

SPARK TESTER BY LINTTOP

1. High Frequency AC Spark Tester



1.1 Introduction

High frequency sparker tester is a rapid and reliable detection tool and also a high precision instrument used for detecting the pinhole and cable sheath damage of kinds of wire and cable conductors. It can detect the shortfalls of conductors rapidly without any breakage. By replacing the conventional (50/60Hz) power frequency high voltage electrode head with the high frequency (3KHz) high voltage electrode head, the machine is equipped with higher sensitivity in detection, because the electrode head size is about 50 times smaller. It can be regarded as a good weapon of high reliability for quality management.

The high frequency sparker tester, it has bead type electrode tip and is mainly used power line and automotive wire with diameter of 2-120mm and other wires which has big diameter.

1.2 Operating Conditions

Model	LT015A	LT015B	LT015C	LT015D	LT015E
Input voltage	220V, single phase, 50/60Hz				
Output voltage	0.0-15.0KV				

Test voltage	1.0-15.0KV				
Max. line speed	1000M/min	1000M/min	400M/min	400M/min	2000M/min
Output frequency	2-3.5KHz				
Electrode length	50mm	50mm	20mm	20mm	120mm
Detection indication	Digit counter, Detect figure indicating, Sound and light warning lamps				
Signal length	Max. 5 M				
Output control	Relay output, pinhole/cable sheath damage detection, Relay contact output, 5A/250V				
Type of electrode tip	Bead chain	Bead chain	Copper brush	Carbon and copper brush	Bead chain
Usage range	For wire stranding 0-4mm	Round wire 0-12mm	Flat wire 0-160mm	Superfine wires 0-3mm	Round wire 0-4mm





2. Power Frequency AC Spark Tester

2.1 Introduction

LT-15A/25A/35A Commercial Frequency AC Spark Tester is a special-purpose test apparatus to detect fault of insulation on wire and cable. Integrated with the technology of solid-state AC voltage regulation and single piece microprocessor control, the machine features steady voltage output (unaffected by variation of supply voltage), high sensitivity of fault detection, versatility, user-friendliness, safety and reliability, new construction and beautiful appearance.

The work principle of the spark tester is as follows: Make the tested wire or cable travel through the high voltage bead-chain electrode having test potential supplied by a commercial frequency HV transformer. If the insulation has fault, breakdown will occur, namely the output of the HV transformer will cause a HV spark short-circuit. The short-circuit current flows from the output terminal of the HV transformer through insulation fault-conductor of cable-earth-ground-HV transformer to form a circuit. There for both the spark tester and the conductor of cable shall be soundly earth-grounded otherwise the short circuit cannot be formed and the cabinet of the spark tester and conductor of cable may have high voltages



2.2 Operating Conditions

Type	LT-15A	LT-25A	LT-35A
Voltage output	1.0-15.0KV	2.0-25.0KV	0-35KV
Voltage indication error	<5%	<5%	<5%
Detection sensitivity	<600 μ A	<600 μ A	<600 μ A
Stability	Complying with the requirements of GB3048.9-1994 and B/T4728.10		
Detection resolution	0.05s	0.05s	0.05s
Transient breakdown current	100mA	50mA	50mA
Steady short-circuit current	<20mA	<20mA	<20mA
Detection speed, Max.	300m/min	350m/min	200m/min
Overall diameter of tested wire or cable, Max.	\leq 30mm	\leq 55mm	\leq 60mm/ \leq 130mm/ \leq 160mm

2.3 Test Voltage

According to GB/T3048.9-94 standard, LT-15A, LT-25A, LT-35A test voltage of contact electrode sparker show as next table.

Insulating nominal thickness δ (mm)	Test voltage (RMS)(kV)
$\delta \leq 0.25$	3
$0.25 < \delta \leq 0.5$	4
$0.5 < \delta \leq 1.0$	6
$1.0 < \delta \leq 1.5$	10
$1.5 < \delta \leq 2.0$	15
$2.0 < \delta \leq 2.5$	20
$2.5 < \delta$	25
$3.5 < \delta$	35

