KIMO®
INSTRUMENTS

User Manual

Presure •Temperature •Humidity •Air Velocity •Air Flow

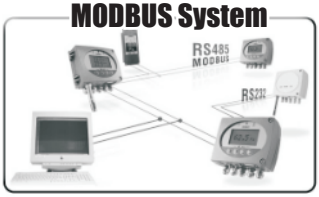
Configuration of CPA300 and THA300

New

CE

Remote control

MODBUS System



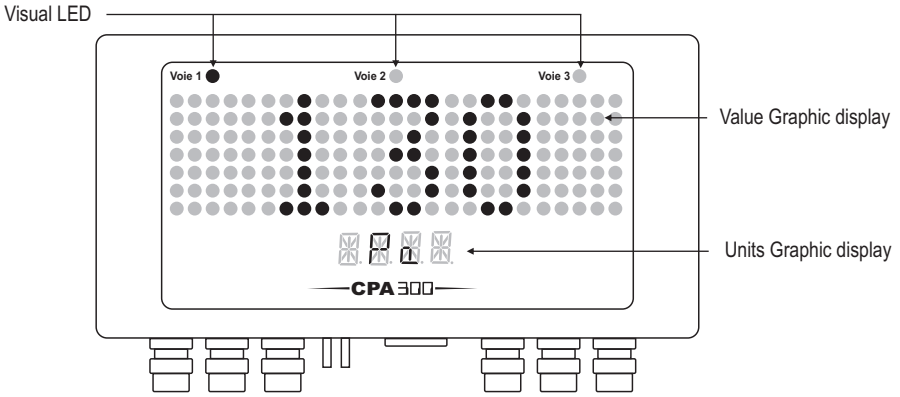
Temperature
Humidity
< THA 300

Pressure
CPA 300 >

1.a - Working principle

Using remote control / Modbus configuration, you can activate (or deactivate) a channel, change the measuring range, set the set points and time-delay...

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).



1.a.1 - Infrared remote control

Meaning of the remote control keys

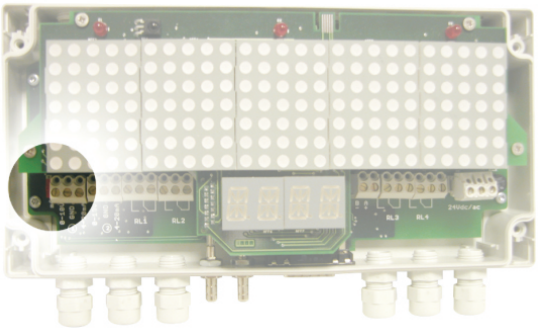
- ⊕ To increment a value or a level
- ⊖ To decrement a value or a level
- OK To validate an input
- Esc To cancel an input or to return to the previous step

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.

1.b - Output signal selection

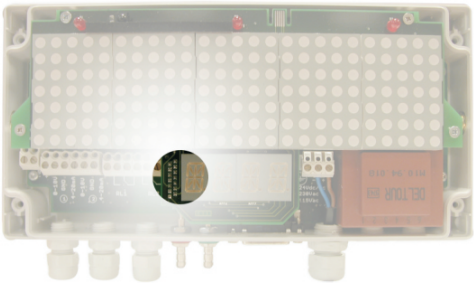
Voltage or Current ?

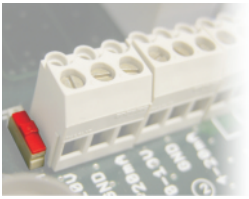
The Class 300 can output either a **voltage** or a **current** signal.



Transmitter with
24 Vac/dc
power supply

Transmitter with
230 Vac
power supply
(Ref. HV).





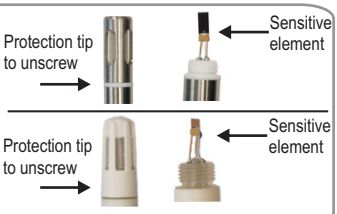
24 Vac/dc power supply model

The on-off switch is located on the left of the terminal block for transmitters with a 24 Vac/dc power supply model and on the right of the relay 1 and 2 for transmitters with a 230 Vac power supply model (Ref.HV). With the on-off switch you can choose analogue output 0-10V (voltage) or 4-20 mA (current).

230 Vac power supply model (Ref. HV)

1.c - Protection tip of the sensor

It's extremely unwise to remove the protection tip of our hygrometry probes as the sensitive element is very fragile even to light contacts. However, if you have to remove the protection tip, take all possible precautions and avoid any contact with the sensitive element. To remove the protection tip, unscrew it or unclip it.



2.a - Configuration parameters

- **commonication speed** ..... 19200 Bauds (see page 28 to configure the speed)
- **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
  (see page 6)

2.b - Functions

..... to change the addressing, see page 8.

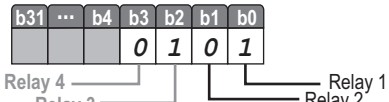
- **Register reading** ..... Function 03
- **Register writing** ..... Function 16
- **commonication loop test** ..... Function 08

2.c - Access codes to Registers

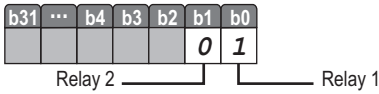
- **Registers type** ..... Signed long integer (32 bits), permuted (LSB, MSB)
- ***Alarms status -*** Modbus code : **1436**

For 24 Vac/dc power supply model

Ex. The value sent by the transmitter is 5
Alarm condition 1
and relay 1 excited

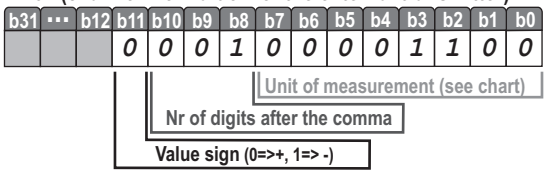


For 230 Vac power supply model (Ref. HV)



- ***Values -*** Modbus code : **1438 (channel 1)**
  1442 (channel 2)
  1446 (channel 3 or value 1 of the external transmitter)
  1450 (channel 4 or value 2 of the external transmitter)
  Ex. the value sent by the transmitter is 6321

- ***Values formatting -*** Modbus code : **1440 (channel 1)**
  1444 (channel 2)
  1448 (channel 3 or value 1 of the external transmitter)
  1452 (channel 4 or value 2 of the external transmitter)



*Ex. 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 6231 :
Result => 623,1 mmH$_2$O

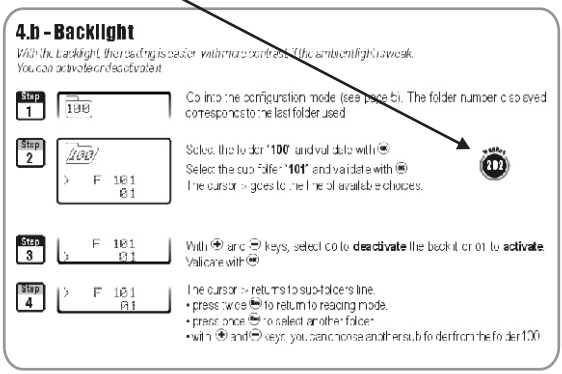
Units of measurement			
1	m/s	12	mmH$_2$O
2	fpm	13	inWg
3	m3/h	14	Kpa
4	L/s	15	mmHg
5	cfm	16	mbar
6	m3/s	17	g/kg (absolute humidity. **ρ**)
7	°C	18	°C (dew temp. **Td**)
8	°F	19	°F (dew temp. **Td**)
9	%RH	20	°C (wet temp. **Tw**)
10	PSI	21	°F (wet temp. **Tw**)
11	Pa	22	KJ/Kg (Enthalpy **i**)

2.c - Access code to Registers (sequel)

- ***Serial number of sensing element (SPI - CPA 300 / Humidity - THA 300)***

Modbus code : **1402**

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

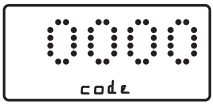


⚠ This step is COMPULSORY for each configuration.

