



Avionic Instruments LLC  
*Aerospace Power Electronics™*



Acme Aerospace Inc.



## Primary & Secondary Power Distribution Technology Overview

### PROPRIETARY DATA

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## Smart Power Distribution (Primary and Secondary)

- IPDU – Integrated Power Distribution Unit
  - Secondary power distribution
  - 100A TRU
  - 28 Channels of SSPC's (8 – 20 amps and 20 – 10 amps) programmable via ARINC429)
  - DSP Control
  - Status – Qualified
- MSU – Mission Switching unit
  - Primary Power Distribution
  - Distributes power to mission system load from 4 different power sources (VFG2, VFG3, APU & EXT PWR)
- Power distribution capabilities as a complement to sub-system provider (power conversion, power distribution, battery solutions)

- **Typical applications**

- ✓ Distribution of primary and secondary power for both AC and DC power based aircraft at the OEM level and at the completion level.

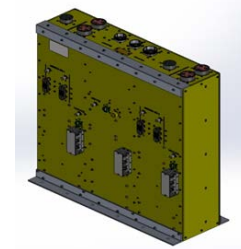
- **Markets Served**

- ✓ Military fighters and trainers
- ✓ Commercial and military transport aircraft
- ✓ Commercial and military helicopters
- ✓ Business and Regional Jet aircraft

Global Eye



IPDU



MSU





# IPDU Data-sheet

## Aerospace Power Electronics - Smart Power Distribution Solutions

Avionic Instruments has a strong knowledge base in the Aerospace Power Electronics field and based on digital technology that was developed and certified for the Boeing 787 platform is proud to offer a product series of smart power distribution units. These IPDU's provide current technology that allows the replacement of TRU's, electromechanical breakers and relays with significant benefits in weight reduction and operational flexibility. IPDU's have been qualified to Aerospace commercial and military standards.

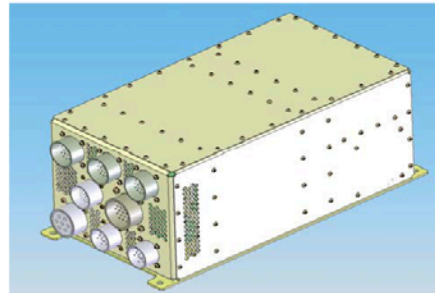
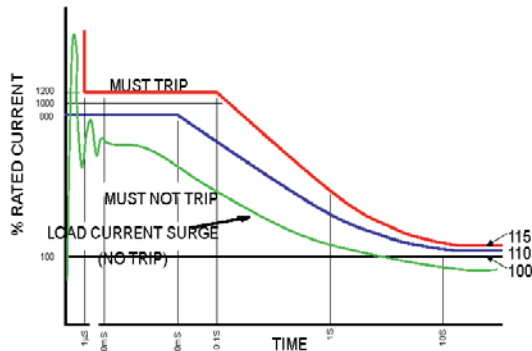
### Features

- \* 50A to 400A TRU front end - 12 pulse rectification
- \* DC Channels from 1 to 25 amps
- \* AC Channels from 1 to 15 amps
- \* Smart Overcurrent Protection
- \* Programmable at the aircraft or factory level - Trip Current, Channel paralleling, Status information
- \* Digital Communication Protocols - ARINC 429, RS485, RS422, CAN
- \* Efficiency > 85%

### Qualification Standards

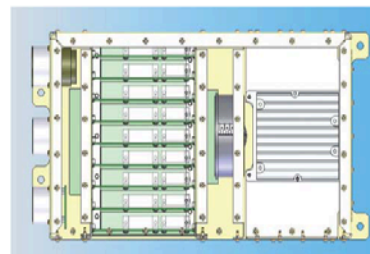
Commercial - RTCA DO-160E  
Military - MIL-STD-461F, MIL-STD-810F  
Software - DO-178B

### SSPD Trip Curve Programming Parameters

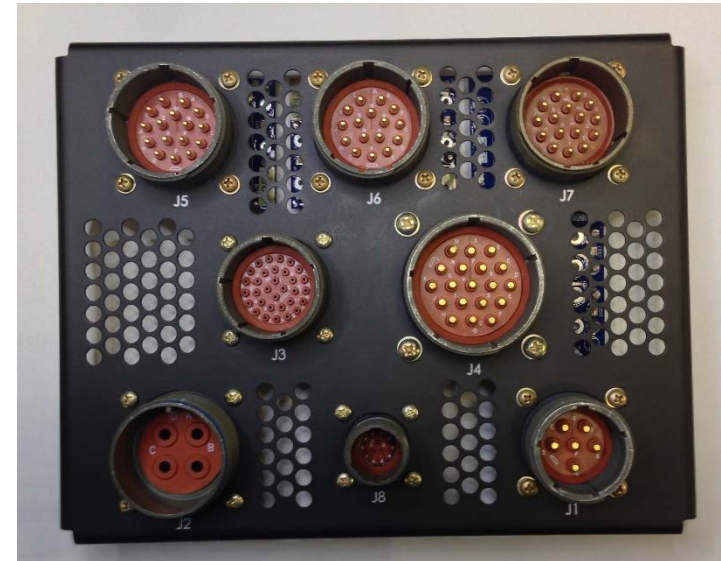


### IPDU - Integrated Power Distribution Units

The IPDU integrate AC to DC conversion via a 12 Pulse TRU and DC power distribution at the point of use via multiple channel SSPC (solid state power controller) modules that have the capability of programming at different current levels from 1 amp to 25 amp. Each IPDU has a DSP (Digital Signal Processor) brain that allows the interface between the SSPC modules and the aircraft computer via communication protocol ARINC429, CAN, RS485 or RS422 to provide status of distribution lines both in operating and programming modes.



