DB-8125/8225/8325/1825

User's Manual

Warranty

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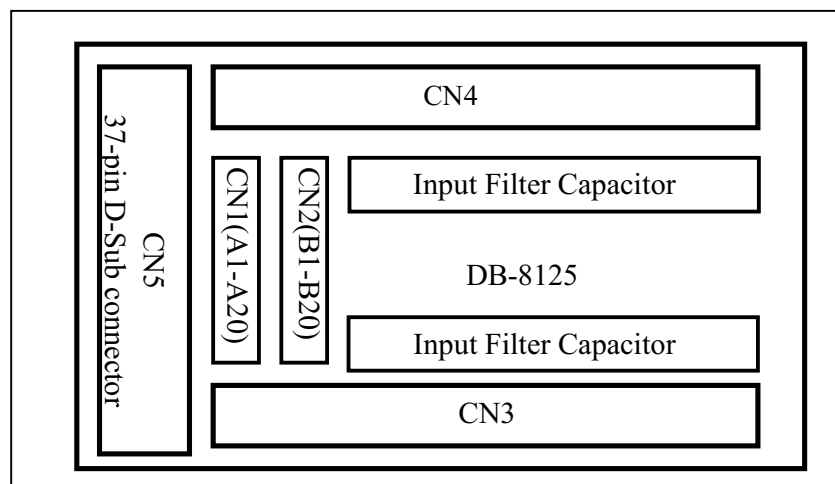
1.Accessories

The DB-8125 is the Low cost universal screw terminal board for 20-pin connector or 37-pin D-Sub connector A/D card.

2.DB-8125 Layout

NOTE:
  (1) CN5 37-pin D-Sub connector for A1~A20 & B1~B20
  (2) CN1 20-pin connector for A1~A20
  (3) CN2 20-pin connector for B1~B20

3.Pin Assignment

37-pin D-Sub connector pin assignment
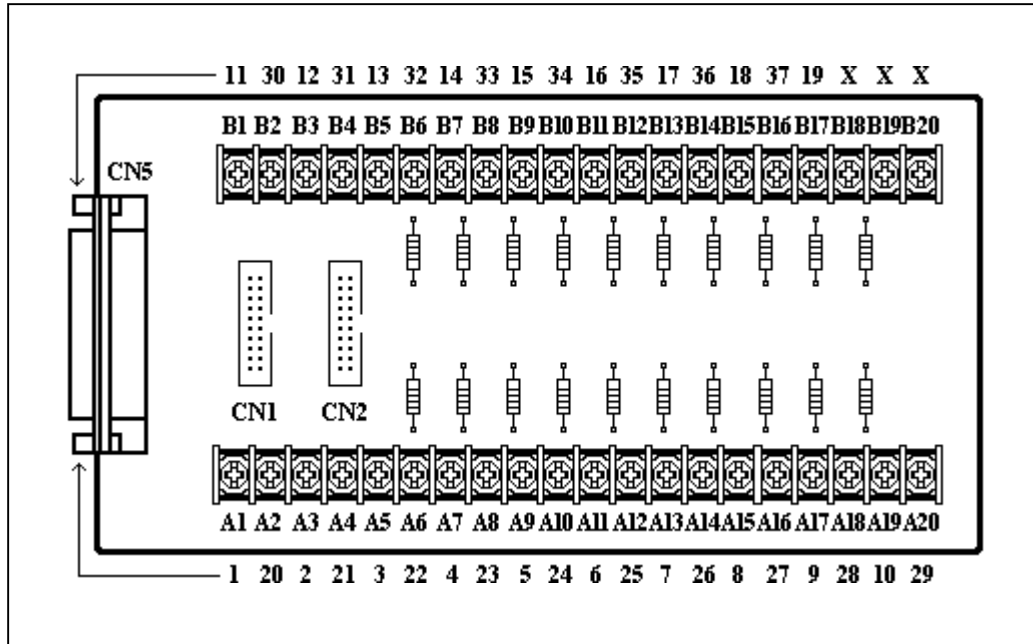
20-pin connector pin assignment
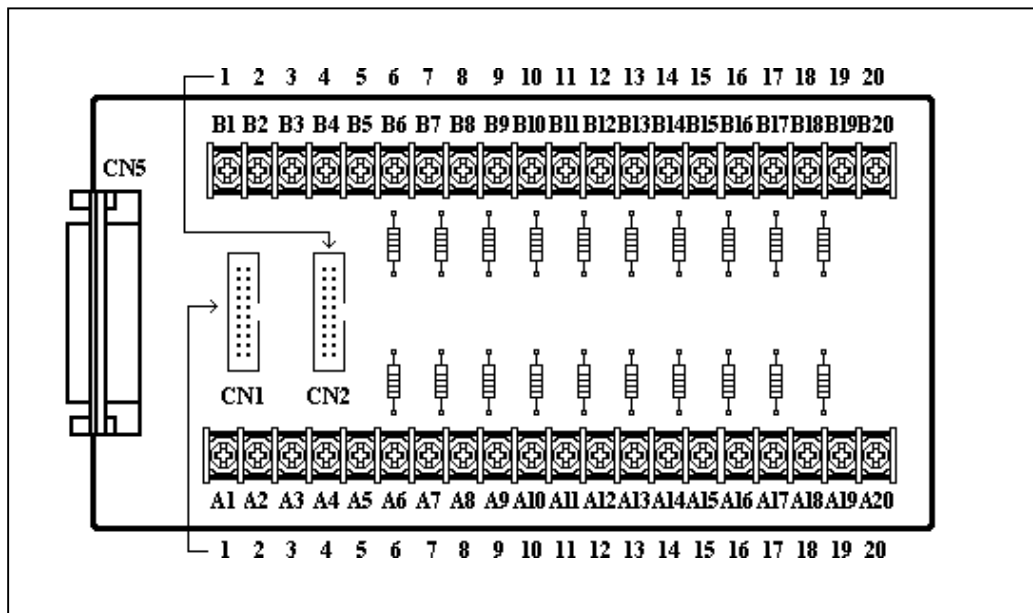
4.Wring Diagram
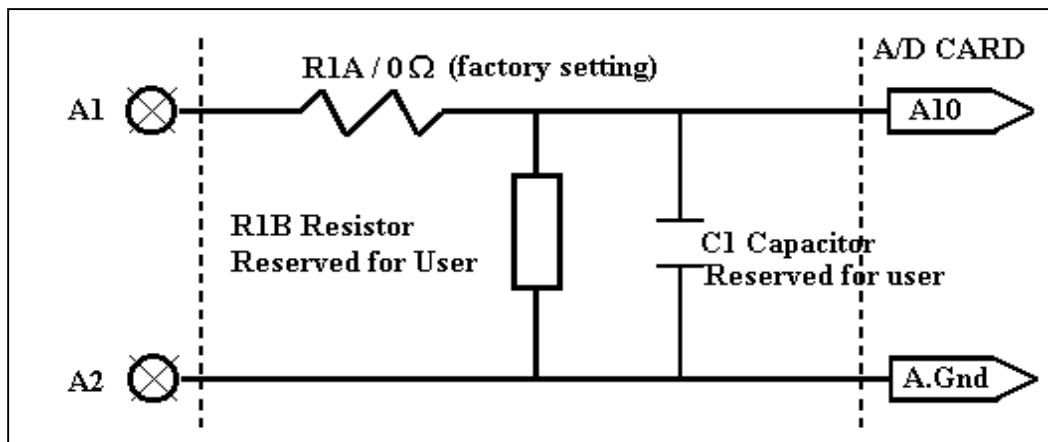
5.Capacitor Filter & Voltage Divider &Current input

