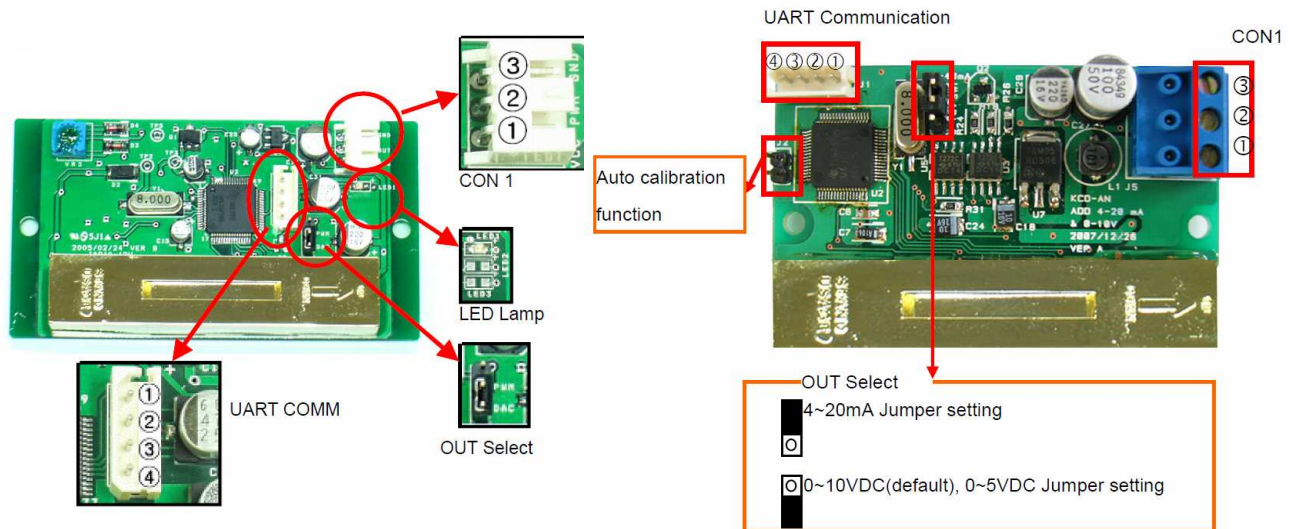


## Beschreibung UART Schnittstelle SEN CO2 S 100 und SEN CO2 O 100



Art. Nr.: SEN CO2 S 100

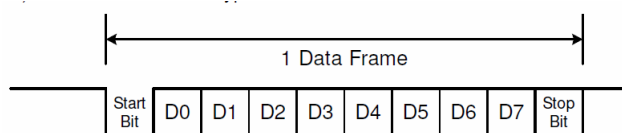
Art. Nr.: SEN CO2 O 100

### 1. Anschlüsse

PIN No.	Name	Descriptions
1	DTR	FACTORY RESERVED
2	RST	FACTORY RESERVED
3	TXD	TRANSMIT DATA
4	RXD	RECEIVE DATA

\* WAFER : Yeonho Elec. YMW025-04R or Molex 5267-03

### 2. Datentyp



- BAUD RATE 38,400bps,
- Data Bits 8 bit
- Parity Bit no
- Stop Bit 1 bit

### 3. Kommunikationsprotokoll

COMMAND	1 byte	2byte	3byte	4byte
ASCII	#	H-DATA	L-DATA	CR
HEX	0x23	0x??	0x??	0x0D