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 31

Step 1

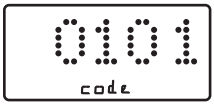
Press on ⓞⓚ
to get this screen



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

Step 2

Enter the CODE "**0101**" with the keypad and validate with ⓞⓚ

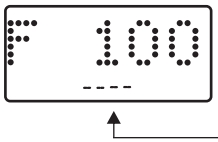


The code must be entered from left to right.
To **increment** a value or a level, press ⊕
To **decrement** a value or a level, press ⊖
To **validate a value (level) or to validate the code**, press ⓞⓚ
To return to the **previous status or to cancel**, press Ⓔⓢⓒ

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.



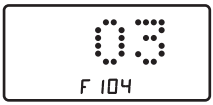
Configuration folder number
The transmitter includes **6 folders** maximum :

- **100**
- **200**
- **300**
- **400**
- **500**
- **600**

Ex. In the folder 400, you can configure the alarms and relays. See page 12.

Step 4

Configuration folder selection



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

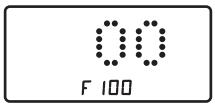
You can change the channel number for receiving the signal from the infrared remote control.
***The advantage is that only one remote control** is required to drive **several transmitters,** and that there is no interference if 2 transmitters are located side by side.*

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

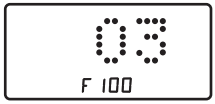
Step 2



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

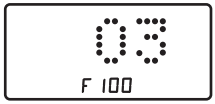
Modbus 200

Step 3



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

Step 4



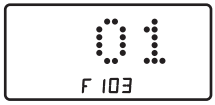
The cursor › returns to sub-folders line.
- press twice Esc to return to reading mode
- press once Esc to select another folder.
- with ⊕ and ⊖ keys, you can choose another sub-folder from the folder 100.

4.b - Slave addressing (Modbus)

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.
Select the folder "**100**" and validate with OK.

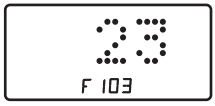
Step 2



Select the sub-folder "**103**" and validate with OK.
The cursor › goes to available choices.

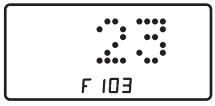
Modbus 206

Step 3



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

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.

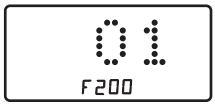
5. Configuring channels and units of measurement

Class 300 transmitters have 4 measuring channels. You can activate 1, 2, 3 or 4 channels and select each unit of measurement.

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.
Select the folder "**200**" and validate with OK.

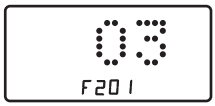
Step 2



Select sub-folder and validate with OK. The cursor › goes to choices ligne.

Channel 1	Channel 2	Channel 3	Channel 4
200	**201**	**202**	**203**
Modbus 400	Modbus 402	Modbus 404	Modbus 406

Step 3



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

	CPA301, 302 et 303 CPA301HV, 302HV et 303HV	*CPA304 CPA304HV*	*THA300 THA300HV*
00	Inactive channel	Inactive channel	Inactive channel
01	Pa	Pa	°C
02	mmH_2O	mmH_2O	°F
03	inWg	inWg	%HR
04	mbar	mbar	g/Kg (Hygro. absolue **ρ**)
05	m/s	mmHg	°C (Temp. de rosée **Td**)
06	fpm	m/s	°F (Temp. de rosée **Td**)
07	m^3/h	fpm	°C (Temp. humide **Tw**)
08	L/s	m^3/h	°F (Temp. humide **Tw**)
09	cfm	L/s	KJ/Kg (Enthalpie **i**)
10	m^3/s	cfm	
11		m^3/s	

NOTE For a CPA 300 transmitter (301, 302, 303 and 304 or 301HV, 302HV, 303HV et 304HV), **the SQR option** is required in order to activate the units of air velocity and airflow.

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.

6.a - Output diagnostics

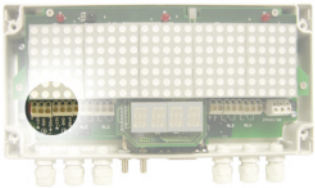
With this function, you can check with a multimeter (or a regulator/display, or a PLC/BMS) if the transmitter outputs are working properly. The transmitter generates a voltage of 0 V, 5 V and 10 V or a current of 4 mA, 12 mA and 20 mA.

6.a.1 - Multimeter connection configuration

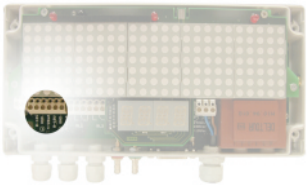
Before carrying out the output diagnostics, all connections and configurations of the transmitter must be enabled, to avoid any damage on the transmitter and the multimeter !

Step 1 — ***Selection of the channel to be checked***

First, **select a channel** for the output diagnostics.

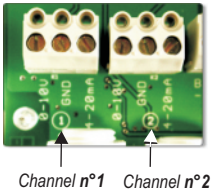


Transmitter with
24 Vac/dc power supply



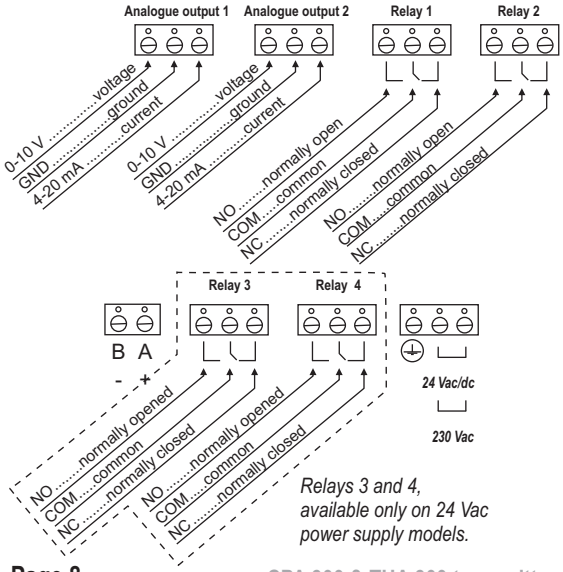
Transmitter with
230 Vac power supply
(Ref. HV)

The Channel numbers are indicated on the board located below the terminal block.



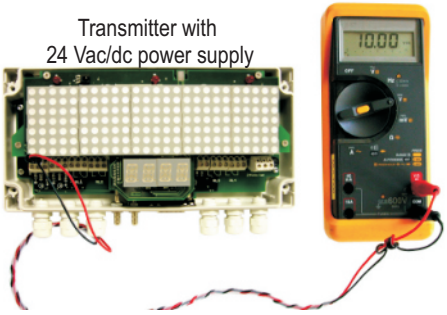
Step 2 — ***Example of connection***

On the opposite pictures, multimeters are plugged on the 0-10V output of the channel 1.

