



AMPHION™ Power Distribution Units

DESCRIPTION

AMETEK's Power Distribution Unit (PDU) will save weight, space, and cost on your aircraft by replacing centralized circuit breaker and relay panels allowing for power to be distributed and controlled automatically and by data bus. PDUs can be located throughout the aircraft allowing for easy configuration changes if additional power is required, thus providing maximum flexibility in custom interior design. In addition to being a circuit breaker and relay, AMPHION technology provides load monitoring that can be used for trend monitoring of electrical devices and automatic load shedding.

The AMETEK PDU has 16 DC or 12 AC channels per unit that can easily be installed beneath interior panels. No active cooling is required due to very low power dissipation.

REDUCE AIRCRAFT WIRING

Using a distributed power control system greatly reduces the amount of wiring needed, since each wire is not required to route to a centralized location. Reducing the wire runs simplifies installation, saves weight, and increases power system reliability.

PROGRAMMABLE OVER-CURRENT TRIP CAPABILITY

The PDU has a removable Personality Module that allows each circuit to be easily set for different load applications. For example, a 15 amp circuit can be set down to a 10 amp circuit by turning an adjustment screw in the Personality Module. This provides for very flexible installation and the PDU can be adjusted for future aircraft modifications. No longer is it necessary to stock multiple part number of circuit breakers for different loads.

ARC FAULT DETECTION

AMPHION sensing capability can also be used to trip on intermittent arc faults produced by wire insulation failure. The arc fault sensing is designed to recognize the unique signature of an arc without tripping on turn-on transients from motors, lamps, etc. The ability to detect arc faults is an added feature that increases safety in aircraft power distribution and complies with new certification requirements.

UNIQUE FAILSAFE DESIGN

Unlike other solid-state products, the PDU contains patented circuitry that prevents a failure in a short-circuited condition. This means that a failure will not cause a critical load to remain powered in an unprotected and uncontrolled manner.

APPLICATIONS

AMPHION PDU's provide digital bus control of all electrical devices up to 45 amps DC or AC per unit. Reliability is also dramatically increased since AMPHION solid state switches do not wear out like conventional circuit breakers or relays.



FEATURES

- ✓ *Voltage Range:*
60-140 VAC – 45 amps
10-36 VDC – 45 amps
- ✓ *AC frequency range of*
40-1000 Hz
- ✓ *AC unit has 3 phase*
capability
- ✓ *Detachable “Personality*
Module” allows easy
customization
- ✓ *No active cooling required*
- ✓ *Data bus control and*
monitoring of all outputs
- RS-485 standard
- CAN, ARINC 429, Ethernet
optional
- ✓ *Monitor load voltage, current,*
trip status
- ✓ *DO-178B, level A software*
- ✓ *Qualified for use in non-*
environmentally controlled
areas of the aircraft

AMPHION™ Power Distribution Units

ADVANTAGES

- ✓ No circuit breaker panels required – acts as a circuit breaker and relay
- ✓ Arc protection that will not trip a standard circuit breaker
- ✓ Field adjustable “breaker” settings with precise trip points
- ✓ Adjustable circuit protection for flexibility
- ✓ Single part number throughout aircraft
- ✓ Thin and flat for mounting anywhere on aircraft – power is distributed at the point where it is used
- ✓ Automatic load control built-in
- ✓ Load control, balancing, and shedding
- ✓ Small, cool, safe
- ✓ Provides programmable over-current and arc-fault trip settings
- ✓ Incorporates patented “Fail-Open” technology – will not fail short
- ✓ Load voltage and current monitoring
- ✓ Load management
- ✓ Remotely controlled and monitored data output via RS-485, RS-422, RS-232, CAN BUS, ASCB; Ethernet optional

BENEFITS

- ✓ Frees up space typically occupied by circuit breakers
- ✓ Reduces quantity of part numbers and components
- ✓ Remote mounting simplifies aircraft design
- ✓ Reduces aircraft wiring and weight
- ✓ Protects wiring from arcs and over-current
- ✓ Power to load is interrupted in case of fault
- ✓ Monitors performance trending
- ✓ Performs prognostics and preventive maintenance
- ✓ Provides safety and intelligence to the load management system
- ✓ Digitally communicates voltage, current, and trip status

SPECIFICATIONS

ELECTRICAL CHARACTERISTICS

DC Voltage Range: 10 to 36 VDC for the DCPDU

DC Output Circuits: 6 @ 15A maximum
10 @ 7.5A maximum

AC Voltage: 60 to 140 VAC

AC Output Circuit: 3 @ 15A maximum
9 @ 7.5A maximum

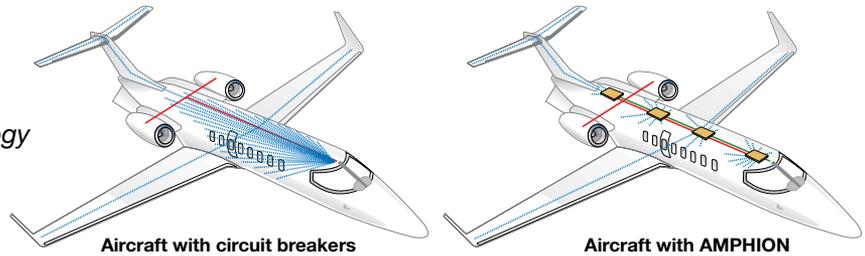
Frequency Range: 40 to 1000 Hz.

Trip Curve: Programmable within current ranges

PHYSICAL CHARACTERISTICS

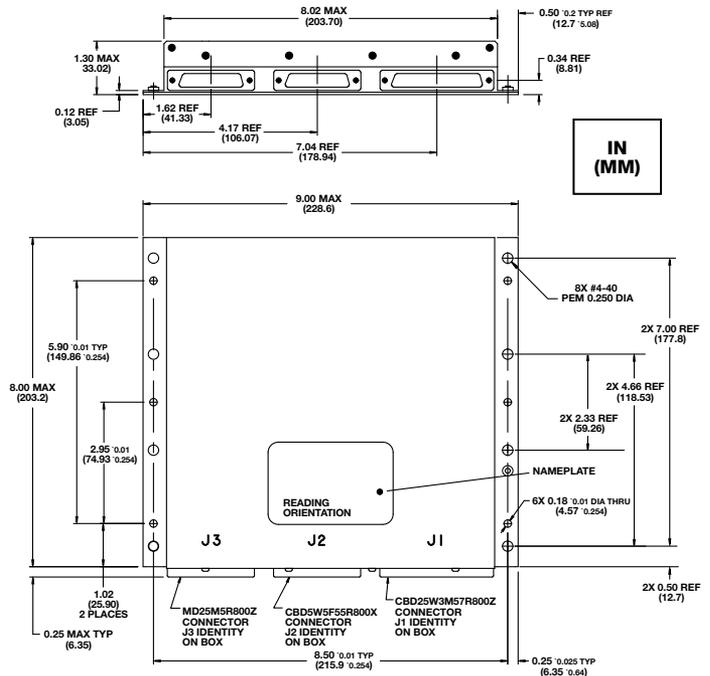
Dimensions: 9.0” X 9.5” X 1.5”

Weight: 2.8 lbs. (DCPDU), 4.1 lbs. (ACPDU)



Aircraft with circuit breakers

Aircraft with AMPHION



DIMENSIONS



**AEROSPACE & DEFENSE
POWER & DATA SYSTEMS**

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