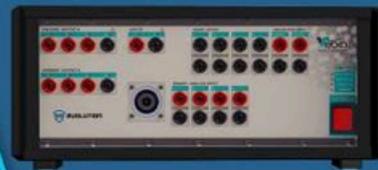




**Vebko Amirkabir Co.**

**AMT<sup>103</sup>**



**CE**

[www.vebko.org](http://www.vebko.org)

# Relay Tester AMT

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- ▶ History of Vebko Amirkabir
- ▶ Certificates
- ▶ Capabilities of AMT Relay Tester
- ▶ Brief List of Specifications
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## History of Vebko Amirkabir

Vebko is a science-based company, established in 2014. The first industrial product of this company entered the market in 2015 and so far, more than 1000 relay tester devices were sold to important industrial centers of electricity, oil and gas as well as some universities.

AMT is a universal solution to testing various types of relays and protective equipment, circuit breakers, thermal cables and sensors as well as power, current, voltage and capacitor-voltage transformers. Because of these features, this device is capable of testing different kinds of relays and protective equipment.

AMT 103 three 32A current, four 150V voltage sources, current and voltage combination cable, 4 analog binary inputs, 2 AC/DC analog current and voltage inputs with high accuracy, 4 binary outputs.

## Certificates



Certificate related to calibration and certification of Vebko Community

CE Certificate obtained from IMQ

# Relay Tester AMT

## Capabilities of AMT

### Software Specifications

1. Capable of testing a wide range of static, electromechanical & numerical relays
2. Capable of reading, editing & creating all XRio & Rio files
3. Capable of transient testing
4. Built-in GPS & Wi-Fi Modules
5. Automatically performing tests
6. Comprehensive report of tests
7. Capable of automatically filling out the test sheets of different companies
8. Compatible with Windows XP, 8, 10, 11
9. Autosave, redo & undo options
10. Manual HTML file in Persian , English , Germany , Spanish
11. Using bootloader technology to update firmware
12. A host of training videos

### Capable of testing power transformers (Optional)

1. Winding resistance
2. No-Load current
3. Magnetic balance
4. Tap Changer continuity
5. Ratio (TTR)
6. Vector group
7. Demagnetizing
8. Leakage reactance

### Capable of testing current transformers (CT) (Optional)

1. Excitation (Saturation)
2. Hysteresis curve
3. Ratio using Current (Up to 32A) and voltage
4. Polarity using current or voltage
5. Phase error
6. Winding resistance
7. Secondary burden

### Capable of testing VT/CVT (Optional)

1. Ratio & Polarity
2. Winding resistance
3. Short Circuit impedance
4. Excitation

### Capable of testing transducers

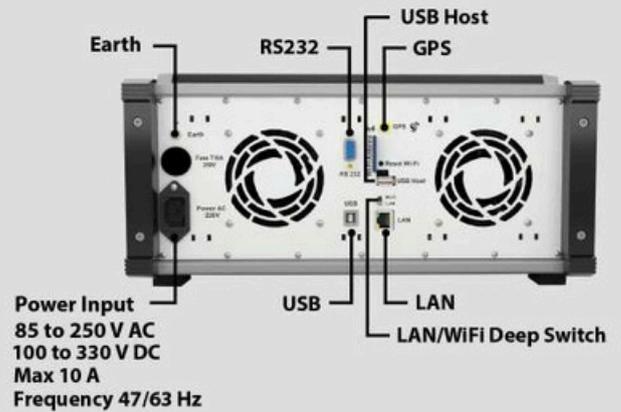
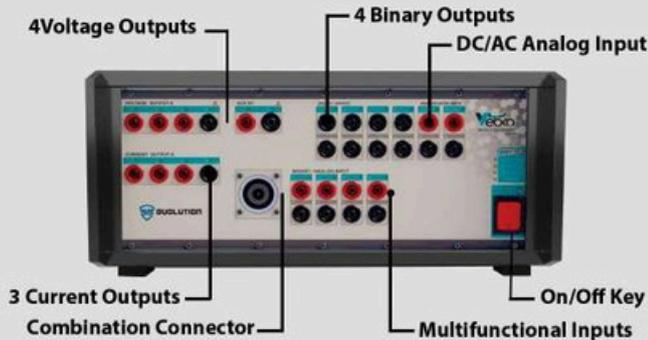
1. Highly precise in testing transducers