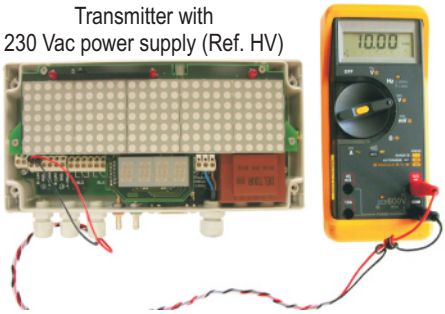


Relays 3 and 4, available only on 24 Vac power supply models.

Transmitter with
24 Vac/dc power supply



Transmitter with
230 Vac power supply (Ref. HV)



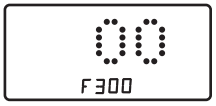
6.a.2 - Output diagnostics

Once the connection of the transmitter to the multimeter (or regulator or PLC/BMS is complete, see page 6), you can carry out the analogue output diagnostics on several check points.

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.
Select the folder "**300**" and validate with ⓞⓚ.

Step 2



Channel n° 1 **output** Select sub-folder "**300**" Modbus 600

Channel n° 2 **output** Select sub-folder "**303**" Modbus 606

and validate with ⓞⓚ. The cursor ⋗ goes to available choices.

Step 3

With ⊕ and ⊖ keys, select the signal that the transmitter must output (see chart below). Note : no need to validate with ⓞⓚ.

	Diagnostic Output
00	0 V
01	5 V
02	10 V
03	4 mA
04	12 mA
05	20 mA

If the deviations are too big (>0,05 V or >0,05 mA) between the signal issued and the value displayed on the multimeter, **we recommend that you return the transmitter to our factory.**

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 300.

6.b - Analogue output settings

With this function, you can modify the measuring range of the transmitter, and you can equate the new limits to the analogue output (0-10 V or 4-20 mA).
You can enter the measuring range required on your own !

You must enter the values according to the units of measurement selected, not according to the measuring range of the transmitter.

Eg. *on a CPA 303 pressure transmitter (0 to ±1000 Pa) with a reading in mmH_2O, the minimum and maximum ranges must be configured on measuring range of 0 to ±102 mmH_2O.* ***See conversion chart on following page.***

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.
Select the folder "**300**" and validate with OK.

Step 2

Minimum of Channel **n°1** output (Modbus 602)
Select sub-folder "**301**"

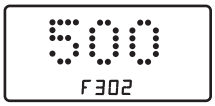
Minimum of Channel **n°2** output (Modbus 608)
Select sub-folder "**304**"

and validate with OK. The cursor › returns to the input line.

Step 3

With ⊕ and ⊖ keys, select the value sign : negative or positive, validate with OK. Then, enter the minimum limit value and validate with OK.

Step 4

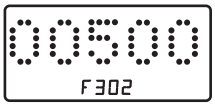


Maximum of Channel **n°1** output (Modbus 604)
Select sub-folder "**302**"

Maximum of Channel **n°2** output (Modbus 610)
Select sub-folder "**305**"

and validate with OK. The cursor › goes to the input line.

Step 5



With ⊕ and ⊖ keys, select the value sign : negative or positive, validate with OK.
Then, enter the maximum limit value and validate with OK.

We recommend that the interval between the minimum and maximum is **> 5% of the measuring range.**

Step 6

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 you can choose another sub-folder from the folder 300.

NOTE After an analogue output setting, if the unit of measurement is modified (see page 5), you have to reconfigure the outputs according to the new unit of measurement.

6.b.1 - Units of measurement conversion chart

Pressure

	Pa	*mmH2O*	*inWg*	*mbar*	*mmHg*
CPA 301	0 à ±100	0 à ±10,2	0 à ±0,401	0 à ±1,00	-
CPA 302	0 à ±500	0 à ±51,0	0 à ±2,005	0 à ±5,00	-
CPA 303	0 à ±1000	0 à ±102,0	0 à ±4,015	0 à ±10,00	-
CPA 304	0 à ±10000	0 à ±1020,0	0 à ±40,01	0 à ±100,00	0 à ±75,00

Pressure

	Pa	*mmH2O*	*inWg*	*mbar*	*mmHg*
CPA 301HV	0 à ±100	0 à ±10,2	0 à ±0,401	0 à ±1,00	-
CPA 302HV	0 à ±500	0 à ±51,0	0 à ±2,005	0 à ±5,00	-
CPA 303HV	0 à ±1000	0 à ±102,0	0 à ±4,015	0 à ±10,00	-
CPA 304HV	0 à ±10000	0 à ±1020,0	0 à ±40,01	0 à ±100,00	0 à ±75,00

Temperature

	°C	*°F*
THA 300 - St.steel probe	-40,0 à +180,0	-40,0 à +356,0
THA 300 - Probe PC	-20,0 à +80,0	-4,0 à +176,0

Temperature

	°C	*°F*
THA 300HV - St.steel probe	-40,0 à +180,0	-40,0 à +356,0
THA 300HV - Probe PC	-20,0 à +80,0	-4,0 à +176,0

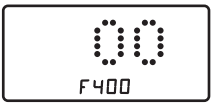
7.a - Activation / Deactivation of BEEP alarm

The beep alarm (audible alarm) is activated when a set point is reached.
For more details on the setpoint settings, see page 20.

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.
Select the folder "**400**" and validate with OK.

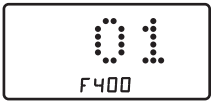
Step 2



Select sub-folder "**400**" and validate with OK.
The cursor › goes to available choices.

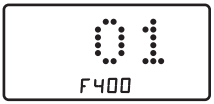
Modbus 800

Step 3



With ⊕ and ⊖ keys, select 01 to **activate** the BEEP alarm or 00 to **deactivate**. Validate with OK.

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 you can choose another sub-folder from the folder 400.

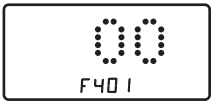
7.b - Relay security

*The relay outputs are by default, in **negative security**: the relay is **energized** when a set point is reached.*
*With the keypad, you can swap the relays in **positive security** : then, the relay is **de-energized** when a set point is reached or during a power outage.*

Step 1

Enter in configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.
Select folder "**400**" and validate with OK.

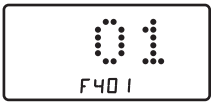
Step 2



Select sub-folder "**401**" and validate with OK.
The cursor › goes to available choices.

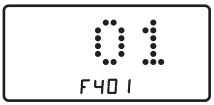
Modbus 802

Step 3



With the keys ⊕ and ⊖, select 01 for a **positive** security or 00 for a **negative** security. Validate with OK.

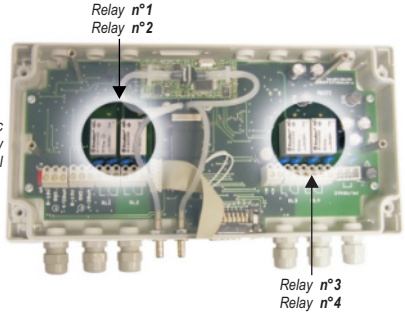
Step 4

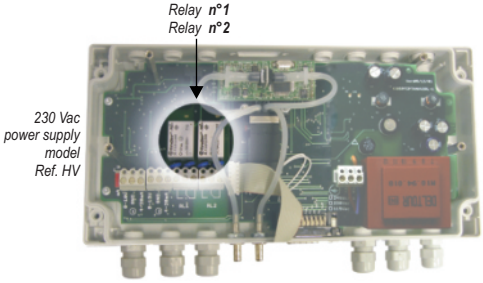


The cursor › returns to sub-folders line.
- press twice on Esc to return to reading mode.
- press once on Esc to return to another folder selection.
- with ⊕ and ⊖ keys, you can choose another sub-folder from the folder 400.

