AMELEC
SIGNAL CONDITIONING

APM244-5-AO-2RL Process Indicator / Controller

■ DESCRIPTION

- 5 Digit Red LED high-brightness Display.
- Input any DC voltage and current (Sink & Source).
- 2 relays can be programmed individually to be Hi / Lo / Hi Latch / Lo Latch / Energise with Start Delay / Hysteresis / Energised & De-energised Delay functions, or to be remote control.
- Analogue output fitted as standard with optional 1 RS485 (Modbus RTU Mode) interface with versatile functions such as control, alarm, re-transmission and communication for a wide range of industrial applications.
- 1 external control input can be programmed to be Relative PV (Tare) / PV Hold / Maximum or Minimum Hold / DI (remote monitoring) / Reset for Relay Energised Latch….
- Standard 24Vdc supply.
- Front Panel mount as standard with optional Din rail / Surface mount.

Just 24 x 48mm
with 2 x Trips & Re-Tx

■ TECHNICAL SPECIFICATION

Input

Input Range	Input Impedance	Input Range	Input Impedance
Voltage 0 ~ 10 V	≥ 1M ohm	**Current** 0(4)~20 mA	250 ohm

➢ **Any Input in the range of 0~10V or 0~20mA.**

Calibration: Digital calibration by front key
A/D converter: **16 bits resolution**
Accuracy: ≤± 0.04% of FS ± 1C;
Sampling rate: 15 cycles/sec
Response time: ≤100 msec.(when the AvG = "1") in standard
Input type: **0~10V / 0~5V / 1~5V / 0-10mA / 0~20mA / 4~20mA**
Input range High and Low programmable
Ai.Hi: Settable range: 0.00~100.00% of input range
Ai.Lo: Settable range: 0.00~100.00% of input range

Display & Functions

LED: **Numeric:** 5 digits, 0.4"(10.0mm)H red high-brightness LED
Relay output indication: 2 square red LED
RS 485 communication: 1 square orange LED
E.C.I. function indication: 3 square green LED
Max/Mini Hold indication: 2 square orange LED
Display range: -19999~29999;
Scaling function: **Lo.SC:** Low Scale; Settable range: -19999~+29999
Hi.SC: High Scale; Settable range: -19999~+29999
Decimal point: Programmable from 0 / 0.0 / 0.00 / 0.000 / 0.0000
Over range indication: **ovFL,** when input is over 120% of input range Hi
Under range indication: **-ovFL,** when input is under -20% of input range Lo
Max / Mini recording: Maximum and Minimum value storage during power on.
Display functions: ***PV / Max(Mini) Hold / RS 485 Programmable***
Front key functions: ***Up and down key can be set to be a function as ECI.***
Low cut: Settable range: -19999~29999 counts
Digital fine adjust: **Pv.Zro:** Settable range: -19999~+29999
Pv.SPn: Settable range: -19999~+29999

Reading Stable Function

Average: Settable range: 1~99 times
Moving average: Settable range: None / 1~10 times
Digital filter: Settable range: None /1~99 times

Control Functions(option)

Set-points: Two set-points
Control relay: 2 Relays SPCO, 1A/230Vac, 3A/115V

Relay energised mode: Energised levels compare with set-points:
*Hi / Lo / **Hi.HLd** / **Lo.HLd** programmable*
Energized by RS485 command of master: DO programmable
Energising functions: Start delay / Energised & De-energised delay / Hysteresis / Energised Latch
Start band(Minimum level for Energising): 0~9999counts
Start delay time: *0:00.0~9(Minutes):59.9(Second)*
Energised delay time: *0.00.0~9(Minutes):59.9(Second)*
De-energised delay time: *0.00.0~9(Minutes):59.9(Second)*
Hysteresis: 0~5000 counts

External Control Inputs(ECI)

Input mode: 1 ECI points, Contact or open collect input, Level trigger
Functions: *Relative PV(Tare) / PV Hold / Reset for Max or Mini. Hold / **DI** / Reset for Relay Energised latch*
Debouncing time: Settable range 5 ~255 x (8m seconds)

Analogue output(option)

Accuracy: ***≤± 0.1% of F.S.; 16 bits DA converter***
Ripple: ≤± 0.1% of F.S.
Response time: ≤100 msec. (10~90% of input)
Isolation: AC 1.5 KV between input and output
Output range: Specify either Voltage or Current output when ordering.
Voltage: 0~5V / 0~10V / 1~5V programmable
Current: 0~10mA / 0~20mA / 4~20mA programmable
Output capability: **Voltage: 0~10V: ≥ 1000Ω;**
Current: 4(0)~20mA: ≤ 600Ω max

Tel: 01908-567003 **Email: sales@amelec-uk.com** **Visit: www.amelec-uk.com** **Fax: 01908-566735**
AMELEC Instruments, Cochran Close, Crownhill, Milton Keynes, MK8 0AJ

Issue 3.2019

Functions:	***Ao.HS****(output range high): Settable range: -19999~29999*
	Ao.LS*(output range Low): Settable range: -19999~29999*
	Ao.LMt*(output High Limit): 0.00~110.00% of output High*
Digital fine adjust:	**Ao.Zro:** Settable range: -38011~+27524
	Ao.SPn: Settable range: -38011~+27524

RS 485 communication(option)

Protocol:	Modbus RTU mode
Baud rate:	1200/2400/4800/9600/19200/38400 programmable
Data bits:	8 bit
Parity:	Even, odd or none (with 1 or 2 stop bit) programmable
Device no:	1 ~ 255 programmable
Remote display:	***to show the value from RS485 command of master***
Distance:	1200M
Terminate resistor:	150Ω at last unit.

