KIMO INSTRUMENTS

User manual

Pressure / Temperature / Humidity / Air velocity / Airflow / Sound level

Class 310 RS485

2.1. Configuration of parameters

- **Communication speed :** between 2400 and 115200 bauds, 19200 bauds by default
- **Data bits :** 8 bits
- **Stop bit :** 1 bit
- **Parity :** None
- **Flow control :** None
- **Transmitter addressing :** between 1 and 255 (automatically answers the requests from address 0)
- **Data sending :** made by words of 2 bytes, in the following order : most-significant then least-significant byte

2.2. Functions

- **Register function :** Function 03
- **Register writing :** Function 16
- **Communication loop test :** Function 08

2.3. Access code to register

- **Registers type:**

Type	Size	Description	Format
U8	1 byte	Unsigned integer 8 bits	Byte 1
Example with a value of **24 (0x18)**			**0x18**

Type	Size	Description	Format	
U16	2 bytes	Unsigned integer 16 bits	Byte 2	Byte 1
Example with a value of **300 (0x012C)**			**0x01**	**0x2C**

Type	Size	Description	Format			
U32	4 bytes	Unsigned integer 32 bits	Byte 2	Byte 1	Byte 4	Byte 3
Example with a value of **1 096 861 217 (0x4160C621)**			**0xC6**	**0x21**	**0x41**	**0x60**

Type	Size	Description	Format			
Real	4 bytes	Real 32 bits	Byte 2	Byte 1	Byte 4	Byte 3
Example with a value of **153.5 (0x43198000)**			**0x80**	**0x00**	**0x43**	**0x19**

Type	Size	Description	Format
Enumeration	1 byte	See Enumeration table page 9	Same as U8
Boolean	1 byte	True = 1 ; False = 0	Same as U8

Type	Size	Description	Format			
Date	4 bytes	Year (2 bytes) Month (1 byte) Day (1 byte)	Byte 2 (month)	Byte 1 (day)	Byte 4 (year most-significant byte)	Byte 3 (year least-significant byte)
Example with **31/03/2014 (0x07DE031F)**			**0x03**	**0x1F**	**0x07**	**0xDE**

Type	Size	Description	Format			
Hours	5 bytes	Hour (1 byte, digital) Minute (1 byte, digital) Second (1 byte, digital) Unused (1 byte, indifferent)	Byte 2 (minute)	Byte 1 (hour)	Byte 4 (unused)	Byte 3 (second)
Example with **22h 35 min 06sec (0xXX062316)**			**0x23**	**0x16**	**0xXX**	**0x06**

Type	Size	Description	Example				
Serial number	8 bytes	Class (1 byte) Range (1 byte) Year (2 bytes) Month (1 byte) Number (3 bytes)	'3' (0x33) 'F' (0x46) 13 (0x000D) 8 (0x08) 98765 (0x0181CD)				
Format							
Byte 2 (range)	Byte1 (class)	Byte 4 (year)	Byte 3 (year)	Byte 6 (number)	Byte 5 (month)	Byte 8 (number)	Byte 7 (number)
0x46	**0x33**	**0x00**	**0x0D**	**0xCD**	**0x08**	**0x01**	**0x81**
Example with 3F13898765 : 0x0181CD08000D4633							

Alarms and relays status – Modbus code : 7000
Encoded on 4 bytes (U32)

Byte 2	Byte 1				
b8 – b15	b7 – b4	b3	b2	b1	b0
Unused	Unused	Channel 4	Channel 3	Channel 2	Channel 1
		Alarm state*			

(*)**1 :** the channel is in alarm state / **0 :** the channel is not in alarm state

Byte 4					Byte 3				
b31 – b28	b27	b26	b25	b24	b23 – b20	b19	b18	b17	b16
Unused	Relay 4**	Relay 3**	Relay 2**	Relay 1**	Unused	Alarm 4***	Alarm 3***	Alarm 2***	Alarm 1***

(**)**1 :** the alarm is activated / **0 :** the alarm is deactivated
(***)**1 :** the relay is triggered / **0 :** the relay is not triggered

- **Values** (real) – Modbus code : 7010 (channel 1)
  7040 (channel 2)
  7070 (channel 3)
  7100 (channel 4)

- **Number of digits after the decimal point** – Modbus code : 7020 (channel 1)
  7050 (channel 2)
  7080 (channel 3)
  7110 (channel 4)

