FOTEK

Easiness Reliability Intelligence Performance

Multi-functuon Power Meter APM Series

Complete monitor & function

- Voltage
- Current
- Power Factor
- Power Frequency
- Wattage
- Wattage-Hour
- Carbon Emissions

FOTEK CONTROLS Est. 1985 | www.fotek.com.tw

Guiding of model / 型號索引

APM - 21 - RS - 5A - 24V
1 2 3 4 5

1.Series
「APM」: Multi-function power meter

2.Outline
「21」: Din 96*48 (Panel type)
「32」: 34*93 (DIN rail type)

3.Attached
「RS」: With RS-485
「TR」: With transmitter

4.Current input
「5A」: 0 ~ 5A
「mA」: 0 ~ 100mA

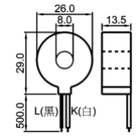
5.Auxiliary power
「24V」: 18~60VDC
「non」: 90~265VAC

Electrical data / 電氣規格

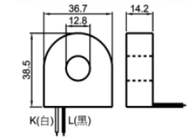
Specification (規格)		Data
Power supply	工作電壓	90~265VAC 50/60Hz or 18~60VDC
Power consumption	消耗功率	AC：5VA max. or DC：2VA max.
Measuring metho	量測方式	True RMS
Sampling speed	取樣速度	128 point/cycle
Wiring method	接線方式	「1P2L」/「1P3C」/「1P3L」 「3P3L」/「3P3C」/「3P4L」
Input voltage	輸入電壓	480VAC (VLN) max.or 690VAC (VLL) max.
Current detection	電流偵測	1CT or 2CT or 3CT
Input current	輸入電流	5A+20% max.or 100mA max.
Operating circum.	工作環境	0 ~ 60°C；5 ~ 85%RH
Protection class	保護等級	IP-20
Housing material	外殼材質	Intensive PC+ABS (UL-94V0)

CT data / CT 規格【L (Black) / K (White)】

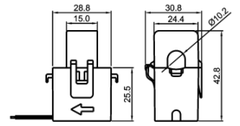
「mA」
CT-60 (Ct_rA =1500) 0 ~ 60A：0 ~ 40mA



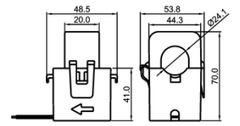
「mA」
CT-100 (Ct_rA =5000) 0 ~ 100A：0 ~ 20mA



「mA」
CT-CL10-100 (Ct_rA =3000) 0 ~ 100A：0 ~33.3mA



「A」
CT-CL24-1H1 (Ct_rA =100) 0 ~ 100A：0 ~1.0A



Measured data / 量測資料

Measured data (量測資料)		Accuracy (精度)	Resolution (解析度)	Measured Range (量測範圍)
Voltage (V)	電壓	±0.2%	0.1V	50 ~ 480VAC (VLN)；50 ~ 690VAC (VLL)
Current (I)	電流	±0.2%	0.001A	0 ~ 5A (0 ~ 99999999)
Active power (W)	有效功率	±0.5%	0.1W	-19999999 ~ 99999999
Reactive power (Q)	無效功率	±0.5%	z0.1VAR	-19999999 ~ 99999999
Active watt hour (kWh)	有效電量	Class 0.5S (IEC62053-22)	0.001kWh	-19999999 ~ 99999999
Reactive watt hour (kQh)	無效電量	±0.5%	0.001kVarh	-19999999 ~ 99999999
Power frequency (Hz)	電源頻率	±0.5%	0.1Hz	45.0 ~ 70.0Hz
Power factory (PF)	功率因素	±0.5%	0.01	-1.000 ~ 1.000

Electromagnetic compatibility / 電磁相容標準

Item (項目)		EMC test standard
Electrostatic discharge (ESD) interference	靜電干擾	EN-61000-4-2
Radiated fields (RF) interference	輻射干擾	EN-61000-4-3
Fast transients immunity	抗瞬時高壓破壞	EN-61000-4-4
Impulse waves interference	突波干擾	EN-61000-4-5
Conducted immunity	抗電感干擾	EN-61000-4-6
Magnetic fields interference	磁場干擾	EN-61000-4-8
Voltage dips interference	瞬時壓降干擾	EN-61000-4-11

