

Batching Master xx0 (i)



Revision 10.2

From software version 2.32 and 3.32

IBS BatchControl GmbH
Im Sträßchen 2-4
53925 Kall
Germany



Phone: +49 2441 9199 801
Fax.: +49 2441 9199 871
www.ibs-batchcontrol.com



Important!

These instructions should be used in conjunction with the standard Installation and Operating Instructions for the Batching Master.

Table of Contents

1. General Information.....	4
1.1. Reading / Writing.....	4
1.2. Modbus operating modes.....	4
1.3. Baud rate.....	4
1.4. Interface settings.....	5
1.5. Connection of the interface.....	5
1.6. Cable specification.....	5
2. Coil Data (Basis 0xxxx).....	6
2.1. Read.....	6
2.2. Write in order to switch digital outputs.....	6
2.3. Write in order to switch the LEDs in the function keys.....	6
3. Input Status (Basis 1xxxx).....	6
4. Holding Register (Basis 4xxxx).....	7
4.1. General overview.....	7
4.1.1. Current data for a standard device.....	7
4.1.2. Terminal function (optional function).....	7
4.1.3. Printout data of the last batch process.....	8
4.1.4. Current data for a device with flow conversion function.....	8
4.1.5. Parameter variables.....	8
4.1.6. Current data of a Pipeline Master.....	8
4.2. Control of a batch process by the Modbus interface.....	9
4.2.1. Sending a pre-set value to the Batching Master.....	9
4.2.2. Sending a pre-set value with the selection of the batch dimension.....	9
4.2.3. Start the batch.....	10
4.2.4. Stop the batch.....	10
4.2.5. At a finished batch.....	11
4.2.6. Setting the Batching Master time.....	11
4.2.7. Watchdog.....	11
4.3. Working variables.....	12
4.4. Parameter variables.....	23
4.5. Pipeline Master.....	35

1. General Information

This manual shows the functions and possibilities of the Modbus communication to the Batching Master 110(i) and 210(i).

The Batching Master has two Modbus interfaces:

- The interface 1 is always a Modbus slave interface.
- The interface 2 can either work as a Modbus slave or as a Modbus master. As Modbus master the current process data of the following devices can be read directly:
 - Endress & Hauser Promass 84F
 - Emerson MVD electronics
 - Krohne Optimass MFC 010

1.1. Reading / Writing

The red LED in the RC key indicates the function of the Modbus interface

LED on = read/write

LED off = read only

This function can be selected in menu 2.4.1 of the Batching Master

1.2. Modbus operating modes

The Batching Master has the possibility to communicate in this two modes:

- Modbus RTU
- Modbus ASCII

This can be selected in menu 2.4.2 for interface 1 and in menu 2.4.6 for interface 2.

1.3. Baud rate

The baud rate for both interfaces can be entered between 2400 and 115.200 baud; in menu 2.4.3 for interface 1 and in menu 2.4.8 for interface 2

Attention:

The intrinsically safe batch controllers Batching Master 110i and 210i have intrinsically safe TTY current interfaces, which must be connected to the IPC3x0i interface modules. These interfaces only work up to a baud rate of 19200 baud.

1.4. Interface settings

The Batching Master interface works with the following parameters (settings):

	<i>Modbus RTU</i>	<i>Modbus ASCII</i>
Data Bits:	8	7
Stop Bits:	1	1
Parity:	Even	Eve

1.5. Connection of the interface

Non-Ex devices Batching Master 110 and 210:

The Batching Master 110 and 210 have two RS 485 interfaces with the terminals A, B and GND.

The last Batching Master in the bus has to be terminated with a 120 Ohm resistor, connected parallel between the terminals A and B.

Intrinsically safe devices Batching Master 110i and 210i

The Batching Master 110i and 210i have two intrinsically safe TTY interfaces with the terminals RxD, TxD and GND. These interfaces must be connected strictly to the interface and power supply module IPC 3x0i, with a RS485 output at the safe side.

For the connection please see the installation manuals of Batching Master and IPC 3x0i module. Please take care that the TxD (transmit data) need to be connected always to the RxD (receive data).

The RS485 interface of the last IPC 3x0i module in the bus has to be terminated with a 120 Ohm resistor, connected parallel between the terminals A and B.

1.6. Cable specification

These cable requirements have to be observed strictly otherwise we can't guaranty an error-free communication.

For Batching Master 110 and 210 (Non-Ex devices) a shielded twisted pair cable (impedance 100–120 Ω) has to be used. Connect the cable shield to the potential equalisation PE.

For the intrinsically safe Batching Master 110i and 210i, a shielded cable with a cable cross-section of at least 3 x 0.5 mm² must be used.

Connect the cable shield to the potential equalisation PE.

2. Coil Data (Basis 0xxxx)

2.1. Read

The coil data can be used to read out the status of the digital outputs 1 to 5 and the LEDs in the function keys F1 to F3.

2.2. Write in order to switch digital outputs

Via the coil function, the supervisory system is able to switch the digital outputs DO1 - DO5 of the Batching Master in order to implement local operations. This is only possible if the digital outputs DO 1 - DO 5 in the menu 2.3.... are set to "no function".

2.3. Write in order to switch the LEDs in the function keys

The supervisory system is able to switch the LEDs in the function keys F1 – F3 “on” and “off” in order to make status indication For this the function of the function keys F1-F3 has to be programmed in 2.7 to “no function”.

Coil no.	Register name	Description	Data type	Access	Modbus func.
1	Digital output 1		Bit	R/W	01, 05
2	Digital output 2		Bit	R/W	01, 05
3	Digital output 3		Bit	R/W	01, 05
4	Digital output 4		Bit	R/W	01, 05
5	Digital output 5		Bit	R/W	01, 05
6	LED F1		Bit	R/W	01, 05
7	LED F2		Bit	R/W	01, 05
8	LED F3		Bit	R/W	01, 05

3. Input Status (Basis 1xxxx)

Via the input status function it is possible to read out if the current status of the digital inputs DI 1 – DI 5.

Input no.	Register name	Description	Data type	Access	Modbus func.
1	Digital input 1		Bit	R/O	02
2	Digital input 2		Bit	R/O	02
3	Digital input 3		Bit	R/O	02
4	Digital input 4		Bit	R/O	02
5	Digital input 5		Bit	R/O	02

4. Holding Register (Basis 4xxxx)

The following part of the manual part of the manual explains the possibilities of the Modbus communication via the Holding Registers. Some of them are read only (R/O) and others can also be written (R/W).

4.1. General overview

This chapter gives a first overview which parts of the Holding Registers are used for which functionalities.

4.1.1. Current data for a standard device

If you use a standard Batching Master without *Flow Conversion Function* you find all important information for the loading process in the Holding Registers 1 – 61.

4.1.2. Terminal function (optional function)

If the terminal function is active, a supervisory system is able to send text to the Batching Master display and the keyboard buffer can be scanned (HMI Human Machine Interface). For using the terminal mode the Batching Master must be stopped or finished the batch.

Examples:

```
CODE: *****  
PLEASE ENTER!
```

```
PRODUCT: HCL50%  
F1=OK F3=ABORT
```

If you want to realise such a communication, please contact your local sales partner. He will forward you a special explanation how to handle the terminal function.

4.1.3. Printout data of the last batch process

The Batching Master provides the information of the last batch process in the Holding Registers 92 – 142 (read only). This data can be used to make printouts of the delivery papers or to store the batch data in the system.

Please note that no real time clock is available in the Batching Master. The time must be set periodical and after every power fail. If a PCC is connected, the clock is monitored from this device.

4.1.4. Current data for a device with flow conversion function

If the option “flow conversion between mass, volume and standard volume” is activated at the Batching Master, all important information for the loading process are shown in the Holding Registers 201 to 233.

4.1.5. Parameter variables

In the Holding Registers 1000 to 1318 all programmed parameters and settings of the Batching Masters are shown. It is possible to change most of this settings by the in Modbus communication.

Storing of parameter changes:

Changes of the parameters and settings will be stored and activated in the Batching Master after writing the value “1” into Holding Register 62 (safe parameters).

Attention:

If the programming of a Batching Master is blocked by the programming switch for “custody transfer”, it is not more possible to change the parameters of the install, linearisation and flow conversion menu by Modbus.

4.1.6. Current data of a Pipeline Master

The Batching Master has an optional function called Pipeline Master. Then the Batching Master reads the 3 counter blocks and all process data from a mass flow meter system via the second Modbus interface. The indicated data are shown in the Holding Registers 2000 – 2064. Then the Batching Master has no batch functionality. This is a simple variant from the current Pipeline Master 110(i) / 210(i).

4.2. Control of a batch process by the Modbus interface

4.2.1. Sending a pre-set value to the Batching Master

Action	Reaction
The status in Holding Register 15 after a finished batch is 1 (input pre-selection).	
Send the pre-set value as a 32 bit integer to the Holding Register 53/54.	No reaction
Write the value 1 into Holding Register 55 to activate the new pre-set value.	<ol style="list-style-type: none"> 1. The first display line shows the new pre-set value and the second line shows a batched quantity of "0". 2. The status in H-Reg. 15 gets the value 2 (<i>ready for start</i>)

4.2.2. Sending a pre-set value with the selection of the batch dimension

Action	Reaction
The status in Holding Register 15 after a finished batch is 1 (input pre-selection).	
Selection of the batch dimension:	
Write the value 1 into Holding Register 56 to reset the Batching Master	<ol style="list-style-type: none"> 1. The status in Holding Register 15 shows the value 25 (<i>selection of the batch dimension</i>) 2. The display of the Batching Master shows in the first line "Batch dimension:" and the second line shows the last used batch dimension like "mass", "volume" or "standard volume".
Now it is possible to change the batch dimension by writing the following values into Holding Register 17: 0 = (<i>mass</i>) , 1 = (<i>volume</i>) 2 = (<i>standard volume</i>)	At the same time when the value is changed in Holding Register 17, the indicated dimension in the second display line of the Batching Master shows the new selected batch dimension.
Write the value 1 into Holding Register 57 to confirm the batch dimension by the set- flag.	The status in H-Reg. 15 shows again the value "1" (input pre-selection). The display of the Batching Master shows a pre-set value of 0 and the last batched quantity

Transmitting of the pre-set value to the Batching Master:	
Send the pre-set value as a 32 bit integer to the Holding Registers 53/54.	No reaction
Write the value 1 into Holding Register 55 for the activation of the new pre-set value.	<ol style="list-style-type: none"> 1. The first display line shows the new pre-set value with right unit and the second display line shows a batched quantity of "0" 2. The status in Holding Register 15 gets the value 2 (<i>ready for start</i>)

4.2.3. Start the batch

Action	Reaction
The status in Holding Register 15 must be 2 (<i>ready for start</i>) or 17 (<i>batch interrupted</i>)	
Write the value 1 into Holding Register 58 for the batch start	<ol style="list-style-type: none"> 1. The status in Holding Register 15 changes to 7 (batch started) 2. A "b" is shown on the left side of the second display line. This indicates a started batch. 3. The Batching Master switches it's digital control outputs and the 4-20 mA valve output opens.

