




Honeywell Sensing and Control




Where to buy 

 [Interactive Catalog Home](#)

 [Product Family Information](#)

 [Specification Search](#)

 [Search Help](#)



Representative photograph, actual product appearance may vary.

[Click here for a print friendly version of this datasheet.](#)

HLC2705-001

HLC2705 Series Infrared Component, Encoder Sensor, Output Option, Speed and Direction Side-Looking, Plastic Package

- [▶ Dimensions](#)
- [▶ Block Diagram and Performance Charts](#)
- [▶ Specifications](#)

Features

- Side-looking plastic package
- TTL/LSTTL/CMOS compatible
- On-chip quadrature logic which provides tach and direction outputs
- Linear or rotary encoder applications
- Resolution to 0.018 in [0.457 mm]
- Sensitivity versus temperature compensation
- Mechanically and spectrally matched to SEP8506 and SEP8706 infrared emitting diodes

Description

The HLC2705 detector is designed to sense speed and direction of mechanical motion. Applications include rotary and linear encoders; the device is especially well suited for the encoding function in an optical mouse. The detector is a monolithic IC, consisting of two narrow adjacent photodiodes, amplifier stages, and quadrature logic which provides two outputs. One is a fixed duration, low level active tachometer (counting) pulse. It is generated whenever the "A" channel illumination passes through the threshold level. The second is a direction output which is set to a logic high or a logic low depending upon which channel is illuminated first. The sensor also has sensitivity compensation circuitry for the output power versus temperature characteristic of an IRED. The IC is encapsulated in a molded, unlensed black plastic package which is transmissive to IR energy, yet provides shielding from visible light.

The tachometer output is an NPN collector, internally connected to Vcc through a 10 kOhm (nominal) resistor. The direction output is a totem-pole configuration. Both are capable of directly driving TTL loads.

The tachometer pulse is generated at both the increasing and decreasing illumination thresholds of the "A" channel, resulting in two tachometer pulses for each mechanical period of the interrupter. The HLC2705 is designed to work with a mechanical period as small as 0.036 in (0.914 mm), providing resolution to 0.018 in (0.457 mm).

Product Specifications

Product Specifications	
Product Type	IR Component
Turn-on Threshold Irradiance	0.05 mW/cm ² to 2.0 mW/cm ²
Output Option	Speed and Direction
Package Style	PC Mount
Package Components	Plastic
Operating Temperature Range	-40 °C to 85 °C [-40 °F to 185 °F]
Operating Supply Voltage	4.5 V to 5.5 V
Operating Point Temperature Coefficient	-0.76 %/°C
Duration of Output Short Vcc or Ground	1.0 second
Tach Output, Inactive	4.5 V
Tach Pulse Level, Active	0.4 V
Tach Pulse Width	3.0 μs to 20 μs
Comment	The radiation source is IRED with a peak wavelength of 880 nm.

Availability	Global
Product Name	Encoder Sensor
Resolution	0,46 mm [0.018 in]
Supply Current max.	12 mA @ 25 °C

*Due to regional agency approval requirements, some products may not be available in your area.
Please contact your regional Honeywell office regarding your product of choice.*