Display method / 顯示方式【「V1」=V12 /「V2」= V13 /「V3」= V32】

Input mode	Display block (kWh/kW)	Display block (V/A)
「1P2L」(1CT)	「kWh」→「kW」→「CO2」	「Vn / A」→「Hz」→「PF」
「1P3L」(2CT)	「kWh」→「kWh1」→「kWh3」→「kW」→「kW1」→「kW3」→「CO2」	「Vn / A」→「V1n / A1」→「V3n / A3」→「Hz」→「PF」
「1P3C」(3CT)	「kWh」→「kWh1」→「kWh2」→「kWh3」→「kW」→「kW1」→「kW2」→「kW3」→「CO2」	「Vn / A」→「V1n / A1」→「V2n / A2」→「V3n / A3」→「Hz」→「PF」
「3P3L」(2CT)	「kWh」→「kWh1」→「kWh2」→「kWh3」→「kW」→「kW1」→「kW2」→「kW3」→「CO2」	「V / A」→「V1 / A1」→「V2 / A2」→「V3 / A3」→「Hz」→「PF」
「3P3C」(3CT)	「kWh」→「kWh1」→「kWh2」→「kWh3」→「kW」→「kW1」→「kW2」→「kW3」→「CO2」	「V / A」→「V1 / A1」→「V2 / A2」→「V3 / A3」→「Hz」→「PF」
「3P4L」(3CT)	「kWh」→「kWh1」→「kWh2」→「kWh3」→「kW」→「kW1」→「kW2」→「kW3」→「CO2」	「V / A」→「Vn / A」→「V1 / A1」→「V1n / A1」→「V2 / A2」→「V2n / A2」→「V3 / A3」→「V3n / A3」→「Hz」→「PF」

陽明電機股份有限公司
FOTEK CONTROLS CO., LTD.

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Selection of display / 顯示切換【AMP-21】