- **Unit** – Modbus code : 7030 (channel 1)
  7060 (channel 2)
  7090 (channel 3)
  7120 (channel 4)

List of units :

Field	Unit	Value	Field	Unit	Value
	None	0		None	0
Temperature	°C	16	**Air velocity**	m/s	64
	°F	17		fpm	65
Hygrometry	%HR	32		km/h	66
	g/Kg	33	**Airflow**	m^3/h	80
	Kj/KG	34		l/s	81
	°C td	35		cfm	82
	°F td	36		m^3/s	83
	°C Tw	37	**Combustion**	ppm	112
	°F Tw	38			
Pressure	kPa	50			
	inWg	51			
	hPa	52			
	mbar	53			
	mmHg	54			
	mmH2O	55			
	daPa	56			
	Pa	57			

“Enumerations” table :

Corresponding values		0	1	2	3	4	5	6	7
Backlight duration		Off	10s	30s	60s	Permanent	Unused		
Graphical period		3 mn	15 mn	30 mn	1 hour	3 hours	6 hours	12 hours	24 hours
Language		French	English	Third language	Unused				
Date Format		dd-mm-yyyy	mm-dd-yyyy	yyyy-mm-dd	Unused				
Time Format		24H	12H	Unused					
Modbus	**Com speed**	2400	4800	9600	19200	38400	115200	Unused	
Channel x	**Unit**	See list of unit							
Channel x	**Transmitter**	none	probe 1	probe 2	module	Unused			
Output x	**Type**	4 - 20 mA	0 - 20 mA	0 - 10 V	0 - 5 V	0 - 1 V	Unused		
Output x	**Diagnostic**	Deactivate	0%	50%	100%		Unused		
Input x	**Type**	4 - 20 mA	0 - 20 mA	0 - 10 V	0 - 5 V	0 - 1 V	Unused		
Alarm x	**Mode**	Deactivate	Rising edge	Falling edge	Monitoring	Transmitter state	Unused		

Alarm x	**Security**		Negative	Positive	Unused				
Relay x	**Selection**		OFF	ON	Alarm 1	Alarm 2	Alarm 3	Alarm 4	Unused
Compensation	**Temperature : Unit**		°C	°F	Unused				
Compensation	**Temperature : Mode**		Value	Thermocouple	Probe N°1	Unused			
Compensation	**Pressure : Unite**		hPa	mbar	mmHg	m (alt)	Unused		
Compensation	**Normative value**		None	DIN1343	ISO2533		Unused		
Airflow	**Pressure unit for airflow**		Pa	mmH2O	inWg	mbar	Unused		
Measurement means	**Differential pressure device**		Pitot L	Pitot S	Debimo blades	Factor	Unused		
Section	**Type**		Rectangular	Circular	Coefficient	Unused			
Section	**Unit**		mm	inch	Unused				

C310


KIMO
C 310
17:02:10
Min / Max
Mesures
Graphique
C1
Pa
0
C2
%RH
38.7
C4
°C
21.1
AI 1
AI 2
AI 3
AI 4
On
OK

4. Description of function and Modbus connections

4.1. Device

Modbus	Register type	Description	Possibilities
1000	Serial number	Serial number of the transmitter	
1010	Real	Firmware version	
1020	U32	Device identification	
1030	U32	Probe 1 identification	
1040	U32	Probe 2 identification	
1050	U32	Board identification	
1100	U8	Contrast	
1110	Enumeration	Backlight duration	0 : Off 1 : 10 s 2 : 30 s 3 : 60 s 4 : Permanent
1120	U8	Backlight value	
1150	Enumeration	Graph period	
1200	Enumeration	Language	0 : French 1 : English 3 : 3rd language
1300	Date	Date	
1310	Hour	Hour	
1320	Enumeration	Date format	
1330	Enumeration	Hour format	
1350	Boolean	Sound	
1400	Boolean	Keypad locking	0 : deactivated 1 : activated
1410	U16	Safety code	
1500	U8	Modbus slave number	From 1 to 255
1510	Enumeration	Modbus speed communication	2400 / 4800 / 9600/ 19200 / 38400 / 115200 bds
1600	Boolean	DHCP	
1610	-	IP address	
1620	-	Mask	
1630	-	Gateway	
1640	-	DNS	
1650	U16	Port	
1660	-	Mac address	
1670	-	Base address	

