

Relay Tester AMT



Introduction



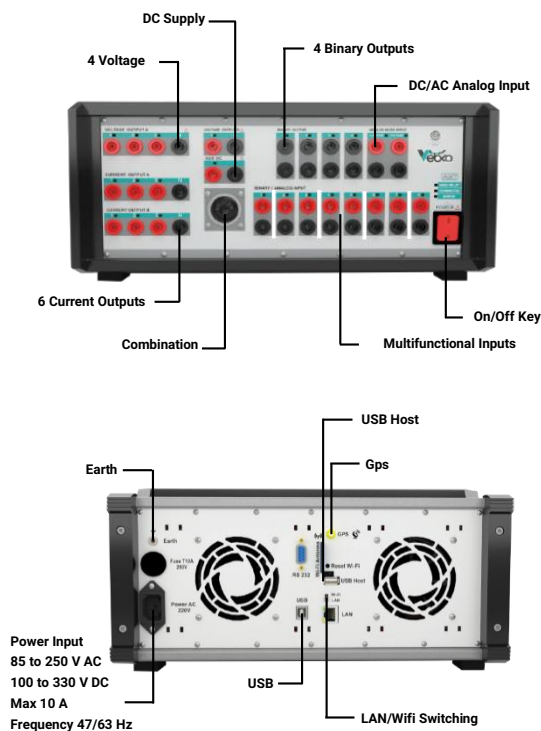
AMT 105 and AMT 205 are two advanced, specialized products from Vebko, designed and manufactured to facilitate and enhance the testing and evaluation of relays and protective equipment in power systems. Leveraging modern hardware and software technologies, these devices enable engineers and protection specialists to perform a wide range of precise, reliable tests in accordance with international standards. Both units are equipped with configurable voltage and current sources, binary inputs/outputs, and analog channels, allowing users to fully simulate real operating conditions of relays and protection systems—so tests are carried out with high accuracy under field-like conditions.

Compared with the **AMT 105**, the **AMT 205** is technically more advanced and, thanks to its **higher output power**, **faster sampling rates**, **wider measurement range**, and **greater signal-control accuracy**, is an ideal choice for **heavier projects and more complex tests**. A standout advantage of the AMT 205 is its support for modern international protocols and standards such as **IEC 61850**, which allows users to perform advanced tests based on **digital communication networks** with ease.

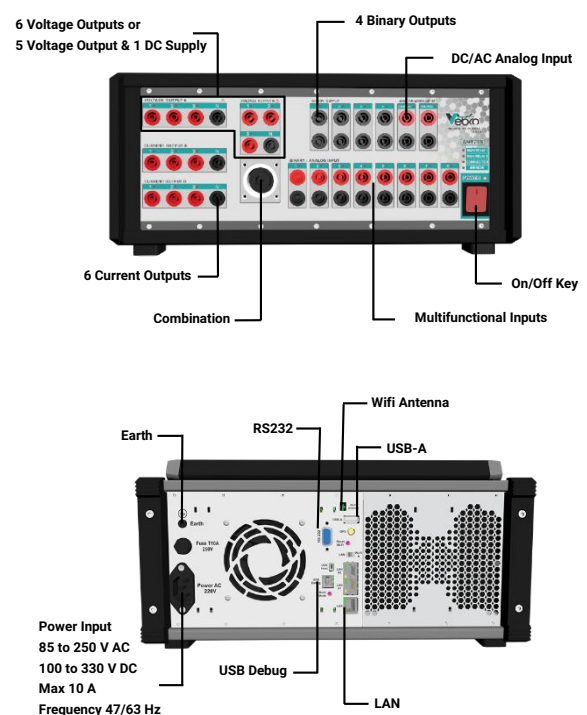
Complementing this powerful hardware, Vebko provides its dedicated **AMPRO** software, which handles **control, monitoring, and automation** of the testing process. With a user interface that is both simple and professional, **AMPRO** supervises every stage of the test in real time and manages the device outputs according to the defined scenarios.

Electrical and Physical Specifications

AMT105



AMT205



Relay Tester AMT

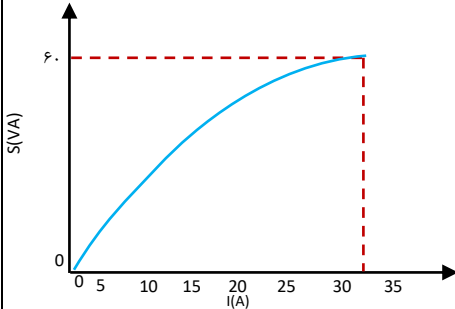


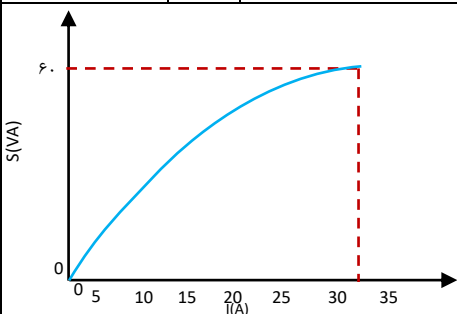
Power Supply AMT105			
Power supply range		ΔΔ-240 VAC or 100-330VDC	
Input frequency range		FV-63 Hz	
Consumption		up to 2 KVA	
Nominal current		1°A at 230 VAC	
Connection		According to IEC60320	
High Voltage, Low Current Generators AMT105 (Input Voltage≥ 220V)			
Voltage	φPhase (L-N)	AC: 4 X 0 ... 150 V	
		DC: 4 X 0 ... 210 V	
	Series and parallel	Yes	
	Resolution	400 μV	
	Accuracy	Guar.: 0.15% of rd. + 0.015% of rg.	
Typ.: 0.05% of rd. + 0.005% of rg.			
Current	No		
Phase	Range	°* to 360°	
	Resolution	1μ°	
	Accuracy	Guar.: 0.1°	
Typ.: 0.01°			
Frequency	Range	°... 10 kHz	
	Resolution	1μHz	
	Accuracy	Guar.: 10 μHz , Typ.: 1 μHz	
Power			
Harmonic Injection		Enter Harmonic	Yes
		Harmonic Order	No
		2 Free Harmonic	
Recording		Sampling Rate	1.2 ms
		Variable	Currents and Voltages
Protection		Detection	Power according to power curves
			No
		Type	Test o
Connection Banana Sockets		Fmm (0.16 in) banana sockets	
Connection Combination Socket		Group A	
LED		Green (1 Color)	
Low Voltage, High Current Generators AMT105			
Current	Normal Mode	6 Phase (L-N)	AC: 6 X 0 ... 32 A
			DC: 6 X 0 ... 32 A
		Resolution	85 μA
	Accuracy	Guar.: 0.15% of rd. + 0.015% of rg.	
		Typ.: 0.05% of rd. + 0.005% of rg.	
	Internal Booster Mode	No	
Maximum Compliance Voltage		12V	
Series and parallel		Yes	
Voltage	No		

