TECHNOLOGY PRODUCTS

PRODUCT CATALOGUE

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Over 35 Years of Industry Experience

At Technology Products, we are a premier manufacturer and supplier of cutting-edge Electrical Testing, Measuring, and Safety Equipment, with capabilities up to 800 KV. Our expertise extends beyond equipment design and manufacturing to offering solutions for Electrical Safety and Testing—from concept to commissioning. Trust us to deliver precision, safety, and innovation in every project.

Founder's Message

Mr. Umed Singh

Served Power Sector for more than 50 years

Since the formation of Technology Products in 1988, we have made rapid strides in the field of Electrical Testing, Measuring & Electrical Safety Equipment. A number of Equipment were developed and manufactured for the first time in India. These equipment are being used by almost all leading companies in Power Sector in India. We also set up Electrical Testing Laboratories on turnkey basis. These equipment are being exported to advanced countries also.

With the Rapid industrialization and Power Sector Reforms massive Projects in Generation, Transmission & Distribution are fast coming up, the need of Electrical Testing, Measuring & Electrical Safety Equipment has gone up many folds. Technology Products realised this and introduced many Electrical Testing & Safety Equipment upto 800 KV. We have designed systems up to 1200 KV for the first time in the country.

CEO's Message

Ravindra Singh

More than 30 years of Service in the Power Sector

At Technology Products, we are committed to leading the industry in the innovation and manufacturing of electrical safety equipment and advanced mobility power solutions. Our focus on quality and cutting-edge technology drives us to deliver reliable power solutions for Electric Vehicles (EVs) and Energy Storage Systems (ESS).

We continuously strive for improvement, with particular emphasis on developing High Voltage Safety products that protect lives and promote safety in high-risk environments. Through relentless research and development, we are setting new benchmarks in the industry, ensuring that our products not only meet but exceed the ever-changing demands of our global clients

Our Values

Client Focus

As trusted advisors everything we do is valued by our clients.

Quality

We are proud to stand behind the quality of work we deliver.

Integrity

We always act with integrity through honesty, fairness and accountability.

Teamwork

As a family we ask for help and help when asked.

Product Categories

Electrical Safety Equipment

Safety is paramount with our range of electrical safety equipment. From Portable Earthing Equipment and Soft Discharge Rods to High Voltage Detectors and Arc Flash Suites, our products are designed to protect personnel in high-voltage environments, ensuring safe and reliable operations.

Electrical Testing Equipment

Our electrical testing equipment is designed for accuracy and reliability. We offer High Voltage AC/DC Testing Kits, Primary Current Injection Testing Sets, and Ohmmeters, alongside advanced tools like the Transformer OLTC Diagnostic System, all essential for maintaining electrical system integrity across industries.

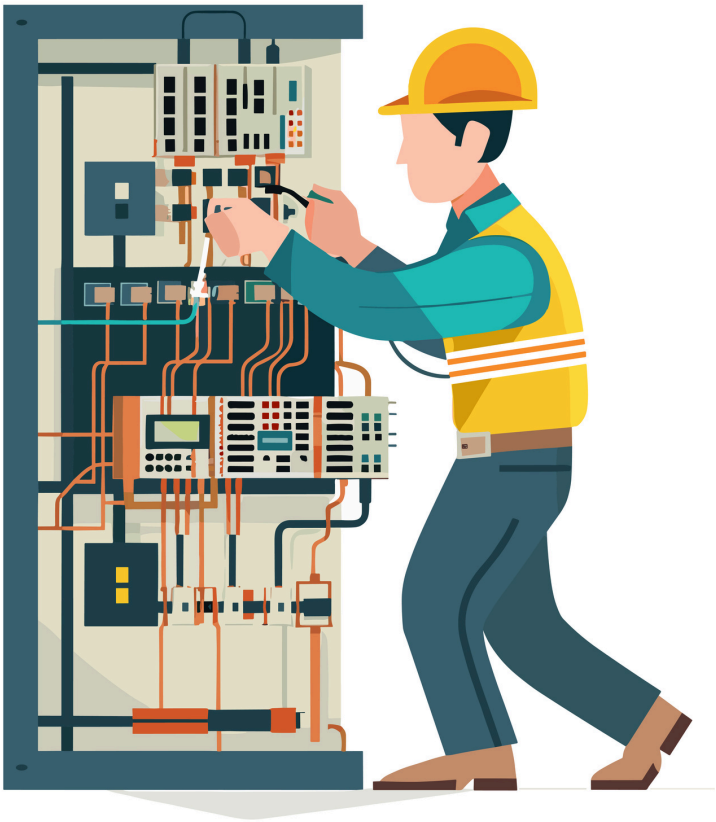
Lithium Ion Batteries

Our lithium-ion batteries are engineered to meet the demands of modern mobility and energy storage. We offer specialized batteries for two-wheelers, three-wheelers, and storage solutions, ensuring efficient, reliable, and sustainable power for both personal and industrial applications.

Camera and Imaging

We provide a comprehensive range of advanced imaging solutions, including the DX and PX series infrared thermal cameras, ideal for precise thermal monitoring. Our offerings also include specialized equipment like the SF6 Gas Detection Camera, Acoustic Cameras, and the PD600 Thermal & Partial Discharge Detector, designed for critical diagnostic applications.

Electrical Safety Equipment



Portable Earthing Equipment

- Available upto 765 KV
- Light Weight
- Smooth and Glossy Finish
- Customised Lengths Available
- Type Tested as per IS & IEC

Portable Earthing Equipment (Discharge Rod)

Portable Earthing Equipment also called Discharge Rod, are safety equipment designed for discharging & grounding of dead equipment. The system is designed for high fault levels so that even during shutdowns, when technicians are on the job, by mistake if the supply is switched ON, the Portable Earthing Equipment saves human life as well as equipment under maintenance. Special Line End & Earth End Clamps along with operating socket and earthing lead are used. The Line End Clamps, Earth End Clamps & operating sockets are made of special aluminium alloys which can withstand high short circuit currents and has very good mechanical strength.

Using Portable Earthing Equipment, clamps are applied from remote just by rotating the insulated operating pole, the operator never comes in contact with any conductor, so it is a highly safe system. Using the common operating pole clamps are applied on each phase one by one. We also supply a single phase system with fixed clamps.

Main Insulation : 'F' Class to IS, BS & IEC

For Dimensions of Insulated Rods please refer Specifications of Insulated Sticks at the beginning of Electrical Safety

Fault Level Ratings : 7.5KA, 10.2KA, 21KA, 35KA & 40KA for short duration.

Accessories

- Line End Clamp
- Operating Sockets for Fixing & Removing Line End Clamps
- Earth End Clamps
- Extension handles to extend the length
- Special Waterproof carrying cases

Special Grounding Cables available in following types:

- Flexible Copper in Transparent, Bright Orange or Yellow/Green Sheath
- Flexible Aluminium in Transparent, Bright Orange or Yellow/Green Sheath
- The grounding cables are Pressure lugged at either ends using hydraulic machine.

High Voltage Detector TP-S9 Series

The TP-S9 High Voltage Detector ensures safety in high voltage installations by confirming whether equipment is live or dead, making it ideal for engineers and technicians. Key features include a capacitive sensor with audible and visual alerts, self-test mode, high-intensity indicators, adjustable sensitivity for different voltage ranges, and suitability for both indoor and outdoor use. With an extendible range up to 765KV, flexible power options, and universal compatibility, the TP-S9 is certified for safety and reliability by NABL accredited labs. A robust tool for high voltage testing and maintenance.

Ensure safety in high voltage installations with the TP-S9 High Voltage Detector. Ideal for engineers and technicians, this device confirms whether equipment is live or dead before maintenance.

Key Features:

- **Capacitive Sensor:** Provides audible and visual alerts when near charged objects.
- **Self Test Mode:** Inbuilt feature to check functionality before and after use.
- **High Intensity Indicators:** Bright light and loud sound for clear visibility and audibility.
- **Adjustable Sensitivity:** Suitable for different high voltage ranges.
- **Indoor/Outdoor Use:** Suitable for both indoor & outdoor use.
- **Extendible Range:** LT to 765KV (insulation handles required for high voltages).
- **Flexible Power Options:** Compatible with AA or universal "C14" size batteries.

- **Universal Connector:** Ensures broad compatibility.
- **Certified Safety:** Tested by NABL accredited laboratories.

Reliable and robust, the TP-S9 is your go-to tool for high voltage testing and maintenance.

