BA 008E/FlowCon 200i/05.23

Valid starting from
　　　Hardware V 2.1
　　　Software V 1.3

FlowCon 200i

Display- and Configuration- Unit

Operating manual

MIB GmbH
Messtechnik & Industrieberatung

General safety instructions

Please always observe the following safety instructions!
Please pay attention to the safety instructions with the following pictograms and signal words in these operating instructions:

i	**IMPORTANT!**	IMPORTANT! indicates situations or cases which, if not avoided, could result in damage or failure of the FlowCon 200i or Flowmax equipment.
!	**WARNING!**	WARNING! indicates general hazardous situations or cases which, if not avoided, could result in serious injury or death.
	NOTICE!	NOTICE! is used to lead users to helpful information not related to personal injury.

Intended use

- The FlowCon 200i evaluation and configuration unit can only be used for flowmeters of the Flowmax series.
- The FlowCon 200i evaluation and configuration unit has been constructed in accordance with the state of the art in operational safety and takes into account the relevant regulations according to EN 61010 corresponds to VDE 0411 safety regulations for electrical measuring, control and laboratory equipment.
- The manufacturer is not liable for damage resulting from improper or unintended use. Conversions and modifications to the measuring device may only be carried out if this is expressly permitted in this operating manual.

Personnel for installation, commissioning and operation

- Assembly, electrical installation, commissioning and maintenance of the unit must be carried out by qualified, trained personnel. The qualified personnel must have read and understood the operating instructions in this operating manual and must follow the operating instructions in this manual.
- The installer has to ensure that the flowmeter is correctly connected according to the electrical connection diagrams in this operating manual.
- Serious injury or death from electric shock may occur if wiring, installation, disassembly or remove of wires is performed while electrical power is energized

!
WARNING!

Technological progress

The manufacturer reserves the right to revise, alter, or modify the flowmeter to the most current technology without special prior notice. Further information about the latest updates and potential additions to these operating instructions are available from the manufacturer.

Tablet of contents

Table of figures

1. Planning information

1.1 Areas of application

The display and configuration unit FlowCon 200i is designed to visualize flow measurements as well as programming configurations to connected Flowmax flowmeter. The FlowCon 200i is used as:

- Service tool to read and change configurations of a connected Flowmax
- Display unit for actual process parameters
- Independent voltage supply for FlowCon 200i and one connected Flowmax

FlowCon 200i has the following features and benefits:

- Wall-mounting
- Voltage supply of one Flowmax ultrasonic flow meter
- Access to menu options and configuration
- Compatibility with the almost complete Flowmax XXi family
- Compact design

1.2 Operational safety

Comprehensive self-tests ensure highest possible safety.

The protection class is IP 54.

FlowCon 200i meets the general EMC immunity requirements according to CE, EN 61000-6-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6.

FlowCon 200i meets the safety requirements concerning the Protective Extra Low Voltage directive according to EN 50178, SELV, PELV.

2. Assembly and installation

2.1 Installation instructions

Requirement for proper functionality is the correct installation of an ultrasonic flowmeter of the Flowmax series. Detailed information about installation of Flowmax can be found in the Flowmax.

FlowCon 200i can be used with Flowmax software version 129.30 or higher.

NOTICE!

2.2 Mounting

For an easy and smooth wall-mounting use the mounting plate with the Ø8mm bores. The distance between the two holes is 145mm. Mounting can be done horizontally or vertically therefore the display is rotatable in 90, 180 and 270°. If FlowCon 200i is not used permanently, but for service or configuration, no mounting is required. For more information about mounting see chapter 5.1 Dimensions and weight.

2.3 Electrical wiring

The unit should not be installed, wired or dismantled under operating voltage. During these procedures, the supply voltage of the FlowCon 200i must be switched off.

Observe the connection polarity and the permissible operating voltage.

WARNING!

The housing of the FlowCon 200i should not be opened for electrical wiring and commissioning.

Via a T-connector a Flowmax ultrasonic flowmeter is connected to the FlowCon 200i. The power supply for FlowCon 200i is also fed in via the T-connector using a 24V power supply. An additional external power supply is not needed.

