KIMO®
INSTRUMENTS

User Manual

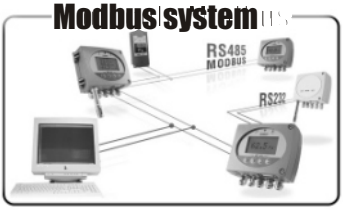
Presure • Temperature • Humidity • Air Velocity • Air Flow

New

CE

ATT 300 and ATE 300
displays configuration

Modbus system



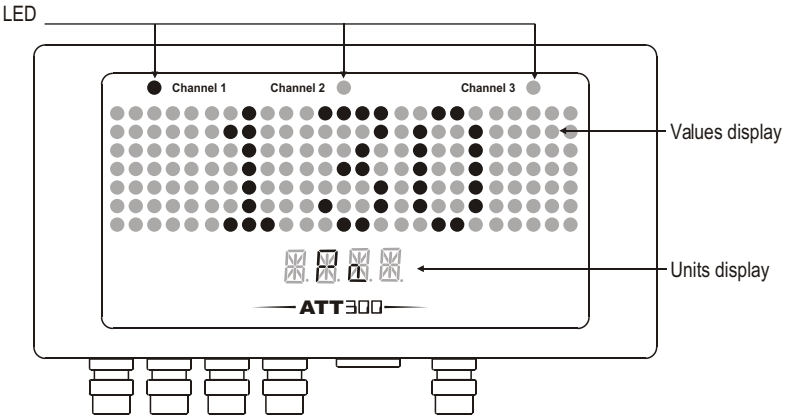
Remote control

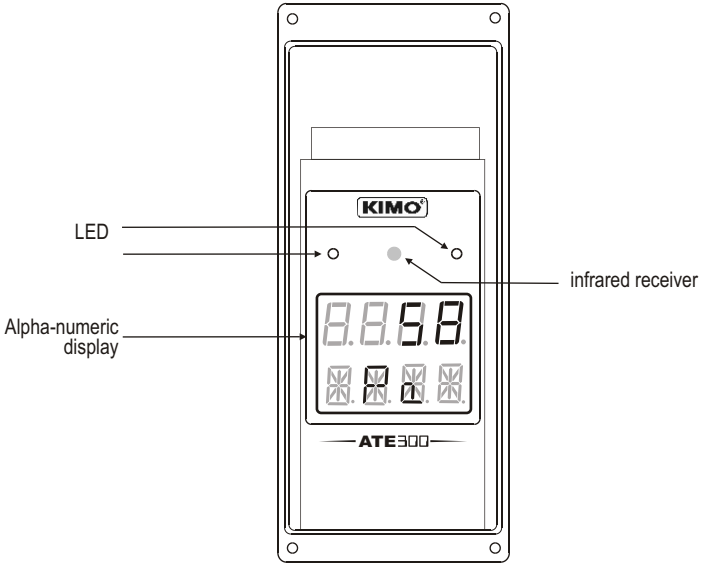
Summary

1.a - Working principle

Class 300 display configuration can be made with the remote control and the Modbus system and enables you to configure the analogue inputs, activate the channels... .

Principle: the configuration options are accessed via **folders and sub-folders** (similar to Windows®).
Access is made via a **numerical code** (full details in this manual).





Meaning of remote control keys

⊕ To incremente a value or a level

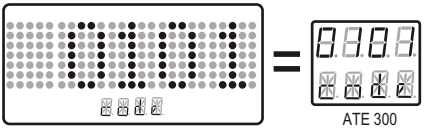
⊖ To decremente a value or a level

OK To validate an input

Esc To cancel an input or to return to the previous step

Channel selector
With this selector, you can swap the transmission channel so that it matches with the transmitter reception channel. See page 6 to configure the transmitter reception channel.

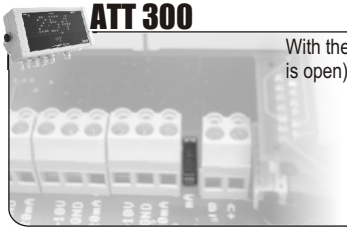
NOTE The preview screens were made from the ATE 300. But the principle **remains the same** for the ATT 300 configuration.