7.c - Alarm / relay functions and LED colour codes

*CPA 300 & THA 300 transmitters have **4 relays** visible on the transmitter board with 24 Vac/dc power supply model (**2 relays** visible on the transmitter board with 230 Vac power supply model Ref.HV). Each relay has one LED to allow **real-time checking.***





Relay LED colour codes	
Red	The relay is **energized**
None	The relay **is not energized** or **has not been configured**

The relay is energized when the setpoint is reached, taking into account the time-delay, the action type and also the alarms security mode.
*Set points, time-delay and action type setting : **see page 17***
*Alarm security settings : **see page 12***

7.d - Selection of the channel for visual and relays alarms

*CPA 300 & THA 300 transmitters have **4 audible relay alarms** with 24 Vac power supply model (**2 audible alarms** with 230 Vac power supply model Ref.HV). The transmitter can be configured with **4 different alarms setups** with 24 Vac/dc power supply model (**2 audible alarms setups** with 230 Vac power supply model Ref.HV) .*

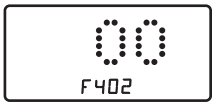
Before any alarm setup, check that the corresponding channel(s) **is activated.**

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.
Select the folder "**400**" and validate with OK. Select sub-folder :

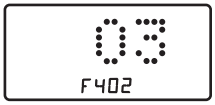
Available only on 24 Vac/dc power supply models.

Step 2



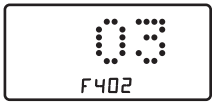
"402" Relay **1** (LED 1) — Modbus 804
"407" Relay **2** (LED 2) — Modbus 814
"412" Relay **3** — Modbus 824
"417" Relay **4** — Modbus 834
and validate with OK.

Step 3



With ⊕ and ⊖ keys, select the channel number for which you want to configure an alarm. Validate with OK.

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, you can choose another sub-folder from the folder 400 (i.e. for example to configure another alarm / relay)

7.e - Alarm mode details

7.e.1 - Definitions

Setpoint

The setpoint is a limit which, on being reached and/or exceeded , activates an alarm or energizes a relay (in negative security, see page 14 for more details).

Time-delay

Once the setpoint is reached and/or exceeded, the time-delay postpones the alarm activation (or relay excitation) for a short period (in seconds). Once this period is elapsed, and if the setpoint is still exceeded, then the alarm is activated or the relay is energized (in negative security).

Action type

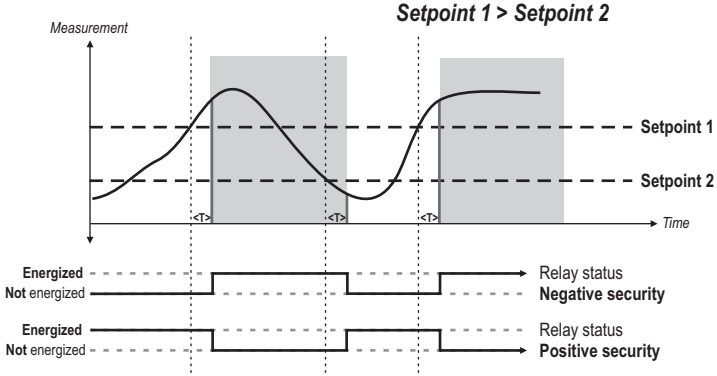
For alarm activation or relay excitation, you can choose the action type : rising or falling action.

- **Rising action** : the alarm is activated once the measurement **goes over** the setpoint
- **Falling action** : the alarm is activated once the measurement **goes below** the setpoint

7.e.2 - Available configurations

Configuration N°1 : 2 setpoints and time-delay activated (Control Mode)

Setpoint 1 > Setpoint 2

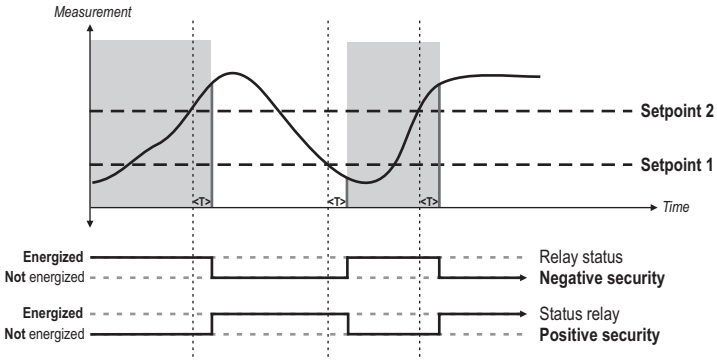


Alarm set

<T> Time-delay

Control mode (or regulation mode)
=>you can regulate the measurement within a range determined by 2 setpoints.

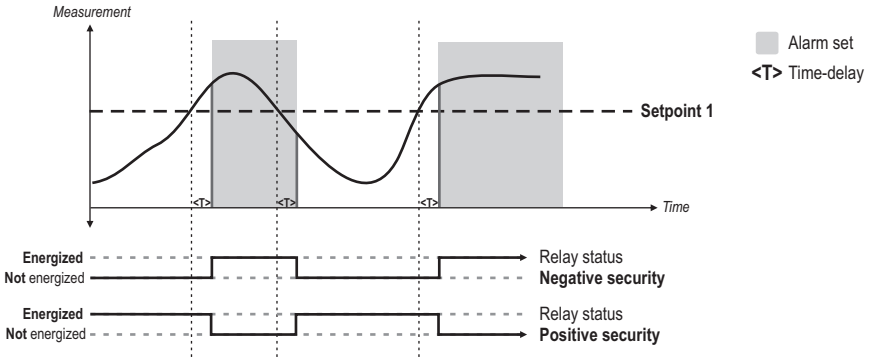
Setpoint 2 > Setpoint 1



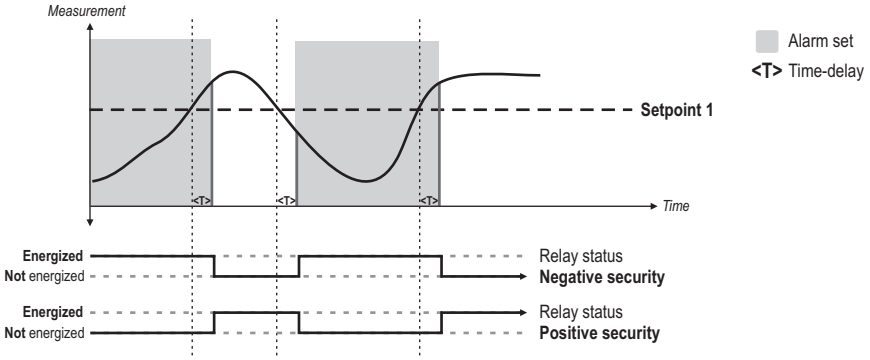
Alarm set

<T> Time-delay

Configuration N°2 : 1 setpoint, time-delay and rising action activated



Configuration N°3 : 1 setpoint, time-delay and falling action activated



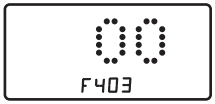
7.f - Alarm mode selection

Step 1

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

Select the folder "**400**" and validate with ⓞ.

