

# LAMP

# 20 W XENON FLASH LAMP

## OVERVIEW

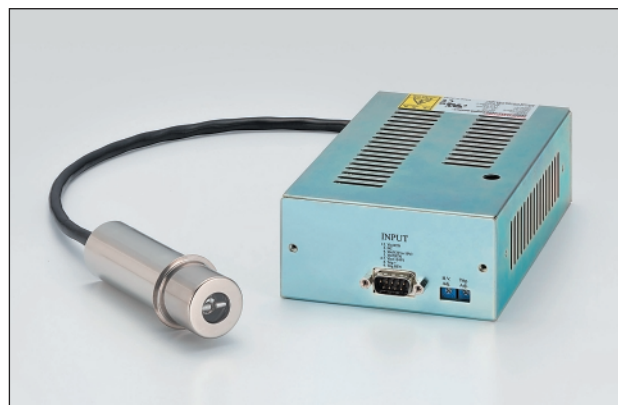
This 20 W xenon flash lamp provides optimal specification as a light source for medical / environmental analysis. Applied electrodes to this lamp gives highly stable operation even under high voltage input. As a result, exhaustion of electrodes is reduced and high output, stability and long life is provided.



▲L11937

## FEATURES

- High stability: 1.0 % CV Typ.
- Long life:  $1 \times 10^8$  flashes
- High energy input: 0.5 J (maximum input energy per flash)
- Mirror integrated high output type: 1.4 times



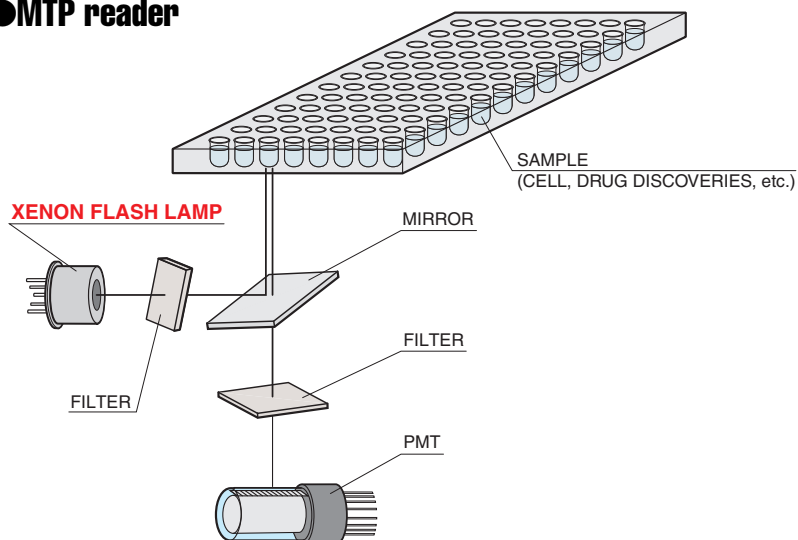
20 W xenon flash lamp + trigger socket + power supply

## APPLICATIONS

- Fluorescence analysis
- Blood analysis (MTP reader, etc.)
- Environmental analysis
  - Air pollution analysis (NO<sub>x</sub>, SO<sub>x</sub>, etc.)
  - Water pollution analysis (TOC, TN, etc.)
  - Gas analysis (CH<sub>4</sub>, etc)
- Semiconductor inspection
- Image processing

## APPLICATION EXAMPLE

- MTP reader



		20 W type		20 W mirror integrated high output type	
Arc size		1.5 mm	3.0 mm	1.5 mm	3.0 mm
Window material	Borosilicate glass	L11936	L11956	L11946	L11966
	UV glass	L11937	L11957	L11947	L11967
	Sapphire glass	L11938	L11958	L11948	L11968
	Quartz glass*	L11939	L11959	L11949	L11969

\* Mark to order

## SPECIFICATIONS

### 20 W TYPE

Parameter		L1193□	L1195□	Unit
Arc size		1.5	3.0	mm
Window material		Borosilicate glass / UV glass / sapphire glass / quartz glass		—
Spectral distribution	Borosilicate glass	240 to 2500		nm
	UV glass	185 to 2500		
	Sapphire glass	190 to 5000		
	Quartz glass	160 to 2500		
Recommended supply voltage		700 to 1000		V
Trigger voltage		5 to 7		kV p-p
Maximum input energy (per flash) ①		0.5		J
Maximum average input (continuous) ②		20		W
Maximum repetition rate ③		1000 ④		Hz
Light output stability ⑤	Typ.	1.0		% CV
	Max.	2.0		
Guaranteed life ⑥		1.0 × 10 <sup>8</sup>		flashes
Cooling method		Not required		—
Applicable trigger socket (sold separately)		E10977	E10978	—