1.b -Input signal selection

Class 300 displays can output either a **voltage** or a **current** signal (see page 10)

ATT 300

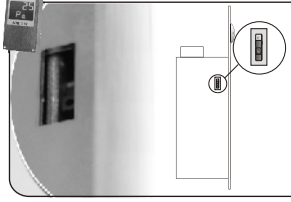


With the orange on-off switch located between the terminal blocks (when the display is open), you can choose analogue output 0-10V (voltage) or 4-20 mA (current)

Down
4-20 mA

Up
0-10 V

ATE 300



With the black on-off switch located on the left side of the display, you can choose the analogue input 0-10V (voltage) or 4-20 mA (current)

Down
4-20 mA

Up
0-10 V

2.a - Configuration parameters

- **Communication speed**..... 19200 Bauds
- **Data bits**..... 8 bits
- **Stop bit**..... 1 bit
- **Parity**..... None
- **Flow control**..... None
- **Transmitter addressing**..... between 1 and 255
  (default address "0" for single ended bus configuration)
  To change the transmitter addressing, see page 7.

2.b - Functions

- **Register reading**..... Function 03
- **Register writing**..... Function 16
- **Communication loop test**..... Function 08

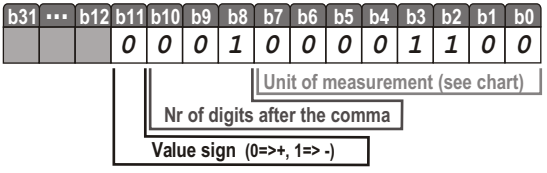
2.c - Access codes to Registers

- **Registers type**..... Signed long integer (32 bits), permuted (LSB, MSB)

- ***Values -*** Modbus code: **1438 (channel 1)**
  1442 (channel 2)
  1446 (channel 3)
  Ex. The value sent by the transmitter is 623

- ***Values formatting***
  Modbus code: **1440 (channel 1)**
  1444 (channel 2)
  1448 (channel 3)

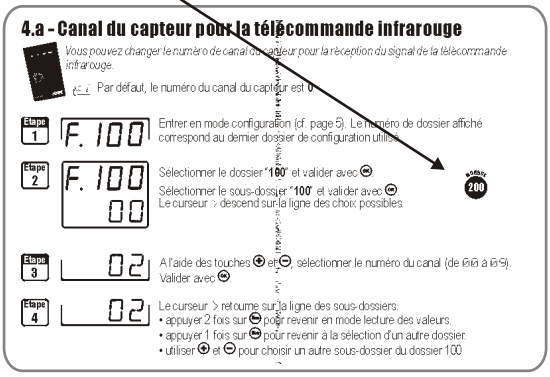
Units of measurement			
1	m/s	12	mmH_2O
2	fpm	13	inWg
3	m3/h	14	Kpa
4	L/s	15	mmHg
5	cfm	16	mbar
6	m3/s	17	g/kg (absolute humid. **ρ**)
7	°C	18	°C (dew temperature **Td**)
8	°F	19	°F (dew temperature **Td**)
9	%RH	20	°C (humid temp. **Tw**)
10	PSI	21	°F (humid temp. **Tw**)
11	Pa	22	KJ/Kg (Enthalpy **i**)



*The formatting displayed is **268**.*
Unit of measurement => 12 (see chart)
Figure(s) after the comma => 1
Sign => positive

If the value measured is equal to 623 :
Result => 62,3 mmH_2O

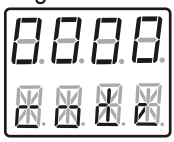
Other access codes to different registers are indicated on each function at stage n°2.
Shown as this pictogram: Modbus 200



⚠ This step is COMPULSORY for each configuration.

