

## AN9651TH(F) Three-phase Electrical Safety

### Comprehensive Tester

- ※ Eight-in-one: ACW/DCW/IR/GB/LC/PW/ST/WT
- ※ High stability: 2% accuracy for safety comprehensive tester, 0.5% accuracy for power
- ※ Single/three-phase: suitable for comprehensive test of single /three-phase products

### Product Introduction

This AN9651TH(F) series electrical safety comprehensive tester has eight-in-one testing (ground bond resistance/insulation resistance/AC withstand voltage/DC withstand voltage/leakage current/power parameters/start-up/waiting), compatible three/single-phase loads, suitable for safety testing of line, labs, quality inspection department of electrical appliances such as central air conditioning, commercial heaters, commercial kitchen utensils and others.



### Features

- ※ **Multi industrial standards:** comply with CCC, IEC, EN, VDE, BS, UL, JIS and other mandatory electrical safety standards. 200mA or higher short-circuit output current for 500VA withstand voltage (ACCV/100mA). Built-in replaceable MD card for leakage contact current test network, suitable for various industrial standards for different MD.
- ※ **Complete functions:** AC withstand voltage, DC withstand voltage, insulation resistance, ground bond resistance, leakage current, operating power, low-voltage start and waiting.
- ※ **Multi power supply:** built-in isolated power unit, automatically control of power supply of the product under test; external variable frequency power supply for testing online. Optional three-phase isolation transformers or variable frequency power supply and U.S. standard power supply of various specifications (20kVA\45kVA\60kVA\90kVA).
- ※ **Intelligent test:** 15 groups of memory of test conditions, 8-step programming for each group; one-key start to complete all tests.
- ※ **Automatic control:** interfaces for RS232/RS485/LAN (optional), barcode scanner, variable frequency power supply control, digital control, easy to configure automatic test systems.
- ※ **Information management:** optional PC and ESRS software for barcode recognition, data management, MES connection.
- ※ **Simple operation:** 10.4" TFT color screen, menu operation, Chinese/English display, socket-type test tooling.

## Specifications

Model	AN9651TH(F)
AC withstand voltage (ACW)	5kVac/100mA
DC withstand voltage (DCW)	6kVdc/10mA
Insulation resistance (IR)	1kVdc/2000MΩ
Ground bond resistance (GB)	32Aac/600mΩ
Leakage current (LC)	Single/three-phase load, 500V/30A, MD-A(IEC60990 Figure 4), RMS
Power test (PW)	Single/three-phase load, 500V/30A, three-phase 20kW (optional 45kW、60kW、90kW)
Start-up test (ST)	Single/three-phase, 500V/30A
Interface	10" color LCD, RS232/PLC port
Load power supply	Built-in 20kVA isolation transformer (optional 45kVA/60kVA/90kVA isolation transformer or variable frequency power supply)
Dimensions (mm)	600 (W) *1600 (H) *500 (D)

## Specification Details (subject to the final confirmation of the technical specification)

Function			Technical indicator
AC withstand voltage test	Rated output capacity		500VA (5000V/100mA), short circuit current >200mA
	Output voltage setting	Range	Static: 500~5000V; Dynamic: 500~2500V
		Resolution/Accuracy	50V; $\pm (2\% \times \text{setting value} + 5V)$
	Frequency setting	Range/Accuracy	50Hz or 60Hz, $\pm 0.1\% \times \text{setting value}$
	Alarming limits setting	Current upper limit range/accuracy	0.10~99.99mA, $\pm (2\% \times \text{reading value} + 2 \text{ counts})$
		Current lower limit range/accuracy	0.00~99.99mA, $\pm (2\% \times \text{reading value} + 2 \text{ counts})$
	Compensation current setting	Range	0.00~5.00mA, automatic testing, compensation can be set to ON/OFF
	Start voltage setting	Range	(0%~99%) of testing voltage
	Time setting	Test time range	0.5~999.9s (test less than 1 second has an impact on the accuracy), Allowable error $\pm(0.1\% \times \text{setting value} + 2 \text{ counts})$