4.2.4. Stop the batch

Action	Reaction
The status in Holding Register 15 must be 7 (batch started)	
Write the value 1 into Holding Register 59 to stop the batch.	<ol style="list-style-type: none"> 1. The status in Holding Register 15 changes to 17 (<i>batch interrupted</i>) 2. The "b" on the left side of the second display line disappears. 3. The Batching Master switches off it's digital control outputs and the 4-20 mA valve output close.
The batch can be start again (see 4.2.3) or reset by writing a 1 into Holding Register 56 (reset).	

4.2.5. At a finished batch

Action	Reaction
The batch process is finished, when the batched quantity in the second display line reached the pre-set value or when the pre-set value will be deleted at a stopped batch process by writing the value 1 into Holding Register 56 (Reset)	If a waiting time for the printout is programmed in menu 4.11.2, the status of Holding Register 15 changes to 20 (waiting for printout) for the programmed time.
	<ol style="list-style-type: none"> 1. After the waiting time for the printout the status of Holding Register 15 changes back to 1 (<i>input of the pre-selection</i>). 2. The Batching Master provides the information of the last batch process in the Holding-Registers 92 - 142. This data can be used to make a printout of the batch data or to store them in the system.
Then the Batching Master is ready for a new batch process.	

4.2.6. Setting the Batching Master time

There is no real time clock inside of the Batching Master.

If a printer communication controller PCC300 or PCC400 is connected, then the PCC sets the internal clock of the Batching Master before each batch process and at a restart after a communication- or power-failure.

If only a supervisory system is connected and this system wants to store or to print the batch information from Modbus Holding Registers 101 – 142, then it is necessary to write the current time once per day and after each power- or communication-failure in the Holding Registers 92-98 (see register description).

Otherwise the date/time for the “batch start” and the “batch end” deliver wrong information.

4.2.7. Watchdog

The watchdog controls the communication with a supervisory system. If the watchdog isn't triggered, the batch will be stopped, a failure message is shown and the via Modbus set digital outputs released. A digital output which is controlled by a coil will also switch to off. This function works all the time, also in the terminal mode.

The settings from the watchdog are done via the interface in following holding registers:

Register 1065	The watchdog must be triggered within the set time. (value in 0,1 seconds)
Register 49	Trigger Flag, must be reset periodical
Register 50	Alarm Flag, „Watchdog indicated“. Please trigger flag 49 before reset register 50.

4.3. Working variables

Reg. no.	Description	Data type	Access	Modbus function
1	Device identification, value '5' for the Batching Master	16 Bit Int	R/O	3
2	Version number e. g. 209 for version 2.09	16 Bit Int	R/O	3
3	Device number LSW	32 Bit Int	R/O	3
4	Device number MSW		R/O	3
5	Error (32bit) – one bit is one failure b0- EEPROM failure b1- Sensor break NK1 b2- Sensor break NK2 b3- Sensor break mA1 b4- Sensor break mA2 b5- Sensor break mA3 b6- Over range mA1	b7- Over range mA2 b8- Over range mA3 b9- Not used b10- Minimal flow rate b11- ERR at Dig. Input b12- Release 1 b13- Release 2 b14- Over batching b15- Off-Switch	32 Bit R/O	3
6	Error – bits 16-31 b16- Printer Err b17- Pre-selection to less b18-Pre-selection to great b19- Impulse failure (double pulses) b20- ERR Printout b21- ERR Communicat.	b22-Printer busy b23-Printer paper out b21 to b23 see Reg. no. 52 b24 Product selection (DIn) b25 Extended area crc bad b26 API calculation error b27 ERR Modbus-Sens. b28 Valve not open b29 Valve not closed b30 Watchdog failure	R/O	3
7	Totaliser LSW Value is indicated by pressing the #-key. The value in this register and in this display counts up to 999.999.999 and then it starts automatically to count from 0.	32 Bit Int	R/O	3
8	Totaliser MSW		R/O	3
9	Current flow rate LSW	32 Bit Int	R/O	3
10	Current flow rate MSW		R/O	3
11	Batched quantity LSW	32 Bit Int	R/O	3
12	Batched quantity MSW		R/O	3
13	Pre-selection LSW	32 Bit Int	R/O	3
14	Pre-selection MSW		R/O	3

Reg. no.	Description	Data type	Access	Modbus function	
15	The batching status is shown 0- Without function 1- Pre-selection input 2- Ready for start 5- Purge (after reset) 6- Without function 7- Batch started 8- Waiting for release (Special function 4) 9- Waiting for release (Special function 2) 10- Waiting for release (Special function 1,3) 11- Delay after release signal (SF 4) 12- Batch started (Special function 4) 13- Batch started (SF2) 14- Batch started (SF 1,3) 15- Error before the batch process 16- Error during batch (batch can be re-started after debugging)	17- Batch interrupted (e.g. by stop key) 18- purging in batch pause 19- purging at ready to start (#2) or at a failure indication during the batch 20- Waiting time for the printout after batch end 21- Product selection mode 22- Waiting time after batch interruption by stop for "4.9.2 t to batch" at SF2 23- Waiting time after batch end for "4.9.2 t to batch" at SF2 24- free 25- Selection of the batch dimension 26- Enter mode for sub value temperature 27- Enter mode for sub value pressure 28- Enter mode for sub value density	16 Bit Int	R/O	3
16	Batching indication: See menu 1.6.0 for settings. The value become 1 at the batch start and when the batch is finished the value goes back to "0". Optional a "1" appears after batch finished for a programmed time.	Flag	R/O	3	
17	Batch dimension: 0 = mass, 1 = volume 2 = standard volume.	16 Bit Int	R/W	03, 06, 16	
18	Reserved for PCC	16 Bit Int	R/W	03, 06, 16	
19	Checksum custody transfer LSW (Parameter 1.11)	16 Bit Int	R/O	3	
20	Checksum custody transfer MSW	16 Bit Int	R/O	3	
21	Checksum all parameters LSW (Parameter 1.12)	16 Bit Int	R/O	3	
22	Checksum all parameters MSW	16 Bit Int	R/O	3	
23	AD-converter: analog input 1 (rough value)	16 Bit Int	R/O	3	
24	AD-converter: analog input 2 (rough value)	16 Bit Int	R/O	3	
25	AD-converter: analog input 3 (rough value)	16 Bit Int	R/O	3	
26	Analogue input 1, calibrated value standardised (value 0-10000 = 0%-100% input signal)	16 Bit Int	R/O	3	
27	Analogue input 2, calibrated value standardised (value 0-10000 = 0%-100% input signal)	16 Bit Int	R/O	3	
28	Analogue input 3, calibrated value standardised (value 0-10000 = 0%-100% input signal)	16 Bit Int	R/O	3	

Holding Register (Basis 4xxxx)

Reg. no.	Description	Data type	Access	Modbus function
29	flow rate, standardized (value 0-10000 = 0%-100%)	16 Bit Int	R/O	3
30	Pulse input 1, current frequency (LSW)	32 Bit Int	R/O	3
31	Pulse input 1, current frequency (MSW)		R/O	3
32	Pulse input 2, current frequency (LSW)	32 Bit Int	R/O	3
33	Pulse input 2, current frequency (MSW)		R/O	3
34	Analogue output, current value standardised (value 0-10000 = 4-20 mA output)	16 Bit Int	R/O	3
35	Digital switch off point 1 active (Shut off 1)	Flag	R/O	3
36	Digital switch off point 2 active (Shut off 2)	Flag	R/O	3
37	Digital switch off point 3 active (Shut off 3)	Flag	R/O	3
38	Flow alarm active (see parameter menu 1.5)	Flag	R/O	3
39	Fixed pre-selection active (0-normal input, 1-3 fixed pre-selection)	16 Bit Int	R/O	3
40	0= Interface Read-Only 1= Read/Write (Parameter 2.4.1)	Flag	R/O	3
41	Fixed set points for override controller selection function (current, active value) 0 = free adjustment by the operator 1 = fixed set point SP1 of 3.2.11 active 2 = fixed set point SP2 of 3.2.12 active 3 = fixed set point SP3 of 3.2.13 active	16 Bit Int	R/O	3
42	Fixed set points for flow controller selection function (current, active value) 0 = free adjustment by the operator 1 = fixed set point SP1 of 3.1.11 active 2 = fixed set point SP2 of 3.1.12 active 3 = fixed set point SP3 of 3.1.13 active	16 Bit Int	R/O	3
43	Product selection (current value)	16 Bit Int	R/O	3
44	Selection F1-F3 (Reg. No. 15 must be 21), write the value 1-3, confirmation via SET (Reg. No. 57) required	16 Bit Int	R/W	03, 06, 16
45	CT software version of Parameter 1.13 The value 12 means software version 1.2	16 Bit Int	R/O	3
46	Reserve		R/O	3
47	Reserved for PCC		R/O	3
48	Reserved for PCC		R/O	3
49	Watchdog flag must be triggered within the time from register no. 1065. If the watchdog is active: <ul style="list-style-type: none"> • The error bit b30 register no. 5 / 6 is set • The register 50 is set to "1" • An error message is displayed in the second line from the display. • An active batch will be stopped. • Digital outputs activated via Modbus was reset 	Flag	R/W	03, 06, 16
50	Alarm flag: watchdog is present Before reset, please trigger the watchdog flag (49). You can use the terminal mode direct after reset this flag. A batch can be restart after RESET. Via Modbus interface set coils must be set new.	Flag	R/W	03, 06, 16

