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CII Custom High Performance Solenoids

Product Facts

- Designed and built to customer requirements
- Push, pull or combination motion
- Broad operating temperature range
- Multiple termination and mounting options
- 200°C magnet wire insulation is standard



Description

Custom-designed linear solenoids for demanding applications

Top-end devices are engineered for applications where extreme temperatures and other severe environmental conditions may exist

High altitude, shock, acceleration and vibration reliable

Product Options

Linear motion, tubular solenoid line ranges from models only one-half inch (12.7 mm) in diameter producing only a few ounces (<1N) of force at very short strokes, to three-inch (76.2 mm) diameter models capable of 100 pounds (445N) force at one-inch (25.4 mm) strokes

Push, pull or combination motion available

Continuous or intermittent duty coils available

AC voltages can be handled through the use of internal rectifiers

Dual coil models with low holding power requirement may be appropriate in power sensitive equipment

Solenoids with plunger seals can be built for harsh environments

Solenoids can be made water-resistant, fuel-resistant and with encapsulated coils (ferrous parts are plated for protection against corrosion)

Leads are normally provided with fluoropolymer insulation, PTFE or ETFE; however, any type wire may be used as specified by the customer. MIL type connectors may also be used when specified. Can be provided with flat or conical face depending on stroke

Solenoid plungers can be internally or externally threaded or have clevis attachment

Prototype solenoids can be custom built to a customer's requirements

Electrical Characteristics

Voltage Rating —
6 to 270 VDC
28 to 115 VAC (60 or 400 Hz)

Mechanical Characteristics

Ambient Temperature Range —
-65°C to +125°C

Force — 1 oz. to 100 lbs. push, pull, hold

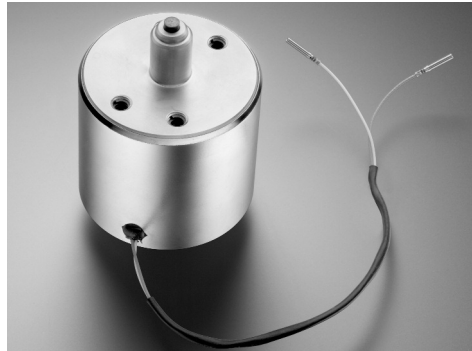
Rated at 100,000 operations
Built IAW MIL-S-4040 as applicable

CII Custom High Performance Solenoids (Continued)

Typical Applications

Fin Locking Solenoid

Three of these husky Solenoids are used to lock steering fins in place until the guided weapon is released.



Voltage — 22-28 VDC
Max. Allowable Current — Not specified
Actuating Force — 12 to 15.4 lb. (depends on input V)
Stroke — .095"
Time On — Bomb drop time
Time Off — Continuous
Cycling Rate — Not applicable
Type Operation — Pull
Temperature Range — Ambient -65°F to +125°F
Coil Connections — Fluoropolymer Insulation 8" to 8 3/4"
Approximate Dimensions — 2.20" diameter x 2.05" long
Type Mounting — Integral tapped holes
Special Environmental Consideration — Exposure to sand, dust, aircraft oils and fuels, will require an "O" ring seal on plunger.

Primer Firing Solenoid

This extremely powerful Solenoid together with its companion pulse control module is designed to fire a standard Military #41 arsenal primer, as part of an advanced mine detection system.



Voltage — 26 VDC
Max. Allowable Current — 10.4 Amps @ 26 VDC
Actuating Force — 90 oz. force inches (.64 joules)
Stroke — .38"
Time On — W/pulse control module, 25 ms
Time Off — 3 seconds
Cycling Rate — 20 operations/minute
Type Operation — Push
Temperature Range — Ambient -65°F to +85°F
Coil Connections — Fluoropolymer Insulation #20 stranded 6' long
Approximate Dimensions — 3/4" diameter x 3 1/2" long
Type Mounting — Integral 1/2" - 20 threaded base
Special Environmental Consideration — Sand and dust

Aero Medical Valve Solenoid

A scant 3/8" in diameter, this tiny precision Solenoid is capable of 100,000 reliable operations, controlling various airborne gas systems.



Voltage — 28 VDC
Max. Allowable Current — .18 Amps @ 28 VDC
Actuating Force — 190 grams @ .030 Amps
Stroke — .030" minimum
Time On — Continuous duty
Time Off — Not specified
Cycling Rate — Not applicable
Type Operation — Pull
Temperature Range — Ambient -65°F to +125°F
Coil Connections — #32 AWG Fluoropolymer Insulation, 24" minimum
Approximate Dimensions — 3/8" diameter x 3/4" long
Type Mounting — None

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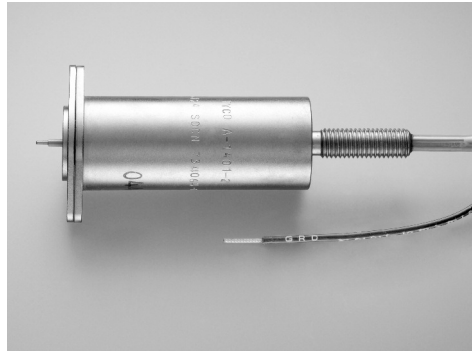
CII Solenoids

CII Custom High Performance Solenoids (Continued)

Typical Applications (Continued)

Fuel Valve Solenoid

This is a unique application in which the Solenoid is mounted inside an aircraft fuel tank submerged in JP-8 jet fuel. The coil is potted, completely fuel proof.



