FREEZING PROTECTION CONTROL UNIT

PROVEN

Quality, Dependability and Reliability

AvtechTyee's Freezing Protection Control Unit (FPCU) controls and monitors the heating elements of the Waste Water System to prevent freezing of the components. The FPCU interacts with a Control Panel and communicates equipment status via an ARINC 429 bus to the Central Maintenance Computer (CMC).

FREEZER PROTECTION CONTROL UNIT (FPCU)

AvtechTyee's FPCU is installed as optional equipment on Embraer's ERJ series of aircraft. The unit monitors and protects the plumbing, tanks and valves associated with the Water and Waste System (WWS) by applying power to heaters on a as-needed basis

- Prevents expensive failures to the WWS by preventing freezing of system components
- The FPCU contains an RS232 bus used to set temperature thresholds, reduced power mode functionality and other configured features
- The FPCU provides 32 independent heater channels
- Each heater driver will use current sensing circuitry and shut down if an over current is detected and report the fault via the CMC interface
- Heater circuitry uses GFCI (Ground Fault Circuit Interrupter) and shut down the corresponding driver when a ground fault is detected
- Each heater channel utilizes an analog input to acquire temperature information from a temperature sensor.
- Temperature sensors have sensor fail open and short protection and faults are sent to the CMC for reporting

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SPECIFICATIONS

Requirement	DO-160D Section	Category	Remarks
Temperature and Altitude	4	A3	
In-Flight Loss of Cooling	4.5.4	-	Not Applicable
Temperature Variation	5	B	
Humidity	6	A	
Operational Shocks and Crash Safety	7	B	
Vibration	8	S or S2	Curve C
Explosion Proofness	9	E2	Category H
Waterproofness	10	X	
Fluids Susceptibility	11	X	
Sand and Dust	12	X	
Fungus Resistance	13	F	
Salt Spray	14	X	
Magnetic Effect	15	Z	
Power Input	16	AC = E DC = Z	FPCU contain dual power AC and DC
Voltage Spike	17	A	
Audio Frequency Conducted Susceptibility, Power Input	18	Z	
Induced signal Susceptibility	19	Z	
R. F. Susceptibility, Radiated & Conducted	20	R	
Emission of RF Energy	21	M	
Lightning Induced Transient Susceptibility	22	XXC2 and XXE2	
Lightning Direct Effects	23	X	
Icing	24	X	

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