Soft Discharge Rods

- Controlled Discharging
- Light Weight
- Smooth and Glossy Finish
- Customised Lengths Available
- Type Tested as per IS & IEC

Non-Linear Carbon Discharge Resistor Type

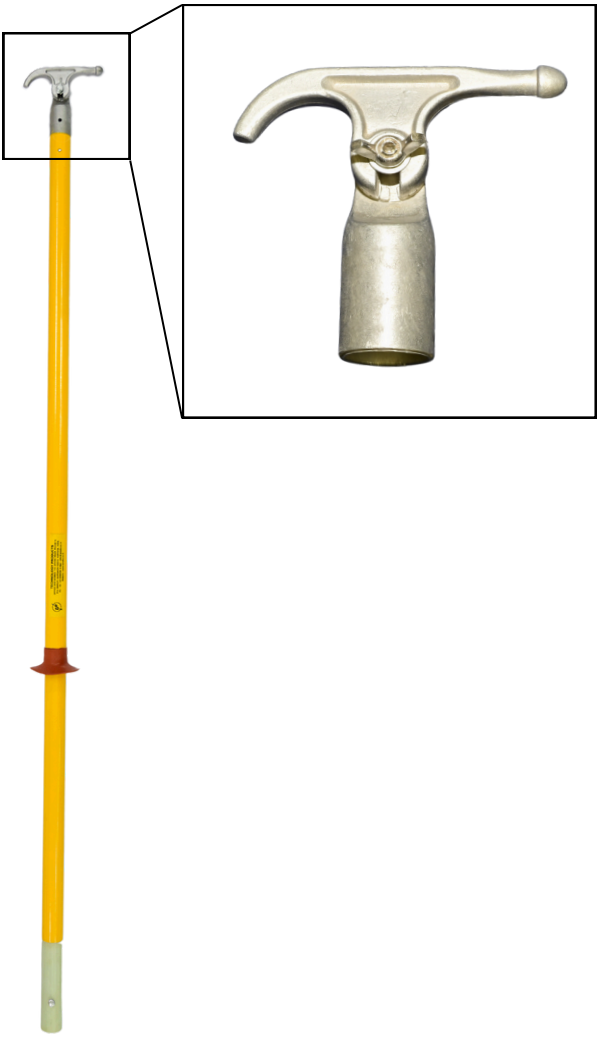
Non-Linear Carbon Discharge Resistor Type Discharge Rods are used to discharge dead systems having limited fault levels and also to discharge the static & induced charges in the dead system or equipment, particularly in cables, transformers, reactors, large busbar systems, switchgears etc. The earthing lead is made up of special highly flexible braided copper cable with transparent or bright coloured sheath. Copper Hook of 4" diameter of ½" thick copper rod & Earth End Clamp of special alloy are provided.

- **Main Insulation :** 'F' Class to IS, BS & IEC Specifications
- **Dimension of Main Pole & Extension Handles :** 25.5mm ID, 30.70mm OD, 1500mm(main pole), 1650mm(extension handle)

Lengths of Insulated Sticks

- **Main Pole Only :** 1.5m
- **Main Pole + 1 Extn. Handle :** 3.0m
- **Main Pole + 2 Extn. Handle :** 4.5m
- **Main Pole + 3 Extn. Handle :** 6.0m
- **Main Pole + 4 Extn. Handle :** 7.5m
- **Customised lengths also available**

DO Fuse Operating Rod



- Available upto 66KV.
- Light Weight
- Smooth and Glossy Finish
- Customised Lengths Available
- Type Tested as per IS & IEC

Experience efficiency and safety with our DO Fuse Operating Rod. Designed for fitting, removing and changing Drop Out Fuses. This tool simplifies the entire process.

Key Features:

- **Innovative Design :** Ensures secure handling of DO fuses during fitting and removal.
- **Universal Connector and Prong :** Accepts DO fuses easily, preventing accidental drops.
- **Ground-Level Operation :** Allows for all operations to be conducted comfortably from the ground.
- **Time and Effort Saving :** Significantly reduces the time and effort required for fuse replacement.
- **Enhanced Safety :** Provides a safer procedure compared to conventional methods.

Upgrade to our DO Fuse Operating Rod for a safer and more efficient fuse replacement experience.

Rescue Stick

- Available in 6 to 9 feet
- Smooth and Glossy Finish
- Available in Hollow or Foam filled stick
- Anti slip grip provided
- Type Tested as per IS & IEC

The Rescue Hook is an essential safety tool designed for working in high voltage environments. A rescue stick is designed to help rescue individuals who may be in contact with high voltage equipment or power lines. It allows rescuers to safely push or pull a person away from the source of danger without coming into direct contact with live electrical parts. The stick is typically insulated to protect the user from electrical shock. Here are the key features and specifications:

Materials and Construction:

Handles: Non-conductive insulated handles made from top-quality fiberglass materials (FRP), ensuring electrical insulation and safety for the user.
Hook: Made of hardened steel with an approximate diameter of 400mm, dressed with thick insulating covering. This material combination provides durability and electrical insulation.

Electrical Testing:

Insulation Test: Tested at high voltage levels to ensure safety. Specifically, it has been tested at 20 kV over 6 inches or 100 kV per foot for 5 minutes without any detectable heating. This confirms its ability to withstand high voltage without compromising safety.

Dimensions:

Length : The rod's length ranges between 6 to 9 feet , providing the necessary reach for operations in various high voltage scenarios. Length can be customized as per requirement also.
Compliance: The Insulating stick used complies with IEC61235 for hollow tubes & IEC60855 standards for foam-filled tubes, ensuring it meets international safety standards and quality requirements for such equipment.

Additional Safety Features:

- Rubber Foot
- Safety Stopper

Rubber Anti-Slip Grip : Offers the user a firm and secure hold, even in challenging working conditions.

Arc Flash Suite

- Available upto 44 cal/cmsq.
- Softshell Fabric
- Easy Home/Machine Wash
- Tested as per IEC 61482-1-1

Arc flash suits provide critical protection against the intense heat and energy released during an electrical arc flash. These suits are made from flame-resistant materials and are designed to shield workers from burns, blasts, and flying debris associated with arc flash incidents. They typically include a full-body suit, gloves, helmet, and face shield to offer comprehensive protection.

Electrical Testing Equipment

High Voltage AC / DC Testing Kits

- Available upto 200KV AC & 250KV DC
- Motorised Operation
- Digital Metering
- Rugged Design

High Voltage Testing is a critical procedure used to assess the insulation strength and overall performance of electrical systems and components. High Voltage Testing ensures reliability and safety by simulating conditions that the equipment may encounter in service.

A high voltage testing set typically includes several key components :

- **High Voltage Transformer :** This device produces the high voltage necessary for testing. It is capable of delivering precise and stable voltage ensuring safety through features like automatic shutdown in case of overload.
- **Control System :** A user-friendly interface allows operators to set and monitor the test parameters, including voltage, current, and test duration. It consists of digital metering, controls & safety devices.
- **Safety Measures :** Given the high voltages involved, safety is paramount. The testing set includes protective features such as double grounding, fast blow fuses, double pole isolation MCB and a discharge rod.

High voltage testing is crucial for verifying the performance and safety of electrical systems, ensuring they can withstand operational stresses and reducing the risk of failures or hazards in the field.

Our High Voltage Test Sets are available in various ratings from 25KVAC to 200KVAC & 15KVDC to 250KVDC in various mA ratings. These sets are generally customised as per the need of the client.

Our sets are available with resin cast dry type transformer upto 50KV and oil filled transformer for higher ratings.

Primary Current Injection Testing Sets

- Available upto 200KV AC & 250KV DC
- Motorised Operation
- Digital Metering
- Rugged Design

A primary injection test set is utilized to evaluate the performance and functionality of electrical protection devices by injecting a high current directly into the primary circuit. This type of testing is crucial for ensuring that protective devices operate correctly and reliably under fault conditions.

Key Components and Features:

- High Current Transformer
- Control Panel
- Test Leads and Connections

Available Rating : 500A to 3000A @ 5V

Applications:

Circuit Breaker Testing : Verifies the operation and trip characteristics of circuit breakers to ensure they will function correctly during fault conditions.
Relay Testing : Tests protective relays to confirm they correctly detect and respond to fault conditions.

System Commissioning and Maintenance: Used during the installation and routine maintenance of electrical systems to validate and verify protective devices.

Miko 21

SKB EP

DIAGNOSTIC INSTRUMENTS
FOR HIGH-VOLTAGE EQUIPMENT

Miko 21

- Measures resistance from 0.1 μΩ to 2 Ω.
- Test current output adjustable from 1A to 200A.
- Multiple starting modes for flexible operation.
- Battery-operated for portability with up to 8 hours runtime.
- USB and touchscreen control for easy data management.

The instrument is designed for high precision measurements of DC electrical resistance utilizing a test current of <200 A and can test:

- contacts of high-voltage circuit breakers of all types and voltage classes;
- contactors, relays, busbars, various bolted connections, welded joints, brazed joints;
- elements of equipment for open and closed switchgears in extreme electric and magnetic field conditions;
- in research laboratories and industrial workshops.

The user can set the current output in several ways :

- By selecting from specified values : 10 A, 50 A, 100 A, and 200 A;
- By setting the automatic mode for selecting the current output;
- Program a setting of the test current in the range of 1 A to 200 A at a step of 1 A.

The instrument automatically compares the measured resistance value with the nominal value and notifies the user. This feature is implemented through the integral database containing the nominal values of contact resistances of the main contacts of the high-voltage circuit breakers and nominal values for rejected resistors indicating the permissible values of resistance thresholds.

The device has 4 starting modes for the measurement process:

- **Single -** normal start by the user pushing the START button;
- **AUTO single circuit -** intended for automatic single start of the measurement process upon connecting the test cables, activated by pressing the START button;
- **Periodic -** intended for automatic start of the measurement process with a set period after pressing the START button;
- **AUTO periodic circuit -** intended for automatic periodic (continuous) start of the measurement process upon connection of test cables, activated by pressing the START button.

