



บริษัท เอดีดี เฟอร์เนส จำกัด

ADD FURNACE CO.,LTD.

44 ซอยบรมราชชนนี 70 ถนนบรมราชชนนี แขวงศาลาธรรมสพน์ เขตทวีวัฒนา กรุงเทพฯ 10170

โทร: 02-888-3472 โทร: ออกแบบ: 08-08-170-170 แฟกซ์: 02-888-3258

https://www.add-furnace.com E-mail: sales@add-furnace.com

AT-Series

Converter (17.5mm)

ADTEK

Description

AT series converter / distributor primarily designed for use in the general signal conversion and isolation circuit ; as 4~20mA 、0~10V 、Rtd (Pt100Ω) 、Load Cell 、Potentiometer and AC Voltage/Current... Complete models .

This section slim design of the converter / distributor, in addition to providing two groups of signal output (Isolation) or 24V excitationsupply for the transmitter used, the switching power supply willprovide installation convenience. The top and designed power supply, input and output indicators and removable terminal blocks to facilitate on-site construction and working status view.



Model	Measurement / Input	Analogue Output	Excitation Output
AT-VA	AC/DC Voltage 0~150V, 0~300V, 0~500V(specify) AC/DC Current 0 ~ 5A, 0~1A(specify), DC 0~50mV, 0~60mV, 0~75mV, 0~100mV	1 OR 2	NA
AT-PR	DC Current 0/4~20mA, Voltage 0/1~5/10V (Choose DP-type , switchable)	1 OR 2	Option 24V/30mA
AT-TR	Rtd temperature Pt100Ω	1 OR 2	NA
AT-SG	Strain Gauge 0~1.0mV/~2.0mV/~3.0mV/~4.0mV per 1 voltage supply	1	10V/30mA
AT-PM	Potentiometer 0~2.0kΩ (3 wire), 2.0kΩ~100.0kΩ (3 wire)	1 OR 2	NA
AT-RS	Resistance 0~200Ω/~200KΩ (2 wire)	1 OR 2	NA

Features

- Output for 0~5V / 0~10V / 1~5V / 2~10V / 4~20mA / 0~20mA changeable by dip switches and terminals
- Dual different signals output available
- LED indications for power, input and output status
- 0.1% accuracy available in option
- 17.5 mm thin profile and 35mm DIN rail mounting
- CE Approved & RoHS

Ordering Information

AT2-VA		Output Loop	Input Type	Signal of Output 1	Signal of Output 2	Aux. Power	Option				
CODE	Loop	CODE	Input Range	CODE	Input Range	CODE	Sig. Output	CODE	Aux. Power	CODE	Option
1	Single O/P	D	DC signal	D	DC signal	N	None	ADH	AC 85~264V	01	0.1% Accuracy for DC
2	Dual O/P	A	AC signal	A	AC signal	C	0 ~ 20 mA	ADL	DC 100~300V	DP	Output signal programmable by dip-switch
		V1	0 ~ 199.9 mV	A2	0 ~ 1.999 mA	D	4 ~ 20 mA				
		V2	0 ~ 1.999 V	A3	0 ~ 19.99 mA	3	0 ~ 5 V				
		V3	0 ~ 19.99 V	A4	0 ~ 199.9 mA	4	0 ~ 10 V				
		V4	0 ~ 199.9 V	A5	0 ~ 1.999 A	5	1 ~ 5 V				
		V5	0 ~ 300.0 V	A6	0 ~ 1.000 A	6	2 ~ 10 V				
		V6	0 ~ 600.0 V	A7	0 ~ 5.000 A	If you choose set 1 of output type , please fill in column 2 of the output signal "N"					
		VA	0~50 mV	VC	0~100 mV						
		VB	0~60 mV								
		VC	0~100 mV								

AT — PR		Output Loop	—	Input Range	—	Signal of Output 1	Signal of Output 2	—	Aux. Power	—	Option
CODE	Loop	CODE	Input Range	CODE	O/P Range	CODE	O/P Range	CODE	Aux. Power	CODE	Option
1	Single O/P	A4	0 ~ 20 mA	C	0 ~ 20 mA	3	0 ~ 5 V	ADH	AC 85~264V	01	0.1% Accuracy for DC
2	Dual O/P	A5	4 ~ 20 mA	D	4 ~ 20 mA	4	0 ~ 10 V	ADL	DC 100~300V	DP	Output & Input signal programmable by dip-switch
		V4	0 ~ 5 V	N	None	5	1 ~ 5 V				
		V5	0 ~ 10 V	E24	DC24V Excit	6	2 ~ 10 V				
		V6	1 ~ 5 V	If you purchase an excitation power supply, you cannot purchase the second output group, and vice versa.		Please fill in "N" in the code of Signal of output 2, if the converter is single output.					
		V7	2 ~ 10 V								
		AE	4 ~ 20 mA Loop-powered								
		AE type just can be single output									