Reg. no.	Description	Data type	Access	Modbus function
51	Reserved for PCC (request every 10 s).	Flag	R/W	03, 06, 16
52	After batching end this register is 1. This value is set back from the PCC after printout or storing. It may happen that the PCC has already reset the value before it is read by the PLC, for example. A new batch can be start if the value is 0. Then register no. 15 is set to 1.	16 Bit Int	R/W	03, 06, 16
53	External pre-selection value to the Batching Master LSW (the status in #15 must be 1)	16 Bit Int	R/W	03, 06, 16
54	External pre-selection value to the Batching Master MSW (the status in #15 must be 1)	16 Bit Int	R/W	03, 06, 16
55	Activation flag of the new pre-set value which was written in the registers 53 and 54 This flag will not be indicated in this register. A successful activation is seen in the fact, that the new preset value will be shown in the display of the device, the new value will be indicated in the registers 13+14 and the status in #15 changes to "2" = ready for start.	Flag	R/W	03, 06, 16
56	Remote RESET – function Same function like the pushing of the RESET-key in the front. The value 1 must be written 1 time. The value will not be shown in the register. A change of the value in the status register 15 indicates that the right function was activated. Error messages can be reset the pre-set value can be deleted.	Flag	R/W	03, 06, 16
57	Remote SET – function Same function like the pushing of the SET-key in the front. The value 1 must be written 1 time. The value will not be shown in the register. A change of the value in the status register 15 indicates that the right function was activated.	Flag	R/W	03, 06, 16
58	Remote START – function Same function like the pushing of the START key in the front. The value 1 must be written 1 time. The value will not be shown in the register. A change of the value in the status register 15 indicates that the right function was activated. With this function the batch can be started	Flag	R/W	03, 06, 16
59	Remote STOP – function Same function like the pushing of the STOP key in the front. The value 1 must be written 1 time. The value will not be shown in the register. A change of the value in the status register 15 indicates that the right function was activated. With this function the batch can be stopped	Flag	R/W	03, 06, 16
60	Reset totalisers This function works on all 3 totalizers. This function works also at custody transfer devices. The value 1 must be written 1 time. The value will not be shown in the register.	Flag	R/W	03, 06, 16

Holding Register (Basis 4xxxx)

Reg. no.	Description	Data type	Access	Modbus function
61	Purge function (value 1 = ON / 0 = OFF) Read only: When a digital input or the F1 key is programmed to to the switching of the purge function. The digital input has the highest priority. Write function for the switching of the purge function: Only when no digital input and the F1 key is not dedicated to the switching of the purge function.	Flag	R/W	03, 06, 16
62	Save parameters If parameters of the batch controller in the holding register range 1000 - 1318 were changed by Modbus, then this changes must be saved by writing the value 1 into this register 62. Then the new parameter values will be stored and activated.	Flag	R/W	03, 06, 16
63	Function keys – Individual bits are displayed when a corresponding key is pressed. The bit must be reset by the supervisory system. This functionality works both during the batch mode and during the terminal function. b0 – F1, b1 – F2, b2 – F3, b3 - RC	Bits	R/W	03, 06, 16
64	Activation of the terminal function mode 1 = terminal function active 0 = batching mode active The switch over to the terminal mode is not possible if a batch is started.	Flag	R/W	03, 06, 16
65	Display indication in the terminal mode: bit0-bit7 = ASCII for 1. character of the 1. line bit8-bit15 = ASCII for 2. character of the 1. line	16 Bit Int	R/W	03, 06, 16
66	3. and 4. character in the 1 display line in terminal mode	16 Bit Int	R/W	03, 06, 16
67	5. and 6. character in the 1 display line in terminal mode	16 Bit Int	R/W	03, 06, 16
68	7. and 8. character in the 1 display line in terminal mode	16 Bit Int	R/W	03, 06, 16
69	9. and 10. character in the 1 display line in terminal mode	16 Bit Int	R/W	03, 06, 16
70	11. and 12. character in the 1 display line in terminal mode	16 Bit Int	R/W	03, 06, 16
71	13. and 14. character in the 1 display line in terminal mode	16 Bit Int	R/W	03, 06, 16
72	15. and 16. character in the 1 display line in terminal mode	16 Bit Int	R/W	03, 06, 16
73	Display indication in the terminal mode: bit0-bit7 = ASCII for 1. character of the 2. line bit8-bit15 = ASCII for 2. character of the 2. line	16 Bit Int	R/W	03, 06, 16
74	3. and 4. character in the 2 display line in terminal mode	16 Bit Int	R/W	03, 06, 16
75	5. and 6. character in the 2 display line in terminal mode	16 Bit Int	R/W	03, 06, 16
76	7. and 8. character in the 2 display line in terminal mode	16 Bit Int	R/W	03, 06, 16

Reg. no.	Description	Data type	Access	Modbus function
77	9. and 10. character in the 2display line in terminal mode	16 Bit Int	R/W	03, 06, 16
78	11. and 12. character in the 2display line in terminal mode	16 Bit Int	R/W	03, 06, 16
79	13. and 14. character in the 2display line in terminal mode	16 Bit Int	R/W	03, 06, 16
80	15. and 16. character in the 2display line in terminal mode	16 Bit Int	R/W	03, 06, 16
81	Reset key board buffer (Reg. no. 82 to 91)	Flag	R/W	03, 06, 16
82	Function keys at terminal mode (Bitmap) b0 – SET b1 – Start b2 – Stop b3 – F1 b4 – F2 b5 – F3 b6 – ▲ b7 – ▼ b8 – ◀ b9 – ➤ b10 – Reset b11 – RC b12 – # b13 – Menu	Bits	R/W	03, 06, 16
83	Key board buffer pointer	16 Bit Int	R/W	03, 06, 16
84	Key board buffer in "Terminal Mode" (numeric keys)(ASCII „0“ to „9“): bit0-bit7 = ASCII value for the 1. key bit8-bit15 = ASCII value for the 2. key	16 Bit Int	R/W	03, 06, 16
85	3. and 4. key in the key board buffer	16 Bit Int	R/W	03, 06, 16
86	5. and 6. key in the key board buffer	16 Bit Int	R/W	03, 06, 16
87	7. and 8. key in the key board buffer	16 Bit Int	R/W	03, 06, 16
88	9. and 10. key in the key board buffer	16 Bit Int	R/W	03, 06, 16
89	11. and 12. key in the key board buffer	16 Bit Int	R/W	03, 06, 16
90	13. and 14. key in the key board buffer	16 Bit Int	R/W	03, 06, 16
91	15. and 16. key in the key board buffer	16 Bit Int	R/W	03, 06, 16
92	Time setting - seconds	16 Bit Int	R/W	03, 06, 16
93	Time setting - minutes	16 Bit Int	R/W	03, 06, 16
94	Time setting - hours	16 Bit Int	R/W	03, 06, 16
95	Date setting - day	16 Bit Int	R/W	03, 06, 16
96	Date setting - month	16 Bit Int	R/W	03, 06, 16
97	Date setting - year	16 Bit Int	R/W	03, 06, 16
98	Time/date setting – activation for register 92-97	Flag	R/W	03, 06, 16
99	Reserve	16 Bit Int	R/W	03, 06, 16
100	Reserve	16 Bit Int	R/W	03, 06, 16
101	Station name of the Batching Master This name can be entered into the registers 1167-1176 or the first 16 digits at the menu point 2.8.3 of the Batching Master. bit0-bit7 = ASCII value for 1. character bit8-bit15 = ASCII value for 2. character	16 Bit Int	RO	03
102	Station name 3. and 4 character	16 Bit Int	RO	03
103	Station name 5. and 6 character	16 Bit Int	RO	03
104	Station name 7. and 8 character	16 Bit Int	RO	03
105	Station name 9. and 10 character	16 Bit Int	RO	03
106	Station name 11. and 12 character	16 Bit Int	RO	03
107	Station name 13. and 14 character	16 Bit Int	RO	03
108	Station name 15. and 16 character	16 Bit Int	RO	03
109	Station name 17. and 18 character	16 Bit Int	RO	03
110	Station name 19. and 20 character	16 Bit Int	RO	03
111	Start time second (of the last batch)	16 Bit Int	RO	03

Holding Register (Basis 4xxxx)

Reg. no.	Description	Data type	Access	Modbus function
112	Start time minutes (of the last batch)	16 Bit Int	RO	03
113	Start time hours (of the last batch)	16 Bit Int	RO	03
114	Start time day (of the last batch)	16 Bit Int	RO	03
115	Start time month (of the last batch)	16 Bit Int	RO	03
116	Start time year (of the last batch)	16 Bit Int	RO	03
117	End time second (of the last batch)	16 Bit Int	RO	03
118	End time minutes (of the last batch)	16 Bit Int	RO	03
119	End time hours (of the last batch)	16 Bit Int	RO	03
120	End time day (of the last batch)	16 Bit Int	RO	03
121	End time month (of the last batch)	16 Bit Int	RO	03
122	End time year (of the last batch)	16 Bit Int	RO	03
123	Batch number LSW (of the last batch)	32 Bit Int	RO	03
124	Batch number MSW (of the last batch)		RO	03
125	Batch pre-set value LSW (of the last batch)	32 Bit Int	RO	03
126	Batch pre-set value MSW (of the last batch)		RO	03
127	Last error code of the last batch (Decimal value)	16 Bit Int	RO	03
	02 – Sensor break pulse input 1			
	03 – Sensor break pulse input 2			
	04 – Sensor break 4-20 mA input 1			
	05 – Sensor break 4-20 mA input 2			
	06 – Sensor break 4-20 mA input 3			
	07 – Measuring range overfl. 4-20 mA input 1			
	08 – Measuring range overfl. 4-20 mA input 2			
	09 – Measuring range overfl. 4-20 mA input 3			
	11 – Min Flow			
	12 – Error at digital input			
	13 – No Release 1			
	14 – No Release 2			
	15 – Over batching			
	16 – Error OFF switch			
	28 – Error API calculation			
	29 – Error Modbus sensor			
	30 – Valve not open			
	31 – Valve not closed			
	32 – Watch dog failure			

