In this application, two identically configured annunciators each contain an SR429/1M ARINC converter (Active Low Configuration), a normally open SSR (SSR1H) and a normally closed SSR (SSR2H). Each transponder is being monitored independently by sending ARINC 429 data stream (Bit = 0; Normal, Bit = 1; Fail) and a discrete analog output for “transponder failure” (Normal = Ground, Fail = Open) to it’s respective SR429/1M.

The Transponder Controller determines which transponder is “active” by grounding Pin H2 of the top SSR1H to make Transponder 1 active or by grounding Pin H2 of the bottom SSR1H to make Transponder 2 active. If a failure exists on the “active” transponder, the status is displayed on both annunciators. The status of the “inactive” transponder is not reported on the annunciator legends.

Ground can be applied to Pin H4 of the “active” transponder, illuminating both legends, in three different ways:

1. GPS failure is transmitted to SR429/1M as Bit =1, creating a Ground output on OUT (Pin K4) due to this SR429/1M being configured as Active Low (Ground). Ground on Pin K4 is tied directly to Pin H4.

2. If transponder fails, IN 2 (Pin K3) is Open, creating an Open on output FAIL (Pin K2), and the SSR2H acts as a drop out relay and will close, passing a ground signal to Pin H4. If transponder is good, IN 2 (Pin K3) is Ground (normal), therefore K2 is ground (normal) and the normally closed SSR2H is held open and no signal is passed on.

3. If a valid ARINC message is not received by the SR429/1M within the specified buffer timing, or the SR429/1M unit loses power, FAIL (Pin K2) will become Open, the SSR2H acts as a drop out relay and will close, passing the ground signal to Pin H4.

To view online, visit www.appliedavionics.com/apx/apx-040.html

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