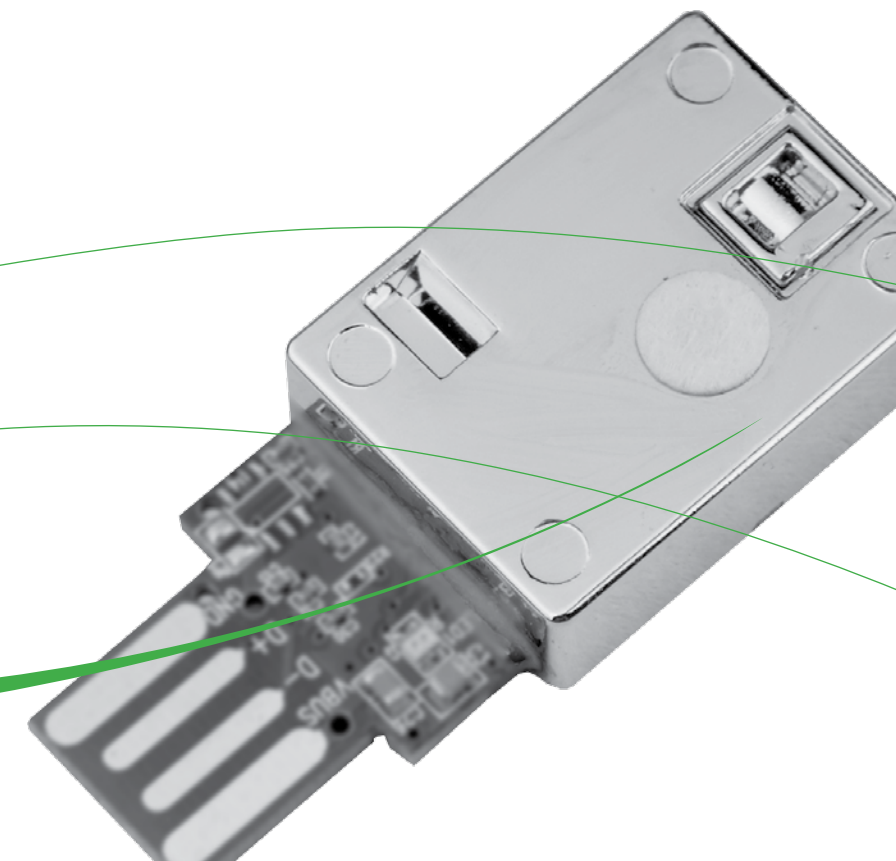


ELTSENSOR

Mega wave of overwhelming change
with the world's smallest NDIR sensors of ELT SENSOR

NDIR GAS SENSOR SPECIALIST

WITH NEW TECH &
RELIABLE PARTNER



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Greetings



ELT SENSOR is a gas sensor specialized company with world-class sensor technology, which develops and provides CO₂, CO, CH₄, C₂H₄ sensors of NDIR method with exclusive patented technology.

Nature is the source of life and symbolizes sustainability.

With motto of 'ELT Sensor create safer and comfortable Ubiquitous World', ELT has been gas-sensor developer with world-best sensor technologies.

ELT patented many core technologies fabricated into various NDIR (Non-Dispersive Infrared) gas sensors to detect gases such as CO₂, CO methane, propane, butane, ethylene etc with high accuracy and long term stability.

ELT keep the effort to provide the best sensor with most optimized solution so that our present and future customers could be leaders and create the better world in IoT, HVAC, Agricultural and many scientific fields.

Thank you.

ELT SENSOR CEO

Sensor Comparison and Selection Guide Table

1. CO2, CH4 Module

Application list : A : Software ACDL(Indoor ventilation,HVAC), G: Green house, L : Low power, LG: Lowpower+ Greenhouse
 ○ : Yes, ● : Order option, X : No

Types	Model	Sensing Gas	Supply Voltage	Size(mm)	Accuracy	Outputs						Subsidiaries with suffix	Application	Marked as	Pages
						Range (ppm)	UART Serial	I2C	PWM	Linear Voltage	Digital Alarm				
Module	S-110	CO2	5 VDC(4.75-5.25)	33x33x13.1	30ppm±3%	0~2K,3K,5K,10K	○	○	x	●	x	A	Residential, Agricultural	Small, Stable, popular	6
Module	S-110H	CO2	12 VDC(9.0-18.0)	39x32x18.5	50ppm±3%	0~2K,3K,5K,10K	○	○	●	●	x	A	Residential, Agricultural	Small, Stable, popular	7
Module	S-300 S-300-3V	CO2	5 VDC(4.75~5.25) 3 VDC(3.20~3.60)	33x33x13.1	30ppm±3%	0~2K,3K,5K,10K, 20K, 30K, 50K	○	○	●	●	○	A, G, L, LG, W	Residential, Agricultural, Weather	Battery, Low-Power popular	8
Module	S-300E	CO2	5 VDC(4.75~5.25)	33x33x13.1	50ppm±3%	0~2K,3K,5K,10K, 20K, 30K, 50K	○	○	x	●	x	A	Residential	Small, Economical, popular	8
Module	D-300 D-300-3V	CO2	5 VDC(4.75~5.25) 3 VDC(3.20~3.60)	33x33x13.1	30ppm±3%	0~2K,3K,5K,10K, 20K, 30K, 50K	○	○	●	●	○	G, L, LG	Residential, Agricultural	World Smallest Dual Beam, popular	9
Module	D-400	CO2	5 VDC(4.75~5.25) 3 VDC(3.20~3.60) 12VDC	69x50x23	30ppm±3%	0~2K,3K,5K,10K, 20K, 30K	○	○	●	●	x	G, L, LG	Residential, Agricultural	Dual Beam, High-end	9
Module	T-110 T-110-3V	CO2	5 VDC(4.75~5.25) 3 VDC(3.20~3.55)	19x29.3x8.5	50ppm±3%	0~2K,3K,5K,10K, 20K, 30K, 50K,100K	○	○	●	●	○	A, G, L, LG	Residential, Incubator	Battery, Smallest, popular	10
Module	D-400	CO2	5 VDC(4.75~5.25) 3 VDC(3.20~3.60) 12VDC	69x50x23	30ppm±3%	0~2K,3K,5K,10K, 20K, 30K	○	○	●	●	x	G, L, LG	Residential, Agricultural	Dual Beam, High-end	9
Module	B-530	CO2	12 VDC(9.0~15.0)	65x50x20	30ppm±3%	0~2K,3K,5K,10K	○	x	x	○	x	G	Residential, Agricultural	High stability	11
Module	TR-100B	CO2	24VDC/AC (12~36VDC/AC)	73x50x13	30ppm±5%	0~2K,3K,5K,10K	○	x	x	○	x	A,G	Residential, Agricultural	High stability	12
Module	TR-100BM-HT	CO2, Temp, R.H.	24VDC/AC (12~36VDC/AC)	73x50x19	30ppm±5%	0~2K,3K,5K,10K	○	x	x	x	x	A,G	Residential, Agricultural	High stability, RS-485 Modbus	12
Module	CH4-D3 CH4-D3-3V	CH4	5 VDC(4.75~5.25) 3 VDC(3.20~3.60)	33x33x13.1	±3% F. S.	0~50K 0~100 % LEL % (1 % unit)	○	○	●	●	○	L	Industrial Gas Leakage	Ethylene, Propane, Butane (available)	13