Battery-operated power supply, low weight and compact dimensions provide full portability and high mobility of the instrument in an extended area.

The instrument can be controlled via keyboard, touch-screen or PC, and the data can be copied directly to a PC or USB Flash drive.

MIKO-21 uses special programmed algorithms for measuring contact resistance of high-voltage circuit breakers with built-in current transformers (CT):

Mode 1 is designed to measure resistance of circuits without current transformers;

Mode 2 is designed to measure resistance in the circuits with the current transformer with minimal battery power consumption;

Mode 3 is designed to measure resistance in the circuits with the current transformer at a current of 100 A or 200 A without saving battery power.

Standard Complete Set :

- Accompanying documents
- Main instrument MIKO-21
- 200A Kelvin Clamps test cable 2 x 2m (1.12 kg) with jaw up to 50 mm.
- Mains cable
- Ground cable
- Shunt 75 ShSM M3.75A-0.5 to check the instrument's operability.
- Fuses VP2B – 1V-2A (2 pcs)
- Bag for transportation of cables

* Optional accessories on request

General Features

- **Resistance range:** 0.1 µΩ - 2 Ω
- **Resolution:** 0.1 µΩ
- **Accuracy:** ± 0.05%
- **Test current output:** 1 - 200 A
- **Measurement display resolution:** 5 digits
- **Measurement time:**
  Mode 1: ≤2 s
  Mode 2: 10 - 30 s
  Mode 3: 5 - 15 s
- **Power supply (built-in battery):** Li-ion battery
- **Battery charging time:** < 2 h
- **Battery runtime (in continuous operation):** 8 h
- **Built-in memory:** 2,000 measurements (64 MB)
- **PC connection:** USB and USB host
- **Display:** Colour graphic touch-screen, 480 x 272 pixels
- **Power consumption:** < 60 W
- **Power supply (mains voltage):** AC 90-264 V, 47-63 Hz DC 127-370 V
- **Dimensions:** 270 x 246 x 124 mm
- **Instrument weight:** 3.3 kg
- **Environmental protection:** IP 67 (device cover closed) IP 40 (device cover open)
- **Operating temperature range:** -20°C - +50°C
- **Warranty period:** 3 years
- **Recommended calibration interval:** 3 years
- **Interface and user manual language:** English

Miko 10

SKB EP®

DIAGNOSTIC INSTRUMENTS
FOR HIGH-VOLTAGE EQUIPMENT

Miko 10

- Measures DC resistance from 1 μΩ to 0.1 Ω.
- Operates at 1A and 10A test currents.
- Lightweight, ergonomic design for portability.
- Built-in battery supports over 1000 measurements per charge.
- USB connectivity for easy data transfer and report generation.

Compact micro-ohmmeter MIKO-10 is designed for easy measurement of the DC electrical resistance using a current of 1 A / 10 A.

Applications include :

- - contacts of high-voltage circuit breakers (including with built-in current transformers);
- - connecting or disconnecting switches, busbars, wires and cables;
- - bolted, riveted, welded and brazed joints, aircraft skins, etc.

The instrument has 3 start modes for the measurement process:

- **AUTO:** is designed to measure the contact resistance of high voltage circuit breakers without current transformers and any demountable or non-demountable connections with current of 10 A. The measurement starts automatically when the test cables are connected;
- **SINGLE:** is designed to measure the contact resistance of high-voltage circuit breakers without current transformers and any demountable or non-demountable connections with current of 1 or 10 A.
- **BUILT-IN CT:** is designed to measure the contact resistance of high-voltage circuit breakers with built-in current transformers.

The instrument is applied in electric networks, power plants or substations, traction substations of electrified transport, as well as in industrial enterprises.

The instrument has a number of important additional functions that meet the latest user requirements:

- Auto thermal EMF balancing in the test circuit;
- Auto power off, if the instrument is not used;
- Circuit continuity test;
- Auto measurement start against the test circuit continuity confirmation;
- Sounds an alarm at the start and at the end of the measurement.

- The operating temperature range from -20°C to +55°C allows working with the instrument in difficult weather conditions, while the stated accuracy of the results is guaranteed.
- PC connection via USB allows managing and saving results on a PC or laptop, and generating measurement reports.
- MIKO-10 is enclosed in an ergonomic case that can be placed on the arm and secured with fastening straps, with both hands free to simplify the measurement process.
- Also, the instrument can be easily removed from the arm and fixed to a belt or your neck, or placed on any flat surface.
- The built-in battery of MIKO-10 provides portability. One battery charge is sufficient for 1000 measurements or more at maximum current.
- MIKO-10 can justly be referred to portable instruments due to its light weight of only 0.5 kg and small dimensions 165 × 100 × 60 mm.

Standard Complete Set :

- Accompanying documents
- Main instrument MIKO-10
- 10A Kelvin Clamp test cable 2 x 1.7m (jaw up to 50 mm)
- Mains battery charger
- Fastening strap (2 pcs) to fix the instrument on the user's arm.
- USB cable 2.0 A-B
- Shunt 75 ShSM M3. 75A-0.5 to test the instrument’s operability

* Optional accessories on request

General Features

- **Resistance range:** 1 µΩ - 0.1 Ω
- **Resolution:** 0.1 µΩ
- **Accuracy:** ±0.2 %
- **Test current output:** 1 A / 10 A
- **Measurement display resolution:** 4 digits
- **Power supply (built-in battery):** Lithium-ion battery
- **Battery charging time:** < 3 h
- **Built-in memory:** 100 measurements
- **Number of measurements with a fully charged battery:** > 1000 measurements
- **PC connection:** USB
- **Display:** Monochrome graphic 128 x 64 pix
- **Power consumption when charging the built-in battery:** < 15 W
- **Power supply (mains battery charger input voltage):** ~ 176-264 V, 47-63 Hz
- **Power supply (mains battery charger output voltage, that is used to recharge the battery):** 11-13 V, 1 A
- **Dimensions:** 165 x 100 x 60 mm
- **Instrument weight:** 0.5 kg
- **Environmental protection:** IP 54
- **Operating temperature range:** From -20°C to +55°C
- **Warranty period:** 2 years
- **Recommended calibration interval:** 2 years
- **Interface and user manual language:** English

Miko 9A

SKB EP

DIAGNOSTIC INSTRUMENTS
FOR HIGH-VOLTAGE EQUIPMENT

Miko 10

- Measures DC resistance from 1 μΩ to 30 kΩ.
- Specialized modes for 10 object configurations.
- Heat Run Test for continuous transformer diagnostics.
- Simultaneous measurement of two transformer windings.
- Dynamic Resistance Measurement (DRM) for OLTC in-place checks.

The instrument is designed to measure the DC resistance in inductive and non-inductive circuits in the range of 1 μΩ - 30 kΩ, as well as to generate oscillograms of a switching contactor in the high-speed OLTC; it also provides for demagnetization and "Heat Run Test".
MIKO-9A features specialized measurement modes for different configurations of 10 objects, taking into account their specific features. This functionality enables the user to organize the results of measurements, and to improve workflow with the saved information. Depending on the type of object, user can select special measurement modes. For a resistive object, the modes are completely similar to MIKO-8M(A), and for an inductive object, in addition to the two modes MANUAL and AUTO 1ph, user can select AUTO 3ph.
Special mode AUTO 3ph allows simultaneous connection to three phases of the transformer and measurement with automatic switching between phases. This mode reduces the amount of reconnecting to/from the object under test.
The device features an additional mode of transformer diagnostics, the "Heat Run Test", which is performed by continuous measurement and periodic result saving of the transformer winding resistance (recalculated to temperature) during the cooling process of the winding, and dependence of the winding temperature on time can be represented in a tabular or graphical form.

The instrument is capable of simultaneous resistance measurement across 2 windings, which guarantees fast and accurate DC resistance measurement of power transformers with delta connected secondary windings, when conventional methods do not guarantee reliable results. The instrument takes into account the distribution of magnetic flows in the circuit and indicates onto which phases you should connect the instrument to speed up the measurement process. Furthermore, simultaneous measurement of two windings reduces the total number of measurements from 6 to 3.

OLTC in-place check mode allows the user to assess the state of the switching OLTC equipment with current limiting resistors without removing contactor tank cover (DRM – Dynamic Resistance Measurement method).

The demagnetization process is compulsory before open-circuit test, short-circuit loss measurement, transformation ratio measurement, etc., so the innovative MIKO-9A has this functionality, and the graph of current behaviour is displayed on the instrument in real-time.

MIKO-9A, similar to MIKO-8M(A), has a number of automatic calculation functions for resistance measurement results.