- STX : shows the start of '#' protocol
- EOT : shows the end of CR protocol

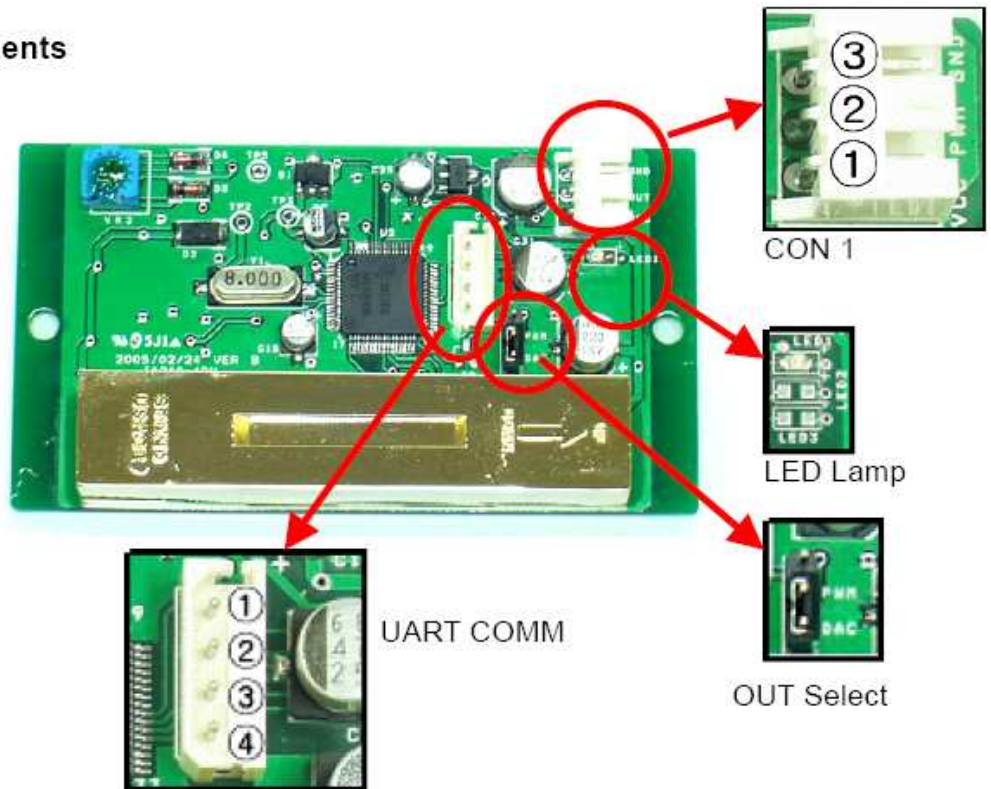
### 4. Anweisung zur Übertragung

- 00~ 09 : Product information
- 10~19 : Read a Module's status
- 20~29 : Setting commands for factory calibration
- 30~39 : Setting commands for factory inspection
- 40~99 : Reserve

**Beschreibung Anschluss SEN CO2 S 100 und SEN CO2 O 100**

◆ **Connectors**

**1. Components**



**2. Specifications**

1) CON1

No.	Name	Descriptions
1	V <sub>DD</sub>	Power input, +8V ~ +14VDC
2	V <sub>OUT</sub>	Signal output (PWM or DC voltage)
3	GND	GND

\* WAFER : Yeonho Elec. SMAW250-03G

2) OUT Select

Jumper	Way	Descriptions
UP	PWM	Digital PWM signal output (Optional)
DOWN	DAC	Analog voltage output

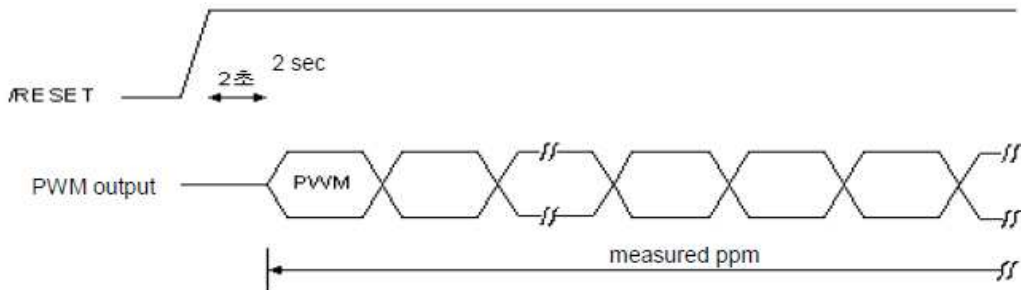
\* @ PWM(Digital) : 47KΩ full up resistance is connected inside.