5.1.Input R/C Filtering

Input Filtering are provided on the DB-8125 by install a resistor and a capacitor on the desired input channel.
For example:
      1.6KHz Low pass filter
Equation: $f3db = 1/(2\pi \cdot R \cdot C)$
The steps are shown below
    Step1.   Change R1A (0Ω) resistor to 10 KΩ
    Step2.   Install 0.01 uF Capacitor on C1.
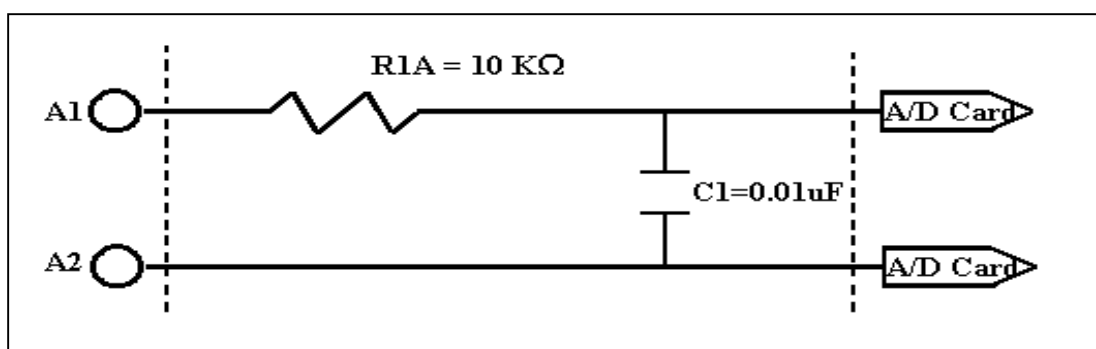
5.2. Voltage divider

If the input voltage signal level is over the A/D card input range. The DB-8125 provided 2 resistors on the input channel to divide input voltage signal. The steps are shown below

Step1.   Change R1A (0Ω) resistor to 10 KΩ. (0.1%)
Step2.   Install 10KΩ(0.1%) on R1B. (Voltage Signal /2)

V/n :   n = R1A/(R1A+R1B)
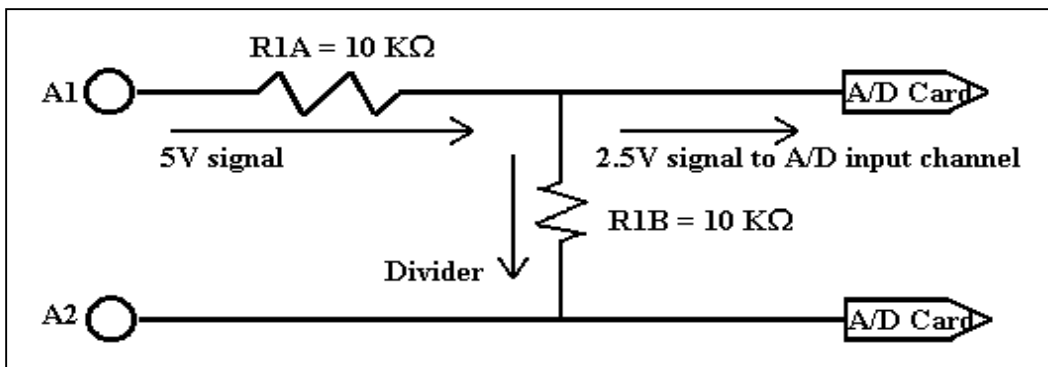
5.3. Current input

If you want to measure current input signal, you have to change R1B (0Ω) resistor to 250Ω. The steps are shown as below

Current signal range: 0 ~ 20 mA
R1B change to 250Ω
Voltage = 20 mA x 250Ω = 5V   ; Range = 0 ~ 5V

Formula:
input voltage signal = input current signal x 250Ω
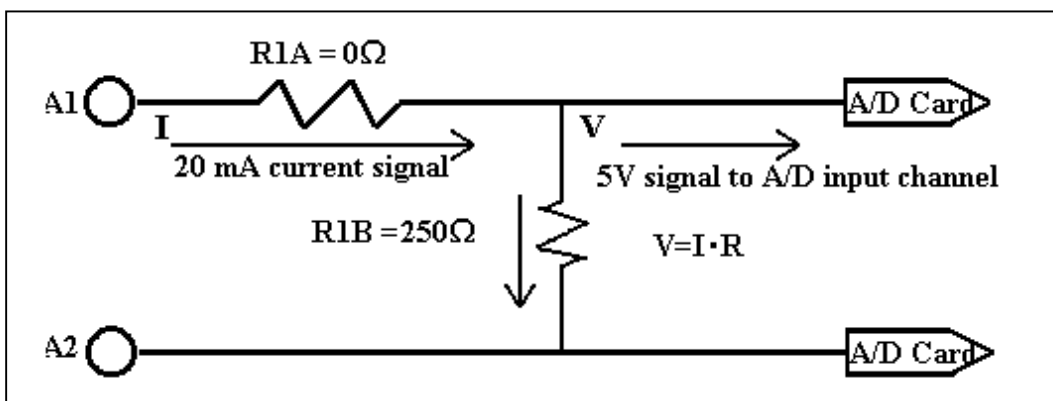
DB-8225 TERMINAL BOARD

The DB-8225 Terminal Board is designed for A-82X Series card for convenient wiring.