Reg. no.	Description	Data type	Access	Modbus function	
128	Bits 15-8: Unit, Bits 7-0: decimal places of the values inside the current indicated printout: bit 1=0 and bit 0=0 = no decimal place bit 1=0 and bit 0=1 = one decimal place bit 1=1 and bit 0=0 = two decimal places bit 1=1 and bit 0=1 = three decimal places Unit: <i>bit</i> 10 9 8 keine Einheit 0 0 0 kg 0 0 1 g 0 1 0 mg 0 1 1 l 1 0 0 ml 1 0 1 m ³ 1 1 0 t 1 1 1 Is the flow conversion function activated, this value is always the value of the selected batch dimension which is defined in the menu items 4.2.1 and 7.1.1	16 Bit Int	RO	03	
129	Batched quantity in mass LSW (of the last batch)	32 Bit Int	RO	03	
130	Batched quantity in mass MSW (of the last batch)		RO	03	
131	Batched quantity in volume LSW (of the last batch)	32 Bit Int	RO	03	
132	Batched quantity in volume MSW (of the last batch)		RO	03	
133	Batched quantity in standard volume LSW (last batch)	32 Bit Int	RO	03	
134	Batched quantity in standard volume MSW (last batch)		RO	03	
135	Errors which happened during the last batch – one bit is one failure: b0- EEPROM failure b1- Sensor break NK1 b2- Sensor break NK2 b3- Sensor break mA1 b4- Sensor break mA2 b5- Sensor break mA3 b6- Over range mA1 b7- Over range mA2 b8- Over range mA3 b9- Not used b10- Minimal flow rate b11- ERR at Dig. Input b12- Release 1 b13- Release 2 b14- Over batching b15- Off-Switch	16 Bit Int	RO	03	
136	Errors which happened during the last batch – one bit is one failure: b16- Printer Err b17- Pre-selection to less b18-Pre-selection to great b19- Impulse failure (double pulses) b20- ERR Printout b21- ERR Communicat.	b22-Printer busy b23-Printer paper out b21 to b23 see Reg. no. 52 b24 Product selection (DIn) b25 Extended area CRC bad b26 API calculation error b27 ERR Modbus Sens. b28 Valve not open b29 Valve not closed b30 Watchdog failure	16 Bit Int	RO	03

Holding Register (Basis 4xxxx)

Reg. no.	Description	Data type	Access	Modbus function
137	Spare	16 Bit Int	RO	03
138	Spare	16 Bit Int	RO	03
139	Reference temperature for the batched standard volume of the last batch. Value with one decimal place. Signed integer for an indication between -200,0°C and +600,0°C. Value 250 = 25,0°C	16 Bit Int	RO	03
140	Average density LSW (of the last batch)	32 Bit Int	RO	03
141	Average density MSW (of the last batch)		RO	03
142	Average temperature (of the last batch) Value with one decimal place. Signed integer for an indication between -200,0°C and +600,0°C. Value 250 = 25,0°C	16 Bit Int	RO	03
143	Product selection, selected product of the last batch Product selection via F1-F3, by digital input 3+4 or by Modbus possible. 0 = No product selected 1 = Product 1 2 = Product 2 3 = Product 3			
144-149	Spare	16 Bit Int	RO	03
150	CRC checksum	16 Bit Int	RO	03
151-200	Spare			
201	Error LSW (see #5)	16 Bit Int	RO	03
202	Error MSW (see #6)	16 Bit Int	RO	03
203	Batching Master status (see #15)	16 Bit Int	RO	03
204	Batch indication (see #16)	Flag	RO	03
205	Pre-set value LSW (see #13)	16 Bit Int	RO	03
206	Pre-set value MSW (see #14)	16 Bit Int	RO	03
207	Batched quantity in mass LSW	32 Bit Int	RO	03
208	Batched quantity in mass MSW		RO	03
209	Batched quantity in volume LSW	32 Bit Int	RO	03
210	Batched quantity in volume MSW		RO	03
211	Batched quantity in standard volume LSW	32 Bit Int	RO	03
212	Batched quantity in standard volume MSW		RO	03
213	Current density with 2 decimal places LSW (kg/m ³)	32 Bit Int	RO	03
214	Current density with 2 decimal places MSW		RO	03
215	Average density with 2 decimal places LSW (kg/m ³)	32 Bit Int	RO	03
216	Average density with 2 decimal places MSW		RO	03
217	Current temperature value with one decimal place. Signed integer value for an indication between -200,0°C and +600,0°C. Value 250 = 25,0°C	16 Bit Int	RO	03
218	Temperature input for simulation without decimal place menu "4.1.2 Temperature" set to "Modbus-Slave"	16 Bit Int	R / W	03, 06, 16

Reg. no.	Description	Data type	Access	Modbus function
219	Pressure input for simulation with 2 decimal places LSW	16 Bit Int	RO	03
220	Pressure input for simulation with 2 decimal places MSW menu "4.1.4 Pressure" set to "Modbus-Slave"	16 Bit Int	R / W	03, 06, 16
221	Current mass flow rate LSW	32 Bit Int	RO	03
222	Current mass flow rate MSW		RO	03
223	Current volume flow rate LSW	32 Bit Int	RO	03
224	Current volume flow rate MSW		RO	03
225	Current standard volume flow rate LSW	32 Bit Int	RO	03
226	Current standard volume flow rate MSW		RO	03
227	Totaliser LSW (see #7)	32 Bit Int	RO	03
228	Totaliser MSW (see #8)		RO	03
229	Flow rate input for simulation. The value 0-10000 = 0-100% of the measuring range (menu "4.1.1 Flow" set to "Modbus-Slave")	16 Bit Int	R / W	03, 06, 16
230	Density input for simulation LSW, kg/m ³ with two decimal places. (menu "4.1.3 Density" set to "Modbus-Slave")	32 Bit Int	R / W	03, 06, 16
231	Density input for simulation MSW kg/m ³ with two decimal places		R / W	03, 06, 16
232	Calculated reference density LSW (x.xx kg/m ³)	32 Bit Int	RO	03
233	Calculated reference density MSW (x.xx kg/m ³)		RO	03
234	Sub-value active: Bit 0=Temperature, Bit 1=Pressure, Bit 2= Density	16 Bit Int	RO	03
235	Sub-value input pressure	16 Bit Int	R / W	03, 06, 16
236	Sub-value input temperature	16 Bit Int	R / W	03, 06, 16
237	Sub-value input density LSW kg/m ³ with two decimal places	32 Bit Int	R / W	03, 06, 16
238	Sub-value input density MSW		R / W	03, 06, 16
239	Totaliser mass LSW Value is indicated by pressing the arrow up key. The value in this register and in this display counts up to 999.999.999 and then it starts automatically to count from 0.	32 Bit Int	RO	03
240	Totaliser mass MSW		RO	03
241	Totaliser volume LSW Value is indicated by pressing the arrow up key. The value in this register and in this display counts up to 999.999.999 and then it starts automatically to count from 0.	32 Bit Int	RO	03
242	Totaliser volume MSW		RO	03
243	Totaliser standard volume LSW Value is indicated by pressing the arrow up key. The value in this register and in this display counts up to 999.999.999 and then it starts automatically to count from 0.	32 Bit Int	RO	03
244	Totaliser standard volume MSW		RO	03
245-250	Spare			

Holding Register (Basis 4xxxx)

Reg. no.	Description	Data type	Access	Modbus function
301-600	Text buffer, stored in the FRAM 301 - 400 used by the PCC 400 401 - 600 freely useable by users	16 Bit Int	R / W	03, 06, 16
601-608	Current indication of the Batching Master display line 1 (16 characters)	String	RO	03
609-616	Current indication of the Batching Master display line 2 (16 characters)	String	RO	03

4.4. Parameter variables

Reg. no.	Description	Data type	Access	Modbus function
1001	Shut-off analogue 1 (Parameter 1.2.2) Quantity before the end MSW	32 Bit Int	R/W	03, 06, 16
1002	Shut-off analogue 1 Quantity before the end MSW		R/W	03, 06, 16
1003	Shut-off analogue 2 (Parameter 1.2.4) Quantity before the end LSW	32 Bit Int	R/W	03, 06, 16
1004	Shut-off analogue 2 Quantity before the end MSW		R/W	03, 06, 16
1005	Shut-off analogue 3 (Parameter 1.2.6) Quantity before the end LSW	32 Bit Int	R/W	03, 06, 16
1006	Shut-off analogue 3 Quantity before the end MSW		R/W	03, 06, 16
1007	Shut-off analogue 4 (Parameter 1.2.8) Quantity before the end LSW	32 Bit Int	R/W	03, 06, 16
1008	Shut-off analogue 4 Quantity before the end MSW		R/W	03, 06, 16
1009	Shut-off analogue 5 (Parameter 1.2.10) Quantity before the end LSW	32 Bit Int	R/W	03, 06, 16
1010	Shut-off analogue 5 Quantity before the end MSW		R/W	03, 06, 16
1011	Shut-off analogue 1 / mA value to the valve (400-2000 = 4.00-20.00 mA) (Parameter 1.2.3)	16 Bit Int	R/W	03, 06, 16
1012	Shut-off analogue 1 / mA value to the valve (400-2000 = 4.00-20.00 mA) (Parameter 1.2.5)	16 Bit Int	R/W	03, 06, 16
1013	Shut-off analogue 1 / mA value to the valve (400-2000 = 4.00-20.00 mA) (Parameter 1.2.7)	16 Bit Int	R/W	03, 06, 16
1014	Shut-off analogue 1 / mA value to the valve (400-2000 = 4.00-20.00 mA) (Parameter 1.2.9)	16 Bit Int	R/W	03, 06, 16
1015	Shut-off analogue 1 / mA value to the valve (400-2000 = 4.00-20.00 mA) (Parameter 1.2.11)	16 Bit Int	R/W	03, 06, 16
1016	Working method for analogue shut-off steps with active flow controller (Parameter 1.2.1) 0 = Input in mA-steps 1 = Input in flow rate set points	16 Bit Int	R/W	03, 06, 16
1017	Time for batch indicating pulse in 0.1 seconds (Parameter 1.6.2) Range 0,0 – 999,9 sec.	16 Bit Int	R/W	03, 06, 16
1018	Spare	16 Bit Int	R/W	03, 06, 16
1019	Spare	16 Bit Int	R/W	03, 06, 16
1020	Language (Parameter 2.1)	16 Bit Int	R/W	03, 06, 16
1021	Shut-off 1 digital LSW (Parameter 1.1.1)	32 Bit Int	R/W	03, 06, 16
1022	Shut-off 1 digital MSW		R/W	03, 06, 16
1023	Shut-off 2 digital LSW (Parameter 1.1.2)	32 Bit Int	R/W	03, 06, 16
1024	Shut-off 2 digital MSW		R/W	03, 06, 16
1025	Shut-off 3 digital LSW (Parameter 1.1.3)	32 Bit Int	R/W	03, 06, 16
1026	Shut-off 3 digital MSW		R/W	03, 06, 16
1027	Start-up ramp 4-20 mA output to valve in seconds (Parameter 1.3)	16 Bit Int	R/W	03, 06, 16
1028	Shut down ramp 4-20 mA output to the valve in seconds (Parameter 1.3)	16 Bit Int	R/W	03, 06, 16