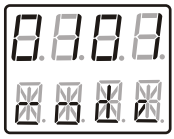
To access the transmitter functions, **and for safety**, you have to first enter a safety code.
- Please check that the transmitter is powered on.
- If the transmitter displays an error code, please see "Errors Code" section on page 13.

Step 1
Press ⓞⓚ
to get this screen



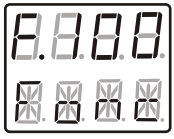
The first "0" blinks, which means that this column is activated and you can enter data from the keypad.

Step 2
Enter CODE "**0101**" with keypad and validate with ⓞⓚ



The code must be entered from left to right.
To **increment** a value or a level, press ⊕
To **decrement** a value or a level, press ⊖
To **validate a value (level) or to validate the code**, press ⓞⓚ
To return to the **previous status or to cancel**, press Esc

Step 3
This screen appears:

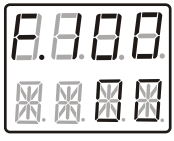


This screen confirms that the code was correctly entered, and that you can **configure the transmitter.**
If the code was wrongly entered, the transmitter initializes and returns to the starting display.

Configuration folder number
The transmitter includes **3 folders** maximum::
- **100**
- **200**
- **300**

Ex. folder "200" corresponds to configuration of units of measurement. See page 12.

Step 4
Selection of configuration folder



To select your configuration folder, press ⊕ to increment 100 or press ⊖ to decrement 100.
Once the folder is selected, press ⓞⓚ to validate.

On the top left of each page *of this manual, you can find a reminder of the configuration folder where the function is available.*

📁 F400

4.a - Transmitter channel for infrared remote control

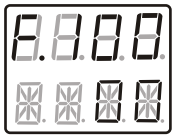
You can change the channel number for receiving the signal from the infrared remote control.

NOTE By default, the channel number is **0**.

Step 1

Go into the configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.

Step 2



Select the folder "**100**" and validate with ⓞ.

Select the sub-folder "**100**" and validate with ⓞ.
The cursor > goes to the line of available choices.

Modbus 200

Step 3

With ⊕ and ⊖ keys, select the channel number (from 00 to 09). Validate with ⓞ.

Step 4

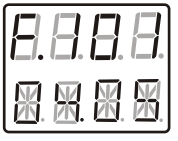
The cursor > returns to sub-folders line.
- press twice Esc to return to reading mode
- press once Esc to select another folder.
- with ⊕ and ⊖ keys, you can choose another sub-folder from the folder 100.

4.b- Serial number of the transmitter

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.

Step 2



Select the folder "**100**" and validate with ⓞ.
Select the sub-folder "**101**"

Modbus 202

Step 3

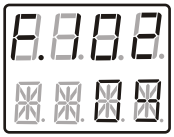
The serial number of the transmitter is displayed (on 2 lines on ATE300 and in horizontal scrolling on ATT300).
The cursor > goes to sub-folders line.
- press twice Esc to return to reading mode.
- press once Esc to return to another folder selection.
- with ⊕ and ⊖ keys to choose another sub-folder from the folder 100.

4.c - Slave addressing (Modbus)

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.

Step 2



Select the folder "**100**" and validate with ⓞ.

Select the sub-folder "**106**" and validate with ⓞ.

The cursor > goes to available choices.

Modbus 204

Step 3

With ⊕ and ⊖ keys, set the slave addressing number (from 1 to 255).

Validate with ⓞ.

Step 4

The cursor > goes to sub-folders line.

- press twice Esc to return to reading mode.
- press once Esc to return to another folder selection.
- with ⊕ and ⊖ keys to choose another sub-folder from the folder 100.

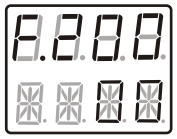
5.a - Pre-programmed units of measurement

21 units are preprogrammed in the display, according to several parameters: pressure, temperature, humidity, air velocity and airflow...

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.

Step 2



Select the folder "**200**" and validate with OK.

Select sub-folder and validate with OK. The cursor > goes to choices line.

