

7010

Selectable Defibrillator Load

Instruction Sheet

Introduction

The Impulse 7010 Selectable Defibrillator Load (hereafter the Load) provides multiple loads of 25, 50, 75, 100, 125, 150, 175, and 200 ohms for testing defibrillators. In conjunction with an Impulse 7000DP Defibrillator Analyzer (hereafter the Analyzer), it is designed for performance testing of defibrillators. It is not intended to be used for calibration of medical equipment.

Warning







To avoid possible electrical shock or personal injury, follow these guidelines:

- Use this instrument only in the manner specified by the manufacturer or the protection provided may be impaired.
- Read the Instruction sheet before operating the Load.
- Do not use the product if it operates abnormally.
- Do not use the product in wet locations, around explosive gases or dust.
- Observe all precautions noted by the Device Under Test (DUT) equipment manufacturer when analyzing the DUT.
- Use extreme caution when working with voltages above 30 volts.

Table 1 lists the symbols found on the Load and describes their meaning.

Table 2 shows the front-panel controls and connectors of the Load.

Table 1. Symbols

Symbol	Description
	Important information; refer to manual.
	Do not dispose of this product as unsorted municipal waste. Go to Fluke's website for recycling information.
	Conforms to relevant Australian EMC requirements
	Conforms to relevant Canadian and US standards
	Hazardous voltage
	Conforms to European Union directives
CAT I	IEC Measurement Category I – CAT I equipment designed to protect against transients in equipment on circuits not directly connected to MAINS. Under no circumstances should the terminals of the Load be connected to any MAINS voltage.

Preparing for Operation

Connect the Load output connectors to the input connectors of the Analyzer as shown in Figure 2.

As shown in Figure 1, the selectable resistors of the Load are connected in series and/or parallel with the load across the defib connectors of the Analyzer. The various connection combinations available through the rotary switch, provide eight different loads for a defibrillator discharge.

Using the Load for Testing

To use the Load for a defibrillator test:

1. Select the desired defibrillator load by moving the rotary switch to one of the eight load settings.
2. Setup the Analyzer for use with the selectable load by pressing **SETUP** and then the **More** soft key. Then press **Defib Load** to

Selectable Defibrillator Load
Using the Load for Testing

select Ext Load. The selection is saved in non-volatile memory for future use.

When running a defibrillator Energy, Sync, or Charge Time test, press the **Load** softkey to select the load using \blacktriangle and \blacktriangledown . When done, press **Load** again to close the selection box.