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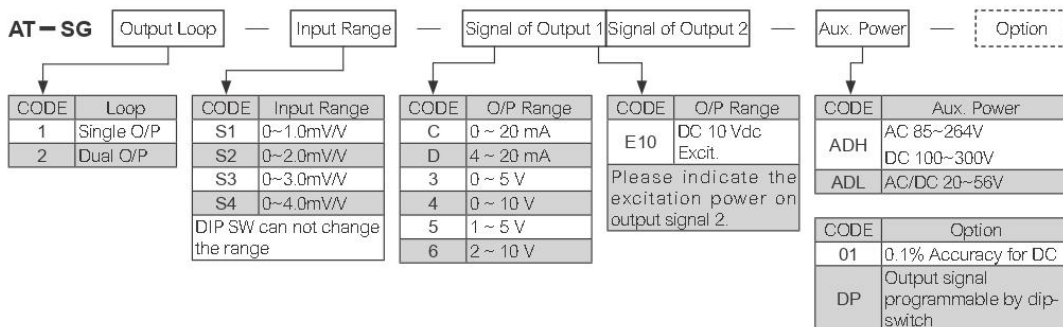
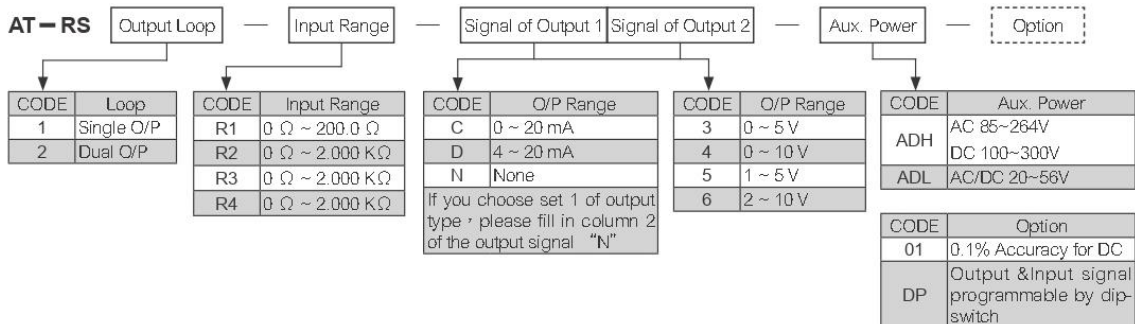
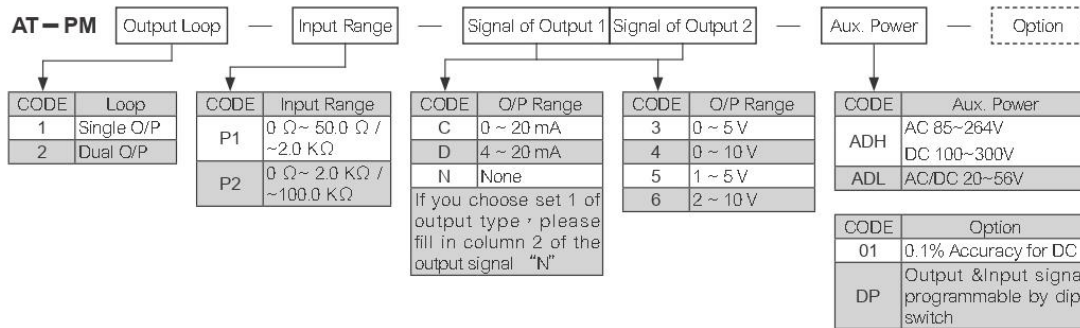
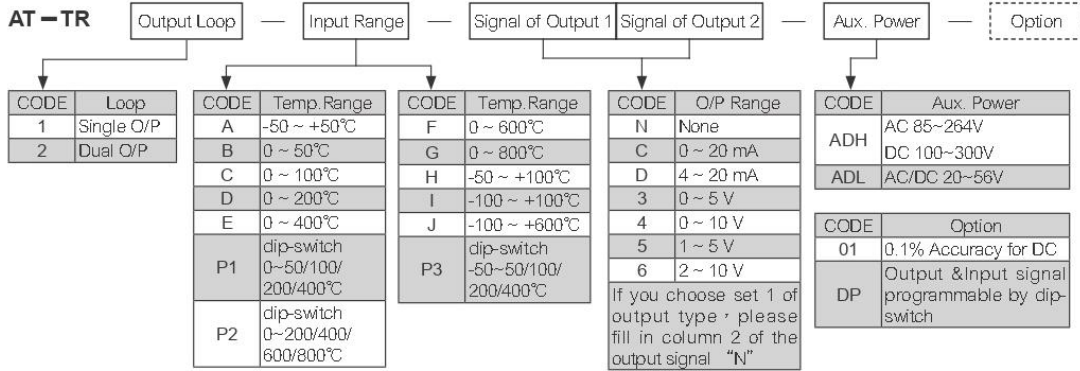
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Technical Specification

