

**HealthyPhoton**

**Model : HPTCM-D**

**Butterfly Packaged Laser Driver**  
**Mount with Current and TEC**  
**Controllers**



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# 1. Introduction

Many near-IR TDLAS gas analyzers are based on DFB butterfly packaged lasers. Precise control of the temperature and current for the DFB laser is required in order to achieve high-precision gas analysis. HealthyPhoton developed a high-performance driver specifically designed for the 14-pin Butterfly Packaged Laser Diode (BPLD) used as the light source. Our model HPTCM-D includes functionalities such as high-efficiency heat-dissipating fin, TEC temperature control, and low-noise current driver.

## 2. Product Description

HPTCM-D Butterfly Packaged Laser Driver Mount is suitable for near-IR TDLAS gas sensing system integration and OEM applications. With an HPTCM-D, a photodetector unit and a lock-in demodulation module, the core function of a near-IR TDLAS system can be built.

### 2.1. Parameters

Module parameter		Value
TEC	Target LD temperature range	10~50°C (no condensation)
	Control accuracy	0.01°C
	TEC max control current	2A
	TEC max power	12W (25°C)
LD current drive	Output current	0~250mA
	Max bias voltage	5V
	Avg. current noise	< 10uA
	Analog modulation bandwidth	100 kHz
	Slow start rate	15mA/ms
	Operating temperature	-5~65°C

### 2.2. Advantages

- Integration of a TEC temperature control, a current driver, and a compatible heatsink for 14-pin butterfly packaged lasers;
- Ultra-low driving current noise;
- External analog modulation available;
- Two startup modes: local startup and remote startup;
- Adjustable upper limit of the laser diode bias current and the upper limit of the TEC current;

- Analog monitors for target/actual LD temperature and the bias current;
- An adjustable current clamp that can limit the bias current overshoot.