AIR DATA

Bus Equipment Protection Unit (BEPU) ADI-28110 Product Series Data Sheet

The BEPU protects avionic equipment from severe transient that may occur on the aircraft electrical bus. The BEP unit is located between the aircraft 28 VDC bus (input) and the avionic equipment (output), and automatically clamps the threat voltage transients to 60 VDC maximum. The electrical circuit board, clamps the threat voltage transients to a maximum set voltage. The transient voltage suppressor array has a peak power value of 100 kW for a 10/100 µs waveform.

In case of an accidental short circuit between the 28 VDC bus and the 115 VAC bus, a fuse in the BEP causes a disconnection from the defective 28 VDC bus. During the fuse delay, the output voltage is also clamped in order not to exceed 60 V, which prevents damage to the avionic equipment and limit the fault propagation.

The BEPU is currently being used by a world-class and renowned aircraft manufacturer since many years to protect their onboard avionics with an impeccable track record of quality. Air Data has so far shipped more than 3,800 production units and installed in many of the most modern airliners.

To protect any 28 VDC-powered equipment in an aircraft modernization program in order to meet up-to-date airworthiness standards, the inclusion of the BEPU as a COTS device is a cost-effective way in limiting project budget to a fraction of the equipment re-development costs, and with an additional benefit of reducing risk factors and shortening associated timeline. Deploying the BEPU in aircraft program updates will therefore have significant application value.

Characteristics

- Operating voltage: 28 VDC; Clamps voltage to 60 VDC maximum
- Weight: 265 g (0.58 lbs) max
- Dimensions 111.76 mm x 78.74 mm x 35.56 mm, refer to Figure 1.
- The BEPU is a machined aluminum unit that contains a single circuit electrical board. The aluminum parts are protected with a chemical conversion film (irridite).
- To prevent water from entering the unit and to maintain good electrical connection with the cover, the BEPU's housing has a groove for an environmental and EMI (electromagnetic interference) gasket. The cover has four mounting holes to attach the unit to the aircraft structure.
- The BEPU has a single MIL-38999 series connector with four 16-AWG pins. The connector is nickel plated for corrosion resistance. Pin A (input) connects to the 28 VDC aircraft bus, Pin B connects to the aircraft chassis ground, and Pin C connects to the 28 VDC output (avionic equipment). The BEPU internal circuit returns are connected to Pin C, the housing and the cover. Pin D is unused but sealed to prevent humidity from getting into the unit.
- The BEPU went through a Highly Accelerated Life Test (HALT) campaign by combining extreme temperature cycling (-70°C to 120°C at ±50°C/min) and repetitive random vibration up to 35 GRMS.

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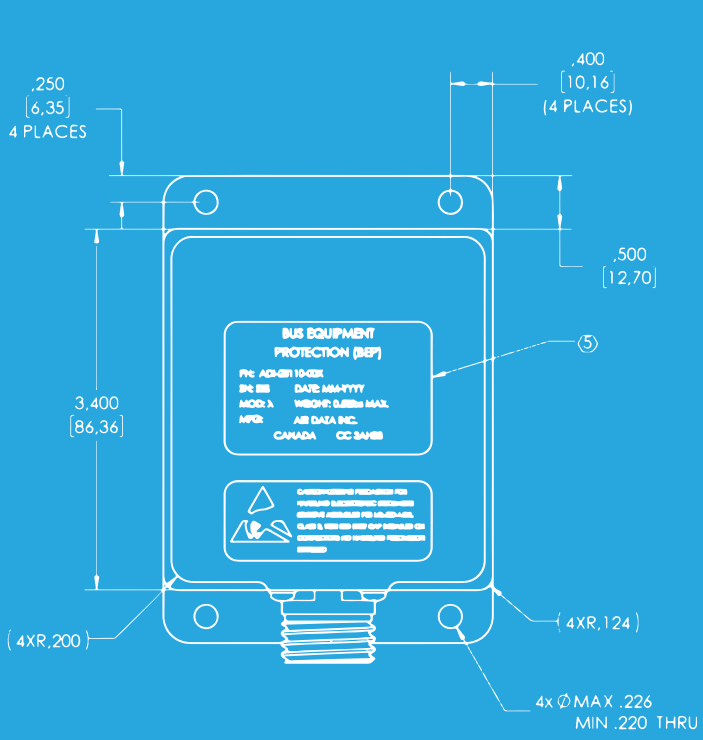
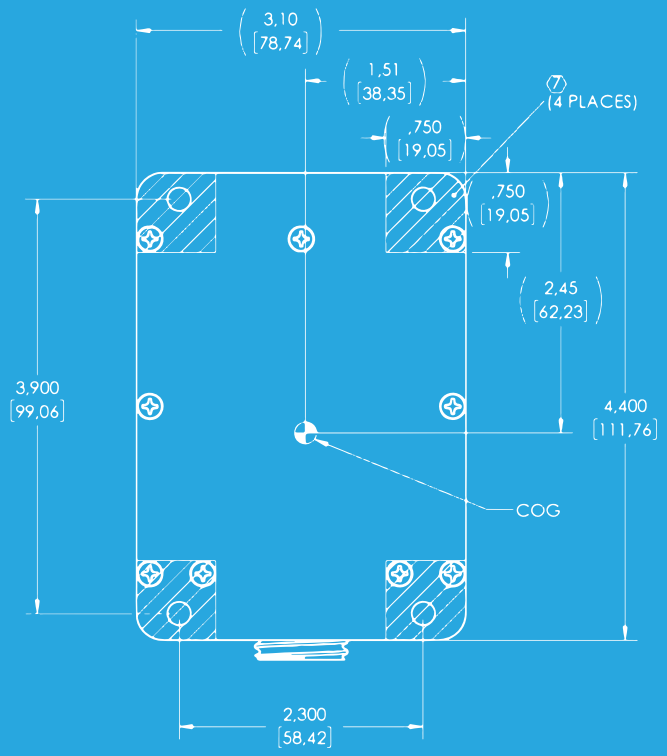
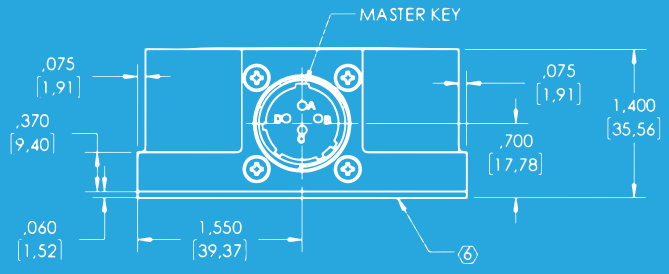
Outline Drawing







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