Connection cable
for Flowmax XXi
5-pin / 8-pin
1-wire / 2-wire
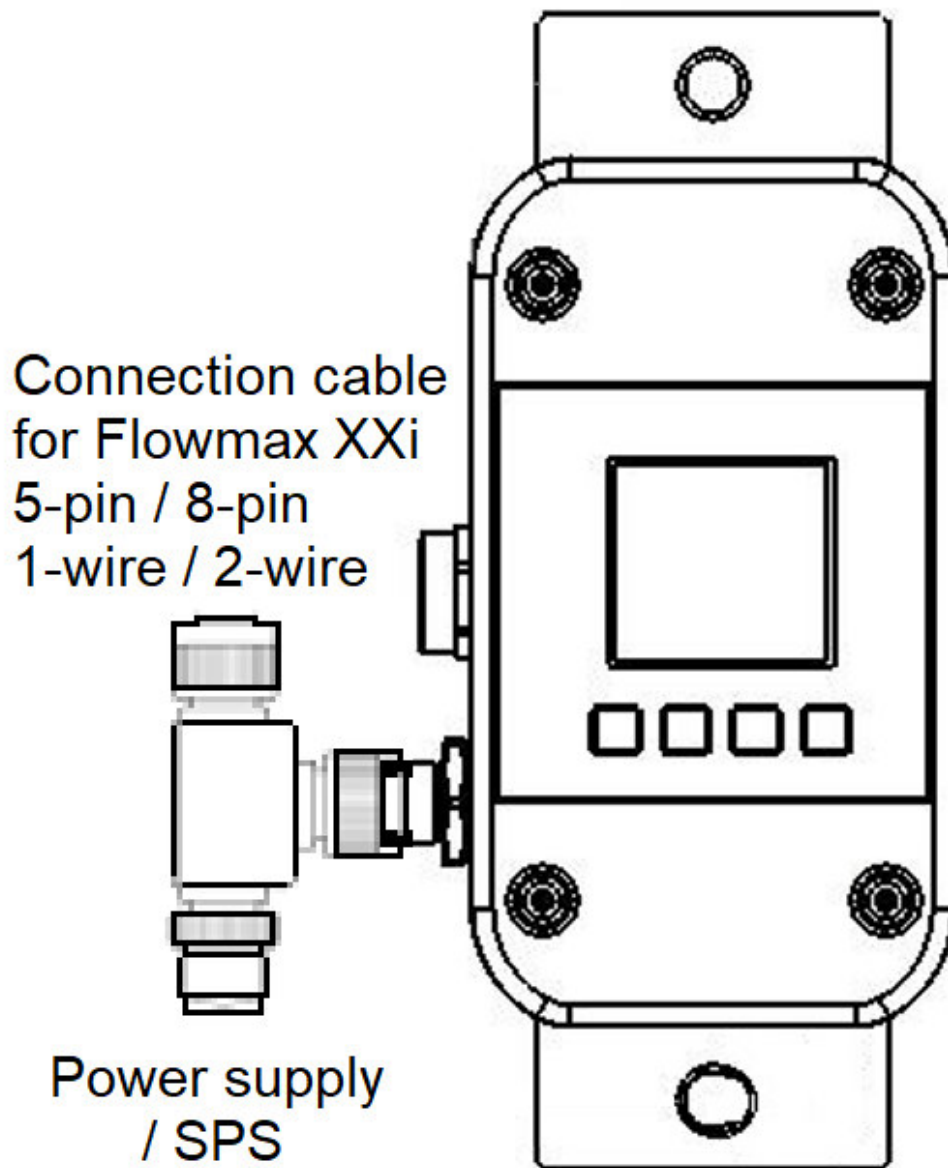
Power supply
/ SPS

Figure 1: Connection of FlowCon 200i

For power supply and Flowmax connectivity the delivered connection material should be used.

IMPORTANT!

2.3.1 Connector cable 5pin configuration defined by manufacturer
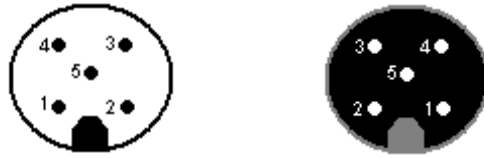
Figure 2: Pin code: Connection plug   /   socket for 5-pin version

Pin	Function	Description
1	24 VDC	Power supply: 18 ... 30 VDC
2	No function	-
3	GND	Ground: 0 V
4	Communication	Communication interface
5	No function	-

IMPORTANT!
The display and configuration unit FlowCon 200i may only be operated within the limits specified on the nameplate and in this manual / data sheet. In case of unauthorised operating conditions, overloading, damage or defect may occur.

IMPORTANT!