Power Supply AMT205					
Power supply range		ΔΔ-240 VAC or 100-330VDC			
Input frequency range		FV-63 Hz			
Consumption		up to 3 KVA			
Nominal current		ΔA at 230 VAC			
Connection		According to IEC60320			
High Voltage, Low Current Generators AMT205 (Input Voltage≥ 220V)					
Voltage	φPhase (L-N)	AC: 6 X 0 ... 300 V DC: 6 X 0 ... 420 V			
	Series and parallel	Yes			
	Resolution	20 μV			
	Accuracy	Guar.: 0.15% of rd. + 0.015% of rg. Typ.: 0.05% of rd. + 0.005% of rg.			
Current	Normal Mode	φPhase (L-N)	AC: 6 X 0 ... 0.25 A DC: 6 X 0 ... 0.4 A		
	Internal Booster Mode time<200ms	φPhase (L-N)	AC: 6 X 0 ... 0.85 A DC: 6 X 0 ... 1.2 A		
	Series and parallel		Yes		
	Resolution		1°μA		
	Accuracy		Guar.: 0.15% of rd. + 0.015% of rg.		
			Typ.: 0.05% of rd. + 0.005% of rg.		
Phase	Range	°* to 360°			
	Resolution	1μ°			
	Accuracy	Guar.: 0.1° Typ.: 0.01°			
Frequency	Range	°... 5 kHz			
	Resolution	1μHz			
	Accuracy	Guar.: 10 μHz , Typ.: 1 μHz			
Power					
Harmonic Injection		Enter Harmonic	Yes	2 Free Harmonic	
		Harmonic Order	No		
Recording		Sampling Rate	1.2 ms		
		Variable	Currents and Voltages		
Protection		Detection	Power according to power curves		
			No		
		Type	Test o		
Connection Banana Sockets		Fmm (0.16 in) banana sockets			
Connection Combination Socket		Group A			
LED		Green (1 Color)			
Low Voltage, High Current Generators AMT205					
Current	Normal Mode	6 Phase (L-N)	AC: 6 X 0 ... 32 A DC: 6 X 0 ... 45 A		
		Resolution	170 μA		
		Accuracy	Guar.: 0.15% of rd. + 0.015% of rg. Typ.: 0.05% of rd. + 0.005% of rg.		
	Mode amplificateur interne temps < 300 ms	6 Phase (L-N)	AC: 6 X 0 ... 67 A DC: 6 X 0 ... 95 A		
		Resolution	170 μA		
		Accuracy	Guar.: 0.15% of rd. + 0.015% of rg. Typ.: 0.05% of rd. + 0.005% of rg.		
	Maximum Compliance Voltage		22V		
	Series and parallel		Yes		
	Voltage	6 Phase (L-N)		AC: 6 X 0 ... 12 V DC: 6 X 0 ... 20 V	
		Series and parallel		Yes	
Resolution		40 μV			
Accuracy		Guar.: 0.15% of rd. + 0.015% of rg.			
		Typ.: 0.05% of rd. + 0.005% of rg.			

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(continue) Low Voltage, High Current Generators AMT105				
Phase	Range		0° to 360°	
	Resolution		1μ°	
	Accuracy		Guar.: 0.1° Typ.: 0.01°	
Frequency	Range		0 ... 2.5 kHz	
	Resolution		1 μHz	
	Accuracy		Guar.: 10 μHz Typ.: 1 μHz	
Recording	Sampling Rate		1.2 ms	
	Variable		Currents	
Protection	Detection	Maximum Neutral Current	32A: Unlimited	
			64 A: 3 s	
			100 A: 300 ms	
	Setting		Soware Controlled: Time , Enable	
Type		Test off		
Maximum Neutral Current	4 mm (0.16 in) banana sockets / 32 A continuously			
Connection Banana Sockets	Group A (30 A continuously max)			
LED	Green (1 Color)			
Harmonic Injection	Enter Harmonic	Yes	2 Free Harmonic	
	Harmonic Order	No		
Power				
Binary/Analog Inputs 105				
Number	8			
Dry	Open Circuit Voltage		ΔV	
	Short Circuit Voltage		Soware controlled	
Wet	Range 1: 0 ... ±4.5 V(Peak)	Accuracy	±0.5% of rg.	
		Accuracy (Avg)	±0.02% of rg.	
		Resolution	3ΔμV	
		Impedance	F93.75 KΩ	
	Range 1: 0 ... ±30 V(Peak)	Accuracy	±0.5% of rg.	
		Accuracy (Avg)	±0.02% of rg.	
		Resolution	250μV	
		Impedance	F14.783 KΩ	
	Range 1: 0 ... ±180 V(Peak)	Accuracy	±0.5% of rg.	
		Accuracy (Avg)	±0.02% of rg.	
		Resolution	1.5mV	
		Impedance	F05.267 KΩ	
No				
Recording	Sampling Rate		12.5 μs	
Protection	Detection		Over voltage	
	Setting		Soware Controlled: Time , Enable	
	Type		Test o, Change to Dry	
Galvanic Isolation		A Group (1+1+1+1+1+1+1+1)		
LED	Green (1 Color)			

