

## T76 Three-phase Power Analyser and Recorder

- Star voltage and delta voltage
- Phase current
- Active, reactive and apparent power

VEGA T76 is a new three-phase power analyser and recorder enabling the operator to use flexible heads without integrator, and therefore enjoy an indefinite recording autonomy, thanks to the electronics installed directly inside the instrument.

It can perform analysis and tests on single- and three-phase systems with or without neutral and displays in real time the values of all fundamental electrical quantities featuring the electrical installation under test showing also the trend of waveforms of voltages and currents.

### Functions

Measurement of:

- Active energy (Class 2 EN61036), reactive energy (Class 3 IEC1268)
- Power factor and  $\cos\varphi$  (phase and total)
- Harmonics
- Voltage anomalies (breaks and spikes)
- Integration period:  
5 ÷ 3600 sec.
- More than 30 days with integration periods of 15 minutes
- 2Mb memory
- 350V (phase-earth)
- 600V (phase-phase)



#### Model Specification

Standard Accessories	3 Flexible heads 300 - 3000A Test leads Power supply T0050 Software & cable Carry case English instruction manual Calibration certificate ISO9000
Dimensions (mm)	225(L) x 165(W) x 105(H)
Power Source	6 x 1,5 AA Batteries
Weight	800g

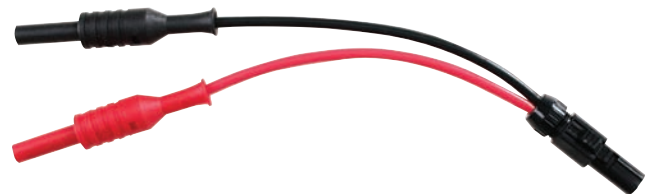
## T76 Three-phase Power Analyser and Recorder

### Model Specification

Voltage Measurement			Cosφ			
Range	15 ÷ 310V	30 ÷ 600V	Cosφ	0.20	0.50	0.80
Resolution	0.2V	0.4V	Resolution	0.01		
Input Impedance	300kΩ (phase-neutral)	600kΩ (phase-phase)	Accuracy in Degrees	0.2°		
Accuracy	± (0.5% + 2 digits)					
VOLTAGE ANOMALIES			HARMONIC MEASUREMENT			
Range	0.005 ÷ 0.26V	0.26 ÷ 1V	Range	DC - 25H	26H - 33H	34H - 49H
Resolution	0.0001V	0.0004V	Accuracy	±(5% + 2 digits)	±(10% + 2 digits)	±(15% + 2 digits)
Accuracy	± (0.5% + 2 digits)			Maximum Resolution	0.1V/0.1A	
Input Impedance	100kΩ			DISPLAY		
Overload Protection	5V			Type	Graphical with backlight	
CURRENT			Resolution	128x128 (16384 pixel)		
Range	0.005 ÷ 0.26V	0.26 ÷ 1V	Pixel Dimensions	0.5mm x 0.5mm		
Resolution	0.0001V	0.0004V	Visible Area	73mm x 73mm		
Accuracy	± (0.5% + 2 digits)			ENVIRONMENTAL WORKING CONDITIONS		
Input Impedance	100kΩ			Reference Temperature	23° ± 5°C	
Overload Protection	5V			Working Temperature	0° ± 40°C	
Example: with a clamp having a range of 1000A/1V the instrument measures higher currents than 5A			Maximum Relative Humidity	<70%		
			Storage Temperature	-10 ÷ 60°C		
			Storage Humidity	<80%		
POWER MEASUREMENT			ELECTRICAL MEASUREMENTS			
ACTIVE POWER			Quality of voltage supplied by public utilities	EN50160		
Range	0 ÷ 999.9W	1 ÷ 999.9kW	1 ÷ 999.9MW	Static electrical counters of active energy for AC current (class 2)		
Resolution	0.1W	0.1kW	0.1MW	EN61036		
Accuracy	±(1.0%+2digits)			Static electrical counters of reactive energy for AC current (class 3)		
REACTIVE POWER			IEC1268			
Range	1 ÷ 999.9kVAR	1 ÷ 999.9MVAR				
Resolution	0.1VAR	0.1KVAR	0.1MVAR			
Accuracy	±(1.0%+2digits)					
APPARENT POWER						
Range	0 ÷ 999.9VA	1 ÷ 999.9KVA	1 ÷ 999.9MVA			
Resolution	0.1VA	0.1KVA	0.1MVA			
Accuracy	±(1.0%+2digits)					
ACTIVE POWER (Class 2 EN61036)						
Range	0 ÷ 999.9Wh	1 ÷ 999.9KWh	1 ÷ 999.9MWh			
Resolution	0.1VA	0.1KVA	0.1MVA			
Accuracy	±(1.0%+2digits)					
REACTIVE POWER (Class 3 IEC1268)						
Range	0 ÷ 999.9VARh	1 ÷ 999.9kVARh	1 ÷ 999.9MVARh			
Resolution	0.1VARh	0.1kVARh	0.1MVARh			
Accuracy	±(1.0%+2digits)					

