

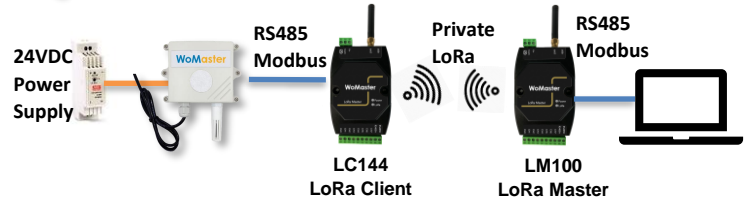
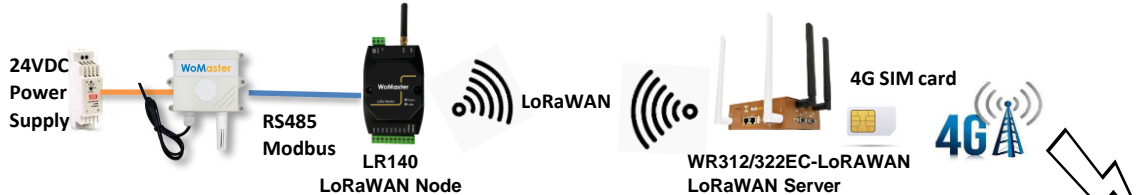
## Outdoor Air Quality Sensor

- Outdoor Protective Design against direct ultraviolet radiation
- Well ventilated for measure changes in external detection parameters
- Single or multiple parameters in small shutter, small size, light weight and easy to install
- 2-Wire RS485 Modbus output to connect to optional cellular gateway WR222 or LC144/LR140 LoRa/LoRaWAN nodes
- 24(10-30) VDC Power Input and Real-time measurement
- 4~20mA or 0~10V Output by Special Order



Model		Measurement	Accuracy	Dimension
ES101-CO-2000	Outdoor CO Carbon Monoxide Sensor	0~2000ppm	±3%, 1ppm	110x85x44(mm)
ES101-O3-10	Outdoor Ozon O <sup>3</sup> Sensor	0-10ppm	±6%, 0.01ppm	110x85x44(mm)
ES101-CO2-5000	Outdoor CO <sup>2</sup> Carbon Dioxide Sensor	0-5000ppm	±40ppm +3%FS	110x85x44(mm)
ES101-CO2-HC	Outdoor CO <sup>2</sup> Carbon Dioxide Sensor	0 ~ 100%Vol	±3%FS	110x85x44(mm)
ES101-O2	Outdoor Oxygen O <sup>2</sup> Sensor	0~25%Vol	±3%FS, 0.1%VOL	110x85x44(mm)
ES101-PM	Outdoor Air Monitor Quality Sensor (PM2.5, PM10 )	0~1000ug/m3	1ug/m3, 10%	110x85x44(mm)
ES101-TVOC	Outdoor TVOC (Total Volatile Organic Compounds) Sensor	0~60000ppb	1ppb±8%FS±125ppb	110x85x44(mm)
ES101-NO2-2000	Outdoor Nitrogen Dioxide NO <sup>2</sup> Sensor	0-2000ppm	0.1ppm	110x85x44(mm)
ES101-SO2-2000	Outdoor Sulphur Dioxide SO <sup>2</sup> Sensor	0-2000ppm	1ppm +3%FS	110x85x44(mm)
ES101-NH3-500	Outdoor Ammonia NH <sup>3</sup> Sensor	0-500ppm	1ppm±20%	110x85x44(mm)
ES101-H2S-100	Outdoor Hydrogen Sulfide H <sub>2</sub> S Sensor	0-100ppm	1ppm +3%FS	110x85x44(mm)
ES101-H2-1000	Outdoor Hydrogen H <sub>2</sub> Sensor	0-1000ppm	1ppm +3%FS	110x85x44(mm)
ES101-CH4	Outdoor Methane CH <sub>4</sub> Sensor	0-100% Lower Explosive Limit (LEL)	1% LEL +5%FS	110x85x44(mm)

**1) Sensor Connect to PC/HMI/PLC**

**2) Sensor Connect to Private LoRa to PC/HMI/PLC**

**3) Sensor Connect to LoRaWAN Gateway**

**4) Sensor Connect to LTE NB-IoT Gateway SCB111-485-NB**

**5) Sensor Connect to WiFi + LTE Gateway WR222-WLAN+LTE**


**Optional Accessory**

Item	
<b>MDR-40-24</b>	Din-Rail Power Supply INPUT:85-264VAC, 120-370VDC, OUTPUT: 24VDC/1.7A, -20 ~ +70°C
<b>ThingsMaster OTA-5GW</b>	ThingsMaster OTA for 5 gateways, One Year License
<b>LM100</b>	LoRa Master / Modbus RTU Client (Must work with LC144) (with LoRa antennas)
<b>LC144</b>	LoRa End-Node, 8CH AIO, 1 Modbus RTU 485 2-wire, 2 x 0~10V input, 2 x 4~20mA input, 1 x 0~10V Output, Open Collect (O.C.), 1 x 4~20mA Output, 1 x PWM Output (0~5V), 1 x PWM (0~10V), Open Collect (O.C.) Type, 1 x SMA /LoRa Antenna (Must work with LM100 or LM200)
<b>LR140</b>	LoRa WAN End-Node, 4CH AI, 1 Modbus RTU 485 Host, 1 x RS485 Host, 2-wire, 1 x SMA /LoRa Antenna Connector (with LoRa antennas)
<b>WR322GR-EC-LTE-LORAWAN</b>	Industrial LoRaWAN Gateway, 2GbE+2COM, LTE 2SIM, (with LTE and LoRa antennas)(Must work with LR140)
<b>WR312GR-EC-LORAWAN</b>	Industrial LoRaWAN Gateway, 2GbE+2COM (Must work with LR140)
<b>WR222-WLAN+LTE</b>	Industrial Wireless IIoT Field Router, 2FE+1COM, SD, 802.11b/g/n WLAN, 1SIM (with WiFi, LTE Antennas)
<b>SCB111-485-NB-DC</b>	Outdoor Modbus RS485 to NB-IoT / LTE Cat M1 Gateway

# ES101CO-2000

## Outdoor CO Carbon Monoxide Sensor

### Wide Measuring Range, High Accuracy

- 1000 / 2000ppm, +/-3% Accuracy
- 1 ppm Resolution, ≤ 2% Stability

### Std. Modbus RTU RS-485, Wide Power Range

- 2-Wire RS-485
- 10~30Vdc Power Input

### High Grade Enclosure Protection

- IP54 Grade Protection, ABS Plastic, UL94V0 Anti-fire
- Water-Proof, Anti-Dust with Out-Door Shelter

### Optional IoT Router and Cloud Platform - ThingsMaster

- Support Modbus to connect optional NBloT Gateway WR222-WLAN-NB for one or many sensors
- Real-time online monitoring, analysis, reporting
- Remote cloud security and visual management



## Features & Benefits



<b>CO measurement range</b>	ES101CO-2000: 0~2000ppm
<b>Accuracy</b>	±3%
<b>CO resolution</b>	1ppm
<b>Stability</b>	≤2% Signal / Month
<b>Signal output</b>	RS485 2-Wire output (Modbus protocol)
<b>Operating Voltage</b>	10~30VDC
<b>Working Environment</b>	-20~+50°C , 15-90%RH
<b>Power consumption</b>	<0.18w
<b>Response time</b>	≤ 3 Sec.
<b>Dimension &amp; Installation</b>	85 x110 x 44mm; Wall Mounting

Register Address	PLC or Configuration Address	Content	Description
0000 H	40001	CO concentration value	Range : 0~2000ppm Upload real data
07D0 H	42001	Slave ID	1 ~ 254 (Factory Default 1)
07D1 H	42002	Baud Rate	0=2400 1=4800 2=9600(Default)



## Ordering Information

Model Name	Description
<b>ES101CO-2000</b>	Outdoor CO Carbon Monoxide Sensor, 0~2000ppm, RS485 Modbus, 10-30V Power
	<b>Package List</b>
	1 x Product Unit, 1 x Quick Installation Guide
	2x Expansion plugs, 2 x Self-tapping screws

\*4~20mA / 0~5V / 0~10V output by request

\*ES101CO-1000 by request

# ES101O3-10

## Outdoor Ozon O3 Sensor

### Wide Measuring Range, High Accuracy

- 10/100ppm, +/-6% Accuracy in Full Scale
- 0.01 ppm Resolution, ≤ 7% Stability/Year

### Std. Modbus RTU RS-485, Wide Power Range

- 2-Wire RS-485
- 10~30Vdc Power Input

### High Grade Enclosure Protection

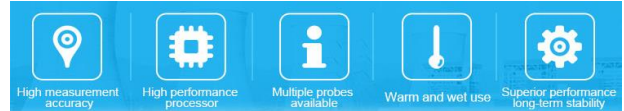
- IP54 Grade Protection, ABS Plastic, UL94V0 Anti-fire
- Water-Proof, Anti-Dust with Out-Door Shelter

### Optional IoT Router and Cloud Platform - ThingsMaster

- Support Modbus to connect optional NBloT Gateway WR222-WLAN-NB for one or many sensors
- Real-time online monitoring, analysis, reporting
- Remote cloud security and visual management



### Features & Benefits



<b>O3 measurement range</b>	ES101-O3-10: 0-10ppm
<b>O3 resolution</b>	ES101-O3-10: 0.01ppm
<b>Accuracy</b>	±6%
<b>Stability</b>	<7% Signal / Year
<b>Signal output</b>	RS485 2-wire output (Modbus protocol)
<b>Operating Voltage</b>	10~30VDC
<b>Working Environment</b>	-10~+50°C , 15-90%RH
<b>Power consumption</b>	<0.12w
<b>Response time</b>	≤35 seconds
<b>Dimension &amp; Installation</b>	85 x110 x 44mm; Wall Mounting

Register Address	PLC or Configuration Address	Content	Description
0000 H	40001	O3 concentration value	Range : 0~10ppm Upload data 100 times real data
07D0 H	42001	Slave ID	1 ~ 254 (Factory Default 1)
07D1 H	42002	Baud Rate	0=2400 1=4800 2=9600(Default)



### Ordering Information

Model Name	Description
<b>ES101O3-10</b>	Outdoor Ozon O3 Sensor, 0~10ppm, RS485 Modbus, 10-30V Power
	<b>Package List</b>
	1 x Product Unit
	2x Expansion plugs, 2 x Self-tapping screws
	1 x Quick Installation Guide

\*4~20mA / 0~5V / 0~10V output by request

\*ES100O3-100 by request

# ES101-CO2-5000

## Outdoor CO2 Carbon Dioxide Sensor

### Wide CO2 Measuring Range

- 5000ppm with +/- 40ppm Accuracy in full-scale
- Widely applied at Heavy Air-Pollution Area

### Std. Modbus RTU RS-485, Wide Power Range

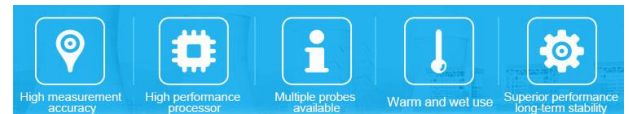
- 2-Wire RS-485
- 10~30Vdc Power Input

### High Grade Enclosure Protection

- IP54 Grade Protection, ABS Plastic, UL94V0 Anti-fire
- Water-Proof, Anti-Dust with Out-Door Shelter

### Optional IoT Router and Cloud Platform - ThingsMaster

- Support Modbus to connect optional NBIoT Gateway WR222-WLAN-NB for one or many sensors
- Real-time online monitoring, analysis, reporting
- Remote cloud security and visual management



## Features & Benefits

<b>CO2 Measurement Range:</b>	0-5000ppm
<b>Digital Signal output</b>	RS485 2-Wire output (Modbus protocol)
<b>Working Voltage</b>	10-30VDC
<b>Power consumption</b>	< 0.4w
<b>CO2 Accuracy</b>	±40ppm +3%FS (25°C)
<b>Working Environment</b>	-10-+50°C , 0-80%RH
<b>Stability</b>	<2% Signal / Year
<b>Response time</b>	≤90s with 90% step change
<b>Dimension &amp; Installation</b>	85 x110 x 44mm; Wall Mounting

Register Address	PLC or Configuration Address	Content	Description
0002 H	40003	CO2 concentration value	Range : 0~5000ppm Upload real data
07D0 H	42001	Slave ID	1 ~ 254 (Factory Default 1)
07D1 H	42002	Baud Rate	0=2400 1=4800 2=9600(Default)



## Ordering Information

Model Name	Description
<b>ES101CO2-5000</b>	Outdoor CO2 Carbon Dioxide Sensor, 0~5000ppm, RS485 Modbus, 10-30V Power
	<b>Package List</b>
	1 x Product Unit
	2x Expansion plugs, 2 x Self-tapping screws
	1 x Quick Installation Guide

\*4~20mA / 0~5V / 0~10V output by request

\*ES101CO2-10000 by request

# ES101-CO2-HC

## Outdoor CO2 Carbon Dioxide Sensor High Concentration

### Wide CO2 Measuring Range

- 0 to 100% Vol High Concentration CO2 Measurement
- Widely applied at Heavy Air-Pollution Area

### Std. Modbus RTU RS-485, Wide Power Range

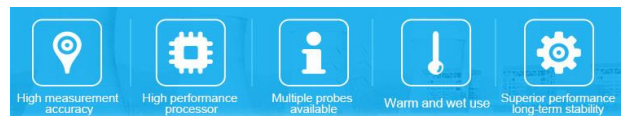
- 2-Wire RS-485
- 10~30Vdc Power Input

### High Grade Enclosure Protection

- IP65 Grade Protection, ABS Plastic, UL94V0 Anti-fire
- Water-Proof, Anti-Dust with Out-Door Shelter

### Optional IoT Router and Cloud Platform - ThingsMaster

- Support Modbus to connect optional NBIoT Gateway WR222-WLAN-NB for one or many sensors
- Real-time online monitoring, analysis, reporting
- Remote cloud security and visual management



### Features & Benefits

<b>CO2 Measurement Range:</b>	0 ~ 5%Vol : 0.5%Vol +3% current value 0 ~ 20%Vol : 0.5%Vol +3% current value 0 ~ 50%Vol : 1%Vol +3% current value 0 ~ 100%Vol : 1%Vol +3% current value
<b>Digital Signal output</b>	RS485 2-Wire output (Modbus protocol)
<b>Working Voltage</b>	10-30VDC
<b>Power consumption</b>	0.14W (24VDC)
<b>CO2 Accuracy</b>	±3%FS (25°C)
<b>Working Environment</b>	-10-+50°C , 0-80%RH
<b>Stability</b>	<2% Signal / Year
<b>Response time</b>	≤90s with 90% step change
<b>Dimension &amp; Installation</b>	85 x110 x 44mm; Wall Mounting



### Ordering Information

Model Name	Description
ES101CO2-HC5VoL	Outdoor CO2 Carbon Dioxide Sensor, High Concentration 0~5Vol, RS485 Modbus, 10-30V Power
ES101CO2-HC20VoL	Outdoor CO2 Carbon Dioxide Sensor, High Concentration 0~20Vol, RS485 Modbus, 10-30V Power
ES101CO2-HC50VoL	Outdoor CO2 Carbon Dioxide Sensor, High Concentration 0~50Vol, RS485 Modbus, 10-30V Power
ES101CO2-HC100VoL	Outdoor CO2 Carbon Dioxide Sensor, High Concentration 0~100Vol, RS485 Modbus, 10-30V Power



Ext Probe Thread: M30\*1.5

#### Package List

- 1 x Product Unit
- 2x Expansion plugs, 2 x Self-tapping screws
- 1 x Extension Probe
- 1 x Quick Installation Guide

# ES10102

## Outdoor Oxygen O2 Sensor

### Wide Measuring Range

- 0~25% VOL, +/-3% Accuracy in Full Scale
- 0.1% VOL Resolution

### Std. Modbus RTU RS-485, Wide Power Range

- 2-Wire RS-485
- 10~30Vdc Power Input

### High Grade Enclosure Protection

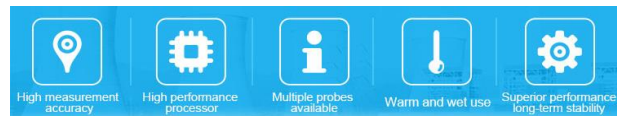
- IP54 Grade Protection, ABS Plastic, UL94V0 Anti-fire
- Water-Proof, Anti-Dust with Out-Door Shelter

### Optional IoT Router and Cloud Platform - ThingsMaster

- Support Modbus to connect optional NBloT Gateway WR222-WLAN-NB for one or many sensors
- Real-time online monitoring, analysis, reporting
- Remote cloud security and visual management



### Features & Benefits



<b>O2 measurement range</b>	0~25%Vol
<b>O2 resolution</b>	±3%FS
<b>Accuracy</b>	0.1%VOL
<b>Signal output</b>	RS485 2-wire output (Modbus protocol)
<b>Stability</b>	<5% Signal / Year
<b>Operating Voltage</b>	10~30VDC
<b>Power consumption</b>	<0.25W
<b>Working Environment</b>	-20~+50°C , 5-95%RH
<b>Response time</b>	<10 seconds
<b>Pre-Heat Time</b>	≥ 5Min
<b>Dimension &amp; Installation</b>	87 x117 x 44; Wall Mounting

Register Address	PLC or Configuration Address	Content	Description
0000 H	40001	O2 concentration value %	Range : 0~250 Upload data 10 times real data
07D0 H	42001	Slave ID	1 ~ 254 (Factory Default 1)
07D1 H	42002	Baud Rate	0=2400 1=4800 2=9600(Default)



### Ordering Information

Model Name	Description
<b>ES10102</b>	Outdoor Oxygen O2 Sensor, 0~25%Vol, RS485 Modbus, 10-30V Power
	<b>Package List</b>
	1 x Product Unit
	2x Expansion plugs, 2 x Self-tapping screws
	1 x Quick Installation Guide

# ES101PM

## Outdoor Air Monitor Quality Sensor (PM2.5, PM10)

### Wide Measuring Range , High Reliability

- 1000 ug/m3 for PM2.5, PM10
- I.R. Laser Detective Technology

### Std. Modbus RTU RS-485, Wide Power Range

- 2-Wire RS-485
- 10~30Vdc Power Input

### High Grade Enclosure Protection

- IP54 Grade Protection, ABS Plastic, UL94V0 Anti-fire
- Water-Proof, Anti-Dust with Out-Door Shelter

### Optional IoT Router and Cloud Platform - ThingsMaster

- Support Modbus to connect optional NBloT Gateway W WLAN-NB for one or many sensors
- Real-time online monitoring, analysis, reporting
- Remote cloud security and visual management



### Features & Benefits



<b>PM2.5/10 measurement range</b>	0~1000ug/m3
<b>Resolution</b>	1ug/m3
<b>Accuracy</b>	10%
<b>Signal output</b>	RS485 2-wire output (Modbus protocol)
<b>Stability</b>	< 7% Signal / Year
<b>Operating Voltage</b>	10~30VDC
<b>Power consumption</b>	< 1.2W
<b>Working Environment</b>	-20~+60°C , 0-80%RH
<b>Response time</b>	< 90 seconds
<b>System Pre-Heat Time</b>	≤ 2 Min.
<b>Dimension &amp; Installation</b>	85 x110 x 44mm; Wall Mounting

Register Address	PLC or Configuration Address	Content	Description
0000 H	40001	PM2.5	Range : 0~1000ug/m3 ; Upload real data
0001 H	40002	PM10	Range : 0~1000ug/m3 ; Upload real data
07D0 H	42001	Slave ID	1 ~ 254 (Factory Default 1)
07D1 H	42002	Baud Rate	0=2400 1=4800 2=9600(Default)



### Ordering Information

Model Name	Description
<b>ES101PM</b>	Outdoor Air Monitor Quality Sensor (PM2.5, PM10 ), 0~1000ug/m3, RS485 Modbus, 10-30V Power
<b>ES101PM-SH</b>	Outdoor Air Monitor Quality Sensor (PM2.5, PM10 ), 0~1000ug/m3, RS485 Modbus, 10-30V Power, Shutter Box
<b>Package List</b>	
1 x Product Unit, 1 x Quick Installation Guide	
2x Expansion plugs, 2 x Self-tapping screws	
*4~20mA / 0~5V / 0~10V output by request	



# ES101TVOC

## Outdoor TVOC (Total Volatile Organic Compounds) Sensor

### Wide Measuring Range , High Reliability

- 0~60000ppb

### Std. Modbus RTU RS-485, Wide Power Range

- 2-Wire RS-485
- 10~30Vdc Power Input

### High Grade Enclosure Protection

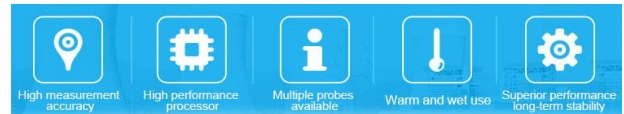
- IP54 Grade Protection, ABS Plastic, UL94V0 Anti-fire
- Water-Proof, Anti-Dust with Out-Door Shelter

### Optional IoT Router and Cloud Platform - ThingsMaster

- Support Modbus to connect optional NBloT Gateway WR222-WLAN-NB for one or many sensors
- Real-time online monitoring, analysis, reporting
- Remote cloud security and visual management



### Features & Benefits



<b>Measurement range</b>	0~60000ppb
<b>Resolution</b>	1ppb
<b>Accuracy</b>	±8%FS±125ppb
<b>Signal output</b>	RS485 2-wire output (Modbus protocol)
<b>Stability</b>	< 7% Signal / Year
<b>Operating Voltage</b>	10~30VDC
<b>Power consumption</b>	< 0.5W
<b>Working Environment</b>	-40~85°C , 0-95%RH
<b>Response time</b>	< 1 seconds
<b>Dimension &amp; Installation</b>	85 x110 x 44mm; Wall Mounting

Register Address	PLC or Configuration Address	Content	Description
0000 H	40001	TVOC (ppb)	Range: 0~60000; Upload real data
07D0 H	42001	Slave ID	1 ~ 254 (Factory Default 1)
07D1 H	42002	Baud Rate	0=2400 1=4800 2=9600(Default)



### Ordering Information

Model Name	Description
<b>ES101TVOC</b>	Outdoor TVOC Sensor, 0~60000ppb, RS485 Modbus, 10-30V Power
	<b>Package List</b>
	1 x Product Unit, 1 x Quick Installation Guide
	2x Expansion plugs, 2 x Self-tapping screws

\*4~20mA / 0~5V / 0~10V output by request

# ES101NO2-2000

## Outdoor Nitrogen Dioxide NO<sub>2</sub> Sensor

### Wide Measuring Range

- 2000ppm – ES101-NO2-2000
- 20ppm- ES101-NO2-20

### Std. Modbus RTU RS-485, Wide Power Range

- 2-Wire RS-485
- 10~30Vdc Power Input

### High Grade Enclosure Protection

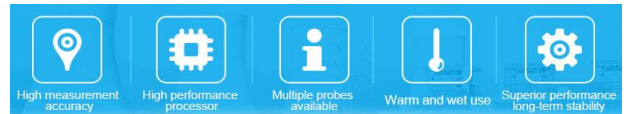
- IP54 Grade Protection, ABS Plastic, UL94V0 Anti-fire
- Water-Proof, Anti-Dust with Out-Door Shelter

### Optional IoT Router and Cloud Platform - ThingsMaster

- Support Modbus to connect optional NBloT Gateway WR222-WLAN-NB for one or many sensors
- Real-time online monitoring, analysis, reporting
- Remote cloud security and visual management



### Features & Benefits



<b>NO<sub>2</sub> measurement range</b>	0-2000ppm (ES101-NO2-2000)
<b>NO<sub>2</sub> resolution</b>	0.1ppm(ES101-NO2-2000)
<b>Signal output</b>	RS485 2-wire output (Modbus protocol)
<b>Stability</b>	<2% Signal / Month
<b>Operating Voltage</b>	10~30VDC
<b>Power consumption</b>	<0.18W
<b>Working Environment</b>	-20~+50°C , 15-90%RH
<b>Response time</b>	90% step change is generally less than 90s
<b>Dimension &amp; Installation</b>	87 x117 x 44; Wall Mounting

Register Address	PLC or Configuration Address	Content	Description
0000 H	40001	NO <sub>2</sub> concentration value	Range : 0~2000ppm Upload real data
07D0 H	42001	Slave ID	1 ~ 254 (Factory Default 1)
07D1 H	42002	Baud Rate	0=2400 1=4800 2=9600(Default)



### Ordering Information

Model Name	Description
<b>ES101NO2-2000</b>	Outdoor Nitric Dioxide NO <sub>2</sub> Sensor, 0~2000ppm, RS485 Modbus, 10-30V Power
	<b>Package List</b>
	1 x Product Unit
	2x Expansion plugs, 2 x Self-tapping screws
	1 x Quick Installation Guide

\*4~20mA / 0~5V / 0~10V output by request

\*ES101-NO2-20 by request

# ES101SO2-2000

## Outdoor Sulphur Dioxide SO<sub>2</sub> Sensor

### Wide Measuring Range

- 2000ppm , +/-3% Accuracy in Full Scale
- 1ppm Resolution

### Std. Modbus RTU RS-485, Wide Power Range

- 2-Wire RS-485
- 10~30Vdc Power Input

### High Grade Enclosure Protection

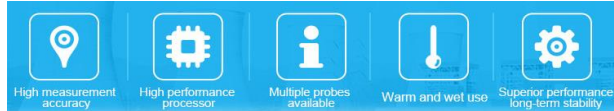
- IP54 Grade Protection, ABS Plastic, UL94V0 Anti-fire
- Water-Proof, Anti-Dust with Out-Door Shelter

### Optional IoT Router and Cloud Platform - ThingsMaster

- Support Modbus to connect optional NB IoT Gateway WR222-WLAN-NB for one or many sensors
- Real-time online monitoring, analysis, reporting
- Remote cloud security and visual management



### Features & Benefits



SO <sub>2</sub> measurement range	0-2000ppm
SO <sub>2</sub> resolution	1ppm
Accuracy	+/- 3% in Full Scale
Signal output	RS485 2-wire output (Modbus protocol)
Stability	<7% Signal / Year
Operating Voltage	10~30VDC
Power consumption	<0.18W
Working Environment	-20~+50°C , 15-90%RH
Response time	<70 seconds
Pre-Heat Time	≥5Min.
Dimension & Installation	87 x117 x 44; Wall Mounting

Register Address	PLC or Configuration Address	Content	Description
0000 H	40001	SO <sub>2</sub> concentration value	Range : 0~2000ppm Upload real data
07D0 H	42001	Slave ID	1 ~ 254 (Factory Default 1)
07D1 H	42002	Baud Rate	0=2400 1=4800 2=9600(Default)



### Ordering Information

Model Name	Description
ES101SO2-2000	Outdoor Sulphur Dioxide SO <sub>2</sub> Sensor, 0~2000ppm, RS485 Modbus, 10-30V Power
	<b>Package List</b>
	1 x Product Unit
	2x Expansion plugs, 2 x Self-tapping screws
	1 x Quick Installation Guide

\*4~20mA / 0~5V / 0~10V output by request

# ES101NH3-500

## Outdoor Ammonia NH<sub>3</sub> Sensor

### Multiple Measuring Range

- 50ppm, 100ppm, 500ppm
- +/-20%, +/-2% Accuracy
- 0.1 ppm /1ppm Resolution

### Std. Modbus RTU RS-485, Wide Power Range

- 2-Wire RS-485
- 10~30Vdc Power Input

### High Grade Enclosure Protection

- IP54 Grade Protection, ABS Plastic, UL94V0 Anti-fire
- Water-Proof, Anti-Dust with Out-Door Shelter

### Optional IoT Router and Cloud Platform - ThingsMaster

- Support Modbus to connect optional NBloT Gateway WR222-WLAN-NB for one or many sensors
- Real-time online monitoring, analysis, reporting
- Remote cloud security and visual management



### Features & Benefits



<b>NH<sub>3</sub> measurement range</b>	0-500ppm
<b>NH<sub>3</sub> resolution</b>	1ppm
<b>Accuracy</b>	±20% in Full Scale Oxygen : ≥18%VOL
<b>Signal output</b>	RS485 2-wire output (Modbus protocol)
<b>Stability</b>	<2% Signal / Month
<b>Operating Voltage</b>	10~30VDC
<b>Power consumption</b>	0.9W
<b>Working Environment</b>	-20~+50°C , 15-90%RH
<b>Response Time</b>	≤25Sec.
<b>Pre-Heat Time</b>	≥ 48Hours
<b>Dimension &amp; Installation</b>	87 x117 x 44; Wall Mounting

Register Address	PLC or Configuration Address	Content	Description
0000 H	40001	NH <sub>3</sub> concentration value	Range : 0~500ppm Upload real data
07D0 H	42001	Slave ID	1 ~ 254 (Factory Default 1)
07D1 H	42002	Baud Rate	0=2400 1=4800 2=9600(Default)



### Ordering Information

Model Name	Description
<b>ES101NH3-500</b>	Outdoor NH <sub>3</sub> Sensor, 500ppm, RS485 Modbus, 10-30V Power
	<b>Package List</b>
	1 x Product Unit
	2x Expansion plugs, 2 x Self-tapping screws
	1 x Quick Installation Guide

# ES101H2S-100

## Outdoor Hydrogen Sulfide H2S Sensor

### Multiple Measuring Range

- 0~100ppm, ±3%FS
- 1ppm Resolution

### Std. Modbus RTU RS-485, Wide Power Range

- 2-Wire RS-485
- 10~30Vdc Power Input

### High Grade Enclosure Protection

- IP54 Grade Protection, ABS Plastic, UL94V0 Anti-fire
- Water-Proof, Anti-Dust with Out-Door Shelter

### Optional IoT Router and Cloud Platform - ThingsMaster

- Support Modbus to connect optional NBIoT Gateway WR222-WLAN-NB for one or many sensors
- Real-time online monitoring, analysis, reporting
- Remote cloud security and visual management



### Features & Benefits



<b>H2S measurement range</b>	0-100ppm
<b>H2S resolution</b>	1ppm
<b>Accuracy</b>	±3% in Full Scale
<b>Signal output</b>	RS485 2-wire output (Modbus protocol)
<b>Stability</b>	<2% Signal / Month
<b>Operating Voltage</b>	10~30VDC
<b>Power consumption</b>	0.12W
<b>Working Environment</b>	-20~+50°C , 15-90%RH
<b>Response Time</b>	≤35Sec.
<b>Pre-Heat Time</b>	≥ 5Min
<b>Dimension &amp; Installation</b>	85 x110 x 44; Wall Mounting

Register Address	PLC or Configuration Address	Content	Description
0000 H	40001	H2S concentration value	Range : 0~100ppm Upload real data
07D0 H	42001	Slave ID	1 ~ 254 (Factory Default 1)
07D1 H	42002	Baud Rate	0=2400 1=4800 2=9600(Default)



### Ordering Information

Model Name	Description
<b>ES101H2S-100</b>	Outdoor H2S Sensor,0~100ppm, RS485 Modbus, 10-30V Power
	<b>Package List</b>
	1 x Product Unit
	2x Expansion plugs, 2 x Self-tapping screws
	1 x Quick Installation Guide

# ES101H2-1000

## Outdoor Hydrogen H2 Sensor

### High Accuracy

- 0~1000ppm, ±3%FS

### Std. Modbus RTU RS-485, Wide Power Range

- 2-Wire RS-485
- 10~30Vdc Power Input

### High Grade Enclosure Protection

- IP54 Grade Protection, ABS Plastic, UL94V0 Anti-fire
- Water-Proof, Anti-Dust with Out-Door Shelter

### Optional IoT Router and Cloud Platform - ThingsMaster

- Support Modbus to connect optional NBloT Gateway WR222-WLAN-NB for one or many sensors
- Real-time online monitoring, analysis, reporting
- Remote cloud security and visual management



## Features & Benefits



<b>H2 measurement range</b>	0-1000ppm
<b>H2 resolution</b>	1ppm
<b>Accuracy</b>	±3% in Full Scale
<b>Signal output</b>	RS485 2-wire output (Modbus protocol)
<b>Stability</b>	<2% Signal / Month
<b>Operating Voltage</b>	10~30VDC
<b>Power consumption</b>	0.9W
<b>Working Environment</b>	-20~+50°C , 15-90%RH
<b>Response Time</b>	≤70Sec.
<b>Pre-Heat Time</b>	≥ 5Min
<b>Dimension &amp; Installation</b>	85 x110 x 44; Wall Mounting

Register Address	PLC or Configuration Address	Content	Description
0000 H	40001	H2 concentration value	Range : 0~1000ppm Upload real data
07D0 H	42001	Slave ID	1 ~ 254 (Factory Default 1)
07D1 H	42002	Baud Rate	0=2400 1=4800 2=9600(Default)



## Ordering Information

Model Name	Description
<b>ES101H2-1000</b>	Outdoor H2 Sensor, 0-1000PPM, RS485 Modbus, 10-30V Power
	<b>Package List</b>
	1 x Product Unit
	2x Expansion plugs, 2 x Self-tapping screws
	1 x Quick Installation Guide

# ES101CH4

## Outdoor Methane CH4 Sensor

### High Accuracy

- ExdIMb grade
- 0~100%LEL

### Std. Modbus RTU RS-485, Wide Power Range

- 2-Wire RS-485
- 10~30Vdc Power Input

### High Grade Enclosure Protection

- IP54 Grade Protection, ABS Plastic, UL94V0 Anti-fire
- Water-Proof, Anti-Dust with Out-Door Shelter

### Optional IoT Router and Cloud Platform - ThingsMaster

- Support Modbus to connect optional NBIoT Gateway WR222-WLAN-NB for one or many sensors
- Real-time online monitoring, analysis, reporting
- Remote cloud security and visual management



## Features & Benefits



<b>CH4 measurement range</b>	0-100% Lower Explosive Limit (LEL)
<b>CH4 resolution</b>	1% LEL
<b>Accuracy</b>	±5% in Full Scale, No Less than 5% Oxygen
<b>Signal output</b>	RS485 2-wire output (Modbus protocol)
<b>Stability</b>	<7% Signal / Year
<b>Operating Voltage</b>	10~30VDC
<b>Power consumption</b>	0.9W
<b>Working Environment</b>	-20~+40°C , 0-95%RH
<b>Response Time</b>	≤15Sec.
<b>Pre-Heat Time</b>	≥ 5Min
<b>Dimension &amp; Installation</b>	85 x110 x 44; Wall Mounting

Register Address	PLC or Configuration Address	Content	Description
0000 H	40001	CH4 concentration value	Range : 0-100% LEL; Upload real data
07D0 H	42001	Slave ID	1 ~ 254 (Factory Default 1)
07D1 H	42002	Baud Rate	0=2400 1=4800 2=9600(Default)



## Ordering Information

Model Name	Description
<b>ES101CH4</b>	Outdoor CH4 Sensor, 0-100%LEL, RS485 Modbus, 10-30V Power
	<b>Package List</b>
	1 x Product Unit
	2x Expansion plugs, 2 x Self-tapping screws
	1 x Quick Installation Guide