





# APM MAX-M21



**Before installation, read the Safety Warnings overleaf.**



**CAUTION: Risk of Danger.** Read complete instructions prior to installation and operation of the unit



**CAUTION: Risk of electric shock**

## Operating specification

**Intended Use:** The APM has been specifically designed for engineers requiring an effective way to monitor and display data. The APM accepts a range of electrical inputs (depending on the model) and displays the data on its integrated multi-format display. The APM has been designed for installation into electrical cabinets or display panels. The units come as standard with two digital outputs and one serial output.

The digital readout will still show the actual voltage even if the bar graph is out of range.

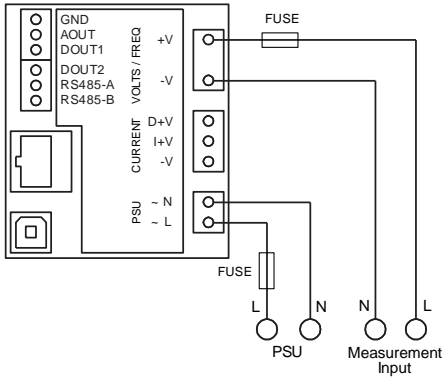
Measurement Range	
Voltage / Frequency Input	0-600V DC / AC 50-60Hz
Shunt Input	0 – 500mV AC/DC
Current Input Direct (max. 300V AC/DC)	0-5A
Frequency (min. voltage 26V AC)	0-400Hz
DC Power Measurement	Watts
AC Power Measurement	Watts, VA, VAR
Measurement Accuracy	
DC	0.5%
Frequency (min 20V RMS)	0.1%
AC	0.5%
Power Measurement	0.5%
Isolation	Reinforced 4KV @ 1 Sec 3KV @ 1 min
Measurement Category	CATII
Impedance	
Voltage / Frequency	2 MΩ
Shunt	10 MΩ
Current Input Direct	4MΩ

Communication		
Modbus Configured Parameters (Trumeter configurator required): Only function code 4 – read input register supported.		
Parameter		
Slave ID	0 to 255	
Baud Rate	4800 to 192000	
Stop Bits and Parity	2 stop bits no parity 1 stop bit even parity 1 stop bit odd parity	
Communications	Enable / Disable	
Modbus Registers		
Address	Variable Type	Description
1-2	32bit Float	Displayed Value (after configuration)
3-4	32bit Float	SI measured unit (before configuration)
5	1 Byte	Alarm 1
6	1 Byte	Alarm 2
TCP/IP Parameters		
IP Address	Only adjustable if DHCP disabled	
Subnet Mask	disabled	
Gateway, DNS1, DNS2, Hostname, Interface Name, Modbus Port Address, Modbus Timeout Period.		

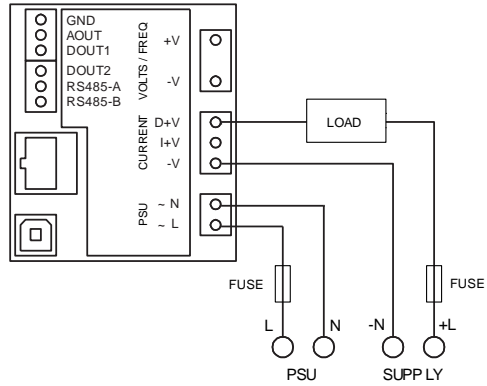
GdYVZVWUhc b'	
<b>J5 @ 9'</b>	
<b>9bi ifcba Ybh</b>	
Temperature - operating	-10 to +60 deg C
Temperature - storage	-40 to +70 deg C
Altitude	2000 metres
Relative Humidity (non-condensing) - Continuous	0 – 85 %
Relative Humidity (non-condensing) - Intermittent	0 – 95 %
Overvoltage category (IEC664)	II
Pollution Degree (IEC664)	2
IP rating (from the front)	IP65
Power supply	
<b>Jc'HI Y'</b>	<b>%\$!@ (\$J'57') \$!*\$&lt;n</b>
Max Power	5W
Isolation	4.2KVrms, 5mA 1 min
<b>8 lqd'Um</b>	
Number of digits - Starburst	4
Number of digits – 7 Segment	4
Number of bar-graph segments	60
<b>6 UW' [ \ hVc'ci fq</b>	<b>F; 6 K</b>
LCD	Positive or negative
Viewing angle	+/-70° Horizontal +/-70° Vertical
<b>CdYb7c''YVcf'Glb'Jbf'Ci'Idi'Idi</b>	
Max voltage (open collector outputs)	34 VDC
Max current (open collector outputs)	500 mA
<b>!&amp;\$'a'5'5bUcf'i'YCi'Idi'h</b>	
Accuracy	0.50 %
Max Load	240 Ω
Resolution	0.02 mA
<b>\$!%\$J'5'bUcf'i'YCi'Idi'h</b>	
Accuracy	0.50 %
Resolution	0.013V
<b>7cbbYVfcbq</b>	
Type	Screw Terminals
Wire type	Solid or Stranded
Min. cable temperature rating	70°C (158°F)
Wire strip length'	6.5mm to 7mm (0.26" to 0.28")
Wire gauge	0.8mm <sup>2</sup> - 3.3mm <sup>2</sup> (18AWG to 12AWG)
Torque	0.5-0.6Nm (4.42-5.31 lbf-in)
<b>h'h Y6cl</b>	
APM	
Getting started & safety guide	
IP65 Gasket	
Mounting Kit'	
<b>8Ja Ybqcbq/ K YI \ h</b>	
Panel Cut-out: 68 x 68 mm (2.68 in) square; 106mm (4.00 in) round +0.7 -0 mm (0.02 in). Max. panel thickness: 11.0 mm.	
<b>8 YdH VY lbX'dUbY'lbq(XY'Zcbh'') a a 'f8%'eIb'lbVW' YI'fYbU'V'bbYVfcbq'K YI \ h' (S'f'f'U'g'</b>	