Note

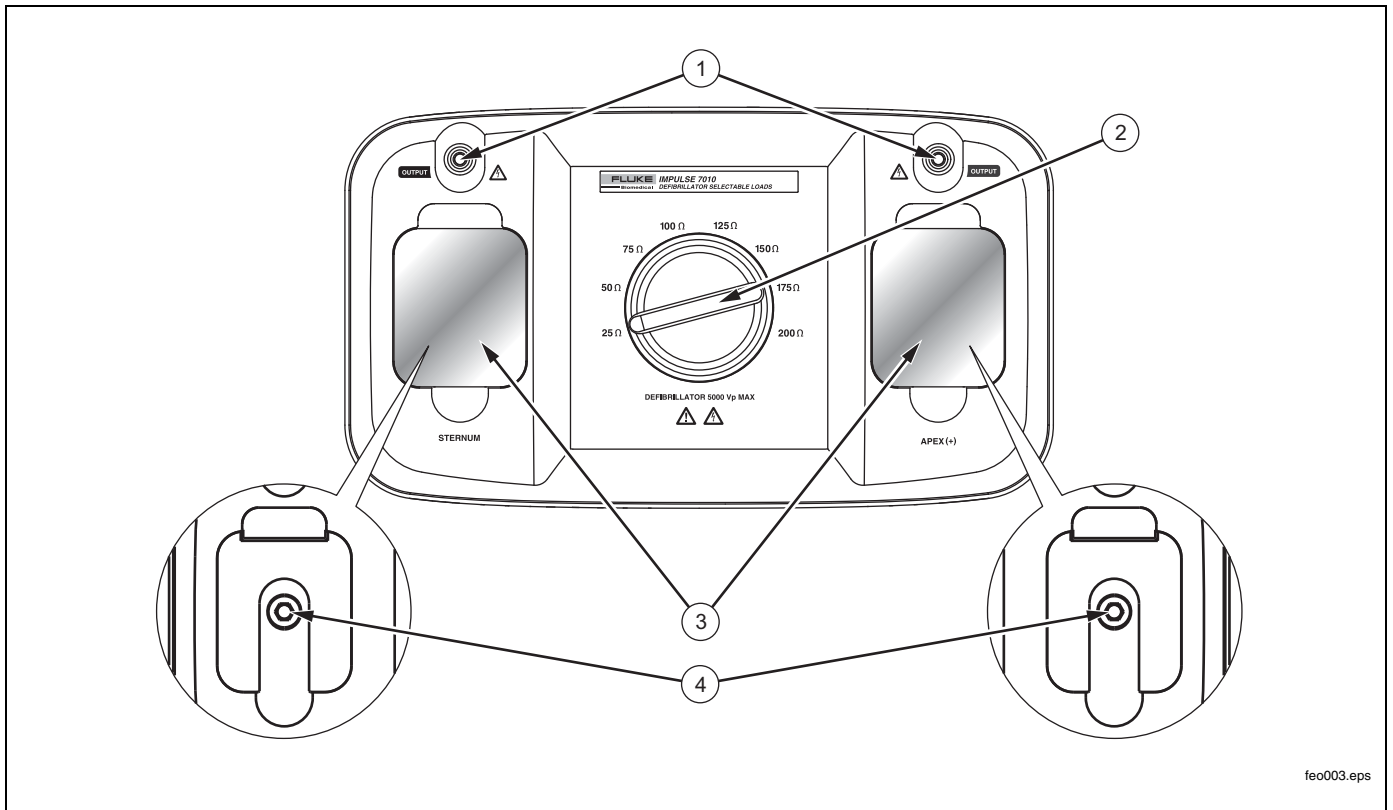
The selected load must be the same value on both the Analyzer and the Load to get correct energy, voltage, and current readings.

When set to 50Ω, the Load is bypassed and the load inside the Analyzer is used for the

test. It is not necessary to remove the Load when using the load within the Analyzer.

3. If using defibrillator paddles, place the paddles firmly on the defib pads of the Load.
4. Run a defibrillator test in the regular way. For all defibrillator test menus, the load value is displayed on the top display line. The selected load value is included in the energy, voltage, and current calculations, so the data shown is correct for that load.
5. Discharge the defibrillator and read the results in the Analyzer's display.

Table 2. Impulse 7010 Front-Panel Controls and Connectors



feo003.eps

Item	Description	Item	Description
①	Outputs to Analyzer	③	Defibrillator paddle pads
②	Rotary switch	④	Banana jacks for defibrillator connections