Holding Register (Basis 4xxxx)

Reg. no.	Description	Data type	Access	Modbus function
1029	Maximum alarm flow rate LSW (Parameter 1.5)	32 Bit Int	R/W	03, 06, 16
1030	Maximum alarm flow rate MSW		R/W	03, 06, 16
1031	Batch indication: (Parameter 1.6.1) 0 = on, 1 = pulse at the end of the batch	16 Bit Int	R/W	03, 06, 16
1032	Maximum overrun quantity LSW (Parameter 1.7.1)	32 Bit Int	R/W	03, 06, 16
1033	Maximum overrun quantity MSW		R/W	03, 06, 16
1034	Monitor time for overrun quantity after the batch end in seconds. (Parameter 1.7.2)	16 Bit Int	R/W	03, 06, 16
1035	Sensor break / measuring range overrun activated: (Parameter 1.8.1-1.8.8) 0 = off 1= on b0-SB Pulse input 1 b1-SB Pulse input 2 b2-SB mA input 1 b3-Overr. mA input 1 b4-SB mA input 2 b5-Overr. mA input 2 b6-SB mA input 3, b7-Overr. mA input 3	16 Bit Int	R/W	03, 06, 16
1036	Function digital Input 1 value at bit 0-b4 = 1 - Set 2 - Start 3 - Set/Start (function only as 'edge') 4 - Stop 5 - Reset 6 - External Error 7 - Totaliser Reset 8 - Release 1 9 - Release 2 10 – Interface enable 11 – KBD disable 12 – Purge 13 – Controller off 14 – Valve open 15 – Valve closed 16 – SF-release (only SF) b13 – Action: 0 = level, 1 = flank b15 – Direction of action 0 = NO,1 = NC (Param. 2.2.1-2.2.3)	16 Bit Int	R/W	03, 06, 16
1037	Function digital input 2 see 1036 (Parameter 2.2.4-2.2.6)	16 Bit Int	R/W	03, 06, 16
1038	Function digital input 3 see 1036 with following changes from b0 – b4 16 – SF-release (only SF) or pre-selection 2 (SF no SF, fixed pre-selection on) 17- pre-selection 2 (SF active, fixed pre-selection on) (Parameter 2.2.7-2.2.9)	16 Bit Int	R/W	03, 06, 16
1039	Function digital input 4, see 1036 with following changes from b0 – b4 16 – SF-release (only SF) or pre-selection 1 (SF no SF, fixed pre-selection on) 17– pre-selection 1 (SF active, fixed pre-selection on) (Parameter 2.2.10-2.2.12)	16 Bit Int	R/W	03, 06, 16
1040	Function digital input 5 see 1036 (Parameter 2.2.13-2.2.15)	16 Bit Int	R/W	03, 06, 16

Reg. no.	Description	Data type	Access	Modbus function
1041	Function digital output 1 value at bit 0-b4 = 0 – No function 1 – Shut-off 1 2 – Shut-off 2 3 – Shut-off 3 4 – Pulse output 5 – Batching indication 6 – Flow alarm 7 – Error 8 – Purge 9 – Additive control 14 – Direction of action: 0 = NO, 1= NC (Parameter 2.3.1-2.3.2)	16 Bit Int	R/W	03, 06, 16
1042	Function digital output 2 (see register No. 1041) (Parameter 2.3.3-2.3.4)	16 Bit Int	R/W	03, 06, 16
1043	Function digital output 3 (see register No. 1041) (Parameter 2.3.5-2.3.6)	16 Bit Int	R/W	03, 06, 16
1044	Function digital output 4 (see register No. 1041) (Parameter 2.3.7-2.3.8)	16 Bit Int	R/W	03, 06, 16
1045	Function digital output 5 (see register No. 1041) (Parameter 2.3.9-2.3.10)	16 Bit Int	R/W	03, 06, 16
1046	Interface 1 settings: (Param. 2.4.1-2.4.3) b0-b7 - Modbus address b12, b13 – Protocol b14 – Read only b8,b9, b10 – Baud rate 000: 2400, 001: 4800, 010: 9600, 011:19200 100: 38400, 101:57600 110: 115200)	16 Bit Int	R/W	03, 06, 16
1047	Fixed pre-selection 1 LSW (Parameter 1.9.1)	32 Bit Int	R/W	03, 06, 16
1048	Fixed pre-selection 1 MSW		R/W	03, 06, 16
1049	Fixed pre-selection 2 LSW (Parameter 1.9.2)	32 Bit Int	R/W	03, 06, 16
1050	Fixed pre-selection 2 MSW		R/W	03, 06, 16
1051	Fixed pre-selection 3 LSW (Parameter 1.9.3)	32 Bit Int	R/W	03, 06, 16
1052	Fixed pre-selection 3 MSW		R/W	03, 06, 16
1053	Keyboard locking (Param. 2.6.1-2.6.7) b0 – 0: keypad enable, 1: keypad locked b1 – not used b2 – 0: SET enable, b3 – 0: START enable, b4 – 0: STOP enable, b5 – 0: F1-F3 enable, b6 – 0 Reset enable, b7 – 0 Reset only for error reset enable b8 – 0: 0 to 9 enable	Bits	R/W	03, 06, 16
1054	Function of the function keys F1-F3: 0 – LED don't switch, signalisation only with interface 1 – LED switch with digital shut-off 2 – Fixed pre-selection values 3 – F1 = Purge 4 – Product selection 5 – Fixed set points flow controller 6 – Fixed set points override controller 7 – LED Digital outputs 1-3 (Parameter 1.9.1)	16 Bit Int	R/W	03, 06, 16
1055	Shut-off 1 set point for the flow controller LSW (Parameter 1.2.3 if 1.2.1 = flow setpoint)	32 Bit Int	R/W	03, 06, 16
1056	Shut-off 1 set point for the flow controller MSW		R/W	03, 06, 16
1057	Shut-off 2 set point for the flow controller LSW (Parameter 1.2.5 if 1.2.1 = flow setpoint)	32 Bit Int	R/W	03, 06, 16

Holding Register (Basis 4xxxx)

Reg. no.	Description	Data type	Access	Modbus function
1058	Shut-off 2 set point for the flow controller MSW		R/W	03, 06, 16
1059	Shut-off 3 set point for the flow controller LSW (Parameter 1.2.7 if 1.2.1 = flow setpoint)	32 Bit Int	R/W	03, 06, 16
1060	Shut-off 3 set point for the flow controller MSW		R/W	03, 06, 16
1061	Shut-off 4 set point for the flow controller LSW (Parameter 1.2.9 if 1.2.1 = flow setpoint)	32 Bit Int	R/W	03, 06, 16
1062	Shut-off 4 set point for the flow controller MSW		R/W	03, 06, 16
1063	Shut-off 5 set point for the flow controller LSW (Parameter 1.2.11 if 1.2.1 = flow setpoint)	32 Bit Int	R/W	03, 06, 16
1064	Shut-off 5 set point for the flow controller MSW		R/W	03, 06, 16
1065	Time watch dog failure in 0,1 seconds Value 0 = Function off	16 Bit Int	R/W	03, 06, 16
1066	Delay time for monitoring the valve position feedback signal "valve open" after batch start (Parameter 2.11.1)	16 Bit Int	R/W	03, 06, 16
1067	Delay time for monitoring the valve position feedback signal "valve closed" after the batch end (Parameter 2.11.2)	16 Bit Int	R/W	03, 06, 16
1068	Valve control mode: (Parameter 2.9) 0 = analog 4-20 mA output , 1 = 2-step valve	16 Bit Int	R/W	03, 06, 16
1069	Travel time of two stage valve from closed to open in 0,1 s (Parameter 3.1.15)	16 Bit Int	R/W	03, 06, 16
1070	Minimum pulse length for 2-stage valve in 0,1 s (Parameter 3.1.16)	16 Bit Int	R/W	03, 06, 16
1071	Override controller b3, b4 = decimal place status b8 - b10 = Unit b0-b2 = function 0 = disabled 1 = Local set point 2 = Remote set point	Bits	R/W	03, 06, 16
1072	Override controller, start value measuring range (Parameter 3.2.4)	16 Bit Int	R/W	03, 06, 16
1073	Override controller, end value measuring range (Parameter 3.2.5)	16 Bit Int	R/W	03, 06, 16
1074	Kp - override controller (Parameter 3.2.5)	16 Bit Int	R/W	03, 06, 16
1075	OP - override controller (Parameter 3.2.6)	16 Bit Int	R/W	03, 06, 16
1076	Kd - override controller (Parameter 3.2.7)	16 Bit Int	R/W	03, 06, 16
1077	Tn - override controller (Parameter 3.2.8)	16 Bit Int	R/W	03, 06, 16
1078	Tv - override controller (Parameter 3.2.9)	16 Bit Int	R/W	03, 06, 16
1079	Set point start value Wa of the override controller (Parameter 3.2.10)	16 Bit Int	R/W	03, 06, 16
1080	Set point end value We of the override controller (Parameter 3.2.11)	16 Bit Int	R/W	03, 06, 16
1081	Set point 1, override contr. (Parameter 3.2.15)	16 Bit Int	R/W	03, 06, 16
1082	Set point 2, override contr. (Parameter 3.2.16)	16 Bit Int	R/W	03, 06, 16
1083	Set point 3, override contr. (Parameter 3.2.17)	16 Bit Int	R/W	03, 06, 16
1084	Current working set point (Parameter 3.2.14)	16 Bit Int	R/W	03, 06, 16
1085	Interval for additive control (batched quantity) (Parameter 4.15.2)	32 Bit Int	R/W (CT)	03, 06, 16
1087	Pulse length for additive control (in 0,1 seconds) (Parameter 4.15.3)	16 Bit Int	R/W (CT)	03, 06, 16