1.Accessories

A/D Card Type	Input Mode
A-822HG	Single - End or Differential
A-822DG	Single - End or Differential
A-821PG	Single - End or Differential
A-826PG	Single - End or Differential

2.DB-8225 Layout
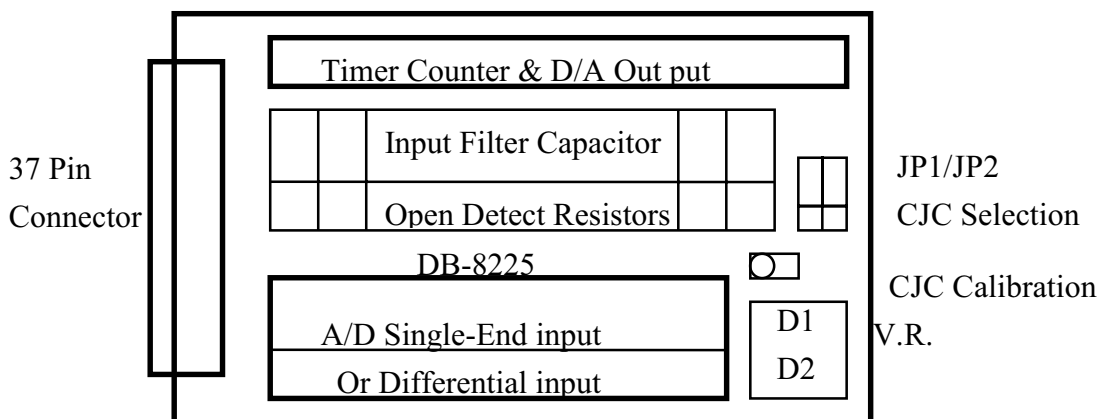
3. CJC Jumper Setting

The CJC just for A/D channel 0

3.1. Single-End Mode
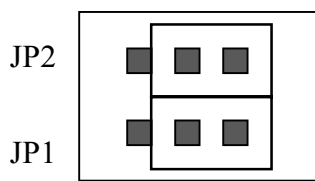
NO CJC Connection
(Default)
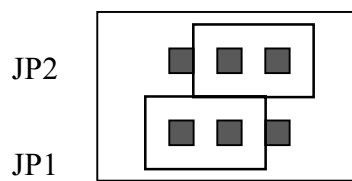
Single-End CJC Connection

To single-end mode
A/D channel 0

3.2. Differential Mode
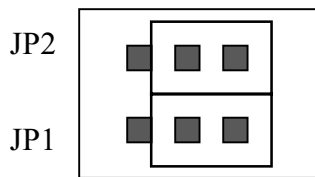
NO CJC Connection
(Default)
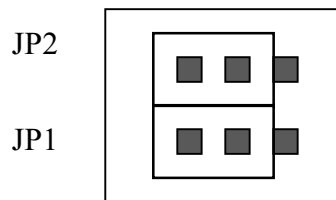
Differential CJC Connection

To differential mode
A/D channel 0

4.Wiring Diagram

The A-82X series provides Single - Ended & Differential connections.