1700	U32	Activation of the high resolution in pressure option	1 : activated / 0 : deactivated
1710	U32	Activation of the Modbus option	1 : activated / 0 : deactivated
1800		Digital input	
1900	Boolean	Back to factory configuration	

4.2. Channels

Modbus	Register type	Description	Possibilities
2000	Enumeration	Unit selection of the channel 1	According to probe and board
2010	Enumeration	Selection of probe or board	Probe 1 / Probe 2 / Board / Deactivated
2100	Enumeration	Unit selection of the channel 2	According to probe and board
2110	Enumeration	Selection of probe or board	Probe 1 / Probe 2 / Board / Deactivated
2200	Enumeration	Unit selection of the channel 3	According to probe and board
2210	Enumeration	Selection of probe or board	Probe 1 / Probe 2 / Board / Deactivated
2300	Enumeration	Unit selection of the channel 4	According to probe and board
2310	Enumeration	Selection of probe or board	Probe 1 / Probe 2 / Board / Deactivated

4.3. Outputs

Modbus	Register type	Description	Possibilities			
3000	Enumeration	Analogue output selection of the channel 1	4-20 mA / 0-20 mA / 0-10 V / 0-5 V			
3100	Enumeration	Analogue output selection of the channel 2	4-20 mA / 0-20 mA / 0-10 V / 0-5 V			
3200	Enumeration	Analogue output selection of the channel 3	4-20 mA / 0-20 mA / 0-10 V / 0-5 V			
3300	Enumeration	Analogue output selection of the channel 4	4-20 mA / 0-20 mA / 0-10 V / 0-5 V			
3010	Enumeration	Channel 1 diagnostic : generation of a current or a voltage	Generation according to the output signal			
			0-10 V	0-5 V	0-20 mA	4-20 mA
			0 V	0 V	0 mA	4 mA
			5 V	2.5 V	10 mA	12 mA
			10 V	5 V	20 mA	20 mA
3110	Enumeration	Channel 2 diagnostic : generation of a current or a voltage	Generation according to the output signal			
			0-10 V	0-5 V	0-20 mA	4-20 mA
			0 V	0 V	0 mA	4 mA
			5 V	2.5 V	10 mA	12 mA
			10 V	5 V	20 mA	20 mA
3210	Enumeration	Channel 3 diagnostic : generation of a current or a voltage	Generation according to the output signal			
			0-10 V	0-5 V	0-20 mA	4-20 mA
			0 V	0 V	0 mA	4 mA
			5 V	2.5 V	10 mA	12 mA
			10 V	5 V	20 mA	20 mA

3310	Enumeration	Channel 4 diagnostic : generation of a current or a voltage	Generation according to the output signal			
			0-10 V	0-5 V	0-20 mA	4-20 mA
			0 V	0 V	0 mA	4 mA
			5 V	2.5 V	10 mA	12 mA
			10 V	5 V	20 mA	20 mA
3020	Real	Channel 1 minimum range	From -1999 to +9999 (according to probe)			
3030	Real	Channel 1 maximum range	From -1999 to +9999 (according to probe)			
3120	Real	Channel 2 minimum range	From -1999 to +9999 (according to probe)			
3130	Real	Channel 2 maximum range	From -1999 to +9999 (according to probe)			
3220	Real	Channel 3 minimum range	From -1999 to +9999 (according to probe)			
3230	Real	Channel 3 maximum range	From -1999 to +9999 (according to probe)			
3320	Real	Channel 4 minimum range	From -1999 to +9999 (according to probe)			
3330	Real	Channel 4 maximum range	From -1999 to +9999 (according to probe)			
3900	Boolean	Purge mode				
3910	U16	Purge duration	From 1 to 60 s			
3920	U16	interval	From 1 to 9999 min			
3930	U8	Delay-time	From 1 to 60 s			