Voltage — 115 VAC 400 Hz
Actuating Force — 1 lb. minimum @ 160°F
Stroke — .030"
Time On — Continuous duty rating
Time Off — Not specified
Type Operation — Push
Temperature Range — Ambient -65°F to +160°F
Coil Connections — IAW customer drawing, Fluoropolymer Insulation Leads
Approximate Dimensions — Tubular, 3/4" diameter x 3" long
Type Mounting — Flange IAW customer drawing
Special Environmental Consideration — Coil must be air tight, plunger operates while submerged in JP-8 jet fuel

Directional Valve Solenoid

A major valve company selected this rugged type Solenoid to control a directional hydraulic valve in heavy industrial machinery. The valve assembly has a 20 year expected life.



Voltage — 92 VDC
Max. Allowable Current — 7.2 Amps inrush, .08 Amps hold
Actuating Force — 30 lbs. minimum
Holding Force — 40 lbs. minimum
Stroke — .500"
Time On — Continuous duty
Time Off — Not applicable
Cycling Rate — Not applicable
Type Operation — Push and hold
Temperature Range — Ambient -55°F to +85°F
Coil Connections — Fluoropolymer Insulation #18 AWG, 72" L
Approximate Dimensions — 2 3/16" dia. x 4 3/16"
Type Mounting — Plate
Special Environmental Consideration — Sand, dust, rain

Refueling Release Solenoid

This complex Solenoid with internal current limiting switch is part of an "Air to Air" refueling system.



Voltage — 18 to 30 VDC
Max. Allowable Current — 10 Amps/50 ms - 1 Amp continuous holding
Actuating Force — 20 lbs. min. for .10" of initial stroke
Holding Force — Plunger must hold at bottom
Stroke — .17 to .20"
Time On — Continuous duty
Time Off — Not applicable
Cycling Rate — Not applicable
Type Operation — Pull
Temperature Range — Ambient -65°F to +160°F
Coil Connections — Connector MS 30ZE-10SL-4P per MIL-C-5015
Approximate Dimensions — 2 1/4" dia. x 2 13/16"
Type Mounting — Integral with refueling receptacle
Special Environmental Consideration — High performance aircraft exposure

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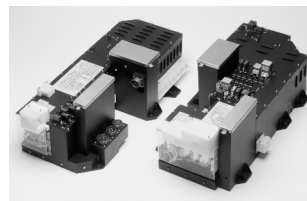
Power Distribution Units14-2

Power Distribution Units

Custom-designed and built AC or DC products for aerospace applications

Key platforms for which we have designed and built PDUs:

- Beech 1900 Commuter
- Bell Textron Landing Craft Air Cushion
- Boeing 767, 777
- British Aerospace Jetstream 41
- Dassault Falcon 7X
- Grumman Aerospace S-2 Tracker
- Gulfstream New Commander
- Lockheed Martin F-35 Lightning II
- McDonnell Douglas AH-64 Apache
- McDonnell Douglas F-4 Phantom
- Northrup Grumman E2C Hawkeye
- Piper Cheyenne IV
- Rockwell Sabreliner 65A
- Saab SF-340A/B
- Sikorsky S-92, S76D



HARTMAN AC and DC power distribution units (PDUs) and KILOVAC DC PDUs from TE Connectivity are designed, built and qualified to meet your specific requirements.

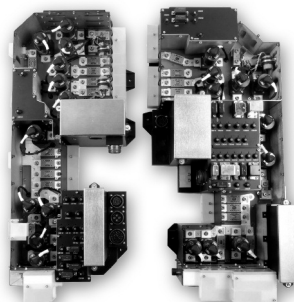
We have a half-century of experience providing PDUs for the aerospace industry, serving both commercial and military customers.

Allow us to apply our significant expertise in integrating bus-bar and plug-in contactors, relays, sensors, monitors, circuit breakers, shunts, generator control units and other components into compact, lightweight PDUs.

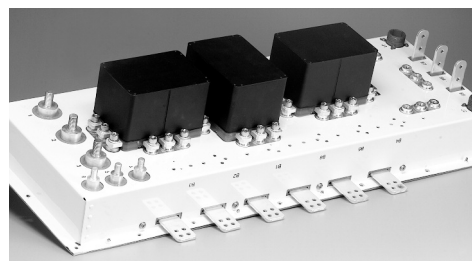
Through our value-added service we can save you time and money in your design and manufacturing processes, as well as the end customers' maintenance programs.

Whether you require innovative modular units or backplane-type panels for fixed wing aircraft or rotorcraft, we can help.

Typical PDUs



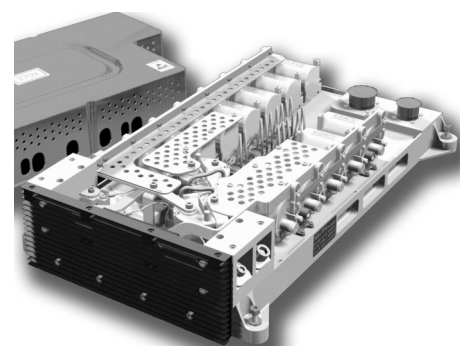
PDU featuring bus bar mount 28Vdc DC contactors.



PDU utilizing bus bar mount AC contactors.



PDU utilizing both bus bar mount and plug-in AC contactors.



PDU featuring bus bar mount 270Vdc DC contactors.