		Ramp-up time range	0.1~999.9s, Allowable error $\pm(0.1\% \times \text{setting value} + 2 \text{ counts})$
		Ramp-down time range	0.0~999.9s (start timing after passing the test), Allowable error $\pm(0.1\% \times \text{setting value} + 2 \text{ counts})$
DC withstand voltage test	Rated output capacity		60VA (6000V/10mA)
	Output voltage setting	Range	Static: 500~6000V; Dynamic: 500~2500V
		Resolution/Allowable error	50V, $\pm (2\% \times \text{setting value} + 5V)$
	Alarming limit setting	Current upper limit range/Allowable error	50~9999 $\mu$ A, $\pm (2\% \times \text{reading value} + 2 \text{ counts})$
		Current lower limit range/Allowable error	0~9999 $\mu$ A, $\pm (2\% \times \text{reading value} + 2 \text{ counts})$
	Compensation current setting	Range	0~500 $\mu$ A, automatic testing, compensation can be set to ON/OFF
	Start voltage setting	Range	$(0\% \sim 99\%) \times \text{setting of output voltage}$
	Time setting	Test time range	0.5~999.9s (test less than 1 second has an impact on the accuracy), Allowable error $\pm(0.1\% \times \text{setting value} + 2 \text{ counts})$
		Ramp-up time range	0.1~999.9s, Allowable error $\pm(0.1\% \times \text{setting value} + 2 \text{ counts})$
		Delay decision time	0.3~10.0s (start timing from ramp-up), Allowable error $\pm (0.1\% \times \text{setting value} + 2 \text{ counts})$
	Arc detection		1~9, 9 corresponds to most sensitive, 0 is off
Insulation resistance test	Rated output capacity		1VA (1000V/1mA)
	Output voltage	Range/Allowable error	DC 100V-1000V, $\pm (2\% \times \text{setting value} + 2V)$
	Alarm resistance setting	Range of upper limit	1.0~99.9M $\Omega$ , 100~2000M $\Omega$ (LLLL is infinite)
		Range of lower limit	1.0~99.9M $\Omega$ , 100~2000M $\Omega$
	Time setting	Test time range	0.5~999.9s (test less than 1 second has an impact on the accuracy), Allowable error $\pm(0.1\% \times \text{setting value} + 2 \text{ counts})$
		Ramp-up time range	0.1~999.9s, Allowable error $\pm(0.1\% \times \text{setting value} + 2 \text{ counts})$

		Delay decision time	0.3~99.0s (start timing from ramp-up), Allowable error $\pm (0.1\% \times \text{setting value} + 2 \text{ counts})$
	Insulation resistance measurement	Range	1.0~99.9M $\Omega$ , 100~2000M $\Omega$
		Allowable error	$\leq 200\text{M}\Omega$ : $\pm (2\% \times \text{reading value} + 2 \text{ counts})$ ; $> 200\text{M}\Omega$ : $\pm (5\% \times \text{reading value} + 5 \text{ counts})$
Ground bond resistance test	Open circuit output voltage		$< 12\text{V}$
	Output current	Range/Allowable error	3~32A, $\pm (2\% \times \text{setting value} + 0.2\text{A})$
	Current frequency	Range/Allowable error	Sine wave 50Hz or 60Hz, $\pm 0.1\% \times \text{setting value}$
	Alarm limit	Resistance upper limit range/accuracy	3A $\leq$ output current $\leq$ 10A: 10~600m $\Omega$ ; $\pm (2\% \times \text{reading value} + 2 \text{ counts})$ 11A $\leq$ output current $\leq$ 25A: 10~300m $\Omega$ ; $\pm (2\% \times \text{reading value} + 2 \text{ counts})$ 26A $\leq$ output current $\leq$ 32A: 10~200m $\Omega$ ; $\pm (2\% \times \text{reading value} + 2 \text{ counts})$
		Resistance lower limit range/accuracy	0~100m $\Omega$ ; $\pm (2\% \times \text{reading value} + 2 \text{ counts})$
	Compensation resistance	Range	0~200m $\Omega$ , automatic testing, compensation can be set to ON/OFF
	Test time	Range	0.5~999.9s (test less than 1 second has an impact on the accuracy), Allowable error $\pm (0.1\% \times \text{setting value} + 2 \text{ counts})$
Leakage current test	Leakage current test type setting		Single/three-phase load, static/dynamic leakage test
	MD network selection		Standard GB/T 12113 Figure 4 network; other test network optional
	Leakage current alarm setting	Current upper limit range	50~9999 $\mu\text{A}$
		Current lower limit range	0~5000 $\mu\text{A}$
	Leakage current measurement	Range	50~9999 $\mu\text{A}$
		Allowable error	DC~10kHz: $\pm (2\% \times \text{reading value} + 2 \text{ counts})$ ; 10k~1MHz: $\pm (5\% \times \text{reading value} + 5 \text{ counts})$ ;