4.4. Alarms and relays

4.4.1 Alarms

Modbus				**Register type**	**Description**	**Possibilities**
Alarm 1	**Alarm 2**	**Alarm 3**	**Alarm4**			
4000	4100	4200	4300	Enumeration	Alarm mode	None Rising edge Falling edge Monitoring Transmitter state
4010	4110	4210	4310	U8	Channel selection	Channel 1 Channel 2 Channel 3
4020	4120	4220	4320	Real	Threshold 1 setting	According to the connected probe
4030	4130	4230	4330	Real	Threshold 2 setting or hysteresis	According to the connected probe
4040	4140	4240	4340	U16	Delay-time 1 setting	From 0 to 600 s
4050	4150	4250	4350	U16	Delay-time 2 setting	From 0 to 600 s
4060	4160	4260	4360	U32	Condition (for transmitter state)	Ambient temperature too high Ambient temperature too low Memory error Pressure board error Probe 1 error Probe 2 error Pressure value too high

4080	4180	4280	4380	Boolean	Audible alarm	1 : activated / 0 : deactivated
4090	4190	4290	4390	U8	Acknowledgement duration	From 0 to 60 minutes

4.4.2 Relays

Modbus	Register type	Description	Possibilities
4400	Enumeration	Relay 1 selection	0 : Off 1 : On 2 : Alarm 1 3 : Alarm 2 4 : Alarm 3 5 : Alarm 4
4410	Enumeration	Relay 1 safety	0 : Negative 1 : Positive
4500	Enumeration	Relay 2 selection	0 : Off 1 : On 2 : Alarm 1 3 : Alarm 2 4 : Alarm 3 5 : Alarm 4
4510	Enumeration	Relay 2 safety	0 : Negative 1 : Positive
4600	Enumeration	Relay 3 selection	0 : Off 1 : On 2 : Alarm 1 3 : Alarm 2 4 : Alarm 3 5 : Alarm 4
4610	Enumeration	Relay 3 safety	0 : Negative 1 : Positive
4700	Enumeration	Relay 4 selection	0 : Off 1 : On 2 : Alarm 1 3 : Alarm 2 4 : Alarm 3 5 : Alarm 4
4710	Enumeration	Relay 4 safety	0 : Negative 1 : Positive

4.5. Measurement parameters

Modbus	Register type	Description	Possibilities
5000	U8	Measurement integration in pressure (board)	From 0 to 9
5010	U8	Measurement integration in air velocity (probe 1)	From 0 to 9
5020	U8	Measurement integration in pressure (probe 1)	From 0 to 9
5030	U8	Measurement integration in air velocity (probe 2)	From 0 to 9
5050	U8	Measurement integration in pressure (probe 2)	From 0 to 9
5100	U8	Delay time between 2 autozeros	From 0 to 60 min

5110	Boolean	Instantaneous autozero	
5200	Real	Channel 1 coefficient	From 0.01 to 5
5300	Real	Channel 2 coefficient	From 0.01 to 5
5400	Real	Channel 3 coefficient	From 0.01 to 5
5500	Real	Channel 4 coefficient	From 0.01 to 5
5210	Real	Channel 1 offset	According to probe
5310	Real	Channel 2 offset	According to probe
5410	Real	Channel 3 offset	According to probe
5510	Real	Channel 4 offset	According to probe

4.6. Pressure board and probes 1 and 2 parameters

4.6.1 Pressure board parameters

Modbus	Register type	Description	Possibilities
6000	Enumeration	Temperature compensation unit	0 : °C / 1 : °F
6010	Enumeration	Temperature mode	0 : Value 1 : Thermocouple 2 : Probe n°1
6020	Real	Temperature value in manual mode	Between -50 and +50 °C
6030	Enumeration	Atmospheric pressure compensation unit	0 : hPa 1 : mbar 2 : mmHg 3 : m (altitude)
6040	Real	Atmospheric pressure compensation value	From 0 tot 4000 hPa From 0 to 4000 mbar From 0 to 3000.24 mmHg
6050	Real	Altitude compensation value	From 0 to 10 000 m
6100	Enumeration	Differential pressure device	0 : Pitot L 1 : Pitot S 2 : Debimo blade 3 : Factor
6110	Real	Differential pressure coefficient value	
6120	Real	Correction factor in air velocity	From 0.2 to 2
6200	Enumeration	Type of section	0 : Rectangular 1 : Circular 2 : Coefficient
6210	Enumeration	Section unit	0 : mm 1 : inch
6220	Real	Length	From 1 to 3000 mm
6230	Real	Width	From 1 to 3000 mm
6240	Real	Diameter	From 1 to 3000 mm
6250	Real	Airflow coefficient	From 0.1 to 9999.9
6260	Enumeration	Pressure unit / Airflow coefficient	0 : Pa 1 : mmH2O