Selectable Defibrillator Load
 Using the Load for Testing

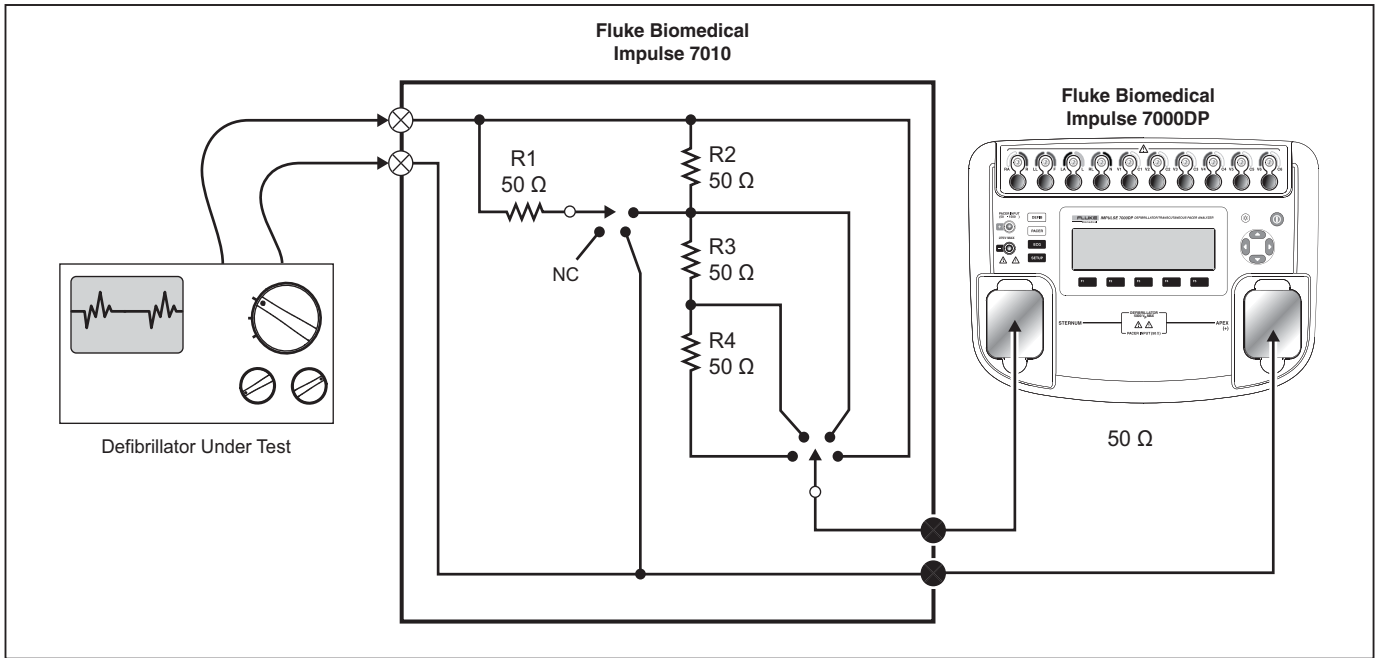


Figure 1. Impulse 7010 Load Schematic

feo001.eps

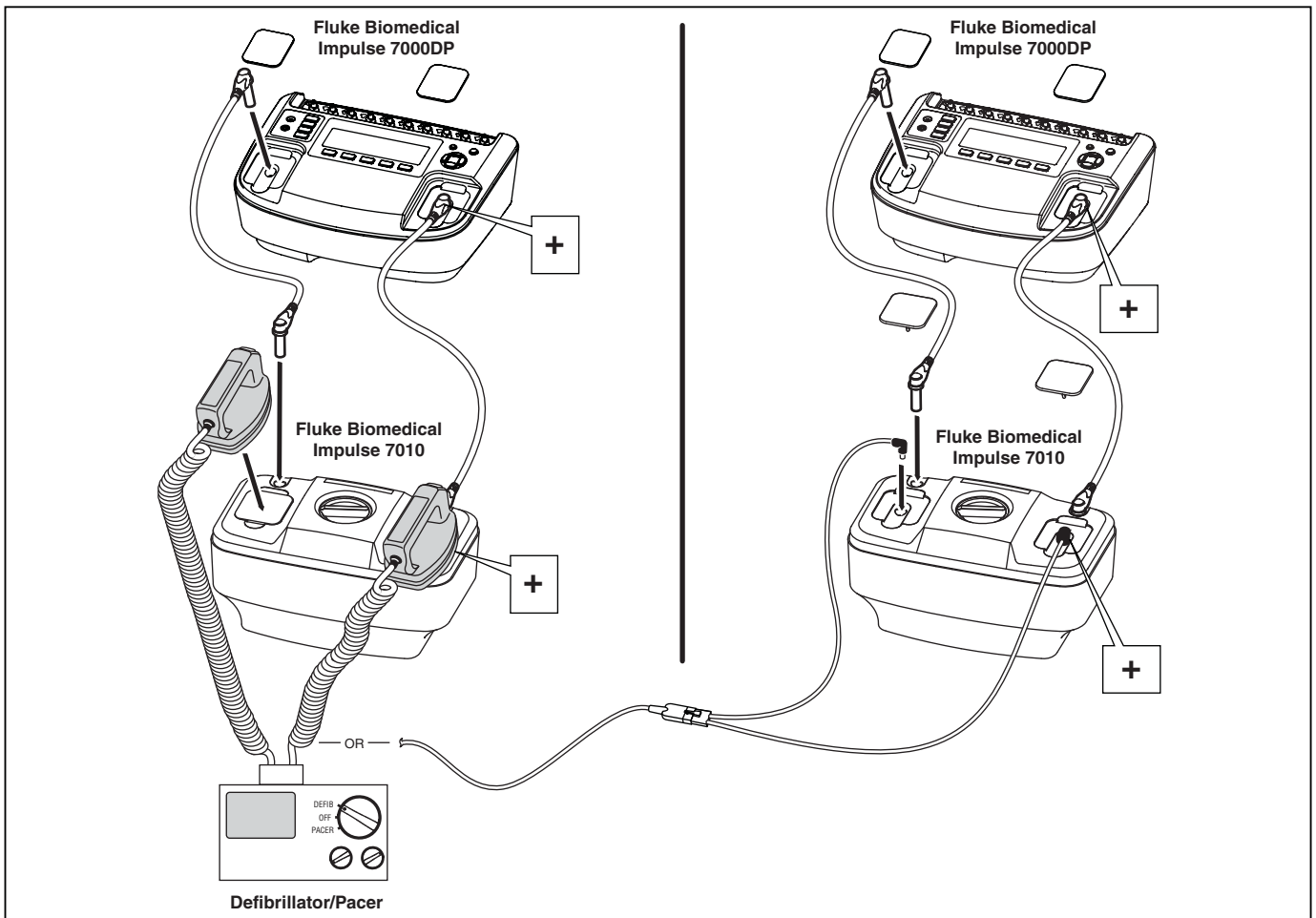





Figure 2. Load Test Connections

feo002.eps

General Specifications

Maximum Voltage	5000 V
Maximum continuous power	12 W, equivalent to 10 defib pulses of 360 J every 5 minutes.
Inductance	< 2 μ H, @25 Ω < 3 μ H, @50 Ω < 4 μ H, @75 Ω and 100 Ω < 5 μ H, @125 Ω < 6 μ H, @150 Ω < 7 μ H, @175 Ω < 8 μ H, @200 Ω
Temperature	
Operating Temperature	10 °C to 40 °C
Storage Temperature	-20 °C to +60 °C
Humidity	10 % to 90 % non-condensing
Dimensions (HxWxL)	138.7 mm X 154 mm X 272 mm (5.46 in X 6.07 in X 10.71 in)
Weight (net)	1.54 kg (3 lbs 6.2 oz)
Safety class	Complies with EN61010-1 2 nd Edition, Class II product.
Safety and EMC marks	  
Warranty	2 years, if calibrated at one year at a designated FBC service center. Otherwise, 1 year.
Calibration interval	1 year

Electrical Specifications (for Load and Analyzer together)

Load settings	25, 50, 75, 100, 125, 150, 175, and 200 ohms \pm 1 %
Accuracy	
Energy (All except Pulsed Biphasic)	\pm 2 % of reading + 0.1J with 25, 75 through 200 ohm loads \pm 1 % of reading + 0.1J with 50 ohm load
Energy (Pulsed Biphasic)	\pm 2.5 % of reading + 0.3J with 25, 75 through 200 ohm loads \pm 1.5 % of reading + 0.3J with 50 ohm load