Setting conditions	Display	Description
Total KWH display 顯示總 KWH		【「V1」= V12 / 「V2」= V13 / 「V3」= V32】
Press dsp 1s		
Average V_{LL}/A display 顯示平均 V_{LL}/A 值		1. Average Line voltage (L-L) & Line current display 2.「n」is disappeared 3. Voltage「dp」= 1 ； Current「dp」= 0 ~ 3 (auto shift)
Press dsp		
Average Vn/A display 顯示平均 Vn/A 值		1. Average Phase voltage (L-N) & Line current display 2.「n」is appeared 3. Voltage「dp」= 1 ； Current「dp」= 0 ~ 3 (auto shift)
Press dsp		
V1/A1 display 顯示 V1/A1		1. L1 Line voltage (V12) ； V1 at「3P3L」【「n」is disappeared】 2. L1 Line current (A1) ； A1 at「3P3L」 3. Voltage「dp」= 1 ； Current「dp」= 0 ~ 3 (auto shift)
Press dsp		
V1n/A1 display 顯示 V1n/A1		1. L1 Phase voltage (V1n) ； V1n at「3P4L」【「n」is appeared】 2. L1 Line current (A1) ； A1 at「3P4L」 3. Voltage「dp」= 1 ； Current「dp」= 0 ~ 3 (auto shift)
Press dsp		
V2/A2 display 顯示 V2/A2		1. L2 Line voltage (V23) ； V2 at「3P3L」【「n」is disappeared】 2. L2 Line current (A2) ； A2 at「3P3L」 3. Voltage「dp」= 1 ； Current「dp」= 0 ~ 3 (auto shift)
Press dsp		
V2n/A2 display 顯示 V2n/A2		1. L2 Phase voltage (V2n) ； V2n at「3P4L」【「n」is appeared】 2. L2 Line current (A2) ； A2 at「3P4L」 3. Voltage「dp」= 1 ； Current「dp」= 0 ~ 3 (auto shift)
Press dsp		
V3/A3 display 顯示 V3/A3		1. L3 Line voltage (V31) ； V3 at「3P3L」【「n」is disappeared】 2. L3 Line current (A3) ； A3 at「3P3L」 3. Voltage「dp」= 1；Current「dp」= 0 ~ 3 (auto shift)
Press dsp		
V3n/A3 display 顯示 V3n/A3		1. L3 Phase voltage (V3n) ； V3n at「3P4L」【「n」is appeared】 2. L3 Line current (A3) ； A3n at「3P4L」 3. Voltage「dp」= 1；Current「dp」= 0 ~ 3 (auto shift)
Press dsp		
Hz display 顯示 Hz		1. Power frequency 2. Decimal point = 1
Press dsp		
PF display 顯示 P F		1. Power factor 2. Decimal point = 2
Press dsp		
Total kWh display 顯示總 KWH		1. Integrate effective energy (Total KWh) 2. Display range：-19999999 ~ 99999999 3.「u t = 1.0」: Decimal point = 3 ；「u t = 0.1k」: Decimal point = 1
Press dsp		
kWh 1 display 顯示 kWh 1		1. L1 Integrate effective energy (kWh1) 2. Range：-19999999 ~ 99999999 3.「u t = 1.0」: Decimal point = 3 ；「u t = 0.1k」: Decimal point = 1
Press dsp		
kWh 2 display 顯示 kWh 2		1. L2 Integrate effective energy (kWh2) 2. Display range：-19999999 ~ 99999999 3.「u t = 1.0」: Decimal point = 3 ；「u t = 0.1k」: Decimal point = 1
Press dsp		
kWh 3 display 顯示 kWh 2		1. L3 Integrate effective energy (kWh3) 2. Display range：-19999999 ~ 99999999 3.「u t = 1.0」: Decimal point = 3 ；「u t = 0.1k」: Decimal point = 1
Press dsp		
Total kW display 顯示總 kW		1. Effective power (Total kW) 2. Display range：-19999999 ~ 99999999 3.「u t = 1.0」: Decimal point = 4 ；「u t = 0.1k」: Decimal point = 3
Press dsp		
kW 1 display 顯示 kW 1		1. L1 Effective power (kW1) 2. Display range：-19999999 ~ 99999999 3.「u t = 1.0」: Decimal point = 4 ；「u t = 0.1k」: Decimal point = 3
Press dsp		
kW 2 display 顯示 kW 2		1. L2 Effective power (kW2) 2. Display range：-19999999 ~ 99999999 3.「u t = 1.0」: Decimal point = 4 ；「u t = 0.1k」: Decimal point = 3
Press dsp		
kW 3 display 顯示 kW 3		1. L3 Effective power (kW3) 2. Display range：-19999999 ~ 99999999 3.「u t = 1.0」: Decimal point = 4 ；「u t = 0.1k」: Decimal point = 3
Press dsp		
CO_2 display 顯示碳排累積量		1. CO_2 Integrate volume (Kg) 2. Display range：0 ~ 99999999 (dp=1) 3. Decimal point = 1
Press		

