

APM489-5-AO-4RL Process Indicator / Controller

■ DESCRIPTION

- 5 Digit Red LED high-brightness Display.
- Measuring linear signal 0~10V and 0(4)~20mA (with Square Root function) in one indicator.
- 4 relays can be programmed individually to be Hi / Lo / Hi Latch / Lo Latch / Go energised 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.
- 3 external control inputs can be programmed individual to be Relative PV (Tare) / PV Hold / Maximum or Minimum Hold / DI (remote monitoring) / Reset for Relay Energised Latch....
- Standard 115 / 230Vac with Optional 24Vdc.



■ TECHNICAL SPECIFICATION

Input

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

➤ Input 0~10V or 0~20mA can be selected by termination. (11 or 12)

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 programmable for coding AV(option)
Input range:	Input 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, 0.8"(20.0mm)H red high-brightness LED Relay output indication: 4 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 Programmable from 0 / 0.0 / 0.00 / 0.000 / 0.0000
Decimal point:	Selectable for differential pressure transducers
Square root function:	Selectable for differential pressure transducers
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: 1(None)~10 times
Digital filter:	Settable range: 0(None)/1~99 times

Control Functions(option)

Set-points:	Four set-points
Control relay:	Four relays Relay 2 & Relay 3: Dual FORM-C, 5A/230Vac, 10A/115V Relay 1 & Relay 4: Dual FORM-A, 1A/230Vac, 3A/115V
Relay energised mode:	Energised levels compare with set-points: Hi / Lo / Go.12 / Go.23 / Hi.HLD / Lo.HLD: programmable DO function: Energised by RS485 command of master.
Energizing functions:	Start delay / Energised & De-energised delay / Hysteresis / Energised Latch Start band (Minimum level for Energizing): 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:	3 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 2.0 KV between input and output
Output range:	Specify either Voltage or Current output in 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

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

Ao.Zro: Settable range: -38011~+27524

Ao.SPn: Settable range: -38011~+27524

Digital fine adjust:

RS 485 Communication(option)

Protocol: Modbus RTU mode
Baud rate: 1200/2400/4800/9600/19200/38400 programmable
Data bits: 8 bits
Parity: Even, odd or none (with 1 or 2 stop bit) programmable
Address: 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 2.0 KV for 1 min, Between Power / Input / Output / Case
Insulation resistance: ≥100M ohm at 500Vdc, Between Power / Input / Output
Isolation: Between Power / Input / Relay / Analogue / RS485 / E.C.I.
EMC: EN 55011:2002; EN 61326:2003
Safety(LVD): EN 61010-1:2001

Environmental

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

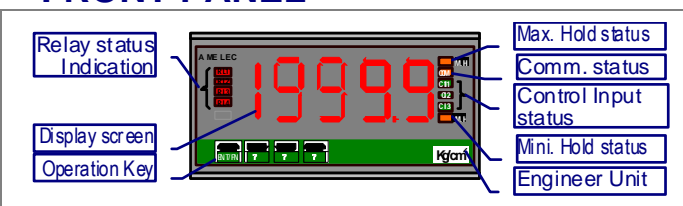
Mechanical

Dimensions: 96mm(W) x 48mm(H) x 120mm(D)
Panel cutout: 92mm(W) x 44mm(H)
Case material: ABS fire-resistance (UL 94V-0)
Mounting: Panel flush mounting
Terminal block: Plastic NYLON 66 (UL 94V-0)
 10A 300Vac, M2.6, 1.3~2.0mm²(16~12AWG)
Weight: 550g / 350g(Aux. Power Code: ADH or ADL)

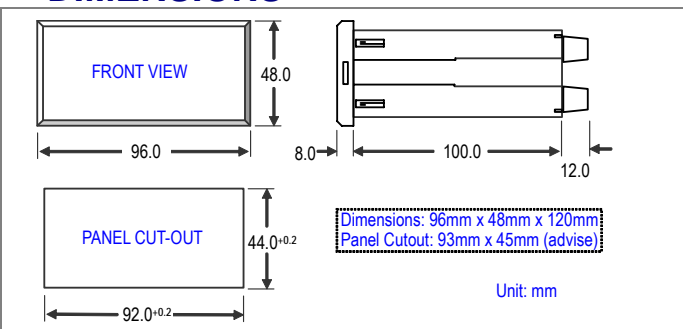
Power

Power supply: AC115/230V,50/60Hz;
 Optional: AC/DC 85~264V or 20~90V(RoHS version)
Excitation supply: DC24V/30mA maximum in standard
Power consumption: 5.0VA maximum
Back up memory: By EEPROM

FRONT PANEL

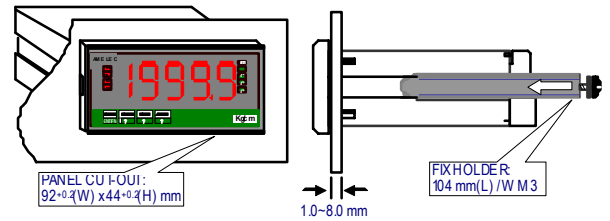


DIMENSIONS

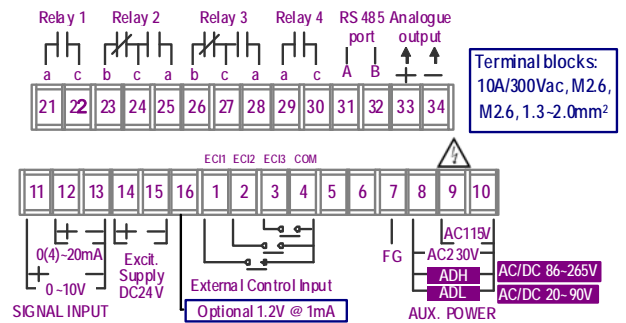


INSTALLATION

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

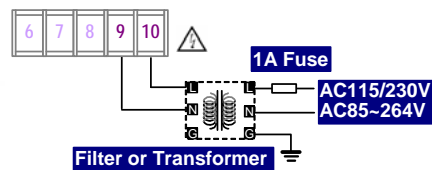


CONNECTION DIAGRAM

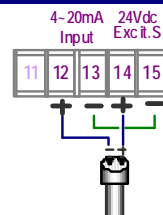


Please check the power supply voltage first, and then connect to the specified terminals. It is recommended that power supplied to the meter be protected by a fuse or circuit breaker.

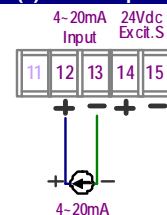
Power Supply



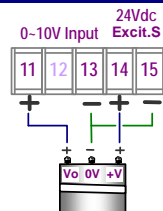
2 wire Transmitter connection



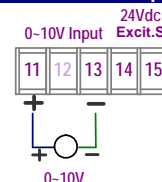
4(0)~20mA Input connection



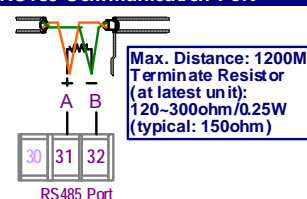
3 Wire Transmitter



0~10V Source Input connection



RS485 Communication Port



Potentiometer Input