	Voltage measurement	Range/Allowable error	50.0~500.0V (phase voltage), $\pm (0.5\% \times \text{reading value} + 2 \text{ counts})$
	Test time	Range/Allowable error	1.0 ~ 999.9s, Allowable error $\pm(0.1\% \times \text{setting value} + 2 \text{ counts})$
Running power test	Alarming limit setting	Power upper limit range	Single-phase: 20~6000W; Three-phase: 60~20000W
		Power lower limit range	Single-phase: 0~6000W; Three-phase: 0~20000W
	Test time setting	Range	0.5~999.9s (test less than 1 second has an impact on the accuracy)
	Voltage measurement	Range/Allowable error	50.0~500.0V (phase voltage), $\pm (0.5\% \times \text{reading value} + 2 \text{ counts})$
	Current measurement	Range/Allowable error	0.30~30.00A, $\pm (0.5\% \times \text{reading value} + 2 \text{ counts})$
	Active power measurement	Range/Allowable error	20.0 ~ 999.9W, 1000 ~ 9999W, 10.00 ~ 20.00kW; $\pm (0.5\% \times \text{reading value} + 2 \text{ counts})$
Low voltage starting test	Alarming limit setting	Current upper limit range	0.30~30.00A
		Current lower limit range	0 ~ 30.00A
	Test time	Range	0.5~999.9s (test less than 1 second has an impact on the accuracy),
	Voltage measurement	Range/Allowable error	50.0~500.0V (phase voltage), $\pm (0.5\% \times \text{reading value} + 2 \text{ counts})$
	Current measurement	Range/Allowable error	0.30~30.00A, $\pm (0.5\% \times \text{reading value} + 2 \text{ counts})$
DUT power control	Isolation transformer input voltage, frequency		0~300V (phase voltage), 45~65Hz
	Isolation transformer output voltage ratio	Leakage current test	1.06 times of rated voltage
		Running power test	1.00 times of rated voltage
		Low voltage start test	0.85 times of rated voltage

	Isolation transformer capacity		Three-phase load rated capacity: 20kVA, single-phase load rated capacity: 6kVA Optional 45kW/60kW/90kW larger capacity isolation transformer or frequency conversion power supply
Delay time	Delay time setting	Range/Allowable error	1.0~999.9s, LLLL is infinite, Allowable error $\pm(0.1\% \times \text{setting value} + 2 \text{ counts})$
	Load power mode setting		During delay, load power can be set to ON/OFF
Interface	Remote interface		Standard, manual remote control box (start/stop)
	Alarm lamp interface		Standard, three-color lamp (test/pass/fail)
	Communication interface		Standard, RS232, internet, RS485, GPIB (choose one of four, default RS232)
	Barcode scanner interface		Standard, can work with barcode scanner to automatically identify barcode information
	Frequency conversion power supply control interface		Standard, combine with AN97(F) series frequency conversion power supply
	PLC interface		Standard, start/stop/test/pass/fail output