Channel 1	Channel 2	Channel 3
200	**201**	**202**
Modbus 400	Modbus 402	Modbus 404

Step 3

With ⊕ and ⊖ keys, select the unit of measurement (see chart below). Validate with OK.

Units of measurement			
0	m/s	11	mmH_2O
1	fpm	12	inWg
2	m3/h	13	Kpa
3	L/s	14	mmHg
4	cfm	15	mbar
5	m3/s	16	g/kg (absolute humid. **ρ**)
6	°C	17	°C (dew temperature **Td**)
7	°F	18	°F (dew temperature **Td**)
8	%HR	19	°C (humid temp. **Tw**)
9	PSI	20	°F (humid temp. **Tw**)
10	Pa	21	KJ/Kg (Enthalpy **i**)

22 => free unit - see Page xxx

Step 4

The cursor > returns to sub-folders line.

- press twice Esc to return to reading mode.
- press once Esc to return to another folder selection.
- with ⊕ and ⊖ keys to choose another sub-folder from the folder 200.

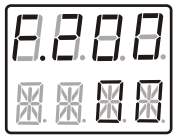
5.b - Creation of a new unit of measurement

If the unit of measurement of the analogue input is not indicated in the preprogrammed units, this function enables you to create a new unit for each channel.

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.

Step 2



Select the folder "**200**" and validate with OK.

Selectionner sub-folder and validate with OK. The cursor > goes to choices line.

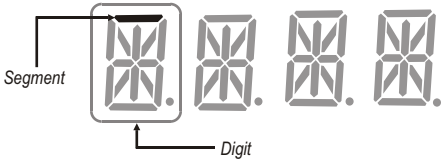
Channel 1	Channel 2	Channel 3
200	**201**	**202**
Modbus 400	Modbus 402	Modbus 404

Step 3

With ⊕ and ⊖ keys, select *22*. Validate with OK.
You enter in "Issue a new unit of measurement" mode.

NOTE the new unit of measurement has maximum 4 digits.

1 • By default, no digit segment will be activated.
The first segment (on the first digit top) blinks.



2 • Meaning of the remote control keys

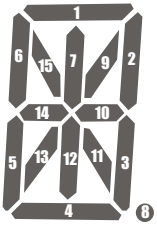
⊕ Goes to the next segment

⊖ Returns to the previous segment

OK Activates the segment chosen (if it was not activated) or deactivates it (if it was activated). Then goes to next segment.

Esc Goes to next digit or validate a new unit if the fourth digit is selected.

3 • Segments sequence



Step 4

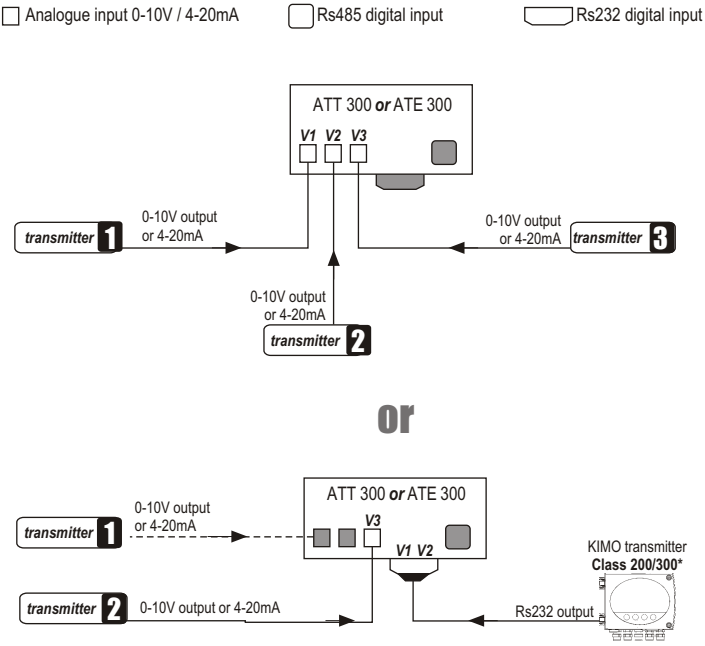
Once the new unit is created, select the fourth digit and validate with Esc
The cursor > goes to sub-folders line.
- press twice Esc to return to reading mode.
- press once Esc to return to another folder selection.
- with ⊕ and ⊖ keys to choose another sub-folder from the folder 200.

