

ELT SENSOR Corp.

CO₂ NDIR Module

Model : B-530

DATA SHEET

General

B-530 module is designed to measure CO₂ level in the air. This product is maintenance free, low cost and easily intergrated into other equipments especially.

B-530 simultaneously transmits a calibrated digital and analog output signal. Its compact size and low power consumption makes easy to intergrated into a broad range of equipment.

All modules are factory calibration and ready to install and applicable to portable as well as stationary equipment including wall-mountable fixtures.



Features

- Pre-calibrated
- Two available outputs : UART, AVO
- Non-Dispersive Infrared (NDIR) technology used to measure CO₂ levels.
- Provides output signal proportional to CO₂ level.
- Gold-plated sensor provides long-term calibration stability.
- Re-calibration load (MCDL/ACDL)
(Jumper selection)
- Flexible 3 and 7 pin connection

B-530 CO₂ Module

Specifications

General Performance

Operating Temperature

0 ~ 50°C

Operating Humidity

0 ~ 95% RH (Non-condensing)

Operating Environment

Residential, Commercial spaces, Heat exchanger, Ventilation device, HVAC

Storage Temperature

-30°C ~70°C

CO₂ Measurement

Sensing Method

NDIR (Non-dispersive Infrared)

Measurement Range

0 to 2,000/3,000/5,000/10,000/50,000ppm

Accuracy

±30ppm ±3%

Step Response Time(90%)

120 sec

Sampling Interval

3 seconds

Electrical Data

Power Input

9 to 15VDC (±2% Regulation)

Current consumption

Average : 35 mA

Output connector

3Pin / 7Pin (Molex 53015)

Output

Digital

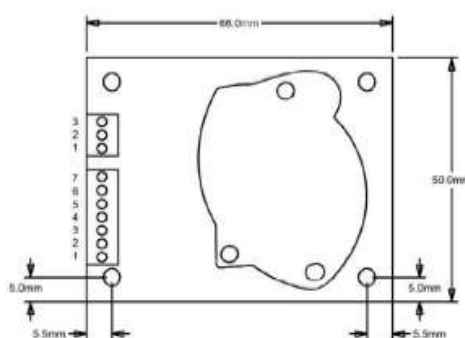
UART

Asynchronous serial, TTL Level, 38,400bps

Analog Voltage Output

VDC 0.5 ~ 4.5V (linear output)

Dimensions



Connections

Connector 1 (CN1)

Pin No.	Name	Description
1	VCC	Power
2	AVO	Analog Voltage Output
3	GND	Power Ground

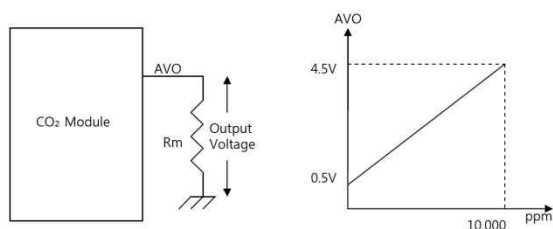
Connector2 (CN2)

Pin No.	Name	Description
1	NC	Used for Factory Calibration
2	TX	UART TX
3	RX	UART RX
4	GND	Power Ground
5	NC	Used for Factory Calibration
6	NC	Used for Factory Calibration
7	MC DL	MANUAL RECAL

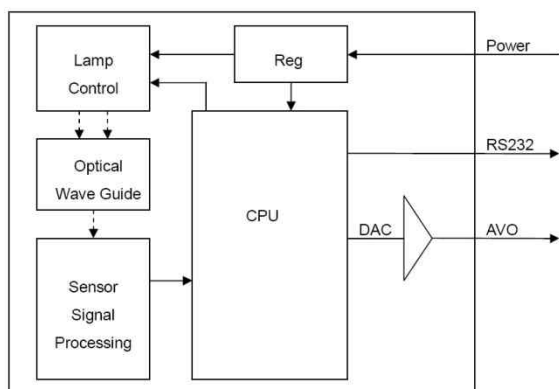
Output Description

Analog Voltage Output

Output Range	0.5 ~ 4.5V (linear output)
Output Resolution	12 bits
Minimum Road(Rm)	10 KΩ



Block Diagram



UART Protocol

Item	Description
Baud rate	38,400 BPS
Parity	No Parity
Number of Bits	8 Bits
Stop Bit	1 Bit

Data Transmit

Interval : 3 second

Handshake protocol : None (Data is transmitted to outer device periodically)

Data Format

B1	B2	B3	B4	BL	'p'	'p'	'm'	CR	LF
B1 ~ B4				4 byte CO2 density string					
BL				Blank: 0x20					
'ppm'				'ppm' string					
CR				Carriage return : 0x0D					
LF				Line feed : 0x0A					

EX) In case 1,255 ppm,

0x31 0x32 0x35 0x35 0x20 0x70 0x70 0x6D
0x0D 0x0A

'1255 ppm<CR> <LF>'

Operating mode (Jumper selection)

Jumper "D" : Dummy

Jumper "F" : 400ppm Air Recalibration mode

Jumper "Z" : 10 min Manual recalibration mode

*** Refer ACDL/MCDL user manual to find detail information.**