

## PCB identification

PCB name:	ADD035A
Revision:	Rev. 03
Date of manufacture:	19/06/20
Serial number:	00018

## Embedded firmware

Bootloader version:	1.00
Application version:	1.04

## Default configuration values

### Voltages:

Avionics voltage (Va):	12.0V
Servo voltage (Vs):	12.0V
Payload voltage (Vp):	12.0V
Battery voltage (Vb):	42.0V

### Packet streaming:

Packet period (Pp):	1.0S
Packets streamed (Ps):	All

### Miscellaneous features (S0):

Balance loads:	Enabled
Keep fans on:	Disabled
Shed payload when battery voltages low:	Disabled

## Final assembly and test procedure

### Final assembly and programming:

Fit through-hole connectors, secure threaded fasteners with Loctite 243  
Fit commissioning jumpers  
Apply 25V via Umbilical input  
Load bootloader via programming connector, write fuses and lock bit  
Run calibration app on PC, load application via RS232  
Remove commissioning jumpers  
Apply 42V via Umbilical input

### Internal rails:

Measure internal A-side 12.2V rail. Accept if within $\pm 2\%$ (11.96 – 12.44V)	12.166V
Measure internal B-side 12.2V rail. Accept if within $\pm 2\%$ (11.96 – 12.44V)	12.106V
Measure internal A-side 5.25V rail. Accept if within $\pm 2\%$ (5.15 – 5.35V)	5.2093V
Measure internal B-side 5.25V rail. Accept if within $\pm 2\%$ (5.15 – 5.35V)	5.2365V
Measure internal 3.30V reference. Accept if within $\pm 1\%$ (3.27 – 3.33V)	3.2974V

**Calibration:**

Configure all output voltages to 18.0V  
 Adjust Avionics A output voltage to nearest value above 18.025V  
 Adjust Avionics B output voltage to nearest value above 18.025V  
 Adjust Servo A to output voltage to nearest value above 18.025V  
 Adjust Servo B to output voltage to nearest value above 18.025V  
 Adjust Payload to output voltage to nearest value above 18.000V  
 Zero all current sensor offsets (at 0 Amps)  
 Calibrate all voltage sensors (at 18.0V)

**Quiescent input current:**

Measure quiescent input current (at 42V). Accept if less than 400 mA      342mA

**Load regulation:**

Configure Avionics output to 20V.  
 Configure Servo output to 12V.  
 Configure Payload output to 28V.  
 Fit / remove commissioning jumpers as required to disable / enable A and B sides.  
 Measure Avionics A voltage at 0 & 5 Amps. Accept if  $\Delta$  less than 50mV      11mV  
 Measure Avionics B voltage at 0 & 5 Amps. Accept if  $\Delta$  less than 50mV      4mV  
 Measure Servo A voltage at 0 & 25 Amps. Accept if  $\Delta$  less than 400mV      188mV  
 Measure Servo B voltage at 0 & 25 Amps. Accept if  $\Delta$  less than 400mV      194mV  
 Measure Payload voltage at 0 & 18 Amps. Accept if  $\Delta$  less than 200mV      92mV  
 Low-power output: No test

**Input voltage:**

Apply 24 and 60V to Umbilical input. Verify correct operation  
 Apply 24 and 60V to Battery A input. Verify correct operation  
 Apply 24 and 60V to Battery B input. Verify correct operation

**Interfaces:**

RS232: Transmit and receive verified by initial firmware update  
 CAN: Verify transmit and receive at 1Mb/S  
 Master shutdown input: No test  
 Payload shutdown input: No test

**If all tests passed:**


Load default configuration values  
 Assign electronic serial number  
 Record unit parameters in database

**Notes**

Board modifications (x 5) secured with epoxy resin.

**Sign off**

All tests passed.  
 Unit meets published specifications.

Signature:	
Date:	August 3 <sup>rd</sup> , 2020