Step 2



Select sub-folder

Available only on 24 Vac/dc power supply models.

"**403**" Relay **1** Modbus 806 — "**408**" Relay **2** Modbus 816 — "**413**" Relay **3** Modbus 826 — "**418**" Relay **4** Modbus 836

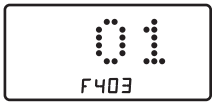
and validate with ⓞ.

Step 3

With ⊕ and ⊖ keys, select the code relative to the alarm mode (see chart below). Validate with ⓞ.

Code	*Alarm mode*	*Drawing*
00	No alarm	
01	2 setpoints with time-delay (control mode)	N° 1 page 14
02	1 setpoint with time-delay and rising action	N° 2 page 15
03	1 setpoint with time-delay and falling action	N° 3 page 15

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, you can choose another sub-folder from the folder 400.

7.g - Setpoints and time-delay setting

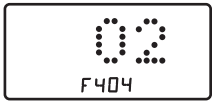
7.g.1 - Setpoints

Step 1

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

Select the folder "**400**" and validate with OK.

Step 2



To configure the **setpoint 1**, select sub-folder

Available only on 24 Vac/dc power supply models.

"404" Relay **1**	"409" Relay **2**	"414" Relay **3**	"419" Relay **4**
Modbus 808	Modbus 818	Modbus 828	Modbus 838

and validate with OK.

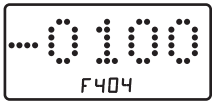
To configure the **setpoint 2** (alarm in **control mode,** see p17), select sub-folder

Available only on 24 Vac/dc power supply models.

"405" Relay **1**	"410" Relay **2**	"415" Relay **3**	"420" Relay **4**
Modbus 810	Modbus 820	Modbus 830	Modbus 840

and validate with OK.

Step 3

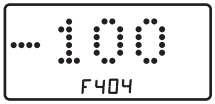


With ⊕ and ⊖ keys, select the value sign : negative or positive.
Validate with OK.
Then, enter the setpoint value and validate with OK.

You must enter values according to the units of measurement selected, not according to the measuring range of the transmitter.

Ex. *on a CPA 303 pressure transmitter (0 to ±1000 Pa) with a reading in mmH_2O, the minimum and maximum ranges must be configured on measuring range of 0 to ±102 mmH_2O.* ***See conversion chart on page 11.***

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, you can choose another sub-folder from the folder 400.

NOTE If after having set up a setpoint, the unit of measurement is modified (see page 9), then you have to reconfigure the setpoints according to this new unit of measurement.

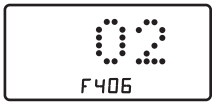
7.g.2 - Time-delay

Step 1

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

Select the folder "**400**" and validate with OK.

Step 2



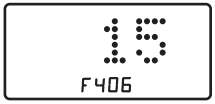
Select sub-folder

Available only on 24 Vac/dc power supply models.

"406"	"411"	"416"	"421"
Relay **1**	Relay **2**	Relay **3**	Relay **4**
Modbus 812	Modbus 822	Modbus 832	Modbus 842

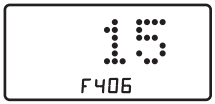
and validate with OK.

Step 3



With ⊕ and ⊖ keys, set the required time-delay: from 00 to 60 seconds.
If you do not need the time-delay, enter 00.
Validate with OK.

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, you can choose another sub-folder from the folder 400.

8.a - Pressure measurement integration (CPA 300)

The integration coefficient makes an average of the measurements : this helps to avoid any excessive variations and guarantees a stable measurement.

***New value displayed** = [((10 - Coef.) x N^ew Value) + (Coef. x former value)] /10*

*This value is applicable when the variation is **less than +/- (Coef. x 10 Pa)***

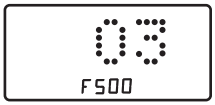
Example : CPA 303 (0-1000 Pa) - First measurement : 120 Pa - New measurement : 125 Pa

The pressure source is stable, the user applied a low integration. Integration : **1**, maximum variation allowed **+/-10 Pa**. Since the variation is less than 10 Pa, we apply the integration calculation formula. Next measurement displayed ((9 * 125) + (1 *120))/10 = 124.5 soit 124 Pa. If the new value had been 131 Pa, the next value displayed would have been 100% of the new value, i.e 131 Pa.

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.
Select the folder "**500**" and validate with OK.

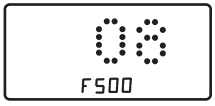
Step 2



Select the sub-folder "**500**" and validate with OK.
The cursor > returns to available choices.

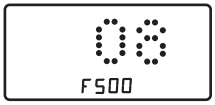
Modbus 1000

Step 3



With ⊕ and ⊖ keys, you can set the integration value: from 00 to 09.
Validate with OK.
Coefficient 0 : no integration, large variation of the measurement displayed.
Coefficient 9 : maximum integration, more stable measurement display.

Step 4



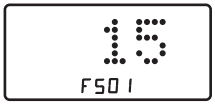
The cursor > returns to sub-folders line.
- press twice Esc to return to reading mode.
- press once Esc to return to another folder selection.
- with ⊕ and ⊖ keys , you can choose another sub-folder from the folder 500.

8.a - Time-delay between 2 self-calibrations

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.
Select the folder "**500**" and validate with OK.

Step 2



Select the sub-folder "**501**" and validate with OK.
The cursor > goes to available choices.

Modbus 1002

Step 3

With ⊕ and ⊖ keys, you can set the time-delay values between 2 self-calibrations : from 0 to 60 minutes. Validate with OK.
Nota : if the value is equal to 0, the transmitter will not carry out any self-calibration.

Step 4

The cursor > returns to sub-folder line.
- press twice Esc to return to reading mode.
- press once Esc to return to another folder selection.
- with ⊕ and ⊖ keys , you can choose another sub-folder from the folder 500

NOTE **Whenever you want,** in reading mode, you can carry out a self-calibration by keeping "ESC" pressed for 5 seconds.

9.a - Offset setting in humidity and temperature

In order to compensate for any longterm drift of the transmitter, you can add an offset to the value displayed by the THA 300 with the EHK 500 reference portable instrument or via the keypad.

⚠ Function only available on humidity transmitter types **THA 300**

The EHK 500 is a reference portable instrument (optional) which enables you to adjust at one point the humidity and temperature reading, via the RS 232 connection cable. Thanks to this new time-saving system, no need to return the transmitter to our factory.
Your transmitter is always available on site. *For more details, see technical datasheet and user manual of EHK 500.*

9.a.1 - Offset in hygrometry

Step 1

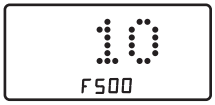
Go into the configuration mode (see page 5). The folder number displayed corresponds to the last folder used.
Select folder "**500**" and validate with OK.

Step 2

Select sub-folder "**500**" and validate with OK.
The cursor › goes to the line of available choices.

Modbus 1000

Step 3



With keys ⊕ and ⊖, enter the offset value : from −50,0 to +50,0.
Validate with OK.
The cursor › returns to sub-folders line.
• press once on Esc to return to reading mode.
• or choose another folder to access other functions.