\* @ DAC(Analog) : it outputs 0 ~ 4V (voltage output)

3) Warm up

It takes about 30 seconds to output detect signal after initial power supply(8~14V).  
But output signal during stability (first 2~3 minutes) may show incorrect values.

4) PWM Output



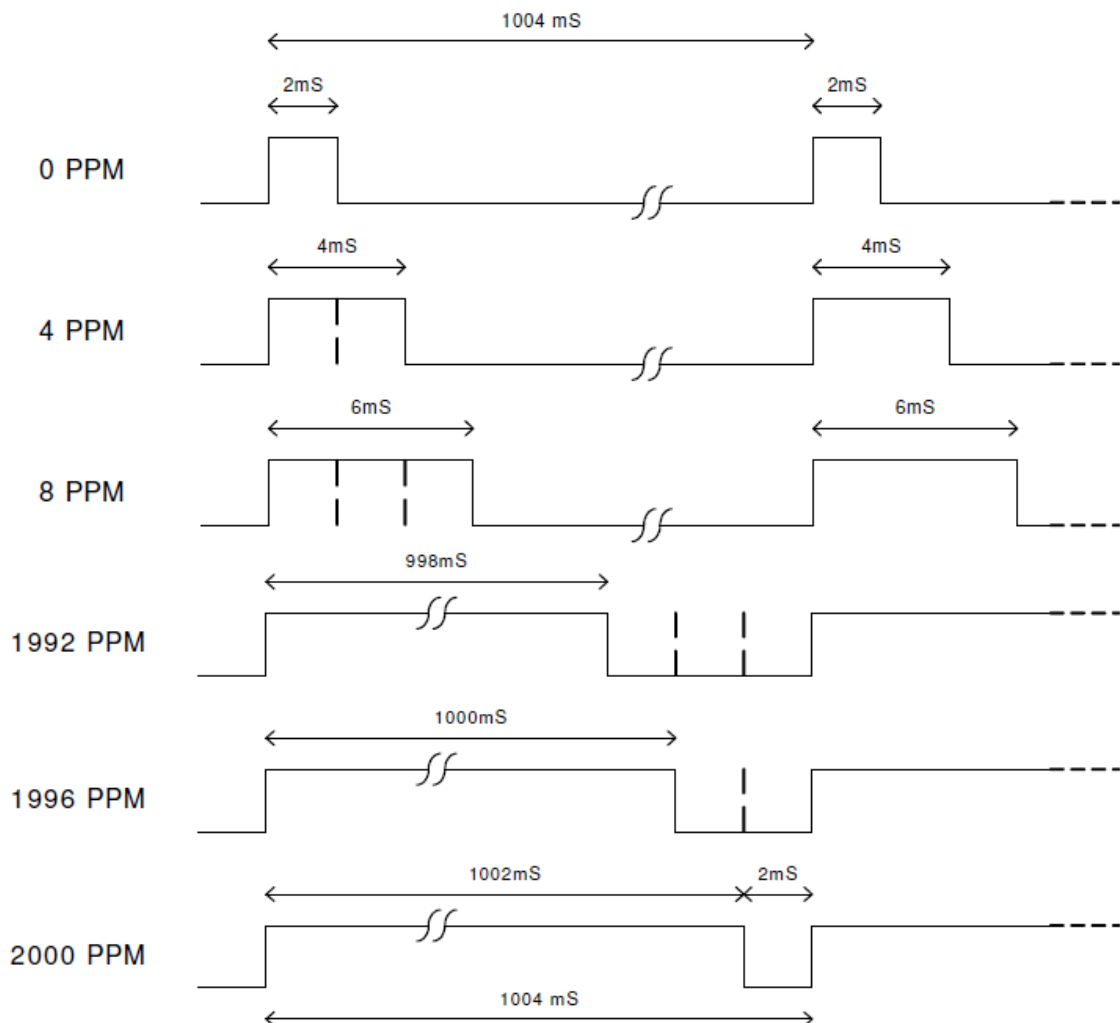
5) Data update period

New data update every 1.5 sec - Infrared source lamp blinking interval

6) Digital Output (@ PWM)

