

# Impulse Generators

## Cable Fault Locators



- **Maintenance-free operation**
- **Engineered to assure optimum operator safety**
- **Heavy-Duty model delivers up to 10,800 Joules — the highest impulse in the industry**
- **Simple to use, even for the infrequent operator**

---

### DESCRIPTION

Impulse generators are designed to locate faults in power cable by the high voltage impulse method, in which a high-voltage impulse is transmitted down the cable to cause the fault to arc. The arcing fault is then pinpointed using an appropriate impulse detector.

Megger impulse generators may also be used to perform voltage versus time acceptance tests, or to burn faults that fail to break down under impulse to reduce their resistance. Megger offers three models to meet your application:

**15-kV Portable Model** — This 75-lb (34 kg) portable unit delivers 536 Joules for pinpointing faults on most primary distribution cable rated to 15 kV.

**Dual-Voltage Model** — This 80-lb (36kg) constant energy unit permits up to 450 Joules to be discharged over both the 7.5 and 15 kV ranges of the unit.

**Heavy-Duty Model** — This powerful unit, designed for van or substation use, offers the highest impulse rating in the industry. It delivers up to 5400 Joules at 30 kV (12  $\mu$ F). A 24  $\mu$ F option is available which delivers up to 10,800 Joules at 30 kv.

### APPLICATIONS

Megger impulse generators pinpoint faults on primary distribution cable rated from 3.3 to 35 kV, including directed buried cable and cable in conduit or duct.

For faults that do not break down in the impulse mode, a burn mode is provided to reduce the resistance so that those faults will break down under impulse voltage.

In addition to fault locating, these units can be used as proof testers to check the quality of insulation before and after cable repair.

### FEATURES AND BENEFITS

Impulse generators offer specific benefits that ensure efficient, effective and safe fault locating.

#### Rugged Construction

- Housed in sturdy metal cabinets using welded construction throughout to withstand the rigors of field operation.
- Impulse switches use tungsten ohmic contacts for extended life.

#### Simple Operation

- Modular control panels with a minimum of controls and instrumentation reduce operation complexity.
- Single lever operation mode selector eliminates the need to disconnect and manually interchange high voltage output cables.
- High voltage and return leads are combined in one coaxial cable eliminating the need to unravel the total length of test cable during operation.

### Standard Safety Features

- Isolated high voltage output cable
- Zero-start voltage interlock
- High voltage ON lamp
- Automatic grounding upon shutdown
- Redundant ground connections
- Manual grounding of capacitor and cable by Mode Selector for safety.
- Viewing window to confirm internal grounding system
- Circuit breakers for overload protection
- External interlock provision
- Meters remain active even when power is off

### Continuous Voltage Control

- Allows full adjustment of output voltage over the impulse and proof/burn range
- Limits the output voltage to the minimum necessary for breakdown

### Maintenance-Free Operation

- Quality components and construction assure ongoing reliable operation

### 15-kV Portable Model (Catalog #651017)

For lightweight economy, this 75-lb (34-kg) instrument discharges 563 Joules at 15 kV.

### Specific capabilities include:

- It will locate all faults on 15-kV class direct buried cable.
- Its 25-kV/30mA burn mode is handy for simple breakdown testing and fault resistance reduction on cables up to 15 kV.



15-kV Portable Model,  
Cat. No. 651017

### Dual-Voltage Model (Catalog #651016)

For power without pounds, this lightweight constant energy unit features dual voltages to permit up to 450 Joules to be discharged over both a 7.5 and 15 kV range. On the 7.5 kV range this unit utilizes a 16  $\mu$ F capacitor which produces an extremely loud “thump” at the fault.

This model is designed primarily for direct buried cable in applications that require instrument transport without a truck or van.



Dual-voltage Model,  
Cat. No. 651016

### Specific capabilities include:

- On the 7.5 kV range, it can be used on 5 kV class cable without a reduction in signal energy.
- On the 15 kV range, it is sufficiently powerful to locate faults on 15 kV class direct buried cable.
- The 25 kV proof mode permits maintenance testing of 5 kV class cable.
- The 25 kV/30 mA burn mode permits simple breakdown testing and fault resistance reduction to locate faults on 15 kV class cable.