Input Signal (Can be specified dip-switch programmable - option "DP")
AT-VA (Voltage or Current)

Input range DC / AC	Input Impedance	Input range DC / AC	Input Impedance
0~50~100 mV	≥5M ohm	0~1.999 mA	100 ohm
0~199.9 mV	≥5M ohm	0~19.99 mA	10 ohm
0~1.999 V	≥1M ohm	0~199.9 mA	1 ohm
0~19.99 V	≥1M ohm	0~1.999 A	0.05 ohm
0~199.9 V	≥1M ohm	0~5.000 A	0.02 ohm
0~300.0 V	≥2M ohm	0~10.00 A	0.01 ohm
0~500.0 V	≥2M ohm		

Accuracy: AC: $\leq \pm 0.5\%$ of F.S. (delivered in customer's specify)
DC: $\leq \pm 0.2\%$ of F.S. (delivered in customer's specify)
DC: $\leq \pm 0.1\%$ of F.S. (delivered in customer's specify)
 $\leq \pm 2\%$ of F.S. (By Dip-switch)

Input burden: AC Current: $\leq 0.1\text{VA}$; AC Voltage: $\leq 0.15\text{VA}$

AT-PR (0~10V/4~20mA)

Input Range (Selected by terminals)	Input Signal (Changeable by dip-switch)	Input Impedance
0/4 ~ 20 mA (terminal 3+ & 2-)	0~20mA, 4~20mA	250 Ω
0 ~ 10 V (terminal 1+ & 2-)	0~5V, 0~10V, 1~5V, 2~10V	1M Ω

Standard: Can not change the input / output signal, please specify in order

Accuracy: $\leq \pm 0.2\%$ of F.S. (delivered in customer's specify)
 $\leq \pm 0.1\%$ of F.S. (Option)
 $\leq \pm 2\%$ of F.S. (By Dip-switch)

AT-TR (Pt100 Ω)

Input Range	Input Signal (Changeable by dip-switch)	Input Impedance
Pt100 Ω (DIN)	P1 0~50 / 100 / 200 / 400 $^{\circ}\text{C}$ P2 0~200 / 400 / 600 / 800 $^{\circ}\text{C}$ P3 -50~50 / 100 / 200 / 400 $^{\circ}\text{C}$	Selected by Dip-Switch 1M Ω

Standard: please specify in order

Accuracy: $\leq \pm 0.2\%$ of F.S. (delivered in customer's specify)
 $\leq \pm 0.1\%$ of F.S. (Option)
 $\leq \pm 2\%$ of F.S. (By Dip-switch)

AT-PM (Potentio-Meter)

Input Signal	Input Impedance
P1 0 Ω ~ 50.0 Ω / ~ 2.0 K Ω	1M Ω
P2 0 Ω ~ 2.0 K Ω / ~ 100.0 K Ω	1M Ω

Accuracy: $\leq \pm 0.2\%$ of F.S. (delivered in customer's specify)
 $\leq \pm 0.1\%$ of F.S. (Option)

Detect Voltage: $\leq 2.0\text{ K}\Omega, 0.2\text{ V}$; $\geq 2.0\text{ K}\Omega, 1.0\text{ V}$

AT-RS (Resistance)

Input Signal	Input Impedance	Input Range	Input Impedance
S1 0.0~1.0mV/V	1M Ω	S3 0.0~3.0 mV/V	1M Ω
S2 0.0~2.0mV/V	1M Ω	S4 0.0~4.0 mV/V	1M Ω

