



**Electro Optical Components, Inc.**

5460 Skylane Boulevard, Santa Rosa, CA 95403

Toll Free: 855-EOC-6300

[www.eoc-inc.com](http://www.eoc-inc.com) | [info@eoc-inc.com](mailto:info@eoc-inc.com)



# Manual for EOC-PCL0A2K CO<sub>2</sub> Module

Thank you for choosing this product.

Please read the manual carefully before you use this product, and operate seriously in its suggested way. Keep this manual, you may need its help in the future.

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Any part of this manual can not be copied, translated, stored or distributed in any database or retrieval system without written permission from us by any means and ways, including electronic, copying and recording.

We concentrates on its product improvement with the help of innovation in science and technology continuously.

We keeps the right to improve the product without any notice.

If users disassemble or replace any part of the product not in the way suggested in this manual, the risks must be taken by the users themselves.

More details of the products, including the color and style, depend on the product you get.

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5464 Skylane Boulevard, Suite D, Santa Rosa, CA 95403

Phone: (707) 568-1642 • Toll Free: (855)-362-6300 • [www.eoc-inc.com](http://www.eoc-inc.com)

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## 1. Introduction

EOC-PCL0A2K is one of the general NDIR CO<sub>2</sub> gas modules, which adopting NDIR principle, consists of advanced light chamber, precise electric circuit and intelligent software. With the help of single light source, single channel detector, and microprocessor, EOC-PCL0A2K can perform the gas concentration signal in different ways. In this product, temperature compensation has been realized as well as the revision of the nonlinear relationship. EOC-PCL0A2K has the function of self calibration in every 24 hours. It has all the advantages from NDIR products, such as good selectivity, high sensitivity, long life and independence to O<sub>2</sub>.

EOC-PCL0A2K is suitable for the test in flexible occasion, for example indoor air monitoring, ventilating system, cars etc.



## 2. Technical Data

### 2.1 Working conditions

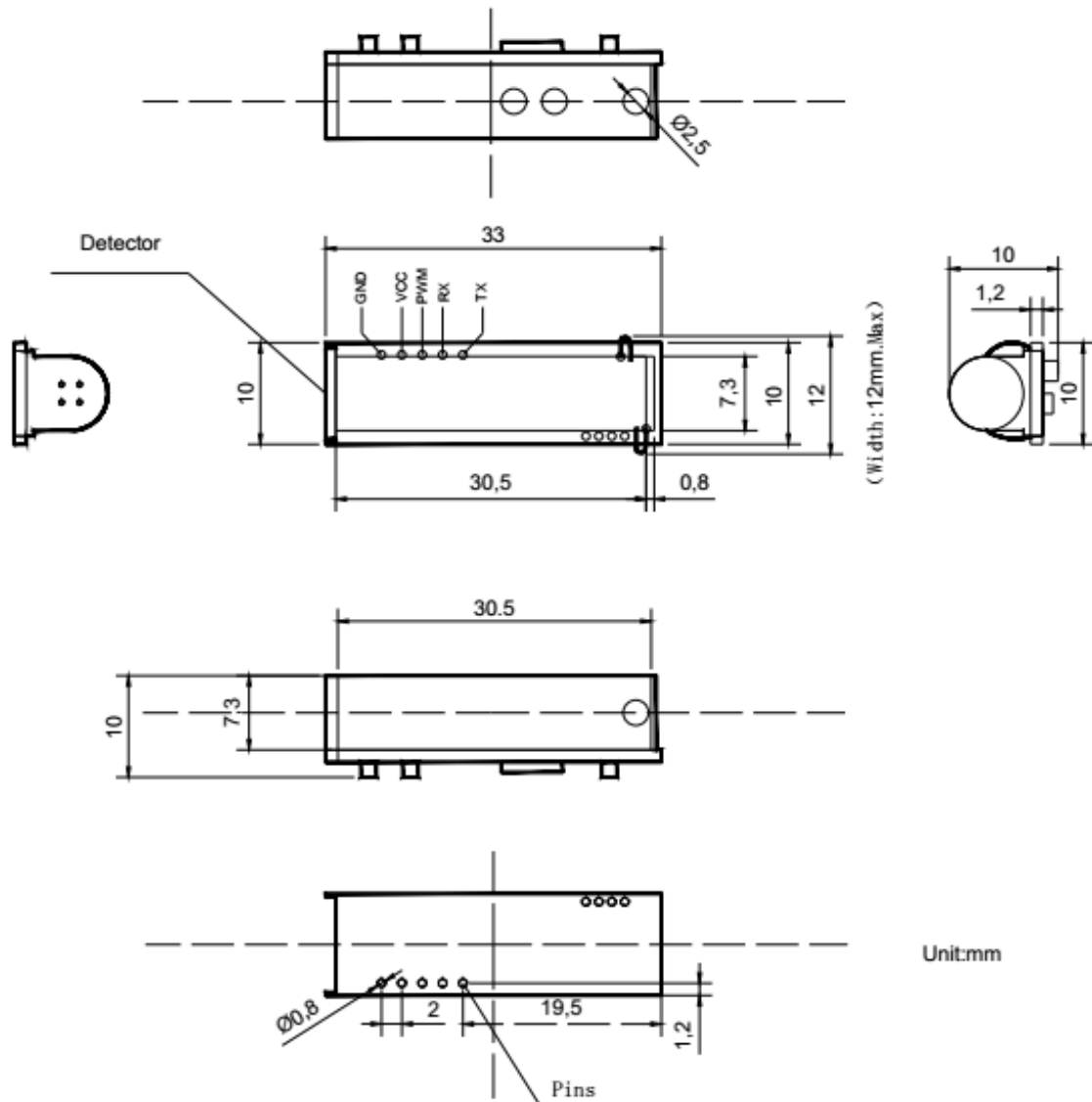
Description	Symbol	Value	Unit
Storage temperature	T <sub>stg</sub>	-20 to +70	°C
Working temperature	T <sub>A</sub>	-10 to +60	°C
Working humidity	H <sub>A</sub>	0 to 95 (no condensation)	% RH
Working voltage	V <sub>DC</sub>	5±0.5	V
Working current	I <sub>average</sub>	40	mA
	I <sub>peak</sub>	140	mA