### Heavy-Duty Model (Catalog #653031)

This model offers the highest impulse rating in the industry. When using the optional 12  $\mu$ F reserve capacitor, it can deliver a discharge of 10,800 Joules at 30 kV intermittently. This option produces a louder “thump” at the fault site resulting in locating success at lower voltages.

This model features skids for standard mounting in a van, trailer or truck, and can be optionally caster-mounted for station use.



Heavy-duty model,  
Cat. No. 653031

This unit is designed for heavy-duty applications such as complex network circuits and faults located in pockets of water and oil. It will find virtually all the faults in primary distribution cable.

### Specific capabilities include:

- With its 3750 or 7500 Joule at 25 kV impulse voltage output, it can find faults on 35 kV class direct buried cable or in conduit or duct.
- The 65 kV proof mode permits acceptance testing of 15 kV class cable and maintenance testing of 25 kV class cable.
- The 65 kV/100 mA burn mode permits simple breakdown testing and fault resistance reduction to locate faults on 35 kV class cable.

### This unit offers the following power output capabilities:

- It delivers 3750 Joules with 12  $\mu$ F at 25 kV every 5 seconds, with an overrange that permits a maximum discharge of 5400 Joules at 30 kV intermittently.
- Optionally, it delivers 7500 Joules with 24  $\mu$ F at 25 kV every 10 seconds, with an overrange that permits a maximum discharge of 10,800 Joules at 30 kV intermittently.

**SPECIFICATIONS**

**Input Power**

**15-kV Portable Model (Cat. No. 651017)**

Nominal 120 Vac, 4.5 A, 1- $\phi$ , 60 Hz only  
To order instrument with input other than noted above, add one of the following to the Cat. No.:

- 45 Nominal 220 V ac, 50 Hz
- 47 Nominal 240 V ac, 50 Hz

**Dual-Voltage Model (Cat. No. 651016)**

Nominal 120 Vac, 4.5 A, 1- $\phi$ , 50/60 Hz  
To order instrument with input other than noted above, add the following to the Cat. No.:

- 47 Nominal 240 V ac, 50/60 Hz

**Heavy-Duty Model (Cat. No. 653031)**

Nominal 120 Vac, 25 A, 3 kVA, 60 Hz.  
To order instrument with input other than noted above, add one of the following to Cat. No.:

- 01 Nominal 240 Vac, 60 Hz
- 02 Nominal 120 Vac, 50 Hz
- 03 Nominal 240 Vac, 50 Hz

**Cables Supplied**

One permanently connected shielded output cable for coaxial high voltage and return leads; one ground cable, and one permanently connected input cord. Lengths shown below.

Model	Cable Length		
	Output	Ground	Input
15-kV Portable and Dual-Voltage	25 ft (7.6 m)	15 ft (4.5 m)	15 ft (4.5 m)
Heavy-Duty	150 ft (45.6 m)	50 ft (15.2 m)	25 ft (7.6 m)

**Dimensions**

**15-kV Portable Model**

27 L x 13.5 W x 13.5 H in.  
(690 L x 343 W x 343 W mm)

**Dual-Voltage Model**

13.5 L x 13.5 W x 24 H in.  
(243 L x 343 W x 610 W mm)

**Heavy-Duty Model**

36 L x 24 W x 40 H in.  
(914 L x 610 W x 1016 H mm)

**Environmental**

**Temperature**

Operating: 14 to 113° F (-10 to +45° C)  
Storage: -22 to +131° F (-30 to +55° C)

**Elevation**

7500 ft (2286 m) maximum. Derate voltage at higher altitudes.

**Humidity**

5 to 95% RH noncondensing.

**Climate**

Operation in direct rain or snow is prohibited.