Electrical Safety

Dielectric strength:	AC 1.5 KV for 1 min, Between Power / Input / Output / Case
Insulation resistance:	≥ 100M ohm at 500Vdc, Between Power / Input / Output
Isolation:	Between Power / Input / Relay / E.C.I./ Analogue or RS485
EMC:	EN 55011:2002; EN 61326:2003
Safety(LVD):	EN 61010-1:2001

Environmental

Operating temp.:	0~60 ˚C
Operating humi.(%RH):	20~95 %RH, Non-condensing
Temp. coefficient:	≤100 PPM/˚C
Storage temperature:	-10~70 ˚C
Enclosure:	Front panel: IEC 549 (IP54); Housing: IP20

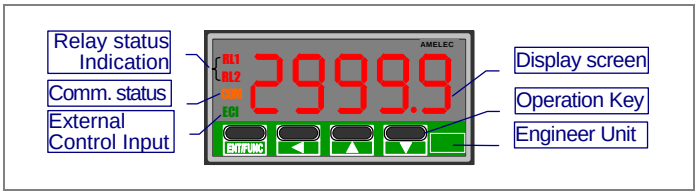
Mechanical

Dimensions:	48mm(W) x 24mm(H) x 102mm(D)
Panel cutout:	45mm(W) x 22.5mm(H)
Case materiel:	ABS fire-protection (UL 94V-0)
Mounting:	Panel flush mounting
Terminal block:	Plastic NYLON 66 (UL 94V-0)
	5A 300Vac, M2.0, 0.5~1.3mm²(22~16AWG)
Weight:	About 110g

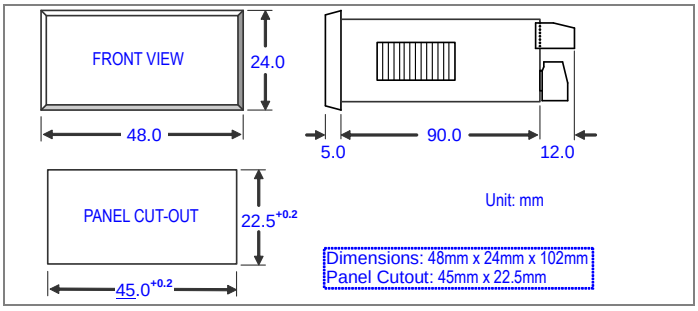
Power

Power supply:	**DC 20~56V**
Excitation supply:	DC 24V, 30mA maximum in standard
Power consumption:	4.5VA max.
Back up memory:	By EEPROM

■ FRONT PANEL

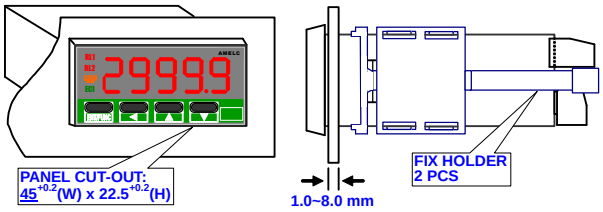


■ DIMENSIONS

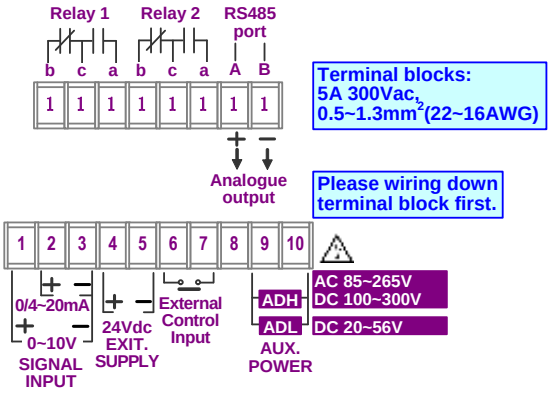


■ INSTALLATION

The meter should be installed in a location that dose not exceed the maximum operating temperature and provides good air circulation.

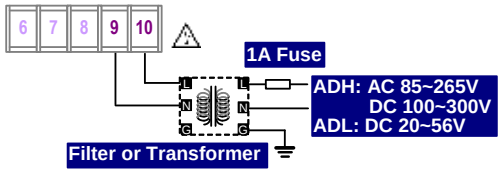


■ CONNECTION DIAGRAM

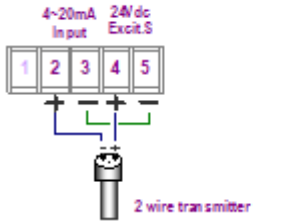


Please check the voltage of power supplied first, and then connect to the specified terminals. It is recommended that power supplied to the meter be protected by a fuse or circuit breaker.

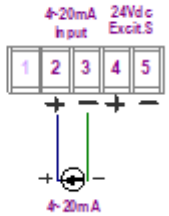
Power Supply



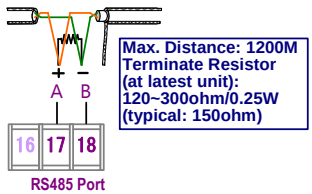
2 wire Transmitter connection



4~20mA source connection



RS485 Communication Port



Tel: 01908-567003 **Email: sales@amelec-uk.com** **Visit: www.amelec-uk.com** **Fax: 01908-566735**

AMELEC Instruments, Cochran Close, Crownhill, Milton Keynes, MK8 0AJ

Issue 3.2019