



HID L-Series

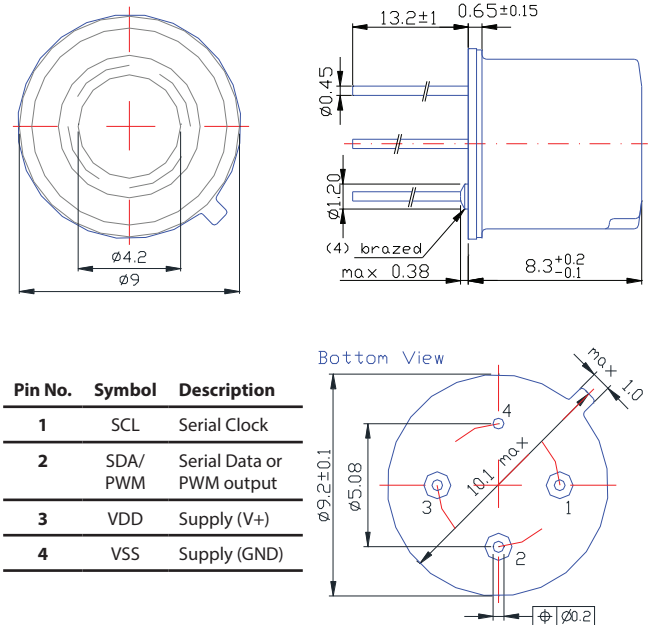
Thermopile Digital Modules with Lens Optics

The HID L-Series combines a thermopile sensor chip and ASIC in a small TO-39 metal housing with 4 leads for remote temperature measurements. With an additional optical lens, the sensor facilitates a narrow field of view of 10° at 10% energy points. With an optional lens shade (LS), the field of view can additionally be reduced. This results in a smaller measurement spot with higher signal ratio to ensure improved temperature measurement accuracy.

The module provides a computed temperature output with a temperature resolution of <math><0.1^{\circ}\text{C}</math> either via a digital SMBus interface or by means of PWM, which can easily be converted into an analog voltage. Optional temperature gradient compensation improves thermal shock resistance and ensures high accuracy over a wide sensor and object temperature range.

The sensor can be equipped with several optional features like mentioned lens shade (LS), temperature gradient compensation (TC) or custom filters.

Dimensions and PIN-Configuration



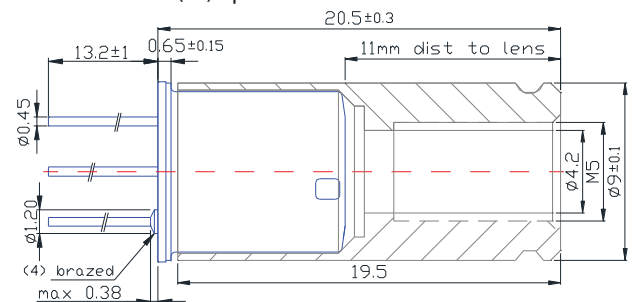
Pin No.	Symbol	Description
1	SCL	Serial Clock
2	SDA/ PWM	Serial Data or PWM output
3	VDD	Supply (V+)
4	VSS	Supply (GND)

Characteristics

	L14 FL5.5 T382	L15 FL5.5 T382	Unit
Supply voltage	5	3	V
Supply current		1	mA
Start up time after POR		150	ms
Object temp. range	-40 ... 382		$^{\circ}\text{C}$
Refresh rate ASIC ^{a)}	100		ms
Field of view 50% energy	6		degree
Field of view 5% energy	10		degree
Operating temperature	-20 ... 120		$^{\circ}\text{C}$
Storage temperature	-40 ... 125		$^{\circ}\text{C}$

a) Temperature output

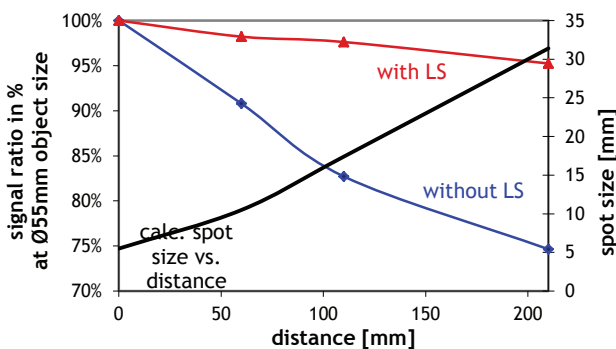
With lens shade (LS) option:



Temperature Performance

Object Temperature [$^{\circ}\text{C}$]	Sensor (Ambient) Temperature [$^{\circ}\text{C}$]				Temperature Accuracy [$^{\circ}\text{C}$]
	-40 .. 20	20 .. 60	60 .. 100	100 .. 125	
-40 .. 40	$\pm 3^{\circ}\text{C}$	$\pm 2^{\circ}\text{C}$	$\pm 3^{\circ}\text{C}$	$\pm 4^{\circ}\text{C}$	
40 .. 100	$\pm 2^{\circ}\text{C}$	$\pm 1^{\circ}\text{C}$	$\pm 1.5^{\circ}\text{C}$	$\pm 2.5^{\circ}\text{C}$	
100 .. 150	$\pm 3^{\circ}\text{C}$	$\pm 2^{\circ}\text{C}$	$\pm 2.5^{\circ}\text{C}$	$\pm 3^{\circ}\text{C}$	
150 .. 180	$\pm 4^{\circ}\text{C}$	$\pm 2^{\circ}\text{C}$	$\pm 2.5^{\circ}\text{C}$	$\pm 3.5^{\circ}\text{C}$	
180 .. 240	$\pm 5^{\circ}\text{C}$	$\pm 3^{\circ}\text{C}$	$\pm 3^{\circ}\text{C}$	$\pm 4^{\circ}\text{C}$	
240 .. 300	$\pm 5^{\circ}\text{C}$	$\pm 4^{\circ}\text{C}$	$\pm 4^{\circ}\text{C}$	$\pm 5^{\circ}\text{C}$	
300 .. 382	$\pm 6^{\circ}\text{C}$	$\pm 5^{\circ}\text{C}$	$\pm 5^{\circ}\text{C}$	$\pm 6^{\circ}\text{C}$	