General Features

- **Measurement range:** 1 µΩ - 30 kΩ
- **Resolution:** 0.1 µΩ
- **Accuracy:** ±(0.1%+0.5 µΩ)
- **Test current output:** 0.0005 - 10 A
- **Test current range in DRM mode:** 0.1 - 10 A
- **Measurement display resolution:** 5 digits
- **Power supply (built-in battery):** Lithium-ion battery
- **Battery charging time:** 3 h
- **Battery runtime (in continuous operation):** 8 h
- **Built-in memory:** to 1000 measurements
- **PC connection:** USB, Bluetooth
- **Display:** TFT color graphic touch, 800 x 480 pixels
- **Power consumption:** 120 W
- **Output:** 60 W
- **Power supply (mains voltage):** ~ 90-253 V, 47-63 Hz = 127-354 V
- **Dimensions:** 270 x 250 x 130 mm
- **Instrument weight:** 4.0 kg
- **Environmental protection:** IP 67 (device cover closed) IP 40 (device cover open)
- **Operating temperature range:** from -20°C to +55°C
- **Warranty period:** 3 years
- **Calibration period:** 3 years
- **Interface and user manual language:** English

Standard Complete Set :

- Accompanying documents
- Main instrument MIKO-9A
- Mains cable
- Ground cable
- Zero resistance standard to check accuracy of instrument
- Shunt 75 ShSM M3, 75-0.5 to test the instrument's operability
- Fuses VP2B-1V-2A (2 pcs)
- Attachment devices set kit bag

When Placing The Order, You Should Choose At Least One Test Cable Or Cable Set From Optional Complete Set Of The Instrument

- 10A Kelvin Clamp test cable 1 x 8.5 m (jaw up to 80 mm). Set of 2 pcs.
- 10A Kelvin C-clamp test cable 1 x 8.5 m (jaw up to 103 mm). Set of 2 pcs.
- 10A Kelvin test cable 1 x 3 m with two probes and four crocodile clips (jaw up to 25 mm). Separate current and potential wires terminated with "banana" plugs.
- 10A Kelvin Clamp test cable 1 x 4 m (jaw up to 25 mm).

* Optional accessories on request

Miko 8M(A)

SKB EP

DIAGNOSTIC INSTRUMENTS
FOR HIGH-VOLTAGE EQUIPMENT

Miko 8M(A)

- Measures DC resistance from 1 μΩ to 10 kΩ.
- Automatic calculation of resistance and temperature deviation.
- Dynamic Resistance Measurement (DRM) for OLTC assessments.
- Built-in memory for up to 1,000 measurements.
- Available with or without a built-in battery for portability.

The instrument is designed to measure the DC resistance in inductive and non-inductive circuits in the range of 1 μΩ -10 kΩ, as well as to generate oscillograms of the switching contactor in the high-speed OLTC.
MIKO-8M(A) features specialized measurement modes for different configurations of 10 objects, taking into account their specific features, while the user can choose a standard object or create a custom object. This functionality enables the user to organize the measurement results, and to ensure easy workflow with the saved data.
Depending on the type of object, user can select special measurement modes. For example, for a resistive object, user can select one of three modes: AUTO, SINGLE (similar to MIKO-7M(A) or PERIOD when the measurement process is started automatically after a specified time interval.
When diagnosing an inductive object, the modes are the same as in MIKO-7M(A): MANUAL and AUTO 1ph.
In the AUTO 1ph mode, a patented automatic measurement method is implemented, which guarantees the highest accuracy of the results in a complex electromagnetic environment.

MIKO-8M(A) has a number of automatic calculation functions:

- Calculation of the relative deviation of resistance in the windings of three phases between them;
- Conversion of linear resistance to phase resistance;
- Conversion of the resistance measured at the current temperature to the resistance at the nominal temperature value;
- Calculation of the relative deviation between the corrected resistance value and the nominal resistance value;
- Calculation of the current temperature of the winding based on its electrical resistance.

OLTC in-place check mode in MIKO-8M(A) allows the user to assess the state of the switching OLTC equipment with current limiting resistors without removing contactor tank cover (DRM – Dynamic Resistance Measurement method).

The DRM graph is built on the basis of the measurement results. This graph enables to check tap changing time and general object state.

The device is provided in two versions. The point of difference between the MIKO-8M and MIKO-8MA is the built-in battery (MIKO-8MA).

General Features

- **Measurement range:** 1 µΩ - 10 kΩ
- **Resolution:** 0.1 µΩ
- **Accuracy:** ±(0.1%+0.5 µΩ)
- **Test current output:** 0.001 - 10 A
- **Test current range in DRM mode:** 0.1 - 10 A
- **Measurement display resolution:** 5 digits
- **Power supply of MIKO-8MA (built-in battery):** Lithium-ion battery
- **Battery charge time of MIKO-8MA:** 3h
- **Battery runtime of MIKO-8MA (in continuous operation):** 8 h
- **Built-in memory:** to 1 000 measurements
- **PC connection:** USB, Bluetooth
- **Display:** TFT color graphic touch, 800 x 480 pixels
- **Power consumption:** 120 W
- **Output:** 60 W
- **Power supply (mains voltage):** ~ 90-253 V, 47-63 Hz = 127-354 V
- **Dimensions:** 270 x 250 x 130 mm
- **Weight of MIKO-8M / MIKO-8MA:** 2.7 kg / 4.0 kg
- **Environmental protection:** IP 67 (device cover closed) IP 40 (device cover open)
- **Operating temperature:** from -20°C to +55°C
- **Warranty period:** 3 years
- **Recommended calibration interval:** 3 years
- **Interface and user manual language:** English

Standard Complete Set :

- Accompanying documents
- Main instrument MIKO-8M or MIKO-8MA
- Mains cable
- Ground cable
- Zero resistance standard to check accuracy of instrument
- Shunt 75 ShSM M3, 75-0.5 to test the instrument's operability
- Fuses VP2B-1V-2A (2 pcs)
- Attachment devices set kit bag

When Placing The Order, You Should Choose At Least One Test Cable From Optional Complete Set Of The Instrument

- 10A Kelvin Clamp test cable 1 x 8.5 m (jaw up to 80 mm)
- 10A Kelvin C-clamp test cable 1 x 8.5 m (jaw up to 103 mm)
- 10A Kelvin test cable 1 x 3 m with two probes and four crocodile clips (jaw up to 25 mm). Separate current and potential wires terminated with "banana" plugs.
- 10A Kelvin Clamp test cable 1 x 4 m (jaw up to 25 mm).

* Optional accessories on request

Miko 7M(A)

SKB EP

DIAGNOSTIC INSTRUMENTS
FOR HIGH-VOLTAGE EQUIPMENT

Miko 7M(A)

- Measures DC resistance from 1 μΩ to 2 kΩ.
- AUTO and MANUAL modes for inductive and resistive circuits.
- Built-in memory for up to 200 measurements.
- High protection from cable breakdown and EMF interference.
- MIKO-7MA version includes a built-in battery for portable use.

The instrument is designed to measure DC resistance in inductive and non-inductive circuits of 1 μΩ - 2 kΩ including :

- windings of power and instrument transformers, electric motors, generators, linear compensators and, other high inductance equipment;
- contacts of circuit breakers, resistors, busbars, and other non-inductive circuits;
- compensatory, current limiting, and other HV circuit breaker resistors;
- cables.

MIKO-7M(A) features specialized measurement modes for different configurations of 5 objects, taking into account their specific features, while the user can choose a standard object.
Availability of this function enables systematization of measurement results, and ensures comfortable work with the measurement results.
The instrument has a high level of protection from test cable or mains cable breakdown, EMF of self-induction, and overheat of the test block.
Meets the safety requirements of EN 61010-1 and the electromagnetic compatibility requirements of EN 61326-1 to Class A equipment.

Depending on the type of object, user can select special measurement modes. For example, for a resistive object :

- **AUTO :** measurement starts automatically when the measurement circuit is closed.
- **SINGLE :** the measurement starts by user command via the START button.
- For an inductive object, the user can also select one of two modes:
- **MANUAL :** measurement process is started and stopped manually by pressing the START button.
- **AUTO :** measurement process is started by pressing the START button, and will stop automatically when specified criterion is reached.

In the AUTO mode, a patented automatic measurement method is implemented, which guarantees the highest accuracy of the results in a complex electromagnetic environment.
In addition, the use of this mode for the measurement process enables the device to give the highest possible test current which ensures guaranteed saturation of the transformer magnetic system.
The instrument is provided in two versions. The point of difference between the MIKO-7MA and the MIKO-7M is a built-in battery (MIKO-7MA).