4.1.Single - End Connection

RA0   0Ω

37Pin Connector
To A/D card

AI0

AI0

RB0 Resistor
Open detection

+

C0 Capacitor
Input filtering

A.GND

A.Gnd

8225 Single End input

4.2.Differential Connection

RA0   0Ω

CH0 HI

AI0HI

RD0 Resistor
Open detection

+ CD0 Capacitor
Input filtering

CH0 LO

AI0LO

RA8 0Ω

8225 Differential input
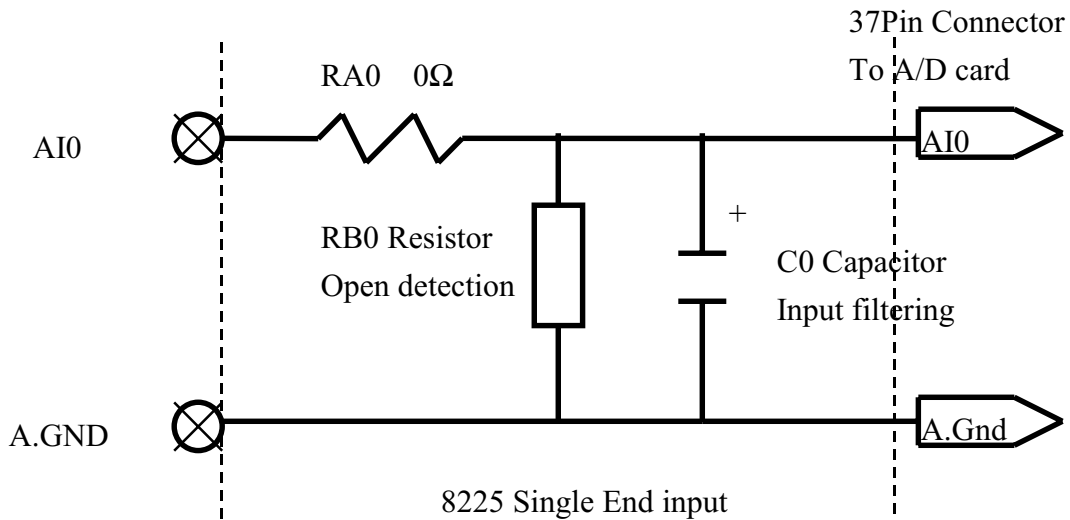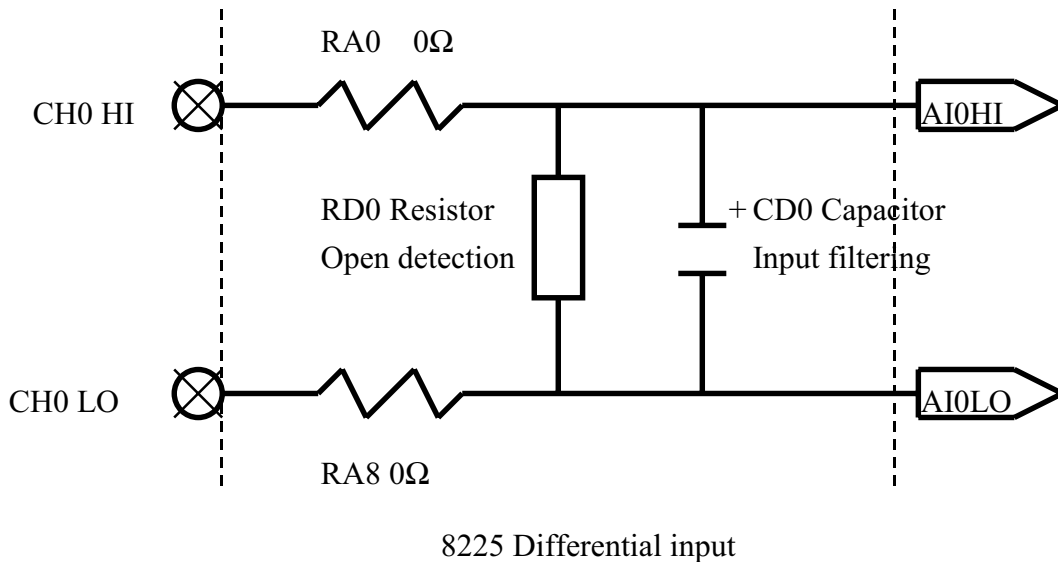
5.CJC Output

Built -in CJC Circuitry is provided producing 10mV per Deg C with 0.0 Volts @ -273 Deg C. The A-822 should be protected from draughts and direct sunlight in order to accurately reflect room temperature.

CJC Calibration:

1. Connect the A-82X series to DB-8225 CN1
2. Set A-822HG/DG to Single-End Mode
3. set JP1 to 1-2and   JP2to 2-3 (Single-End mode)
4. Read the temperature from a Digital thermometer placed near D1/D2 (See DB-8225 Layout).
5. Read A-82X AI0 (Single-End Channel 0)
6. Adjust VR1 until a stable reading of 10mV per deg C is attained.

For example, when the environment temperature is 24 deg C. the reading value of CJC will be 2.97V

$$\textbf{(273 deg c +24 deg c) X 10 mV/deg c   = 2.97V}$$

You should need an A/D Channel for CJC calibration. AI0 is reserved for CJC calibration use in single ended mode and CH0-HI & CH0-LO is reserved for differential mode.

6.Open Detect and Input Filtering

    Open thermocouple detection and input filtering are provided on the DB-8225 by installing 3 resistors and a capacitor on the desired input channel. For example channel 0 is desired channel, RA0and RA8 must be removed and RD1 mu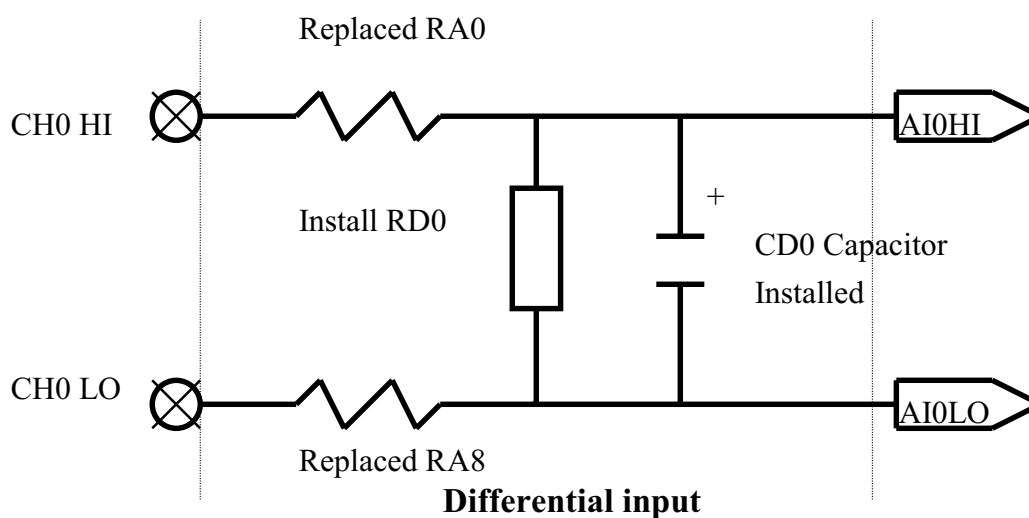st be installed. These biasing resistors will slowly pull an open input channel to 0 Vdc. This 0Vdc condition can be sensed and flagged in software.

Replaced RA0

CH0 HI — Install RD0 — AI0HI

+

CD0 Capacitor
Installed

CH0 LO — AI0LO

Replaced RA8

Differential input

Channel	0Ω replaced by 10KΩ	Install 100MΩ	Install 1uF
0	RA0 , RA8	RD0	CD0
1	RA1 , RA9	RD1	CD1
2	RA2 , RA10	RD2	CD2
3	RA3 , RA11	RD3	CD3
4	RA4 , RA12	RD4	CD4
5	RA5 , RA13	RD5	CD5
6	RA6 , RA14	RD6	CD6
7	RA7 , RA15	RD7	CD7

    In Singled-End mode, RA_n should be replaced by 10KΩ. RB_n should be added 100MΩ resistor on it and C_n should be added 1uF.capactor on it also .Note: n : Channel 0~15

7.Voltage Divider & Current input

7.1.Voltage Divider

If the input voltage signal level is over the A-82X input range .The DB-8225 provided 2 resistors on the input channel to divide input voltage signal. The steps are shown below