Reg. no.	Description	Data type	Access	Modbus function
1088	Correction factor overrun correction, correction of end deviation of the quantity (Parameter 1.10.1)	16 Bit Int	R/W	03, 06, 16
1089	Maximal batch failure for overrun correction (Parameter 1.10.2)	16 Bit Int	R/W	03, 06, 16
1090	Flow correction overrun correction (Parameter 1.10.3)	16 Bit Int	R/W	03, 06, 16
1091	Flow controller b11 = Set point fixed (Parameter 3.1.1+3.1.9) b0-b2 = Function 0 = Disable 1 = Local set point 2 = Remote set point	Bits	R/W	03, 06, 16
1092	Kp - flow controller (Parameter 3.1.2)	16 Bit Int	R/W	03, 06, 16
1093	OP - flow controller (Parameter 3.1.3)	16 Bit Int	R/W	03, 06, 16
1094	Kd - flow controller (Parameter 3.1.4)	16 Bit Int	R/W	03, 06, 16
1095	Tn - flow controller (Parameter 3.1.5)	16 Bit Int	R/W	03, 06, 16
1096	Tv - flow controller (Parameter 3.1.6)	16 Bit Int	R/W	03, 06, 16
1097	Set point start value (LSW) flow controller (Parameter 3.1.7)	32 Bit Int	R/W	03, 06, 16
1098	Set point start value (MSW) flow controller		R/W	03, 06, 16
1099	Set point end value (LSW) flow controller (Parameter 3.1.8)	32 Bit Int	R/W	03, 06, 16
1100	Set point end value (MSW) flow controller		R/W	03, 06, 16
1101	Set point 1 (LSW) flow cont. (Parameter 3.1.11)	32 Bit Int	R/W	03, 06, 16
1102	Set point 1 (MSW) flow controller		R/W	03, 06, 16
1103	Set point 2 (LSW) flow contr. (Parameter 3.1.12)	32 Bit Int	R/W	03, 06, 16
1104	Set point 2 (MSW) flow controller		R/W	03, 06, 16
1105	Set point 3 (LSW) flow contr. (Parameter 3.1.13)	32 Bit Int	R/W	03, 06, 16
1106	Set point 3 (MSW) flow controller		R/W	03, 06, 16
1107	Current working set point (LSW) flow controller The value of the active flow controller of the BM display and the value in 3.1.10 is shown. This does not work together with the switching function of the fixed set points SP1-SP3. A value which was written into this address must be activated via the value 1, written into the address 62 „parameter take over“.	32 Bit Int	R/W	03, 06, 16
1108	Current working set point (MSW) flow controller		R/W	03, 06, 16
1109	Ramp difference, flow controller 1000 = 100,0% (Parameter 3.1.14)	16 Bit Int	R/W	03, 06, 16
1110	Spare	16 Bit Int	R/W	03, 06, 16
1111	Flow signal, input selection: 0 = pulse, 1 = double pulse, 2 = 4-20mA input 1, 3 = Modbus Slave 4 = Modbus Master (Parameter 4.1.1)	16 Bit Int	R/W (CT)	03, 06, 16
1112	Unit: 0=no, 1=kg, 2=g, 3=mg, 4=l, 5=ml, 6=m3, 7=t (Parameter 4.2.1)	16 Bit Int	R/W (CT)	03, 06, 16
1113	decimal place 0=0, 1=1, 2=2, 3=3 (Parameter 4.2.2)	16 Bit Int	R/W (CT)	03, 06, 16
1114	Measuring range (LSW) (Parameter 4.2.3)	32 Bit Int	R/W (CT)	03, 06, 16

Holding Register (Basis 4xxxx)

Reg. no.	Description	Data type	Access	Modbus function
1115	Measuring range (MSW) (Parameter 4.2.3)		R/W(CT)	03, 06, 16
1116	Pulse per last digit LSW (Value of parameter 4.2.4 with 3 decimal places)	32 Bit Int	R/W (CT)	03, 06, 16
1117	Pulse per last digit MSW (Value of parameter 4.2.4 with 3 decimal places)		R/W (CT)	03, 06, 16
1118	Bit 2..bit 0 pulse output: Bit 8: 0: 1 pulse / last digit, 0= pulse count output 1: 10 Imp. / last digit, 1= frequency output 2: 100 Imp. / last digit, (Parameter 4.4.2) 3: 1000 Imp. / last digit Bit 9: Error messages Parameter 4.4.1 0= Flashing not 1= are flashing (Parameter 2.12)	Bits	R/W (CT)	03, 06, 16
1119	Linearisation function: 0 – no 1 – pulse input 2 – mA input 1 3 – mA input 2 4 – mA input 3 (Parameter 4.3)	Bits	R/W (CT)	03, 06, 16
1120	Min pre-selection LSW (Parameter 4.5)	32 Bit Int	R/W(CT)	03, 06, 16
1121	Min pre-selection MSW		R/W	03, 06, 16
1122	Max pre-selection LSW (Parameter 4.6) not CT	32 Bit Int	R/W	03, 06, 16
1123	Max pre-selection MSW		R/W	03, 06, 16
1124	Overrun quantity LSW (Parameter 4.7)	32 Bit Int	R/W	03, 06, 16
1125	Overrun quantity MSW		R/W	03, 06, 16
1126	Minimum flow rate LSW (Parameter 4.8.1)	32 Bit Int	R/W(CT)	03, 06, 16
1127	Minimum flow rate MSW		R/W	03, 06, 16
1128	Time after start for min flow monitoring LSW (Parameter 4.8.2)	32 Bit Int	R/W (CT)	03, 06, 16
1129	Time after start for min flow monitoring MSW		R/W	03, 06, 16
1130	Time during batch for min flow monitor. LSW (Parameter 4.8.3)	32 Bit Int	R/W (CT)	03, 06, 16
1131	Time during batch for min flow monitor. MSW		R/W	03, 06, 16
1132	Allowed under batching quantity LSW (Parameter 4.8.4)	32 Bit Int	R/W (CT)	03, 06, 16
1133	Allowed under batching quantity MSW	16 Bit Int	R/W	03, 06, 16
1134	Filter special purge function (Parameter 4.9.1)	16 Bit Int	R/W (CT)	03, 06, 16
1135	Time to batch (Parameter 4.9.2)	16 Bit Int	R/W(CT)	03, 06, 16
1136	Waiting time (Parameter 4.9.3)	16 Bit Int	R/W(CT)	03, 06, 16
1137	Delay (Parameter 4.9.4)	16 Bit Int	R/W(CT)	03, 06, 16
1138	Counting of the flow rate: 0 = always 1 = only during a batch 2 = only during started batch (Parameter 4.10)	16 Bit Int	R/W (CT)	03, 06, 16
1139	Monitoring of the interface (the value 1 need to written each 10 seconds in Reg. 51) 0 = Unsupervised, 2 = Monitored (Parameter 4.13)	16 Bit Int	R/W (CT)	03, 06, 16
1140	Waiting time for printout after batch end (time in seconds) (Parameter 4.11.2)	16 Bit Int	R/W (CT)	03, 06, 16

Reg. no.	Description	Data type	Access	Modbus function
1141	Effects of a printer failure (PCC 400 was not able to create a printout) 0 = No effect, 1 = No new batch start (Parameter 4.11.3)	16 Bit Int	R/W (CT)	03, 06, 16
1142	Value of pulses per error pulse LSW (Parameter 4.2.5)	32 Bit Int	R/W (CT)	03, 06, 16
1143	Value of pulses per error pulse MSW		R/W	03, 06, 16
1144	COM Status 2 b0-b7 address, b8-b10 baud rate, b12 protocol (0 – RTU, 1 – ASCII, in master mode only RTU) b13...b15 - 0 slave (function like COM1), 1 = master for Promass 84F 2 = master for Krohne MFC010 3 = master for Emerson Micromotion (Parameter 2.4.5 – 2.4.8)	Bits	R/W	03, 06, 16
1145	Main function: (Parameter 4.14.1) 0=Batching Master 1=Pipeline-Master	16 Bit Int	R/W	03, 06, 16
1146	Bit status - activate/deactivate display indication with the flow conversion function (Parameter 2.10.1 – 2.10.15) (also Pipeline Master old version) Bit 0 – batched quantity in mass Bit 1 – batched quantity in volume Bit 2 – batched quantity in standard volume Bit 3 – current flow rate in mass Bit 4 – current I flow rate in volume Bit 5 – current flow rate in standard volume Bit 6 – current temperature Bit 7 – current pressure Bit 8 – current density Bit 9 – average temperature Bit 10 – average Density Bit 11 – current calculated standard density Bit 12 – totaliser mass Bit 13 – totaliser volume Bit 14 – totaliser standard volume	16 Bit Int	R/W	03, 06, 16
1147	Print cycle old Pipeline Master (Parameter 4.14.12)	16 Bit Int	R/W (CT)	03, 06, 16
1148	Full scale output frequency: 1...10000 equal to 0.01Hz to 100.00Hz (Parameter 4.4.3)	16 Bit Int	R/W (CT)	03, 06, 16
1149	Spare	16 Bit Int	R/W	03, 06, 16
1150	Spare	16 Bit Int	R/W	03, 06, 16
1151	1. and 2. character for release 1 text (Parameter 2.8.1)	16 Bit Int	R/W	03, 06, 16
1152	3. and 4. character for release 1 text	16 Bit Int	R/W	03, 06, 16
1153	5. and 6. character for release 1 text	16 Bit Int	R/W	03, 06, 16
1154	7. and 8. character for release 1 text	16 Bit Int	R/W	03, 06, 16
1155	9. and 10. character for release 1 text	16 Bit Int	R/W	03, 06, 16
1156	11. and 12. character for release 1 text	16 Bit Int	R/W	03, 06, 16
1157	13. and 14. character for release 1 text	16 Bit Int	R/W	03, 06, 16

Holding Register (Basis 4xxxx)