2. CO2, CO, CH4 Transmitters

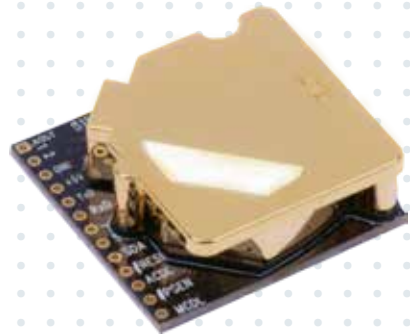
Types	Model	Sensing Gas	Supply Voltage	Size	Accuracy	Outputs							Application	Marked as	Pages
						Range(ppm)	Current 4~20mA 2~20mA	Voltage 0~10V 2~10V	Relay	Wiring	LCD	RS485 Modbus			
Transmitter	CD-100	CO2	24VDC/AC (12~36VDC/AC)	123x69x40	30ppm±5%	0~2K,3K,5K,10K	○	○	x	3-Wired 4-Wired	●	x	A,G, Residential, Agricultural	High stability,	14
Transmitter	CD-100M-HT	CO2, Temp, R.H.	24VDC/AC (12~36VDC/AC)	123x69x40	30ppm±5%	0~2K,3K,5K,10K	○	○	x	3-Wired 4-Wired	●	○	A,G, Residential, Agricultural	High stability,	14
Transmitter	CD-200	CO2	24VDC,AC (20%)	123x69x40	30ppm±5%	0~2K,3K,5K,10K	○	○	○	4-Wired	●	x	Residential	with Relay	15
Transmitter	CD-300(G)	CO2	24VDC(20%)	123x69x40	30ppm±5%	0~2K,3K,5K,10K, 20K, 30K, 50K, 70K	○	○	x	3-Wired	●	x	Residential, Agricultural, Incubator		15
Transmitter	AQM-100	CO2, Temp, Humidity, VOCs	12VDC	118x74x22	30ppm±5%	0~10K	x	x	x	x	x	○	Residential, Workplaces	RS485 modubus	16
Transmitter	COD-200 COD-200HC	CO	24VDC,AC (20%)	123x69x40	±10% FS ±15% FS	0~100, 250, 300, 500, 1000ppm	○	○	x	3-Wired, 4-Wired	●	○	Parking-Lot	RS485 modubus	17
Transmitter	CH4-CD300	CH4	24VDC (20%)	123x69x40	±3% F. S.	0~50K 0~100 % LEL (1 % Resolution)	○	○	x	3-Wired, 4-Wired	●	x	Industrial Gas Leakage		18
Transmitter	DUT-1000 DUT-2000	CO2	24VDC,AC (20%)	85x115x49	50ppm±3% 30ppm±3%	0~2K,3K,5K,10K, 20K, 30K, 50K, 100K	○	○	○	3-Wired, 4-Wired	●	○	Residential, Agricultural	Single/Dual-Beam, Duct Type	19

3. CO2, CO, VOCs Monitors

Types	Model	Sensing Gas	Supply Voltage	Size	Accuracy	Outputs					Application	Marked as	Pages	
						Range (ppm)	LCD	LED	Mini USB	RS485 Modbus				Sound Alarm
Monitors	MT-100	CO2	5VDC USB type	19x29.3x8.5	70ppm ±3%	0~10K, 50K, 100K	x	○	○	x	x	Smart phone, PC,USB-Bank, Car	World Smallest USB Monitor	20
Monitors	MB-350U	CO2, Temp, Humidity	12VDC	135x90x27.5	30ppm±3%	0~10K	○	○	○	●	○	Residential	Accurate, Popular	21
Monitors	MB-350U-V	CO2, Temp, Humidity, VOCs	12VDC	135x90x27.5	30ppm±3%	0~10K	○	○	○	●	○	Residential, Agricultural	Accurate, Popular	21
Monitors	MB-350U-C	CO2, Temp, Humidity, CO	12VDC	135x90x27.5	30ppm±3%	0~10K (CO2) 0~300 (CO)	○	○	○	●	○	Residential, Workplaces	High Accurate, Popular, Popular	21
Monitors	MB-350U-C-V	CO2, Temp, Humidity, CO, VOC	12VDC	135x90x27.5	30ppm±3%	0~10K (CO2) 0~300 (CO)	○	○	○	●	○	Residential, Workplaces	High Accurate, Popular, Popular	21

S-110

S-110 series are upgraded version from and compatible with S-100, it also has a side-13 holes-connector for customers thinner design. Its enforced persistency and stability with wider voltage tolerance are much welcomed by established customers. the applications include ventilation application from smart home wall pads, buildings, schools and offices to harsh application of stocks raising, cars and scientific projects, etc.