(continue) Low Voltage, High Current Generators AMT205				
Phase	Range		0° to 360°	
	Resolution		1μ°	
	Accuracy		Guar.: 0.1° Typ.: 0.01°	
Frequency	Range		0 ... 2.5 kHz	
	Resolution		1 μHz	
	Accuracy		Guar.: 10 μHz Typ.: 1 μHz	
Recording	Sampling Rate		1.2 ms	
	Variable		Currents & Voltages	
Protection	Detection	Maximum Neutral Current	32A: Unlimited	
			64 A: 3 s	
			100 A: 300 ms	
	Setting		Soware Controlled: Time, Enable	
Type		Test off		
Maximum Neutral Current	4 mm (0.16 in) banana sockets / 32 A continuously			
Connection Banana Sockets	Group A (30 A continuously max)			
LED	RGB (16 Million Color)			
Harmonic Injection	Enter Harmonic	Yes	2 Free Harmonic	
	Harmonic Order	Yes	Maximum Order 40 for 50Hz (2KHz)	
Power				
Binary/Analog Inputs 205				
Number	8			
Dry	Open Circuit Voltage		ΔV	
	Short Circuit Voltage		Soware controlled	
Wet	Range 1: 0 ... ±4.5 V(Peak)	Accuracy	±0.5Δ% of rg.	
		Accuracy (Avg)	±0.02% of rg.	
		Resolution	3ΔμV	
		Impedance	F93.75 KΩ	
	Range 1: 0 ... ±30 V(Peak)	Accuracy	±0.5Δ% of rg.	
		Accuracy (Avg)	±0.02% of rg.	
		Resolution	250μV	
		Impedance	F14.783 KΩ	
	Range 1: 0 ... ±180 V(Peak)	Accuracy	±0.5Δ% of rg.	
		Accuracy (Avg)	±0.02% of rg.	
		Resolution	1.5mV	
		Impedance	F05.267 KΩ	
	Range 1: 0 ... ±520 V(Peak)	Accuracy	±0.5Δ% of rg.	
		Accuracy (Avg)	±0.02% of rg.	
		Resolution	4mV	
		Impedance	F04.298 KΩ	
Recording	Sampling Rate		12.5 μs	
Protection	Detection		Over voltage	
	Setting		Soware Controlled: Time, Enable	
	Type		Test o, Change to Dry	
Galvanic Isolation		A Group (1+1+1+1+1+1+1+1)		
LED		RGB (16 Million Color)		

Relay Tester AMT



Binary Outputs AMT105			
Type	Electro mechanical relay contacts		
	-		
Control	Soware controlled		
Number	4		
Maximum Voltage in open mode	Electro Mechanic	VΔ•V (Rms)	
	No		
Maximum Current	Electro Mechanic	I•A (Rms)	
	No		
Break Capacity AC	Electro Mechanic	ΥΔ••VA	
	No		
Break Capacity DC	Electro Mechanic	Υ•••W	
	No		
Recording	No		
Protection	No		
Galvanic Isolation	FGroup (1+1+1+1)		
LED	Green (1 Color)		
AC/DC Current Measuring Input AMT105			
Range 2: 0 ... ± 800 mA	Accuracy	•.05% of rg	
	Accuracy (Avg)	•.02% of rg.	
	Resolution	ϕμA	
	Shunt	1Ω	
Range 3: 0 ... ± 35 mA	No		
Range 1: 0 ... ± 10 A	No		
Range 4: 0 ... ± 250 μA	No		
Recording	Resolution	F••μs	
Protection	Accuracy	Overcurrent	
	Setting	Soware Controlled: Time , Enable	
	Type	Test o, Change to open circuit	
Galvanic Isolation	1 Group		
LED	Green (1 Color)		
AC/DC Voltage Measuring Input AMT105			
Range 1: 0 ... ±400 mV(Peak)	Accuracy	•.05% of rg.	
	Accuracy (Avg)	•.02% of rg.	
	Resolution	ΥμV	
	Impedance	ΔF.7826 KΩ	
Range 2: 0 ... ±120 mV(Peak)	No		
Range 1: 0 ... ±50 mV(Peak)	No		
Range 2: 0 ... ±10 mV(Peak)	No		
Recording	Sampling Rate	F•• μs	
Protection	Detection	Over Voltage	
	Setting	Software Controlled: Time , Enable	
	Type	Test o	
Galvanic Isolation	1 Group		
LED	Green (1 Color)		
AUX. DC AMT105			
Aux. DC	Any combination of 12 channels	•... 212 V	
		•... 0.4 A	
GPS AMT105			
Internal GPS Module	Yes		
Accuracy	Ans		
Time To Lock	1•s		
Delay Adjustment	Yes		

Binary Outputs AMT205			
Type	Electro mechanical relay contacts		
	Transistor		
Control	Soware controlled		
Number	4		
Maximum Voltage in open mode	Electro Mechanic	VΔ=V (Rms)	
	Transistor	Δ=V	
Maximum Current	Electro Mechanic	I= A (Rms)	
	Transistor	Δ= mA	
Break Capacity AC	Electro Mechanic	Smax	YΔ= VA
	Transistor	Smax	Y.5 VA
Break Capacity DC	Electro Mechanic	Pmax	Y= W
	Transistor	Pmax	Y.5W
Recording	Sampling Rate	Δ= μs	
	Resolution	YmA	
	Accuracy	=.3 mA	
Protection	Detection	Overcurrent	
	Setting	Soware Controlled: Time , Enable	
	Type	Test o, Open Relays	
Galvanic Isolation	YGroup (1+1+1+1)		
LED	RGB (16 Million Color)		
AC/DC Current Measuring Input AMT205			
Range 2: 0 ... ± 800 mA	Accuracy	=.05% of rg	
	Accuracy (Avg)	=.02% of rg.	
	Resolution	YμA	
	Shunt	IΩ	
Range 3: 0 ... ± 35 mA	Accuracy	=.05% of rg	
	Accuracy (Avg)	=.02% of rg.	
	Resolution	=.3 μA	
	Shunt	Y YQ	
Range 1: 0 ... ± 10 A	Accuracy	=.05% of rg	
	Accuracy (Avg)	=.02% of rg.	
	Resolution	1.5mA	
	Shunt	ΔmΩ	
Range 4: 0 ... ± 82 μA	Accuracy	=.05% of rg	
	Accuracy (Avg)	=.02% of rg.	
	Resolution	YnA	
	Shunt	YKQ	
Recording	Resolution	1Y.5 μs	
Protection	Accuracy	Overcurrent	
	Setting	Soware Controlled: Time , Enable	
	Type	Test o, Change to open circuit	
Galvanic Isolation	1 Group		
LED	RGB (16 Million Color)		
AC/DC Voltage Measuring Input AMT205			
Range 1: 0 ... ±400 mV(Peak)	Accuracy	=.05% of rg.	
	Accuracy (Avg)	=.02% of rg.	
	Resolution	YμV	
	Impedance	ΔF.7826 KQ	
Range 2: 0 ... ±120 mV(Peak)	Accuracy	=.05% of rg.	
	Accuracy (Avg)	=.02% of rg.	
	Resolution	1μV	
	Impedance	1Y Y/VΔ KΩ	
Range 1: 0 ... ±50 mV(Peak)	Accuracy	=.05% of rg.	
	Accuracy (Avg)	=.02% of rg.	
	Resolution	Δ= nV	
	Impedance	ΔF.7826 KQ	
Range 2: 0 ... ±10 mV(Peak)	Accuracy	=.05% of rg.	
	Accuracy (Avg)	=.02% of rg.	
	Resolution	1= nV	
	Impedance	1Y Y/VΔ KΩ	
Recording	Sampling Rate	1Y/Δ μs	
Protection	Detection	Over Voltage	
	Setting	Software Controlled: Time , Enable	
	Type	Test o, Change to open circuit	
Galvanic Isolation	1 Group		
LED	RGB (16 Million Color)		
AUX. DC AMT205			
Aux. DC	Any combination of 12 channels	Max Voltage : 1200 V , 0.4 A	
		Max Current : 8 V , 210 A	
GPS AMT205			
Internal GPS Module	Yes		
Accuracy	Ans		
Time To Lock	1=s		
Delay Adjustment	Yes		