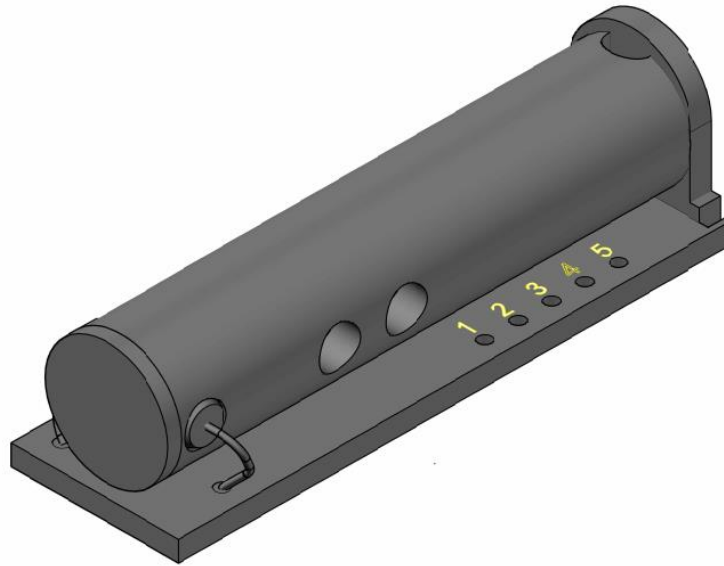
### 2.2 Performance characteristics

Description	Parameter	Unit
Working principle	NDIR	
Detection range	0-2000	ppm

Detection accuracy		$\pm 50\text{ppm} \pm 5\%$ reading	
Response time $T_{90}$		<3	minute
Warm-up time	Set to work	<60	second
	precision reached	<15	minute

### 3. Dimensions





#### 4. Signal Output

Output Mode: UART, PWM

Interface Definition:

Pin Number	Function
1	TTL TXD
2	TTL RXD
3	PWM Output
4	+5 VCC
5	GND

##### 4.1 UART Protocol

Baud rate: 19200bps, 8 bytes, first byte is stop, no check byte. The reading and return data is hexadecimal.