### 20 W MIRROR INTEGRATED HIGH OUTPUT TYPE

Parameter		L1194□	L1196□	Unit
Arc size		1.5	3.0	mm
Window material		Borosilicate glass / UV glass / sapphire glass / quartz glass		—
Spectral distribution	Borosilicate glass	240 to 2500		nm
	UV glass	185 to 2500		
	Sapphire glass	190 to 5000		
	Quartz glass	160 to 2500		
Recommended supply voltage		700 to 1000		V
Trigger voltage		5 to 7		kV p-p
Maximum input energy (per flash) ①		0.5		J
Maximum average input (continuous) ②		20		W
Maximum repetition rate ③		1000 ④		Hz
Light output stability ⑤	Typ.	1.0		% CV
	Max.	2.0		
Guaranteed life ⑥		1.0 × 10 <sup>8</sup>		flashes
Cooling method		Not required		—
Applicable trigger socket (sold separately)		E10977	E10978	—

Suffix in "□" position

[Window material] 6 : Borosilicate glass 7 : UV glass 8 : Sapphire glass 9 : Quartz glass

**NOTE:** ① Maximum input energy (per flash)  
 $E=1/2 CV^2$  C: Main discharge capacitance (F) V: Main discharge voltage (V)

② Maximum average input (continuous)  
 $W=E \times f$  E: Maximum input energy (per flash) f: Repetition rate (Hz)

③ Recommended repetition rate is 10 Hz or more.

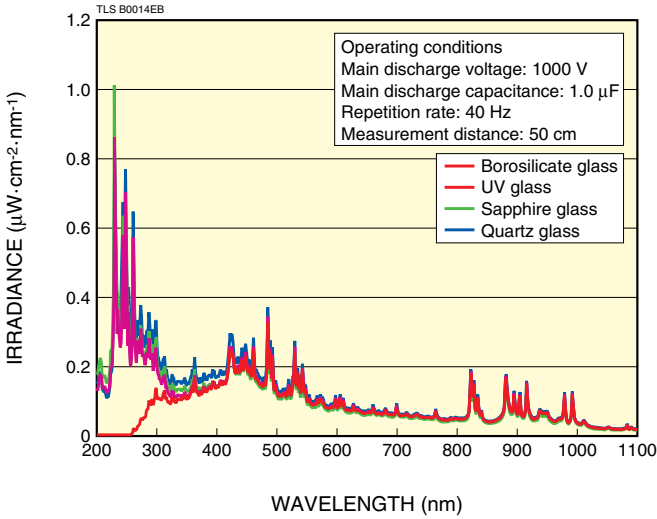
④ At operating condition with main discharge voltage 632 V and main discharge capacitance 0.1 μF.

⑤ Light output stability is given by:  
 Light output stability (% CV) = light output standard deviation / average light output × 100  
 (when repetition rate is 10 Hz or more)

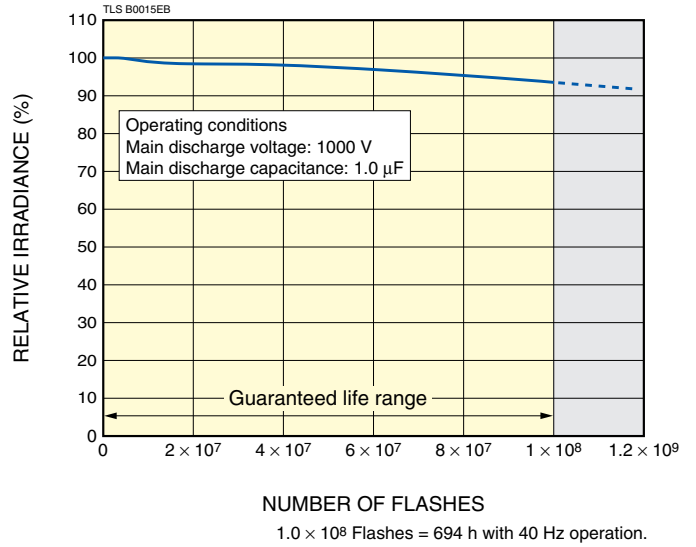
⑥ The lamp life end is defined as the point when light output in the entire wavelength range falls to 50 % of its initial value or when output fluctuation exceeds 2.0 % CV, measured at a main discharge voltage of 1000 V, main discharge capacitance of 1.0 μF, and repetition rate of 40 Hz.

