

ESSENTIAL ENERGY

The Valleylab™ LS10 energy platform delivers the benefits of LigaSure™ vessel sealing technology in a single-channel, easy-to-use format¹

Specification Guide



PERFORMANCE CHARACTERISTICS

General

Output configuration	Isolated output
Cooling	Natural and forced convection
Display	System status indicator – circle LED (12 blocks) shows system status System error indicator – triangle LED with exclamation mark Instrument status indicator – LED above the LigaSure™ port Usage limit indicator – 2 with a line through it
Mounting	A Medtronic cart (UC8009) or a stable, flat surface

Dimensions and Weight

Width	300 mm (11.81 inches)
Depth	377 mm (14.84 inches)
Height	105 mm (4.13 inches)
Weight	5 Kg (11 lbs)

Operating Parameters

Ambient temperature range	10 C to 40 C (50 F to 104 F)
Relative humidity	30% to 75% non-condensing
Atmospheric pressure	700 to 1060 millibars
Warm-up time	If transported or stored at temperatures outside the operating temperature range, allow one hour for the energy platform to reach room temperature before use.

Transport and Storage

Ambient temperature range	-30 C to 65 C (-22 F to 149 F)
Relative humidity	25% to 85% (non-condensing)
Atmospheric pressure	500 to 1060 millibars
Duration of storage	If stored for more than one year, see service manual for instructions or contact Medtronic service for further information.

Duty Cycle

Under maximum-output settings and rated-load conditions (30 ohm load), the energy platform is suitable for activation times of 5 seconds on, 15 seconds off, for 1 hour. With lesser settings and loads, you can activate the energy platform for greater durations without generating excessive internal temperatures.

Internal Battery

Battery for RTC	Battery type: 3 V lithium button cell Battery life: five years
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Audio Volume

The stated audio levels are at a distance of one meter. Alert tones meet the requirements of IEC60601-2-2.

Activation Tone

Volume (adjustable)	45 dBa minimum
Frequency (nominal)	Sealing in process – 440 Hz
Duration	Continuous while the system is activated



Alert Tone

Volume (not adjustable)	65 dBA minimum
Frequency	Seal cycle incomplete alert: 784 Hz (high), 587 Hz (low)
	Seal cycle complete tone: 985 Hz
	System error tone: 1421 Hz
Duration	Seal cycle incomplete alert: The LigaSure™ regrasp alert is four tones played for 150 ms each with no break between tones
	The order and frequency of the tones is 784 Hz, 587 Hz, 784 Hz, 587 Hz (high, low, high, low)
	Seal cycle complete tone: Two tones played for 175 ms each at 985 Hz, with a 175 ms break between the tones
	System error tone: Three 200 ms tones, separated by 300 ms for each error/system-alert event

Radio Frequency Identification (RFID)

The RFID module is located above the LigaSure™ port. It identifies the inserted LigaSure™ instrument and configures the energy platform with the data included in the RFID tag.

Frequency range	13.56 MHz
RF output power	68.17 dBuV/m at three meters
Type of antenna	Integral loop antenna
Modulation	Amplitude-shift keying (ASK)
Mode of operation (simplex/duplex)	Duplex
Contains transmitter module FCC ID	2AAVI-JDK1901
Contains IC ID	11355A-JDK1901

Low Frequency (50/60 Hz) Leakage Current (IEC 60601-2-2)

Enclosure source current, ground open	< 300 μA
Source current, patient leads, all outputs	Normal polarity, intact ground: < 10 μA Normal polarity, ground open: < 50 μA Reverse polarity, ground open: < 50 μA Mains voltage on applied part: < 50 μA
Sink current at high line, all inputs	< 50 μA

High Frequency (RF) Leakage Current (IEC 60601-2-2)

	Measured with leads recommended by Medtronic	Measured directly at the system terminals
LigaSure™ leakage	<116 mA RMS	< 100 mA RMS

LigaSure™ Vessel Sealing Technology

Seal: 400 kHz sinusoid, continuous

Output power changes by less than 20% or 12W, whichever is greater, as the line voltage varies from 90–132 volts and 208–264 volts (at rated load)

Input Power Requirements

Operating range is 90 to 264 AC volts 48–62 Hz
Maximum current is 5 amperes

Meets ETL and CE Specifications

The VLLS10GEN energy platform meets all the pertinent clauses of IEC 60601-1 third edition and IEC 60601-2-2 third edition



OUTPUT CHARACTERISTICS

Maximum Output for LigaSure™ Mode

Power readouts agree with actual power into rated load to within 15% or 5 W, whichever is greater.

PRECAUTION: To avoid injury to the patient or surgical team, use only instruments rated for use at, or greater than, the maximum peak voltages listed below. For example, bipolar instruments must have voltage ratings of 250 V peak or greater, as shown in the "Open Circuit Peak Voltage (max)" column.

Mode	Open Circuit Peak Voltage (max)	Open Circuit P-P Voltage (max)	Rated Load (max)	Power (max)	Duty Cycle	Current R.M.S (max)
LigaSure™	250 V	500 V	30 Ω	270 W	N/A	5.5 A

Output Waveforms

LigaSure™ vessel-sealing technology, an automatic adjustment, controls all modes. As tissue resistance increases throughout the seal cycle, the energy platform modulates current and voltage until tissue resistance meets seal complete requirements as needed by the tissue-sensing technology.