### Capable of testing circuit breakers (CB) & sectioners (Optional)

1. Testing the opening & closing time ( via external source )
2. Contact resistance ( up to 32 A )

# Relay Tester AMT

## Tester Hardware Features



### A summary of electrical & physical characteristics of the device

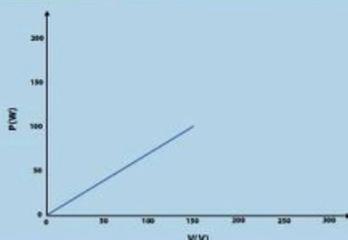
#### Power Supply AMT103

Power supply range	85-250 VAC or 100-330VDC
Input frequency range	0-100 Hz
Consumption	up to 2 KVA
Nominal current	3 A at 230 VAC
Connection	According to IEC60320

#### High Voltage, Low Current Generators AMT103 (Input Voltage $\geq$ 220V)

Voltage	4 Phase (L-N)	AC: 4 X 0 ... 150 V DC: 4 X 0 ... 210 V
	Resolution	400 $\mu$ V
Accuracy	Guar.:	0.15% of rd. + 0.015% of rg.
	Typ.:	0.05% of rd. + 0.005% of rg.
	Range	0° to 360°
Phase	Resolution	1 $\mu$ °
	Accuracy	Guar.: 0.1° Typ.: 0.01°
	Range	0 ... 10 kHz
Frequency	Resolution	1 $\mu$ Hz
	Accuracy	Guar.: 10 $\mu$ Hz , Typ.: 1 $\mu$ Hz

Power



Harmonic Injection	Enter Harmonic	Yes	2 Free Harmonic
Recording	Sampling Rate	1.2 ms	
	Variable		Currents and Voltages
Protection	Detection		Power according to power curves
	Type		Test off
Connection Banana Sockets			4 mm (0.16 in) banana sockets
Connection Combination Socket			Group A
LED			Green (1 Color)

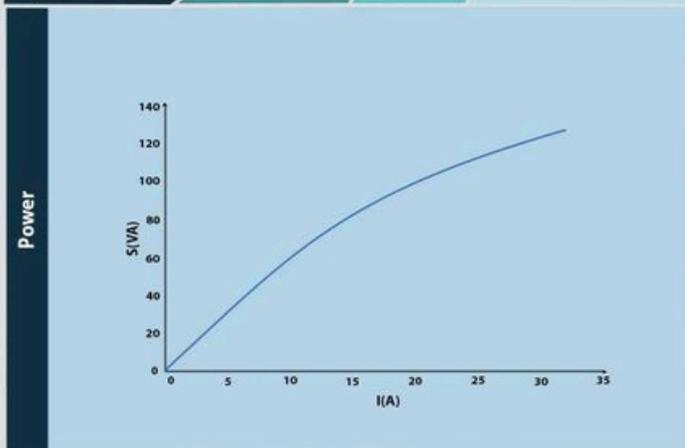
#### Low Voltage, High Current Generators AMT103

Current	Normal Mode	3 Phase (L-N)	AC: 3 X 0 ... 32 A DC: 3 X 0 ... 32 A
		Resolution	85 $\mu$ A
		Accuracy	Guar.: 0.15% of rd. + 0.015% of rg. Typ.: 0.05% of rd. + 0.005% of rg.
		Maximum Compliance Voltage	12V
Phase	Range		0° to 360°
	Resolution		1 $\mu$ °
	Accuracy		Guar.: 0.1° Typ.: 0.01°
Frequency	Range		0 ... 2.5 kHz
	Resolution		1 $\mu$ Hz
	Accuracy		Guar.: 10 $\mu$ Hz Typ.: 1 $\mu$ Hz
Recording	Sampling Rate		1.2 ms
	Variable		Currents

# Relay Tester AMT

## Low Voltage, High Current Generators AMT103

Protection	Detection	Maximum Neutral Current	32A: Unlimited 64 A: 3 s 100 A: 300 ms
	Setting	Software Controlled: Time , Enable	
	Type	Test off	
Connection Banana Sockets		4 mm (0.16 in) banana sockets / 32 A continuously	
Connection Combination Socket		Group A (30 A continuously max)	
LED		Green (1 Color)	
Harmonic Injection	Enter Harmonic	Yes	2 Free Harmonic