3. Commissioning

3.1 Operation

3.1.1 Display and user menu

FlowCon 200i is equipped with a display to visualize actual measurement values and to change parameters of a connected flowmeter. Menu navigation and parameter changes are controlled by the four keys on the keypad.
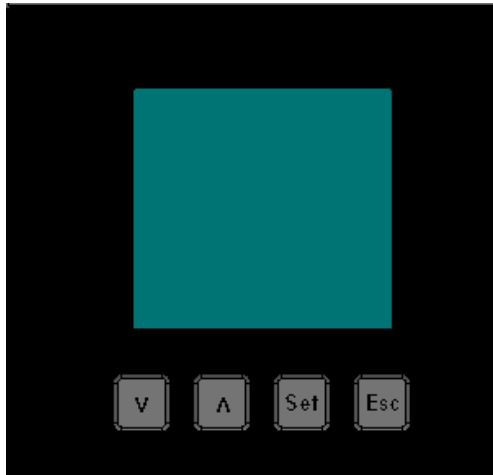
Figure 3: Operating with the keypad

NOTE:
If FlowCon 200i is operating without a connected Flowmax the display shows "Searching Flowmax". As soon as a Flowmax meter is connected to FlowCon 200i, the current process parameters, e.g. flow rate and daily quantity, are displayed.

NOTICE!

Press the "Set" key to display the main menu. Different menu options can be selected by using the two arrow keys. To confirm a menu item, press the "Set" key again.
To enter e.g. analog limits "Analog output – max. Range" use the arrow keys to change values and press "Set" to confirm. To switch back to the last menu level press the "Esc" key. As soon as the operator tries to change values the user will be prompted to enter a password. Password protection is used to ensure changes to values or configurations are done by authorized personnel. The default password is **41414**. The user level will remain active for 30 minutes after the last press on any button. 200 seconds after the last key press, the device skips the menu and returns to the display mode, which does not apply to the menu items diagnostic and dosing. Here, the unit remains in the submenu until the operator exits the submenu again with the ESC key.
Operating examples see appendix.

NOTE:
Always the actual set-activated menu parameters are shown in the display. The activated parameter is displayed inverted.

NOTICE!

NOTE:
In the menu all the possible functions of the instrument are visible

The functions of Digital Output Q2 and Digital Input I1 are only available on the Flowmax version with 8-pin plug.

In the menu Analog Output there are displayed the output value functions PID - Controller and Speed of Sound. They are provided only with functionality, if they were considered in the order (optional).