Sensing Method	NDIR (Non-dispersive Infrared)
Dimensions	33mm×33mm×13.1mm (10g)
CO₂ Measurement range	0 to 2,000/3,000/5,000/10,000ppm - Optional
Accuracy	±30ppm ±3%
Operating Temperature range	-10°C to 60°C
Storage Temperature	-30°C to 70°C
Operating Humidity range	0 to 95% RH (Non-condensing)
Input Power	5VDC (4.75 to 5.25V, 5.0V±5% Regulation)
Power consumption	Normal: 14mA Max: 230mA at lamp on peak
Response Time (90%)	90 sec
Sampling Interval	3 sec
Output	UART : 38,400BPS I2C : Slave Analog Voltage (option) : VDC 0.5 to 4.5V (linear output)

Ordering Code	Option List
S-110	Calibration: H/W based MCDL & H/W based ACDL, Output: UART, I2C, Analog Voltage
S-110A (ACDL S/W)	Periodic Automatic Calibration Software is added on S-110.

S-110H

S-110H series are upgraded version from and compatible with S-100H which operates with 12VDC. Its lowered height enables customers' thinner design. Its enforced persistency and stability with wider voltage tolerance are much welcomed by established customers. the applications include ventilation application from smart home wall pads, buildings, schools and offices to harsh application of livestock raising, cars and scientific projects, etc.



Sensing Method	NDIR (Non-dispersive Infrared)
Dimensions	39mm×32mm×18.5mm (10g)
CO₂ Measurement range	0 to 2,000/3,000/5,000/10,000ppm - Optional
Accuracy	±50ppm ±3%
Operating Temperature range	-10°C to 60°C
Storage Temperature	-30°C to 70°C
Operating Humidity range	0 to 95% RH (Non-condensing)
Input Power	12VDC (9 to 18VDC)
Power consumption	Normal: 13mA Max: 122mA at lamp on peak
Response Time (90%)	90 sec
Sampling Interval	3 sec
Output	UART- 38,400BPS, I2C : Slave, PWM (Option), Analog Voltage(Option) : VDC 0.5 to 4.5V (linear output)

Ordering Code	Option List
S-110H	Calibration: H/W based MCDL & H/W based ACDL, Output: UART, I2C, Analog Voltage
S-110HA (ACDL S/W)	Periodic Automatic Calibration Software is added on S-110H.

CO₂ Sensor Module

S-300, S-300-3V, S-300E

The S-300 series are one of the smallest sensors which they can be integrated into small size needed wall-pads and monitoring devices, Building ventilation controllers, Air-conditioners, Vehicle drowsiness Gas equipments. and so on. S-300L-3V is much favored by Low-Power consumption needed customers because of its 3.3Voltage operation and sleep mode support. S-300E is more economical model compatible with S-300, which is even compatible with S-110 except for filter location.



	S-300	S-300-3V	S-300E
Sensing Method	NDIR (Non-dispersive Infrared)		
Dimensions	33mm×33mm×13.1mm (10g)		
CO₂ Measurement range	0 to 2,000/3,000/5,000/10,000ppm (2%/3%/5% available) - Optional		0 to 2,000/3,000/5,000/10,000ppm - Optional
Accuracy	±30ppm ±3% of reading (±20ppm ±3% of reading, after 2days Automatic Calibration)		±50ppm ±3% (±30ppm ±3% of reading, after 2days Automatic Calibration)
Operating Temperature range	-10°C to 60°C		-5°C to 55°C
Storage Temperature	-30°C to 70°C		
Operating Humidity range	0 to 95% RH (Non-condensing)		
Input Power	5.0VDC ±5% Regulation	3.3VDC (3.2V to 3.6V)	5.0VDC ±5% Regulation
Power consumption	Normal: 19mA Max: 240mA / Sleep: 0.5mA	Normal: 12mA Typ: 180mA / Sleep: 0.3mA	Normal: 14mA Max: 230mA
Response Time (90%)	120 sec		
Sampling Interval	3 sec		
Output	UART: 38,400BPS, I2C : Slave, PWM(Optional), Analog Voltage (Option) : VDC 0.5 to 4.5V (linear output) Modbus Support (Option)		UART: 38,400BPS, I2C : Slave, Analog Voltage (Option) : VDC 0.5 to 4.5V (linear output)

Ordering Code	Option List
S-300, S-300-3V	UART, I2C, 1st+2nd ALARM, AVO(PWMoption), 10'MCDL, ACDL, 13+14Connectors
S-300L, S-300-3V (Low Power)	Sleep mode is added on S-300 and S-300-3V for Lowpower, which consume <0.3mA
S-300G, S-300G-3V (99% Humidity)	Resistance up to 99% Humidity is added on S-300 and S-300-3V for Agricultural Green House
S-300LG, S-300LG-3V	Sleep mode and 99% Humidity for Low power consumption needed Applications.
S-300E	H/W based MCDL & H/W based ACDL are supportive.
S-300A, S-300A-3V, S-300EA (ACDL S/W)	Software based ACDL is installed only for Indoor Residential Ventilation Application.

CO₂ Sensor Module- Dual Type

D-300, D-300-3V, D-400

D-300 series are the world smallest Dual CO₂ sensor module. Their persistent stability and accuracy are much favored in warehouses, greenhouses, hospitals, etc., besides the small size and consistent accuracy through the life cycle. D-300L-3V is much favored by customers whose application operate with 3.3V input and sleep mode support. D-400 series are robust sensors so that they endure harsh environment besides good long-term persistancy, of which 3.3V, 5V, 12V operation models are available.