6.a - Selection of input type

ATT 300 and ATE 300 have 3 analogue inputs (0-10V or 4-20mA), 1 digital input Rs232 type and one digital input RS485 type (Modbus system). Therefore, 2 different inputs are available: ***analogue input or digital input.***

2 configuration types::

1-*Display of values of a measuring system via* ***Analogue inputs and Rs232***



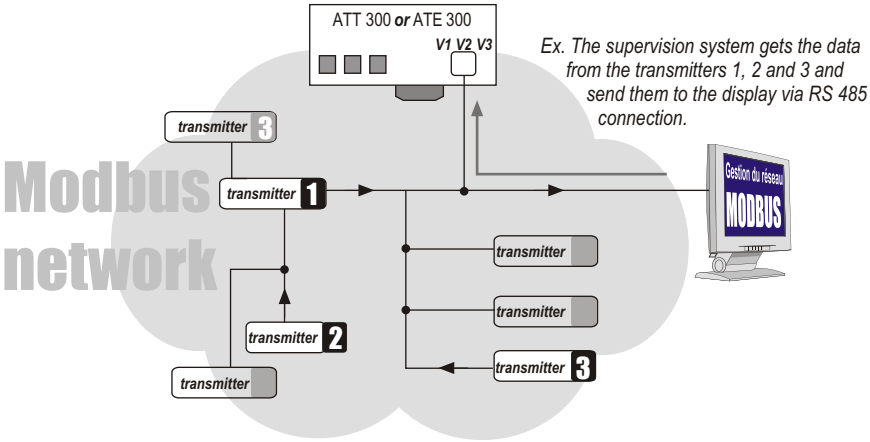
NOTE When you connect a Class 200/300 transmitter via Rs232, you can choose between **2 solutions of connection,** via the analogue inputs:

1> class 200/300 transmitter sends **2 values = 1 analogue input** 0-10V / 4-20mA available (**Channel 3**)
2> class 200/300 sends **1 value = 2 analogue inputs** 0-10 / 4-20mA available (**Channel 3** + Channel 1 or Channel 2, according to the Class 200/300 transmitter configuration. See user manual of Class 200).

! If you want to use the analogue inputs, you have to first **put the DIP switch** so that it matches with the input signal required (see page 2)

6.a - Selection of input type

2- *Display of values of a measuring system via* ***Digital input***



Ex. The supervision system gets the data from the transmitters 1, 2 and 3 and send them to the display via RS 485 connection.

Step 1 — F.300

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.

Step 2 — F.304 / 00

Select folder "**104**" and validate with OK.

Modbus 208

Step 3 — 00

With keys ⊕ and ⊖, select *00* to **activate the analogue inputs and the RS 232** or *01* to **activate the RS485 digital input** (then, the analogue inputs and RS 232 are automatically deactived).
Validate with OK.

Step 4 — 01

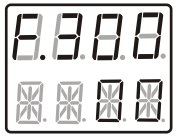
The cursor > returns to sub-folders line.
- press twice Esc to return to reading mode.
- press once Esc to return to another folder selection.
- with ⊕ and ⊖ keys to choose another sub-folder from the folder 400.

6.b - Activation / Deactivation of a channel

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.

Step 2



Select folder "**300**" and validate with ⓞⓚ.

Select sub-folder

and validate with ⓞⓚ.The cursor goes to the line of choices.

Channel 1	Channel 2	Channel 3
300	**304**	**308**
Modbus 600	Modbus 608	Modbus 616

Step 3

With keys ⊕ and ⊖, select *01* to **activate** the channel or *00* to **deactivate it**. Validate with ⓞⓚ.

