

A36-2-V2-*

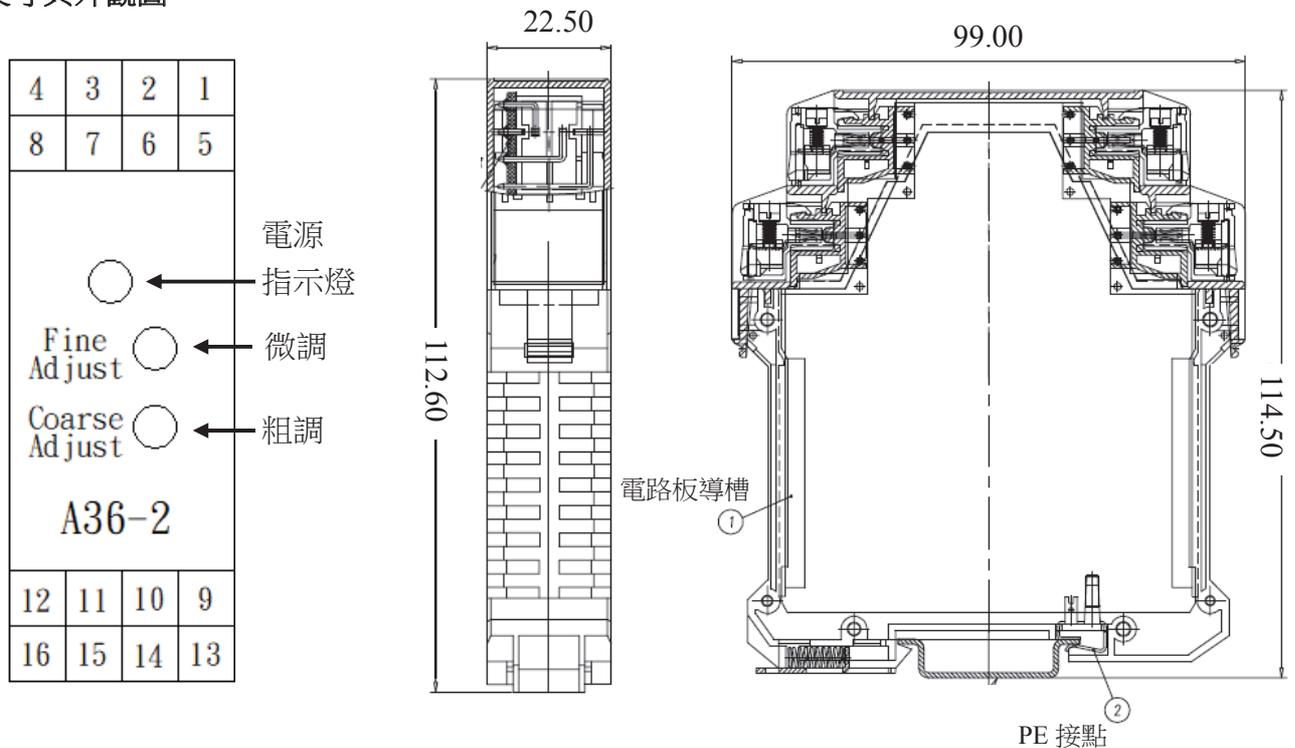
泛用型訊號轉換放大器 操作說明書

泛用型訊號轉換放大器 A36-2-V2-*是整合材料張力測量元件，此放大器除了荷重元的電壓訊號輸入(最多 2 個荷重元)使用，此放大器也可以在其他小訊號放大的場合使用。泛用型訊號轉換放大器內部功能是依據外部提供小訊號電壓值依比例轉換訊號放大電壓輸出。

※ 規格：

類型	A36-2-V2-*		
型號	20M-10	160M-5	5-5
輸入電壓	0 ~ 20mV	0 ~ 160mV	0 ~ 5V
提供荷重元 電源	DC 10V	DC 5V	DC 5V
電源電壓	DC24V/0.1A ± 10%		
輸出電壓	無濾波 DC 0V ~ +10V(上升時間 5ms) 有濾波 DC 0V ~ +10V(上升時間 8S)		
操作溫度	0 ~ +60°C		
操作濕度	35 ~ 80% RH (Non-condensing)		
設備接地	第三種設備接地		