Accuracy: $\leq \pm 0.2\%$ of F.S. (delivered in customer's specify)
 $\leq \pm 0.1\%$ of F.S. (Option)

Excitation power: 10V/30mA

Output Signal (Can be specified dip-switch programmable - option "DP")

Output Range	Output Impedance	Output Signal (Changeable by dip-switch)
0 ~ 20mAdc	$\leq 520\Omega$	Output 1: Io(mA output - terminal 9+ & 8-)
4 ~ 20mAdc	$\leq 520\Omega$	Output 1: Vo(V output - terminal 7+ & 8-)
0 ~ 10Vdc	$\geq 1000\Omega$	
2 ~ 10Vdc	$\geq 1000\Omega$	Output 2: Io(mA output - terminal 12+ & 11-)
0 ~ 5Vdc	$\geq 500\Omega$	Output 2: Vo(V output - terminal 10+ & 11-)
1 ~ 5Vdc	$\geq 500\Omega$	

Standard: please specify in order

Response Time: PR \ TR : $\leq 250\text{msec}$ (Input10%~Output90% of FS)
SG \ VA(DC) : $\leq 300\text{msec}$ (Input10%~Output90% of FS)
VA(AC) : $\leq 500\text{msec}$ (Input10%~Output90% of FS)

Output ripple: $\leq \pm 0.1\%$ of F.S.

Span Calibration range: $\leq \pm 10\%$ of F.S. * 2 group individually adjusted

Zero Calibration range: $\leq \pm 10\%$ of F.S. * 2 group individually adjusted

Isolation: AC 2.0 KV ; Between output 1 & output 2

Excit. Power: DC 24V, 30mA

DC 10V, 30mA

Power Supply

Range: AC 85~264V/DC 100~300V, 50/60Hz

Power consumption: DC 4W, AC 6.0VA

Environmental

Operating Temp.: 0~60 $^{\circ}\text{C}$

Humidity rating: 20~95%RH, Non-condensing

Temp. coefficient: $\leq 100\text{ PPM}/^{\circ}\text{C}$ (0~50 $^{\circ}\text{C}$)

Storage Temp.: -10~70 $^{\circ}\text{C}$

IP Enclosure: IP 42

Vibration: 1~800 Hz, 3.175 g 2 /Hz

Mechanical Characteristics

Dimensions: 94.0mmx94.0mmx17.5mm

Case material: ABS (with fire-retardant) (UL 94V-0)

Mounting: 35mm DIN rail (EN50022)

Terminal block: Pluggable terminal block,
M2.5 Screw, connect 2 x 2.5mm 2 wire

Weight: 250g

Electrical Safety

Electrical Safety(LVD): IEC 61010 (Installation category 3)

Dielectric strength: AC 2.0KV, for 1 min,
between Power / Input / Output1 / Output2 / Case

Insulation resistance: $\geq 100\text{M}\Omega$ at 500Vdc,

between Power / Input / Output

EMC: EN 55011:2002; EN 61326:2003

Status Indication

I/O Status Indication: 3 or 4 round LED indication

Power on, LED bright

Input signal $\geq 4\sim 6\%$, LED bright

output 1 and output 2 signal $\geq 4\sim 6\%$, LED bright

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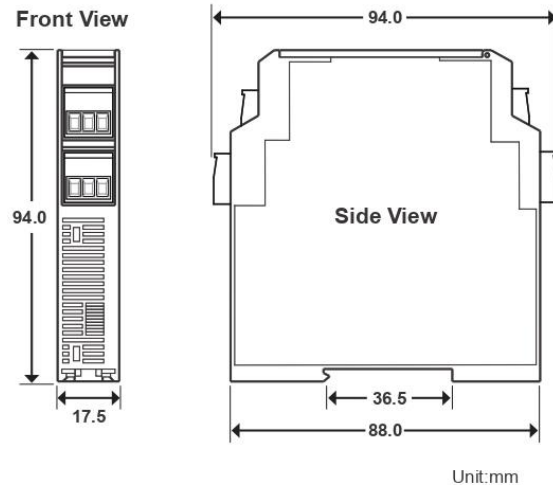
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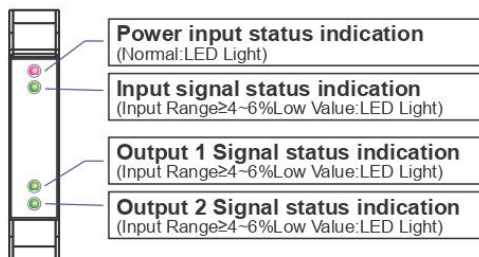
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Dimension

