PXI-7901

16-CH General-Purpose SPDT Relay Module



Introduction

ADLINK's PXI-7901 is a general-purpose (GP) switch module implementing 16-CH independent single-pole double-throw (SPDT) relays (1 Form C). The PXI-7901 can connect one input to one output and be used as signal switching and routing for measurement systems or ATE. Thanks to its high switching capacity, PXI-7901 can also be used to turn on or turn off devices such as motors, fans, heaters, and lights.

The contact position of the relays can be changed either by direct software commands or by following the instructions previously stored in the onboard scan list. The scan list advances upon the trigger from external measurement devices, such as a DMM. The scan list could also advance when the scan-delay timer expires. In the PXI-7901, PXI trigger functions are supported and software programmable. Multiple modules can therefore be synchronized without additional field wiring.

Features

- **PXI specifications Rev. 2.2 compliant**
- **3U Eurocard form factor, CompactPCI compliant (PICMG 2.0 R3.0)**
- **PICMG 2.1 R2.0 CompactPCI Hot Swap specifications compliant**
- **16-CH SPDT (1 Form C) non-latching relays**
- **Switching capacity**
  - **3 A switching, 3 A carrying**
  - **220 VDC, 250 VAC**
- **125 operations per second for full settling**
- **Onboard 1 k-sample scan list for deterministic scanning**
- **Handshaking signals for external instruments synchronization**
- **Design for safety-critical applications**
- **Hardware emergency shutdown with programmable relay safety status**
- **Watchdog timer from 1 ms to 420 s with programmable relay safety status**
- **8 auxiliary 3.3 V/TTL digital inputs/outputs with 5 V tolerance**
- **Multiple modules synchronization through PXI trigger bus and star trigger**
- **Fully software programmable**

Operating Systems

- Windows 7/10 x64/x86

Driver and SDK

- VB/VC++
- LabVIEW

Specifications

Relay Characteristics

- Number of channels: 16
- Relay type: SPDT (1 Form C), non-latching
- Switching capacity
  - Max. switching current: 3 A
  - Max. switching voltage: 220 VDC, 250 VAC
  - Max. switching power: 50 VA, 60 W
  - Max. carrying current: 3 A
- Contact resistance: 150 mΩ max.
- Relay set/reset time
  - Operate time: 5 ms max.
  - Release time: 5 ms max.
  - Bounce time: 3 ms max.
- Expected life
  - Mechanical life: 10^8 operations min.
  - Electrical life: 10^5 operations min. (0.4 A @ 125 VAC, resistive load)
- Data transfer: Programmed I/O

Auxiliary Digital I/O

- Numbers of channel: 8 inputs/outputs
- Compatibility: 3.3 V/TTL (5 V tolerant)

Handshaking Signals

- Programmable polarity
- Logic level: 3.3 V/TTL (5 V tolerant)
- TRG_IN source: AUX1, PXI trigger bus, PXI star trigger input
- S_ADV destination: AUX0, PXI trigger bus

Safety Functions

- Emergency shutdown
  - Logic level: 3.3 V/TTL (5 V tolerant)
  - Active: logic low
- Watchdog timer
  - Base clock available: 10 MHz, fixed
  - Counter width: 32-bit

General Specifications

- I/O Connector: 62-pin D-sub male
- Operating temperature: 0°C to 55°C
- Storage temperature: -20°C to 70°C
- Relative humidity: 5% to 85% non-condensing
- Power requirements: (when all relays are ON)

Device	+5 V	+3.3 V
PXI-7901	700 mA	400 mA

- Dimensions (not including connectors)
  - 160 mm x 100 mm

Certifications

- EMC/EMI: CE, FCC Class A

Ordering Information

■ **PXI-7901**
16-CH General-Purpose SPDT Relay Module

* Failure rate indicates the lower limit of switching capacity of a relay contact at a reliability level of 60%

Terminal Boards & Cables

■ TB-6201-01
General-Purpose Switch Terminal Board with one 62-Pin D-Sub Female Connector

■ ACL-10262
62-pin D-sub male/female cable, 1 M
(For more information about mating cables, please refer to P4-28.)



Terminal board TB-6201-01

Pin Assignment

CN1

	22. COM0	
43. NO0	23. COM1	1. NC0
44. NO1	24. COM2	2. NC1
45. NO2	25. COM3	3. NC2
46. NO3	26. COM4	4. NC3
47. NO4	27. COM5	5. NC4
48. NO5	28. COM6	6. NC5
49. NO6	29. COM7	7. NC6
50. NO7	30. COM8	8. NC7
51. NO8	31. COM9	9. NC8
52. NO	32. COM10	10. NC9
53. NO10	33. COM11	11. NC10
54. NO11	34. COM12	12. NC11
55. NO12	35. COM13	13. NC12
56. NO13	36. COM14	14. NC13
57. NO14	37. COM15	15. NC14
58. NO15	38. N/C	16. NC15
59. N/C	39. N/C	17. N/C
60. AUX3	40. AUX4	18. AUX2/SHDNn
61. AUX6	41. +5Vout	19. AUX5
62. AUX7	42. AUX1/TRG_IN	20. GND
		21. AUX0/S_ADV

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LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000