※ 尺寸與外觀圖：



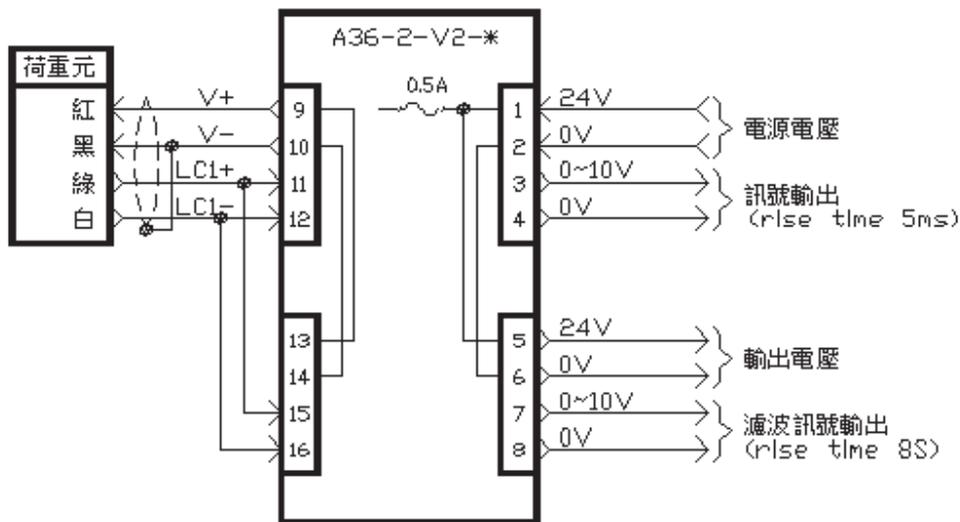
單位：mm

※ 安裝須知：

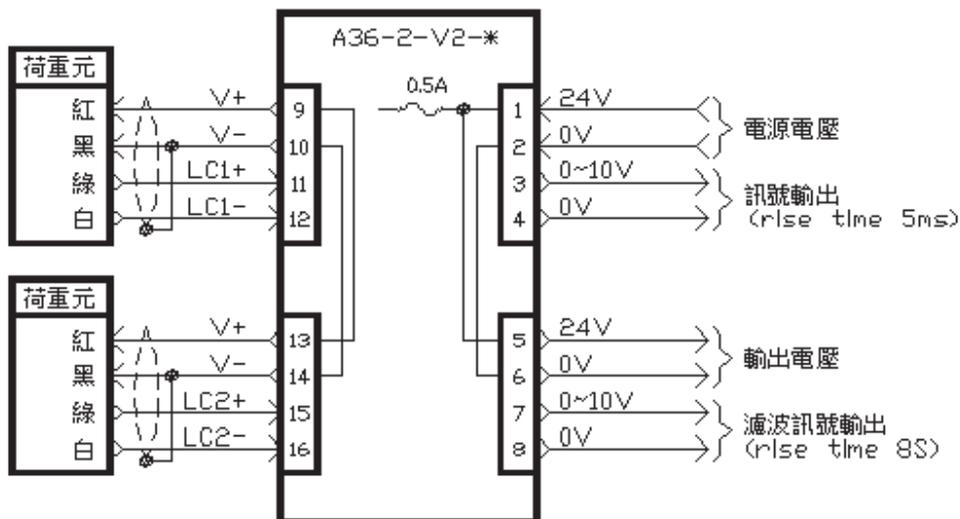
1. 安裝 A36-2-V2-* 盡量靠近荷重元以防止壓差及干擾所造成誤差(線長不可超過 10M)。
2. 請依照配線圖連接電路。
3. 荷重元訊號線應與動力線及干擾源分離(例如：馬達線、馬達驅動器、靜電器…)。
4. 荷重元訊號線與放大器 A36-2-V2-* 之間直接連接，不需要透過任何電路及產品。
5. 荷重元訊號線與放大器 A36-2-V2-* 之間的連線，必須使用隔離包覆性的線材，並將隔離線的遮蔽層接到荷重元電源地線(GND)。
6. A36-2-V2-* 為倍率可調式放大器，依實際應用荷重元輸出訊號範圍設定，出廠預設值為 20mV。

