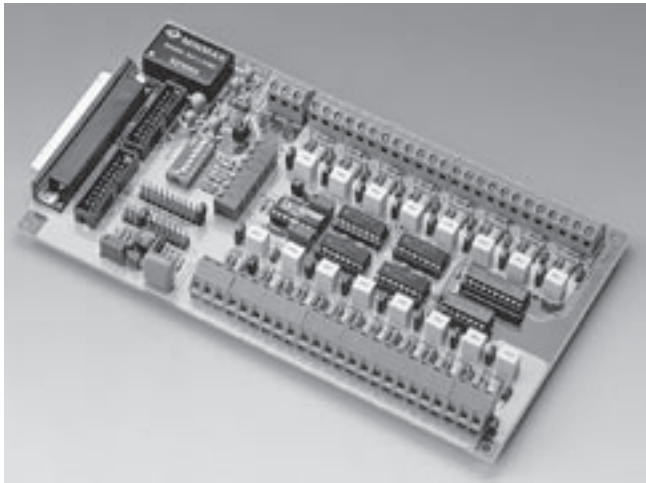


# PCLD-789D

## Amplifier and Multiplexer Board



CE

### Features

- Multiplexes 16 differential inputs to one A/D input
- Expands a PC-LabCard™ product's analog inputs to 128 channels
- High-grade instrumentation amplifier provides switch selectable gains of 1, 2, 10, 50, 100, 200, 1,000
- Onboard cold-junction compensation circuits for direct thermocouple measurement
- Built-in signal conditioning functions include filter, attenuator and current shunt
- Second connectors onboard allow daisy chaining
- Screw-clamp terminal blocks permit easy and reliable connections

### Introduction

PCLD-789D is a front-end signal conditioning and channel multiplexing daughterboard for use with PC-LabCard™ product's analog input ports. It multiplexes 16 differential input channels into a single A/D converter input channel. You can cascade up to ten PCLD-789Ds, allowing a single data acquisition card to access 160 analog input channels.

PCLD-789D has DB37 and 20-pin flat cable connectors and lets your PCL-818L or PCL-818HD access up to 128 channels without using an additional digital output cable to select channels.

The PCLD-789D uses a high-grade instrumentation amplifier that provides switch-selectable gains of 1, 2, 10, 50, 100, 200 and 1,000. This amplifier lets you accurately measure low-level signals with your PC-LabCard™ product. The board also contains a cold-junction sensing circuit that allows direct temperature measurement from thermocouple transducers. A wide variety of thermocouples are supported with software compensation and linearization.

### Specifications

#### I/O

- **Cold-Junction Compensation** +24.4 mV/° C, 0 V at 0° C
- **Input Channels** 16 differential
- **Input Conditions**

| Gains | CMRR   | Nonlinearity | Setting Time |
|-------|--------|--------------|--------------|
| 1,000 | 125 dB | 0.005% FSR   | 75 µsec.     |
| 100   | 115 dB | 0.005% FSR   | 15 µsec.     |
| 10    | 105 dB | 0.007% FSR   | 15 µsec.     |
| 1     | 85 dB  | 0.015% FSR   | 15 µsec.     |

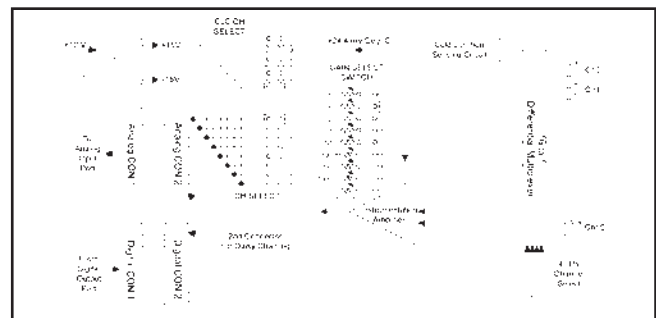
- **Input Range** ±10 V maximum, depending on the selected gain
- **Output Range** ±10 V maximum
- **Overvoltage Protection** ±30 V continuous

#### General

- **Certifications** CE
- **Connectors**  
Controller: 1 x DB37 (male) connector  
2 x 20-pin flat cable connectors for daisy chaining  
Screw terminals
- I/O:  
• **Dimensions (L x W)** 205 x 114 mm (8.1" x 4.5")
- **Mounting** 4 x screw holes for flat surface mounting
- **Power Consumption** +5 V @ 30 mA max, +12 V @ 80 mA max

### Pin Assignments

| CN1       |    |    |       | CN2   |    |    |       | CN3       |    |    |       |
|-----------|----|----|-------|-------|----|----|-------|-----------|----|----|-------|
| ANA out 0 | 1  | 2  | A,GND | D/I 0 | 1  | 2  | D/I 1 | ANA out 0 | 1  | 20 | A,GND |
| ANA out 1 | 3  | 4  | A,GND | D/I 2 | 3  | 4  | D/I 3 | ANA out 1 | 2  | 21 | A,GND |
| ANA out 2 | 5  | 6  | A,GND |       | 5  | 6  |       | ANA out 2 | 3  | 22 | A,GND |
| ANA out 3 | 7  | 8  | A,GND |       | 7  | 8  |       | ANA out 3 | 4  | 23 | A,GND |
| ANA out 4 | 9  | 10 | A,GND |       | 9  | 10 |       | ANA out 4 | 5  | 24 | A,GND |
| ANA out 5 | 11 | 12 | A,GND |       | 11 | 12 |       | ANA out 5 | 6  | 25 | A,GND |
| ANA out 6 | 13 | 14 | A,GND |       | 13 | 14 |       | ANA out 6 | 7  | 26 | A,GND |
| ANA out 7 | 15 | 16 | A,GND |       | 15 | 16 |       | ANA out 7 | 8  | 27 | A,GND |
| ANA out 8 | 17 | 18 | A,GND |       | 17 | 18 |       | A,GND     | 9  | 28 | A,GND |
| ANA out 9 | 19 | 20 | A,GND |       | 19 | 20 |       | A,GND     | 10 | 29 | A,GND |
|           |    |    |       |       |    |    |       | A,GND     | 11 | 30 | N/C   |
|           |    |    |       |       |    |    |       | N/C       | 12 | 31 | N/C   |
|           |    |    |       |       |    |    |       | +12V      | 13 | 32 | S1    |
|           |    |    |       |       |    |    |       | S2        | 14 | 33 | S3    |
|           |    |    |       |       |    |    |       | D,GND     | 15 | 34 | D,GND |
|           |    |    |       |       |    |    |       | N/C       | 16 | 35 | N/C   |
|           |    |    |       |       |    |    |       | N/C       | 17 | 36 | N/C   |
|           |    |    |       |       |    |    |       | N/C       | 18 | 37 | N/C   |
|           |    |    |       |       |    |    |       | +5V       | 19 | 37 | N/C   |



Block Diagram

### Ordering Information

- **PCLD-789D** Amplifier and Multiplexer Board with DB37 connector and 20-pin flat-cable connectors. (Includes DB37 and 20-pin flat cable assemblies)