9.a.2 - Offset in temperature

Step 1

Go into the configuration mode (see page 2). The folder number displayed corresponds to the last folder used.
Select folder "**500**" and validate with OK.

Step 2

Modbus 1002 Modbus 1004

Select sub-folder "**501**" for an offset in °C or "**502**" for an offset in °F and validate with OK.
The cursor › goes to the line of available choices.

With keys ⊕ and ⊖, enter the offset value : from −50,0 to +50,0 (in °C) **or** from −90 to +90 (in °F). Validate with OK.

Step 3

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, you can choose another sub-folder from the folder 500

NOTE If you activate the offset in temperature in °C (function 501), the value entered is automatically converted into °F (function 502) and vice versa.

10.a - Temperature compensation

*You can **modify the temperature compensation value.***
*The air velocity and airflow measured with a differential probe (such as Pitot tube, Debimo blade, orifice plate...) depends on the working temperature. Then, it is required to enter the **working temperature** to get more accurate results. You can enter the value either manually or using a thermocouple K probe which offers the automatic temperature compensation.*

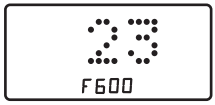
⚠ Function only available on pressure transmitter types **CPA 300 with SQR option**

10.a.1 - Manual compensation

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.
Select the folder "**600**" and validate with OK.

Step 2



Select the sub-folder "**600**" to enter a value in **°C** Modbus 1200

or "**601**" to enter a value in **°F** Modbus 1202

validate with OK. The cursor › returns to available choices.

Step 3

With ⊕ and ⊖ keys, enter the temperature compensation (Celsius degree shown alongside, sub-folder "600"). Validate with OK.

NOTE If you make a temperature compensation in Celsius degree (sub-folder "600"), the transmitter will automatically make the conversion into Farenheit degree (sub-folder "601") and vice versa.

10.b - Air velocity coefficient selection (CPA 300)

Since the air velocity is calculated from the pressure (on a CPA 300) and from a differential probe, ***you must enter the coefficient value of the differential probe.*** *For Pitot tubes and Debimo blades, the coefficient is already included in the transmitter.*

⚠ Function only available on the pressure transmitter types **CPA 300 with SQR option**

Step 1

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

Select the folder "**600**" and validate with OK.

Step 2

Select the sub-folder "**603**" and validate with OK.

The cursor › goes to available choices.

Modbus 1206

Step 3

With ⊕ and ⊖ keys, select the differential probe type. Validate with OK.

Code	*Differential probe*	*Coef.*
00	Pitot tube L (ISO 3966)	1
01	DEBIMO blade	0.8165
02	Other differential probe	To be entered

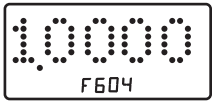
Step 4

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, you can choose another sub-folder from the folder 600.

NOTE If you use "Other differential probe" please carefully follow the instructions below.

10.b.1 - Manual coefficient input

Step 1



Select the folder "**600**" and validate with OK.

Select the sub-folder "**604**" and validate with OK.

The cursor › goes to available choices.

Modbus 1208

Step 2

With ⊕ and ⊖ keys, **enter the coefficient relative to your differential probe.** This coefficient is given by the manufacturer (from 0.0001 to 9.9999). Validate with OK.

Step 3

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 , you can choose another sub-folder from the folder 600.

10.c- Air velocity coefficient input

With this correction coefficient, you can adjust the transmitter according to the air velocity in your installation.

⚠ Function only available on the transmitter types **CPA 300 with SQR option**

10.c.1 - How to calculate it ?

If the air velocity in your duct is equal to **17 m/s,** and if the transmitter indicates **16.6 m/s,** then the coefficient to apply is **17 / 16,6** ie **1.024**

10.c.2 - Coefficient input

Step 1

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

Select the folder "**600**" and validate with OK.

Step 2

Select the sub-folder "**605**" and validate with OK.
The cursor › goes to available choices.

Modbus 1210

Step 3

With ⊕ and ⊖ keys, **enter the coefficient value** calculated (from 0.200 to 2.000). Validate with OK.

Step 4

The cursor › returns to the sub-folders line.
- press twice Esc to return to reading mode.
- press once Esc to return to another folder selection.
- with ⊕ et ⊖ keys, you can choose another sub-folder from the folder 600.

11.a - Selection of duct section type or airflow coefficient

11.a.1 - Working from the section type

⚠ Function only available on pressure transmitter types **CPA 300 with SQR option**

Step 1

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

Select the folder "**600**" and validate with ⓞ.

Step 2

Select the sub-folder "**606**" and validate with ⓞ.
The cursor › goes to available choices.

Modbus 1212

Step 3

With ⊕ and ⊖ keys, select the section type (00 or 01).
Validate with ⓞ.

Code	*Section type*
00	Rectangular
01	Circular
02	Airflow coefficient (to be entered, see p 25)

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 600.

Section sizes input

Step 1

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

Select the folder "**600**" and validate with ⓞ.

Step 2

Select sub-folder

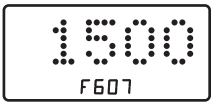
	Rectangular section		**Circular** section
	Length	**Width**	**Diameter**
mm	"607" Modbus 1214	"608" Modbus 1216	"609" Modbus 1218
inch	"610" Modbus 1220	"611" Modbus 1222	"612" Modbus 1224

and validate with ⓞ.

Step 3

With ⊕ and ⊖ keys, enter the value (from 0 to 3000 mm or 0 to 118.11 inch). Validate with OK.

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, you can choose another sub-folder from the folder 600.

NOTE If you enter a length, width or diameter in mm, the transmitter will automatically calculate the conversion in Inch (vice versa)

10.a.2 - Working from a airflow coefficient

With this coefficient, you can calculate the airflow from the pressure. This coefficient is given by the manufacturer of the devices supplied with pressure connections (+ and -). From the square root of the pressure measured (Delta P), and from this coefficient, you get the airflow.

$$\text{Airflow} = C_D \times \sqrt{\Delta \text{Pressure}}$$

! Function only available for the pressure transmitter types **CPA 300 with SQR option**. In this calculation mode, you have **no access to reading of air velocity.** If you activate this calculation mode and also a channel in air velocity, the transmitter will display an error code "4".

! **Go back to procedure page 24 / step 3:**
With ⊕ and ⊖ keys, select 02 and validate with OK.

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.
Select the folder "**600**" and validate with OK.

Step 2

Select the sub-folder "**613**" and validate with OK.
The cursor › goes to available choices.

Modbus 1226

Step 3

With ⊕ and ⊖ keys, enter the airflow coefficient value (from 0.1 to 9999.9). Validate with OK.

Step 4

The cursor › returns to sub-folders line.
Select the sub-folder "**614**" to select the **unit of measurement in pressure** for the airflow calculation and validate with OK.
The cursor › returns to available choices.

Modbus 1228

Step 5

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

	CPA301, 302 et 303 CPA301HV, 302HV et 303HV	***CPA304 CPA304HV***
01	Pa	Pa
02	mmH_2O	mmH_2O
03	inWg	inWg
04	mbar	mbar
05	-	mmHg

Step 6

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 600.

