VAE-660

Six-Phase Protection Relay Test System

Six current + six voltage channels with 1000 VA single-phase power for differential, distance and high-burden relay testing.



Current output	**6×0–30 A AC**	Phase range	**±360°**
Single-phase current	**1×0–180 A**	Net weight	**18.5 kg**
Voltage output	**6×0–120 V AC / 3×0–240 V**	Gross weight	**25 kg**
Accuracy	**AC ≤0.1% · DC ≤0.5%**	Frequency range	**0–1000 Hz**

SPECIFICATIONS

Current Generator	
Six-phase AC (L-N) setting range	**6 × 0 – 30 A**
Three-phase AC (parallel) setting range	**3 × 0 – 60 A**
Single-phase AC (parallel) setting range	**1 × 0 – 180 A**
DC setting range	**6 × 0 – ±10 A**
Power – 6-phase AC	**6 × 300 VA at 30 A**
Power – 3-phase AC	**3 × 450 VA at 60 A**
Power – 1-phase AC	**1 × 1000 VA at 180 A**
Power – DC	**6 × 70 VA at 10 A**
Accuracy	**AC ≤ 0.1 % · DC ≤ 0.5 %**
Resolution	**1 mA**
Voltage Generator	
Six-phase AC (L-N) setting range	**6 × 0 – 120 V**
Three-phase AC (L-L) setting range	**3 × 0 – 240 V**
DC setting range	**6 × 0 – ±160 V**
Power – 6-phase AC	**6 × 80 VA at 120 V**
Power – 3-phase AC	**3 × 100 VA at 240 V**
Power – DC	**6 × 70 VA at 160 V**
Accuracy	**AC ≤ 0.1 % · DC ≤ 0.5 %**
Resolution	**1 mV**
Auxiliary DC Supply	
Voltage range	**110 / 220 V**
Max. current	**1.5 A**
Power	**max. 165 / 330 VA**
Binary Inputs	
Number	**8**
Input characteristics	**Idle contact or potential-free contact**
Threshold characteristics	**“0”: 0–6 V · “1”: 12–250 V**
Max. measuring time	**999999.999 s**
Time accuracy	**±1 ms**
Time resolution	**1 ms**

Binary Outputs	
Number	**8**
Type	**Idle contact**
Break capacity	**250 V AC / 0.5 A · 250 V DC / 0.2 A**

General	
Frequency range	**0 – 1000 Hz**
Frequency accuracy	**< 1 mHz (0–65 Hz) · < 10 mHz (65–450 Hz) · < 20 mHz (450–1000 Hz)**
Frequency resolution	**0.01 Hz**
Phase range / accuracy / resolution	**−360° … +360° · 0.1° · 0.1°**
Harmonic superposition	**2 – 20**
Harmonic distortion	**≤ 0.5 %**

Power Supply & Environment	
Nominal input voltage	**AC 230 V / 120 V ±10 % (customized), 1-phase**
Nominal frequency	**50 / 60 Hz**
Rated current	**10 A at 230 V · 12 A at 120 V**
Connection	**Standard AC socket (IEC 60320)**
Operating temperature	**0 … +50 °C**
Storage temperature	**−25 … +70 °C**
Humidity	**5 … 95 % RH, non-condensing**
Vibration	**IEC 60068-2-6 (20 m/s² at 10–150 Hz)**

Mechanical	
Net weight	**18.5 kg**
Gross weight	**25 kg**
Dimensions (W×H×D, without handle)	**180 × 340 × 340 mm**
Packing dimensions (W×H×D)	**470 × 550 × 280 mm**
Connection ports	**2 USB · 1 serial**

KEY FEATURES

Six independent current channels — 6×0–30 A with 300 VA per phase — enough for three-phase differential testing with all currents and voltages synchronized.

High-current parallel output — 3×0–60 A or 1×0–180 A at 1000 VA for high-burden and high-current relay applications.

Six voltage channels — 6×0–120 V AC (L-N) and 3×0–240 V (L-L) connection for complete three-phase voltage output.

AC & DC in one unit — 6×0–±10 A DC current and 6×0–±160 V DC voltage extend coverage to DC trip and monitoring circuits.

High accuracy & resolution — AC ≤0.1% / DC ≤0.5% accuracy with 1 mA and 1 mV resolution.

Wide ±360° phase control — 0.1° accuracy and resolution for precise phase-angle testing.

Precision frequency source — 0–1000 Hz with <1 mHz accuracy below 65 Hz for frequency relays and synchronization tests.

Embedded PC + 8/8 binary I/O — Stand-alone test execution on the integrated PC, with 8 binary inputs and 8 binary outputs for full scheme logic.

TYPICAL APPLICATIONS

- Transformer & generator differential — Six-phase synchronized injection for multi-winding differential protection testing.
- Busbar & line differential — Multi-ended differential and high-impedance busbar schemes.
- Distance & auto-reclosing — Distance protection, power swing and auto-reclosing scheme tests.
- High-burden relay testing — High-power output for electromechanical relays with heavy burdens.
- Training & labs — Advanced protection test laboratories and relay training centers.

Specifications subject to change without notice; confirm critical parameters at order. Calibration records on request.