Step 4

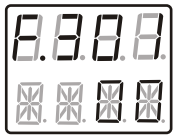
The cursor > returns to sub-folders line.
- press twice ⓔⓢⓒ to return to reading mode.
- press once ⓔⓢⓒ to return to another folder selection.
- with ⊕ and ⊖ keys to choose another sub-folder from the folder 400.

6.c - Comma position

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.

Step 2



Select subfolder "**300**" and validate with ⓞⓚ.

Select sub-folder

and validate with ⓞⓚ. The cursor goes to the line of choices available.

Channel 1	Channel 2	Channel 3
301	**305**	**309**
Modbus 602	Modbus 610	Modbus 618

Step 3

With keys ⊕ and ⊖, select

		ATT 300	ATE 300
00	No comma	✓	✓
01	1 figure after the comma	✓	✓
02	2 figures after the comma	✓	✓
03	3 figures after the comma	✓	✗

Ex. : Value of the channel : ***745***
00 => 745
01 => 74,5
02 => 7,45
03 => 0,745 (ATT300)

Step 4

The cursor > returns to sub-folders line.
- press twice ⓔⓢⓒ to return to reading mode.
- press once ⓔⓢⓒ to return to another folder selection.
- with ⊕ and ⊖ keys to choose another sub-folder from the folder 400.

6.d - Minimum and maximum settings of analogue input

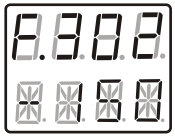
With this function, you can enter mini and maxi values of analogue input, so that they correspond to the limits of analogue signal (0-10V or 4-20mA).

1> Output minimum

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.

Step 2



Select folder "**300**" and validate with OK.

Select sub-folder

and validate with OK. The cursor goes to the line of choices.

Channel 1	Channel 2	Channel 3
302	**306**	**310**
Modbus 604	Modbus 612	Modbus 620

Step 3

With keys ⊕ and ⊖, enter the value of the minimum limit. Validate with OK.
Nota : the left column can be either an integer (from 0 to 9) or the negative sign for a negative minimum limit.

Step 4

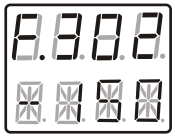
The cursor > returns to sub-folders line.
- press twice Esc to return to reading mode.
- press once Esc to return to another folder selection.
- with ⊕ and ⊖ keys to choose another sub-folder from the folder 400.

2> Output maximum

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.

Step 2



Select folder "**300**" and validate with OK.

Select sub-folder

and validate with OK. The cursor goes to the line of choices.

Channel 1	Channel 2	Channel 3
303	**307**	**311**
Modbus 606	Modbus 614	Modbus 622

Step 3

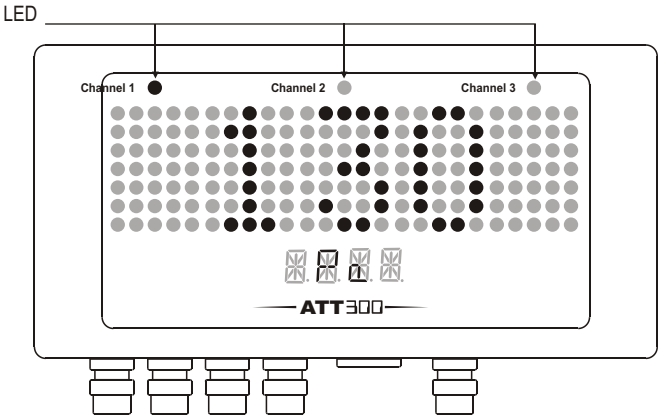
With keys ⊕ and ⊖, enter the value of the minimum limit. Validate with OK.
Nota : the left column can be either an integer (from 0 to 9) or the negative sign for a negative minimum limit.

Step 4

The cursor > returns to sub-folders line.
- press twice Esc to return to reading mode.
- press once Esc to return to another folder selection.
- with ⊕ and ⊖ keys to choose another sub-folder from the folder 400.