Relay Tester AMT



Protocol AMT105		
IEC 61850	GOOSE Publish	10
	Goose Subscribe	10
	Virtual Binary I/O	32 IN / 32 OUT
	SV Publish Streams	NO
	SV Subscribe Streams	NO
	SV Sample Rates	NO
	Ethernet Ports	1x RJ45 100Base
	Time Sync	PPS
	Time Accuracy	±80 ns (PPS)
Combination Cable AMT105		
V ^o Voltage, 3 Current		Yes
F ^o Current		Yes
PC Connection AMT105		
Wifi		Yes
LED		1 Port
Programming USB Port		No
Physical Characteristic AMT105		
Weight		1Fkg
Dimension		Y ^o Δcm-35cm-15cm
Operating Temperature		-10 to 55° C
Storage Temperature		-20 to 85° C
Humidity		Y ^o %
Transformer Specification AMT105		
HV & LV outputs-power	Frequency	
	Power	
HV & LV outputs-Voltage	Y ^o -phase AC (RMS)	±-150 V(LN)....550mA peak
	I ^o -phase AC (RMS)	±-450V(LN)....550 mA peak
	Y ^o -phase DC	±-220V(LN)....550 mA
	I ^o -phase DC	±-630V(LN)....550mA peak
HV & LV outputs-Current	Y ^o -phase AC (RMS)	±-32A....12V
	I ^o -phase AC (RMS)	
	Y ^o -phase DC	±-10A....12V
	I ^o -phase DC	±-10A....40V
HV & LV input-Voltage	AC(RMS)	... 400m V 0.01 % rd + 0.017 % range ... 4.5 V 0.007 % rd + 0.012 % range ... 30V 0.022 % rd + 0.032 % range ... 188V 0.01 % rd + 0.017 % range
	DC	
HV & LV input-Current	AC(RMS)	... 800 mA 0.008 % rd + 0.01 % range
	DC	
Test Standard		IEC61869 / 60044
Voltage Output Range		±-450V
Current Output Range		±-128A
Output Frequency Range		DC & 5-2500HZ
CT Ratio Measurement Accuracy		Ratio: 1-30000 accuracy: 0.2
Phase displacement: Resolution Accuracy		0.01 min Y ^o min (typical) / 5 min (guaranteed)
Minimum Knee Point		±.5V
Maximum Knee Point		FΔ±.V
Winding Resistance Resolution Accuracy		1 mΩ ±.05 % (typical) / 0.1 % + 1 mΩ (guaranteed)
Current Input Range(CT Secondary Side)		1mA - 500mA
Minimum Knee Current		1mA
Maximum Knee Voltage		1.5A Up to 4KV

Protocol AMT205		
IEC 61850	GOOSE Publish	128
	Goose Subscribe	128
	Virtual Binary I/O	360 IN / 360 OUT
	SV Publish Streams	10
	SV Subscribe Streams	10
	SV Sample Rates	80-256 samples/cycle
	Ethernet Ports	3x RJ45 100Base, 1x External Fiber 100Base (Optional)
	Time Sync	PTP (IEEE-1588), IRIG-B, PPS, SNTP
	Time Accuracy	±1 μs (PTP), ±80 ns (PPS)
Combination Cable AMT205		
V ^o Voltage, 3 Current		Yes
F ^o Current		No
PC Connection AMT205		
Wifi		Yes
LED		1 Port
Programming USB Port		Yes
Physical Characteristic AMT205		
Weight		1Fkg
Dimension		Y ^o Δcm-35cm-15cm
Operating Temperature		-10 to 55° C
Storage Temperature		-20 to 85° C
Humidity		Y ^o %
Transformer Specification AMT205		
HV & LV outputs-power	Frequency	
	Power	
HV & LV outputs-Voltage	Y ^o -phase AC (RMS)	±-600 V(LN)....1.2 A peak
	I ^o -phase AC (RMS)	±-1200V(LN)....1.2 A peak
	Y ^o -phase DC	±-850V(LN)....1.2 A
	I ^o -phase DC	±-1700V(LN)....1.2 A peak
HV & LV outputs-Current	Y ^o -phase AC (RMS)	±-32A....22V
	I ^o -phase AC (RMS)	
	Y ^o -phase DC	±-10A....22V
	I ^o -phase DC	±-10A....60V
HV & LV input-Voltage	AC(RMS)	0 ... 10 mV 0.022 % rd + 0.032 % range ... 50 mV 0.01 % rd + 0.017 % range ... 120m V 0.007 % rd + 0.012 % range ... 400m V 0.01 % rd + 0.017 % range ... 4.5 V 0.007 % rd + 0.012 % range ... 30V 0.022 % rd + 0.032 % range ... 188V 0.01 % rd + 0.017 % range ... 520 V 0.007 % rd + 0.012 % range
	DC	
HV & LV input-Current	AC(RMS)	0 ...82 uA 0.1 % rd + 0.023 % range ... 35 mA 0.037 % rd + 0.026 % range ... 800 mA 0.008 % rd + 0.01 % range ... 10 A 0.008 % rd + 0.01 % range
	DC	
Test Standard		IEC61869 / 60044
Voltage Output Range		±-1200V
Current Output Range		±-128A
Output Frequency Range		DC & 5-2500HZ
CT Ratio Measurement Accuracy		Ratio: 1-30000 accuracy: 0.2
Phase displacement: Resolution Accuracy		0.01 min Y ^o min (typical) / 5 min (guaranteed)
Minimum Knee Point		±.01V
Maximum Knee Point		1±KV
Winding Resistance Resolution Accuracy		1 mΩ ±.05 % (typical) / 0.1 % + 1 mΩ (guaranteed)
Current Input Range(CT Secondary Side)		1mA - 7 A
Minimum Knee Current		1±uA
Maximum Knee Voltage		10A up to 50V Y ^o .5A Up to 10KV