※ 配線圖：A36-2-V2-* 為例

使用單顆荷重元的配線方式



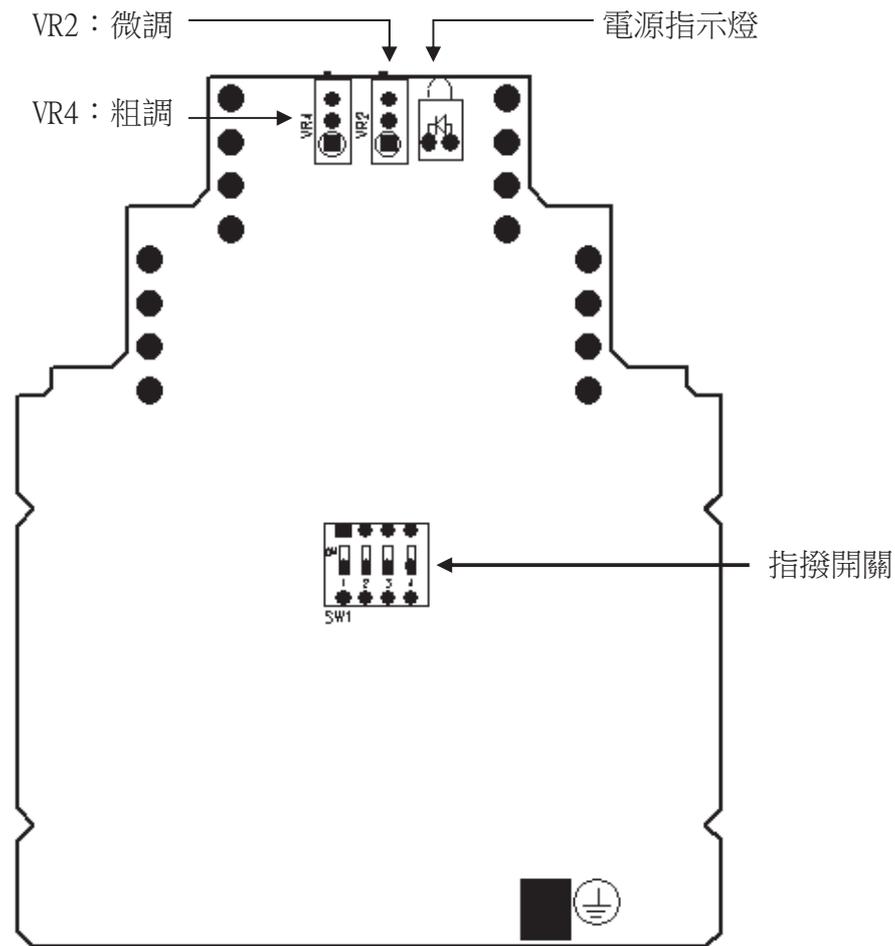
使用雙顆荷重元的配線方式



註：連接線使用抗雜訊包覆型的線材

※ 零準位(Offset)調整注意事項：

1. 先確定荷重元規格，再調整指撥開關選擇輸入訊號。例如：荷重元規格電源 10V，訊號輸出 20mV，則泛用型訊號轉換放大器選用 A36-2-V2-20M-10 並且將指撥開關切換到 20mV 位置(如下表一)。
2. 必須將荷重元上輪子的原料移除。
3. 使用數位電表測量端子 3, 4 腳位並且調整面板上 VR2,VR4 零準位調整(如下圖)，使電壓維持在 100mV ~ 300mV 之間。
4. 材料張力測量結果應不超過荷重元的規格，確保荷重元在額定值內輸出張力是呈現線性。
[例]：左、右荷重元各 30Kg，表示荷重元上輪重加上捲收張力要小於 $(30Kg + 30Kg) \times 0.9 = 54Kg$



表一：泛用型訊號轉換放大器與荷重元規格搭配建議表

輸入訊號	指撥開關 示意圖	調整方式		荷重元訊號輸出
		ON	OFF	
5mV		X	1, 2, 3, 4	5mV
10mV		1	2, 3, 4	10mV
20mV		1, 2	3, 4	20mV
40mV		1, 2, 3	4	40mV
160mV		1, 2, 3, 4	X	160mV

