

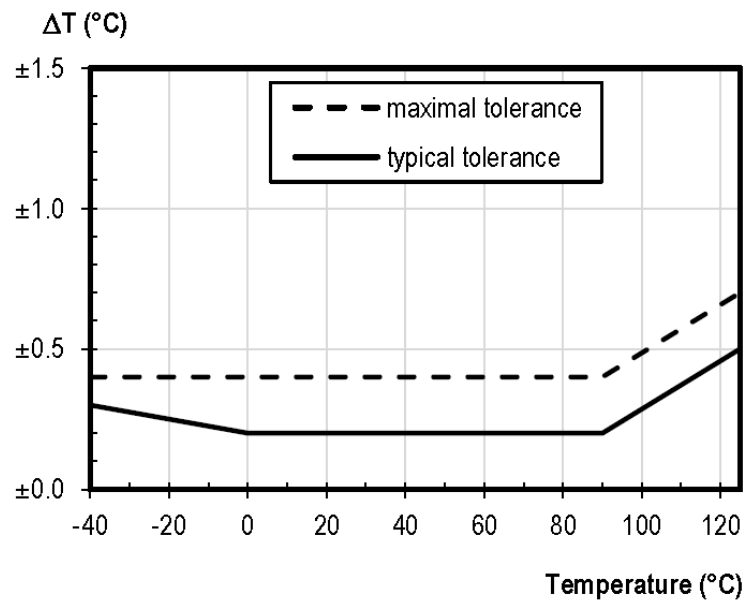
■ SPECIFICATIONS.

1. CO₂(Carbon dioxide)sensor .

List	Content	Remark
Type	NDIR Type	
Range	0~3000ppm, 0~5000ppm, 0~10000ppm	(4~20mA, 0~5V) Option
Accuracy	Full Scale 의 ±2%, ±3% of measurement,	@ 0 ~ 50℃
Signaling period	Every 2.0 Seconds	
Warm-up Time	@25℃ < 90Sec	
Working condition	-10 ~ 50℃	
	0 ~ 99.5%RH	Non-dew point

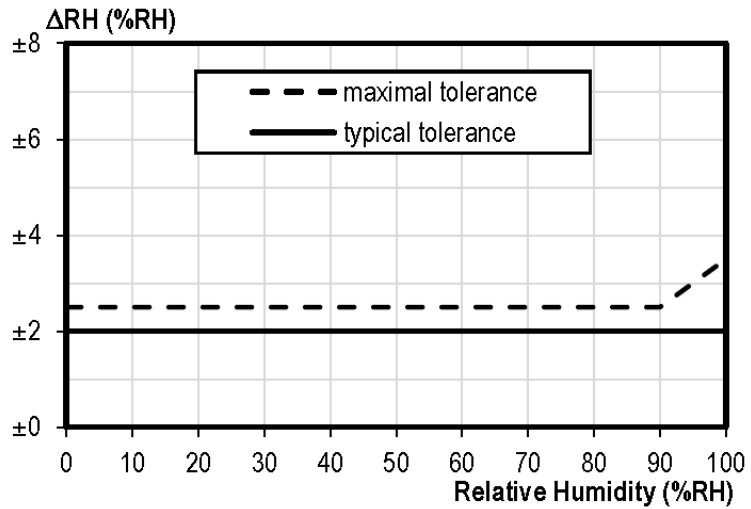
2. Temperature sensor (Thermometer).

List	Content	Remark
Range	-10.0 ~ 50.0℃	
Accuracy	±0.3 ℃	Max(picture)
Response	5 ~ 30 Sec	



3. Humidity(Hygrometer) sensor .

List	Content	Remark
Range	0 ~ 99.9 %RH	
Accuracy	± 2 %RH	Max(picture)
Response	8 Sec	



4. Power: DC12V ~ 24V more 200mA .

5. Consumption: Normal 70mA, Peak 110mA.

■ Feature.

1. Data transmitter are able to communicate with JVT200C, PLC or/and MICOM are able to access as well.
2. It was designed to able to measure stable value on the water contact circumstance among amongst humidity which create a dew.
3. Low Cost, High Quality.
4. RS-485 Modbus available.
5. Analog OUTPUT(4~20mA,0~5V(Option)) and Digital OUTPUT(RS-485) available simultaneously.
6. Temp/Humidity sensors are full covered for waterproof, available on 100% humidity condition

■ PROTOCOL(USER)

1. Data transmission Format.

Byte	1	2	3	4	5	6	7	8	9	10	11	12	13
Process	STX	ID		CO2 Value					Temperature Value				

Byte	14	15	16	17	18	19	20	21	22	23	24
Process		Humidity Value					SHT	Mode	Check Sum	CR	LF

※ Each process is shown as ASCII code.