Slavemode

For technical service, update or to repair FlowCon 200i can put in the slave mode. Before you can switch the unit to the slave mode it must be ensured that no Flowmax meter is connected to the FlowCon 200i and the message "Search Flowmax" appears on the display. To switch to slavemode you have to hold down the "▲" button for about 3 seconds. While FlowCon is in slavemode the display shows the message "Slavemode". By pressing the "Esc" key the slavemode is terminated and FlowCon 200i jumps back in the search mode.

```
                                          ┌──────────────────┐
                                       ┌─▶│  Reset Counter   │
                                       │  ├──────────────────┤      ┌──────────────┐
                                       ├─▶│ Empty Pipe delay │─────▶│    Input     │
                                       │  ├──────────────────┤      ├──────────────┤
                                       ├─▶│    Hysteresis    │─────▶│    Input     │
                                       │  ├──────────────────┤      ├──────────────┤
                                       ├─▶│   Lower Limit    │─────▶│    Input     │
         ┌──────────────────┐          │  ├──────────────────┤      ├──────────────┤
      ┌─▶│ General Settings │──────────┼─▶│   Upper Limit    │─────▶│    Input     │
      │  └──────────────────┘          │  ├──────────────────┤      └──────────────┘
      │                                ├─▶│  Total Counter   │
      │                                │  ├──────────────────┤
      │                                └─▶│     Counter      │
      │                                   └──────────────────┘
      │                                   ┌──────────────────┐      ┌──────────────┐
      │                                ┌─▶│   Pulse value    │─────▶│    Input     │
      │                                │  └──────────────────┘      └──────────────┘
      │  ┌──────────────────┐          │  ┌──────────────────┐      ┌──────────────┐
      ├─▶│    Puls output   │──────────┼─▶│      Mode        │─────▶│    Direct    │
      │  └──────────────────┘          │  └──────────────────┘      ├──────────────┤
      │                                │                            │   Dalayed    │
      │                                │                            ├──────────────┤
      │                                │                            │ Rebound corr.│
      │                                │                            └──────────────┘
      │                                │  ┌──────────────────┐      ┌──────────────┐
      │                                └─▶│    Time delay    │─────▶│    Input     │
      │                                   └──────────────────┘      └──────────────┘
      │                                   ┌──────────────────┐      ┌──────────────┐
      │                                ┌─▶│     get + save   │─────▶│   ml/s + l   │
      │  ┌──────────────────┐          │  ├──────────────────┤      ├──────────────┤
      ├─▶│   Copy config    │──────────┼─▶│ delete saved value│────▶│   l/h + l    │
      │  └──────────────────┘          │  ├──────────────────┤      ├──────────────┤
      │                                └─▶│      Send        │─────▶│  l/min + m³  │
      │                                   └──────────────────┘      ├──────────────┤
      │                                                             │ Gal/min + Gal│
      │                                   ┌──────────────────┐      ├──────────────┤
      │                                ┌─▶│     Units        │─────▶│  l/min + l   │
      │                                │  └──────────────────┘      └──────────────┘
      │                                │                            ┌──────────────┐
      │                                │  ┌──────────────────┐      │     0°       │
      │  ┌──────────────────┐          │  │  Rotate Display  │─────▶├──────────────┤
      ├─▶│     Display      │──────────┼─▶│                  │      │    270°      │
      │  └──────────────────┘          │  └──────────────────┘      ├──────────────┤
      │                                │                            │    180°      │
      │                                │                            ├──────────────┤
      │                                │                            │     90°      │
      │                                │                            └──────────────┘
      │                                │  ┌──────────────────┐      ┌──────────────┐
      │                                └─▶│    Flashing      │─────▶│     On       │
      │                                   └──────────────────┘      ├──────────────┤
      │                                                             │     Off      │
      │                                                             └──────────────┘