※ 故障排除：

項目	故障情況	現象	排除方式
1	訊號輸出負電壓	1. 零準位(Offset)調整過大	重新校準
		2. 輸入訊號(LC1+, LC1-)或者(LC2+, LC2-)極性配線相反	重新配線
		3. 輸出訊號(DC0~10V, GND)極性配線相反	重新配線
2	輸出訊號不穩	1. 輸入訊號不穩	a. 檢查荷重元安裝是否穩固 b. 荷重元電源或荷重元訊號線輸出線路是否有接觸不良或端子未鎖緊
		2. 輸入訊號線不是使用抗雜訊包覆性線材(例：隔離線)	更換線材
		3. 隔離線的遮蔽層未接	隔離線的遮蔽層接到電源地(GND)
		4. 附近有干擾源(例：馬達線、動力線、靜電器或馬達驅動器)	重新走線
		5. 放大器(A36-2-V2-*)安裝位置距離荷重元太遠	重新配置放大器(A36-2-V2-*)與荷重元位置
3	輸出訊號無反應	測量(11,12)(15,16)並將荷重元施壓力是否有電壓變化	是： a. 檢查配線 b. 放大器(A36-2-V2-*)損壞 否： a. 放大器(A36-2-V2-*) 電源電壓是否正常 b. 荷重元 Vcc 是否正常 c. 荷重元損壞
4	電源指示燈無亮	量測(1,2)(5,6)是否有 DC24V	是： a. 重新配線(電源接相反) b. 放大器(A36-2-V2-*)損壞 否：檢查電源
5	電壓輸出超出規範	1. 荷重元是否符合規格，例如：重量、電壓規格、輸出訊號	選擇規格符合的荷重元
		2. 指撥開關調整錯誤	重新調整指撥開關並且重新校準零準位