			2 : inWg 3 : mbar

4.6.2 Probe 1 parameters

Modbus	Register type	Description	Possibilities
6330	Enumeration	Compensation unit in atmospheric pressure	0 : hPa 1 : mbar 2 : mmHg 3 : m (altitude)
6340	Real	Compensation value in atmospheric pressure	From 0 to 4000 hPa From 0 to 4000 mbar From 0 to 3000.24 mmHg
6350	Real	Compensation value in altitude	From 0 to 10 000 m
6420	Real	Correction factor in air velocity	From 0.2 to 2
6500	Enumeration	Type of section	0 : Rectangular 1 : Circular 2 : Coefficient
6510	Enumeration	Section unit	0 : mm 1 : inch
6520	Real	Length	From 1 to 3000 mm
6530	Real	Width	From 1 to 3000 mm
6540	Real	Diameter	From 1 to 3000 mm

4.6.3 Probe 2 parameters

Modbus	Register type	Description	Possibilities
6630	Enumeration	Compensation unit in atmospheric pressure	0 : hPa 1 : mbar 2 : mmHg 3 : m (altitude)
6640	Real	Compensation value in atmospheric pressure	From 0 to 4000 hPa From 0 to 4000 mbar From 0 to 3000.24 mmHg
6650	Real	Compensation value in altitude	From 0 to 10 000 m
6720	Real	Correction factor in air velocity	From 0.2 to 2
6800	Enumeration	Type of section	0 : Rectangular 1 : Circular 2 : Coefficient
6810	Enumeration	Section unit	0 : mm 1 : inch
6820	Real	Length	From 1 to 3000 mm
6830	Real	Width	From 1 to 3000 mm
6840	Real	Diameter	From 1 to 3000 mm

4.6.4 Normative values

Modbus	Register type	Description	Possibilities
6900	Enumeration	Normative values	0 : None 1 : Din 1343 2 : ISO2533

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8. Functions recap and Modbus connections

8.1. F 100

Code	Modbus	Description	Possibilities
F 100	1000	Serial number of the transmitter	
F 101	1010	Firmware version	
F 140	1400	Keypad locking	0 : deactivated 1 : activated
F 141	1410	Safety code	
F 150	1500	Modbus slave number	From 1 to 255
F 151	1510	Modbus speed communication	2400 / 4800 / 9600/ 19200 / 38400 / 115200 bds
F 170	1700	Activation of the high resolution in pressure option	1 : activated / 0 : deactivated
F 171	1710	Activation of the Modbus option	1 : activated / 0 : deactivated
F 190	1900	Back to factory configuration	

8.2. F 200

Code	Modbus	Description	Possibilities
F 200	2000	Channel 1 activation/deactivation	Probe : SDE Board : PRES Deactivated: OFF
F 210	2100	Channel 2 activation/deactivation	Probe : SDE Board : PRES Deactivated : OFF
F 220	2200	Channel 3 activation/deactivation	Probe : SDE Board : PRES Deactivated : OFF
F 201	2010	Unit selection of the channel 1	According to probe and board
F 211	2110	Unit selection of the channel 2	According to probe and board
F 221	2210	Unit selection of the channel 3	According to probe and board

8.3. F 300

Code	Modbus	Description	Possibilities
F 300	3000	Analogue output selection of the channel 1	4-20 mA / 0-20 mA / 0-10 V / 0-5 V
F 310	3100	Analogue output selection of the channel 2	4-20 mA / 0-20 mA / 0-10 V / 0-5 V
F 320	3200	Analogue output selection of the channel 3	4-20 mA / 0-20 mA / 0-10 V / 0-5 V