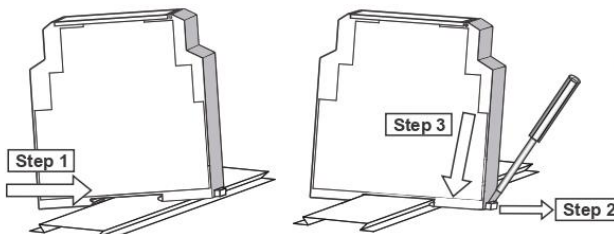


Front Panel



Installation

The converter should be installed in a location that does not exceed the maximum operating temperature and provides good air circulation



Adjustment

Customer can specify AT series with dip switch in optional code (-DP) for change of input and output range to save stock.

⚠ Recalibration is recommended after change range.

Signal input change table (by dip switches - option)

AT-PR(0~10V/4~20mA)

Input Range	Dip - Switch (ZC)			
	SW1	SW2	SW3	SW4
0 ~ 5 V				
0 ~ 10 V		on		
1 ~ 5 V			on	on
2 ~ 10 V		on	on	on
0 ~ 20 mA	on			
4 ~ 20 mA	on		on	on

AT-TR(Pt100Ω)

Input Signal: Pt100Ω (Code:P1)										
Signal Range	Dip-Switches - ZB1					Dip-Switches - ZC1				
	SW1	SW2	SW3	SW4	SW5	SW6	SW1	SW2	SW3	SW4
0 ~ 50℃				on			on			
0 ~ 100℃	on				on			on		
0 ~ 200℃		on				on			on	
0 ~ 400℃			on							on

Input Signal: Pt100Ω (Code:P2)

Signal Range	Dip-Switches - ZB1						Dip-Switches - ZC1			
	SW1	SW2	SW3	SW4	SW5	SW6	SW1	SW2	SW3	SW4
0 ~ 200°C				on			on			
0 ~ 400°C	on				on			on		
0 ~ 600°C		on				on			on	
0 ~ 800°C			on							on

Input Signal: Pt100Ω (Code:P3)

Signal Range	Dip-Switches - ZB1						Dip-Switches - ZC1			
	SW1	SW2	SW3	SW4	SW5	SW6	SW1	SW2	SW3	SW4
-50 ~ 50°C				on			on			
-50 ~ 100°C	on				on			on		
-50 ~ 200°C		on				on			on	
-50 ~ 400°C			on							on

AT-PM(Potentiometer-3 wire)

Input Signal: Potentiometer				
Signal Range	Dip-Switches - ZC1			
	SW1	SW2	SW3	SW4
0 ~ 50 Ω / ~ 2.0 kΩ	on	on	on	on
0 ~ 2.0 kΩ / ~ 100.0 kΩ	on	on		

AT-RS(Resistance-2 wire)

Input Signal: Resistance						
Signal Range	Dip-Switches - ZB1					
	SW1	SW2	SW3	SW4	SW5	SW6
0 ~ 200.0 Ω	on	on				on
0 ~ 2.000 kΩ	on	on			on	
0 ~ 20.00 kΩ	on	on		on		
0 ~ 200.0 kΩ	on	on	on			

Output Signal Switching Sheet (Dip-Switches - option)

Output Signal:						
Output Range	Dip-Switches - ZB/ZA					
	Output 1(ZB)/Output 2(ZA)					
	SW1	SW2	SW3	SW4	SW5	SW6
0 ~ 5 V		on	on	on		on
0 ~ 10 V			on	on		on
1 ~ 5 V	on		on	on		on
2 ~ 10 V	on			on		on
0 ~ 20 mA		on			on	
4 ~ 20 mA	on				on	



