Conditional Switch Function

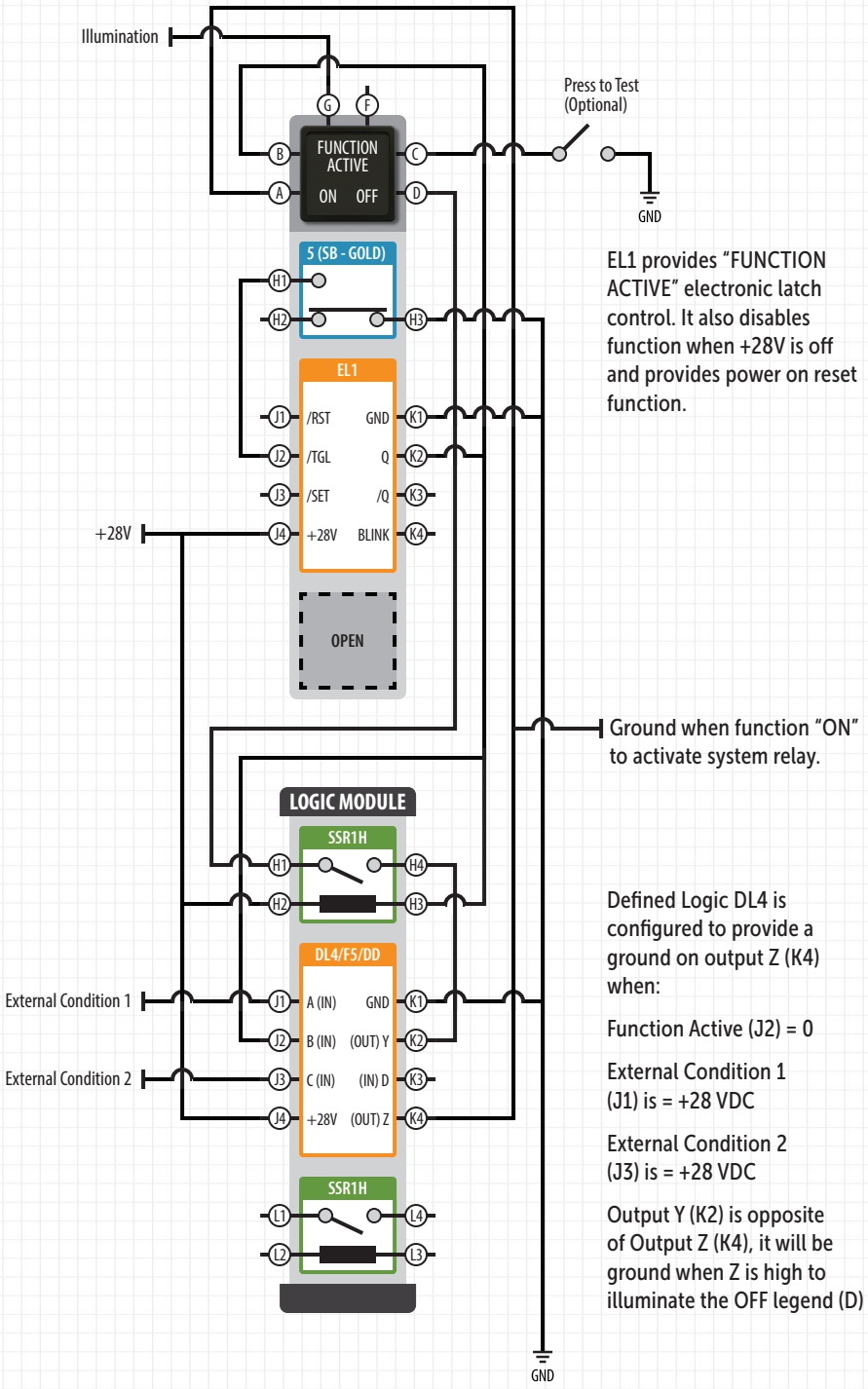
Switch functions may be dependent upon different conditional inputs. As an example, certain aircraft systems should be active only when mission power is available or safety concerns can limit systems to being active only when the aircraft is weight off wheels. This application example demonstrates a circuit that requires three conditions to be in a defined state before power to a specified function is active.

This application uses a VIVISUN High Capacity Body which contains a single switch pole and a NEXSYS Electronic Latch (EL1). The EL1 sets the function active state and provides power on reset that prevents the system from being activated if aircraft power is off. It also includes a NEXYSY Module that contains a Defined Logic (DL4) and two Solid State Relay (SSR1H) components. The DL4 provides ground outputs to illuminate the ON and OFF indications. It accepts FUNCTION ACTIVE input from the Electronic Latch and the power inputs from the two external conditions and activates the external relay. A spare SSR1H is also included in the NEXSYS Module as optional buffer if needed.

When the "FUNCTION ACTIVE" switch is depressed it provides a ground to the EL1 /TGL input (J2) causing the Q output (K2) to become ground turning on the "FUNCTION ACTIVE" indication and providing a ground input to the DL4 Input B (J2). The DL4 is configured as DL4/F5/DD and Output Z (K4) becomes ground when Input A (J1) is high, Input B (J2) is ground and Input C (J3) is high which is the "ON" condition as referenced above. Inputs A (J1) and C (J3) are selected as pull down so when power is not present on Condition 1 or Condition 2 they will be pulled to ground via an internal 28K resistor. The unused SSR1H's are included in the NEXSYS Module as spare for use as a buffer if the input pull down is not sufficient to ensure <1VDC when off. Output Y (K2) is normally ground becoming high in the same condition since the "OFF" should only be illuminated in the active state. The Output Y (K2) is routed through the SSR1H (H4), (H1) which is only turned on in the active state.

This example circuit has many application possibilities and offers significant flexibility to adapt as needed. Also, unlike this simple NEXSYS Component Technology example, conditional switch function is often tied to software which has extensive certification requirements and significant cost for changes or updates.

To speak with our Technical Support team on how NEXSYS Component Technology can be used to add avionics system capabilities or solve your system integration challenges call us at 1-888-848-4786.



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