若無上述問題，請聯絡技師為您服務，謝謝！

A36-2-V2-*

General Purpose Signal Convert Amplifier

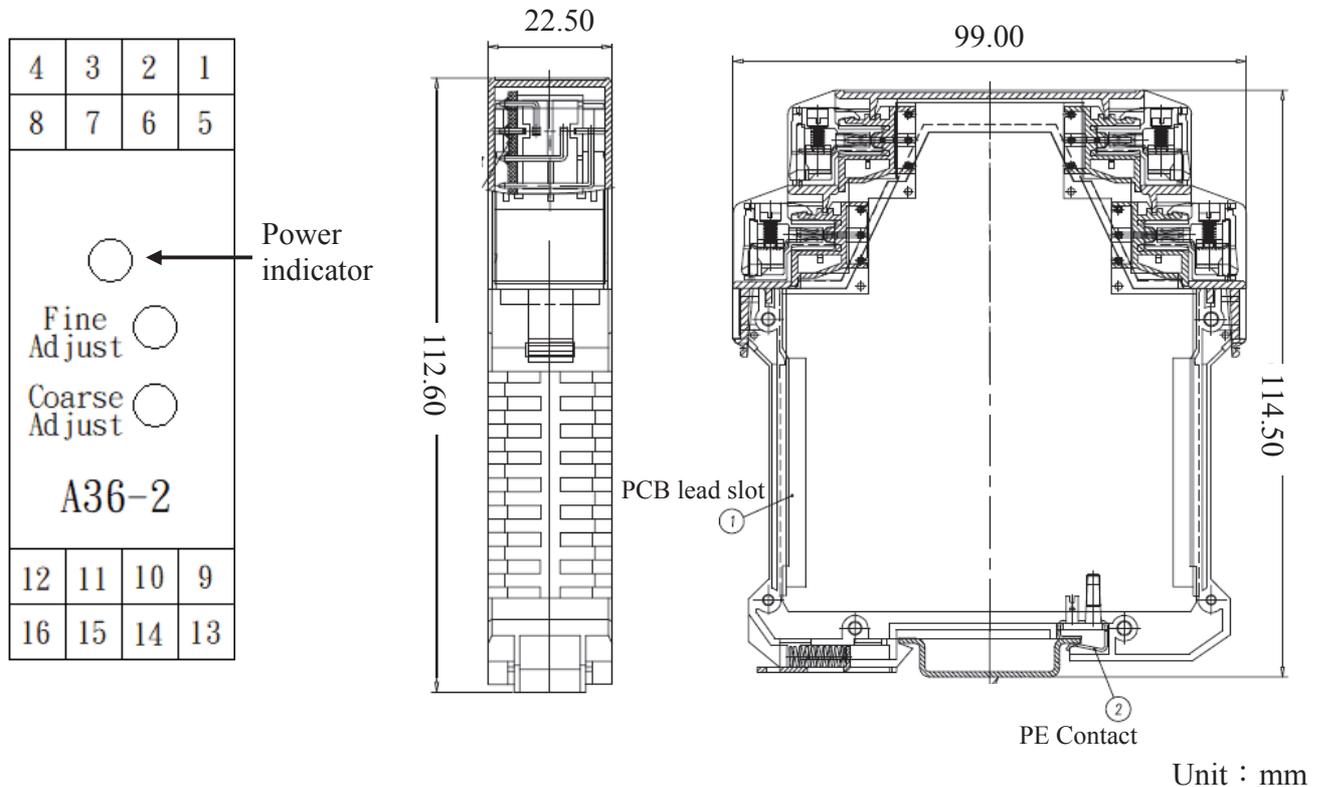
Operation Manual

General purpose signal convert amplifier A36-2-V2-* is the measurement used to integrate tensions of material; besides usage on load cell signal inputs (maximum 2 load cells); it can be applied to other amplification. Its functions by amplified smaller signals with equal ration and output the signals.

※ **Specification :**

Type	A36-2-V2-*		
Item No.	20M-10	160M-5	5-5
Input voltage	0 ~ 20mV	0 ~ 160mV	0 ~ 5V
Power supply of load cell	10V	5V	5V
Rated Voltage	DC24V/0.1A ± 10%		
Output voltage	DC 0V ~ +10V(rise time 5ms) Filter DC 0V ~ +10V(rise time 8S)		
Temperature	0 ~ +60°C		
Humidity	35 ~ 80% RH (Non-condensing)		
Ground terminal	Third type of ground		