### TABNACON Optional Accessory

- For low current clamp adaptors (refer to pg15)



## TFLEX33 Flexible clamp

### Technical Specification

Current Ranges	Max. 3000A AC RMS
Output Connection	2m cable with 3 way connector
Accuracy (25°C, 50Hz)	±1% reading
Linearity	±0.2% reading from 10% to 100%
Frequency Range (3dB)	From 10Hz to 7kHz
Phase Error (45 to 65Hz)	±1°
Position Sensitivity	±2° reading
Noise	1,0mV AC RMS
Maximum Conductor Diameter	178mm
Insulation	Double insulation
Weight	215g



## T824 Three-phase Power Quality Analyser and Recorder

- 4 Current and 5 voltage input channels
- Colour touch screen display
- Voltage and current vectorial diagrams
- Voltage anomalies
- Inrush current
- Voltage and current harmonics

The PQA T824 is a new approach to measure, recording, analysis and power quality on electrical installations. Thanks to an innovative design and a graphic colour TFT "touch screen" wide display this model finally meets all requests from any electrical verifier. The interface it's incredible "user-friendly" due to the intuitive icon selection of any kind of feature and a contextual help it's available for each screen. Each internal parameter is easy to reach for effect of typical Windows tree structure.

Each model permits the visualization of all parameters both in numeric and graphical mode with large use of waveforms and histograms (for harmonic analysis) screens. The vectorial diagram feature permit also to evaluate the mutual phase angle between voltages and current in order to understand the nature inductive or capacitive of the loads on an installation.

### Functions

- TRMS P-N, P-P, P-PE voltage measures (5 inputs)
- TRMS current on phases and neutral (4inputs)
- Active, reactive and apparent powers measures
- Active, reactive and apparent energies measures
- Power factors measure
- Frequency measure
- Max 251 selected parameters at the same time
- Integrated period selectable from 1s to 60min
- Harmonic analysis of voltage and current up to 49th component
- Voltage anomalies (sags, swells) with 10ms resolution
- Numerical and graphical (waveforms) visualization
- Histogram visualization of harmonic analysis
- Vectorial diagram of voltages and currents
- Flicker analysis (Pst, Plt) in compliance to EN50160
- Voltage unbalance in compliance to EN 50160
- Inrush currents measures
- Fast voltage transients with 5µs resolution
- 5 predefined recordings of parameters
- TFT colour display with "touch screen"
- 15Mbytes internal memory for recordings saving
- Using of external compact flash and USB pen drives
- USB interface for PC connection
- Windows software for recordings analysis
- Contextual help selectable on each screen
- Virtual keyboard at display



## T824 Three-phase Power Quality Analyser and Recorder

### Model Specification

Standard	4 Flexible heads 300 - 3000A
Accessories	Test leads Power supply T0054 Software & cable Carry case Stylus English instruction disc Calibration certificate ISO9000
Dimensions (mm)	235(L) x 165(W) x 75(H)
Power Source	3.7V Li-ION rechargeable battery
Weight	1.0kg

### True RMS AC/DC Voltage Phase - Neutral / Phase Ground - Single Phase / 3 Phase System

Range	0.0 ÷ 600V
Resolution	0.1V
Input Impedance	10M $\Omega$
Accuracy	± (0.5% + 2 digits)

