

# T/3000

## Multi-Function System for Testing Substation Equipment

### CT & VT Testing, Relays, and Microhmeter



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The T/3000 is a unique solution for all testing operations during commissioning and maintenance of substations. Testing can be performed on both relays of all types and on current and voltage transformers! The unit is also able to test energy meters and transducers. In addition, the T/3000 incorporates a powerful multi-meter and phase angle meter, with oscilloscope functions.

**T/3000: One of the most powerful testing devices available!**

The T/3000 contains three independent generators: a main generator that has six outputs (high AC current; low AC current; low DC current; current impulses; high AC voltage; and low AC voltage). The second generator is an Auxiliary AC Voltage Generator that generates an independent, phase adjustable AC voltage. And the third generator is an Auxiliary DC Voltage Generator to feed relays under test.

All outputs are adjustable and metered on the LCD display. The multi-purpose control knob makes navigating the functions of the unit easy and quick!

## Features:

- Multi-function system for testing substation equipment such as: Current, Voltage and Power Transformers; all types of protection relays; energy meters and transducers
- Primary Injection Testing Capabilities
- 3000 VAC High Pot Test
- Multi-Meter Functions
- Oscilloscope functions
- Generates up to 800A and 3000V
- Current Booster (optional), up to 2000A
- Microhmmeter Function (optional), up to 400A DC
- Large Graphical Display
- Optional Thermal Printer
- Test Results and Setting are Saved in Local Memory
- RS232 Interface for PC Connection
- Compact and Lightweight, 64 lbs!
- Software that is compatible with Windows OS.

***One unit, multiple testing capabilities ~ less equipment to transport...***

### Current Transformer (CT) Tests

- Ratio, polarity and burden mode, Current Mode
- Burden; secondary side
- Excitation curve
- Winding or burden resistance
- Voltage withstand
- Polarity by impulses
- Ratio, Voltage mode

### Voltage Transformer (VT) Tests

- Ratio; polarity
- Burden, secondary side
- Ration, electronic transformers
- Voltage withstand
- Secondary over-current protection


### Power Transformers (PT) Tests

- Ration per TAP
- Resistance of TAP changer contacts



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## Safety Features:

- Fuse on the mains supply
- At power-on, a diagnostic sequence controls: key microprocessor board components and auxiliary supply voltages. If there is an error the operator is alerted on-screen.
- Emergency shut-off
- The high voltage output has the following protections: confirmation key-if not turned on the HV output is not generated and the HV is generated only if selected.
- Thermal NCT sensor on the main and auxiliary transformers. In case of over-temperature, an alarm message is displayed.
- Thermal sensors on the SCR that controls current injection, and the internal temperature. In case of over-temperature and alarm message is displayed.
- If maximum current limits and time duration of power transformer generator are reached, the generation is interrupted, and the operator is warned by an alarm message.
- The DC current source is protected against over-voltages. In addition, the output is automatically kept to zero as test stops, so that any residual energy on the external load is discharged.
- The auxiliary AC voltage is protected by an electronic circuit that stops the voltage generation and opens the connection to outputs socket in case of overload (short-circuit included). In case of intervention, an alarm message is displayed. Via the control knob the operator can reset the alarm and close the relay to restore operation.
- The auxiliary AC voltage is also protected by a thermal switch that intervenes in case of over-heating. In case of intervention, an alarm message is displayed.
- The DC voltage generator is protected by a current limiter, the user notices the low voltage and removed the overload. The fuse protects the case of over-feed.
- Re-triggering fuse on the auxiliary contact
- Timer inputs are protected against incorrect selections. If the voltage free input is selected and a voltage is applied less than 250 VAC or 275 VDC, circuits will not be damaged.
- Trip inputs and the auxiliary replay contacts are protected by devices rate 380 VAC, which limit the maximum voltage between sockets and among sockets and ground. The same protection is applied to the auxiliary AC voltage source and the DC voltage source.
- The 20 mA measurement input is protected by a thermal switch against wrong connection: in case of error the PTC goes to high impedance. The switch self-restores to the normal value in a few minutes.



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