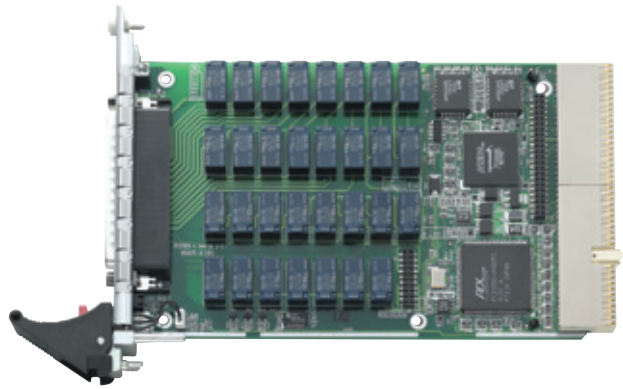


PXI-7921

24-CH 2-Wire Multiplexer Module

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
- 24-CH DPDT (2 Form C) non-latching relays
- Switching capacity
 - 2 A switching, 2 A carrying
 - 220 V_{DC}, 125 V_{AC}
- 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
- Multiple modules synchronization through PXI trigger bus and star trigger
- Fully software programmable
- **Operating Systems**
 - Windows Vista/XP/2000/2003
- **Recommended Software**
 - VB/VC++/BCB/Delphi
 - DAQBench
- **Driver Support**
 - ADL-SWITCH for Windows



Introduction

ADLINK PXI-7921 is a relay multiplexer which consists of 24 2-wire relays (DPDT, 2 Form C). As a multiplexer, the PXI-7921 provides 48x1 1-wire, 24x1 2-wire and 12x1 4-wire configurations. Users could choose one of the configurations by software. PXI-7921 typically connects one instrument, such as a DMM, a digitizer or a signal source, with many points which need measurement or excitation.

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-7921, PXI trigger functions are supported and software programmable. Multiple modules can therefore be synchronized without additional field wiring.

Specifications

| Source Wire | Multiplexer |
|-------------|---------------------------------|
| 1-wire | One 48x1 |
| 2-wire | One 24x1, Two 12x1, Four 6x1 |
| 4-wire | One 12x1 |

Relay Characteristics

- Number of channels: 24 (2-wire)
- Relay type: DPDT (2 Form C), non-latching
- Switching capacity
 - Max. switching current: 2 A
 - Max. switching voltage: 220 V_{DC}, 125 V_{AC}
 - Max. switching power: 60 W
 - Max. carrying current: 2 A
- Failure rate*: 10 μA @ 10 mV_{DC}
- Contact resistance: 100 mΩ max.
- Relay set/reset time
 - Operate time: 4 ms max.
 - Release time: 4 ms max.
- Expected life
 - Mechanical life: 10⁸ operations min.
 - Electrical life : 5x10⁵ operations min. (1 A @ 30 V_{DC}, resistive load)
- Data transfer: programmed I/O

Handshaking Signals

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

Safety Functions

- Emergency shutdown
 - Logic level: 3.3 V/TTL (5 V tolerant)
 - Active with 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 to 55°C
- Storage temperature: -20 to 70°C
- Relative humidity: 5 to 85% non-condensing
- Power requirements: (when all relays are ON)

| Device | +5 V | +3.3 V |
|----------|------|--------|
| PXI-7921 | 1 A | 400 mA |

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

Certificate

- EMC/EMI: CE, FCC Class A

Termination Boards

- **TB-6221-01**
Multiplexer Switch Termination Board with one 62-Pin D-Sub Female Connector (Cables are not included. For information on mating cables, refer to Section 12.)

Pin Assignment

CN1

| | 22. +5Vout | |
|----------------|------------|-----------|
| 43. COM2+ | 23. CH8+ | 1. CH0+ |
| 44. COM2- | 24. CH8- | 2. CH0- |
| 45. COM3+ | 25. CH9+ | 3. CH1+ |
| 46. COM3- | 26. CH9- | 4. CH1- |
| 47. CH18+ | 27. CH10+ | 5. CH2+ |
| 48. CH18- | 28. CH10- | 6. CH2- |
| 49. CH19+ | 29. CH11+ | 7. CH3+ |
| 50. CH19- | 30. CH11- | 8. CH3- |
| 51. CH20+ | 31. CH12+ | 9. CH4+ |
| 52. CH20- | 32. CH12- | 10. CH4- |
| 53. CH21+ | 33. CH13+ | 11. CH5+ |
| 54. CH21- | 34. CH13- | 12. CH5- |
| 55. CH22+ | 35. CH14+ | 13. COM0+ |
| 56. CH22- | 36. CH14- | 14. COM0- |
| 57. CH23+ | 37. CH15+ | 15. COM1+ |
| 58. CH23- | 38. CH15- | 16. COM1- |
| 59. 1WireloRef | 39. CH16+ | 17. CH6+ |
| 60. TRG_IN | 40. CH16- | 18. CH6- |
| 61. S_ADV | 41. CH17+ | 19. CH7+ |
| 62. SHDNn | 42. CH17- | 20. CH7- |
| | | 21. GND |

Ordering Information

- **PXI-7921**
24-CH 2-Wire Multiplexer Module

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