER/BATTERY/LOAD INTER-CONNECTION DC CABLING NOT SUPPLIED WITH CHARGER OR LOAD SHARING ACCESSORY. DC CABLING MAY BE SUPPLIED BY BATTERY MANUFACTURER OR INTEGRATOR. SEE BATTERY/SYSTEM DRAWINGS FOR SPECS.
- 5. FOR DETAILED INSTALLATION, OPERATING AND TROUBLE—SHOOTING PROCEDURES, SEE USER INSTRUCTION (JA5054-50).

| REV DRN BY CHK BY APP BY DATE O KMW MCR MCR 02142024 | DRN BY DATE 02142024 | |
|--|--|--|
| DESCRIPTION STANDARD DRAWINGS. | CHK BY DATE 02142024 | |
| | APP BY DATE 02142024 NOTICE: UNCONTROLLED DOCUMENT CHANGES / DIGITAL SIGNATURES MAINTAINED BY MAUFACTURER | ATEVO BATTERY CHARGER FORCED LOAD SHARING / PCB DETAIL 1 \$\Phi\$ W / COMMON OPTIONS 6-25A |
| | ⊕ < | B SCALE DWG NO JE5257-21 REV SHEET O 1 OF 1 |