Model	Max. Stored Cat. No.	Storage Energy	Impulse Capacitance	Interval	Output Ranges			Weight
					Impulse	Proof Test	Burn Current	
15-kV Portable	651017	563 Joules	5 $\mu$ F	Variable 1 to 5 s	0 to 15 kV	0 to 25 kV	0 to 30 mA	75 lb (34 kg)
Dual-Voltage 7.5 kV & 15 kV	651016	450 Joules	16 $\mu$ F 4 $\mu$ F	8 s	0 to 7.5 kV	0 to 25 kV	0 to 30 mA	80 lb (36 kg)
Heavy-Duty	653031	3750 Joules 5400 Joules*	12 $\mu$ F 12 $\mu$ F	5 s @ 60 Hz 6 s @ 50 Hz	0 to 25 kV 0 to 30 kV	0 to 65 kV	0 to 100 mA	750 lb (340 kg)
	653031-32	7500 Joules 10,800 Joules*	24 $\mu$ F 24 $\mu$ F	10 s @ 60 Hz 12 s @ 50 Hz	0 to 25 kV 0 to 30 kV	0 to 65 kV	0 to 100 mA	770 lb (349 kg)

\*Intermittent

**ADDITIONAL EQUIPMENT FOR POWER FAULT LOCATING**

**Megger PinPointer**

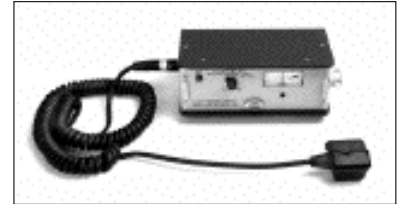
Specifically designed for service, industrial and power utility companies, the Megger MPP1000 pinpoints faults in shielded and direct buried primary cables via a single or dual probe. A single probe MPP can be easily upgraded at any time by purchasing a second probe. The unit can successfully detect both the electromagnetic and acoustic pulses emitted from an arcing fault when it is surged. It can also be used with any Megger PFL Power Cable Fault Locating system/surge generator or other supplier.



**Electromagnetic Impulse Detector**

The Electromagnetic Impulse Detector has been designed to localize faults on buried cable by detecting the magnitude and polarity of current established on a cable during surging with a surge generator.

The instrument is composed of an amplifier module, sheath coil, and carrying case. It is typically used on network systems to isolate a fault between manholes. An optional earth frame and surface coil are available.



The Electromagnetic Impulse Detector can be used with PFL Systems or with surge generators of other manufacturers.

If an integrated fault locating system is required which will provide the pre-location capabilities of arc reflection or surge pulse reflection methods, consider one of the Megger Power Cable Fault Locating Systems. Any of the PFL series can be supplied complete with a DART® Cable Analysis System integrating a total fault locating system into one package.

**ORDERING INFORMATION**

Item (Qty)	Cat. No.
15-kV Portable Impulse Generator	651017
Dual-Voltage Impulse Generator	651016
Heavy-Duty Impulse Generator	653031
<b>Optional Accessories</b>	
<b>For Cat. No. 651016</b>	
Folding two-wheel hand truck	650402
<b>For Cat. No. 653031</b>	
Caster-mounted with handle	Add -04
Vertical control panel	Add -08
Adjustable pulse rate timer for repetitions from 2 to 10 seconds	Add -16
Additional 12 µF capacitor with adjustable timer for obtaining 25 kV output with 24 µF of capacitance	Add -32
Digital voltmeter and ammeter	Add -48

**UK**  
Archcliffe Road, Dover  
CT17 9EN England  
T (0) 1 304 502101  
F (0) 1 304 207342

**UNITED STATES**  
4271 Bronze Way  
Dallas, TX 75237-1019 USA  
T 1 800 723 2861  
T 1 214 333 3201  
F 1 214 331 7399

**OTHER TECHNICAL SALES OFFICES**  
Norristown USA, Toronto CANADA,  
Mumbai INDIA, Trappes FRANCE,  
Sydney AUSTRALIA, Madrid SPAIN  
and The Kingdom of BAHRAIN.

**ISO STATEMENT**  
Registered to ISO 9001:2000 Reg no. Q 09250  
Registered to ISO 14001 Reg no. EMS 61597  
**IMPULSEGENERATOR\_DS\_en\_V02**  
**www.megger.com**  
Megger is a registered trademark