# Wiring Diagrams

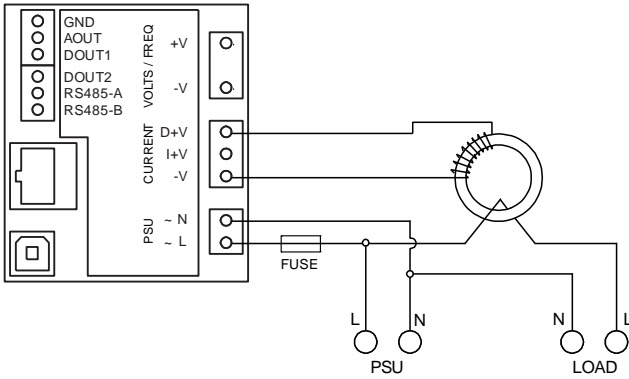
**VOLT / FREQUENCY MEASUREMENT**



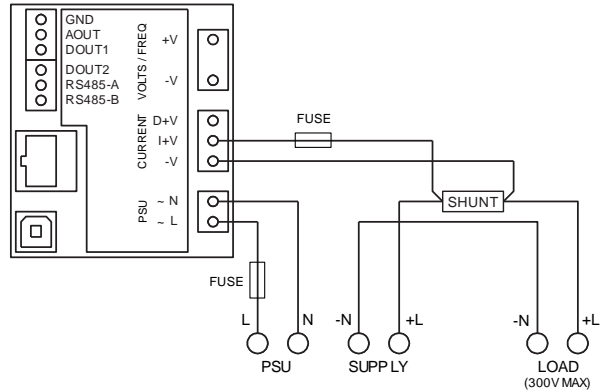
**AC/DC CURRENT MEASUREMENT SERIES LOAD (MAX 5A)**



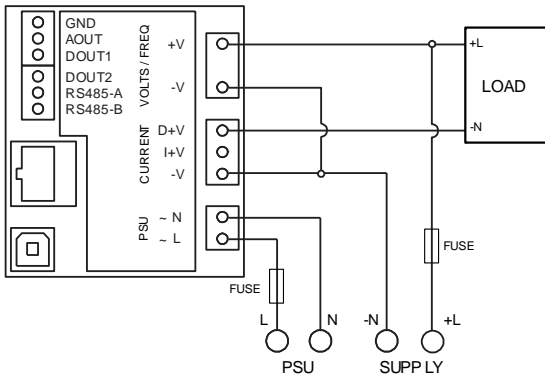
**AC CURRENT MEASUREMENT USING CT (5A MAX)**



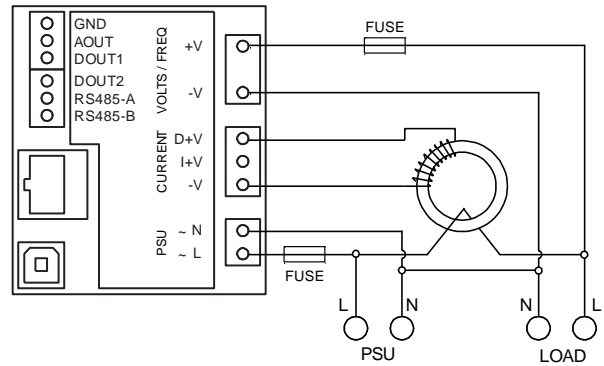
**AC/DC CURRENT MEASUREMENT USING SHUNT (MAX 500mV)**



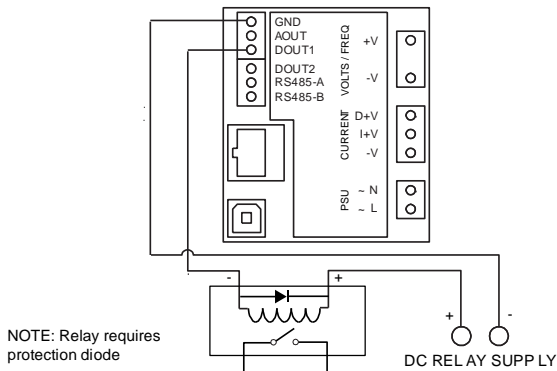
**AC/DC POWER MEASUREMENT SERIES LOAD (5A MAXIMUM)**