Step(1) Change RA0(0 Ω) resistor to 10KΩ(0.1%)
Step(2) Install 10KΩ(0.1%) on RB0   (Voltage Signal / 2)

V/n :   n =   RB0 / (RA0+RB0)

7.2.Current input

If you want to measure current input signal, you should have to change RA0(0Ω) resistor to 250Ω . The steps are show below

Current Signal range: 0~20mA
RA0 change to 250Ω
Voltage =20 ma X 250Ω   = 5V   ; Range 0~ 5V

Formula :

input voltage signal = input current signal x 250Ω

8.CN3 Timer Counter & D/A Output Connector

| Pin name	Connector
+5V	From PC +5V
D.GND	Digital Ground
EXTCLK	External Clock for A-822HG/DG
INTCLK	No Function
DRDY	No Function
EXTTRG	External Trigger of A/D converter
COUT1	8254 Counter 1 output (Internal trigger used)
GATE	8254 Counter 1 Gate (Internal trigger used)
COUT0	8254 Counter 0 output (Reserved for user)
GATE0	8254 Counter 0 Gate (Reserved for user)
AGND	Analog Ground
EXTVREF2	External reference voltage input of D/A Channel 2
DAOUT2	Output of D/A Channel 2
EXTVREF1	External reference Voltage input of D/A Channel 1
DAOUT1	Output of D/A Channel 1
VREF	Output of D/A Internal reference Voltage

DB-8325 TERMINAL BOARD

1.Accessories

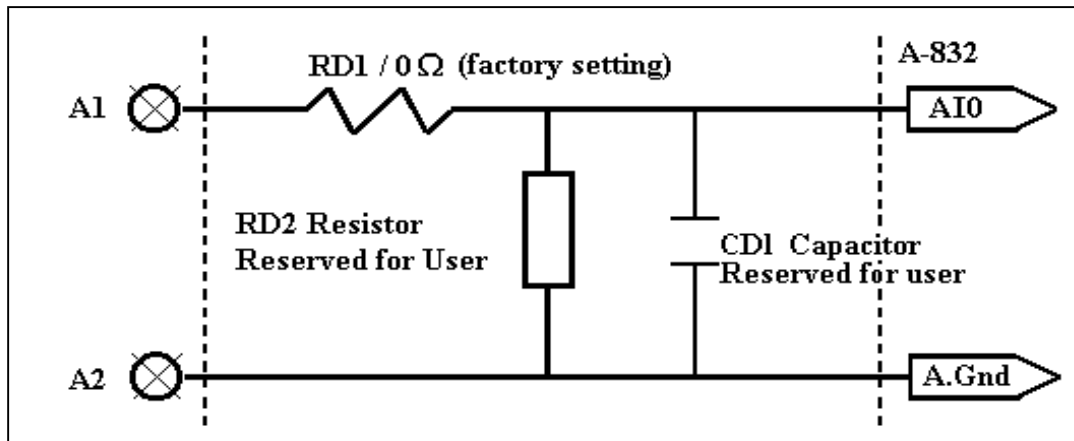The DB-8325 is screw terminal board for A-832 isolated A/D card.

2.DB-8325 Layout
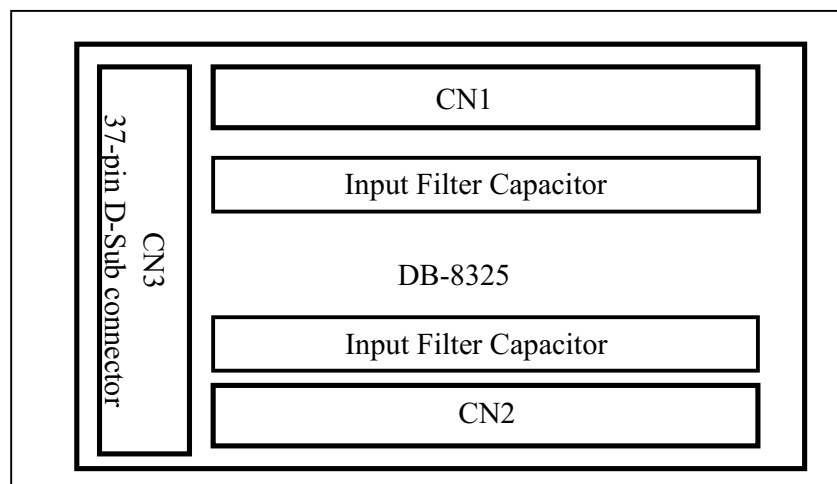
NOTE:
    (1) A0~A31 for A-832 analog input channel 0 ~ channel 31
    (2) A.GND for A-832 analog ground.

3.Wring Diagram

4.Capacitor Filter & Voltage Divider &Current input

4.1.Input R/C Filtering

Input Filtering are provided on the DB-8325 by install a resistor and a capacitor on the desired input channel.
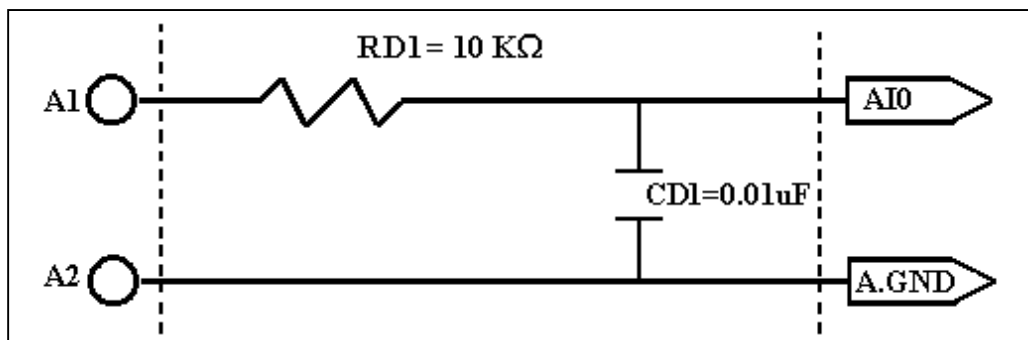
For example:

1.6KHz Low pass filter

Equation: $f3db = 1/(2\pi \cdot R \cdot C)$

The steps are shown below

Step1.   Change RD1 (0Ω) resistor to 10 KΩ
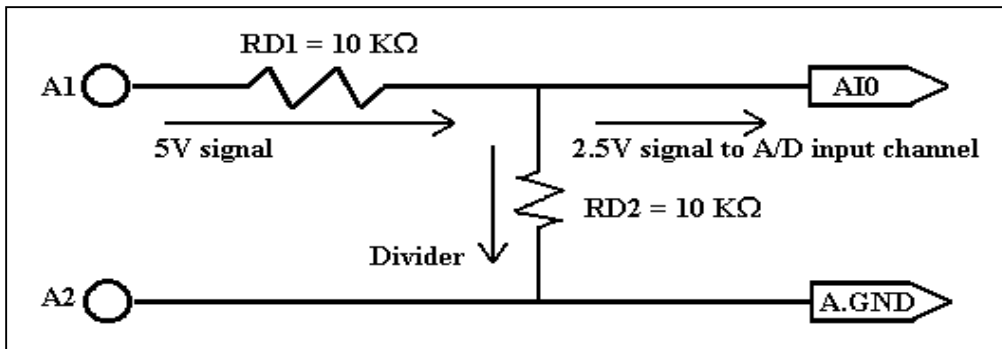
Step2.   Install 0.01 uF Capacitor on CD1.

4.2. Voltage divider

If the input voltage signal level is over the A/D card input range. The DB-8325 provided 2 resistors on the input channel to divide input voltage signal. The steps are shown as below

Step1.   Change RD1 (0Ω) resistor to 10 KΩ. (0.1%)
Step2.   Install 10KΩ(0.1%) on RD2. (Voltage Signal /2)

V/n :   n = RD1/(RD1+RD2)

4.3. Current input

If you want to measure current input signal, you have to change RD2 (0Ω) resistor to 250Ω. The steps are shown as below
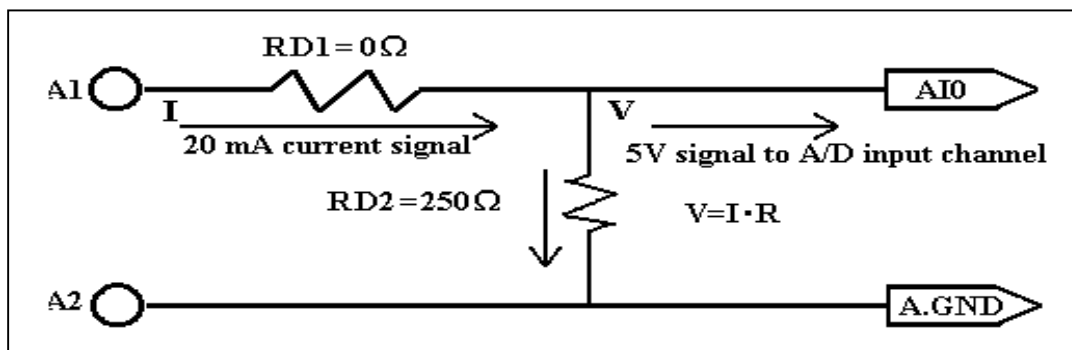
Current signal range: 0 ~ 20 mA
RD2 change to 250Ω
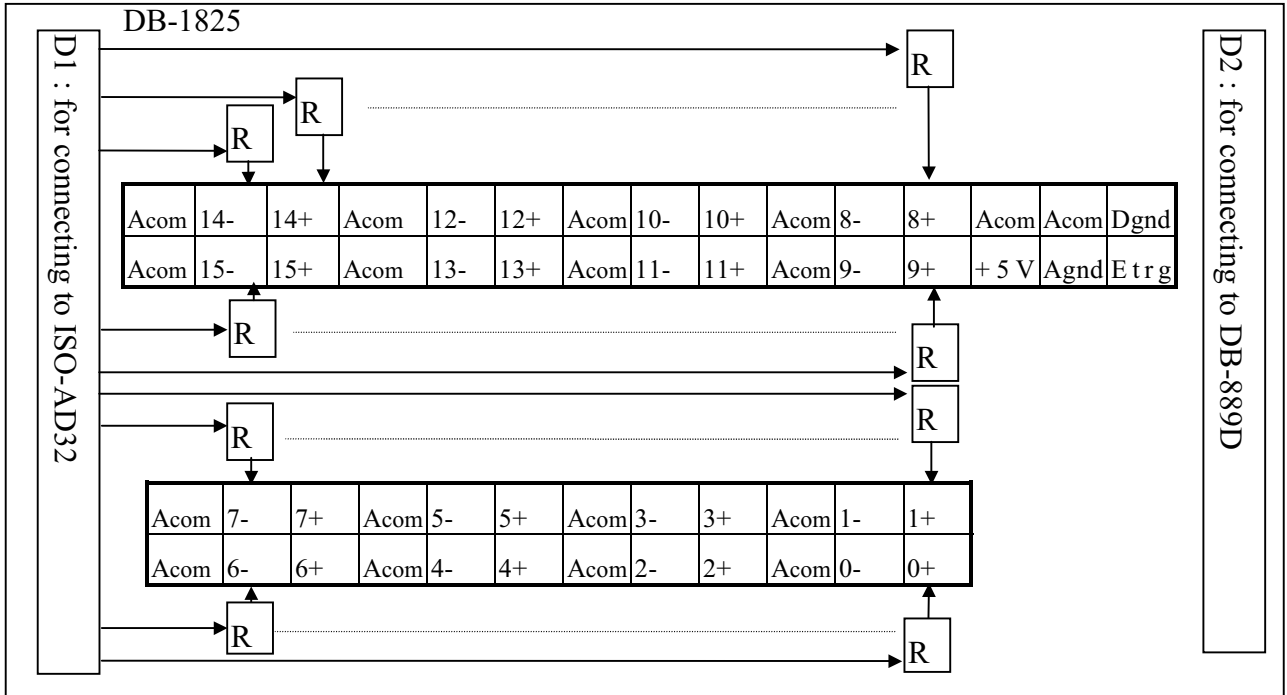Voltage = 20 mA x 250Ω = 5V   ; Range = 0 ~ 5V
Formula:
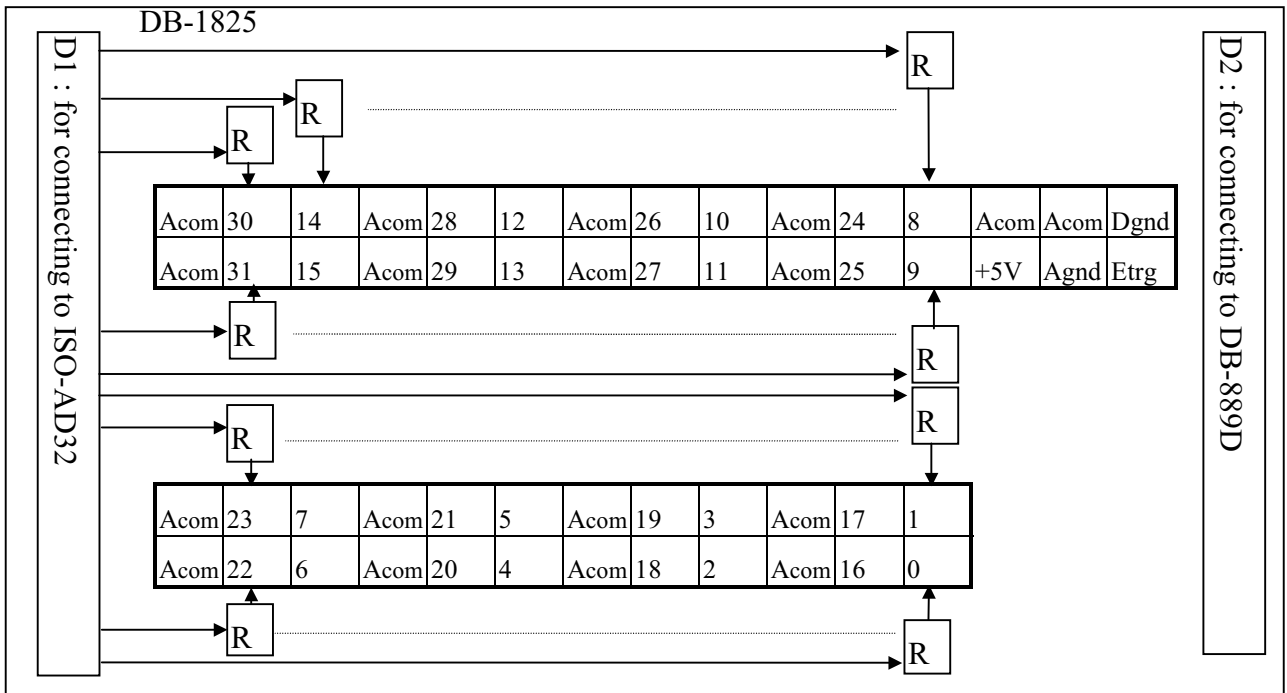input voltage signal = input current signal x 250Ω