Setting of parameter / 參數設定【AMP-21】

Setting conditions	Display	Description
Running state 運轉狀態		
Press ENT + ▲ 3s		
Lock setting 鎖住設定		1.「Lck.10」: All settable
Press ENT		
Data format 資料格式		1.「dFt FL」： Floating format 2.「dFt in」: Integer format (32 bit double word big-endian)
Press ENT		
Input mode selecting 輸入模式選擇		1.「1P2L」: Single phase 2 wires (1CT) 4.「3P3L」: 3 phase 3 wires (2CT) 2.「1P3C」: Single phase 2 wires (3CT) 5.「3P3C」: 3 phase 3 wires (3CT) 3.「1P3L」: Single phase 3 wires (2CT) 6.「3P4L」: 3 phase 4 wires (3CT)
Press ENT		
kWh unit selection kWh 顯示單位選擇		1.「u t = 0.1k」: unit = 0.1kWh & 0.001kW，Input wattage ≤ 1800kW 2.「u t = 1.0」: unit = 0.001kWh & 0.0001kW，Input wattage ≤ 18kW
Press ENT		
CT ratio setting CT 比值設定		1. Input「5A」: Range：1 ~ 999.9 (dp=1) ； Ex：Ct_rA = 20.0 → CT ratio = 100：5 2. Input「mA」: Range：1 ~ 9999 (dp=0) ； Ex：Ct_rA =3000 → CT ratio = 3000：1
Press ENT		
PT ratio setting PT 比值設定		1. Range：0.01 ~ 99.99 (dp=2) Ex：Pt_rA = 1.00 → Voltage ratio = 1：1
Press ENT		
CO_2 coefficient setting 碳排當量係數設定		1. Range：0 ~ 1.000 (dp=3) 2. Unit：Kg CO2e/KWH
Press ENT		
Alarm mode selecting 警報模式選擇		1. Range：0~3 2.「ALt = 0」: Without alarm ；「ALt = 1」: High alarm ；「ALt = 2」: Low alarm ； 「ALt = 3」: High & Low alarm
Press ENT		
WH reset protection 電能歸零保護設定		1.「RST=0」: Un-resettable 2.「RST=1」: Resettable (WH & CO2) 3.「WH」reset：Press the SET & ▲ & ▼ 3s
Press ENT		

Setting of alarm / 警報設定【AMP-21】

Setting conditions	Display	Description
KWH display 顯示 KWH		
Press ENT 3s		
Power factor alarm setting 功率因素警報設定		1. Range：0.00~1.00 2. Alarm address (0212H/bit.8)：Alarm ON → 0212H/bit.8 = 1 3. dp=2
Press ENT		
Power frequency alarm setting 電源頻率設定		1. Range：0.0~99.9 2. Alarm address (0212H/bit.7)：Alarm ON → 0212H/bit.7 = 1 3. dp=1
Press ENT		
Voltage alarm setting 電壓警報設定		1. Range：0.0~999.9V 2. Alarm address (0212H/bit.1~3)：Alarm ON → 0212H/bit.1~3 = 1 3. dp=1
Press ENT		
Current alarm setting 電流警報設定		1. Range：0.0~999.9A 2. Alarm address (0212H/bit.4~6)：Alarm ON → 0212H/bit.4~6 = 1 3. dp=1
Press ENT		
Alarm hysteresis setting 警報應差值設定		1. Range：0.0~100.0% of AL_x 2.「ALt = 1」: PV ≧ AL_x * (1 + HYS%) → Alarm ON 「ALt = 2」: PV ≦ AL_x * (1 - HYS%) → Alarm ON 「ALt = 3」: PV ≧ AL_x * (1 + HYS%) or PV ≦ AL_x * (1 - HYS%) → Alarm ON 3. dp=1
Press ENT		
KW alarm setting KW 警報設定		1. Range：-19999.999 ~ 99999.999 2. Alarm address (0212H/bit.9)：Alarm ON → 0212H/bit.9 = 1 3. dp=3
Press ENT		
KQ alarm setting KQ 警報設定		1. Range：-19999.999 ~ 99999.999 2. Alarm address (0212H / bit.10)：Alarm ON → 0212H/bit.10 = 1 3. dp=3
Press ENT		