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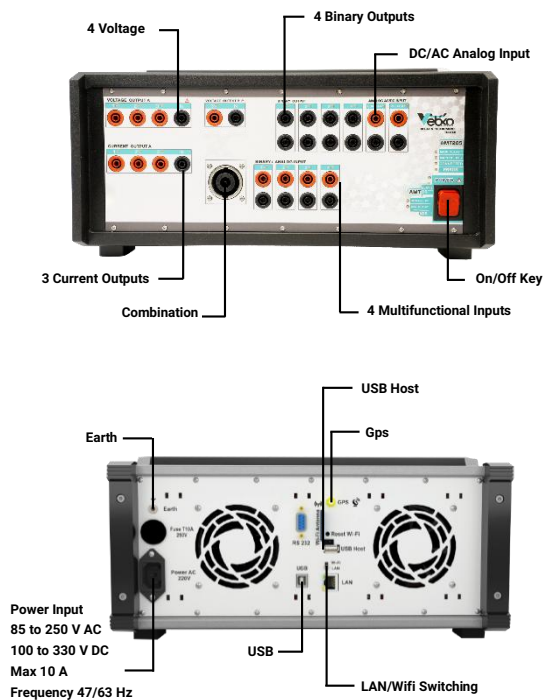


PT SPECIFICATION AMT105	
Test Standard	IEC61869 / 60044
Voltage Output Range	0-450V AC
Current Output Range	0-128A
Ratio Measurement Voltage Level Typical accuracy	Ratio: 1-500KV accuracy: 0.2
Phase displacement measurement Voltage level Typical accuracy	0.01 min 1°min (typical) / 5 min (guaranteed)
Winding Resistance: Resolution Guaranteed Accuracy Typical accuracy	1 mΩ 0.1 % + 1 mΩ 0.05 %

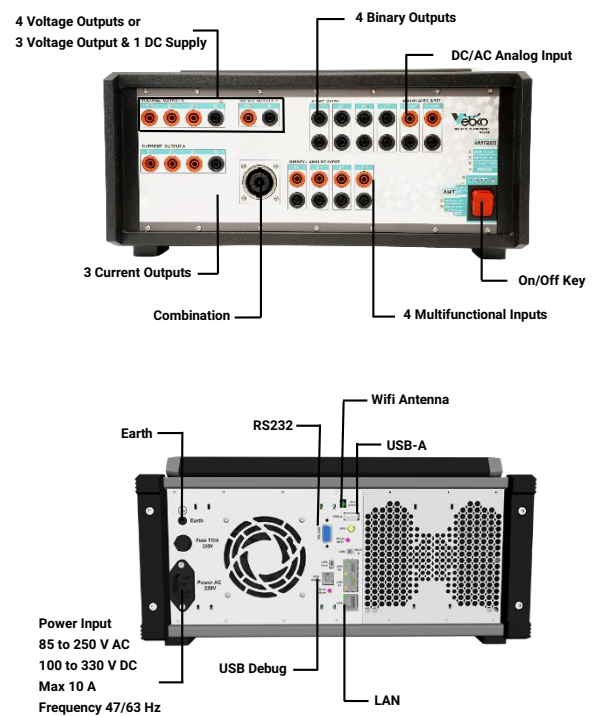
PT SPECIFICATION AMT205	
Test Standard	IEC61869 / 60044
Voltage Output Range	0-1200 V AC
Current Output Range	0-128A
Ratio Measurement Voltage Level Typical accuracy	Ratio: 1-500KV accuracy: 0.2
Phase displacement measurement Voltage level Typical accuracy	0.01 min 1°min (typical) / 5 min (guaranteed)
Winding Resistance: Resolution Guaranteed Accuracy Typical accuracy	1 mΩ 0.1 % + 1 mΩ 0.05 %

Electrical and Physical Specifications

AMT103



AMT203



Relay Tester AMT

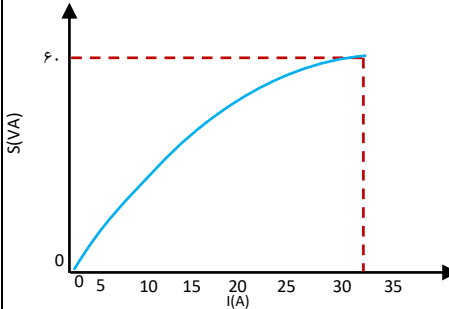


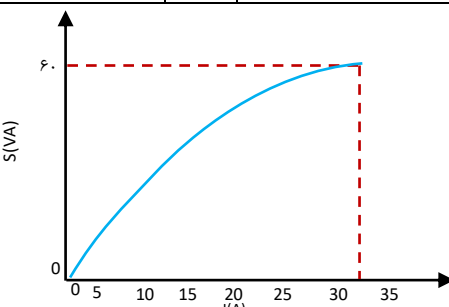
Power Supply AMT103			
Power supply range		ΔΔ-240 VAC or 100-330VDC	
Input frequency range		FV-63 Hz	
Consumption		up to 2 KVA	
Nominal current		1°A at 230 VAC	
Connection		According to IEC60320	
High Voltage, Low Current Generators AMT103 (Input Voltage≥ 220V)			
Voltage	φPhase (L-N)	AC: 4 X 0 ... 150 V	
		DC: 4 X 0 ... 210 V	
	Series and parallel	Yes	
	Resolution	400 μV	
	Accuracy	Guar.: 0.15% of rd. + 0.015% of rg.	
Typ.: 0.05% of rd. + 0.005% of rg.			
Current	No		
Phase	Range	°* to 360°	
	Resolution	1μ°	
	Accuracy	Guar.: 0.1°	
Typ.: 0.01°			
Frequency	Range	°... 10 kHz	
	Resolution	1μHz	
	Accuracy	Guar.: 10 μHz , Typ.: 1 μHz	
Power			
Harmonic Injection		Enter Harmonic	Yes
		Harmonic Order	No
		2 Free Harmonic	
Recording	Sampling Rate		1.2 ms
	Variable	Currents and Voltages	
Protection	Detection	Power according to power curves	
		No	
	Type	Test o	
Connection Banana Sockets		Fmm (0.16 in) banana sockets	
Connection Combination Socket		Group A	
LED		Green (1 Color)	
Low Voltage, High Current Generators AMT103			
Current	Normal Mode	6 Phase (L-N)	AC: 3 X 0 ... 32 A
			DC: 3 X 0 ... 32 A
		Resolution	85 μA
	Accuracy	Guar.: 0.15% of rd. + 0.015% of rg.	
		Typ.: 0.05% of rd. + 0.005% of rg.	
		Internal Booster Mode	No
	Maximum Compliance Voltage		12V
	Series and parallel		Yes
Voltage	No		