## AC/DC Analog Binary Inputs AMT103

Number		4	
Dry	Open circuit voltage	5 V	
	Short circuit voltage	Software controlled	
Wet	Range 1: 0 ... ±4.5 V(Peak)	Accuracy	0.05% of rg.
		Accuracy (Avg)	0.02% of rg.
		Resolution	35 μV
	Range 1: 0 ... ±30 V(Peak)	Impedance	493.75 KΩ
		Accuracy	0.05% of rg.
		Accuracy (Avg)	0.02% of rg.
	Range 1: 0 ... ±180 V(Peak)	Resolution	250 μV
		Impedance	414.783 KΩ
		Accuracy	0.05% of rg.
	Range 1: 0 ... ±180 V(Peak)	Accuracy (Avg)	0.02% of rg.
		Resolution	1.5 mV
		Impedance	405.267 KΩ
Recording	Sampling Rate	400 μs	
Protection	Detection	Over voltage	
	Setting	Software Controlled: Time , Enable	
	Type	Test off, Change to Dry	
Galvanic Isolation		4 Group (1+1+1+1)	
LED		Green (1 Color)	

## GPS AMT103

Internal GPS Module	yes
Accuracy	8ns
Time To Lock	10s
Delay Adjustment	yes

## Binary Outputs AMT103

Type	Electro mechanical relay contacts	
Control	Software controlled	
Number	4	
Maximum Voltage in open mode	Electro Mechanic	750V (Rms)
Maximum Current	Electro Mechanic	10A (Rms)
Break Capacity AC	Electro Mechanic	Smax
		2500 VA
Break Capacity DC	Electro Mechanic	Pmax
		300 W
Protection	No	
Galvanic Isolation	4 Group (1+1+1+1)	
LED	Green (1 Color)	

## AC/DC Current Measuring Input AMT103

Range 2: 0 ... ± 800 mA	Accuracy	0.05% of rg.
	Accuracy (Avg)	0.02% of rg.
	Resolution	6 μA
	Shunt	1Ω
Recording	Sampling Rate	400 μs
Protection	Detection	Over current
	Setting	Software Controlled: Time , Enable
	Type	Test off
Galvanic Isolation		1 Group
LED		Green (1 Color)

## AC/DC Voltage Measuring Input AMT103

Range 1: 0 ... ±400 mV(Peak)	Accuracy	0.05% of rg.	
	Accuracy (Avg)	0.02% of rg.	
	Resolution	3 μV	
Impedance	54.7826 KΩ		
	Recording	Sampling Rate	400 μs
	Protection	Detection	Over Voltage
Setting		Software Controlled: Time , Enable	
Type		Test off	
Galvanic Isolation		1 Group	
LED		Green (1 Color)	

## PC connection AMT103

WiFi	Yes
LAN	1 Port

## Physical Characteristic AMT103

Weight	13kg
Dimension	35cm*35cm*15cm

## Protocol AMT103 (Optional)

IEC 61850	Goose Message
	SV

## Combination Cable AMT103

3 Voltage, 3 current	Yes
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# Relay Tester AMT

## Brief List of Specifications

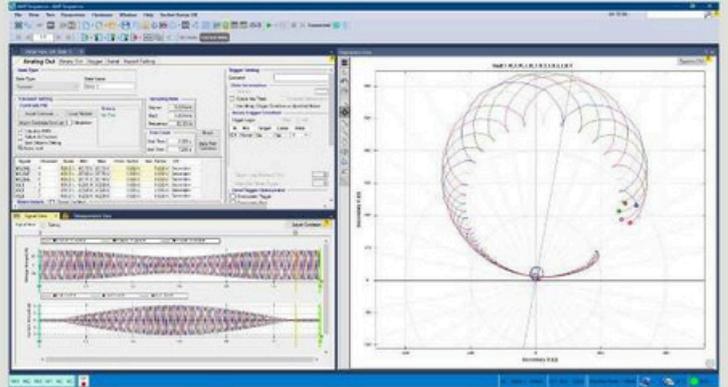
### Different Testing Rooms

Home Page of Vebko Software



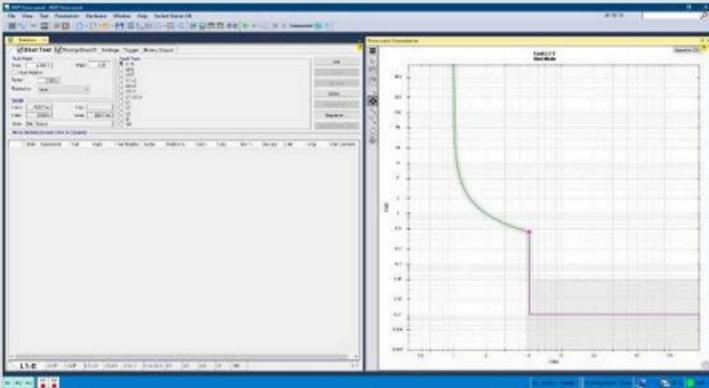
### AMT Sequencer

Used to design tests that employ the normal, Quick Step Ramp, Continuous Ramp, Harmonic, Transient, Tracking



