

600A DYNAMIC MICRO OHMMETER

▶ PRIME 600

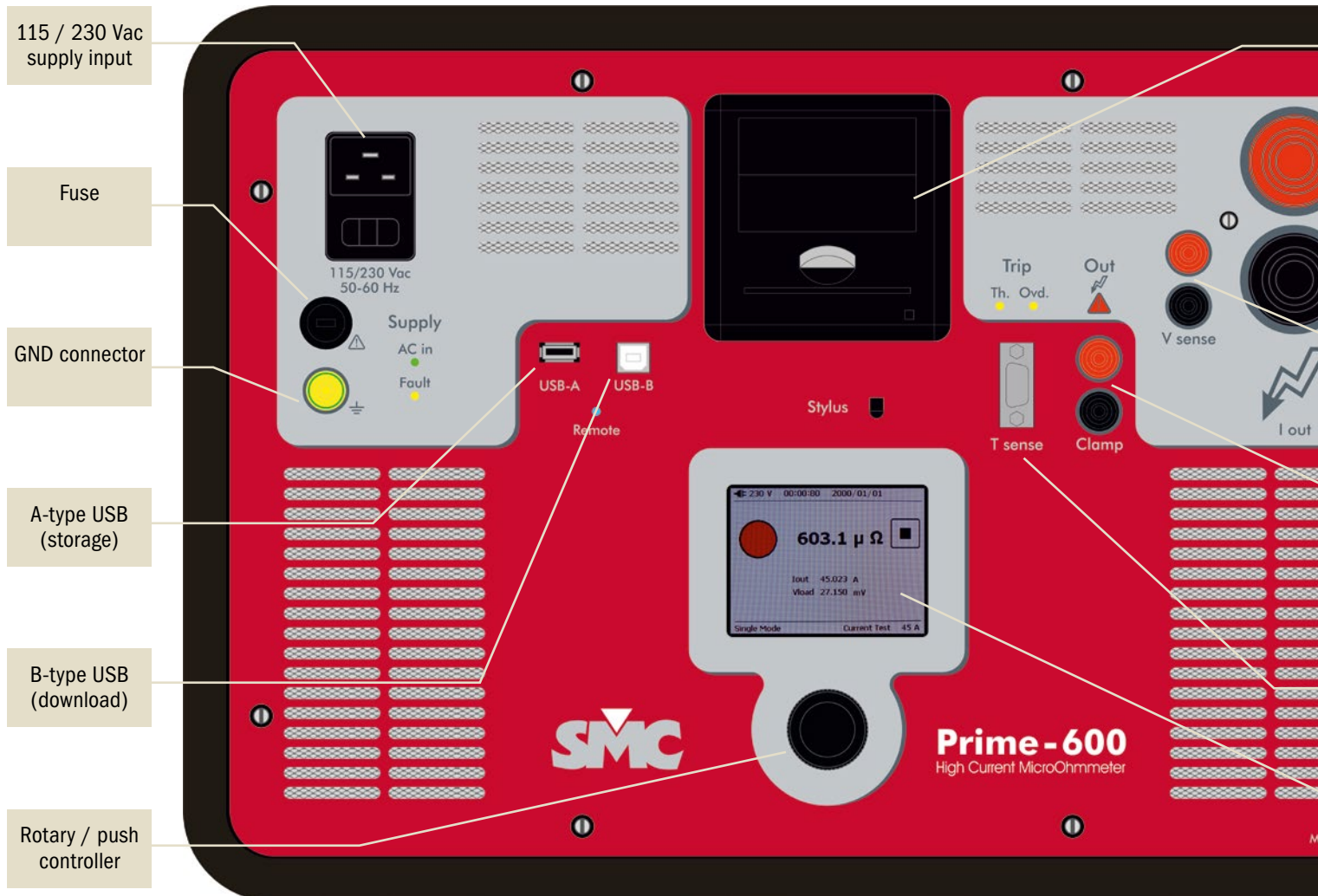


by
SMC

Formula Innovation



Pure DC 600 A injection



Applications

- Circuit breaker contact resistance measurement according to ANSI C37.09-1979 (5.14), IEC 1208 and IEC 694 (6.4) standards.
- Quick, efficient condition evaluation of arc contacts in SF6 and vacuum insulated circuit breakers.
- Assessment of connection quality in cable attachments, bus bars and any conductive junctures in electrical installations.
- Transformer / motor / turbine winding resistance measurement.
- Continuity in switches, earth connections, welding points, fuses, etc.

Loose, defective or dirty connections in a power circuit originate high temperature spots compromising the integrity of the entire installation and are potentially harmful for costly electrical equipment and dangerous for surrounding people. The nature and dimensions of these installations impose the need of accurate, high current injection in order to obtain reliable measurements throughout the entire setup.