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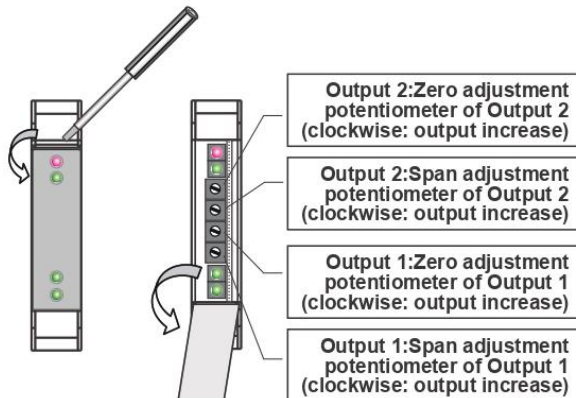
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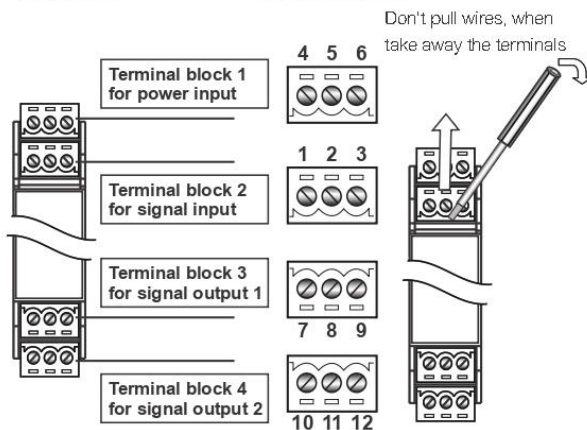
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Installation



Pin Assignment

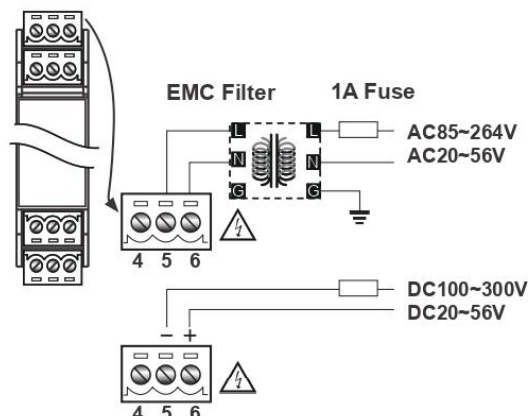
The converter has been designed pluggable terminal blocks
 Rated voltage: 300V
 Solid wire (AWG): 28~12
 Screw: M2.5
 Rated current: 12A
 Wire strip length: 7~8mm
 Torque: 5.0 Kg-cm



Auxiliary power connection - Terminal block 1

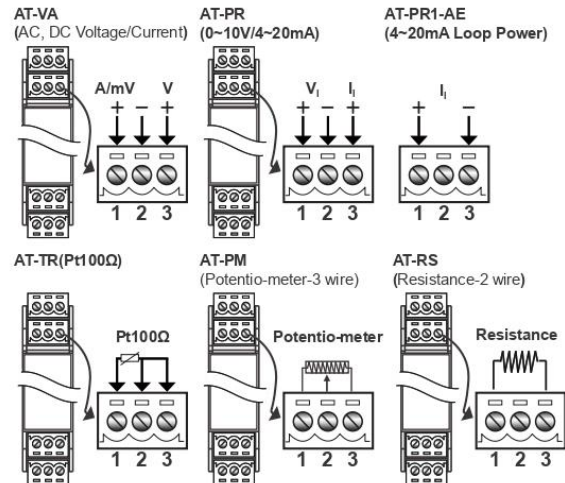
Please check the voltage of power supplied first, and then connect to the specified terminals - the meter be protected by a fuse or circuit breaker.

⚠ The connection is maybe change. Please refer to the connection on the label of products



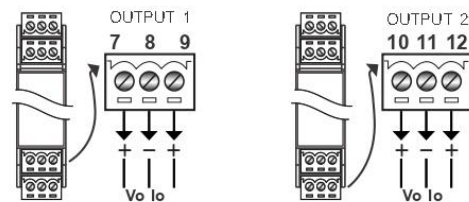
Input signal - Terminal block 2

The converter can be input and output mA and V that depends on the difference terminals wiring.



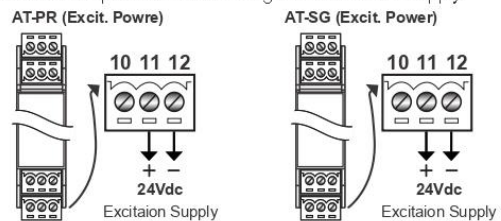
Output signal 1 & 2 - Terminal block 3 & 4

OPTION "DP" Function - The converter can be output mA and V that depends on the terminals wiring. (by Dip-switch)



Excitation supply DC24V - Terminal block 4

Output 2 can be specified one of analogue and excitation supply



AT-SG WIRING