# CHARACTERISTICS

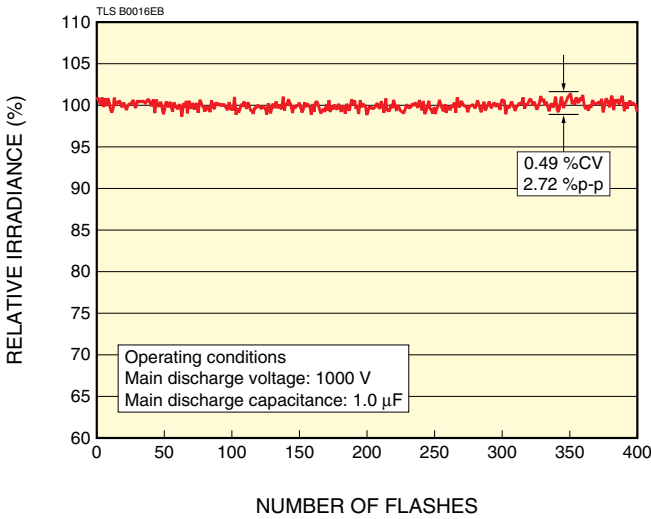
## ● SPECTRAL IRRADIANCE (Typ.)



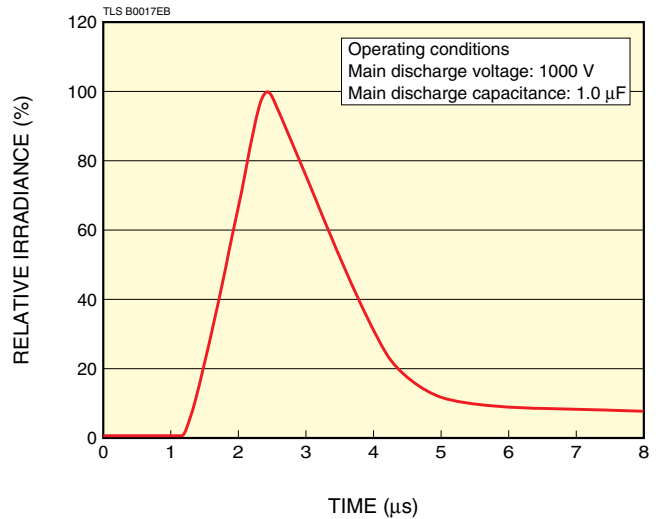
## ● LIFE CHARACTERISTICS (Typ.)



## ● LIGHT OUTPUT STABILITY (Typ.)



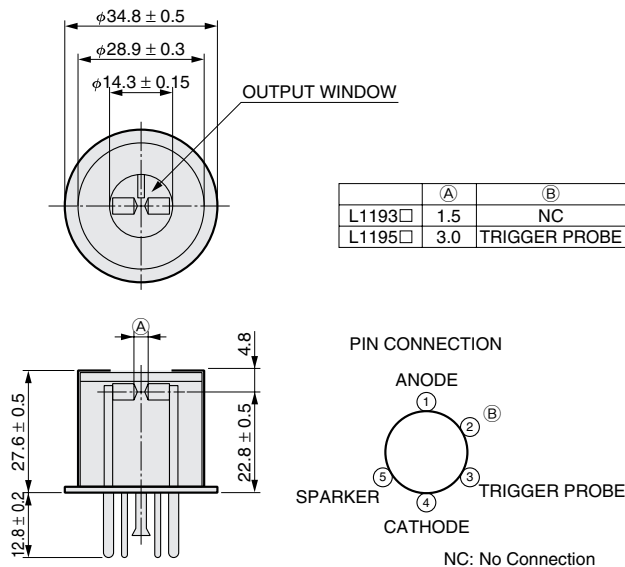
## ● EMISSION PULSE WAVEFORM (Typ.)