	D-300	D-300-3V	D-400
Sensing Method	NDIR (Non-dispersive Infrared) / Dual beam type		
Dimensions	33mm×33mm×13.1mm		69mm×50mm×23mm
CO₂ Measurement range	0 to 2,000/3,000/5,000/10,000ppm (2%/3%/5% models are available) - Optional		0 to 2,000/3,000/5,000/10,000ppm (2%/3% models are available) - Optional
Accuracy	±30ppm ±3% of reading		
Operating Temperature range	-10°C to 60°C		
Storage Temperature	-30°C to 70°C		
Operating Humidity range	0 to 95% RH (Non-condensing) / For GreenHouse: 0 to 99% RH(Non-condensing)		
Input Power	5.0VDC ±5%	3.3VDC (3.2V to 3.6V)	5.0VDC, 3.3VDC(option), 12VDC (option)
Power consumption	Normal : 25mA Max: 250mA Sleep: 0.5mA	Normal: 12mA Max: 180mA Sleep: 0.3mA	
Response Time (90%)	90 sec		
Sampling Interval	3 sec		
Output	UART: 38,400BPS (9,600/19,200 bps is settable with command), I2C : Slave PWM (Option), Analog Voltage (Option) : VDC 0.5 to 4.5V (linear output) / Modbus Support (Option)		

Ordering Code	Option List
D-300, D-300-3V	UART, I2C, 1st +2nd ALARM, AVO(PWM option), '0/400' MCDL
D-300L, D-300L-3V (Low Power)	Sleep mode is added on D-300 and D-300-3V for Low power which consume <0.3mA
D-300G, D-300G-3V(99% Humidity)	Resistance up to 99% Humidity is added on D-300 and D-300-3V for Agricultural Green House.
D-300LG, D-300LG-3V	Sleep mode and 99% Humidity for Low power consumption needed Applications.
D-400, D-400-3V	UART, I2C, 1st +2nd ALARM, AVO(PWM option), '0/400' MCDL
D-400L, D-400L-3V	Sleep mode is added on D-400 for Low power, which consume <0.3mA
D-400G, D-400G-3V(99% Humidity)	Resistance up to 99% Humidity is added on D-400 for Agricultural Green House.
D-400LG, D-400LG-3V	Sleep mode and 99% Humidity for Low power consumption needed Applications.
D-400(LG)-12V	12V Input voltage support.

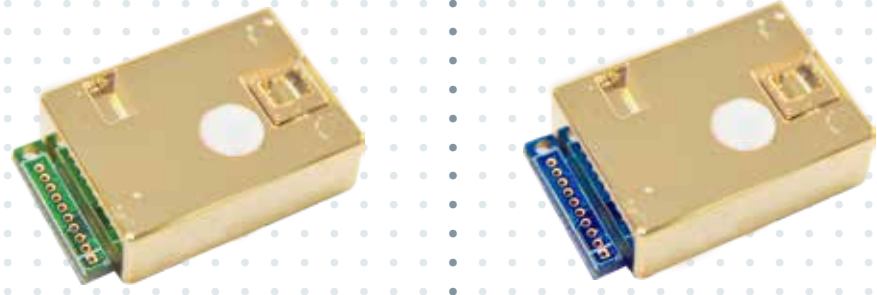
CO₂ Sensor Module- world smallest

T-110, T-110-3V

T-110 series is the world smallest space locatable CO₂ sensor modules.

Its convenient BTB connection and easier management with ACDL function are much favored by customers in Residential HVAC Applications.

T-110L-3V is much favored by customers whose application needs 3.3Voltage input and sleep mode support so on.



	T-110	T-110-3V
Sensing Method	NDIR (Non-dispersive Infrared)	
Dimensions	19mmx29.3mmx8.5mm (5g)	
CO₂ Measurement range	400 to 2,000/3,000/5,000/10,000ppm (2%/3%/5%/10% models are available) – Optional	
Accuracy	±50ppm±3% of reading (after ACDL)	
Operating Temperature range	0°C to 50°C	
Storage Temperature	-30°C to 70°C	
Operating Humidity range	0 to 95% RH (Non-condensing)	
Input Power	5.0VDC ± 5%	3.3VDC (3.2V to 3.55V)
Power consumption	Normal : 20mA Max: 200mA Sleep: 0.5mA	Normal: 12mA Max: 180mA Sleep: 0.2mA
Response Time (90%)	90 sec	
Sampling Interval	5 sec	
Output	UART : 38,400BPS, I2C : Slave, PWM (Option), Analog Voltage(Option) : VDC 0.5 to 4.5V (linear output) / Modbus Support (Option)	

Ordering Code	Option List
T-110, T-110-3V	UART,I2C, 1st +2nd ALARM, AVO(PWM option), 10' MCDL, ACDL, 10pin-Connector
T-110L, T-110L-3V(Low Power)	Sleep mode is added on T-110 and T-110-3V for Low power, which consume < 0.2mA
T-110G, T-110G-3V(99%Humidity)	Resistance up to 99% Humidity is added on T-110 and T-110-3V for Application of bathroom.
T-110LG, T-110LG-3V	Sleep mode and 99% Humidity resistance is for low power consumptionin in bathroom.
T-110A, T-110A-3V	Software based ACDL is installed only for Indoor Residential Ventilation Application.

CO₂ Sensor Module- 12V

B-530 (G)

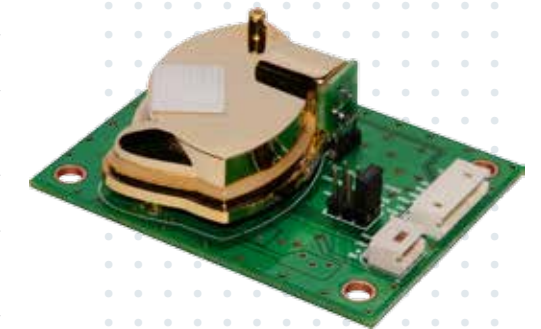
B-530(G) series are designed to measure CO₂ level in the air. They are

maintenance free, low cost and easily integrated into other equipments.

B-530 simultaneously transmits calibrated digital and analog output

signal. Its compact size and low power consumption makes easy to be

integrated into a broad range of equipment.



Sensing Method	NDIR (Non-dispersive Infrared)
Dimensions	65mm x 50mm x 20mm (25g)
CO₂ Measurement range	0 to 2,000/3,000/5,000/10,000ppm (2%/3%/5% available) – Optional
Accuracy	±30ppm ±3%
Operating Temperature range	0°C to 50°C
Storage Temperature	-30°C to 70°C
Operating Humidity range	Normal: 0 to 95% RH (Non-condensing) / For GreenHouse: 0 to 99% RH
Input Power	12VDC (9 to 15VDC, ±2% Regulation)
Power consumption	Normal : 33mA, Max : 230mA
Response Time (90%)	120 sec
Sampling Interval	3 sec
Output	UART: 38,400BPS Analog Voltage : VDC 0.5 to 4.5V (linear output)

Ordering Code	Option List
B-530	UART, Analog Voltage output
B-530G (99% Humidity)	Resistance up to 99% Humidity is added on B-530, for Application of Green House

TR-100B, TR-100BM-HT, TR-100B-U-HT



TR-100B



TR-100BM-HT

TR-100B series operate with 12V or 24V power supply, Combo-board models of CO₂ Sensor, Temperature, Humidity with Analog, U-ART or RS-485 mod-bus is selectable by option. 3 wire or 4 wire type is selectable depending on site condition.