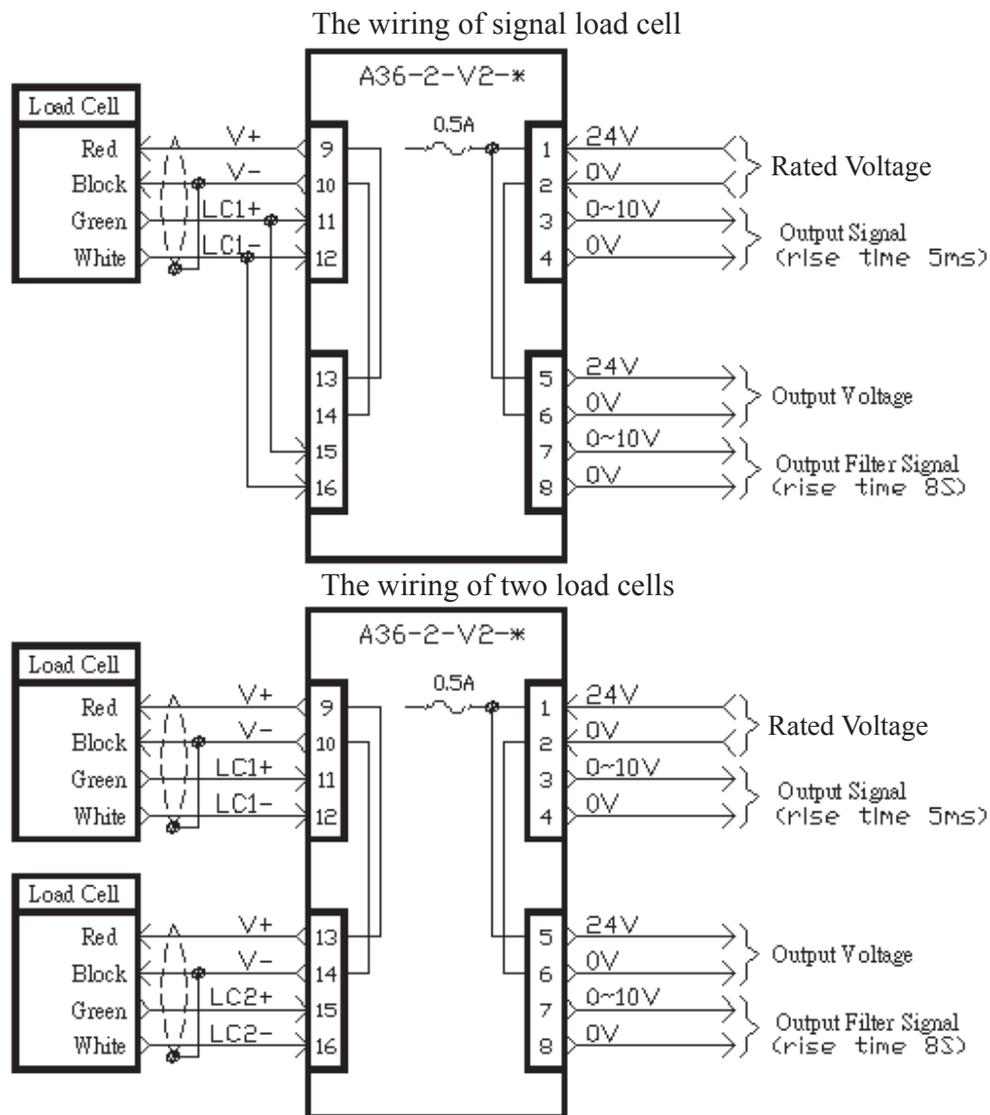
※ **Size and Outline :**



※ **Installation :**

1. In order to avoid errors of voltage and disturbance, please install A36-2-V2-* as close to load cell as possible (wiring under 10M)
2. For wiring: Please refer to the wiring diagram.
3. Please separate signal cable of load cell from motor cables and disturbances (Ex: motor cable, motor driver, static eliminator...etc.)
4. The signal cable of load cell should be connected with amplifier directly **WITHOUT** go through any extra wires or products.
5. The cable between load cell and amplifier A36-2-V2-* requires insulate and well gable material. Please connect the cable phase with GND of load cell.
6. A36-2-V2-* is a multiple adjustable amplifier; the default value is 20mV, please reset by the range of actual output signal.

※ **Wiring diagram : (Take A36-2-V2-* as model)**



Note: Connection should apply with anti-disturbance and well-gable material.

※ **Zero Level (Offset) Adjustment :**

1. Please make sure the specification of load cell before adjust thumbwheel switch input signal. Ex: If the specification of load cell is 10V and 20mV signal output; you should chose general purpose signal convert amplifier “A36-2-V2-20M-10” and switch thumbwheel switch to 20mV (Table 1)
2. Please remove all the material and remain net weight of roll.
3. Measure Pin 3,4 by digital multimeter, adjust VR2 and VR4 zero level on the panel (picture below) and keep voltage at 100 mV to 300 mV
4. To ensure the output tension of load cell present in linear; tension of material measure result should not over the specification of load cell. [Ex]: If each side of load cell is 30 Kg; the weight of roll and winding tension should be less than: $(30\text{Kg}+30\text{Kg}) \times 0.9 = 54 \text{ Kg}$

