ICS Cabin Call/Flight Deck Isolate

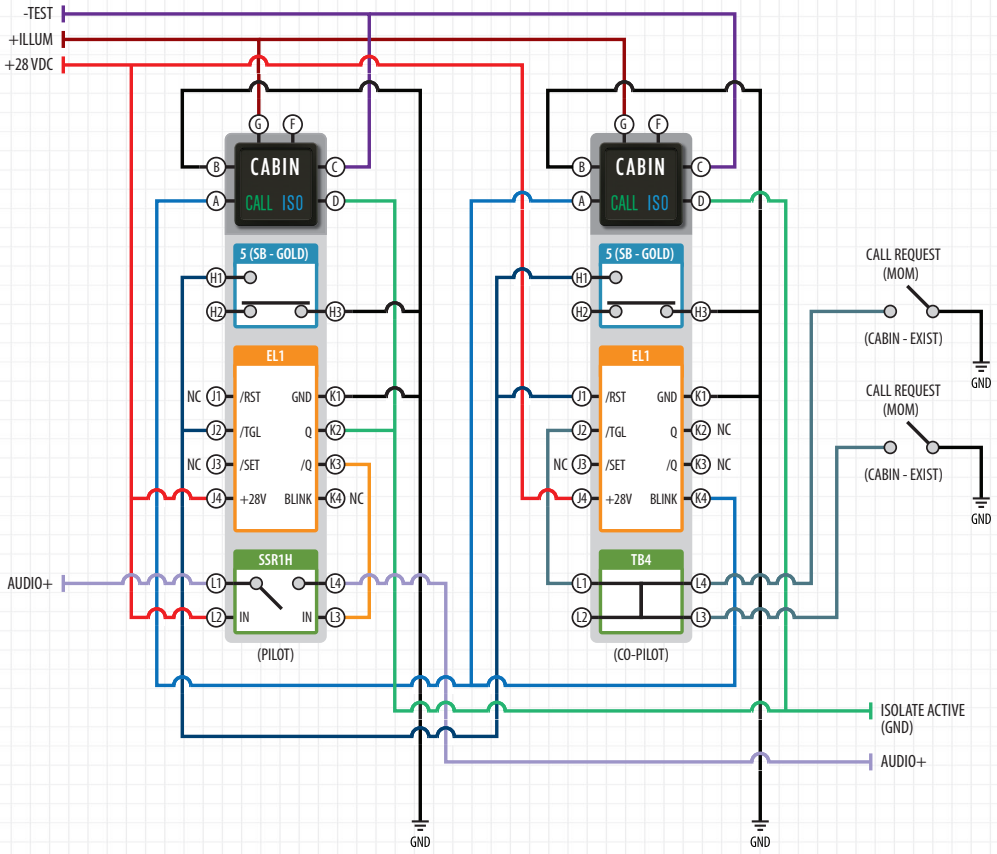
This application diagram details an aircraft internal communication system (ICS) that connects the flight deck with the cabin. The design provides flexibility that allows flight deck to isolate from cabin audio at any time, while still allowing the cabin to initiate a call.

The design uses two switches that include VIVISUN High Capacity Bodies which each house momentary switch poles and NEXSYS Electronic Latches (EL1). NEXSYS Solid State Relay (SSR1H) and Terminal Block (TB4) components are utilized as well. The EL1s control the individual CALL and ISO states, while the SSR1H is used to interrupt the audio line when in the ISO state. The TB4 busses together the call request signals from the existing cabin momentary switches.

In the power up state, only the 'CABIN' legend (B) is illuminated on both switches. Both EL1s power up in RESET state with outputs Q (K2) and BLINK (K4) high-z (open) and output /Q (K3) low (ground). The SSR1H is energized via the /Q output (K3) of the pilot EL1 which allows the audio signal to pass through uninterrupted.

If either of the cabin momentary switches is pressed to initiate a call, a ground is passed to the /TGL input (J2) of the co-pilot EL1. This action activates the 1Hz BLINK output (K4) which causes the 'CALL' legend (A) on both switches to flash. At this point, either the pilot or co-pilot can press their respective CABIN switch which causes the normally open contact (H1) of the momentary switch to pass a ground to the /TGL input (J2) of the pilot EL1 and the /RST input (J1) of the co-pilot EL1. This causes the Q output (K2) of the pilot EL1 to provide a low (ground) which turns the 'ISO' legend (D) on and /Q to go high-z (open) which de-energizes the SSR1H and interrupts the audio signal. The 'CALL' legend (A) turns off with the reset of the co-pilot EL1. A subsequent press of either flight deck CABIN switch will pass a ground to the /TGL input of the pilot EL1 again causing the 'ISO' legend (D) to turn off and the SSR1H to energize and allow the audio signal to pass through uninterrupted again.

Alternatively, the flight deck can place the system in the ISO state at any time with a press of either CABIN switch. A call does not have to be initiated first to reach this state. Furthermore, the cabin can still request a call by pressing either cabin switch even when already in the ISO state. At this point, the system would follow the functionality listed above.



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