- A. STX : Start Code (0x02).
- B. ID : Transmitter ID(Initial value is 0x00).
- C. CO₂ Value : Descript 4 digits value.
- D. Temperature Value : Measurement value descriptive.
 When below zero, 9th Byte is ‘-’ (0x2D).
 When above zero, 9th Byte is Space(0x20).
 12nd Bytes descriptive decimal ‘.’ (0x2E).
- E. Humidity Value : Measurement value .
 17th Bytes descriptive decimal ‘.’ (0x2E).
- F. SHT : State Temp/Humidity condition.
 ‘0’ (0x30)= Normal operation.
 ‘1’ (0x31)= Abnormality is found on value of
 Temp/Humidity or Connection broken with
 device of Temp/Humidity.
 (Temp/Humidity’ s previous data is shown)
- G. Mode : 0’ (0x30)= Transmit data 2sec periodically
 1’ (0x31)= Transmit data when request exist
 (initial value 0x30).
- H. Check Sum: Sum all from 1 to 21 Bytes, Use 1byte
 only as unit.
- I. CR : 0x0D.
- J. LF : 0x0A.
- K. 3, 8, 14, 19 Byte: Space (0x20).

※ Adapt the data, After receive the 24 Bytes and Inspect with the “Check Sum” for its integrity.

※ SHT' s value '1' , it means that be founded abnormality on the Temp/Humidity value measured or connection broken with devices. Do not use the data from it.

When it' s value '1' , the value of Temp/Humidity transmitted from it should be the value which is before the Error.

1. Configuration.

Byte	1	2	3	4	5	6	7	8	9	10
Process	STX	ID	S	SET ID	Mode	Rese rve	Select Comm	Check Sum	CR	LF

- A. STX : Start Code (0x02).
- B. ID : Transmitter ID(when 0x00, all of Transmitter acknowledge the order).
- C. 'S' (0x53): Configuration Command.
- D. SET ID : Transmitter ID set(0x00 ~ 0xFF).
- E. Mode: '0' (0x30) = Transmit data 2sec periodically.
'1' (0x31)=Transmit data when request exist
(initial value 0x30)
- F. Reserve : Auxiliary.
- G. Select Comm. : 0x31(Fix).
- H. Check Sum : Sum all from 1 to 7 Bytes, Use 1byte only as unit..
- I. CR : 0x0D.
- J. LF : 0x0A.

※ When set Transmitter ID, Do not use the 0x00 code.

If Transmitter has the ID(except 0X00), It is responded unconditionally from ID 0X00' s calling. This is to verify the ID when the user doesn' t know the exact ID on the transmitter it has and be able to set the ID.

※ Be caution for the certain amount of transmitter' s response which connected with ID 0X00 when you call. Because they are all responded.

1. Request data (Use only Mode '1').

Byte	1	2	3	4	5	6	7	8	9	10
Process	STX	ID	R	Reserve			Select Comm	Check Sum	CR	LF

- A. STX : Start Code (0x02).
- B. ID : Terminal ID.
- C. 'R' (0x52): Command data request.
- D. Reserve : Auxiliary.
- E. Select Comm. : 0x31(Fix).
- F. Check Sum : Sum all from 1 to 7 Bytes, Use 1byte only as unit..
- G. CR : 0x0D.
- H. LF : 0x0A.

■ PROTOCOL II (MODBUS)

Modbus Address Map.

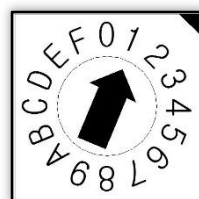
Address		PROCESS (2 byte)	Reading /Writing
Hex	Dec		
0x64	100	CO2 Value	Reading
0x66	102	Temperature Value	Reading
0x68	104	Humidity Value	Reading
0x6A	106	Temp/Humidity sensor's error 0x00 0x30 : Normality 0x00 0x31 : Abnormality	Reading
0x6C	108	Device ID (refer to additional explanation)	Reading /Writing

※ Temp/Humidity measurement value is to [Value multiple 10], the designer can apply actual value as formulation which divide by 10

Ex) (Addr.0x66(102)) 253(0x00FD)→ Real Value 25.3℃,
 (Addr.0x66(102))-123(0xFF85)→ Real Value -12.3℃,
 (Addr.0x68(104)) 536(0x0218) → Real Value 53.6%.

※ ID 1~14 are able to use with HEX S/W. if expect more than 14(MAX:64), Use the Device ID writing after setup the HEX S/W "1"

1. Power OFF.
2. Hex S/W : 1.
; ID is 01 as standard setup
3. Power ON.
4. Device ID set
5. Power OFF.
6. Hex S/W : F.
7. Power ON.
8. Normal communication as set Device ID .



Hex S/W :setup [01]

■ Modbus explanation.
(ID Setting)

Function code 03 : Read Holding Registers

1 This is function code which are able to read the word data status. The next chart is the exemplary of reading address 100, 102 JVT260 from JVT260 ID 01 .

Query:

Field	DATA	Count
VT260 ID	0x01	1
Function code	0x03	1
Beginning Address HI	0x00	1
Beginning Address LO	0x64	1
Length HI	0x00	1
Length LO	0x02	1
Check error	CRC	2

The response is as below. 1 word are 2 bytes so it is responded 4 bits.