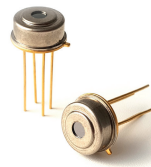
Signal Ratio vs. Distance



Ordering Information

HID	Heimann Integrated Digital Module
L1	Lens type with Sensor Chip TP1
x	ASIC supply voltage: x=4 \rightarrow 5V, x=5 \rightarrow 3V
FL5.5	Lens focal length
LS,TC,PWM	Optional features : lens shade (LS), Temperature gradient compensation (TC), pulse width modulated output, from T1 to T2 (PWM)

E.g.: **HID L14 FL5.5 T200**
HID L15 FL5.5 T380 LS
HID L15 FL5.5 PWM 20/100



HID A-Series

Thermopile Digital Modules

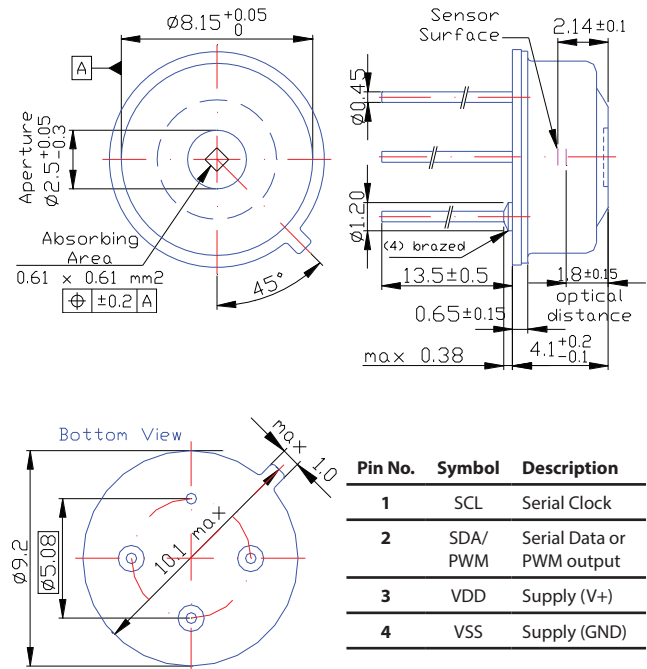
The HID A-Series combines a thermopile sensor chip and ASIC in a small TO-39 metal housing with 4 leads for remote temperature measurements.

This sensor facilitates a wide field of view of 70° with the small TP1 thermopile sensor chip and 100° with the bigger TP2 chip.

The module provides a computed temperature output with a temperature resolution of <math><0.1^{\circ}\text{C}</math> either via a digital SMBus interface or by means of PWM, which can easily be converted into an analog voltage. Optional temperature gradient compensation improves thermal shock resistance and provides high accuracy over a wide sensor and object temperature range. The sensor can be equipped with custom filters or with external apertures to reduce the field of view.

For special requests, please contact Heimann Sensor customer support.

Dimensions and PIN-Configuration



Characteristics

	A1x	A2x	Unit
Supply voltage	3 or 5		V
Supply current	1		mA
Start up time after POR	150		ms
Object temp. range	-40 ... 382		°C
Refresh rate ASIC ^{a)}	100		ms
Field of view 50% energy	70	100	degree
Operating temperature	-20 ... 120		°C
Storage temperature	-40 ... 125		°C

a) Temperature output without TC

Temperature Performance

		Sensor (Ambient) Temperature [°C]				Temperature Accuracy [°C]
		-40 .. 20	20 .. 60	60 .. 100	100 .. 125	
Object Temperature [°C]	-40 .. 40	±3 °C	±2 °C	±3 °C	±4 °C	
	40 .. 100	±2 °C	±1 °C	±1.5 °C	±2.5 °C	
	100 .. 150	±3 °C	±2 °C	±2.5 °C	±3 °C	
	150 .. 180	±4 °C	±2 °C	±2.5 °C	±3.5 °C	
	180 .. 240	±5 °C	±3 °C	±3 °C	±4 °C	
	240 .. 300	±5 °C	±4 °C	±4 °C	±5 °C	
	300 .. 382	±6 °C	±5 °C	±5 °C	±6 °C	

Ordering Information

HID	Heimann Integrated Digital Module
A	Standard type without lens
1, 2	Sensor Chip (TP1, TP2)
x	ASIC supply voltage: x=4 → 5V, x=5 → 3V
Fx	Filter type (F5.5, F8-14)
Tx	Temperature measurement range (max. T380)
TC, PWM	Optional features : Temperature gradient compensation (TC), pulse width modulated output, from T1 to T2 (PWM)

E.g.: **HID A15 F8-14 T380**
HID A15 TCT380
HID A25 F5.5 PWM 20/100