Code	Modbus	Description	Possibilities				
F 301	3010	Channel 1 minimum range	From -1999 to 9999				
F 302	3020	Channel 1 maximum range	From -1999 to 9999				
F 311	3110	Channel 2 minimum range	From -1999 to 9999				
F 312	3120	Channel 2 maximum range	From -1999 to 9999				
F 321	3210	Channel 3 minimum range	From -1999 to 9999				
F 322	3220	Channel 3 maximum range	From -1999 to 9999				
F 303	3030	Channel 1 diagnostic : generation of a current or a voltage	Display	Generation according to the output signal			
				0-10 V	0-5 V	0-20 mA	4-20 mA
			1/3	0 V	0 V	0 mA	4 mA
			2/3	5 V	2.5 V	10 mA	12 mA
			3/3	10 V	5 V	20 mA	20 mA
F 313	3130	Channel 2 diagnostic : generation of a current or a voltage	Display	Generation according to the output signal			
				0-10 V	0-5 V	0-20 mA	4-20 mA
			1/3	0 V	0 V	0 mA	4 mA
			2/3	5 V	2.5 V	10 mA	12 mA
			3/3	10 V	5 V	20 mA	20 mA
F 323	3230	Channel 3 diagnostic : generation of a current or a voltage	Display	Generation according to the output signal			
				0-10 V	0-5 V	0-20 mA	4-20 mA
			1/3	0 V	0 V	0 mA	4 mA
			2/3	5 V	2.5 V	10 mA	12 mA
			3/3	10 V	5 V	20 mA	20 mA

8.4. F 400

Code	Modbus	Description	Possibilities
F 400 – F 410 – F 420	4000 – 4100 – 4200	Alarm mode	1/3 : rising edge 2/3 : falling edge 3/3 : monitoring
F 401 – F 411 – F 421	4010 – 4110 – 4210	Channel selection	1 : channel 1 2 : channel 2 3 : channel 3
F 402 – F 412 – F 422	4020 – 4120 – 4220	Threshold 1 setting	According to the connected probe
F 403 – F 413 – F 423	4030 – 4130 – 4230	Threshold 2 or hysteresis setting	According to the connected probe
F 404 – F 414 – F 424	4040 – 4140 – 4240	Delay time 1 setting	From 0 to 600 s
F 405 – F 415 – F 425	4050 – 4150 – 4250	Delay time 2 setting	From 0 to 600 s

F 406 – F 416 – F 426	4060 – 4160 - 4260	Audible alarm	1 : activated / 0 : deactivated

8.5. F 500

Code	Modbus	Description	Possibilities
F 500	5000	Measurement integration (pressure)	From 0 to 9
F 510	5100	Delay time between two autozeros	From 0 to 60 min
F 520	5200	Channel 1 coefficient	From 0.01 to 5
F 530	5300	Channel 2 coefficient	From 0.01 To 5
F 540	5400	Channel 3 coefficient	From 0.01 to 5
F 521	5210	Channel 1 offset	According to the probe
F 531	5310	Channel 2 offset	According to the probe
F 541	5410	Channel 3 offset	According to the probe

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9.1. F 100

Code	Modbus	Description	Possibilities
F 100	1000	Serial number of the transmitter	
F 101	1010	Firmware version	
F 140	1400	Keypad locking	0 : deactivated 1 : activated
F 141	1410		
F 150	1500	Modbus slave number	From 1 to 255
F 151	1510	Modbus speed communication	2400 / 4800 / 9600/ 19200 / 38400 / 115200 bds
F 170	1700	Activation of the high resolution in pressure option	1 : activated / 0 : deactivated
F 171	1710	Activation of the Modbus option	1 : activated / 0 : deactivated
F 180	1800	Activation of digital inputs	ON / OFF
F 190	1900	Back to factory configuration	

9.2. F 200

Code	Modbus	Description	Possibilities
F 200	2000	Channel 1 activation/deactivation	Probe : SDE Board : PRES Deactivated: OFF
F 210	2100	Channel 2 activation/deactivation	Probe : SDE Board : PRES Deactivated : OFF
F 220	2200	Channel 3 activation/deactivation	Probe : SDE Board : PRES Deactivated : OFF
F 201	2010	Unit selection of the channel 1	According to probe and board
F 211	2110	Unit selection of the channel 2	According to probe and board
F 221	2210	Unit selection of the channel 3	According to probe and board

9.3. F 300

Code	Modbus	Description	Possibilities
F 300	3000	Analogue output selection of the channel 1	4-20 mA / 0-20 mA / 0-10 V / 0-5 V
F 310	3100	Analogue output selection of the channel 2	4-20 mA / 0-20 mA / 0-10 V / 0-5 V
F 320	3200	Analogue output selection of the channel 3	4-20 mA / 0-20 mA / 0-10 V / 0-5 V
F 301	3010	Channel 1 minimum range	From -1999 to 9999

