



Project

Aircraft diesel generator features an unique control system.

Application Characteristics

The aircraft ground power unit has an optimized 1,846 RPM brushless revolving field generator, which efficiently produces 90 kVA (72 kW) 400 Hz AC power to start and service aircraft.

The diesel generator provides critical operational and diagnostic information to aircraft operators and maintenance personnel.



Digital generator control module (GCM) features voltage regulation, generator fault protection, and a generator operating parameter display. The GCM monitors the 400 Hz output when 400 Hz is in use and automatically switches over to monitor 28.5 VDC output when optional 28.5 VDC transformer rectifier is in use.

The voltage regulator provides line drop compensation on 400 Hz as well as line drop compensation and current limiting on optional 28.5 VDC transformer rectifier. The GCM displays the generator output operating parameters such as voltage, current, and frequency digitally on a backlit LCD.

The engine control module (ECM) uses electronic engine governors to provide precise frequency regulation and fast transient response. Engine protection such as low oil pressure and high coolant temperature are programmed into the ECM. An engine diagnostic connector is provided for communicating with the engine.

The control module displays are an important parameter for the operation e.g. engine speed, voltage & hours, oil pressure, coolant temperature, automatic cool down cycle and more.

Requirements

All aircraft service equipment must be designed with sophisticated EMI shielding. No RF transmission can escape the unit to interfere with plane communication systems.



As a result, the aircraft ground power unit is built with extra thick panel walls to offer excellent EMI shielding and protection – including all around the control panel.

The rugged diesel power generator control panel must handle extended daily use in challenging operating conditions including varying weather conditions, wide temperature ranges, humidity, shock, vibration and more. The reliable interface must also offer meet brightness requirements for daytime visibility.

Solution & Design

Due to its robust and reliable design, the CNX714 LED panel mount indicator was selected for use in the aircraft diesel generator control panel.

To meet EMI shielding requirements, the CNX714 panel mount indicator was modified with an extra resistor on the PCB.



Are you ready for next level illuminated components?

Case Study

Featuring FlexVolt technology, the LED indicator can be used with voltages ranging from 5V to 28V DC.



A wide 180 degree viewing angle delivers high visibility, particularly in daylight applications. And with an IP67 rating, the moisture sealed LED indicator is rugged for outdoor harsh conditions often found at airports around the world.

The CNX714 Series eases assembly via fast pitch threads that require only one turn

CNX714FV

The RoHS & Reach-compliant indicator has a mounting hole size of 14mm (0.551") and has 24 AWG wire leads. The LED indicator is available in red, yellow, green, blue and white.



The series provides illumination for applications that require consistent identification and communication through light, and achieves full brightness in microseconds.

Results & Benefits

The CNX 714 Series LED panel mount indicator delivers clear and reliable communication to the user via light to ensure safe and proper operation of the aircraft ground power unit.

The modified indicator ensures the control interface is free of RF interference. The LED indicator also simplifies installation and maintenance with its easy installation and long operating life.



CNX714 FV

Value-added Service

VCC understand the importance of visual communications and brings value to your design challenge. VCC becomes an extension of your design team and can provide technical advice and value to your design challenge.



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