



Baker PP30, PP40, PP85

The effective solution for testing high voltage windings

The PP30, PP40, and PP85 power packs bring the latest innovations in the testing of electrical insulation systems. This impulse generator features the proven accuracy and reliability of over 40 years of experience.

Designed for shop or field performance, this high voltage generator provides a cost effective solution to large motor testing. These power packs represent Baker Instrument Company's on-going commitment to quality in the design of high performance test equipment.

The PP30, PP40 and PP85 are high performance impulse generators that are capable of testing very high voltage windings. The output is controlled by a variable transformer from 2,000 V up to a maximum of 40,000 V.

The PP30, PP40 and PP85 perform both surge and DC high potential tests when used with the D12R as the control and display. The PP30 also works with the AWA units. They incorporates a supply monitor for safe operation from a well grounded supply. In addition, 60 kV rated test lead cables are provided.

The surge generator is designed to provide IEEE 522-2004 compliant test voltages, both in the 30 kV and 40 kV units. The key design element of the surge test circuit is meeting the requirements for IEEE 522-2004 compliant test voltages. The tester supplies 0.1 to 0.2 μ s voltage pulses to the coil or winding under test. Additionally, Baker provides 0.1 μ F (30 kV)

or 0.15 μ F (40 kV) storage capacitors to allow proper test voltages to be developed on highly capacitive loads such as large motor or generator stators.

Voltage rise time is 100 to 200 ns (0.1 to 0.2 μ s), so the PP30 complies with IEEE Standard 522-2004 and IEC Standard 34-15 when testing motor windings and coils.

The DC high potential (HiPot) test can also be done using these power packs along with the D12R or AWA. Test voltage is set by the output control from 2,000 V up to 40,000 V. Current is displayed and an overcurrent trip circuit monitors the test. If current exceeds the trip level, the test is automatically halted. In its most sensitive setting, the protective circuit will operate as low as 10 μ A.

In addition, the D12R or AWA also monitors current. This provides a redundant level of safety for the DC high potential test.





The PP30, PP40 and PP85 are housed in a mobile case on pneumatic wheels. It provides power and accessory connections from the D12R or AWA as well as lead storage in a convenient portable unit. These features make the PP30, PP40 and PP85 the most powerful and most advanced impulse generators of their type.

The PP85 has additional functionality for testing of armatures. The lower impedance of series wound armatures (traction motors, transit and lift truck armatures) make accurate surge testing difficult. To achieve sufficient voltage differences be-

tween adjacent bars, standard surge testers use excessive voltage which may harm windings.

The PP85 allows for safe testing of these coils using higher current. When testing these coils, a specific voltage is applied on adjacent commutator bars, reducing the need for excessively high voltage. Inter-bar voltages can be varied from 50 to 900 V on large, cross connected equalized armatures. This bar-to-bar testing is the preferred method of testing DC armatures used by manufacturers and rebuilders.

Surge test

Maximum output voltage
Maximum output current with leads shorted together
Three phase selector switch
1 Hot Lead (no 3 f switch)
Maximum impulse energy

PP30¹
30,000 V

1,400 to 1,500 A pulse width at 2 ms (PP30, PP85)
2,600 A at 2 ms (PP40)
45 J

PP40²
40,000 V

120 J

PP85²
30,000 V

45 J

DC high potential test

Maximum output voltage
Maximum output current
Overcurrent trip
Current resolution

30,000 V
1,000 µA
10/100/1,000 µA
1/10/100 µA

40,000 V
1,000 µA
10/100/1,000 µA
1/10/100 µA

30,000 V
1,000 µA
10/100/1,000 µA
1/10/100 µA

Armature bar-to-bar test (PP85 only)

Maximum voltage
Maximum current
Maximum pulse energy
Maximum test inductance
Minimum test inductance

3,200 V (no load)
10,000 A
45 J
20 µH
0.4 µH

Physical characteristics

Weight
Dimensions (all units)
Power requirements

250 lbs (113.4 kg)
24 x 51 x 26 in (610 x 1,295 x 660 mm)
110/220 V³ 50/60 Hz, 1,000 W

305 lbs (138.3 kg)

110/220 V³, 50/60 Hz, 1,000 W

270 lbs (122.5 kg)
110 V, 60 Hz, 1,000 W
220V, 50Hz, 1,000 W

8 in (203.2 mm) pneumatic wheels
Option: Transport lifting strap kit.

¹⁾ Operates with AWA and D12R

²⁾ Operates with D12R

³⁾ Single phase

Baker Instrument Company, an SKF Group Company
4812 McMurry Avenue, Fort Collins, CO 80525, USA
T: +1 970/282-1200 – 800/752-8272 F: +1 970/282-1010
www.bakerinst.com

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