### True RMS AC/DC Voltage Phase - Phase / 3 Phase System

Range	0.0 ÷ 1000V
Resolution	0.01V
Accuracy	± (0.5% + 2 digits)
Input Impedance	10M $\Omega$

### Voltage Anomalies - Phase - Neutral - Single Phase / Three Phase 4-Wire Systems

Range	0.0 ÷ 600V
Time Resolution	10ms
Voltage Accuracy	± (1.0% + 2 digits)
Time Accuracy	±10ms
Voltage Resolution	0.2V

### Voltage Anomalies - Phase - Phase - 3-Wire Systems

Range	0.0 ÷ 1000V
Time Resolution	10ms
Voltage Accuracy	± (1.0% + 2 digits)
Time Accuracy	±10ms
Voltage Resolution	0.2V

### Voltage Spikes - Phase Ground - Single Phase - 3 Phase System

Range	100V ÷ 6000V
Time Resolution	10ms
Voltage Accuracy	± (10% + 100V)
Voltage Resolution	1.0 ÷ 15V
Detector Time	5 $\mu$ s ÷ 160 $\mu$ s

### TRMS AC Current with Standard Transducer Clamp

Range	0.0 ÷ 1000mV
Input Impedance	510k $\Omega$
Accuracy	± (0.5% + 0.06%)
Resolution	0.1mV
Overload Protection	5V

### TRMS AC Current with Flex Transducer Clamp 3000A

Range	0.0 ÷ 3000A
Input Impedance	510k $\Omega$
Accuracy	± (0.5% + 0.06%)
Resolution	0.1A
Overload Protection	5V

Inrush Current	
Range	Depending on clamp type
Accuracy	± (1.0% + 0.4%)
Resolution	Depending on clamp type
Time Resolution	10ms
Time Accuracy	10ms

### TRMS AC Current with Standard Transducer Clamp

Range	0.0 ÷ 1000mV
Input Impedance	510k $\Omega$
Accuracy	± (0.5% + 0.06%)
Resolution	0.1mV
Overload Protection	5V

### TRMS AC Current with Flex Transducer Clamp 3000A

Range	0.0 ÷ 3000A
Input Impedance	510k $\Omega$
Accuracy	± (0.5% + 0.06%)
Resolution	0.1A
Overload Protection	5V

Inrush Current	
Range	Depending on clamp type
Accuracy	± (1.0% + 0.4%)
Resolution	Depending on clamp type
Time Resolution	10ms
Time Accuracy	10ms

### Power - Single Phase / 3 Phase System (@ $\cos\phi > 0.5$ and $V_{mis} > 60V$ , Clamp Type STD)

Parameter (W, VAR, VA)	Active power, Reactive power and Apparent power
Full Scale Clamp	1A ÷ 3000A
Range (W, VAR, VA)	0.0 ÷ 9.99M
Accuracy	± (1.0% + 6 digits)
Resolution	0.1 ÷ 0.001M

### Energy - Single Phase / 3 Phase System (@ $\cos\phi > 0.5$ and $V_{mis} > 60V$ , Clamp Type STD)

Parameter (W, VAR, VA)	Active energy, Reactive energy and Apparent energy
Full Scale Clamp	1A ÷ 3000A
Range (W, VAR, VA)	0.0 ÷ 9.99M
Accuracy	± (1.0% + 6 digits)
Resolution	0.1 ÷ 0.001M

### Power factor ( $\cos\phi$ ) - Single Phase / 3 Phase System

Range	0.20 ÷ 1.0
Resolution	0.01
Accuracy	± (1.0 ÷ 0.6)

### Voltage - Current Harmonics

Range	25 ÷ 49
Resolution	0.1V
Accuracy	± (5.0% + 5 digits)

Frequency	
Range	42.5 ÷ 69.0Hz
Resolution	0.1Hz
Accuracy	± (0.2% + 1 digits)

### Flicker - Single Phase / 3 Phase System

Range	0.0 ÷ 10.0
Parameter	Pit, Pst, Pst1
Accuracy	Compliance to EN50160
Resolution	0.1