Sensing Method	NDIR (Non-dispersive Infrared)
Dimensions	73mm x 50mm x 13mm (1 board : Sensor with mainboard)
CO₂ Measurement range	0 to 2,000/3,000/5,000/10,000ppm, - Jumper position change
Accuracy	±30ppm ±5%
Operating Temperature range	-10°C to 60°C (-40°C ~ 60°C optional)
Storage Temperature	-30°C to 70°C (-40°C ~ 70°C optional)
Operating Humidity range	"0 to 95% RH (Non-condensing), 0 to 99% RH (Non-condensing, green house)"
Input Power	"3-wire: 24VAC, 50/60Hz / 4-wire : 24VDC (12V ~ 36V) - Back Side Block Front Side: 12VDC - Front side 3 pin connector"
Response Time (90%)	120 sec
Sampling Interval	3 sec
Output	"① 0/4 ~ 20mA & 0/2 ~ 10VDC - Back Terminal Block or Front 3pin connector (Jumper selectable -Voltage output or current output) ② UART output : S30-CO2(HT)-U, Front 3pin & 7pin connector. ③ RS-485 Modbus : S30-CO2(HT)-M, Back Terminal Block "
"Other options for Combo board. (Temperature, Humidity)"	① Temperature Sensor Specification 0°C to 65°C ±0.4 °C (Optional : -20°C to 0°C ±0.7 °C) ② Humidity Sensor Specification Accuracy 10% to 90% ±4% RH (Optional : under 10%, over 90% ±7% to ±8% RH)

Ordering Code	Option List
TR-100B	CO ₂ , Analog(4~20mA, 0~10V)
TR-100B-U-HT	CO ₂ (+Humidity+Temperature), RS-485 modbus
TR-100BM-HT	CO ₂ (+Humidity+Temperature), UART output
'G' option	Resistable to 99% Humidity (Non-Condensing condition)

CH₄-D3, CH₄-D3-3V

CH-D3 series are one of the smallest NDIR CH₄(Methane)&C₂H₄(Ethylene)&C₃H₈(Propane)&C₄H₁₀(Butane) gas sensor module with dual beam.

The output can selectable LEL % or ppm. It also adapted MCDL and ACDL calibration function to manintance free. Specially the CH₄-D3-3V is 3.3VDC input power model to save power consumption.



	CH ₄ -D3	CH ₄ -D3-3V
Sensing Method	NDIR (Non-dispersive Infrared) / Dual beam Type	
Dimensions	33mm×33mm×13.1mm (10g)	
CH₄ Measurement range	0 to 5% v/v (50,000ppm) output - 500ppm unit or LEL 0~ 100% - 1% LEL resolution / C ₂ H ₄ LEL 100%	
Accuracy	±3% F. S.	
Operating Temperature range	-10°C to 50°C	
Storage Temperature	-30°C to 70°C	
Operating Humidity range	0 to 95% RH (Non-condensing)	
Input Power	5.0VDC ± 5%	3.3VDC (3.2V to 3.6V)
Power consumption	Normal :12mA Max: 190mA Sleep: 0.3mA	
Response Time (90%)	70 sec	
Sampling Interval	3 sec	
Output	UART: 38,400BPS (9,600/19,200 bps is settable with command), I2C: Slave PWM (Option), Analog Voltage(Option) : VDC 0.5 to 4.5V (linear output)	

Ordering Code	Option List
CH ₄ /C ₂ H ₄ /C ₃ H ₈ /C ₄ H ₁₀ -D3(-3V)	UART, I2C, ALARM, (AVO or PWM is optional), ACDL, '0' ppm MCDL
CH ₄ /C ₂ H ₄ /C ₃ H ₈ /C ₄ H ₁₀ -D3L(-3V)	Sleep mode is added on CH-D3 for Low power, which consume < 0.3mA

CO₂ Sensor Transmitter

CD-100, CD-100M, CD-100M-HT

CD-100 series are CO₂ Sensor separated One-Board Transmitter, which give 0-20mA / 4-20mA Current or 0-10V / 2-10V Voltage with Jumper selection. 'HT' model has the temperature and humidity sensors.



Sensing Method	NDIR (Non-dispersive Infrared)
Dimensions	123mm x 69mm x 40mm (115g) (1 board : Sensor with mainboard)
CO₂ Measurement range	"0 to 2,000/3,000/5,000/10,000ppm. - Jumper position change (20K, 30K, 50Kppm are optional available)"
Accuracy	±30ppm ±5%
Operating Temperature range	-10°C to 60°C (-40°C ~ 60°C optional)
Storage Temperature	-30°C to 70°C (-40°C ~ 70°C optional)
Operating Humidity range	"0 to 95% RH (Non-condensing), 'G': 0 to 99% RH (Non-condensing, green house)"
Input Power	"24VAC (12V ~ 36V), 50/60Hz - 4 Wire 24VDC (12V ~ 36V), 50/60Hz - 3 Wire"
Response Time (90%)	120 sec
Sampling Interval	3 sec
Output	"① 4 ~ 20mA & 2 ~ 10VDC ② 0 ~ 10VDC & 0 ~ 20mA (Jumper selectable -Voltage output or currant output) ③ Modbus : CD-100M, CD-100M-HT model"
Other options (Temperature, Humidity)	① Temperature Sensor Specification 0°C to 65°C ±0.4 °C (Optional : -20°C to 0°C ±0.7 °C) ② Humidity Sensor Specification Accuracy 10% to 90% ±4% RH (Optional : under 10%, over 90% ±7% to ±8% RH)
Other options (LCD Display)	with LCD display or without LCD display