General Features

- **Measurement range:** 1 µΩ - 2 kΩ
- **Resolution:** 0.1 µΩ
- **Accuracy:** ±(0.1%+0.5 µΩ)
- **Test current output:** 0.01 - 10 A
- **Measurement display resolution:** 5 digits
- **Power supply of MIKO-7MA (built-in battery):** Lithium-ion battery
- **Battery charge time of MIKO-7MA:** 3h
- **Battery runtime of MIKO-7MA (in continuous operation):** 8 h
- **Built-in memory:** to 200 measurements
- **PC connection:** USB, Bluetooth
- **Display:** Monochrome graphic 128x64 pixels
- **Power consumption:** 120 W
- **Output:** 60 W
- **Power supply (mains voltage):** ~ 90-253 V, 47-63 Hz = 127-354 V
- **Dimensions:** 270 x 250 x 130 mm
- **Weight of MIKO-7M/MIKO-7MA:** 2.7 kg / 4.0 kg
- **Environmental protection:** IP 67 (instrument cover closed) IP 40 (instrument cover open)
- **Operating temperature range:** from -20°C to +55°C
- **Warranty period:** 3 years
- **Recommended calibration interval:** 3 years
- **Interface and user manual language:** English

Standard Complete Set :

- Accompanying documents
- Main instrument MIKO-7M or MIKO-7MA
- Mains cable
- Ground cable
- Zero resistance standard to check accuracy of instrument
- Shunt 75 ShSM M3, 75-0.5 to test the instrument's operability
- Fuses VP2B-1V-2A (2 pcs)
- Attachment devices set kit bag

When Placing The Order, You Should Choose At Least One Test Cable From Optional Complete Set Of The Instrument

- 10A Kelvin Clamp test cable 1 x 8.5 m (jaw up to 80 mm)
- 10A Kelvin C-clamp test cable 1 x 8.5 m (jaw up to 103 mm)
- 10A Kelvin test cable 1 x 3 m with two probes and four crocodile clips (jaw up to 25 mm). Separate current and potential wires terminated with "banana" plugs.
- 10A Kelvin Clamp test cable 1 x 4 m (jaw up to 25 mm).

* Optional accessories on request

Miko 2.3

SKB EP®

DIAGNOSTIC INSTRUMENTS
FOR HIGH-VOLTAGE EQUIPMENT

Miko 2.3

- Four modes: Micro-ohmmeter, milli-ohmmeter, kilo-ohmmeter, thermometer.
- Delivers up to 1000 A current for resistance measurements.
- Measures temperatures from -20°C to +120°C.
- Weighs only 2.7 kg with a built-in battery.
- Supports automated recalculations for one-phase and three-phase measurements.

MIKO-2.3 is a portable mini laboratory designed to measure the DC electrical resistance and temperature of different parts of electrical equipment, as it is operated in four modes: micro-ohmmeter, milli-ohmmeter, kilo-ohmmeter and thermometer.
Micro-ohmmeter mode is designed to measure the contact resistances of any switching devices, as well as demountable and non-demountable contact connections. In addition, this mode allows taking into account the presence or absence of a current transformer in the measured circuit ("CT-yes", "CT-no", "CT-yes Tmax").
Milli-ohmmeter mode is designed to measure the DC electrical resistance in circuits containing inductive equipment (transformers, electromagnets, electric motors, etc.) In addition, there are two measurement sub-modes: one-phase and three-phase winding resistance measurement, and automated recalculations.
Kilo-ohmmeter mode is designed to measure the resistance of ballast, shunt, additional and other resistors with induced voltage up to 5 kV, as well as without induced voltage.
Thermometer mode is designed to measure the temperature of oil, water, air and, other non-aggressive environments.

Identification of each of the four modes is automatic by connecting the corresponding test cable.
With a weight of only 2.7 kg, the instrument produces a current of up to 1000 A, which has no equals in the market (the instrument which is closest in terms of functional capabilities runs with a current of up to 600 A and has a weight of 7.5 kg, with power supplied from mains).
In addition, currently there are no other instrument that combines the functions of four devices in one.
Due to a combination of functional and mass-dimensional parameters MIKO-2.3 achieves cutting edge innovation, while the above features and self-contained power supply ensure full portability and high mobility of the instrument over the vast territory of substation or facility.

General Features

- **Resolution:** 0.1 µΩ
- **Measurement display resolution:** 4 digits

MICRO-OHMMETER MODE

- **Resistance range:** 0.1 µΩ - 0.1 Ω
- **Accuracy:** ±0.2 %
- **Test current output:** 10 - 1 000 A
- **Measurement time:**
  - submode "CT-no" < 2 sec
  - submode "CT-yes"< 30 sec
  - submode "CT-yes max" < 20 sec

MILLI-OHMMETER MODE

- **Resistance range:** 100 µΩ - 1 kΩ
- **Accuracy:** ±0.2 %
- **Test current output:** 0.5 - 5 A
- **Measurement time:** 10 - 900 sec

KILO-OHMMETER MODE

- **Resistance range:** 0.1 kΩ - 300 kΩ
- **Accuracy:** ±0.5 %
- **Measurement time:** < 3 sec

THERMOMETER

- **Temperature measurement range:** -20°C - +120°C
- **Accuracy:** ±1.0°C
- **Power supply (built-in battery):** Condenser
- **Battery charging time:** 5 min
- **Built-in memory:** 100 measurements
- **PC connection:** RS-232 and USB (when using adapter)
- **Display:** Alpha-graphic, 6 x 2.5 cm
- **Power consumption:** < 60 W
- **Power supply (mains voltage):**
  - AC 100-242 V, 47-63 Hz
  - DC 100-300 V
- **Dimensions:** 150 x 190 x 75 mm
- **Instrument weight:** 2.7 kg
- **Environmental protection:** IP 20
- **Operating temperature range:** -20°C - +40°C
- **Warranty period:** 13 months
- **Recommended calibration interval:** 1 year
- **Interface and user manual language:** English

Standard Complete Set :

- Accompanying documents
- Main instrument MIKO-2.3
- Charger ZU-1A (BC-1A)
- Micro-ohmmeter test cable K162
- Potential spring-loaded contact (2 pcs.) and potential probe (2 pcs.) for K162
- Milli-ohmmeter test cable K233
- Kilo-ohmmeter test cable K322
- Thermometer with cable K411
- Mains extension cable
- RS-232 interface cable
- Shunt 75 ShSM 75-0.5 to test the instrument's operability
- Zero resistance standard to check accuracy of instrument
- Instrument stand to install the instrument on the desk
- Instrument transportation bag
- Bag for transporting the device and accessories

* Optional accessories on request

Transformer OLTC Diagnostic System

PKR-2 and PKR-2M

The device is available in two versions : PKR-2 and PKR-2M

Mode of non-demountable diagnostics (the DRM method) allows checking the technical condition of OLTCs with current-limiting resistors without removing the contactor tank cover. The mode is based on the DRM method and consists in measuring the current amplitude through the winding in which the OLTC is located. This diagnostic allows obtaining contactor switching oscillograms for a wide range of switching devices, except for the reactor type.

Oscillography of switching of resistor type OLTC contactor allows identifying delays in operation, non-simultaneous actuation of phases, bouncing at switching.

For recording of the circular diagrams, these devices are equipped with a special transducer. It can interface with shafts of various drives, provided by a set of axles and bushings, while their installation is carried out without the use of any tool by simply placing on the length of shaft protrusion.

Oscillography and circular diagrams are recorded for three phases simultaneously. Working with the instrument will not require any connection of additional elements; all adjustments to the particular OLTC are done automatically.

With the help of instruments, reactor type OLTC under static conditions can be checked. The user slowly rotates the drive shaft with the handle, and the display shows in real time contact closings/openings in degrees and voltage and current values.

The measurement results are stored in the non-volatile memory of the instruments, or on an external Flash drive, or they can be transferred to a PC or laptop. To present information in graphical or tabular form, the devices are equipped with a large colour touch-screen.

For convenience of direct connection to the OLTC contacts (without using the DRM method), when there is a partial or full oil discharge, the instruments are fitted with special long probes.

General Features

- **Measurement range of time:** 0.01 - 1 200 sec
- **Accuracy Resolution:** ±0.1 ms
- **Measuring range of angular movement:** 2˚ - 360˚
- **Accuracy:** ±0.56˚
- **Measuring range of DC current:** 1 - 4 A
- **Measuring range of DC electric voltage:** 1 - 20 V
- **Measuring range of DC electrical resistance:** 1 - 20 Ω
- **Accuracy:** ±5 %
- **Sampling frequency of resistance measurement per channel:** 10 ±0.1 kHz
- **Maximum circular diagram registration time:** 20 min
- **Maximum DRM oscillogram registration time:** 20 min
- **Power supply (built-in battery) of PKR-2M:** Lithium-ion battery
- **Battery charging time of PKR-2M:** 2.5 h
- **Battery runtime (in continuous operation) of PKR-2M:** 2 - 8 h
- **PC connection:** USB and USB host
- **Display:** TFT color graphic touch, 640 x 480 pixels

- **Power consumption in standby mode :** < 15 W
- **Power consumption in measurement mode :** < 210 W
- **Power supply (mains voltage) :** ~ 150-242 V, 47-63 Hz = 150-300 V
- **Dimensions :** 360 x 290 x 165 mm
- **Weight of PKR-2 / PKR-2M :** 5.1 / 6.1 kg
- **Environmental protection :** IP 64 (device cover closed)/IP 20 (device cover open)
- **Operating temperature range from -20°C to +40°C**
- **Warranty period :** 3 years
- **Recommended calibration interval :** 3 years
- **Interface and user manual language :** English

Standard Complete Set:

- Accompanying documents
- Main instrument PKR-2 or PKR-2M
- Test cable (3 pcs) complete with connector
- Short-circuit cable with crocodile type clamps (PKR-2M)
- Angular movement transducer DP22
- C-clamp
- Handle for the OLTC shaft rotation
- Axis No. 10 together with a bushing
- Mains cable
- Ground cable
- Fuses VP2B-1V-2A (2 pcs)
- Bag for transporting the device and accessories

* Optional accessories on request

Camera & Imaging

Infrared Thermal Camera DX300

- 4.3" Colour TFT Touch Screen
- 5MP Visual Camera
- IR Resolution 384x288
- Manual/Automatic Focus
- Digital Zoom upto 8x

The DX-300 which is a mid-level thermal camera as it has 384x288 IR resolution. The temperature range for the model is -20°C~+650°C, with an optional range of up to +2000°C available upon request. This has 10 colour palettes and a range of analysis tools such as 10 movable spots, 10 boxes and 5 lines, Average temp, Max temp, Min temp. To capture all the video and images the model has a 32GB removable SD Card.