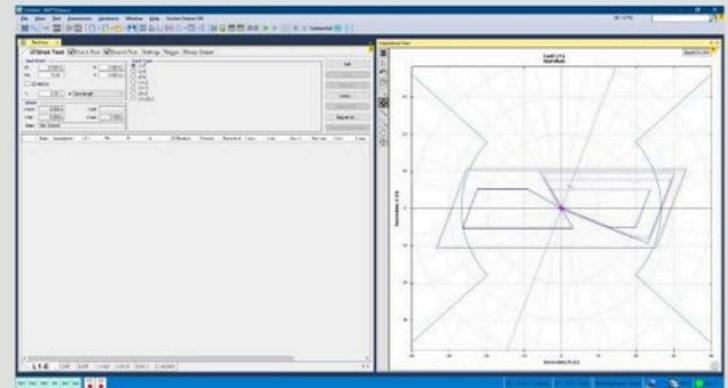
### AMT Overcurrent

Used to test current functions like 51/50/67 etc.



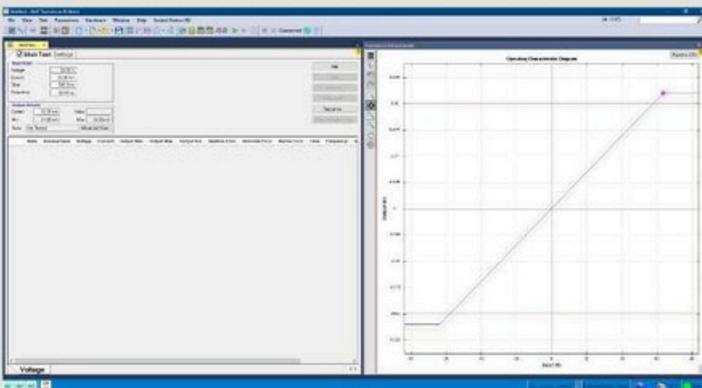
### AMT Distance

Used to test Impedance functions



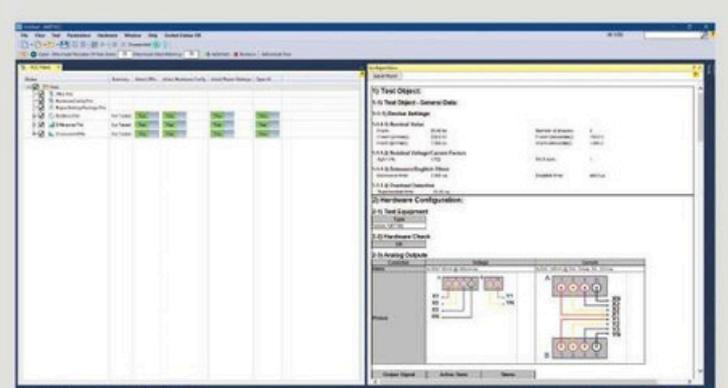
### Transducer

Used to test Transducer.



### VCC

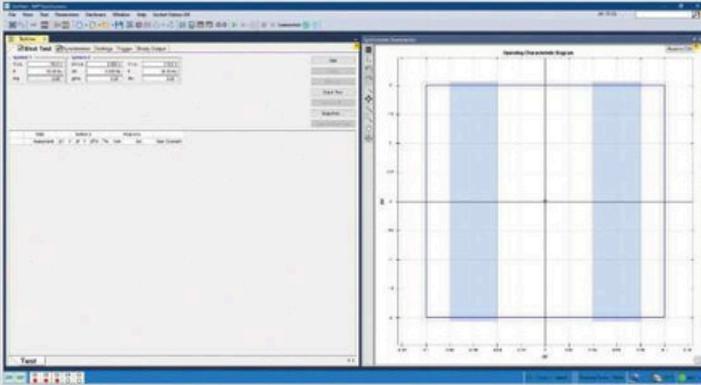
Used to successively run the tests designed for a relay