      │                                   ┌──────────────────┐      ┌──────────────┐
      │                                ┌─▶│    Function      │─────▶│   4-20mA     │
      │                                │  └──────────────────┘      ├──────────────┤
      │                                │                            │     Off      │
      │                                │                            ├──────────────┤
      │                                │                            │   0-20mA     │
      │                                │                            └──────────────┘
      │                                │  ┌──────────────────┐      ┌──────────────┐
      │                                ├─▶│     Filter       │─────▶│    Weak      │
      │                                │  └──────────────────┘      ├──────────────┤
      │                                │                            │     Off      │
      │  ┌──────────────────┐          │                            ├──────────────┤
      ├─▶│ Analog Output QA │──────────┤                            │    Strong    │
      │  └──────────────────┘          │                            ├──────────────┤
      │                                │                            │    Medium    │
      │                                │                            └──────────────┘
      │                                │  ┌──────────────────┐      ┌──────────────┐
      │                                ├─▶│   Output Value   │─────▶│     Flow     │
      │                                │  └──────────────────┘      ├──────────────┤
      │                                │                            │ PID Controler│
      │                                │                            ├──────────────┤
      │                                │                            │Speed Of Sound│
      │                                │                            ├──────────────┤
      │                                │                            │  Temperatur  │
      │                                │                            └──────────────┘
      │                                │  ┌──────────────────┐      ┌──────────────┐
      │                                ├─▶│    min Range     │─────▶│    Input     │
      │                                │  └──────────────────┘      └──────────────┘
      │                                │  ┌──────────────────┐      ┌──────────────┐
      │                                └─▶│    max Range     │─────▶│    Input     │
      │                                   └──────────────────┘      └──────────────┘
      │                                                             ┌──────────────┐
      │                                                             │ Pulse Output │
      │                                   ┌──────────────────┐      ├──────────────┤
      │                                ┌─▶│    Function      │      │     Off      │
      │                                │  └──────────────────┘      ├──────────────┤
      │                                │                            │Frequency output│
      │                                │                            ├──────────────┤
      │                                │                            │    Dosing    │
      │                                │                            ├──────────────┤
      │  ┌──────────────────┐          │                            │ Negative Flow│
      ├─▶│ Digital Output Q1│──────────┤                            ├──────────────┤
      │  └──────────────────┘          │                            │  Lower Limit │
      │                                │                            ├──────────────┤
      │                                │                            │  Upper Limit │
      │                                │                            ├──────────────┤
┌─────────────┐                        │                            │  Empty Pipe  │
│Start screen │────────────────────────┤                            └──────────────┘
└─────────────┘                        │                            ┌──────────────┐
                                       │  ┌──────────────────┐      │PNP Normal Open│
                                       └─▶│     Logic        │      ├──────────────┤
                                          └──────────────────┘      │NPN Normal Closed│
                                                                    ├──────────────┤
                                                                    │NPN Normal Open│
                                                                    ├──────────────┤
                                                                    │PNP Normal Closed│
                                                                    └──────────────┘
```
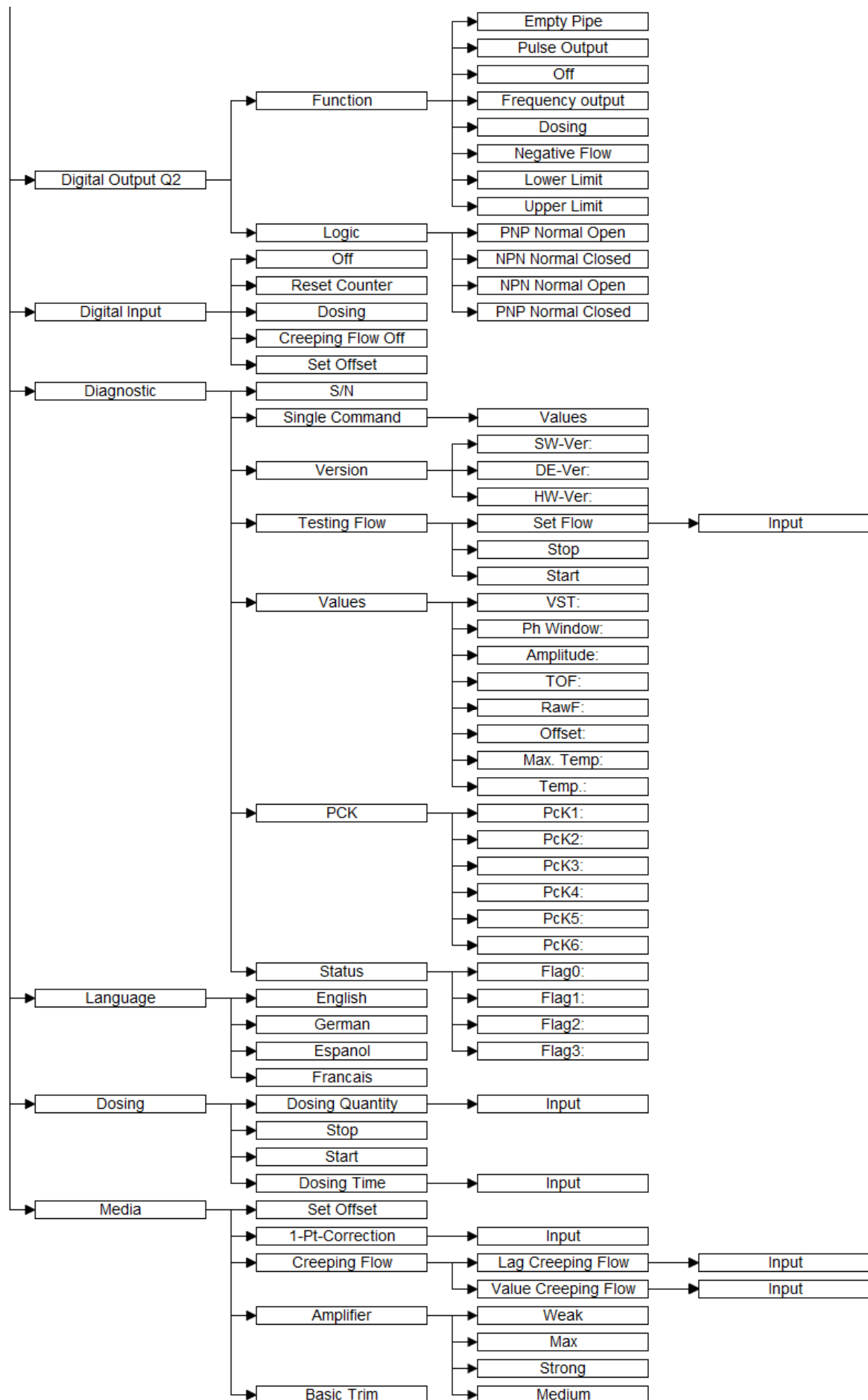
Figure 4: Menu structure FlowCon 200i