Key Features

- **4.3"TFT touch screen**
- **5MP visual camera**
- **Better performance with ±2°C accuracy**
- **IR image/Visual image/PIP/Fusion/IMIX**
- **Professional analysis software**
- **Optional lens : 48°/12°/6°**
- **Android App**

Specifications

- **Model :** DX-300
- **Detector type :** FPA, Uncooled Microbolometer with Amorphous silicon or VOX material
- **IR Resolution :** 384x288
- **Thermal Sensitivity/NETD :** <0.04°C@30°C
- **Spectral Range :** 7.5~14μm
- **Field of View :** 24°x18°
- **Spatial resolution (IFOV) :** 1.31mrad
- **Focal Length :** 13mm
- **Focus :** Manual/electric/automatic
- **Minimum Focus distance :** 0.15m
- **Optional lens :** 48°/ 12°/ 6°
- **Image frequency :** 30Hz

Image Display

- **Display:** 4.3" sunlight visible touch screen
- **Display resolution :** 800x480
- **Colour Palettes :** 10 colour modes
- **Visible camera :** 5MP with LED photo lamp
- **Digital zoom :** 1x ,2x ,4x ,8x

Measurement & Analysis

- **Object temperature range :** -20°C~+650°C, up to +2000°C(optional)
- **Temperature measurement accuracy :** ±2°Cor 2% of readings
- **Analysis tools :** 10 movable spots, 10 boxes and 5 lines, Average temp, Max temp, Min temp
- **Tracking function :** Highest temperature spot auto tracking

Image storage And Transmission

- **Storage Media :** 32G removable SD card
- **Thermal image format :** Standard JPEG, including measurement data, on memory card
- **Thermal video format :** Real-time radiometric recording(.irv)/.H264
- **Video output interface :** Micro HDMI
- **Video Record Support :** Wi-Fi Support, support preview SD card pictures through Wi-Fi
- **Laser distance :** Position is automatically displayed on the infrared image
- **GPS :** Support, Location data automatically added to every still image and the first frame in video
- **Features Mode :** Auto shutdown & Sleep mode
- **Alarm mode :** Automatic acousto-optic alarm for set temperature value/above/below

Power System

- **Battery type :** Detachable rechargeable lithium battery
- **Battery Operating Time :** >3 Hours
- **Charging System :** AC adapter universal 220 Vac, 50 Hz
- **Charging mode :** Two-socket charger or 12V car charge

Environmental

- **Protection level :** IP54 (IEC 60529)
- **Operation temperature :** -20°C~55°C

Physical Characteristics

- **Weight :** 1.25kg (battery included)
- **Size :** 272x135x136mm

Others

Accessories : Hardcase, Hand strap, Bluetooth Mic, Cables, Adaptor, Manual Book, Software SATIR Report Pro

Infrared Thermal Camera DX600

- 5.0" Colour TFT Touch Screen
- 5MP Visual Camera
- IR Resolution 640x480
- Manual/Automatic Focus
- Continous Zoom 1x to 10x

Infrared Thermal Camera DX600

The DX-600 is a performance level camera as it has 640x480 IR resolution. The temperature range for the model is -20°C~+650°C, with an optional range of up to +2000°C available upon request. They have 10 colour palettes and a range of analysis tools such as 10 movable spots, 10 area boxes and 5 lines, Average temp, Max temp, Min temp. To capture all the video and images the models has a 32GB removable SD Card.

Key Features

- **5"TFT touch screen**
- **5MP visual camera**
- **Better performance with ±2°C accuracy**
- **IR image/Visual image/PIP/Fusion/IMIX**
- **Professional analysis software**
- **Optional lens : 48°/12°/6°**
- **Android App**

Specifications

- **Model :** DX-600
- **Detector type :** FPA, Uncooled Microbolometer with Amorphous silicon or VOX material
- **IR Resolution :** 640x480
- **Thermal Sensitivity/NETD :** <0.040°C@30°C
- **Spectral Range :** 7.5~14μm
- **Field of View :** 24°x18°
- **Spatial resolution (IFOV) :** 0.66mrad
- **Focal Length :** 18mm
- **Focus :** Manual/electric/automatic
- **Minimum Focus distance :** 0.15m
- **Optional lens :** 48°/ 12°/ 6°
- **Image frequency (Frame rate) :** 30Hz

Image Display

- **Display :** 5"sunlight visible touch screen
- **Display resolution :** 800x480
- **Colour Palettes :** 10 colour modes
- **Visible camera :** 5MP with LED photo lamp
- **Digital zoom :** 1x-8x continuous

Measurement & Analysis

- **Object temperature range :** -20°C~+650°C, Up to +2000°C(optional)
- **Temperature measurement accuracy :** ±2°Cor ±2% of readings
- **Analysis tools :** 10 movable spots, 10 area boxes and 5 lines, Average temp, Max temp, Min temp
- **Tracking function :** Highest temperature spot auto tracking

Image storage And Transmission

- **Storage Media :** 32G removable SD card
- **Thermal image format :** Standard JPEG, including measurement data, on memory card
- **Thermal video format :** Real-time radiometric recording(.irv)/.H264
- **Output Ports :** USB, Bluetooth, HDMI
- **Video Record Support :** Wi-Fi Support, support preview SD card pictures through Wi-Fi
- **Laser distance :** Position is automatically displayed on the infrared image
- **Laser pointer :** Yes
- **Laser ranging :** Yes, 40 meters
- **GPS Support :** Location data automatically added to every still image and the first frame in video
- **Features Mode :** Auto shutdown & Sleep mode
- **Alarm mode :** Automatic acousto-optic alarm for set temperature value/above/below

Power System

- **Battery type :** Detachable rechargeable lithium battery
- **Battery Operating Time :** >3 Hours
- **Charging System :** AC adapter universal 220 Vac, 50 Hz
- **Charging mode :** Two-socket charger or 12V car charge

Environmental

- **Protection level :** IP54 (IEC 60529)
- **Shock/Vibration :** 25G/2G
- **Operation temperature :** -20°C~55°C

Physical Characteristics

- **Weight :** 1.25kg(battery included)
- **Size :** 272x135x136mm

Others

- **Accessories :** Hardcase, Handstrap, Bluetooth Mic, Cables, Adaptor, Manual Book, Software SATIR Report Pro

Infrared Thermal Camera PX300

- 5.8" Capacitive Touch Screen
- HD 5MP Visual Camera
- IR Resolution 384x288
- View Finder & Large LCD Display
- Digital Zoom upto 8x

The SATIR PX-300 is a new generation handheld camera that has a new housing design for the industrial market. It features a 384x288 IR detector which will deliver a clear, crisp image to the end-user on the touch screen. It also has a 5MP digital camera which is useful when comparing thermal and digital images in reports. It has various connectivity options including, Wi-Fi, Bluetooth, HDMI, USB & 4G. It has a GPS function which is useful for reports to pinpoint the exact location images were taken. It has a wide temperature range of -20~650°C, up to 1500/2000°C upon request with account manager. It has four imaging modes which allows the end-user to select which best suits their application, these are IR/Digital/Duo-vision/PiP.

Key Features

- **384x288 Detector Resolution**
- **HD 5MP Digital Camera**
- **IR/Digital/Duo-vision/PiP**
- **Manual/Motorized/Auto Focus**
- **Bluetooth/WIFI/4G/USB/HDMI Transmission**
- **QR Code and Barcode Function**
- **GPS**

Thermal Camera

- **Detector type :** 384x288 FPA, Uncooled microbolometer
- **Thermal sensitivity :** ≤0.04°C@30°C
- **Spatial resolution :** 0.66mRad
- **FOV/Min. Focus distance :** 24°x18°/0.30m
- **Ergonomic Optical :** 160°
- **Spectral range :** 7.5μm~14μm
- **Frame rate :** 30Hz
- **Focus :** Continuous LDM, One-shot LDM, Manual
- **Digital zoom :** x1, x2, x4, x8

Image presentation

- **LCD display :** Cover Glass Touch screen 5.8-inch, 1280 x 768 pixels
- **Image mode :** IR/CCD/Duo-vision/PiP
- **Digital camera :** HD 5MP
- **Image enhancement :** Yes

Image storage

- **Type :** 32GB removable SD card
- **Thermal Image Format:** Standard JPEG, including measurement data, on memory card

Temperature measurement

- **Measurement range :** -20~650°C, up to 1500/2000°C(optional)
- **Pseudo colour :** 10 types including Iron, Iron-inverted, Grey, Greg-inverted
- **Analysis tool :** 10 movable spots, auto hot/cold/average, 10 area boxes, 5-line, isotherm, above, below, interval, alarm
- **Accuracy :** ±2°C or 2% of readings
- **Measurement Correction :** Emissivity, reflected temperature, relative humidity, object distance, offset, ambient