Selection of display / 顯示切換【AMP-32】

Setting conditions	Display	Description
Total KWH display 顯示總 KWH		【「V1」= V12 / 「V2」= V13 / 「V3」= V32】
Press dsp 1s		
Average V_{LL}/A display 顯示平均 V_{LL}/A 值		1. Average Line voltage (L-L) & Line current display 2.「n」is disappeared 3. Voltage「dp」= 1 ； Current「dp」= 0 ~ 3 (auto shift)
Press dsp		
Average Vn/A display 顯示平均 Vn/A 值		1. Average Phase voltage (L-N) & Line current display 2.「n」is appeared 3. Voltage「dp」= 1 ； Current「dp」= 0 ~ 3 (auto shift)
Press dsp		
V1/A1 display 顯示 V1/A1		1. L1 Line voltage (V12) ； V1 at「3P3L」【「n」is disappeared】 2. L1 Line current (A1) ； A1 at「3P3L」 3. Voltage「dp」= 1 ； Current「dp」= 0 ~ 3 (auto shift)
Press dsp		
V1n/A1 display 顯示 V1n/A1		1. L1 Phase voltage (V1n) ； V1n at「3P4L」【「n」is appeared】 2. L1 Line current (A1) ； A1 at「3P4L」 3. Voltage「dp」= 1 ； Current「dp」= 0 ~ 3 (auto shift)
Press dsp		
V2/A2 display 顯示 V2/A2		1. L2 Line current (V23) ； V2 at「3P3L」【「n」is disappeared】 2. L2 Line current (A2) ； A2 at「3P3L」 3. Voltage「dp」= 1 ； Current「dp」= 0 ~ 3 (auto shift)
Press dsp		
V2n/A2 display 顯示 V2n/A2		1. L2 Phase voltage (V2n) ； V2n at「3P4L」【「n」is appeared】 2. L2 Line current (A2) ； A2 at「3P4L」 3. Voltage「dp」= 1 ； Current「dp」= 0 ~ 3 (auto shift)
Press dsp		
V3/A3 display 顯示 V3/A3		1. L3 Line voltage (V31) ； V3 at「3P3L」【「n」is disappeared】 2. L3 Line current (A3) ； A3 at「3P3L」 3. Voltage「dp」= 1；Current「dp」= 0 ~ 3 (auto shift)
Press dsp		
V3n/A3 display 顯示 V3n/A3		1. L3 Phase voltage (V3n) ； V3n at「3P4L」【「n」is appeared】 2. L3 Line current (A3) ； A3n at「3P4L」 3. Voltage「dp」= 1；Current「dp」= 0 ~ 3 (auto shift)
Press dsp		
Hz display 顯示 Hz		1. Power frequency 2. Decimal point = 1
Press dsp		
PF display 顯示 P F		1. Power factor 2. Decimal point = 2
Press dsp		
Total kWh display 顯示總 KWH		1. Integrate effective energy (Total KWh) 2. Display range：-19999999 ~ 99999999 3.「u t = 1.0」: Decimal point = 3 ；「u t = 0.1k」: Decimal point = 1
Press dsp		
kWh 1 display 顯示 kWh 1		1. L1 Integrate effective energy (kWh1) 2. Range：-19999999 ~ 99999999 3.「u t = 1.0」: Decimal point = 3 ；「u t = 0.1k」: Decimal point = 1
Press dsp		
kWh 2 display 顯示 kWh 2		1. L2 Integrate effective energy (kWh2) 2. Display range：-19999999 ~ 99999999 3.「u t = 1.0」: Decimal point = 3 ；「u t = 0.1k」: Decimal point = 1
Press dsp		
kWh 3 display 顯示 kWh 3		1. L3 Integrate effective energy (kWh3) 2. Display range：-19999999 ~ 99999999 3.「u t = 1.0」: Decimal point = 3 ；「u t = 0.1k」: Decimal point = 1
Press dsp		
Total kW display 顯示總 kW		1. Effective power (Total kW) 2. Display range：-19999999 ~ 99999999 3.「u t = 1.0」: Decimal point = 4 ；「u t = 0.1k」: Decimal point = 3
Press dsp		
kW 1 display 顯示 kW 1		1. L1 Effective power (kW1) 2. Display range：-19999999 ~ 99999999 3.「u t = 1.0」: Decimal point = 4 ；「u t = 0.1k」: Decimal point = 3
Press dsp		
kW 2 display 顯示 kW 2		1. L2 Effective power (kW2) 2. Display range：-19999999 ~ 99999999 3.「u t = 1.0」: Decimal point = 4 ；「u t = 0.1k」: Decimal point = 3
Press dsp		
kW 3 display 顯示 kW 3		1. L3 Effective power (kW3) 2. Display range：-19999999 ~ 99999999 3.「u t = 1.0」: Decimal point = 4 ；「u t = 0.1k」: Decimal point = 3
Press dsp		
CO_2 display 顯示碳排累積量		1. CO_2 Integrate volume (Kg) 2. Display range：0 ~ 99999999 (dp=1) 3. Decimal point = 1
Press		