Power Supply AMT203					
Power supply range		ΔΔ-240 VAC or 100-330VDC			
Input frequency range		FV-63 Hz			
Consumption		up to 3 KVA			
Nominal current		ΔA at 230 VAC			
Connection		According to IEC60320			
High Voltage, Low Current Generators AMT203 (Input Voltage≥ 220V)					
Voltage	φPhase (L-N)	AC: 4 X 0 ... 300 V DC: 4 X 0 ... 420 V			
	Series and parallel	Yes			
	Resolution	20 μV			
	Accuracy	Guar.: 0.15% of rd. + 0.015% of rg. Typ.: 0.05% of rd. + 0.005% of rg.			
Current	Normal Mode	φPhase (L-N)	AC: 4 X 0 ... 0.25 A DC: 4 X 0 ... 0.4 A		
			Internal Booster Mode time<200ms	φPhase (L-N)	AC: 4 X 0 ... 0.85 A DC: 4 X 0 ... 1.2 A
	Series and parallel				Yes
	Resolution		1°μA		
	Accuracy	Guar.: 0.15% of rd. + 0.015% of rg. Typ.: 0.05% of rd. + 0.005% of rg.			
	Phase	Range	°* to 360°		
Resolution		1μ°			
Accuracy		Guar.: 0.1° Typ.: 0.01°			
Frequency	Range	°... 5 kHz			
	Resolution	1μHz			
	Accuracy	Guar.: 10 μHz , Typ.: 1 μHz			
Power					
Harmonic Injection		Enter Harmonic	Yes	2 Free Harmonic	
		Harmonic Order	No		
Recording		Sampling Rate	1.2 ms		
		Variable	Currents and Voltages		
Protection		Detection	Power according to power curves		
			No		
		Type	Test o		
Connection Banana Sockets		Fmm (0.16 in) banana sockets			
Connection Combination Socket		Group A			
LED		Green (1 Color)			
Low Voltage, High Current Generators AMT203					
Current	Normal Mode	6 Phase (L-N)	AC: 3 X 0 ... 32 A DC: 3 X 0 ... 45 A		
		Resolution	170 μA		
		Accuracy	Guar.: 0.15% of rd. + 0.015% of rg. Typ.: 0.05% of rd. + 0.005% of rg.		
	Mode amplificateur interne temps < 300 ms	6 Phase (L-N)	AC: 3 X 0 ... 67 A DC: 3 X 0 ... 95 A		
		Resolution	170 μA		
		Accuracy	Guar.: 0.15% of rd. + 0.015% of rg. Typ.: 0.05% of rd. + 0.005% of rg.		
	Maximum Compliance Voltage		22V		
	Series and parallel		Yes		
	Voltage	6 Phase (L-N)		AC: 3 X 0 ... 12 V DC: 3 X 0 ... 20 V	
		Series and parallel		Yes	
Resolution		40 μV			
Accuracy		Guar.: 0.15% of rd. + 0.015% of rg. Typ.: 0.05% of rd. + 0.005% of rg.			

Relay Tester AMT



(continue)				
Low Voltage, High Current Generators AMT103				
Phase	Range		0° to 360°	
	Resolution		1μ°	
	Accuracy		Guar.: 0.1° Typ.: 0.01°	
Frequency	Range		0 ... 2.5 kHz	
	Resolution		1 μHz	
	Accuracy		Guar.: 10 μHz Typ.: 1 μHz	
Recording	Sampling Rate		1.2 ms	
	Variable		Currents	
Protection	Detection	Maximum Neutral Current	32A: Unlimited	
			64 A: 3 s	
			100 A: 300 ms	
	Setting		Soware Controlled: Time , Enable	
Type		Test off		
Maximum Neutral Current	4 mm (0.16 in) banana sockets / 32 A continuously			
Connection Banana Sockets	Group A (30 A continuously max)			
LED	Green (1 Color)			
Harmonic Injection	Enter Harmonic	Yes	2 Free Harmonic	
	Harmonic Order	No		
Power				
Binary/Analog Inputs 103				
Number	4			
Dry	Open Circuit Voltage		ΔV	
	Short Circuit Voltage		Soware controlled	
Wet	Range 1: 0 ... ±4.5 V(Peak)	Accuracy	±0.5% of rg.	
		Accuracy (Avg)	±0.02% of rg.	
		Resolution	1μV	
		Impedance	199.75 KΩ	
	Range 1: 0 ... ±30 V(Peak)	Accuracy	±0.5% of rg.	
		Accuracy (Avg)	±0.02% of rg.	
		Resolution	250μV	
		Impedance	14.783 KΩ	
	Range 1: 0 ... ±180 V(Peak)	Accuracy	±0.5% of rg.	
		Accuracy (Avg)	±0.02% of rg.	
		Resolution	1.5mV	
		Impedance	5.267 KΩ	
No				
Recording	Sampling Rate		12.5 μs	
Protection	Detection		Over voltage	
	Setting		Soware Controlled: Time , Enable	
	Type		Test o, Change to Dry	
Galvanic Isolation		4 Group (1+1+1+1)		
LED	Green (1 Color)			

(continue)				
Low Voltage, High Current Generators AMT703				
Phase	Range		0° to 360°	
	Resolution		1μ°	
	Accuracy		Guar.: 0.1° Typ.: 0.01°	
Frequency	Range		0 ... 2.5 kHz	
	Resolution		1 μHz	
	Accuracy		Guar.: 10 μHz Typ.: 1 μHz	
Recording	Sampling Rate		1.2 ms	
	Variable		Currents & Voltages	
Protection	Detection	Maximum Neutral Current	32A: Unlimited	
			64 A: 3 s	
			100 A: 300 ms	
	Setting		Soware Controlled: Time, Enable	
	Type		Test off	
Maximum Neutral Current	4 mm (0.16 in) banana sockets / 32 A continuously			
Connection Banana Sockets	Group A (30 A continuously max)			
LED	RGB (16 Million Color)			
Harmonic Injection	Enter Harmonic	Yes	2 Free Harmonic	
	Harmonic Order	Yes	Maximum Order 40 for 50Hz (2KHz)	
Power				
Binary/Analog Inputs 203				
Number	4			
Dry	Open Circuit Voltage		ΔV	
	Short Circuit Voltage		Soware controlled	
Wet	Range 1: 0 ... ±4.5 V(Peak)	Accuracy	±0.5% of rg.	
		Accuracy (Avg)	±0.02% of rg.	
		Resolution	1μV	
		Impedance	199.75 KΩ	
	Range 1: 0 ... ±30 V(Peak)	Accuracy	±0.5% of rg.	
		Accuracy (Avg)	±0.02% of rg.	
		Resolution	250μV	
		Impedance	14.783 KΩ	
	Range 1: 0 ... ±180 V(Peak)	Accuracy	±0.5% of rg.	
		Accuracy (Avg)	±0.02% of rg.	
		Resolution	1.5mV	
		Impedance	5.267 KΩ	
	Range 1: 0 ... ±520 V(Peak)	Accuracy	±0.5% of rg.	
		Accuracy (Avg)	±0.02% of rg.	
		Resolution	4mV	
		Impedance	4.298 KΩ	
Recording	Sampling Rate		12.5 μs	
Protection	Detection		Over voltage	
	Setting		Soware Controlled: Time, Enable	
	Type		Test o, Change to Dry	
Galvanic Isolation		4 Group (1+1+1+1)		
LED		RGB (16 Million Color)		