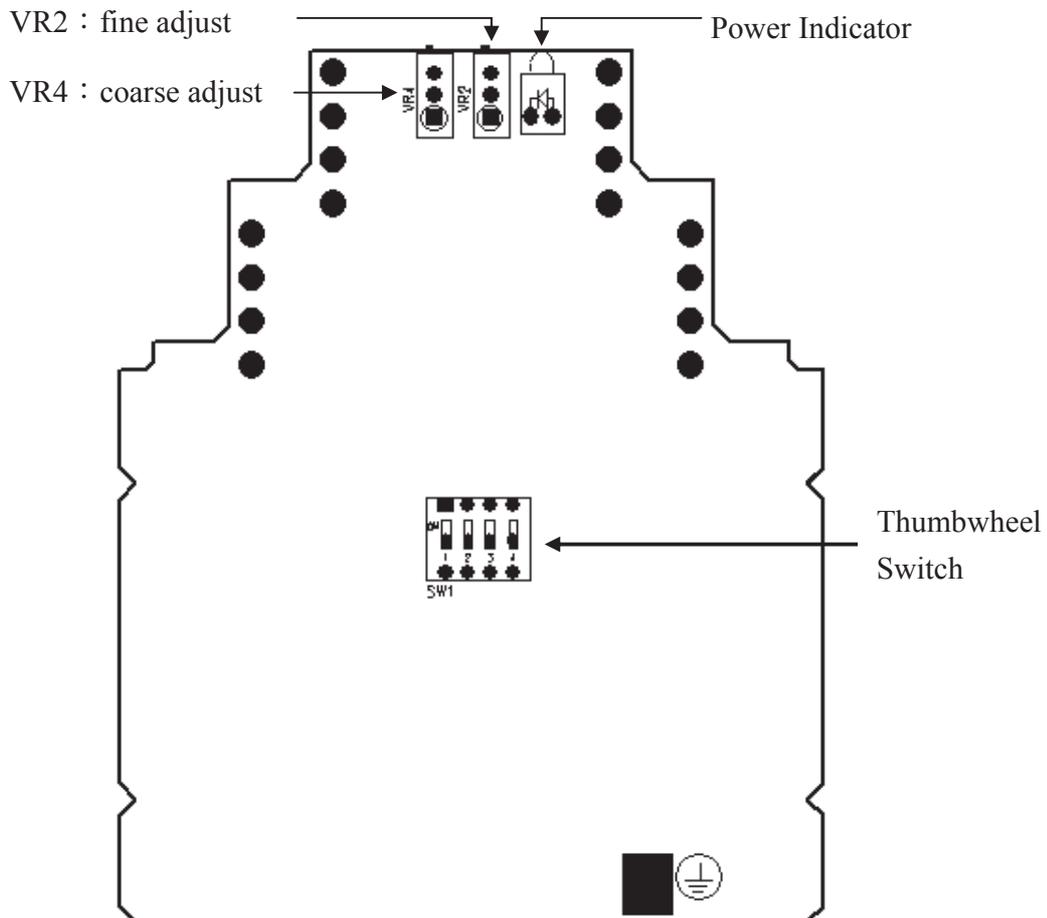


Table 1 : Suggested collocate usage of general purpose signal convert amplifier and load cell specification.

Input Signal	Thumbwheel Switch	Mode		Load Cell Signal Output
	Instruction	ON	OFF	
5mV		X	1, 2, 3, 4	5mV
10mV		1	2, 3, 4	10mV
20mV		1, 2	3, 4	20mV
40mV		1, 2, 3	4	40mV
160mV		1, 2, 3, 4	X	160mV

※ Troubleshooting :

Item	Problem	Reasons	Troubleshooting
1	Negative voltage of signal output	1. Over zero level(Offset)	Re-calibrated
		2. Polars of input signal (LC1+, LC1-) or (LC2+, LC2-) are connected opposite	Re-calibrated
		3. Polars of input signal (DC0~10V, GND) wires opposite	Re-calibrated
2	Output signal is not stable	1. Input signal is not stable	a. Check if the load cell has firmly installed. b. Check if the power of load cell or signal cable of load cell has bad contact or terminal has loosened.
		2. The material of input signal cable is not isolated and good gable.(Ex: Insulated cable)	Replace new cable
		3. The insulated phase of insulated cable hasn't connected.	Connected the isolation cable with GND
		4. Close to disturbances(Ex: motor, motor line, static eliminator or motor driver.)	Rearrange the lines
		5. The amplifier (A36-2-V2-*) has installed too far from the load cell.	Rearrange the location of A36-2-V2-* and load cell.
3	No output signal response	1. Measure 11,12 / 15,16 2. Try to press load cell to see if the voltage changes.	If yes: a. Check the wiring b. A36-2-V2-* has damaged If no : a. Check if the power voltage of A36-2-V2-* is normal. b. Check if the Vcc of load cell is normal c. Load cell has damaged
4	Power indicator has failed	Check if (1,2)(5,6) has DC24V	If yes: a. Rearrange the wiring (power is connected in wrong direction) b. A36-2-V2-* has damaged If no: Please check the power
5	Over voltage output	1. Please check if the specification is suitable. Ex: Weight, voltage specification and output signal.	Please select suitable load cell.
		2. Thumbwheel switch adjustment error	Please adjust the thumbwheel and zero level again.

* If none of the problem above is suitable for you, please contact with our technician to provide you our best service.

Thank you!