Setting of parameter / 參數設定【AMP-32】

Setting conditions	Display	Description
Running state 運轉狀態		
Press ENT + ▲ 3s		
Lock setting 鎖住設定		1.「Lck.10」: All settable
Press ENT		
Data format 資料格式		1.「dFt FL」: Floating format 2.「dFt in」: Integer format (32 bit double word big-endian)
Press ENT		
Input mode selecting 輸入模式選擇		1.「1P2L」: Single phase 2 wires (1CT) 4.「3P3L」: 3 phase 3 wires (2CT) 2.「1P3C」: Single phase 2 wires (3CT) 5.「3P3C」: 3 phase 3 wires (3CT) 3.「1P3L」: Single phase 3 wires (2CT) 6.「3P4L」: 3 phase 4 wires (3CT)
Press ENT		
kWh unit selection kWh 顯示單位選擇		1.「u t = 0.1k」: unit = 0.1kWh & 0.001kW，Input wattage ≤ 1800kW 2.「u t = 1.0」: unit = 0.001kWh & 0.0001kW，Input wattage ≤ 18kW
Press ENT		
CT ratio setting CT 比值設定		1. Input「5A」: Range：1 ~ 999.9 (dp=1) ； Ex：Ct_rA = 20.0 → CT ratio = 100：5 2. Input「mA」: Range：1 ~ 9999 (dp=0) ； Ex：Ct_rA =3000 → CT ratio = 3000：1
Press ENT		
PT ratio setting PT 比值設定		1. Range：0.01 ~ 99.99 (dp=2) Ex：Pt_rA = 1.00 → Voltage ratio = 1：1
Press ENT		
CO_2 coefficient setting 碳排當量係數設定		1. Range：0 ~ 1.000 (dp=3) 2. Unit：Kg CO2e/KWH
Press ENT		
Alarm mode selecting 警報模式選擇		1. Range：0~3 2.「ALt = 0」: Without alarm ；「ALt = 1」: High alarm ；「ALt = 2」: Low alarm ； 「ALt = 3」: High & Low alarm
Press ENT		
WH reset protection 電能歸零保護設定		1.「RST=0」: Un-resettable 2.「RST=1」: Resettable (WH & CO2) 3.「WH」reset：Press the SET & ▲ & ▼ 3s
Press ENT		

Setting of alarm / 警報設定【AMP-32】

Setting conditions	Display	Description
KWH display 顯示 KWH		
Press ENT 3s		
Power factor alarm setting 功率因素警報設定		1. Range：0.00~1.00 2. Alarm address (0212H/bit.8)：Alarm ON → 0212H/bit.8 = 1 3. dp=2
Press ENT		
Power frequency alarm setting 電源頻率設定		1. Range：0.0~99.9 2. Alarm address (0212H/bit.7)：Alarm ON → 0212H/bit.7 = 1 3. dp=1
Press ENT		
Voltage alarm setting 電壓警報設定		1. Range：0.0~999.9V 2. Alarm address (0212H/bit.1~3)：Alarm ON → 0212H/bit.1~3 = 1 3. dp=1
Press ENT		
Current alarm setting 電流警報設定		1. Range：0.0~999.9A 2. Alarm address (0212H/bit.4~6)：Alarm ON → 0212H/bit.4~6 = 1 3. dp=1
Press ENT		
Alarm hysteresis setting 警報應差值設定		1. Range：0.0~100.0% of AL_x 2.「ALt = 1」: PV ≥ AL_x * (1 + HYS%) → Alarm ON 「ALt = 2」: PV ≤ AL_x * (1 - HYS%) → Alarm ON 「ALt = 3」: PV ≥ AL_x * (1 + HYS%) or PV ≤ AL_x * (1 - HYS%) → Alarm ON 3. dp=1
Press ENT		
KW alarm setting KW 警報設定		1. Range：-19999.999 ~ 99999.999 2. Alarm address (0212H/bit.9)：Alarm ON → 0212H/bit.9 = 1 3. dp=3
Press ENT		
KQ alarm setting KQ 警報設定		1. Range：-19999.999 ~ 99999.999 2. Alarm address (0212H / bit.10)：Alarm ON → 0212H/bit.10 = 1 3. dp=3
Press ENT		