Ordering Code	Option List
CD-100-3W (G)	without LCD, 3 Wired, CO2
CD-100L-3W (G)	with LCD, 3 Wired, CO2
CD-100-4W (G)	without LCD, 4 Wired, CO2
CD-100L-4W(G)	with LCD, 4 Wired, CO2
CD-100M (G)	without LCD, 4 Wired, RS-485 modbus, CO2
CD-100ML (G)	with LCD, 4 Wired, RS-485 modbus, CO2
CD-100M-HT (G)	without LCD, 4 Wired, RS-485 modbus, CO2, Temperature, Humidity
CD-100ML-HT (G)	with LCD, 4 Wired, RS-485 modbus, CO2, Temperature, Humidity
'G' option	Resistable to 99% Humidity (Non-Condensing condition)
'ZB' option	CO2 Operating Temperature reange : -40°C ~ 80°C

CO₂ Sensor Transmitter

CD-200, CD-300

CD-200/300 series are CO₂ Sensor separated Two-Board Transmitter, which give 0-20mA / 4-20mA Current or 0-10V / 2-10V Voltage with Jumper selection. CD-200 is 4+ 2 wired (2 Power lines, 2 signal lines and 2 relay lines) while as CD-300 is 3 wired (2 PWR lines, 1 Common GND line).



	CD-200	CD-300
Sensing Method	NDIR (Non-dispersive Infrared)	
Dimensions	123mm x 69mm x 40mm (115g)	
CO₂ Measurement range	0 to 2,000/3,000/5,000/10,000ppm - Optional	0 to 2,000/3,000/5,000/10,000ppm - Jumper selectable (20K, 30K, 50K, 70K (optional))
Accuracy	±30ppm ±5%	
Operating Temperature range	-10°C to 60°C	
Storage Temperature	-30°C to 70°C	
Operating Humidity range	0 to 95% RH (Non-condensing)	
Input Power	24VAC, 24VDC ± 20%, 50/60Hz - 4 Wire	24VDC ± 20%, 50/60Hz - 3 Wire
Response Time (90%)	150 sec	
Sampling Interval	3 sec	
Output	① 4 ~ 20mA & 2 ~ 10VDC ② 0 ~ 10VDC & 0 ~ 20mA (Jumper selectable -Voltage output or currant output)	
Other options 1 (LCD Display)	with LCD display or without LCD display	
Other options 1 (Relay)	Contract Rating : 1A/120VAC or 1A/24VDC Configuration: SPST, Normally Open relay Relay Activated : Greater than 1,000ppm Relay Deactivated : Less than 900ppm	without Relay

Ordering Code	Option List
CD-200, CD-300	without LCD
CD-200L, CD-300L	with LCD
CD-300G (99% Humidity)	Resistance up to 99% Humidity is added on CD-300 for Agricultural Green House.etc.
CD-300LG (99% Humidity)	Resistance up to 99% Humidity is added on CD-300L, for Application of Green House
CD-300G-D3 (99% Humidity)	Resistance up to 99% Humidity is added on D-300(without LCD), for Application of Green House
CD-300LG-D3 (99% Humidity)	Resistance up to 99% Humidity is added on D-300 with LCD, for Application of Green House

AQM-100

The AQM-100 measures the indoor air quality (IAQ). Installed in the living room or in the bed room, It measures the level of CO₂, Temperature, Humidity, VOCs to maintain pleasant air quality. This compact size transmitter has sensitive 4 sensors (CO₂, Temperature, Humidity, VOCs) and RS-485 Mod-Bus protocol is favored by customers.



Sensing Method	CO ₂ - NDIR (Non-dispersive Infrared) Single Type VOCs- Semiconductor Type Humidity, Temperature
Dimensions	118mm x 74mm x 22mm (115g)
CO₂ Measurement range	0 to 10,000ppm
Accuracy	±30ppm ±5%
Operating Temperature range	0°C to 50°C
Storage Temperature	-20°C to 60°C
Operating Humidity range	0 to 95% RH (Non-condensing)
Input Power	12VDC
Response Time (90%)	150 sec
Sampling Interval	3 sec
Output	RS232 (9600 BPS) RS485 (9600 BPS) (Modbus is option)

Ordering Code	Option List
AQM-100	RS232, RS485
AQM-100M	RS-485 Modbus

COD-200, COD-200-HC

COD-200 is the CO(Carbon monoxide) Transmitter which detect CO gas in the air and send signal to Host, alarming people about hazardous CO gas at parking lots, Industrial working places and Buildings. COD-200-HC gives wider reading range up to 1,000ppm with better accuracy and stability as well.



	COD-200	COD-200-HC
Sensing Method	Semiconductor Type	
Dimensions	123mm x 69mm x 40mm (115g)	
CO Measurement range	0 to 250 ppm (0 to 100/300 ppm is option)	0 to 500 ppm (0 to 1,000 ppm is option)
Accuracy	At 20°C, 50%RH after 4days since power-on. 0~100ppm : ±10% FS 100~250/300 : ±15% FS	At 20°C, 50%RH after 4days since power-on. 0~100ppm : ±10% FS 100~500/1,000 : ±15% FS
Operating Temperature range	-10°C to 50°C	
Storage Temperature	-30°C to 60°C	
Operating Humidity range	10 to 90% RH (Non-condensing)	
Input Power	24VDC (3-Wired) or 24VAC/24VDC (4-Wired)	
Response Time (90%)	< 1 minutes	
Sampling Interval	every 30 sec	
Output	4 ~ 20mA & 2 ~ 10VDC, RS485 Modbus (Optional)	
Other options 1 (LCD Display)	with LCD display or without LCD display	

Ordering Code	Option List
COD-200, COD-200-HC	without LCD
COD-200L, COD-200L-HC	with LCD
COD-200M, COD-200M-HC	with Modbus, without LCD
COD-200ML, COD-200ML-HC	with Modbus, LCD

CH4-CD300

CH4-CD300 is Methane gas Transmitter which detect Metane gas in the air and send voltage or current signals.

Either 3 wired (2 PWR lines, 1 Common GND line) or 4 wire configuration is selectable depending on installation site configuration.