Dual Ground operation

The Prime 600 features a derived current input that measures the current flowing across the earth circuit when both sides of the measured point are grounded. The measured value is then suppressed from the resistance calculation. This eliminates the need to remove the ground protection (which is unsafe and not always possible) and speeds up the measurement process.

The user only needs to attach a current/voltage converting clamp (offered as an option) to one of the grounding cables and connect it to the Prime 600's derived current input.

SMC offers a high quality current clamp, tested and verified for proper Dual Ground operation, among the Prime 600's optional accessories.

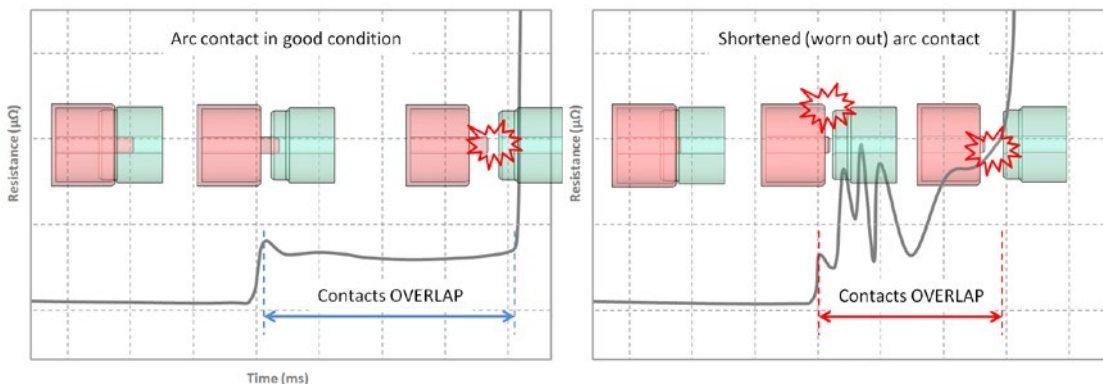
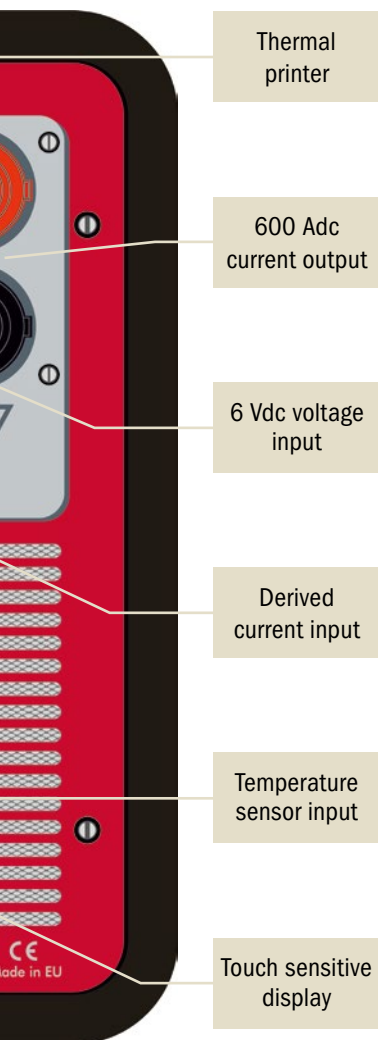
For increased safety, the Prime 600 will de-magnetize the connected load at the end of each measurement.

PRIME 600

DRM: Dynamic Resistance Measurement

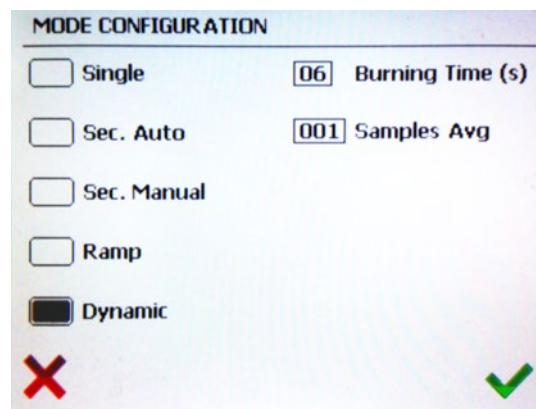
Rather than just displaying a single result in micro Ohm, the Prime 600 can, upon user's selection, perform a series of measurements very quickly across a fast moving contact, like those found in circuit breakers. The result is in this case a time / resistance graph that describes resistance changes on the measured spot throughout a few milliseconds. While requiring extreme accuracy and ultra fast recording from the Prime 600's micro processor, this technique provides a very representative evaluation of the contact's condition without having to open the chamber.