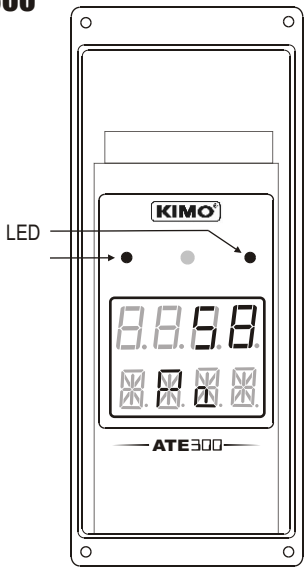
6.e - Meaning of alarms and color LED

6.e.1 - ATT 300



The **3 LED** correspond to the channels.
The channel value (displayed by ATT 300) is automatically linked to a LED.
Ex. LED of channel 1 is activated and its value is 130 Pa.

6.e.2 - ATE 300



The channels are represented by **2 LED**. The channel value (displayed by ATE 300) is automatically linked to 2 LED.
The 2 different channels are identified with a colour code:
2 **green** LED : channel **1**
2 **orange** LED : channel **2**
2 **red** LED : channel **3**

7. Modbus communication speed

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.

Step 2

Select folder "**100**" and validate with OK.

Select sub-folder "**103**" and validate with OK.

Step 3

With keys ⊕ and ⊖, select a communication speed (see chart below). Validate with OK.

Modbus 206

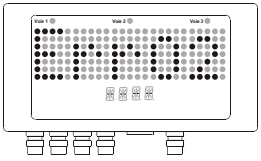
00	2400 bauds	03	19200 bauds (speed by default)
01	4800 bauds	04	38400 bauds
02	9600 bauds	05	115200 bauds

Step 4

The cursor > returns to sub-folders line.

- press twice Esc to return to reading mode.
- press once Esc to return to another folder selection.
- with ⊕ and ⊖ keys to choose another sub-folder from the folder 100

10. Error codes



Error code 2

Problem :

- No channel activated

Solution :

- Activate at least one channel

F.100

Code	Modbus XXX	Description	Available settings
100	200	Channel number of the remote control	0 to 9
101	202	Serial number reading	
102	204	Modbus slave number	1 to 255
103	206	Modbus communication speed	
104	208	Input type selection	

00	2400 bds	02	9600 bds	04	38400 bds
01	4800 bds	03	19200 bds	05	115200 bds

F.200

Code	Modbus XXX	Description
200	400	Unit of channel 1
201	402	Unit of channel 2
202	404	Unit of channel 3

Available settings

Units of measurement

0	m/s	11	mmH_2O
1	fpm	12	inWg
2	m3/h	13	Kpa
3	L/s	14	mmHg
4	cfm	15	mbar
5	m3/s	16	g/kg (absolute humid.**ρ**)
6	°C	17	°C (dew temp. **Td**)
7	°F	18	°F (dew temp. **Td**)
8	%HR	19	°C (humid temp. **Tw**)
9	PSI	20	°F (humid temp. **Tw**)
10	Pa	21	KJ/Kg (Enthalpy **i**)

22 => Free unit - see Page 9

F.300

Code	Modbus XXX	Description	Available settings
300	600	Activation / Deactivation of channel 1	0 or 1
301	602	Position of the comma of channel 1	
302	604	Minimum of analogue input of channel 1	
303	606	Maximum of analogue input of channel 1	
304	608	Activation / Deactivation of channel 2	0 or 1
305	610	Position of the comma of channel 2	
306	612	Minimum of analogue input of channel 2	
307	614	Maximum of analogue input of channel 2	
308	616	Activation / Deactivation of channel 3	0 or 1
309	618	Position of the comma of channel 3	
310	620	Minimum of analogue input of channel 3	
311	622	Maximum of analogue input of channel 3	

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www.kimo.fr

EXPORT DEPARTMENT
Boulevard de Beaubourg - Emerainville - BP 48
77312 MARNE LA VALLEE CEDEX 2
Tel : + 33.1.60.06.69.25 - Fax : + 33.1.60.06.69.29