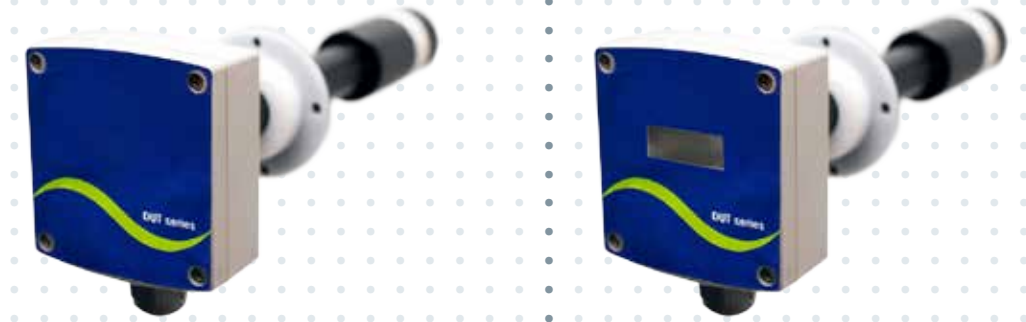


Sensing Method	NDIR (Non-dispersive Infrared) / Dual Type
Dimensions	123mm x 69mm x 40mm (115g)
CH₄ Measurement range	LCD Display - ppm display or LEL % display is chosed by ordering 0 to 50,000ppm(500ppm unit) , or 0% ~ 100 % LEL % (1 % unit)
Accuracy	± 3% of F. S.
Operating Temperature range	-10°C to 50°C
Storage Temperature	-30°C to 70°C
Operating Humidity range	0 to 95% RH (Non-condensing)
Input Power	24VDC ± 20%, 50/60Hz - 3 Wire
Response Time (90%)	120 sec
Sampling Interval	3 sec
Output	① 4 ~ 20mA & 2 ~ 10VDC ② 0 ~ 10VDC & 0 ~ 20mA (Jumper selectable -Voltage output or currant output)
Other options 1 (LCD Display)	with LCD display or without LCD display

Ordering Code	Option List
CH4-CD300	without LCD
CH4-CD300L	with LCD

DUT-1000 (HT), DUT-2000(HT)

DUT-1000, 2000 are Duct type Transmitter models with single / Dual Beam CO₂ Sensor operating with 3 wire / 4 wire & Relay, they give 4-20mA Current output / 2-10V Voltage output with jumper selection and support RS485 ModBus protocol.



	DUT-1000	DUT-2000
Sensing Method	NDIR (Non-dispersive Infrared)	NDIR (Non-dispersive Infrared) / Dual Type
Dimensions	Mainboard Box : 85mm x 115mm x 49mm, Duct tube : 290mm x 26Ø (T-110 inside)	Mainboard Box : 85mm x 115mm x 49mm, Duct tube : 290mm x 50 Ø (D-300 inside)
CO₂ Measurement range	0 to 2,000ppm(3K, 5K, 10K ppm are available) (20K, 30K, 50K, 100K optional)	0 to 2,000ppm(3K, 5K, 10Kppm are available) (20K, 30K, 50K optional)
Accuracy	±50ppm ±3% of Reading (ACDL operation)	±30ppm ±3% of Reading
Operating Temperature range	0°C to 50°C	-10°C to 60°C
Storage Temperature	-30°C to 70°C	
Operating Humidity range	0 to 95% RH (Non-condensing) - Indoor, Building	0 to 99% RH (Non-condensing), Green house
Input Power	24VAC, 24VDC ± 20%, 50/60Hz - 3 Wire, 4 Wire (order selection)	
Response Time (90%)	150 sec	120 sec
Sampling Interval	5 sec	3 sec
Output	① 4~20mA&2~10VDC ② RS485 Modbus (Jumper selectable-Voltage output or currant output) ③ Relay (1A : 120V AC, or 24V DC)	
Other options 1 (LCD Display)	with LCD display or without LCD display	
Temperature sensor	0°C to 65°C ±0.4 °C (Optional : -20°C to 0°C ±0.7 °C)	
Humidity Sensor	Accuracy 10% to 90% ±4% RH (Optional : under 10%, over 90% ±7% to ±8% RH)	

Ordering Code	Option List
DUT-1000-3W	without LCD, 3 wired
DUT-1000-4W	Without LCD, 4 wired
DUT-1000L-3W	with LCD, 3 wired
DUT-1000L-4W	With LCD, 4 wired
DUT-2000-3W	without LCD, 3 wired, for Agricultural Green house
DUT-2000-4W	Without LCD, 4 wired, for Agricultural Green house
DUT-2000L-3W	with LCD, 3 wired, for Agricultural Green house
DUT-2000L-4W	With LCD, 4 wired, for Agricultural Green house

MT-100

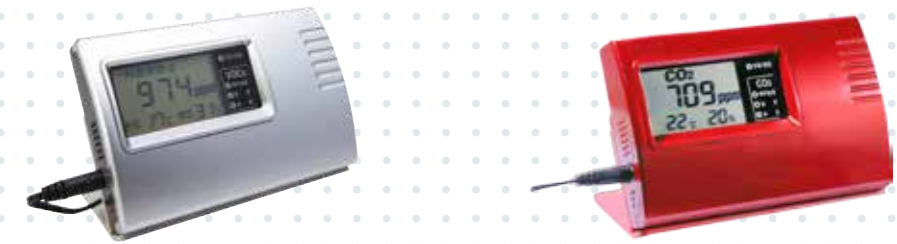
MT-100 series is world's smallest CO₂ Monitor connectable to PC or Mobile phone Cars through USB Interface.



