

# PAM420 Multi Function Meter



- Phase Angle Meter
- 2 channels: voltage, current and frequency meter
- Timer
- Compact and lightweight
- Local calibration
- Rechargeable batteries
- Easy to use

## Description

The PAM420 is specifically designed for measurements on electrical power systems. It is capable of displaying phase angle, voltage, current, frequency and timing.

The phase angle is calculated from the relationship between two power signals, which can be two currents, two voltages or any combination.

Currents up to 25 A and voltages up to 500 V can be applied directly to the instrument. The current input range can be extended by using external current transformers.

## Application

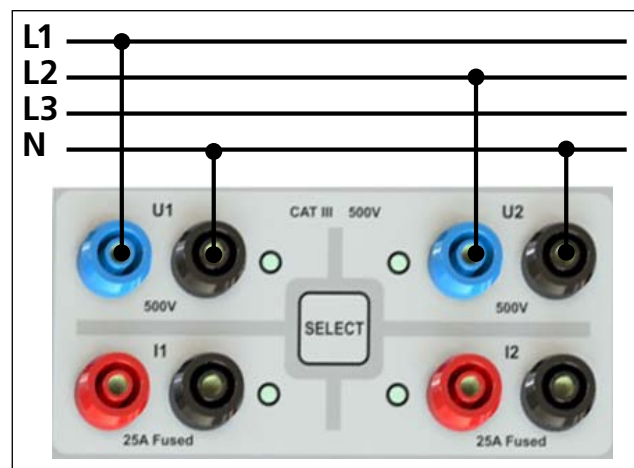
The PAM420 is suited for checking polyphase metering installations, testing protective relays, make comparative test in electrical substations, and verifying the phase angle deviation on power transformers.

$\varphi$	180.0	$^{\circ}$
U1	228.1	V
F1	50.01	Hz
U2	230.2	V
F2	49.99	Hz

Example of measured values shown on display

## Features and benefits

- Direct digital reading to tenths of a degree (0.1°) – does not require calculation or interpretation.
- Designed for use in substation or industrial environments – transport case provided for rugged protection.
- Phase angle calculated from of any combination of two power signals to be measured giving broad application capability.
- Timer with high accuracy for contact or voltage trig.
- Local calibration.



Application example of the PAM420

## Specifications PAM420

Specifications are valid at nominal input voltage and an ambient temperature of +25°C, (77°F). Specifications are subject to change without notice.

### Environment

*Application field* The instrument is intended for use in high-voltage substations and industrial environments.

#### Temperature

*Operating* -10°C to +50°C (14°F to +122°F)  
*Storage & transport* -40°C to +70°C (-40°F to +158°F)  
*Humidity* 5% – 95% RH, non-condensing  
*Altitude* < 2000 m above sea level

### CE-marking

*EMC* 2004/108/EC  
*LVD* 2006/95/EC

### General

*Measurement category* CAT III 500 V  
CAT IV 300 V  
*Enclosure class* IP21  
*Power supply* Rechargeable batteries  
*Mains adapter* 100–240 V AC, 50/60 Hz  
*Adapter output voltage* 9 V DC  
*Output connector* Ø 5.08 mm with Ø 2.54 centre pin (+)  
*Power consumption* 10 W (max)  
*Dimensions*  
*Instrument* 260 x 140 x 55 mm (except handle)  
(10.2" x 5.5" x 2.2")  
*Transport case* 390 x 300 x 140 mm  
(15.4" x 11.8" x 5.5")  
*Weight* 1.2 kg (2.6 lbs)  
3.5 kg (7.7 lbs)  
with accessories and transport case  
*Test lead set, with 4 mm stackable safety plugs* Black 2 x 2 m (6.6 ft), 2.5 mm<sup>2</sup>  
Red 2 x 2 m (6.6 ft), 2.5 mm<sup>2</sup>  
*Display* Alpha numerical LC display with backlighter

## Measurement section

### Current – Inputs I1 and I2

*Measurement category* CAT III 500 V  
CAT IV 300 V  
*Input range* 0 – 25 A AC  
*Inaccuracy* 0.5% of reading  
*Resolution* 0.1 A  
*Protection* Built-in 25 A fuse

### Voltage – Inputs U1 and U2

*Measurement category* CAT III 500 V  
CAT IV 300 V  
*Input range* 0 – 500 V AC true RMS  
*Inaccuracy* 0.15 % of reading + 0.03% of range  
(± 0.15 V)  
*Resolution* 0.1 V

### Phase angle

*Range* 0 – 359.9°(2–500 V and 0.15–25 A)  
*Type of phase angle measurement* Current-current, voltage-voltage and current-voltage  
*Waveform* Sinusoidal  
*Resolution* 0.1°  
*Inaccuracy* ±0.5° at >10% of voltage/current range  
±1° at 2–10% of voltage/current range  
±2° at 1–2% of voltage/current range

### Frequency

Note: Frequency component in voltage component only

*Range* 15 – 75 Hz  
*Inaccuracy* 0.1%  
*Resolution* 0.01 Hz

### Timer

*Measurement category* CAT II 250 V  
*Range* 0-999.999 s  
*Resolution* 1 ms  
*Inaccuracy* ±0.02% + 2 digits of displayed value  
*Max input voltage* 250 V AC/DC  
*Input debouncing filter* 1 ms

### Voltage mode

Parameter	Min	Max	Unit
Trig AC	9	250	V AC
Trig DC	11	250	V DC

### Contact mode

Parameter	Min	Max	Unit
Closed contact detection	0	1	kΩ
Open contact detection	4	-	kΩ

## Ordering information

Item	Art. No.
<b>PAM420</b> Incl. Test lead set, mains adapter (battery charger) and transport case	BP-39093