Environment specification

- **Operating temperature range :** -20°C~+55°C
- **Ambient temperature range :** -40°C~+70°C

Protective performance

- **Encapsulation:** IP54 (IEC 60529)
- **Shock/Vibration:** 25G/2G

Physical characteristics

- **Weight :** 1.6 KG
- **Dimension :** 210x119x174 mm

Power system

- **Battery type :** Lithium-ion battery
- **Battery operating time :** 3hours

Ports

- **Output ports :** Type-C USB, Bluetooth, WIFI, HDMI

Other features

- **Viewfinder :** Yes, 1024x768 pixels
- **Lens identification :** Yes
- **Super Resolution :** Yes
- **Illuminator :** Yes, Automatic
- **Laser pointer :** Yes
- **Laser ranging :** Yes, 40 meters
- **QR code and Bar code :** Yes
- **Video record :** Yes
- **Auto shutdown & Sleep mode :** Yes
- **GPS :** Yes
- **4G :** Yes
- **Accessories :** Hardcase, Hand strap, Protective Bag, Cables, Adaptor, Manual Book, Software SATIR Report Pro

Please be aware specifications can vary from time to time

Infrared Thermal Camera PX600

- 5.8" Capacitive Touch Screen
- HD 5MP Visual Camera
- IR Resolution 384x288
- GPS
- Digital Zoom upto 8x

The SATIR PX-300 is a new generation handheld camera that has a new housing design for the industrial market. It features a 384x288 IR detector which will deliver a clear, crisp image to the end-user on the touch screen.

It also has a 5MP digital camera which is useful when comparing thermal and digital images in reports. It has various connectivity options including, Wi-Fi, Bluetooth, HDMI, USB & 4G. It has a GPS function which is useful for reports to pinpoint the exact location images were taken. It has a wide temperature range of -20~650°C, up to 1500/2000°C upon request with account manager. It has four imaging modes which allows the end-user to select which best suits their application, these are IR/Digital/Duo- vision/PiP.

Key Features

- **640x480 Detector Resolution**
- **HD 5MP Digital Camera**
- **IR/Digital/Duo-vision/PiP**
- **Manual/Motorized/Auto Focus**
- **Bluetooth/WIFI/4G/USB/HDMI Transmission**
- **QR Code and Barcode Function**
- **GPS**

Specifications:

- **Product Type :** Thermal Camera
- **Detector type :** 640x480 UFPA,
- **Thermal sensitivity :** ≤0.04°C@30°C
- **Spatial resolution :** 0.66mRad
- **FOV/Min. Focus distance :** 24°x18°/0.30m
- **Ergonomic Optical :** 160°
- **Spectral range :** 7.5μm~14μm
- **Frame rate :** 60Hz
- **Focus :** Continuous LDM, One shot LDM, One-shot contrast, Manual
- **Digital zoom :** 1x to 8x continuous

Image presentation

- **LCD display :** 5.8 inch capacitive touch screen, 1280 x 768 pixels
- **Image mode :** IR/CCD/Duo-vision/PiP
- **Digital camera :** HD 5MP
- **Image enhancement :** Yes

Image storage

- **Type :** 32GB removable SD card
- **Thermal Image Format :** Standard JPEG, including measurement data, on memory card

Temperature measurement

- **Measurement range :** -20~650°C, up to 1500/2000°C (Optional)
- **Pseudo color :** 10 types including Iron, Iron-inverted, Grey, Grey-inverted
- **Analysis tool :** 10 movable spots, auto hot/cold/averange, 10 area boxes, 5 line, isotherm, above, below, interval, alarm
- **Accuracy :** ±2°C or ±2% of readings
- **Measurement Correction :** Emissivity, reflected temperature, relative humidity, object distance, offset, ambient

Environment specification

- **Operating temperature range :** -20~55°C
- **Ambient temperature range :** -40°C~+70°C

Protective performance

- **Encapsulation :** IP54
- **Shock/Vibration :** 25G/2G

Physical characteristic

- **Weight :** 1.6 KG
- **Dimension :** 210x119x174 mm

Power system

- **Battery type :** Lithium-ion battery
- **Battery operating time :** 3hours

Ports

- **Output ports :** Type-C USB, Bluetooth, WIFI, HDMI

Other features

- **Viewfinder :** Yes, 1024x768 pixels
- **Lens identification :** Yes
- **Super Resolution :** Yes
- **Illuminator :** Yes, Automatic
- **Laser pointer :** Yes
- **Laser ranging :** Yes, 40 meters
- **QR code and Bar code :** Yes
- **Video record :** Yes
- **Auto shutdown & Sleep mode :** Yes
- **GPS :** Yes
- **4G :** Yes
- **Accessories :** Hardcase, Hand strap, Protective Bag, Cables, Adaptor,

Infrared Thermal Camera PX100

- 5.8" Capacitive Touch Screen
- HD 5MP Visual Camera
- IR Resolution 384x288
- GPS
- Digital Zoom upto 8x

The SATIR PX-100 is a new generation handheld camera that has a new housing design for the industrial market. It features a 1024x768 IR detector which is the highest IR resolution on the market as it will deliver a clear, crisp image to the end-user on the touch screen. It also has a 5MP digital camera which is useful when comparing thermal and digital images in reports. Its connectivity options are Wi-Fi and the Micro HDMI. It has a wide temperature range of -20~+410°C, up to 2000°C upon request from the account manager. It has 10 colour palettes which allows the user to select the palette that best suits their needs and application.

The PX-100 is a premium thermal imager with its 1024x768 IR detector so it is best suited for those in the power and electrical industry who wish see electrical pylons at a distance. It is best suited to an experienced professional thermographer who will be able to understand and use all the capabilities of the PX-100.

Key Features

- 1024x768 IR Detector
- HD 5MP Digital Camera
- IR/Digital/Duo-vision/PiP/MIF
- Manual/Motorized/Auto Focus
- Real Time Radiometric Video Recording
- GPS Function
- **Optional Lenses Available :** 6°/12°/48°

Specifications:

- **Product Type :** Thermal Camera
- **Detector type :** 1024x768 UFPA
- **Thermal sensitivity :** ≤0.02°C @ 30°C or 20mK @ 30°C
- **Spatial resolution:** 0.47mRad
- **FOV :** 28°x21°
- **Focal Length :** 25mm
- **Focus Distance :** 0.35m
- **Spectral range :** 7.5μm~14μm
- **Frame rate :** 60Hz
- **Focus :** Manual/Motorized/Auto
- **Optional Lenses :** 48°,12°,6°

Image presentation

- **LCD display :** 5.8 inch capacitive touch screen, 1280x768 Screen Resolution
- **Palettes :** 10 Colour Palettes
- **Digital camera :** HD 5MP
- **Digital Zoom :** 1x,2x,4x,8x

Image storage & Connectivity

- **Type :** 32GB removable SD card
- **Thermal Image Format :** .jpg/.png (Full Temperature Data)
- **Thermal Video Format :** Real—Time Radiometric recording (.irv)/.H264
- **Video output interface :** Micro HDMI
- **Wifi :** Yes
- **Laser Distance :** Yes, 0.01m to 40m displayed on thermal image
- **GPS Function :** Yes
- **Alarm Mode :** Yes

Temperature measurement

- **Measurement range :** -40°C~+650°C
- **Tracking Function :** Yes
- **Analysis tool :** 10 movable spots, auto hot/cold, 10 area boxes, 5 line
- **Accuracy :** ±2°C or 2% of readings

Environment specification

- **Operating temperature range :** -20°C~+55°C
- **Encapsulation :** IP54

Physical characteristic

- **Weight :** 1.77 KG (Includes Battery)
- **Dimension :** 247x90x177 mm

Power system

- **Battery Type :** Removable Rechargeable DC12V Lithium Battery
- **Charging Mode :** Two Socket or 12V Car Charger

SF6 Gas Detection Camera V80-T

- NETD 0.05@30Deg. C
- 5.8" Capacitive Touch Screen
- IR Resolution 640x480
- High Gas Detection Sensitivity
- 10 Colour Palettes

Introducing the New Gas Detection Camera from SATIR, following on from the V-Series range we have re-designed the new camera to improve the performance of the camera in terms of operation and ergonomics.

The V80-T has been designed with a new platform that enables easy operations and control of the camera, we still incorporate both normal and gas mode operation for gas detection and normal inspection.

Key Features

- **640x480 IR Detector**
- **SF6 Gas Detection**
- **Built-in 5MP HD Digital Camera**
- **10 Colour Palettes**
- **High Gas detection Sensitivity**
- **IR/Digital/Duo-vision/Duo-vision Plus/PiP**

Specifications:

- **Camera Name :** V80-T
- **Image Performance :** Detector Resolution 640x480
- **Detector Type :** QWIP
- **Thermal Sensitivity (N.E.T.D) :** 0.015°C@30°C
- **High Sensitivity Level :** 7 levels in high sensitivity rapid monitoring mode
- **Digital Zoom :** 1X-8X
- **Responsivity :** ml/s
- **Spatial Resolution :** 0.39mrad
- **FOV :** 14°x 10.5°
- **Frame Frequency :** 30Hz
- **Focus Mechanism :** Auto/Manual
- **Spectral Range :** 10.3 ~10.8 µm
- **Super Resolution :** Yes
- **Start -up Time :** ≤7min

Image presentation

- **Digital Camera :** 5MP Digital Camera, with LED
- **Output :** HDMI
- **Display Screen :** 5.8-inch Capacitive Touch Screen
- **Image Mode :** IR/Digital/Duo-vision/Duo-vision Plus/ Picture in Picture
- **View Finder :** Built-in HD 0.6" colour OLED, 1024x768 pixels
- **Palette :** 10 colour palettes including Iron Red/Grey/Inverted Iron Red/Inverted Grey
- **Thermal Image Adjustment :** Auto/Manual
- **Text Annotation :** Yes
- **Voice Annotation :** Yes

Temperature Measurement

- **Temperature Range :** -20°C ~ + 410°C
- **Accuracy :** ±2°C or ±2%
- **Analysis :** 10 spots, 10 area boxes, 5 lines, auto-hot/auto-cold/average, Isotherm
- **Emissivity Correction :** Variable from 0.01 to 1.0
- **Optical Transmission Correction :** Manual/Auto
- **Atmospheric Transfer Correction :** Auto

Data Storage

- **Type :** 32GB SD Card
- **Video Storage :** H.264 video/fullly radiometric IR-video to SD card
- **Thermal Image Format :** .jpg/.png
- **Visual Image Format :** .jpg/.png

Power System

- **Battery Type :** Rechargeable Li-ion Battery
- **Battery Life :** ≥2.5hours
- **Charging System :** 2 Bay Intelligent Charger
- **Power Supply :** DC 12V 5A
- **Power Management :** Supports Sleep Mode

Physical characteristic

- **Weight (includes battery) :** 2.5kg
- **Dimensions :** 297.4x198x179.9 mm
- **Tripod Mounting :** UNC1/4-20

Environment specification

- **Storage Temperature Range :** -40°C to +70°C
- **Operating Temperature Range :** -20°C~50°C
- **Humidity :** 10%~95%, non-condensing
- **Encapsulation :** IP54
- **Shock :** Shock 25G
- **Vibration :** 2G

Gas Detection

Gas Detected: Sulphur Hexafluoride, Acetyl Chloride, Acetic Acid, Allyl Bromide, Allyl Chloride, Allyl Fluoride, Ammonia (Nh3), Bromomethane, Chloride Dioxide, Ethyl Cyanoacrylate, Ethylene, Furan, Hydrazine, Methyl silane, Methyl Ethyl Ketone, Vinyl Cyanide, Methyl, Vinyl Ketone, Propene, Tetrahydrofuran, Vinyl Ether, Trichloroethylene, Uranyl Fluoride, Vinyl Chloride, Propenal

Additional Features

- **Optional Lens :** 24°
- **Laser Pointer :** Class 2
- **Laser Range :** 10 - 1200 metres
- **Laser Range Distance :** 40m
- **Wi-Fi :** Yes
- **GPS :** Yes
- **Bluetooth :** Yes
- **4G :** Yes
- **Alarm :** Yes
- **USB :** Yes

Acoustic Camera AC130 / AC160 / AC250

- Bluetooth / WiFi / Text Annotation
- Easy to use
- IP54 Encapsulation
- Gas Leak / Partial Discharge Detection
- Digital MEMS Microphone

Introducing the New AC-Series from SATIR, an acoustic range of cameras. We currently offer two models in this range, the AC-250, AC-160 and the AC-130. The AC-130 has 136 microphones, while the AC-160 has 163 and AC-25 has 251 microphones. The microphone type is Digital MEMS and has a sensitivity of -26 dBFS (1 kHz, 94 dB SPL). The acoustic frame rate is 25FPS. The AC-Series could be used for partial discharge detection, gas leak detection, and abnormal noise detection to name a few applications.

Key Features

- **New Acoustic Camera Series**
- **Easy to Use**
- **ATEX & Ex-Proof Optional**
- **Bluetooth, Wifi, Text Annotation**
- **IP54 Encapsulation**

Specifications

- **Microphone Array :** AC-130/AC-160/AC-250
- **Number of Microphones :** 136/163/251
- **Microphone Type :** Digital MEMS
- **Sensitivity :** -26 dBFS (1 kHz, 94 dB SPL)
- **Signal-To-Noise Ratio :** 64.3 dB (A)
- **Sound Sampling Rate :** 200 kS/s/ch
- **Maximum Imaging Frequency Range :** 2kHz - 100kHz
- **Acoustic Imaging Frame Rate :** 25FPS
- **Recommended Imaging Range* :** 0.3-130m
- **Leak Rate Estimation :** Supported
- **Cost Estimation :** Supported
- **Area Focusing :** Circle in Centre

Camera & Display

- **Visible Lens Focal Length :** 3.4mm/3.4mm
- **Camera Field of View (FOV) :** 65°±3°(H), 40°± 3°(V)/64°(H)×40°(V)
- **Camera Pixel :** 13 MP (Saving 1280 x 720 pixel pictures and videos)/13MP
- **Maximum Image Size :** 1280 x 720/1920 x 1200
- **Storage :** Built in 128GB, Removable 128GB SD Card, support up to 1TB
- **Sound Picture Resolution :** 1280 x 720/1920 x 1200
- **Sound Video Resolution :** 1280 x 720/1920 x 1200
- **Focusing Mode :** Auto/Fixed Focus
- **Display :** 5 Inch/7 Inch
- **Display Brightness :** Adjustable Brightness

Function & Interface

- **Bluetooth :** 4.2
- **Port :** Type-C
- **Picture :** Supported
- **Picture Format :** JPG
- **Video :** Supported
- **Video Format :** Mp4
- **Text Annotation :** Supported
- **WIFI :** Supported
- **Built-in Storage :** 128GB, Max 1TB
- **Fixed Method :** Handheld/Tripod

Other Parameters

- **Batteries & Usage Time :** 3400 mAh Rechargeable Li-ion/ Rechargeable Li-ion 4h
- **EMC :** Class B/Class A
- **Operating Temperature :** -20 °C to 50 °C
- **Relative Humidity :** <10% to 95% Non-Condensing/< 95%， Non-Condensing
- **Explosion-Proof :** Optional
- **ATEX :** Optional
- **Ingress Protection Code :** IP54
- **Weight :** 820g/1.2kg
- **Size :** 110mmx150mmx80mm/232mmx165mm x86mm
- **Accessories :** Power adapter and cord, USB flash drive, Type-C to USB-A cable, Wrist strap, Instrument box

Thermal & Partial Discharge Detector PD600

- 5" TFT Touch Screen
- Detection method - Ultrasonic / TEV
- IR Resolution 640x480
- Optional Lens 48/12/6 Deg.
- Real Time Radiometric Recording

SATIR PD600 is a new release that is a thermal and partial discharge detector. This model offers both thermal imaging and a PD detector in one. It is ideal for the electrical engineers to detect potential issues within the sub stations and electrical applications.

Key Features

- **5"TFT touch screen**
- **5MP visual camera**
- **Better performance with ±2°C as accuracy**
- **Professional analysis software**
- **Optional lens : 48° /12° /6°**

Specifications

- **Model :** PD600
- **Detector type :** Uncooled FPA
- **IR Resolution :** 640x480
- **Thermal Sensitivity/NETD :** <0.04°C@30°C
- **Spectral Range :** 7.5~14μm
- **Field of View :** 24.5°x18.2°
- **Spatial resolution (IFOV) :** 0.66mrad
- **Focal Length :** 18mm
- **Focus:** Manual
- **Optional lens :** 48°/ 12°/ 6°

Image Display

- **Display :** 5"sunlight visible touch screen
- **Display resolution :** 800x480
- **Visible camera :** 5MP visual camera with built-in LED photo lamp

Measurement & Analysis

- **Object temperature range :** -20°C~+650°C, Up to +2000°C(optional)
- **Temperature measurement accuracy :** ±2°C or 2%of readings
- **Spot, line and area setting :** 10 points,10 boxes and 5 lines
- Partial discharge detection
- **Detection method :** Ultrasonic or TEV
- **Ultrasonic Measuring range :** -8dBμV~65dBμV
- **Measurement accuracy :** ±1dB

TEV

- **Measuring range :** 0dBmV~60dBmV
- **Measurement accuracy :** ±1dB

Image Storage And Transmission

- **Storage Media :** 32G removable SD card
- **Thermal image format :** jpg/.png(including full temperature data)

Image Storage And Transmission

- **Thermal video format :** Real-time radiometric recording(.irv)/.H264
- **Video output interface :** Micro HDMI

Power System

- **Battery type :** Detachable rechargeable lithium battery
- **Battery voltage :** DC12V

Environmental Parameters

- **Protection level :** IP54
- **Operation temperature :** -20°C~55°C

Physical Characteristics

- **Weight :** 1.17kg (battery included)
- **Size :** 272x135x136mm

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