12.a- Activation / deactivation of the RS232 and home bus

CPA 300 & THA 300 transmitters have one RS 232 and one RS 485 digital output (Modbus protocol) - optional. With the RS 232, you can display 1 or 2 parameters which are measured by other Class 200 and 300 transmitters, or you can send measurements to be displayed on another Class 300 transmitters.

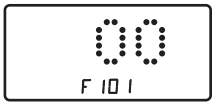
> ⚠ If you set up your transmitter to send measurements to another transmitter via RS 232, **then you will not be able to use the RS 485 digital output anymore** (Modbus - optional).

Step 1

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

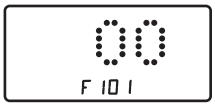
Select the folder "**100**" and validate with OK.

Step 2



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

Step 3



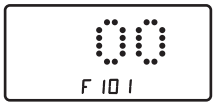
With ⊕ and ⊖ keys, select 00 to receive data from another transmitter or select 01 to send data via RS 232. Validate with OK

CAUTION !!

When the transmitter is configured to **receive data,** then the RS 485 Modbus is **active**. When the transmitter is configured to **send data** via RS 232, then the RS 485 Modbus is **inactive.**

Modbus 202

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, you can choose another sub-folder from the folder 100.

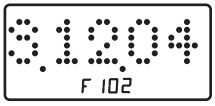
12.b- Serial number display

Step 1

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

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

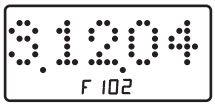
Step 2



Select the sub-folder "**102**" and validate with OK.

Modbus 204

Step 3



The serial number of the transmitter is displayed.
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.

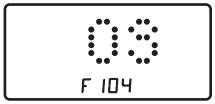
12.c- Modification of Modbus communication speed

Step 1

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

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

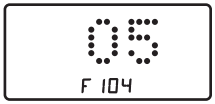
Step 2



Select the sub-folder "**104**" and validate with OK.

Modbus 208

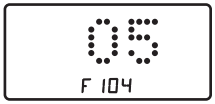
Step 3



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

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, you can choose another sub-folder from the folder 100.

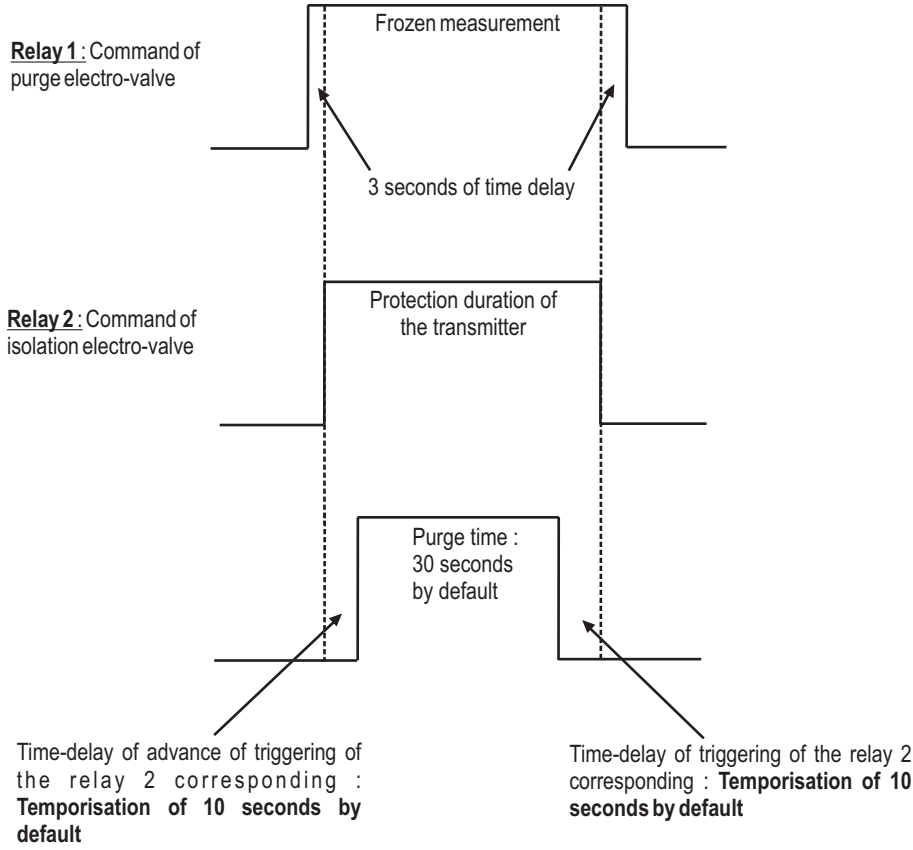
12.d- Purge mode

The purge mode enables to freeze the measurement when being displayed, enables to lock the analogue outputs, and to activate the relay 1, in order to actuate a de-dust system of an air movement conditions system and to activate the relay 2 in order to isolate the transmitter.

Here is the detailed process of purge mode :

1 - Measurement is frozen.
2 - Wait for three seconds.
3 - Activation of relay 2 (isolation of the transmitter)
4 - Wait for time-delay (e.g : 10 seconds).
5 - Activation of relay 1 (sending compressed air into the network to clean the installation)
6 - Purge duration ((e.g : 30 seconds)
7 - Deactivation of relay 1 (stop sending compressed air).
8 - Wait for time-delay (e.g : 10 seconds).
9 - Deactivation of relay 2
10 - Wait for three second.
11 - Recovery of measurement

! This function is only available on **CPA 300** pressure transmitters.



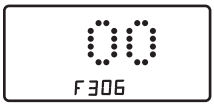
NOTE To modify purge time and temporisation delay, see page 30-31.

12.d.1 -Activation / deactivation of Purge Mode

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.
Select the folder "**300**" and validate with ⓞⓚ.

Step 2



Select the sub-folder "**306**" and validate with ⓞⓚ.

Modbus 612

Step 3

With ⊕ and ⊖ keys, activate (01) or deactivate (00) the purge mode. 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, choose another sub-folder from the folder 300

12.d.2 -Working duration of purge mode

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder displayed.
Select the folder "**300**" and validate with ⓞⓚ.

Step 2

Select the sub-folder "**307**" and validate with ⓞⓚ.

Modbus 614

Step 3

With ⊕ and ⊖ keys, enter the value in seconds of the required working duration of each purge (from 01 to 60). 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.
- press ⊕ and ⊖ to choose another sub-folder from the folder 300

12.d- Mode Purge

12.d.3 -Frequency

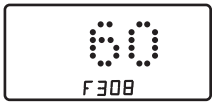
Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.
Select the folder "**300**" and validate with OK.

Step 2

Select the sub-folder "**308**" and validate with OK.

Step 3



With keys ⊕ and ⊖, enter the value in minutes of the frequency of each purge (from 01 to 9999). Validate with OK.

Modbus 616

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 ⊖, choose another sub-folder from the folder 300.

12.d.4 - Time-delay

Time-delay corresponds to the advanced and retardation lead time of triggering of the relay 2 relative to the relay 1.

Step 1

Go into configuration mode (see page 5). The folder number displayed corresponds to the last configuration folder used.
Select the folder "**300**" and validate with OK.

Step 2

Select the sub-folder "**309**" and validate with OK.

Modbus 618

Step 3

With ⊕ and ⊖ keys, enter the value in seconds of the time-delay required (from 00 to 60). Validate with OK.

Step 4

The cursor › returns to the sub-folders line.
- press twice Esc to return to reading mode.
- press once Esc to return to another folder selection.
- with ⊕ and ⊖ keys, choose another sub-folder from the folder 300.