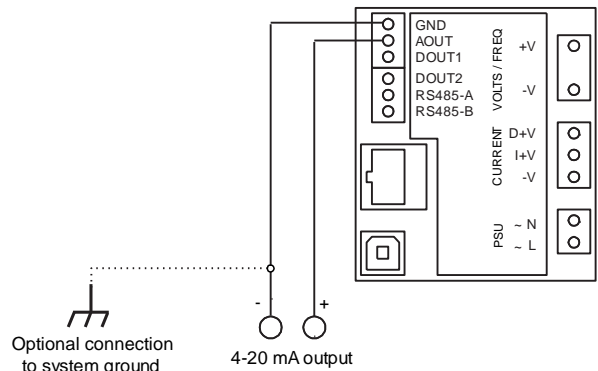
**AC POWER MEASUREMENT WITH A CT**



**RELAY OUTPUT**



**4-20mA ANALOG OUTPUT**



## GUZ/miK Ufb]b[ g'



K 5 FB-B: -BGH5 @6 HCB'5 B8' A5-BH9B5 B79' A1 GH69 75 FF98'  
 CI H6 MG1 +5 6 @MEI 5 @e -98' 5 B8' 7 CA D9 H9 BHD9 FGC B9 @CB @M'  
 <5 N5 F8 CI G'JC @5; 9 G' A5 M6 9' DF9 G9 BHCB' Hc-9' 7 CBB97 HCB'  
 H9 FA-B5 @e"



### -BGH5 @6 HCB'

- Install this product in accordance with local regulations, codes and instructions.
- An external fuse must be fitted in-line with the PSU. Recommended fuse: 0.5A Type F with a breaking capacity of 35A or greater. Fuse voltage rating must be greater than the maximum supply voltage.
- All conductors carrying hazardous voltage must have external switching or disconnect mechanisms fitted that provide at least 3mm of contact separation in all poles. The switch must be suitably located; easily reached and marked as the disconnecting device.
- Signal cables connected to this device must not exceed 30 metres long.
- If signal cables are routed outside the building, install extra surge-protection devices.
- Current measurement input, USB and all outputs: Observe maximum allowable voltages. All circuits connected to these connectors must be limited-energy and insulated by double/reinforced insulation from mains voltages according to IEC 61010-1:2010



: U]i fYtc ]bghU"cf'cdYfUhr'h Yi b]h]b' U]WfXUbVr'k ]h 'h Y'  
 Uvcj YfYei ]fYa Yb]g'a Um]a dU]f'h Y'YVf]VU' gU]ZfmcZ'h Y'  
 i b]h"



Jc' H] Y'a YUgi fYa Ybrg. '5 b' Yl Hf'bu' l' @YWf[ b]nYX'cf' ]ghYX'  
 cj YfW ffYbhd'fchVW]cb'XY] JW'fZ gY'cf' V]fW ]hVfYU Yf'a i gh  
 VY]ZHX' ]b] ]bYk ]h 'h Y'j c' H] Y' YUX" F YW'a a YbXYX' Z gY.  
 \$) 5 HndY: k ]h 'U'VfYU ]b] V]U]U]micZ' ) 5' cf' [ fYUhr'": i gY  
 j c' H] YfU]b] ]' a i ghVY] fYUhr' h Ub'h Y'a U ]a i a 'j c' H] Y'h Uh  
 k] " VYUdd'YX'tc'h Y'a Yhr"

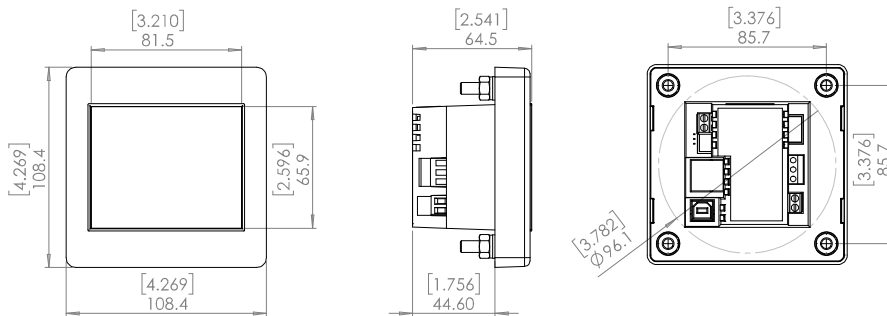
### A5-BH9B5 B79''

- Before cleaning, inspection or maintenance, isolate all power sources to the unit.
- There are no user-serviceable parts inside this unit. Never open the case.
- Inspect all external wiring connections at regular intervals. Replace any damaged wiring and tighten any loose connections.
- To clean the unit, use a dry cloth to wipe the casing.
- Take great care connecting the supply. If you connect power to the wrong terminals, it may destroy the unit.

## Software

You need the software to configure the setpoints and outputs.

## Size



**Square:** 68 x 68mm (2.68in) **Round:** 96.2 mm (3.79in) [+0.7 -0mm]

Size of the cutout in the panel:

