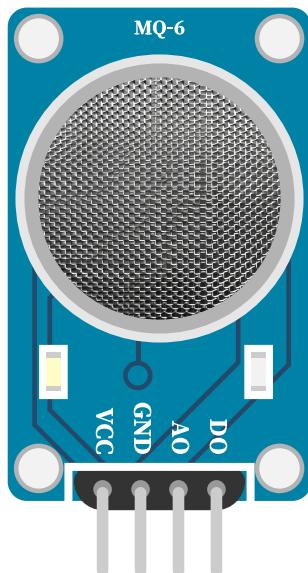


Osmet Robot Sensor Details & Wiring Diagram Book

Sensor List

SN	Sensor Name
1	MQ-4 (CH_4)
2	MICS-6814 (CO + NH_3)
3	MQ-136 (H_2S)
4	ZE08-CH2O (CH_2O)
5	MQ-131 Low (O_3 0.02-10 ppm)
6	ZE03-SO2 (SO_2)
7	MQ-2 (Propane)
8	MQ-6 (Butane)
9	MQ-8 (H_2)
10	ZP07 MP503 (VOCs)
11	SM4-NO2 (NO_2)
12	AM2302 DHT22 (Temp + Humidity)
13	CCS811 (e CO_2 + TVOC)
14	MQ-131 High (O_3 10-1000 ppm)

MQ-4 (CH₄)



Parameter	Details
Sensor Type	Gas Sensor
Detects	Methane (CH ₄), Natural Gas
Operating Voltage	5V DC
Output Type	Analog & Digital
Preheat Time	20 seconds
Operating Temperature	-10°C to 50°C
Sensitivity Range	300 - 10,000 ppm (CH ₄)

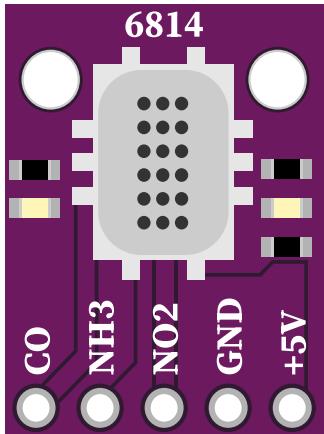
Pinout Details

Pin	Label	Function
1	VCC	Power Supply (5V)
2	GND	Ground
3	A0	Analog Output (Gas concentration)
4	D0	Digital Output (Threshold-based)

Connection with Arduino

MQ-4 Sensor Pin	Arduino Pin
VCC	5V
GND	GND
A0	A0 (for Analog readings)
D0	Any Digital Pin (for threshold detection)

MICS-6814 (CO + NH₃)



Parameter	Details
Sensor Type	Gas Sensor (Multiple Gases)
Detects	Carbon Monoxide (CO), Ammonia (NH ₃), and other gases (NO ₂ , CH ₄ , H ₂ , C ₃ H ₈ , CH ₃ etc.)
Operating Voltage	1.8V - 5V (Recommended 5V for heating circuit)
Output Type	Analog
Preheat Time	3 minutes
Operating Temperature	-30°C to 85°C
Sensitivity Range	Varies per gas (CO: 1-1000 ppm, NH ₃ : 1-500 ppm)

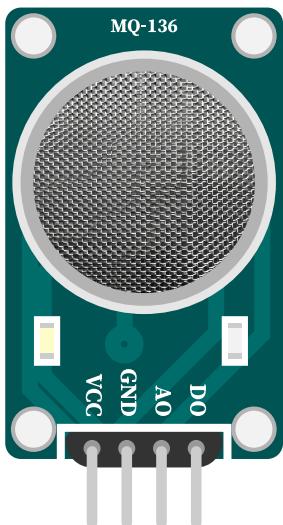
Pinout Details

Pin	Label	Function
1	VCC	Power Supply (5V for heating circuit, 3.3V for sensor)
2	GND	Ground
3	A0_CO	Analog Output (Carbon Monoxide)
4	A0_NH ₃	Analog Output (Ammonia)
5	A0_NO ₂	Analog Output (Nitrogen Dioxide)
6	H1	Heater Control (5V)
7	H2	Heater Ground

Connection with Arduino

MICS-6814 Sensor Pin	Arduino Pin
VCC	3.3V (for sensor) / 5V (for heater)
GND	GND
A0_CO	A0 (Reads CO concentration)
A0_NH ₃	A1 (Reads NH ₃ concentration)
A0_NO ₂	A2 (Reads NO ₂ concentration)
H1	5V (Heater power)
H2	GND (Heater ground)

MQ-136 (H₂S)



Parameter	Details
Sensor Type	Gas Sensor
detects	Hydrogen Sulfide (H ₂ S)
Operating Voltage	5V DC
Output Type	Analog & Digital
Preheat Time	20 seconds
Operating Temperature	-10°C to 50°C
Sensitivity Range	1 - 200 ppm (H ₂ S)

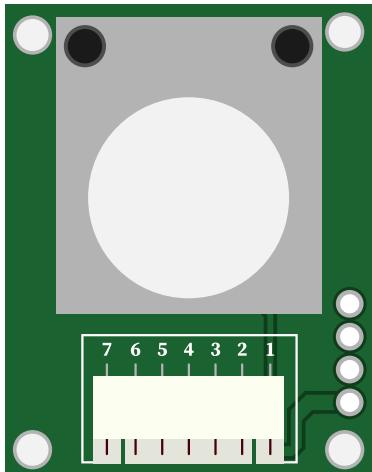
Pinout Details

Pin	Label	Function
1	VCC	Power Supply (5V)
2	GND	Ground
3	A0	Analog Output (Gas concentration)
4	D0	Digital Output (Threshold-based, adjustable via potentiometer)

Connection with Arduino

MQ-136 Sensor Pin	Arduino Pin
VCC	5V
GND	GND
A0	A0 (for Analog readings)
D0	Any Digital Pin (for threshold detection)

ZE08-CH2O (CH₂O)



Parameter	Details
Sensor Type	Electrochemical Gas Sensor
Detects	Formaldehyde (CH ₂ O)
Operating Voltage	3.7V - 5.5V DC
Output Type	Analog & UART (Serial)
Preheat Time	~3 minutes
Operating Temperature	-10°C to 50°C
Measurement Range	0 - 5.00 ppm
Accuracy	±0.05 ppm
Response Time	≤60 seconds

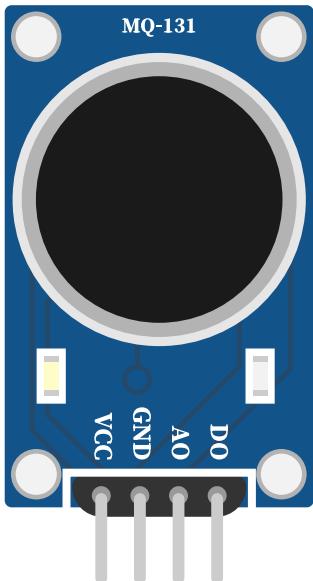
Pinout Details

Pin	Label	Function
1	VCC	Power Supply (3.7V - 5.5V)
2	GND	Ground
3	AOUT	Analog Output (Gas concentration)
4	TX	UART Transmit (Serial Output)
5	RX	UART Receive (Serial Input)

Connection with Arduino

ZE08-CH2O Sensor Pin	Arduino Pin
VCC	5V
GND	GND
AOUT	A0 (Reads Analog Value)
TX	Digital Pin 10 (SoftwareSerial RX)
RX	Digital Pin 11 (SoftwareSerial TX)

MQ-131 Low (O_3 , 0.02-10 ppm)



Parameter	Details
Sensor Type	Gas Sensor
Detects	Ozone (O_3)
Operating Voltage	5V DC
Output Type	Analog & Digital
Preheat Time	≥ 24 hours (for accurate readings)
Operating Temperature	-10°C to 50°C
Sensitivity Range	0.02 - 10 ppm (O_3)

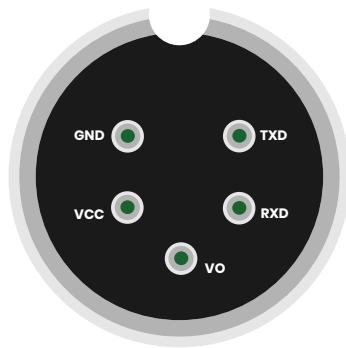
Pinout Details

Pin	Label	Function
1	VCC	Power Supply (5V)
2	GND	Ground
3	A0	Analog Output (Gas concentration)
4	D0	Digital Output (Threshold-based, adjustable via potentiometer)

Connection with Arduino

MQ-131 Sensor Pin	Arduino Pin
VCC	5V
GND	GND
A0	A0 (for
D0	Any Digital

ZE03-SO₂



Parameter	Details
Sensor Type	Electrochemical Gas Sensor
Detects	Sulfur Dioxide (SO ₂)
Operating Voltage	3.7V - 5.5VDC
Output Type	Analog & UART (Serial)
Preheat Time	~3 minutes
Operating Temperature	-20°C to 50°C
Measurement Range	0 - 20 ppm (SO ₂)
Accuracy	±0.05 ppm
Response Time	≤60 seconds

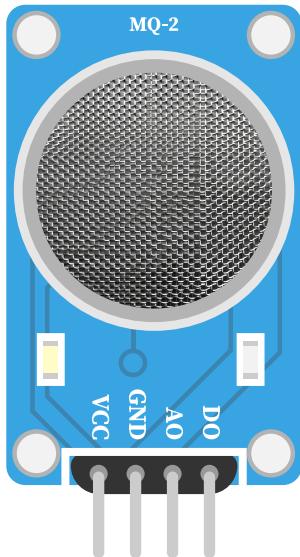
Pinout Details

Pin	Label	Function
1	VCC	Power Supply (3.7V - 5.5V)
2	GND	Ground
3	AOUT	Analog Output (Gas concentration)
4	TX	UART Transmit (Serial Output)
5	RX	UART Receive (Serial Input)

Connection with Arduino

ZE03-SO ₂ Sensor Pin	Arduino Pin
VCC	5V
GND	GND
AOUT	A0 (Reads Analog Value)
TX	Digital Pin 10 (SoftwareSerial RX)
RX	Digital Pin 11 (SoftwareSerial TX)

MQ-2 (Propane)



Parameter	Details
Sensor Type	Gas Sensor
detects	Propane (C_3H_8), Methane (CH_4), LPG, Hydrogen (H_2), Carbon Monoxide (CO), Alcohol, Smoke
Operating Voltage	5V DC
Output Type	Analog & Digital
Preheat Time	20 seconds
Operating Temperature	-10°C to 50°C
Sensitivity Range	200 - 10,000 ppm (varies by gas)

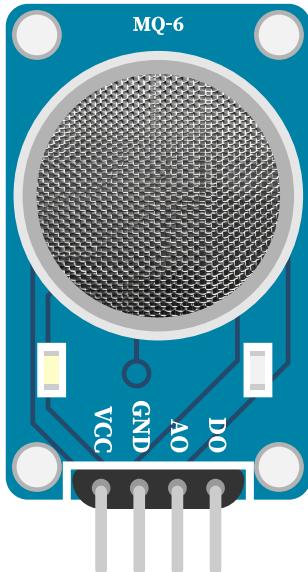
Pinout Details

Pin	Label	Function
1 VCC	Power Supply (5V)	
2 GND	Ground	
3 A0	Analog Output (Gas concentration)	
4 D0	Digital Output (Threshold-based, adjustable via potentiometer)	

Connection with Arduino

MQ-2 Sensor Pin	Arduino Pin
VCC	5V
GND	GND
A0	A0 (for Analog readings)
D0	Any Digital Pin (for threshold detection)

MQ-6 (Butane)



Parameter	Details
Sensor Type	Gas Sensor
Detects	Butane (C_3H_8), Propane (C_3H_8), LPG, Hydrogen (H_2)
Operating Voltage	5V DC
Output Type	Analog & Digital
Preheat Time	20 seconds
Operating Temperature	-10°C to 50°C
Sensitivity Range	200 - 10,000 ppm (varies by gas)

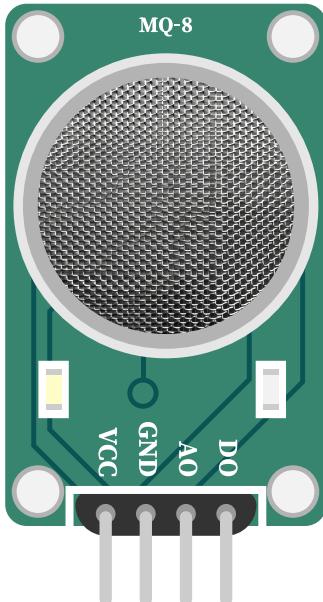
Pinout Details

Pin	Label	Function
1 VCC		Power Supply (5V)
2 GND		Ground
3 A0		Analog Output (Gas concentration)
4 D0		Digital Output (Threshold-based, adjustable via potentiometer)

Connection with Arduino

MQ-6 Sensor Pin	Arduino Pin
VCC	5V
GND	GND
A0	A0 (for Analog readings)
D0	Any Digital Pin (for threshold detection)

MQ-8 (H_2)



Parameter	Details
Sensor Type	Gas Sensor
Detects	Hydrogen (H_2)
Operating Voltage	5V DC
Output Type	Analog & Digital
Preheat Time	~20 seconds
Operating Temperature	-10°C to 50°C
Sensitivity Range	100 - 10,000 ppm (H_2)

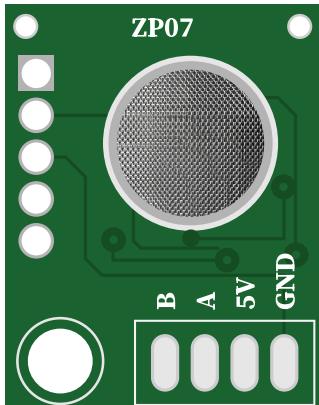
Pinout Details

Pin	Label	Function
1 VCC		Power Supply (5V)
2 GND		Ground
3 A0		Analog Output (Gas concentration)
4 D0		Digital Output (Threshold-based, adjustable via potentiometer)

Connection with Arduino

MQ-8 Sensor Pin	Arduino Pin
VCC	5V
GND	GND
A0	A0 (for Analog readings)
D0	Any Digital Pin (for threshold detection)

ZP07 MP503 (VOCs)



Parameter	Details
Sensor Type	Semiconductor Gas Sensor
detects	Volatile Organic Compounds (VOCs), including gases like ethanol, benzene, and toluene
Operating Voltage	5V DC
Output Type	Analog
Preheat Time	~24 hours (initial burn-in)
Operating Temperature	-10°C to 50°C
Sensitivity Range	0 - 1,000 ppm (varies by specific VOC)

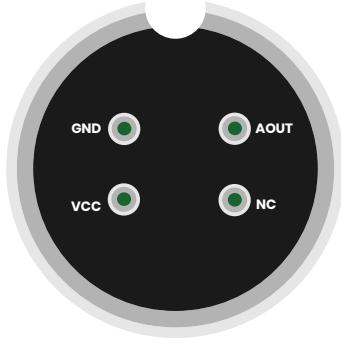
Pinout Details

Pin	Label	Function
1 VCC		Power Supply (5V)
2 GND		Ground
3 AOUT		Analog Output (Gas concentration)
4 NC		No connection (Reserved pin)

Connection with Arduino

ZP07 MP503 Sensor Pin	Arduino Pin
VCC	5V
GND	GND
AOUT	A0 (for Analog readings)

SM4-NO2 (NO₂)



Parameter	Details
Sensor Type	Electrochemical Gas Sensor
Detects	Nitrogen Dioxide (NO ₂)
Operating Voltage	5V DC
Output Type	Analog
Preheat Time	~3 minutes
Operating Temperature	-20°C to 50°C
Measurement Range	0 - 10 ppm (NO ₂)
Accuracy	±0.1 ppm
Response Time	≤30 seconds

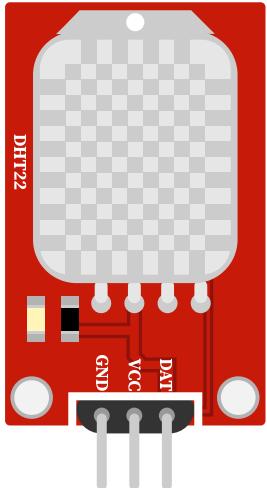
Pinout Details

Pin	Label	Function
1	VCC	Power Supply (5V)
2	GND	Ground
3	AOUT	Analog Output (Gas concentration)
4	NC	No connection (Reserved pin)