Relay Tester AMT



Binary Outputs AMT103			
Type	Electro mechanical relay contacts		
	-		
Control	Soware controlled		
Number	4		
Maximum Voltage in open mode	Electro Mechanic	VΔ•V (Rms)	
	No		
Maximum Current	Electro Mechanic	I•A (Rms)	
	No		
Break Capacity AC	Electro Mechanic	VΔ••VA	
	No		
Break Capacity DC	Electro Mechanic	V•••W	
	No		
Recording	No		
Protection	No		
Galvanic Isolation	FGroup (1+1+1+1)		
LED	Green (1 Color)		
AC/DC Current Measuring Input AMT103			
Range 2: 0 ... ± 800 mA	Accuracy	•.05% of rg	
	Accuracy (Avg)	•.02% of rg.	
	Resolution	FμA	
	Shunt	IΩ	
Range 3: 0 ... ± 35 mA	No		
Range 1: 0 ... ± 10 A	No		
Range 4: 0 ... ± 250 μA	No		
Recording	Resolution	F••μs	
Protection	Accuracy	Overcurrent	
	Setting	Soware Controlled: Time , Enable	
	Type	Test o, Change to open circuit	
Galvanic Isolation	1 Group		
LED	Green (1 Color)		
AC/DC Voltage Measuring Input AMT103			
Range 1: 0 ... ±400 mV(Peak)	Accuracy	•.05% of rg.	
	Accuracy (Avg)	•.02% of rg.	
	Resolution	VμV	
	Impedance	ΔF.7826 KΩ	
Range 2: 0 ... ±120 mV(Peak)	No		
Range 1: 0 ... ±50 mV(Peak)	No		
Range 2: 0 ... ±10 mV(Peak)	No		
Recording	Sampling Rate	F•• μs	
Protection	Detection	Over Voltage	
	Setting	Software Controlled: Time , Enable	
	Type	Test o	
Galvanic Isolation	1 Group		
LED	Green (1 Color)		
AUX. DC AMT103			
Aux. DC	No		
GPS AMT103			
Internal GPS Module	Yes		
Accuracy	Ans		
Time To Lock	1•s		
Delay Adjustment	Yes		

Binary Outputs AMT203			
Type	Electro mechanical relay contacts		
	Transistor		
Control	Soware controlled		
Number	4		
Maximum Voltage in open mode	Electro Mechanic	VΔ•V (Rms)	
	Transistor	Δ•V	
Maximum Current	Electro Mechanic	I•A (Rms)	
	Transistor	Δ•mA	
Break Capacity AC	Electro Mechanic	Smax	ΥΔ••VA
	Transistor	Smax	Υ.5 VA
Break Capacity DC	Electro Mechanic	Pmax	Υ••W
	Transistor	Pmax	Υ.5W
Recording	Sampling Rate	Δ• μs	
	Resolution	ΥmA	
	Accuracy	•.3 mA	
Protection	Detection	Overcurrent	
	Setting	Soware Controlled: Time , Enable	
	Type	Test o, Open Relays	
Galvanic Isolation	ΥGroup (1+1+1+1)		
LED	RGB (16 Million Color)		
AC/DC Current Measuring Input AMTY03			
Range 2: 0 ... ± 800 mA	Accuracy	•.05% of rg	
	Accuracy (Avg)	•.02% of rg.	
	Resolution	ϕμA	
	Shunt	IΩ	
Range 3: 0 ... ± 35 mA	Accuracy	•.05% of rg	
	Accuracy (Avg)	•.02% of rg.	
	Resolution	•.3 μA	
	Shunt	ΥΥΩ	
Range 1: 0 ... ± 10 A	Accuracy	•.05% of rg	
	Accuracy (Avg)	•.02% of rg.	
	Resolution	1.5mA	
	Shunt	ΔmΩ	
Range 4: 0 ... ± 82 μA	Accuracy	•.05% of rg	
	Accuracy (Avg)	•.02% of rg.	
	Resolution	ϕnA	
	Shunt	ΥΚΩ	
Recording	Resolution	1Υ.5 μs	
Protection	Accuracy	Overcurrent	
	Setting	Soware Controlled: Time , Enable	
	Type	Test o, Change to open circuit	
Galvanic Isolation	1 Group		
LED	RGB (16 Million Color)		
AC/DC Voltage Measuring Input AMT203			
Range 1: 0 ... ±400 mV(Peak)	Accuracy	•.05% of rg.	
	Accuracy (Avg)	•.02% of rg.	
	Resolution	ΥμV	
	Impedance	ΔF.7826 KΩ	
Range 2: 0 ... ±120 mV(Peak)	Accuracy	•.05% of rg.	
	Accuracy (Avg)	•.02% of rg.	
	Resolution	1μV	
	Impedance	1ΥΥ/VΔ KΩ	
Range 1: 0 ... ±50 mV(Peak)	Accuracy	•.05% of rg.	
	Accuracy (Avg)	•.02% of rg.	
	Resolution	Δ••nV	
	Impedance	ΔF.7826 KΩ	
Range 2: 0 ... ±10 mV(Peak)	Accuracy	•.05% of rg.	
	Accuracy (Avg)	•.02% of rg.	
	Resolution	1••nV	
	Impedance	1ΥΥ/VΔ KΩ	
Recording	Sampling Rate	1Υ/Δ μs	
Protection	Detection	Over Voltage	
	Setting	Software Controlled: Time , Enable	
	Type	Test o, Change to open circuit	
Galvanic Isolation	1 Group		
LED	RGB (16 Million Color)		
AUX. DC AMT203			
Aux. DC	Any combination of 4 channels	Max Voltage : 1200 V , 0.4 A	
		Max Current : 8 V , 210 A	
GPS AMT203			
Internal GPS Module	Yes		
Accuracy	Ans		
Time To Lock	1•s		
Delay Adjustment	Yes		