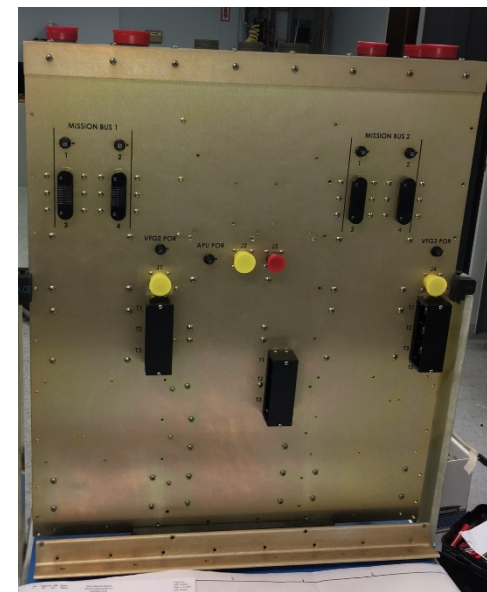
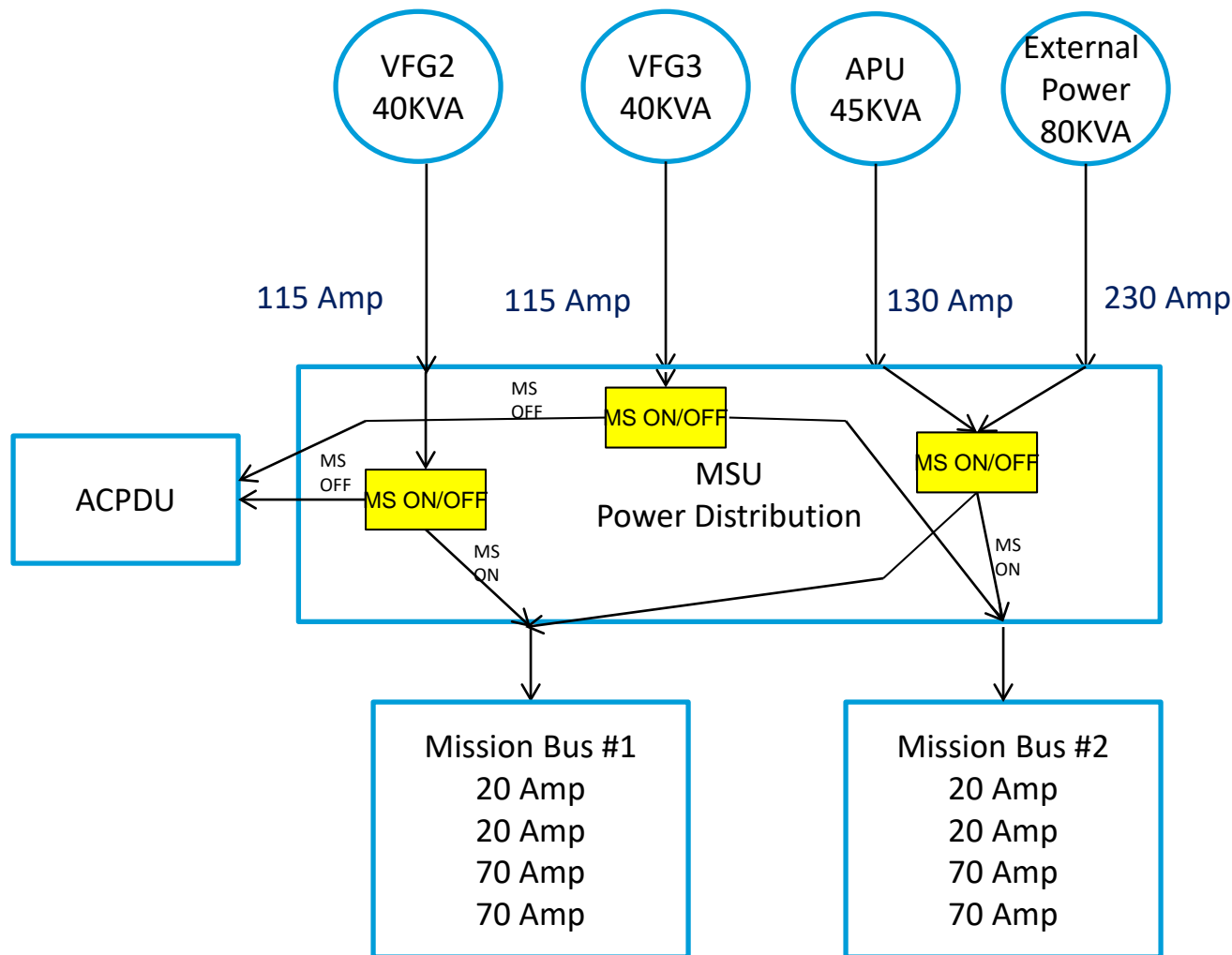
SSPC Section      TRU Section





## Top Level Diagram – MSU – Mission Switching Unit

AC Power : 3PH, 115V L-N, 324-596Hz





## Mechanical Layout Review