- PWM interval: 1004 mS
- Positive duty:  $(PPM / 2) + 2mS$

Ex) Output signals when measuring range is set 2,000ppm



## Beschreibung UART Schnittstelle SEN CO2 S 100 und SEN CO2 O 100

### 3. LED lamp signal

Lamp	Indicator	Function
LED 1	Operating	Infrared lamp ON for collecting sensor's signal
LED 2	-	Not used
LED 3	-	Not used

### 4. UART Series Communication

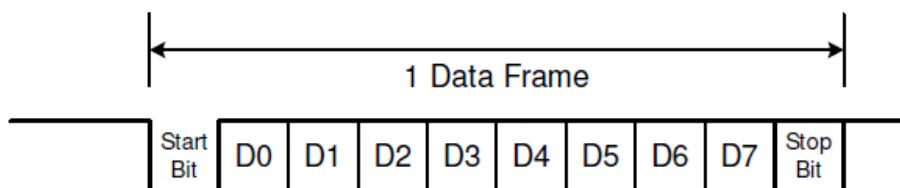
#### 1) Communication connectors

PIN No.	Name	Descriptions
1	DTR	FACTORY RESERVED
2	RST	FACTORY RESERVED
3	TXD	TRANSMIT DATA
4	RXD	RECEIVE DATA

\* WAFER : Yeonho Elec. YMW025-04R or Molex 5267-03

#### 2) Communication Mode : ASYNC

#### 3) Communication data type



- BAUD RATE        38,400bps,
- Data Bits        8 bit
- Parity Bit        no
- Stop Bit         1 bit

## Beschreibung UART Schnittstelle SEN CO2 S 100 und SEN CO2 O 100

### 4) Communication Protocol

COMMAND	1 byte	2byte	3byte	4byte
ASCII	#	H-DATA	L-DATA	CR
HEX	0x23	0x??	0x??	0x0D

- STX : shows the start of '#' protocol
- EOT : shows the end of CR protocol

#### ❖ Command transmission from a Computer to a CO<sub>2</sub> Module

[Command]

00~ 09 : Product information

10~19 : Read a Module's status

20~29 : Setting commands for factory calibration

30~39 : Setting commands for factory inspection

40~99 : Reserve

#### ❖ Read MODULE's information

PC->MODULE : Do command reading the module's information

MODULE->PC : Transmit product's information of a stored module

#### Ex) When read a CO<sub>2</sub> Module's information... (KD-IAQ10 Ver1.xx)

COMMAND	1 byte	2byte	3byte	4byte
ASCII	#	0	0	CR
HEX	0x23	0x30	0x30	0x0D

RETURN	1 byte	2byte	-	n-1 byte	n bytes
ASCII	#	Data 0	-	Data n	CR
HEX	0x23	0x??	-	0x??	0x0D

#### ❖ Read the current CO<sub>2</sub> ppm

PC->MODULE : Do command reading level of CO<sub>2</sub>

MODULE->PC : Transmit the current level

This module can measure CO<sub>2</sub> concentration up to 9,999ppm.

#### Ex) @980 ppm

COMMAND	1 byte	2byte	3byte	4byte
ASCII	#	1	0	CR
HEX	0x23	0x31	0x30	0x0D

RETURN	1 byte	2byte	3byte	4byte	5 byte	6 byte
ASCII	#	0	9	8	0	CR