Relay Tester AMT



Protocol AMT103		
IEC 61850	GOOSE Publish	10
	Goose Subscribe	10
	Virtual Binary I/O	32 IN / 32 OUT
	SV Publish Streams	NO
	SV Subscribe Streams	NO
	SV Sample Rates	NO
	Ethernet Ports	1x RJ45 100Base
	Time Sync	PPS
	Time Accuracy	±80 ns (PPS)
Combination Cable AMT103		
V ^o Voltage, 3 Current		Yes
F ^o Current		Yes
PC Connection AMT103		
Wifi		Yes
LED		1 Port
Programming USB Port		No
Physical Characteristic AMT103		
Weight		1Fkg
Dimension		Y ^o Δcm-35cm-15cm
Operating Temperature		-10 to 55° C
Storage Temperature		-20 to 85° C
Humidity		Y ^o %
Transformer Specification AMT103		
HV & LV outputs-power	Frequency	
	Power	
HV & LV outputs-Voltage	Y ^o -phase AC (RMS)	±-150 V(LN)....550mA peak
	I ^o -phase AC (RMS)	±-450V(LN)....550 mA peak
	Y ^o -phase DC	±-220V(LN)....550 mA
	I ^o -phase DC	±-630V(LN)....550mA peak
HV & LV outputs-Current	Y ^o -phase AC (RMS)	±-32A....12V
	I ^o -phase AC (RMS)	
	Y ^o -phase DC	±-10A....12V
	I ^o -phase DC	±-10A....40V
HV & LV input-Voltage	AC(RMS)	... 400m V 0.01 % rd + 0.017 % range ... 4.5 V 0.007 % rd + 0.012 % range ... 30V 0.022 % rd + 0.032 % range ... 188V 0.01 % rd + 0.017 % range
	DC	
HV & LV input-Current	AC(RMS)	... 800 mA 0.008 % rd + 0.01 % range
	DC	
Test Standard		IEC61869 / 60044
Voltage Output Range		±-450V
Current Output Range		±-128A
Output Frequency Range		DC & 5-2500HZ
CT Ratio Measurement Accuracy		Ratio: 1-30000 accuracy: 0.2
Phase displacement: Resolution Accuracy		0.01 min Y ^o min (typical) / 5 min (guaranteed)
Minimum Knee Point		±.5V
Maximum Knee Point		FΔ±.V
Winding Resistance Resolution Accuracy		1 mΩ ±.05 % (typical) / 0.1 % + 1 mΩ (guaranteed)
Current Input Range(CT Secondary Side)		1mA - 500mA
Minimum Knee Current		1mA
Maximum Knee Voltage		1.5A Up to 4KV

Protocol AMT203		
IEC 61850	GOOSE Publish	128
	Goose Subscribe	128
	Virtual Binary I/O	360 IN / 360 OUT
	SV Publish Streams	10
	SV Subscribe Streams	10
	SV Sample Rates	80-256 samples/cycle
	Ethernet Ports	3x RJ45 100Base, 1x External Fiber 100Base (Optional)
	Time Sync	PTP (IEEE-1588), IRIG-B, PPS, SNTP
	Time Accuracy	±1 μs (PTP), ±80 ns (PPS)
Combination Cable AMT203		
V ^o Voltage, 3 Current		Yes
F ^o Current		No
PC Connection AMT203		
Wifi		Yes
LED		1 Port
Programming USB Port		Yes
Physical Characteristic AMT203		
Weight		1Fkg
Dimension		Y ^o Δcm-35cm-15cm
Operating Temperature		-10 to 55° C
Storage Temperature		-20 to 85° C
Humidity		Y ^o %
Transformer Specification AMT203		
HV & LV outputs-power	Frequency	
	Power	
HV & LV outputs-Voltage	Y ^o -phase AC (RMS)	±-600 V(LN)....1.2 A peak
	I ^o -phase AC (RMS)	±-1200V(LN)....1.2 A peak
	Y ^o -phase DC	±-850V(LN)....1.2 A
	I ^o -phase DC	±-1700V(LN)....1.2 A peak
HV & LV outputs-Current	Y ^o -phase AC (RMS)	±-32A....22V
	I ^o -phase AC (RMS)	
	Y ^o -phase DC	±-10A....22V
	I ^o -phase DC	±-10A....60V
HV & LV input-Voltage	AC(RMS)	0 ... 10 mV 0.022 % rd + 0.032 % range ... 50 mV 0.01 % rd + 0.017 % range ... 120m V 0.007 % rd + 0.012 % range ... 400m V 0.01 % rd + 0.017 % range ... 4.5 V 0.007 % rd + 0.012 % range ... 30V 0.022 % rd + 0.032 % range ... 188V 0.01 % rd + 0.017 % range ... 520 V 0.007 % rd + 0.012 % range
	DC	
HV & LV input-Current	AC(RMS)	0 ...82 uA 0.1 % rd + 0.023 % range ... 35 mA 0.037 % rd + 0.026 % range ... 800 mA 0.008 % rd + 0.01 % range ... 10 A 0.008 % rd + 0.01 % range
	DC	
Test Standard		IEC61869 / 60044
Voltage Output Range		±-1200V
Current Output Range		±-128A
Output Frequency Range		DC & 5-2500HZ
CT Ratio Measurement Accuracy		Ratio: 1-30000 accuracy: 0.2
Phase displacement: Resolution Accuracy		0.01 min Y ^o min (typical) / 5 min (guaranteed)
Minimum Knee Point		±.01V
Maximum Knee Point		1±KV
Winding Resistance Resolution Accuracy		1 mΩ ±.05 % (typical) / 0.1 % + 1 mΩ (guaranteed)
Current Input Range(CT Secondary Side)		1mA - 7 A
Minimum Knee Current		1±uA
Maximum Knee Voltage		10A up to 50V Y ^o .5A Up to 10KV

Relay Tester AMT



PT SPECIFICATION AMT103	
Test Standard	IEC61869 / 60044
Voltage Output Range	0-450V AC
Current Output Range	0-128A
Ratio Measurement Voltage Level Typical accuracy	Ratio: 1-500KV accuracy: 0.2
Phase displacement measurement Voltage level Typical accuracy	0.01 min 1°min (typical) / 5 min (guaranteed)
Winding Resistance: Resolution Guaranteed Accuracy Typical accuracy	1 mΩ 0.1 % + 1 mΩ 0.05 %

PT SPECIFICATION AMT203	
Test Standard	IEC61869 / 60044
Voltage Output Range	0-1200 V AC
Current Output Range	0-128A
Ratio Measurement Voltage Level Typical accuracy	Ratio: 1-500KV accuracy: 0.2
Phase displacement measurement Voltage level Typical accuracy	0.01 min 1°min (typical) / 5 min (guaranteed)
Winding Resistance: Resolution Guaranteed Accuracy Typical accuracy	1 mΩ 0.1 % + 1 mΩ 0.05 %