Setting of Communication / 通訊參數設定【AMP-32】

Function	Display	Range	Description
Control status 控制狀態	0.000 kWh		
Press ENT & ▼ 3s			
Controller NO. 控制器編號設定	id 1	0 ~ 255	1. Range：0~255
Press SET			
Communication protocol 通訊協定選擇	rS 0	0 ~ 1	1.「rs = 0」: Modbus-RTU 2.「rs = 1」: Modbus-ASCII
Press SET			
Communication speed 通訊速率選擇	bPS 192	96 / 192 384 / 1152	1.「bPS = 96」: 9600 bps　3.「bPS = 384」: 38400 bps 2.「bPS = 192」: 19200 bps　4.「bPS =1152」: 115200 bps
Press SET			
Data configuration 資料結構選擇	bit 8n1	8n1 / 8E1 8o1 / 8n2 7o1 / 7E1	1.「8n1」: 8 bit non parity　4.「8n2」: 8 bit non parity 2.「8o1」: 8 bit odd parity　5.「=7o1」: 7 bit odd parity 3.「8E1」: 8 bit even parity　6.「7E1」: 7 bit even parity
Press SET			

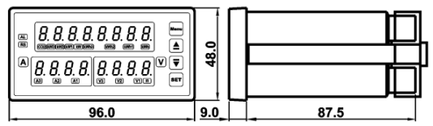
Setting of Communication / 通訊參數設定【AMP-21】

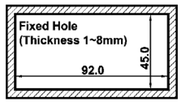
Function	Display	Range	Description
Control status 控制狀態	00000000.0 kWh		
Press ENT & ▼ 3s			
Controller NO. 控制器編號設定	id_ 1	0 ~ 255	1. Range：0~255
Press ENT			
Communication protocol 通訊協定選擇	rS_ 0	0 ~ 1	1.「rs = 0」: Modbus-RTU 2.「rs = 1」: Modbus-ASCII
Press ENT			
Communication speed 通訊速率選擇	bPS_ 192	96 / 192 384 / 1152	1.「bPS = 96」: 9600 bps　3.「bPS = 384」: 38400 bps 2.「bPS = 192」: 19200 bps　4.「bPS =1152」: 115200 bps
Press ENT			
Data configuration 資料結構選擇	bit_ 8n1	8n1 / 8E1 8o1 / 8n2 7o1 / 7E1	1.「8n1」: 8 bit non parity　4.「8n2」: 8 bit non parity 2.「8o1」: 8 bit odd parity　5.「=7o1」: 7 bit odd parity 3.「8E1」: 8 bit even parity　6.「7E1」: 7 bit even parity
Press ENT			

Setting of transmitter / 傳送設定【APM-32-TR】

Function	Display	Range	Description
Control status 控制狀態	8888 8888 kWh 3 2 1 n		
Press ▲ & ▼ 3s			
Unit selecting 傳送單位選擇	tut u	u or ku or A	1.「tut = u」: W (Effective power (Total W)) (0~9999W) 2.「tut = ku」: kW (Effective power (Total KW)) (0~999.9kW) 3.「tut = A」: A (Average current) (0~999.9A)
Press SET			
Transmitter range setting 傳送範圍設定	rAn 9999	0 ~ 9999	1.「rAn=9999」: 0~9999 → 0 ~ 20mA
Press SET 3s　Press SET			
4 mA offset correcting 4 mA 輸出偏差修正	Lo 0	-999 ~ 9999	1.「4mA」: offset correcting
Press SET			
20 mA offset correcting 20 mA 輸出偏差修正	Hi 0	-999 ~ 9999	1.「20mA」: offset correcting
Press SET			