Note

AC Pulsed Bi-Phasic waveform has not been approved in the United States.

Voltage	\pm 1 % of reading + 2 V with 25 and 50 ohms loads \pm 2 % of reading + 2 V with 75 through 200 ohm loads
Current	\pm 2 % of reading + 0.1 A with 25 ohm load \pm 1 % of reading + 0.1 A with 50 through 200 ohm loads

Replaceable Parts

Table 3 lists the replaceable parts for the Load. To contact Fluke, visit Fluke's web site at www.fluke.com or call one of the following numbers.

USA and Canada: 1-888-99-FLUKE (1-888-993-5853)
Europe: +31 402-675-200
Japan: +81-3-3434-0181

Table 3. Replaceable Parts

Description	Fluke PN
Defibrillator Plates Assembly	3156262
Cable Assembly, Right Angle, (Red)	3187040
Cable Assembly, Right Angle, (Black)	3187057

Cleaning the Analyzer

⚠ Caution

Do not pour fluid onto the Load surface; fluid seepage into the electrical circuitry may cause the Load to fail.

⚠ Caution

Do not use spray cleaners on the Load; such action may force cleaning fluid into the Load and damage electronic components.

Clean the Load occasionally utilizing a damp cloth and mild detergent. Take care to prevent the entrance of liquids.

Wipe down the adapter cables with the same care. Inspect them for damage and deterioration of the insulation. Check the connections for integrity.