Response:

Field	DATA	Count
VT260 ID	0x01	1
Function code	0x03	1
Bite count	0x04	1
Data 1 HI	0x01	1
Data 1 LO	0x47	1
Data 2 HI	0x01	1
Data 2 LO	0x05	1
Check error	CRC	2

Query :

0x01 0x03 0x00 0x64 0x00 0x02 0x85 0xD4

Response :

0x01 0x03 0x04 0x01 0x47 0x01 0x05 0x8A 0x49

C02 Value : 0x0147 => 327 PPM
 Temperature Value : 0x0105 => 26.1°C

Function code 06 : Preset Single Registers

This is function code which are able to change 1 word value.
 The next chart is the exemplary of making change JVT260 ID 1 to ID 10(0x0A).

Query:

Field	DATA	Count
VT260 ID	0x01	1
Function code	0x06	1
Beginning Address HI	0x00	1
Beginning Address LO	0x6C	1
Length HI	0x00	1
Length LO	0x0A	1
Check error	CRC	2

The response is as below

.

Response:

Field	DATA	Count
VT260 ID	0x01	1
Function code	0x06	1
Beginning Address HI	0x00	1
Beginning Address LO	0x6C	1
Length HI	0x00	1
Length LO	0x0A	1
Check error	CRC	2

Query :


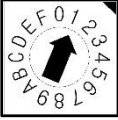
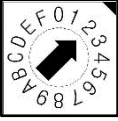

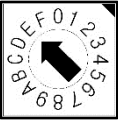

0x01 0x06 0x00 0x6C 0x00 0x0A 0xC9 0xD0

Response :

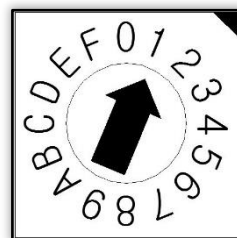
0x01 0x06 0x00 0x6C 0x00 0x0A 0xC9 0xD0

■ Hex Switch ID Setting (JVT-260)

1. Hex Switch.

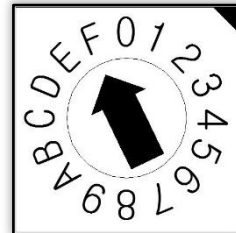
	<p>0 => Data transmission every 2sec(unconditional).</p>
	<p>1 => ID set as 1 data transmission will be processed only by the request.</p>
	<p>2 => ID set as 2, data transmission will be processed only by the request.</p>
	<p>3 => ID set as 3, data transmission will be processed only by the request</p>
	<p>14 => ID set as 14, data transmission will be processed only by the REQ</p>
	<p>15 => Available to modify by UART communication, when choose setup more 1 ID.</p>

2. If HEX switch value were 0, Serial communication aren't able to change the configuration. ID more 1 setup and are able to change the configuration.



[S/W1 : setup 01]

3. If the switch were value 15(F), it is able to operate and monitoring the configuration of communication and data process with PC management program.



[S/W1 : setup F(15)]

4. Baud Rate: 9600bps.

■ M o d e configuration of analog output, check the location of ID and current, voltage.

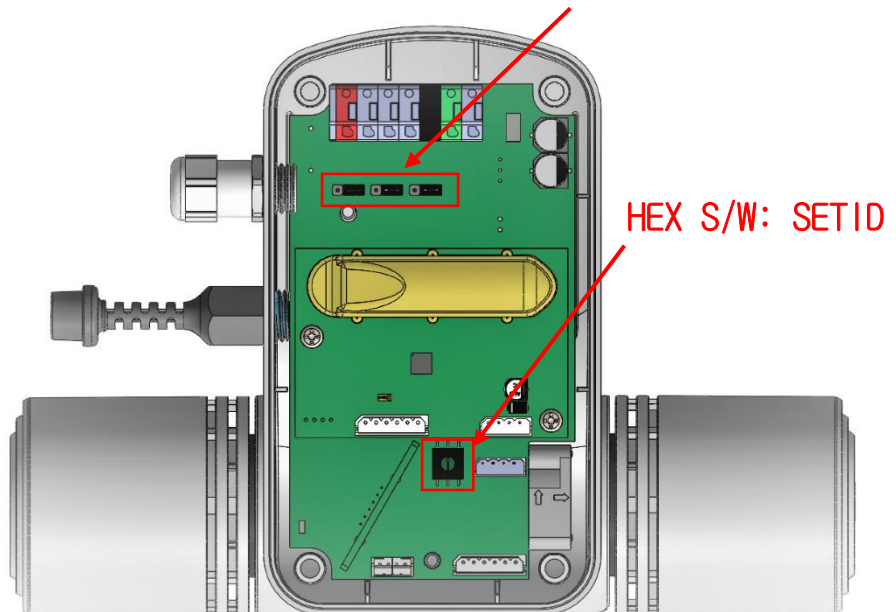
- Current location



- Voltage location



Choose the Current or Voltage with Jumper PIN



BEWARE, this is for **hardware process**, this process also need **software process**. It means that It is not able to change the way of loop in the field urgently. You should be consulted with manufacturer before change.

- Wiring diagram