

## TECHNICAL SPECIFICATIONS

FEATURES	FUNCTIONS
Matrix Relays	<ul style="list-style-type: none"> <li>128 relays/board (max. 26 energized at any time).</li> <li>SPST 1-A Dry Reed</li> <li>200V max, <math>\leq 1.25</math> MHz freq., 20W max</li> <li>Switching Current = 1.0A max</li> <li>Carrying current = 1.2A max.</li> <li>Capacitance: 2.9 pF closed switch to coil; 0.14 pF across open switch</li> </ul>
Relay Contacts	<ul style="list-style-type: none"> <li>Contact resistance = 0.18 ohm, max initial</li> <li>Contact Life: <math>10^9</math> min, 10V @ 10mA; <math>10^7</math> min, max resistive load</li> </ul>
Relay Board Form Factor	<ul style="list-style-type: none"> <li>PC/104 footprint with Board to Board spacing = 0.75"</li> </ul>
Input Power	<ul style="list-style-type: none"> <li>+3.3VDC @ 60mA (typical)</li> <li>490mA max (16.5mA per relay energized)</li> </ul>
Operating Temperature	<ul style="list-style-type: none"> <li>Relay board = -20C to 85C</li> <li>mPCIe Controller = -40C to 85C</li> </ul>
Column I/O Connector	<ul style="list-style-type: none"> <li>Onboard: Samtec IPL1-108-01-L-D-RA-K</li> <li>Mating: Samtec MMSD-08-20-L-12.00-D</li> </ul>
Controller Connector	<ul style="list-style-type: none"> <li>Onboard: Molex 501190-4017 40-pin, latching</li> <li>Mating: Molex 501189-4010</li> </ul>
Power Connector	<ul style="list-style-type: none"> <li>Onboard: Molex 1723103202</li> <li>Mating: Molex 1722563102</li> </ul>
Shock and Vibration	<ul style="list-style-type: none"> <li>Designed for MIL-STD 810</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>5% to 95% non-condensing</li> <li>Optional conformal coating</li> </ul>

## OVERVIEW

- Designed for rugged ATE and data acquisition switching and signal routing applications
- High density 1.0A SPST relays
- Switch voltages up to 200V max, 20W max
- Stackable PC/104 Form Factor up to eight 8x16 matrix relay boards (8x128 = 1024 total relays) per stack.
- Compact mPCIe FPGA controller can control up to 8 stacks with eight boards each; up to 8x1024 (8,192) total relays.

## DESCRIPTION

The ADLREL-8x16 relay matrix board can be stacked up to eight boards high for a total matrix size of 8x128 (1024) relay switches. Relay control is via an mPCIe FPGA controller that can control up to eight stacks of ADLREL-8x16 relay cards.

The ADLREL-8x16 conforms to the PC/104 footprint with external power and data (cable ADLREL-CBL1). Each stack requires discrete 3.3VDC power to the top of each stack and a control data cable from the 40-pin mPCIe controller. Board to board spacing is 0.75" to accommodate the 1A, 20W reed relays. A 0.5A relay option is available which allows for 0.6" PC/104 board spacing.

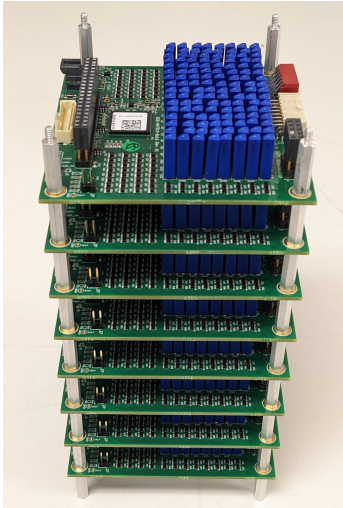
Coupled with an ADL Intel Atom or Intel Core PCIe/104 CPU board, a complete solution can be accomplished in a very compact and rugged design