This feature, never before found in a micro ohmmeter, provides substantial savings especially in the case of SF6 and vacuum isolated breakers, as opening the chamber of one of these devices for visual inspection is extremely costly.



Producing a Dynamic Resistance graphic report takes just a few simple steps:

1. Connect current and voltage leads to both sides of the pole as usual
2. Select DRM mode on the Prime 600's screen and press START
3. Open the circuit breaker
4. Press PRINT



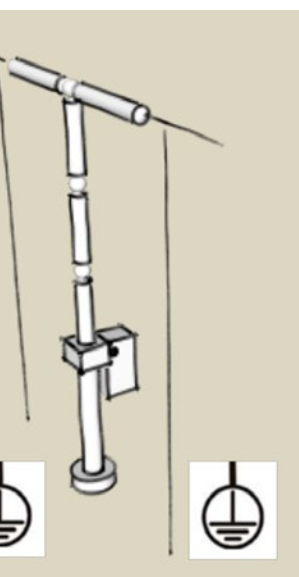
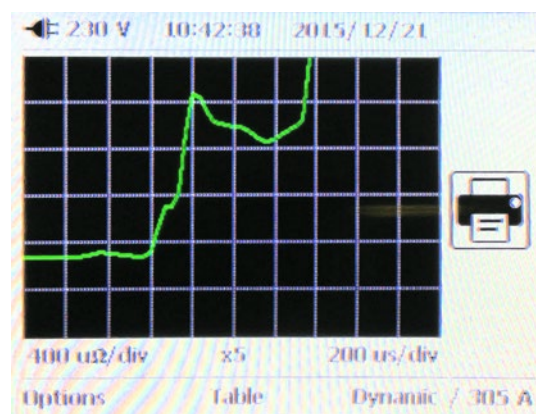
Pre-defined test modes

The MODE CONFIGURATION screen provides a simple, straightforward access to 5 pre-defined operation modes, including the Dynamic Resistance Measurement mode and a few user preferences.

Measurement can be done in the traditional way or by having the Prime 600 follow you through a sequence of different test spots. Just touch the desired mode on the screen, rotate the encoder to adjust your current and press it to start.

The Prime 600 will prompt you with a confirmation message if it detects possible mistakes in your connections. Once the measurement is finished, it will de-magnetize the tested device, too, for your safety.

You can produce a printout of your test instantaneously or just save it in permanent memory. The PrimeSync utility will allow you to group tests in a nice report that can be exported to common office formats in your Windows PC.



Prime 600 characteristics

This equipment is designed for use in high voltage substations and industrial environment. All products manufactured by EuroSMC comply to CE Marking directives, related IEC standards and ISO-9001 quality requisites.

Resistance measurement

	RANGE	RESOLUTION	ACCURACY
Static	1 mΩ	0.1 μΩ	±0.2% RD ±0.1 μΩ
	10 mΩ	1 μΩ	±0.2% RD ±1 μΩ
	100 mΩ	10 μΩ	±0.2% RD ±10 μΩ
	1000 mΩ	100 μΩ	±0.2% RD ±100 μΩ
Dynamic	10 mΩ	10 μΩ	±0.2% RD ±10 μΩ
	100 mΩ	100 μΩ	±0.2% RD ±100 μΩ
	1000 mΩ	1000 μΩ	±0.2% RD ±1000 μΩ

Dc Injection

Duty cycle	5...600 Adc / 2 s	5...300 Adc / 2 min	5...150 Adc / Perm
Resolution	1 Adc		
Max. Voltage	6 Vdc at 600 A		

Data Management

Measurement storage	Built-in memory and USB removable storage		
Communications	B type USB connection to PC		
Reporting	Windows PC software supplied as standard		

General

Power supply	115 or 230 Vac (automatic detection) / 50-60 Hz - Fused		
Physical (unit only)	47 X 35.7 X 17.6 cm / 13.5 kg		
Casing	ABS type, IP67 protection grade		
Temperature	Operation: 0 - 50°C / Storage: -25 - 70°C		

Optional accessories



Dual ground clamp

Connect to the Prime 600 and attach to one of the ground connections in the tested device. The Prime 600 will cancel the current flowing through the ground circuit from the resistance calculation.



Temperature sensor

This infrared (contact less) sensor will transmit the tested spot's temperature to the Prime 600 along with every measurement. You will then be able to automatically normalize a set of resistance values to a common reference temperature, e.g. 75°C



Included equipment

- Nylon bag for cables and accessories
- 3-meter ultra flexible current cables
- 3-meter voltage measurement cables
- USB A/B communication cable
- Ground cable
- 4-mm crocodile clips
- 4-mm voltage spikes
- Removable USB drive
- PC software
- Spare fuse
- Power cord
- Calibration certificate
- User's manual.



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