Reg. no.	Description	Data type	Access	Modbus function
1158	15. and 16. character for release 1 text	16 Bit Int	R/W	03, 06, 16
1159	1. and 2. character for release 2 text (Parameter 2.8.2)	16 Bit Int	R/W	03, 06, 16
1160	3. and 4. character for release 2 text	16 Bit Int	R/W	03, 06, 16
1161	5. and 6. character for release 2 text	16 Bit Int	R/W	03, 06, 16
1162	7. and 8. character for release 2 text	16 Bit Int	R/W	03, 06, 16
1163	9. and 10. character for release 2 text	16 Bit Int	R/W	03, 06, 16
1164	11. and 12. character for release 2 text	16 Bit Int	R/W	03, 06, 16
1165	13. and 14. character for release 2 text	16 Bit Int	R/W	03, 06, 16
1166	15. and 16. character for release 2 text	16 Bit Int	R/W	03, 06, 16
1167	1. and 2. character for station name text (Parameter 2.8.3)	16 Bit Int	R/W	03, 06, 16
1168	3. und 4. character for station name text	16 Bit Int	R/W	03, 06, 16
1169	5. und 6. character for station name text	16 Bit Int	R/W	03, 06, 16
1170	7. und 8. character for station name text	16 Bit Int	R/W	03, 06, 16
1171	9. und 10. character for station name text	16 Bit Int	R/W	03, 06, 16
1172	11. und 12. character for station name text	16 Bit Int	R/W	03, 06, 16
1173	13. und 14. character for station name text	16 Bit Int	R/W	03, 06, 16
1174	15. und 16. character for station name text	16 Bit Int	R/W	03, 06, 16
1175	17. und 18. character for station name text	16 Bit Int	R/W	03, 06, 16
1176	19. und 20. character for station name text	16 Bit Int	R/W	03, 06, 16
1177	Question text product selection character 1, 2 (Parameter 2.8.4)	16 Bit Int	R/W	03, 06, 16
1178	Question text product selection character 3, 4	16 Bit Int	R/W	03, 06, 16
1179	Question text product selection character 5, 6	16 Bit Int	R/W	03, 06, 16
1180	Question text product selection character 7, 8	16 Bit Int	R/W	03, 06, 16
1181	Question text product selection character 9, 10	16 Bit Int	R/W	03, 06, 16
1182	Question text product selection character 11, 12	16 Bit Int	R/W	03, 06, 16
1183	Question text product selection character 13, 14	16 Bit Int	R/W	03, 06, 16
1184	Question text product selection character 15, 16	16 Bit Int	R/W	03, 06, 16
1185	Text product name 1 character 1, 2 (Parameter 2.8.5)	16 Bit Int	R/W	03, 06, 16
1186	Text product name 1 character 3, 4	16 Bit Int	R/W	03, 06, 16
1187	Text product name 1 character 5, 6	16 Bit Int	R/W	03, 06, 16
1188	Text product name 1 character 7, 8	16 Bit Int	R/W	03, 06, 16
1189	Text product name 1 character 9, 10	16 Bit Int	R/W	03, 06, 16
1190	Text product name 1 character 11,12	16 Bit Int	R/W	03, 06, 16
1191	Text product name 1 character 13, 14	16 Bit Int	R/W	03, 06, 16
1192	Text product name 1 character 15, 16	16 Bit Int	R/W	03, 06, 16
1193	Text product name 2 character 1, 2 (Parameter 2.8.6)	16 Bit Int	R/W	03, 06, 16
1194	Text product name 2 character 3, 4	16 Bit Int	R/W	03, 06, 16
1195	Text product name 2 character 5, 6	16 Bit Int	R/W	03, 06, 16
1196	Text product name 2 character 7, 8	16 Bit Int	R/W	03, 06, 16
1197	Text product name 2 character 9, 10	16 Bit Int	R/W	03, 06, 16
1198	Text product name 2 character 11,12	16 Bit Int	R/W	03, 06, 16
1199	Text product name 2 character 13, 14	16 Bit Int	R/W	03, 06, 16
1200	Text product name 2 character 15, 16	16 Bit Int	R/W	03, 06, 16
1201	Text product name 3 character 1, 2 (Parameter 2.8.7)	16 Bit Int	R/W	03, 06, 16
1202	Text product name 3 character 3, 4	16 Bit Int	R/W	03, 06, 16

Reg. no.	Description	Data type	Access	Modbus function
1203	Text product name 3 character 5, 6	16 Bit Int	R/W	03, 06, 16
1204	Text product name 3 character 7, 8	16 Bit Int	R/W	03, 06, 16
1205	Text product name 3 character 9, 10	16 Bit Int	R/W	03, 06, 16
1206	Text product name 3 character 11,12	16 Bit Int	R/W	03, 06, 16
1207	Text product name 3 character 13, 14	16 Bit Int	R/W	03, 06, 16
1208	Text product name 3 character 15, 16	16 Bit Int	R/W	03, 06, 16
1209	Text wait for release character 1, 2 (Parameter 2.8.8)	16 Bit Int	R/W	03, 06, 16
1210	Text wait for release character 3, 4	16 Bit Int	R/W	03, 06, 16
1211	Text wait for release character 5, 6	16 Bit Int	R/W	03, 06, 16
1212	Text wait for release character 7, 8	16 Bit Int	R/W	03, 06, 16
1213	Text wait for release character 9, 10	16 Bit Int	R/W	03, 06, 16
1214	Text wait for release character 11, 12	16 Bit Int	R/W	03, 06, 16
1215	Text wait for release character 13, 14	16 Bit Int	R/W	03, 06, 16
1216	Text wait for release character 15, 16	16 Bit Int	R/W	03, 06, 16
1217	Text for delay special function character 1, 2 (Parameter 2.8.9)	16 Bit Int	R/W	03, 06, 16
1218	Text for delay special function character 3, 4	16 Bit Int	R/W	03, 06, 16
1219	Text for delay special function character 5, 6	16 Bit Int	R/W	03, 06, 16
1220	Text for delay special function character 7, 8	16 Bit Int	R/W	03, 06, 16
1221	Text for delay special function character 9, 10	16 Bit Int	R/W	03, 06, 16
1222	Text for delay special function character 11, 12	16 Bit Int	R/W	03, 06, 16
1223	Text for delay special function character 13, 14	16 Bit Int	R/W	03, 06, 16
1224	Text for delay special function character 15, 16	16 Bit Int	R/W	03, 06, 16
1225	Sensor break function re-start possibility with sub-values (Flow conversion) b0+b1- Temperature, (Parameter 7.2.5) b4+b5- Density, (Parameter 7.3.11) b8+b9- Pressure, (Parameter 7.4.7) possible settings: 0= no restart, 1= Start fix value, 2= Start enter value	16 Bit Int	R/W (CT)	03, 06, 16
1226	Error value for pressure (Parameter 7.4.8) Value with 2 decimal places 100= 1,00 bar	16 Bit Int	R/W (CT)	03, 06, 16
1227	Error value for temperature (Parameter 7.2.6) Value with one decimal place. Signed integer for an indication between -200,0 °C and +600,0 °C. Value 250 = 25,0 °C	16 Bit Int	R/W (CT)	03, 06, 16
1228	Error value for density (Parameter 7.3.12) Value with two decimal places. Value 80000 = 800,00 kg/m ³	16 Bit Int	R/W (CT)	03, 06, 16
1230	Pressure compensation – calculation mode 0 = OFF, 1 = Manual correction, 2 = Linear correction, 3 = API crude oil and refined products 4= Special products (Parameter 7.4.1)	16 Bit Int	R/W (CT)	03, 06, 16
1231	Pressure compensation – Reference pressure Value 0,00000 – 1,50000 bar (Parameter 7.4.6)	32 Bit Int	R/W (CT)	03, 06, 16
1233	Pressure compensation – press.correction fact. Value 0,000000 – 1,000000 (Parameter 7.4.5)	16 Bit Int	R/W (CT)	03, 06, 16

Holding Register (Basis 4xxxx)

Reg. no.	Description	Data type	Access	Modbus function
1235	Pressure compensation – cplm manual input Value 0,000000 – 2,000000 (Parameter 7.4.4)	16 Bit Int	R/W (CT)	03, 06, 16
1237	Temperature input mode (Parameter 4.1.2) 0-none, 1- AIn1, 2-AIn2, 3-AIn3, 4- Modbus-Slave, 5-Modbus Master	16 Bit Int	R/W (CT)	03, 06, 16
1238	Density input mode (Parameter 4.1.3) 0-none, 1- AIn1, 2-AIn2, 3-AIn3, 4-Modbus Slave, 5- Impuls 2, 6-Modbus Master	16 Bit Int	R/W (CT)	03, 06, 16
1239	Pressure input (Parameter 4.1.4) 0-none, 1- AIn1, 2-AIn2, 3-AIn3, 4-Modbus Simulation	16 Bit Int	R/W (CT)	03, 06, 16
1240	Batch dimension: (Parameter 7.1.1-7.1.3) Bit 0 – 3 = 0- mass, 1- volume, 2- standard volume, 3- switch able Deactivated value when “switch able” is active: Bit 8-10 = 0-none, 1-mass, 2-volume, 3-standard volume Totaliser dimension: Bit 12-13 = 0- mass, 1- volume, 2- standard volume	16 Bit Int	R/W (CT)	03, 06, 16
1241	Temperature input, range begin in 0,0 °C (Parameter 7.2.2)	32 Bit Int	R/W (CT)	03, 06, 16
1242	Temperature input, range end in 0,0 °C (Parameter 7.2.3)		R/W (CT)	03, 06, 16
1243	Density input, range begin LSW in 0,00 kg/m3 (Parameter 7.3.2)	32 Bit Int	R/W (CT)	03, 06, 16
1244	Density input, range begin MSW		R/W	03, 06, 16
1245	Density input, range end LSW in 0,00 kg/m3 (Parameter 7.3.3)	32 Bit Int	R/W (CT)	03, 06, 16
1246	Density input, range end MSW		R/W	03, 06, 16
1247	Pressure input, range begin in 0,00 bar (Parameter 7.4.2)	16 Bit Int	R/W (CT)	03, 06, 16
1248	Pressure input, range end in 0,00 bar (Parameter 7.4.3)	16 Bit Int	R/W (CT)	03, 06, 16
1249	Density calculation mode (Parameter 7.3.1) 0- Fix value, 1- from external input, 2- calculated	16 Bit Int	R/W (CT)	03, 06, 16
1250	Density calculation method: 0- linear, 1- API, 2- DIN EN 14214 Biodiesel (Parameter 7.2.1)	16 Bit Int	R/W (CT)	03, 06, 16
1251	Standard density LSW in 0,00 kg/m3 (Parameter 7.3.4)	32 Bit Int	R/W (CT)	03, 06, 16
1252	Standard density MSW		R/W	03, 06, 16
1253	Factor for Biodiesel calculation DIN EN 14214 in 0,000 (Parameter 7.3.4)	16 Bit Int	R/W (CT)	03, 06, 16
1254	Reference temperature in 0,0 °C (Parameter 7.3.5)	16 Bit Int	R/W (CT)	03, 06, 16
1255	Alpha0 factor LSW (Parameter 7.3.6) Value with 5 decimal places 100000 = 1,00000	32 Bit Int	R/W (CT)	03, 06, 16
1256	Alpha0 factor MSW (Parameter 7.3.6)		R/W	03, 06, 16
1257	K0 LSW in 000,0000 (Parameter 7.3.7)	32 Bit Int	R/W(CT)	03, 06, 16