## ORDERING INFORMATION

ITEM CODE	PART #	DESCRIPTION
ADLREL-8x16	ADLREL-8x16	8x16 Matrix Relay Board, -20C to 85C
ADLREL-CTRL1	ADLREL-CTRL1	mPCIe ADLREL-8x16 Controller with 9" control cable to ADLREL-8x16, -40C to 85C
ADLREL-IO	ADLREL-CBL1	ADLREL-8x16 I/O 11" flying leads
ADLREL-PWR	ADLREL-CBL2	ADLREL-8x16 Power 12" flying leads

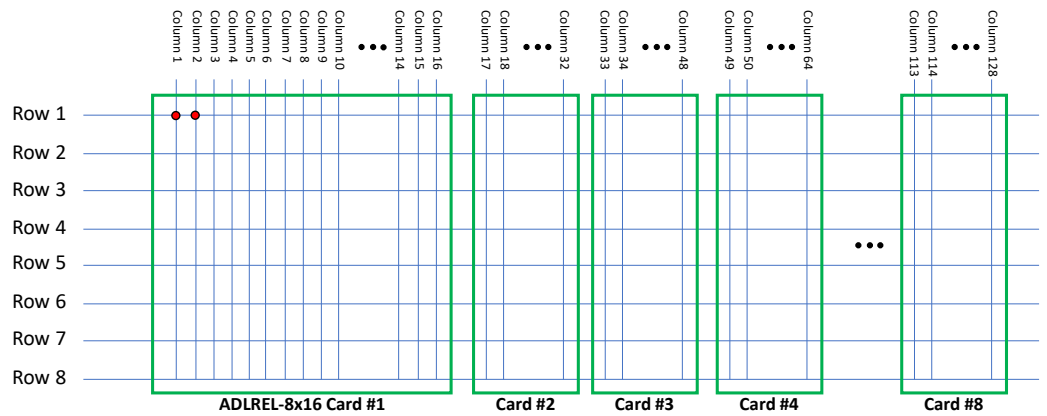


**8 X 16 MATRIX ROW & COLUMN DIAGRAM**  
Stackable up to 8 cards

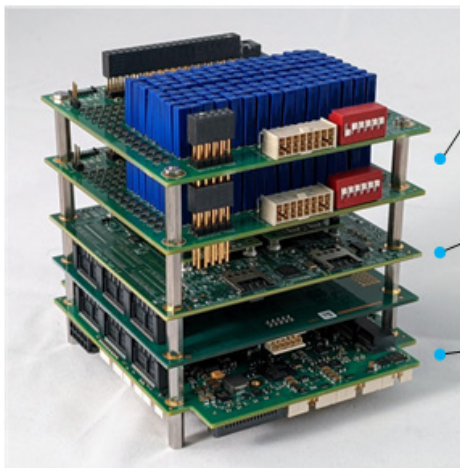


ADLREL-8x16 can be stacked up to eight board high for a total of 8x128 (1024) relays per stack. The ADLREL-CTRL1 mPCIe controller can control up to 8 stacks for a total of 8x1024 (8,192) relays.

The ADLREL-8x16 is highly modular and can be CUSTOM configured via cabling and controller firmware into almost any matrix size from 8x16 to 8x1024 or any size in between: 16x512, 32x256, 16x256, etc. Please contact sales@adl-usa.com for details.



**COMPACT, RUGGED MIL-STD 810 CPU/RELAY SOLUTIONS**  
PCIe/104 CPU with Relay Matrix and other peripheral functionality.



2x ADLREL-8x16 boards

- 4x Ethernet Card
- 1x mPCIe CAN
- 1x mPCIe DIO
- 1x mPCIe Quad RS232/422/485
- 1x mPCIe Ethernet module

Intel Core i7 Quad CPU

The ADLREL-8x16 PC/104 form factor makes it possible to create compact, rugged complete solutions including Intel Atom and Intel Core CPUs, one or more ADLREL-8x16 boards, and a vast array of PC/104 and mPCIe peripheral functionality including:

- Custom ATE solutions built to customer specifications.
- COTS and custom relay boards
- Additional ethernet ports
- CAN 2.0 modules
- Quad/Dual RS232/422/485 modules
- AIO and DIO modules
- 802.11ac or 6/6E Wifi
- MIL-STD 1553
- and more...

\*Data subject to change without notice.