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Datenblatt SEN CO2 HP

■ Connector input & output signal

Pin No.		Name	Notes	Wire color
1	G+	24 V DC (+)	System Power	Red
2	G0	24 V DC (-)	Ground	Black
3	OUT1	Output 1 (+)	0~10V (output error: FS±2%)	Yellow
4	OUT2	Output 2 (+)	4~20mA (output error: FS±2%)	Violet or Orange
5	RS485A	RS485 terminal A		Green
6	RS485B	RS485 terminal B		Blue

■ RS485 Communication protocol

1. Communication Connector

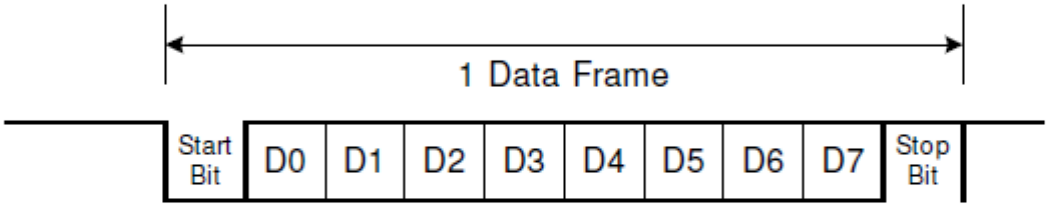
Pin No.	Name	Notes
5	RS485 A	RS-485 connection terminal A
6	RS485 B	RS-485 connection terminal B

(2) WAFER : No.5, 6

2. Communication Mode

ASYNC (UART : Universal Asynchronous Receiver Transmitter)

3. Communication data type



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

4. Communication protocol

1) Commands for requesting product information and setting status from MASTER to SLAVE

Command	Description
10(0x0A)	Transfer measured CO_2 value
58(0x3A)	Change CO_2 module ID (default: 31)
59(0x3B)	Change signal output mode of CO_2 module(default :current)
60(0x3C)	Change communication Baud Rate of CO_2 module (default 38,400bps)

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2) Commands for data transfer from MASTER to SLAVE

No	Data	Types	Bytes	Ranges	Notes
1	STX	byte	1	0x03	Block start byte
2	Slave ID	byte	1	1~31	System ID
3	Data block length	byte	1	6	Block total length
4	COMMAND	char	1	0x0A : data transfer command	
5	CheckSum	byte	1	0 ~ 255	Sum no.1 to no.4
6	ETX	byte	1	0x04	Block stop byte

3) Commands for setting or changing ID status from MASTER to SLAVE

No	Data	Types	Bytes	Ranges	Notes
1	STX	byte	1	0x03	Block start byte
2	Slave ID	byte	1	1~31	system ID
3	Data block length	byte	1	8	Block total length
4	COMMAND	char	1	0x3A : system setting changing command	
5※	Data	byte	2	0x0001 : setting ID to 'no.1'	Range : 1~31
6	CheckSum	byte	1	0 ~ 255	Sum no.1 to no.5
7	ETX	byte	1	0x04	Block stop byte

※ Communication data are composed in low byte(0x01)->high byte(0x00) order.
(Little-endian)

4) Commands for output type setting changing output status from MASTER to SLAVE

No	Data	Types	Bytes	Ranges	Notes
1	STX	byte	1	0x03	Block start byte
2	Slave ID	byte	1	1~31	system ID
3	Data block length	byte	1	8	Block total length
4	COMMAND	char	1	0x3B : output type change command	
5※	Data	byte	2	0x0001 : setting to current output	0: 0~10V 1: 4~20mA
6	CheckSum	byte	1	0 ~ 255	Sum no.1 to no.5
7	ETX	byte	1	0x04	Block stop byte

※ Communication data are composed in low byte(0x01)->high byte(0x00) order.
(Little-endian)

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5) Commands for setting or changing transmission speed from MASTER to SLAVE

No	Data	Types	Bytes	Ranges	Notes
1	STX	byte	1	0x03	Block start byte
2	Slave ID	byte	1	1~31	system ID
3	Data block length	byte	1	8	Block total length
4	COMMAND	char	1	0x3C : command for changing transmission speed	
5*	Data	byte	2	0x2580 : set as 9,600bps	
6	CheckSum	byte	1	0 ~ 255	Sum no.1~no.5
7	ETX	byte	1	0x04	Block stop byte

※ Communication data are composed in low byte(0x01)->high byte(0x00) order.
(Little-endian)

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6) Commands for data transfer from SLAVE to MASTER

No	Data	Types	Bytes	Ranges	Notes
1	STX	byte	1	0x03	Block start byte
2	Slave ID	byte	1	1~31	system ID
3	Data block length	byte	1	26	Block total length
4	COMMAND	char	1	System command	Master transfer command
5	System class code	byte	1		
6	System proper code	string	10	System product name	
7※	CO_2	Unsigned integer	2	0	Not using this data, it transfer '0x0000' When return value is 0xD5 0x02 , the formula is (0x02*0x100)+0xD5 $=0x02D5_{(16)}=725_{(10)}$ Ex) 1%module→725ppm 10%module→7,250ppm(0.725%) 20%module→72,500ppm (7.25%)
8※	Measured Temperature value		2	0	
9※	Measured Humidity value		2	0	
10※	Measured VOC value		2	0	
11	Firmware version	byte	1	100	Ver. 1.00
12	CheckSum	byte	1	0 ~ 255	Sum no.1 to no.11 Ex) Sum value : 0x01FF → 0xFF 0xFFFF → 0xFF
13	ETX	byte	1	0x04	Block stop byte

※ Communication data are composed in low byte(0x01)->high byte(0x00) order. (Little-endian)