Connection with Arduino

SM4-NO2 Sensor Pin	Arduino Pin
VCC	5V
GND	GND
AOUT	A0 (for Analog readings)

AM2302 DHT22 (Temp + Humidity)



Parameter	Details
Sensor Type	Digital Temperature & Humidity Sensor
Detects	Temperature (°C) and Relative Humidity (%)
Operating Voltage	3.3V - 5V DC
Output Type	Digital (Single-Wire Communication)
Operating Temperature	-40°C to 80°C
Temperature Accuracy	±0.5°C
Humidity Range	0% - 100% RH
Humidity Accuracy	±2% - 5% RH
Sampling Rate	~2 seconds (0.5 Hz)
Response Time	≤2 seconds

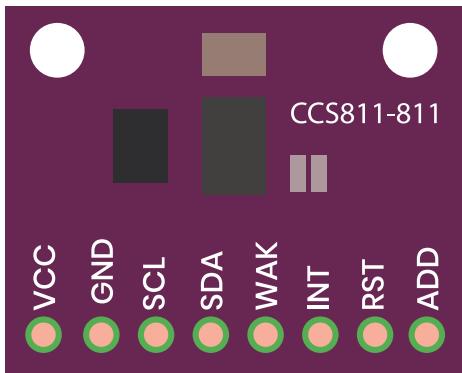
Pinout Details

Pin	Label	Function
1	VCC	Power Supply (3.3V - 5V)
2	DATA	Digital Data Output (One-wire Communication)
3	NC	No Connection (Leave Unconnected)
4	GND	Ground

Connection with Arduino

AM2302 (DHT22) Pin	Arduino Pin
VCC	5V
GND	GND
DATA	Any Digital Pin (e.g., D2)

CCS811 (eCO₂ + TVOC)



Parameter	Details
Sensor Type	Digital Gas Sensor
detects	Equivalent CO ₂ (eCO ₂) & Total Volatile Organic Compounds (TVOC)
Operating Voltage	1.8V - 3.6V (Typically 3.3V)
Output Type	Digital (I ² C Communication)
Operating Temperature	-40°C to 85°C
eCO₂ Measurement Range	400 - 8192 ppm
TVOC Measurement Range	0 - 1187 ppb
Response Time	~1 second

Pinout Details

Pin	Label	Function
1 VCC		Power Supply (3.3V)
2 GND		Ground
3 SDA		I ² C Data Line
4 SCL		I ² C Clock Line
5 WAKE		Wake-up Pin (Connect to GND for operation)
6 INT		Interrupt Pin (Optional)
7 RST		Reset Pin (Optional)

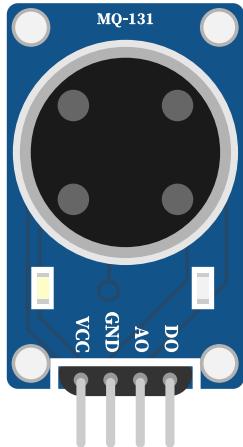
Connection with Arduino

CCS811 Sensor Pin	Arduino Pin
VCC	3.3V
GND	GND
SDA	A4 (for I ² C Data)
SCL	A5 (for I ² C Clock)
WAKE	GND (To Enable Sensor)

Use pull-up resistors (4.7kΩ – 10kΩ) on SDA and SCL lines if not already present on the board.

Do NOT connect VCC to 5V, as CCS811 operates at 3.3V max.

MQ-131 High (O_3 , 10-1000 ppm)



Parameter	Details
Sensor Type	Semiconductor Gas Sensor
Detects	Ozone (O_3)
Operating Voltage	5V DC
Output Type	Analog & Digital
Preheat Time	~24 hours (for stable readings)
Operating Temperature	-10°C to 50°C
Sensitivity Range	10 - 1000 ppm (O_3)
Response Time	≤60 seconds

Pinout Details

Pin	Label	Function
1 VCC		Power Supply (5V)
2 GND		Ground
3 A0		Analog Output (Gas concentration)
4 D0		Digital Output (Threshold-based, adjustable via potentiometer)

Connection with Arduino

MQ-131 Sensor Pin	Arduino Pin
VCC	5V
GND	GND
A0	A0 (for Analog readings)
D0	Any Digital Pin (for threshold detection)