# Relay Tester AMT

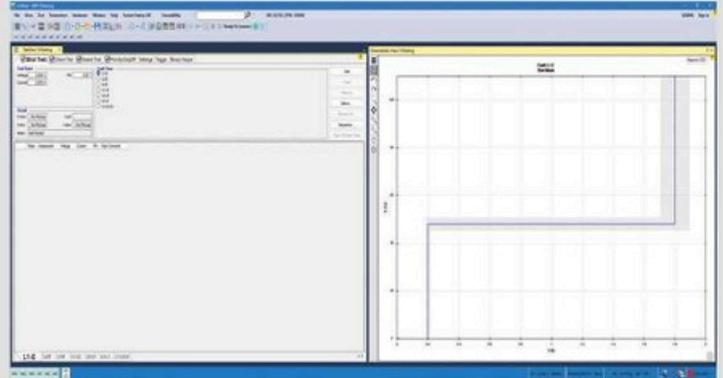
## AMT Synchronizer

Used to test synchronizer relay



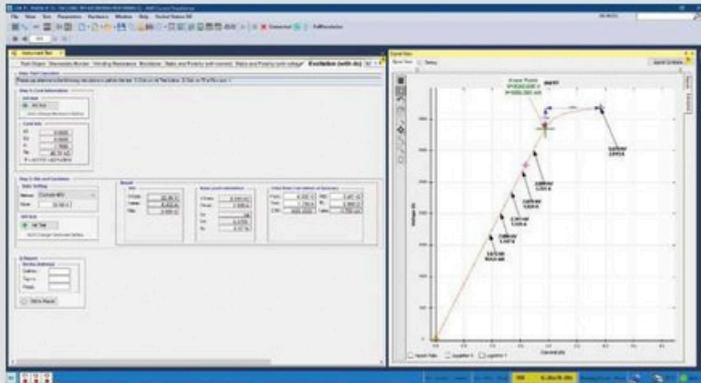
## VI Starting

Used to Test 51V



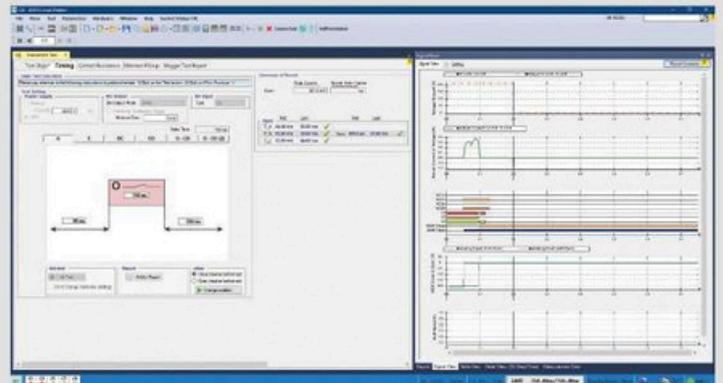
## Current Transformer (Optional)

Used to test various classes of CT.



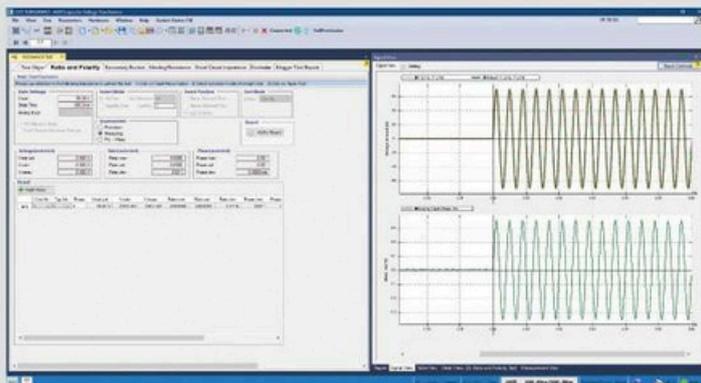
## Circuit Breaker (Optional)

Used to MV & HV circuit breaker tests.



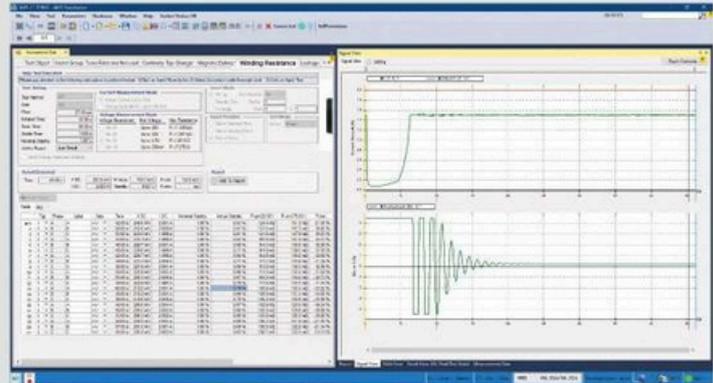
## CVT (Optional)

Used to test various classes of CVT



## Transformer (Optional)

Used to perform different transformer tests





# Relay Tester AMT

## Contact Information

### International Office

Turkey / Istanbul / Buyukcekmece / Pinartepe Mah. / Okten sk. / No: 10D  
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m.hajati@vebko.org Info@vebko.org

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