Code	Modbus	Description	Possibilities				
F 302	3020	Channel 1 maximum range	From -1999 to 9999				
F 311	3110	Channel 2 minimum range	From -1999 to 9999				
F 312	3120	Channel 2 maximum range	From -1999 to 9999				
F 321	3210	Channel 3 minimum range	From -1999 to 9999				
F 322	3220	Channel 3 maximum range	From -1999 to 9999				
F 303	3030	Channel 1 diagnostic : generation of a current or a voltage	Display	Generation according to the output signal			
				0-10 V	0-5 V	0-20 mA	4-20 mA
			1/3	0 V	0 V	0 mA	4 mA
			2/3	5 V	2.5 V	10 mA	12 mA
			3/3	10 V	5 V	20 mA	20 mA
F 313	3130	Channel 2 diagnostic : generation of a current or a voltage	Display	Generation according to the output signal			
				0-10 V	0-5 V	0-20 mA	4-20 mA
			1/3	0 V	0 V	0 mA	4 mA
			2/3	5 V	2.5 V	10 mA	12 mA
			3/3	10 V	5 V	20 mA	20 mA
F 323	3230	Channel 3 diagnostic : generation of a current or a voltage	Display	Generation according to the output signal			
				0-10 V	0-5 V	0-20 mA	4-20 mA
			1/3	0 V	0 V	0 mA	4 mA
			2/3	5 V	2.5 V	10 mA	12 mA
			3/3	10 V	5 V	20 mA	20 mA

9.4. F 400

Code	Modbus	Description	Possibilities
F 400 – F 410 – F 420	4000 – 4100 – 4200	Alarm mode	1/3 : rising edge 2/3 : falling edge 3/3 : monitoring
F 401 – F 411 – F 421	4010 – 4110 – 4210	Channel selection	1 : channel 1 2 : channel 2 3 : channel 3
F 402 – F 412 – F 422	4020 – 4120 – 4220	Threshold 1 setting	According to the connected probe
F 403 – F 413 – F 423	4030 – 4130 – 4230	Threshold 2 or hysteresis setting	According to the connected probe
F 404 – F 414 – F 424	4040 – 4140 – 4240	Delay time 1 setting	From 0 to 600 s
F 405 – F 415 – F 425	4050 – 4150 – 4250	Delay time 2 setting	From 0 to 600 s

F 406 – F 416 – F 426	4060 – 4160 - 4260	Audible alarm	1 : activated / 0 : deactivated

9.5. F 500

Code	Modbus	Description	Possibilities
F 500	5000	Measurement integration (pressure)	From 0 to 9
F 510	5100	Delay time between two autozeros	From 0 to 60 min
F 520	5200	Channel 1 coefficient	From 0.01 to 5
F 530	5300	Channel 2 coefficient	From 0.01 To 5
F 540	5400	Channel 3 coefficient	From 0.01 to 5
F 521	5210	Channel 1 offset	According to the probe
F 531	5310	Channel 2 offset	According to the probe
F 541	5410	Channel 3 offset	According to the probe

9.6. F 600

Code	Modbus	Description	Possibilities
F 600	6000	Temperature mode	1/3 : manual 2/3 : auto (thermocouple) 3/3 : auto (probe)
F 601	6010	Temperature unit	°C or °F
F 602	6020	Temperature value	
F 603	6030	Atmospheric pressure unit or altitude unit for pressure board	hPa, mbar, mmHg or m
F 604	6040	Pressure value	
F 605	6050	Altitude value	
F 610	6100	Differential pressure device	1/4 : Pitot type L 2/4 : Pitot type S 3/4 : Debimo blade 4/4 : differential pressure coefficient
F 611	6110	Differential pressure coefficient	
F 612	6120	Air velocity correction	Between 0.2 and 2
F 620	6200	Type of section	1/3 : rectangular 2/3 : circular 3/3 : airflow coefficient
F 621	6210	Unit of the section	mm or inch
F 622	6220	Length of the rectangular section	
F 623	6230	Width of the rectangular section	
F 624	6240	Diameter of the circular section	
F 625	6250	Airflow coefficient	Between 0.1 and 9999.9
F 626	6260	Pressure unit for the airflow	Pa, mmH_2O, inWg and mbar

F 630	6300	Atmospheric pressure unit or altitude unit for a measurement probe	hPa, mbar, mmHg or m
F 631	6310	Pressure value	
F 632	6320	Altitude value	
F 690	6900	Normative value	OFF DIN1343 ISO2533