Operation diagram / 操作圖【AMP-21】

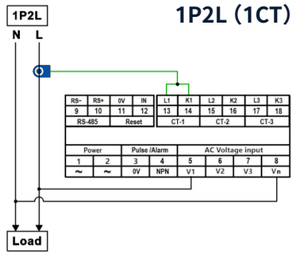




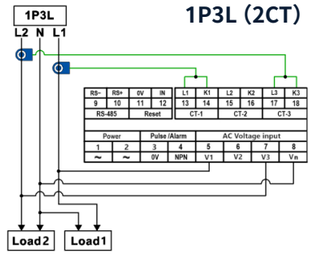
				Current input：0 ~ 5A (VAC)					
RS-	RS+	0V	IN	L1	K1	L2	K2	L3	K3
9	10	11	12	13	14	15	16	17	18
RS-485		Reset		CT-1		CT-2		CT-3	

Power		Alarm		AC Voltage input			
1	2	3	4	5	6	7	8
~	~	COM	NO	V1	V2	V3	Vn
90 ~ 265 VAC 50/60Hz		5A/250VAC max.		50 ~ 480VAC (L-N) 50 ~ 690VAC (L-L)			

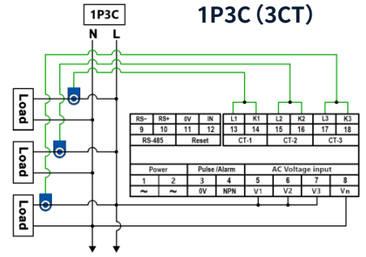
1P2L (1CT)



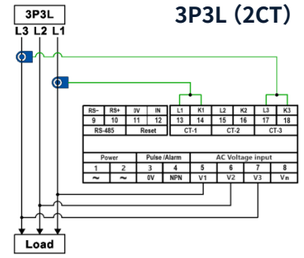
1P3L (2CT)



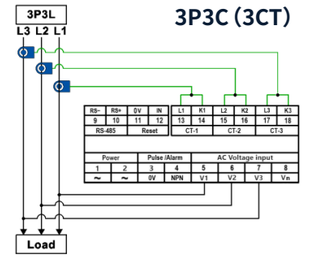
1P3C (3CT)



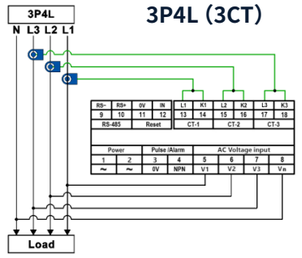
3P3L (2CT)



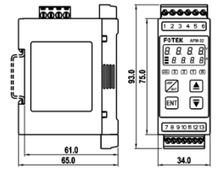
3P3C (3CT)



3P4L (3CT)

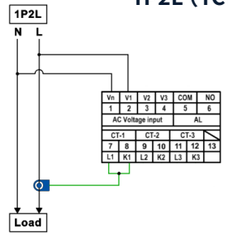


Operation diagram / 操作圖【AMP-32】

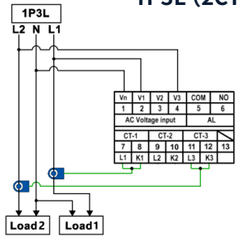


480VAC max.				5A/250VAC max.			RS-
Vn	V1	V2	V3	COM	NO		RS+
1	2	3	4	5	6		~
AC Voltage input				AL			~
						or	
CT-1		CT-2		CT-3			Tr-
7	8	9	10	11	12	13	Tr+
L1	K1	L2	K2	L3	K3		~
Current input : 5A max.							~
							Power 90~265VAC

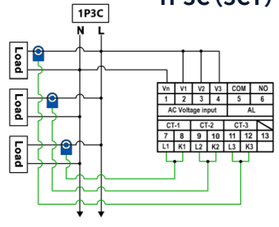
1P2L (1CT)



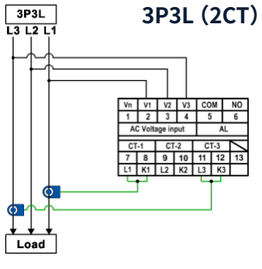
1P3L (2CT)



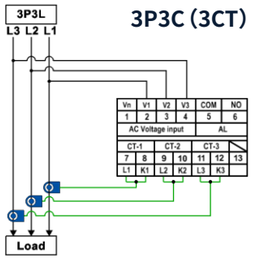
1P3C (3CT)



3P3L (2CT)



3P3C (3CT)



3P4L (3CT)