3.2 Functionalities of flowmeter and default settings

3.2.1 Language

The language of the display can be changed. Available languages are English, Spanish, French and German.

3.2.2 Dosing

Manual dosing can be configured via the dosing menu. For this purpose, it is possible to enter the desired "dosing quantity" and a "dosing time". The dosing time is intended as a safety measure against unintentional overfilling. After the set time has elapsed, the output is switched regardless of the measured quantity. However, the dosing time can also be deactivated if the value "zero" is entered. "Start" and "Stop" of a dosage can also be carried out via the menu.

For further information, please refer to the operating instructions of the respective Flowmax.

IMPORTANT!
If Dosing Time =0 the time switch-off is inactive.
To be able to activate dosing, a digital output must be parameterized for dosing.
Dosing can be started both via the menu and via the digital input.

WARNING!
The customer has to provide a technical solution for overfill protection and an emergency stop switch. Both functions must run for safety to valve closure.

3.2.3 Media

3.2.3.1 Set Offset

In the sub menu "Set Offset" it is possible to set the actual offset of the flow meter. Use this function only when the flowmeter is completely filled with liquid, and there is no flow. If the offset is set while flow is present or when the pipe is empty it will cause an offset drift what results in a faulty measurement.
Example of operation see appendix.

A small offset change, e.g. caused by variable temperatures, is automatically done by the flowmeter. It is also possible to set the offset via the configurable digital inputs.

IMPORTANT!
In contrast to the basic trim, the set offset is not stored in the unit. When the unit is restarted, the original, last stored value is active.

3.2.3.2 1-Pt-Correction

With the 1-point correction, the meter is calibrated to an operating point.

Setting range: -50.0 ... 50.0 % in steps of 0.1%

Example of operation see appendix.

3.2.3.3 Creeping suppression

The creeping suppression excludes flow measurements that result from convection in a narrow band around zero, even with a closed valve. At the factory, the creeping suppression is set at a standard value in relation to the cross-section of the flow meter. Changes to a smaller value of the parameter may cause an offset drift what results in a faulty measurement.

For further information, please refer to the operating instructions of the respective Flowmax.

3.2.3.3.1 Lag Creeping Flow (only active, in Flowmax with SW129 or higher)
The activation of the creeping suppression can be delayed. The value is adjustable via menu.

Setting range: 0 ... 99.9 s in steps of 0.1 s

For further information, please refer to the operating instructions of the respective Flowmax.

3.2.3.4 Amplifier
All Flowmax units are parameterised or calibrated ex works with the medium water. However, there are often media in use whose chemical properties (damping, sound velocity, etc.) differ greatly from the medium water. Therefore, it may be necessary to increase the amplifier, e.g. for strongly damping media.

3.2.3.5 Basic Trim

The "Basic Trim" function insures that the flowmeter is conforming to the media specific characteristics. By executing this function, Flowmax runs through an internal parameterisation and takes over relevant parameters automatically. This process lasts approximately 1 minute.

NOTICE!

IMPORTANT!
To make sure the basic trim is correctly done, the flowmeter has to be filled with liquid without a flow.
When there is an error detected while performing the basic trim function, the display shows "Error". After successfully finishing the basic trim function, the display will show "Done".

IMPORTANT!

3.2.4 General Adjustment

3.2.4.1 Reset Counter

The volume counter of Flowmax can be reset.
Example of operation see appendix.

IMPORTANT!
Once reset, counter values cannot be restored. After the reset, the count starts
again at the value 0.
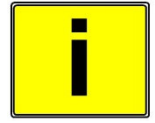
IMPORTANT!

3.2.4.2 Empty pipe delay

Small air bubbles or particles that are conveyed with the liquid interfere with the
sound transmission in the measuring channel.
During the set time, but for max. 3 sec, the last undisturbed flow value is output.
After that, the meter behaves as if there was no flow and only after the set delay
time does the meter go into alarm.

Setting range: 0.0 ... 3000.0 s

3.2.4.3 Hysteresis (only active, in Flowmax with SW129 or higher)

The limit values can be provided with a hysteresis. This is to avoid frequent
switching of the outputs when the flow moved to a limit around.

Setting range: 0.0 … 8000.0 ml/s in steps of 0.01 ml/s.

For further information, please refer to the operating instructions of the
respective Flowmax.

3.2.4.4 Lower Limit

Here, the lower limit for the digital output is set.
Setting range: 0.0 … 8000.0 ml/s in steps of 0.01 ml/s.

3.2.4.5 Upper Limit

Here, the lower limit for the digital output is set.
Setting range: 0.0 … 8000.0 ml/s in steps of 0.01 ml/s.