Reg. no.	Description	Data type	Access	Modbus function
1258	K0 MSW		R/W	03, 06, 16
1259	K1 LSW in 0,000000 (Parameter 7.3.8)	32 Bit Int	R/W(CT)	03, 06, 16
1260	K1 MSW		R/W	03, 06, 16
1261	K2 LSW in 0,0000000 (Parameter 7.3.9)	32 Bit Int	R/W(CT)	03, 06, 16
1262	K2 MSW		R/W	03, 06, 16
1263	Fix density (Parameter 7.3.10) LSW used when 249 = 0 (fix value) Value with two decimal places. Value 80000 = 800,00 kg/m3	32 Bit Int	R/W (CT)	03, 06, 16
1264	Fix density (Parameter 7.3.10) MSW		R/W	03, 06, 16
1265	Code for custody transfer key	16 Bit Int	R/W	03, 06, 16
1266	Code - parameter menu LSW (Parameter 2.5.1)	32 Bit Int	R/W	03, 06, 16
1267	Code - parameter menu MSW		R/W	03, 06, 16
1268	Code - structure menu LSW(Parameter 2.5.2)	32 Bit Int	R/W	03, 06, 16
1269	Code - structure menu MSW		R/W	03, 06, 16
1270	Code - controller menu LSW(Parameter 2.5.3)	32 Bit Int	R/W	03, 06, 16
1271	Code - controller menu MSW		R/W	03, 06, 16
1272	Code - install menu LSW (Parameter 2.5.5)	32 Bit Int	R/W	03, 06, 16
1273	Code - install menu MSW		R/W	03, 06, 16
1274	Code - calibration menu LSW (Parameter 2.5.6)	32 Bit Int	R/W	03, 06, 16
1275	Code - calibration menu MSW		R/W	03, 06, 16
1276	Code - linearisation menu LSW (Param. 2.5.7)	32 Bit Int	R/W	03, 06, 16
1277	Code - linearisation menu MSW		R/W	03, 06, 16
1278	Code - set point menu controller LSW (Parameter 2.5.4)	32 Bit Int	R/W	03, 06, 16
1279	Code - set point menu controller MSW		R/W	03, 06, 16
1280	Calibration value mA input 1 - 4 mA (Parameter 5.1.1)	16 Bit Int	R/W (CT)	03, 06, 16
1281	Calibration value mA input 1 - 20 mA (Parameter 5.1.2)	16 Bit Int	R/W (CT)	03, 06, 16
1282	Calibration value mA input 2 - 4 mA (Parameter 5.1.3)	16 Bit Int	R/W (CT)	03, 06, 16
1283	Calibration value mA input 2 - 20 mA (Parameter 5.1.4)	16 Bit Int	R/W (CT)	03, 06, 16
1284	Calibration value mA input 3 - 4 mA (Parameter 5.1.5)	16 Bit Int	R/W (CT)	03, 06, 16
1285	Calibration value mA input 3 - 20 mA (Parameter 5.1.6)	16 Bit Int	R/W (CT)	03, 06, 16
1286	Calibration value analogue output - 4 mA (Parameter 5.1.7)	16 Bit Int	R/W (CT)	03, 06, 16
1287	Calibration value analogue output - 20 mA (Parameter 5.1.8)	16 Bit Int	R/W (CT)	03, 06, 16
1288	Linearisation -10% 10000 = Faktor 1,0000 (Parameter 6.1)	16 Bit Int	R/W (CT)	03, 06, 16
1289	Linearisation -5% (Parameter 6.2)	16 Bit Int	R/W(CT)	03, 06, 16
1290	Linearisation 0% (Parameter 6.3)	16 Bit Int	R/W(CT)	03, 06, 16
1291	Linearisation 5% (Parameter 6.4)	16 Bit Int	R/W(CT)	03, 06, 16
1292	Linearisation 10% (Parameter 6.5)	16 Bit Int	R/W(CT)	03, 06, 16
1293	Linearisation 15% (Parameter 6.6)	16 Bit Int	R/W(CT)	03, 06, 16
1294	Linearisation 20% (Parameter 6.7)	16 Bit Int	R/W(CT)	03, 06, 16
1295	Linearisation 25% (Parameter 6.8)	16 Bit Int	R/W(CT)	03, 06, 16

Holding Register (Basis 4xxxx)

Reg. no.	Description	Data type	Access	Modbus function
1296	Linearisation 30% (Parameter 6.9)	16 Bit Int	R/W(CT)	03, 06, 16
1297	Linearisation 35% (Parameter 6.10)	16 Bit Int	R/W(CT)	03, 06, 16
1298	Linearisation 40% (Parameter 6.11)	16 Bit Int	R/W(CT)	03, 06, 16
1299	Linearisation 45% (Parameter 6.12)	16 Bit Int	R/W(CT)	03, 06, 16
1300	Linearisation 50% (Parameter 6.13)	16 Bit Int	R/W(CT)	03, 06, 16
1301	Linearisation 55% (Parameter 6.14)	16 Bit Int	R/W(CT)	03, 06, 16
1302	Linearisation 60% (Parameter 6.15)	16 Bit Int	R/W(CT)	03, 06, 16
1303	Linearisation 65% (Parameter 6.16)	16 Bit Int	R/W(CT)	03, 06, 16
1304	Linearisation 70% (Parameter 6.17)	16 Bit Int	R/W(CT)	03, 06, 16
1305	Linearisation 75% (Parameter 6.18)	16 Bit Int	R/W(CT)	03, 06, 16
1306	Linearisation 80% (Parameter 6.19)	16 Bit Int	R/W(CT)	03, 06, 16
1307	Linearisation 85% (Parameter 6.20)	16 Bit Int	R/W(CT)	03, 06, 16
1308	Linearisation 90% (Parameter 6.21)	16 Bit Int	R/W(CT)	03, 06, 16
1309	Linearisation 95% (Parameter 6.22)	16 Bit Int	R/W(CT)	03, 06, 16
1310	Linearisation 100% (Parameter 6.3)	16 Bit Int	R/W(CT)	03, 06, 16
1311	Linearisation 105% (Parameter 6.4)	16 Bit Int	R/W(CT)	03, 06, 16
1312	Linearisation 110% (Parameter 6.5)	16 Bit Int	R/W(CT)	03, 06, 16
1313	Meter factor 4 digits 10000 = 1,0000 (Parameter 4.2.6)	16 Bit Int	R/W(CT)	03, 06, 16
1314	Spare	16 Bit Int	R/W	03, 06, 16
1315	Spare	16 Bit Int	R/W	03, 06, 16
1316	Reserved for internal data	16 Bit Int	R/O	03
1317	Device number LSW	16 Bit Int	R/W (CT)	03, 06, 16
1318	Device number MSW	16 Bit Int	R/W (CT)	03, 06, 16
1319-1340	Spare			
1341	Low flow after start - function: (Para. 1.14.1) 0= off, 1= 4-20 mA value, 2= Set point flow	16 Bit Int	R/W	03, 06, 16
1342..1343	Low flow after start - quantaty (Para. 1.14.2) 0= function off	32 Bit Int	R/W	03, 06, 16
1344	Low flow after start – time in seconds 0= function off, (Parameter 1.14.3)	16 Bit Int	R/W	03, 06, 16
1345	Low flow after start – mA value 800 = 8,00 mA, (Parameter 1.14.4)	16 Bit Int	R/W	03, 06, 16
1346..1347	Low flow after start – set point flow 800 = 8,00 mA, (Parameter 1.14.5)	32 Bit Int	R/W	03, 06, 16
1348..1349	Switch-on delay digital switch off point D1 (Param. 1.1.4)	32 Bit Int	R/W	03, 06, 16
1350..1380	Spare			

4.5. Pipeline Master

Reg. no.	Description	Data type	Access	Modbus function	
2001	Mass flow	Float	RO	03	
2003	Volume flow	Float	RO	03	
2005	Norm volume flow	Float	RO	03	
2007	Density	Float	RO	03	
2009	Norm density	Float	RO	03	
2011	Temperature	Float	RO	03	
2013	Unit mass flow	16 Bit Int	RO	03	
2014	Unit mass	16 Bit Int	RO	03	
2015	Unit volume flow	16 Bit Int	RO	03	
2016	Unit volume	16 Bit Int	RO	03	
2017	Unit norm volume flow	16 Bit Int	RO	03	
2018	Unit norm volume	16 Bit Int	RO	03	
2019	Unit density	16 Bit Int	RO	03	
2020	Unit norm density	16 Bit Int	RO	03	
2021	Unit temperature	16 Bit Int	RO	03	
2022	Function counter 1	16 Bit Int	RO	03	
2023	Unit counter 1 mass	16 Bit Int	RO	03	
2024	Unit counter 1 volume	16 Bit Int	RO	03	
2025	Unit counter 1 norm volume	16 Bit Int	RO	03	
2026	Counter mode 1	16 Bit Int	RO	03	
2027	Counter value 1	Float	RO	03	
2029	Counter overflow 1	Float	RO	03	
2031	Function counter 2	16 Bit Int	RO	03	
2032	Unit counter 2 mass	16 Bit Int	RO	03	
2033	Unit counter 2 volume	16 Bit Int	RO	03	
2034	Unit counter 2 norm volume	16 Bit Int	RO	03	
2035	Counter mode 2	16 Bit Int	RO	03	
2036	Counter value 2	Float	RO	03	
2038	Counter overflow 2	Float	RO	03	
2040	Function counter 3	16 Bit Int	RO	03	
2041	Unit counter 3 mass	16 Bit Int	RO	03	
2042	Unit counter 3 volume	16 Bit Int	RO	03	
2043	Unit counter 3 norm volume	16 Bit Int	RO	03	
2044	Counter mode 3	16 Bit Int	RO	03	
2045	Counter value 3	Float	RO	03	
2047	Counter overflow 3	Float	RO	03	
2049	Error message Promass; as a ASCII text (18 digits)	S18-String	RO	03	
2058	System failure Promass	16 Bit Int	RO	03	
2059	Pressure signal (from the 4-20 mA input)	Float	RO	03	
2061	Reserve				
2062	Printout modus 0 – 1 x each month 1 – 1 x each week 2 – daily at 12:00 3 – daily at 0:00 4 – each 12 hours 5 – each 6 hours	6 – each 4 hours 7 – each 2 hours 8 – each hour 9 – via key path at the Batching Master 10 - via a digital input	16 Bit Int	RO	03

Holding Register (Basis 4xxxx)

Reg. no.	Description	Data type	Access	Modbus function
2063	Print request from the Batching Master. Reset by the PCC	16 Bit Int	R/W	03, 06, 16
2064	Status communication 0 - OK 1 - Time-Out 2 - CRC Error 3 - Format Error	16 Bit Int	RO	03