DB-1825 TERMINAL BOARD

1.PCB layout for connecting to ISO-AD32:

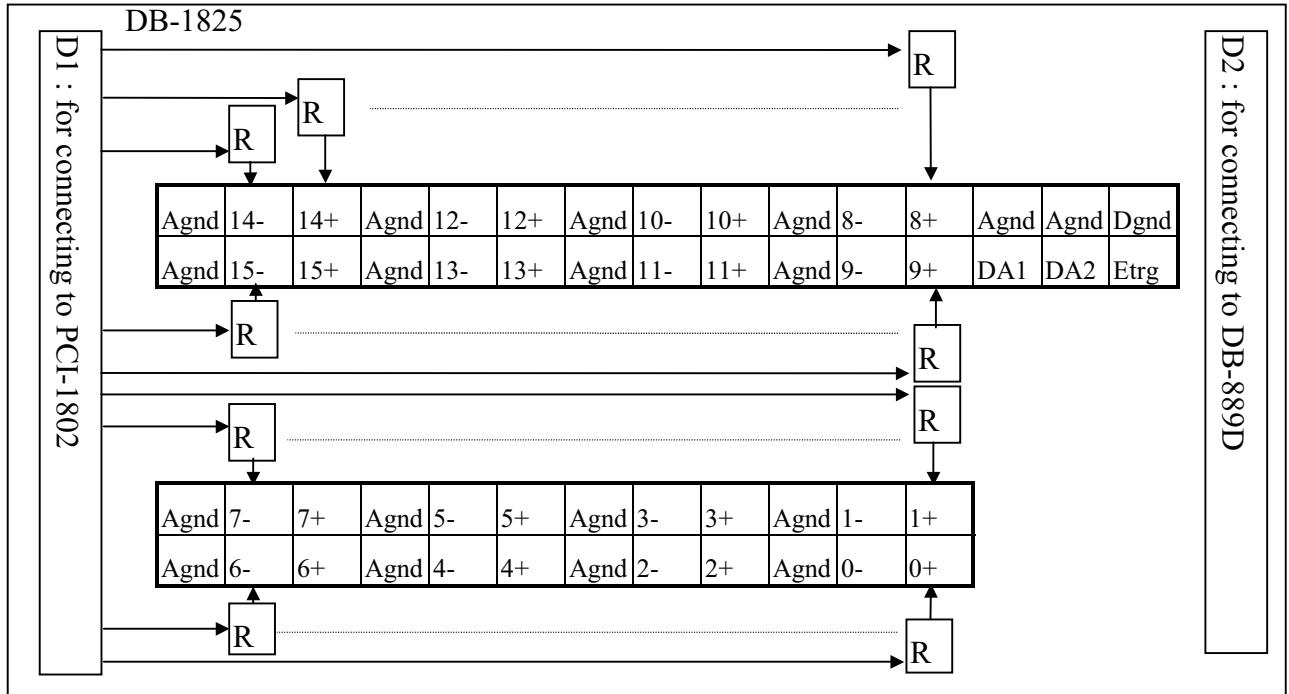for differential input (R=0 ohm)

for single-ended input (R=0 ohm)