3.2.4.6 Total Counter

The Total Counter can be displayed in the menu. The unit is fixed to m³. This
counter is unidirectional and can therefore differ from the daily counter.
The Total Counter can´t be set to zero!

3.2.4.7 Counter

The daily quantity counter is the one that appears in the display by default. The
unit corresponds to the one set in each case under "Display" → "Units" (see point
3.2.7.1). For the response of the daily quantity counter, please refer to the
operating instructions of the respective Flowmax.

3.2.5 Pulse Output

3.2.5.1 Pulse value

The pulse value determines the flow volumes or speed of sound (Speedmax option) or temperature for which an output pulse will be emitted.

Choose a configuration which will neither exceed the maximum output frequency of the Flowmax (10kHz) nor the maximum input frequency of the control. The pulse/pause ratio is 1:1. The pulse length is limited to 1s.

For further information, please refer to the operating instructions of the respective Flowmax.

3.2.5.2 Mode

The mode of the pulse output is set.
Setting range: Direct, Delayed, Rebound Corr.
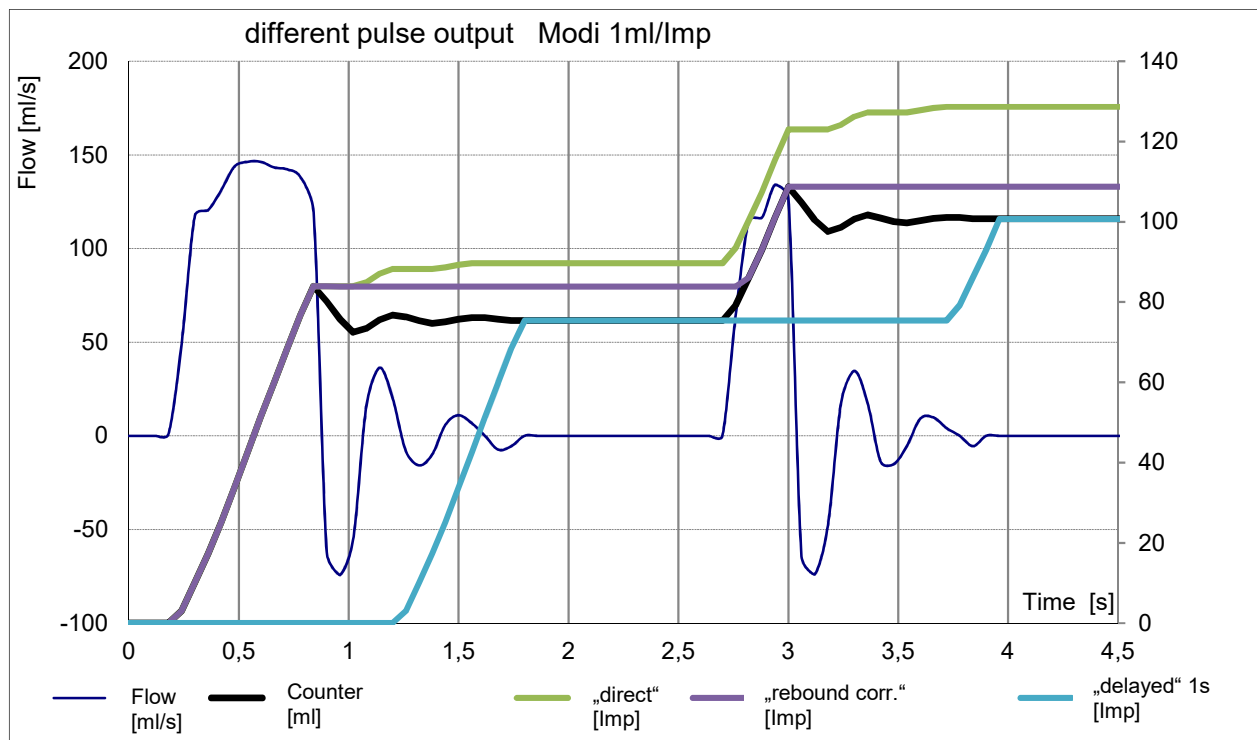
Figure 5: Modi Pulse output

3.2.5.2.1 Mode „direct"

Function:
From the moment at which an upward fluid flow is measured, pulses are output.

Typical application:
For fast response, dosing application, if a PLC which counts pulses to close a valve after a predetermined amount.

3.2.5.2.2 Mode „delayed"

Function:
The pulse output is delayed.