Sensing Method	NDIR (Non-dispersive Infrared) / USB Type
Dimensions	19mmx29.3mmx8.5mm (5g)
CO₂ Measurement range	0 to 10,000ppm (5%/10% models are available) - Optional
Accuracy	±70ppm ±3% of reading for 0~10,000 ppm
Operating Temperature range	0°C to 50°C
Storage Temperature	-30°C to 70°C
Operating Humidity range	0 to 95% RH (Non-condensing)
Input Power	3.5VDC ~ 5.2VDC (USB)
Power consumption	Normal : 20mA Max: 200mA Sleep: 0.5mA
Response Time (90%)	120 sec
Sampling Interval	5 sec
Output	USB to PC, Notebook, Mini USB to Smart phone
Ordering Code	Option List
MT-100	USB CO ₂ Module

MB-350U, MB-350U-V, MB-350U-C

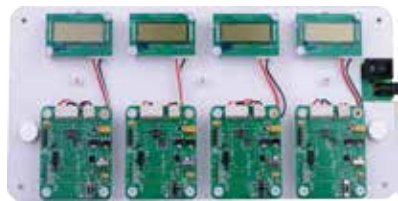
MB-350U-V is the USB Monitor type model base on B series CO₂ sensor, which shows CO₂ level on the screen. It can be easily monitored for Temperature, humidity and VOCs not only CO₂ level (option) so can be applied to the places where are needed to check the air quality like schools, public offices, hospitals and so on.



	MB-350U	MB-350U-V	MB-350U-C / MB-350U-C-V
Sensing Method	CO ₂ - NDIR (Non-dispersive Infrared) Single Type Humidity, Temperature	CO ₂ - NDIR (Non-dispersive Infrared) Single Type VOCs- Semiconductor Type Humidity, Temperature	CO ₂ - NDIR (Non-dispersive Infrared) Single Type CO- Semiconductor Type Humidity, Temperature
Dimensions	135mm x 90mm x 27.5mm		
CO₂ Measurement range	0 to 10,000 ppm		
CO₂ Accuracy	±30ppm ±3%		
Operating Temperature range	-10°C to 60°C		
Storage Temperature	-20°C to 70°C		
Operating Humidity range	0 to 95% (±5%,RH)		
Input Power	DC 12V/1A AC/DC adaptor		
CO₂Step Response Time(90%)	150 sec		
CO₂ Sampling Interval	3 sec		
CO₂ Output	LCD display, LED display (Very high / High / Normal), Alarm: Melody warning USB output	LCD display, Alarm : Melody warning, USB output	LCD display, Alarm : Melody warning, USB output
VOCs Output	without VOC	Very high / High / Normal LED indicate	without VOC
CO Output	without CO	without CO	Very high / High / Normal LED indicate LCD display
Ordering Code	Option List		
MB-350	without USB connection(CO ₂ , Temp., R.H.)		
MB-350V	MB-350U-V without USB connection		
MB-350U-485	RS-485 Modbus support is added on MB-350U		
MB-350U-V-485	RS-485 Modbus support is added on MB-350U-V		
MB-350U-C-485	RS-485 Modbus support is added on MB-350U-C		
MB-350U-C-V-485	RS-485 Modbus support is added on MB-350U-C-V		

TRB-100ST

TRB Series enable engineers or customers to Test and Recalibrate sensors as needed in customer side, saving time and cost of returning sensors to Manufacturer.



Supporting products	S-Type (S-110, S-300E, S-300, S-300-3V, D-300, D-300-3V, CH4-D3) T-Type (T-110, T-110-3V, MT-100)
Usage	It can be used as incoming test, long-term test tool for various S-series and T-series sensors. Test with LCD Display. Re-Calibration is executable with switch setting.
Merit	Customers can easily check the accuracy of 4 different sensors through LCD display. It save time and cost by customers' enabling on-site sensor check and re-calibration.
Recalibration Function	MCDL (Factory set status or manually updated status in customer side) or ACDL (Periodic Auto-Recalibration) is executable with switch setting as needed.
Power Supply	Input: 100~240V 50Hz/60Hz, 1.5A. Output : 12V 3A (AC/DC Adapter is provided as default)
Ordering Code	Option List
TRB-100SH	S-100H (12V) series is included instead of T-series of TRB-100ST.

EK-100SL, EK-100TL

EK-100 is designed for users to test, do Automatic / Manual Calibration with PC display through USB connection.

It enables even change or upgrade the mpu program of sensor in customer side if needed.



EK-100SL



EK-100TL

Supporting products	EK-100SL : S-110, S-300E, S-300, S-300-3V, D-300, D-300-3V EK-100TL : T-110, T-110-3V, MT-100
Measuring Range Change	The default concentration setting can be changed to 2,000 / 3,000 / 5,000 / 10,000ppm, 2%/3%/5%/10% as needed.
Operating Mode Change	MCDL (Factory set status or updated status in customer side) or ACDL (Periodic Auto-Recalibration) can be upgradable.
Power Supply	Input : 100~240V 50Hz/60Hz 0.7A, Output : 12V 1.5A (AC/DC Adapter is provided as default)

CMB-10

CMB-10 is designed for users to test and calibration the sensor modules with standard gas, which enable customer do Manual Calibration(MCDL) to make high accuracy with TRB-100 or EK-100 in this chamber.



Supporting products	Chamber volume : 10 Liter Materials : Acryl, 10mm thickness Size : 350mm x 200mm x 180mm(W, L, H)
Components	chamber, inlet valve, gas flowmeter, inside pressure guage, outlet valve, gas tube etc.
Purpose	Calibration or Test for sensors
Power Supply	Input : 12V 3A (AC/DC Adapter is provided as default)

Domestic and International Major Patents

Domestic	International	Design
7 Registered	10 Registered	8

Domestic Major Patents

	Patent Title	Number	Reg. Year
1	Optical Gas Sensor	494103	2005
2	Gas Cell with Two Parabolic Mirrors and Its Production	574615	2006
3	NDIR Gas Sensor	574616	2006
4	Optical Cavity for Multi-Gas Sensors	979991	2010
5	Optical Cavity for NDIR Gs Sensors	1026206	2011
6	NDIR Gas sensor with two independent optical path	1088360	2011
7	Total room controller for indoor air control system	822384	2011

International Patents

	Patent Title	Reg. national
1	Optical Gas Sensor	USA, JAPAN, CHINA
2	GAS CELL USING TWO PARABOLIC CONCAVE MIRRORS AND METHOD OF PRODUCING GAS SENSOR USING THE SAME	JAPAN, CHINA, EUROPE
3	Optical cavity for gas Sensor	USA, JAPAN, CHINA