Concentration uploaded automatically in ASCII with the format :

32	32	x	x	x	x	x	32	p	p	m	\r	\n
----	----	---	---	---	---	---	----	---	---	---	----	----

For example: output of 12345 ppm:

		1	2	3	4	5		p	p	m
0x20,	0x20,	0x31,	0x32,	0x33,	0x34,	0x35,	0x20,	0x70,	0x70,	0x6d,

##### 4.2 PWM Output

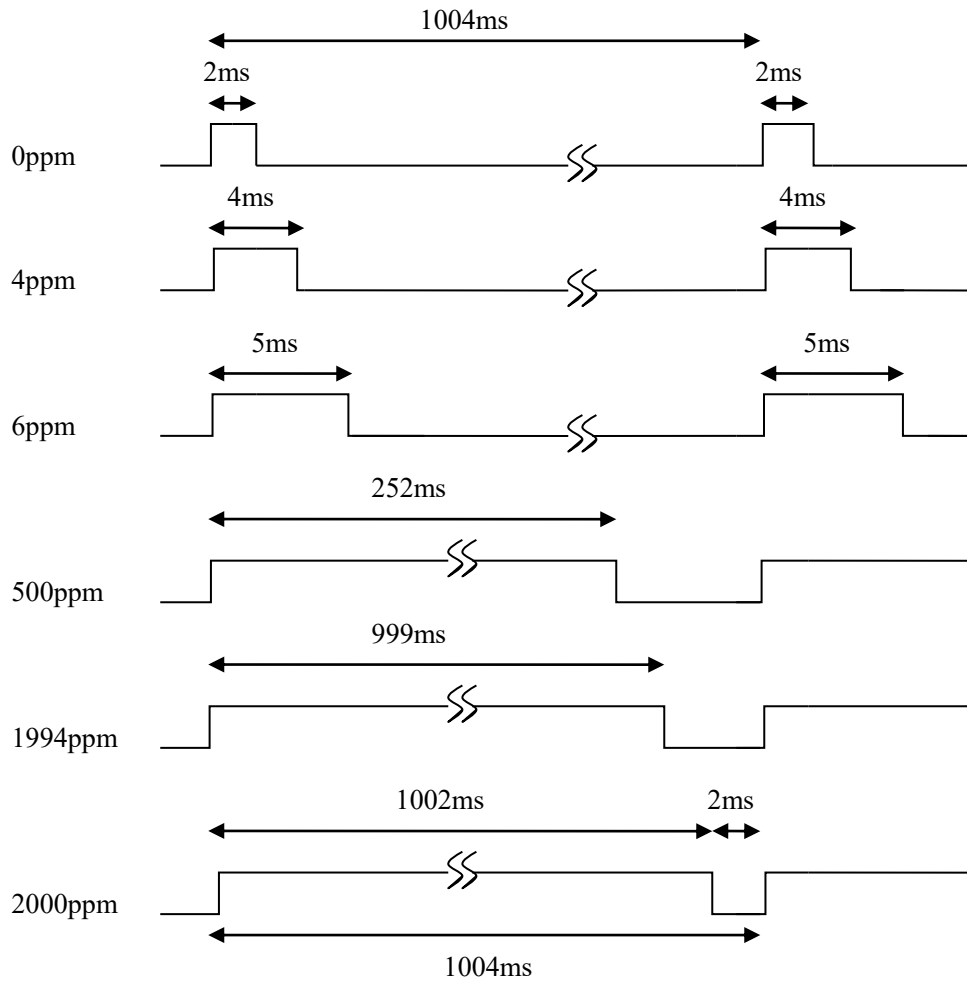
PIN 3 is the PWM output, definition is:

Concentration range: 0-2000ppm CO2

Cycle: 1004 ms ±5%

How to calculate the positive pulse width of PWM based on the CO2 concentration:

$$\text{The positive pulse width} = (\text{PPM concentration} / 2) + 2\text{ms}$$



PWM OUTPUT

## 5. Installation instructions

The distance between the installation holes is 2 mm.

Connect the module with a client through the single-row socket with distance of 2 mm.

## 6. Maintenance and storage

The module cannot work in dusty environment for a long time.

Supply power should be in its proper range.

## 7. How to place order

In order to get the product you want, please specify the following information when place your order:

- 1) Model of the module.
- 2) Measuring Range and detection accuracy of the module.

For example:

EOC-PCL0A2K 0-2000ppm  $\pm 50\text{ppm} \pm 5\%$  reading