Code	Problem	Solution
01	Configuration error (alarm(s) set on a non displayed/activated channel)	• Check status of the 4 alarms (or 2 alarms for Ref.HV) and 4 channels. Ex. : the error appears if an alarm is configured on a channel (1, 2, 3 or 4) which is not active. Then, you must activate the channel on which you want to configure an alarm. **Activation of a channel :** see page 5 **Alarm and relay configurations :** see page 14
02	No channel activated	• Activate one channel (at least). **Activation of a channel :** see page 5
03	Humidity probe (THA 300) or SPI (CPA 300) not connected	• Connect the probe / SPI (see user manual SPI)
04	Only on CPA 300. A channel is configured in air velocity (see page 5) and the airflow calculation function (page 23) is set to 02 (airflow coefficient). This combination is **impossible**.	• Select a unit in airflow for the channel 1, 2, 3 or 4 (see channels configuration, page 5) • Instead of airflow coefficient, select a circular or rectangular section in function 606 (see page 24)

F100

Code	Modbus XXX	Description	Available settings
100	200	Channel n° for IR remote control	0 to 9
101	202	Sending data via RS 232	0 or 1
102	204	Serial number display	
103	206	Modbus slave number	1 to 255
104	208	Modbus communication speed	

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

F200

Code	Modbus XXX	Description
200	400	Unit of channel 1
201	402	Unit of channel 2
202	404	Unit of channel 3
203	406	Unit of channel 4

Available settings

	CPA301, 302 et 303 CPA301HV, 302HV et 303HV	*CPA304 CPA304HV*	*THA300 THA300HV*
00	Inactive channel	Inactive ch.	Inactive channel
01	Pa	Pa	°C
02	mmH_2O	mmH_2O	°F
03	inWg	inWg	%HR
04	mbar	mbar	g/Kg (Hygro. absolue **ρ**)
05	m/s	mmHg	°C (Temp. de rosée **Td**)
06	fpm	m/s	°F (Temp. de rosée **Td**)
07	m^3/h	fpm	°C (Temp. humide **Tw**)
08	L/s	m^3/h	°F (Temp. humide **Tw**)
09	cfm	L/s	KJ/Kg (Enthalpie **i**)
10	m^3/s	cfm	
11		m^3/s	

F300

	Code	Modbus XXX	Description	Available settings
channel 1	300	600	Analogue output setting on channel 1	**0**=>0V, **1**=>5V, **2**=>10V **3**=>4mA, **4**=>12mA, **5**=>20mA
	301	602	Analogue output minimum on channel 1	
	302	604	Analogue output maximum on channel 1	
channel 2	303	606	Analogue output setting on channel 2	**0**=>0V, **1**=>5V, **2**=>10V **3**=>4mA, **4**=>12mA, **5**=>20mA
	304	608	Analogue output minimum on channel 2	
	305	610	Analogue output maximum on channel 2	
CPA 300	306	612	Activation / Deactivation of purge mode	00 or 01
	307	614	Working time of each purge	from 01 to 60 seconds
	308	616	Frequency of each purge	from 01 to 9999 minutes
	309	618	Time-delay before and after purge	from 00 to 60 seconds

F500

Code	Modbus XXX	Model	Description	Available settings
500	1000	CPA 300	Measurement integration	from 0 to 9
500	1000	THA 300	Offset in humidity	-50,0 to +50,0
501	1002	CPA 300	Self-calibration for time-delay	from 0 to 60 minutes
501	1002	THA 300	Offset in temperature (°C)	from -50,0 to +50,0
502	1004	THA 300	Offset in temperature (°F)	from -90,0 to +90,0

F400

Code	Modbus XXX	Description	Available settings
400	800	Audible alarm	0 or 1
401	802	Relays security	0 (negative) or 1 (positive)
RELAY 1			
402	804	Channel selection for relay 1	**1**=> channel 1, **2**=> channel 2, **3**=>channel 3, **4**=> channel 4
403	806	Channel selection for relay 1	**0**=> inactive **1**=> setpoint 1, setpoint 2 and time-delay **2**=> setpoint 1, time-delay and rising action **3**=> setpoint 1, time-delay and falling action
404	808	Setpoint 1 of relay 1	
405	810	Setpoint 2 of relay 1	
406	812	Time-delay on relay 1	from 0 to 60 seconds
RELAY 2			
407	814	Channel selection for relay 2	**1**=> channel 1, **2**=> channel 2, **3**=>channel 3, **4**=> channel 4
408	816	Relay 2 type selection	**0**=> inactive **1**=> setpoint 1, setpoint 2 and time-delay **2**=> setpoint 1, time-delay and rising action **3**=> setpoint 1, time-delay, and falling action
409	818	Setpoint 1 of relay 2	
410	820	Setpoint 2 of relay 2	
411	822	Time-delay on relay 2	from 0 to 60 seconds
RELAY 3			
412	824	Channel selection for relay 3	**1**=> channel 1, **2**=> channel 2, **3**=>channel 3, **4**=> channel 4
413	826	Alarm type selection for relay 3	**0**=> inactive **1**=> setpoint 1, setpoint 2 and time-delay **2**=> setpoint 1, time-delay and rising action **3**=> setpoint 1, time-delay and falling action
414	828	Setpoint 1 of relay 3	
415	830	Setpoint 2 of relay 3	
416	832	Time-delay of relay 3	from 0 to 60 seconds
RELAY 4			
417	834	Channel selection for relay 4	**1**=> channel 1, **2**=> channel 2, **3**=>channel 3, **4**=> channel 4
418	836	Alarm type selection for relay 4	**0**=> inactive **1**=> setpoint 1, setpoint 2 and time-delay **2**=> setpoint 1, time-delay and rising action **3**=> setpoint 1, time-delay and falling action
419	838	Setpoint 1 of relay 4	
420	840	Setpoint 2 of relay 4	
421	842	Time-delay of relay 4	from 0 to 60 seconds

Available only on 24 Vac/dc power supply models

F600

CPA 300

Code	Modbus XXX	Description	Available settings
600	1200	Compensation temperature in °C	-
601	1202	Compensation temperature in °F	-
603	1206	Air velocity measurement mean	

Code	*Differential probe*
00	Pitot tube
01	DEBIMO blade
02	Other differential probe

604	1208	Air velocity coefficient value	from 0.0001 to 9.9999
605	1210	Air velocity correction coefficient	from 0.200 to 2.000
606	1212	Section type selection	

Code	*Section type*
00	Rectangular
01	Circular
02	Airflow coefficient

CPA 300

607	1214	Section length in mm	from 0 to 3000 mm
608	1216	Section width in mm	from 0 to 3000 mm
609	1218	Section diameter in mm	from 0 to 3000 mm
610	1220	Section length in inch	from 0 to 118.11 inch
611	1222	Section width in inch	from 0 to 118.11 inch
612	1224	Section diameter in inch	from 0 to 118.11 inch
613	1226	Airflow coefficient	from 0.1 to 9999.9
614	1228	Units of pressure for the pressure calculation	

	CPA301, 302 et 303 CPA301HV, 302HV et 303HV	*CPA304 CPA304HV*
01	Pa	Pa
02	mmH_2O	mmH_2O
03	inWg	inWg
04	mbar	mbar
05	-	mmHg

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