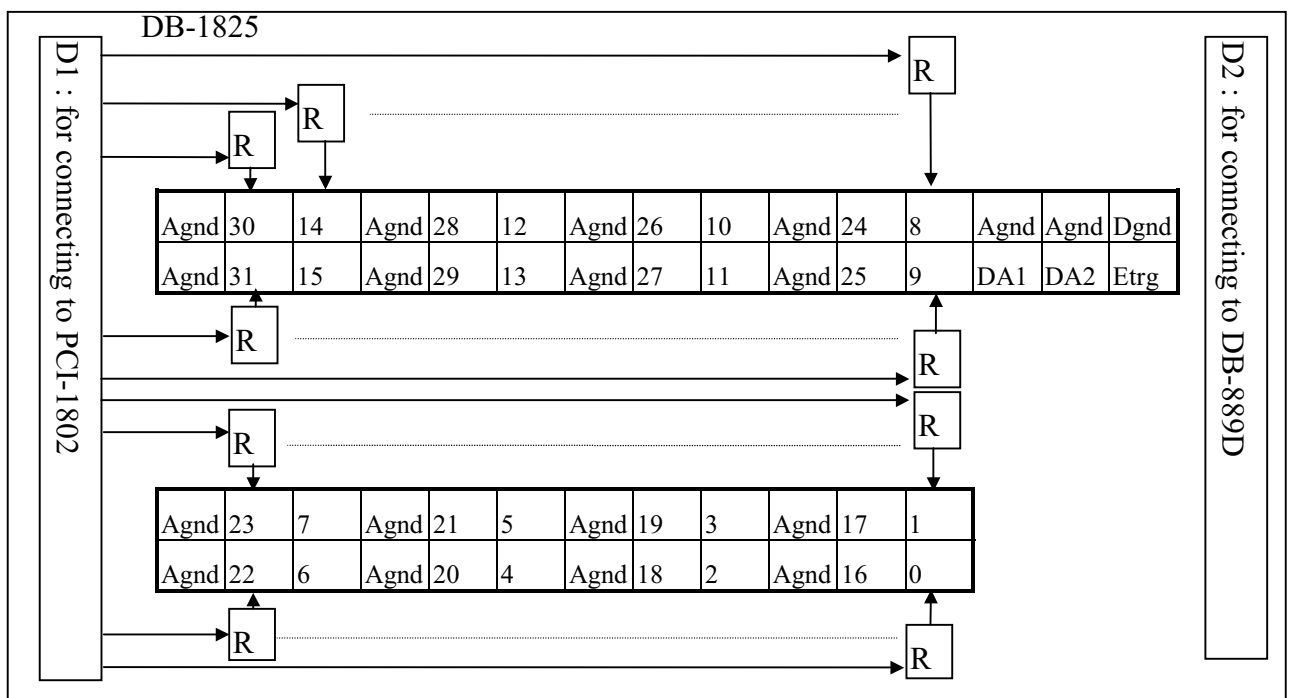Pin assignment of D1 same as **CN1 of ISO-AD32**

Pin assignment of D2 same as **CN1 of DB-889D**

2. PCB layout for connecting to PCI-1802:

for differential input (R=0 ohm)

D1 : for connecting to PCI-1802	DB-1825												D2 : for connecting to DB-889D
	Agnd	14-	14+	Agnd	12-	12+	Agnd	10-	10+	Agnd	8-	8+	Agnd	Agnd	Dgnd	
	Agnd	15-	15+	Agnd	13-	13+	Agnd	11-	11+	Agnd	9-	9+	DA1	DA2	Etrg	
	Agnd	7-	7+	Agnd	5-	5+	Agnd	3-	3+	Agnd	1-	1+	
	Agnd	6-	6+	Agnd	4-	4+	Agnd	2-	2+	Agnd	0-	0+	

for single-ended input (R=0 ohm)

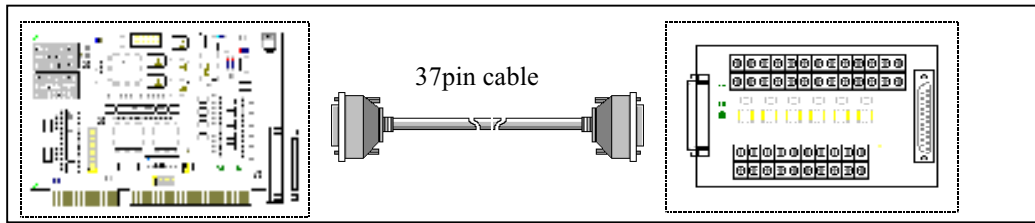| D1 : for connecting to PCI-1802	DB-1825												D2 : for connecting to DB-889D
	Agnd	30	14	Agnd	28	12	Agnd	26	10	Agnd	24	8	Agnd	Agnd	Dgnd	
	Agnd	31	15	Agnd	29	13	Agnd	27	11	Agnd	25	9	DA1	DA2	Etrg	
	Agnd	23	7	Agnd	21	5	Agnd	19	3	Agnd	17	1	
	Agnd	22	6	Agnd	20	4	Agnd	18	2	Agnd	16	0	

Pin assignment of D1 same as **CON3 of PCI-1802**

Pin assignment of D2 same as **CN1 of DB-889D**

3.Connection to ISO-AD32

4.Connection to PCI-1802
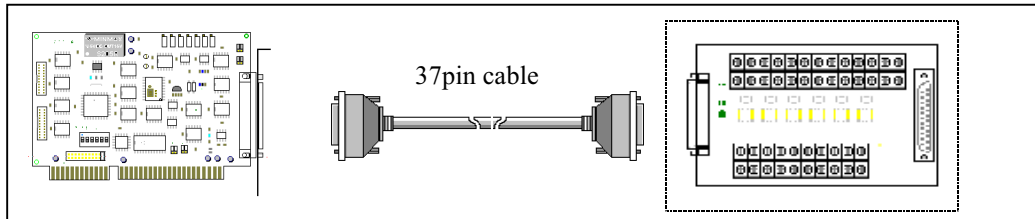
5.Connection to PCI-1802 and multiple DB-889D(16 channels differential)