# DIMENSIONAL OUTLINES (Unit: mm)

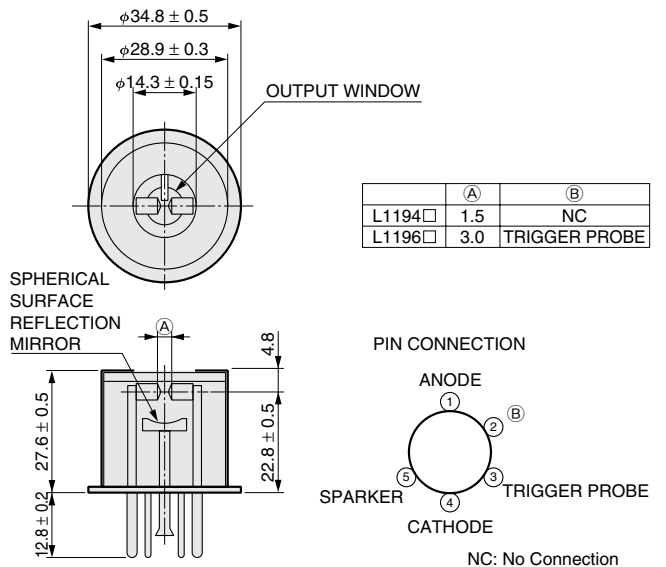
### 20 W TYPE

#### ● L1193□, L1195□



### 20 W MIRROR INTEGRATED HIGH OUTPUT TYPE

#### ● L1194□, L1196□



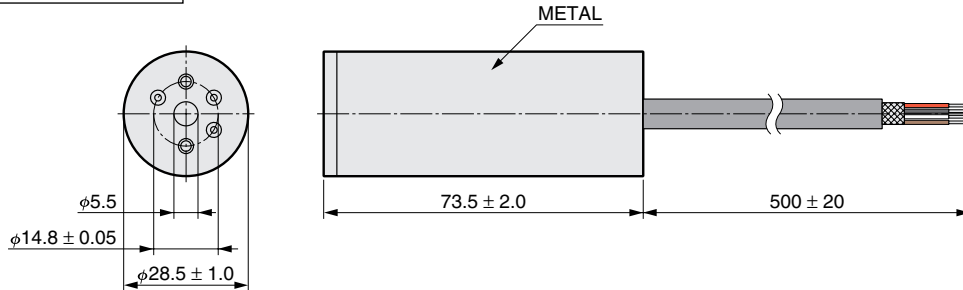
# RELATED PRODUCTS

## TRIGGER SOCKETS

Hamamatsu provides trigger sockets specifically designed to quickly start operating the xenon flash lamp. These trigger sockets are integrated with a high voltage transformer, voltage dividing resistors and capacitors in the same compact case. This frees the user from the troublesome task of designing and assembling the external circuit.

### DIMENSIONAL OUTLINE (Unit: mm)

E10977, E10978



#### CABLE CONNECTION

RED	MAIN SUPPLY VOLTAGE
BLACK	MAIN SUPPLY GND.
WHITE	TRIGGER VOLTAGE
BROWN	TRIGGER GND.
SHIELD MESH	CASE GND.

TLS A0012EB

## POWER SUPPLIES

Highly stable power supply is required to draw out the performance of xenon flash lamp because irradiance of xenon flash lamp is almost proportional to input energy.

This is dedicated power supply which enables stable lighting of xenon flash lamp and this power supply has large output capacitance while keeping compactness.



## SPECIFICATIONS

Parameter		C13315	C13316 series	Unit
Main power supply	Output voltage (DC)	300 to 1000		V
	Output capacity (Max.)	20		W
	Stability (Max.)	±0.2		%
	Main discharge capacitance	0.1	0.2 to 1.0 <sup>①</sup>	μF
	Maximum repetition rate <sup>②</sup>	1000		Hz
	Charge interval <sup>③</sup>	0.6 to 2.5		ms
Trigger section	Trigger voltage (Typ.) <sup>④</sup>	170 / 140		V
	Trigger capacitance	0.22		μF
Trigger input section	Trigger type	Internal / External		—
	Internal oscillation frequency	10 to 100		Hz
	Trigger input impedance	0.33		kΩ
	Input waveform	Rectangular waveform		—
	Input voltage	5 to 10 (Pulse width 10 μs or more)		V peak
Input voltage (DC)		24 ± 2.4		V
Power consumption		26		W
Cooling method		Not required		—
Dimensions (W × H × D)		90 × 43 × 146	102 × 51 × 170	mm
Weight		530	694 to 807 <sup>⑤</sup>	g

**NOTE:** <sup>①</sup>The main discharge capacitance can be selected from 0.2 μF to 1.0 μF in 0.1 μF steps.

<sup>②</sup>Please adjust maximum average lamp input (continuous) to the specification of lower than 20 W.

<sup>③</sup>Please adjust it according to repetition rate.

<sup>④</sup>Please switch to 170 V to use.

<sup>⑤</sup>Depend on the main discharge capacitance.

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