Typical application:
In order to take into account possible return flows in the total quantity, which occur e.g. by closing valves, the pulse delay can be activated. In this case, the pulses are held back by the entered time until they are output at the digital output (see 3.2.5.3 Delay time).

3.2.5.2.3 Mode „rebound corrected"

Function:
The pulse output is delayed in case of refluxes.

Typical application:
If the medium is stopped in its flow and comes to a standstill, it is possible, e.g. in the case of long pipes, that small quantities of the medium can flow back again. If the flow is resumed, this refluxed part of the medium is measured again and added to the daily quantity counter. To correct this, the rebound correction can be activated. In this case, the pulses are held back until either the factory-set reflux quantity is reached or a positive flow takes place. The reflux quantity is set at the factory to a reasonable default value in relation to the cross-section of the meter.

3.2.5.3 Time Delay

If the "Delayed" mode is selected, the time by which the pulses are to be delayed is set here.
Setting range: 0 ... 25 s in steps of 0.1s

3.2.6 Copy Configuration

With Flowmax of the same type in the same application, a determined configuration can be transferred to other Flowmax.

IMPORTANT!
To use this function properly, the target Flowmax must be the same type (e.g., Flowmax 44i) and the same nominal size (e.g., DN15). Otherwise, parameters can be configured with incorrect values, which leads to malfunction.

Setting range: get+save, delete saved, Send

IMPORTANT!

When copying a configuration, all parameters and configurations of the inputs, outputs and the creep quantity are transferred from Flowmax to Flowmax.

3.2.6.1 Get+save

The configuration from the Flowmax connected to the FlowCon 200i is read and stored in FlowCon.

3.2.6.2 Delete saved

The Flowmax configuration cached in the FlowCon 200i is deleted.

3.2.6.3 Send

The Flowmax configuration cached by the "Get + Save" function is transferred to the connected Flowmax.

IMPORTANT!
The changes in Flowmax only take effect after a restart.
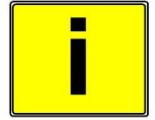
IMPORTANT!

3.2.7 Display

IMPORTANT!
All parameters set under the menu item "Display" are related to the display of the FlowCon 200i.

IMPORTANT!

3.2.7.1 Units

The actual flow or the volume can be shown in different units.

Setting range: ml/s + l, l/h + l, l/min + m³, Gal/min +Gal, l/min + l
Default setting: ml/s + l

Example: ml/s + l
Here, the flow appears in the unit "ml/s" (milliliters per second) and the counter in "l" (liters).

Gallons are US Gallons with 1 Gal = 3.785 l.

3.2.7.2 Rotate Display

The display can be rotated in steps of 90°.
Setting range: 0°, 270°, 180°, 90°
Default setting: 0°

3.2.7.3 Flashing

The display flashes in the event of an error. The alarm flashing can be deactivated.
When activating the alarm flashing, the backlight flashes only after 150s. The time is extended by the set empty pipe delay time when the empty pipe delay is active.
Setting range: On, Off
Default setting: On

3.2.8 Analog Output QA

3.2.8.1 Function

The Analog Output is an aktive current output with 0 … 20mA or 4 … 20mA.
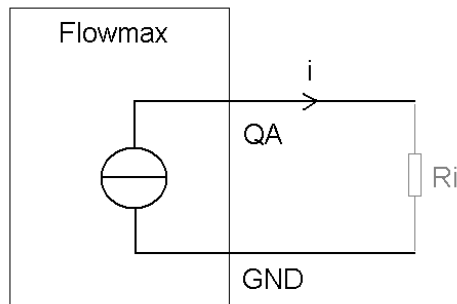
Figure 6: The current output is active

Setting range: 0 … 20mA, 4 … 20mA, off

The current output ranges from 0 to 22.6mA measuring the flow rate or the condition of the flow measurement.

For further information, please refer to the operating instructions of the respective Flowmax.

3.2.8.2 Filter

The function "Filter" averages the analog output signal.

Setting range: Weak, Medium, Strong, off

The analog output signal reacts faster to signal changes when average determination is set to "weak". With strong averaging, the response of the analogue value is smoothed and therefore slow.
For further information, please refer to the operating instructions of the respective Flowmax.

3.2.8.3 Output Value

In the menu all output values are visible. The optional features are only available when they are ordered. If a not ordered function is selected, the output remains on "Flow".

Setting range: Flow, PID-Controller, Speed of Sound, Temperature
For further information, please refer to the operating instructions of the respective Flowmax.

3.2.8.4 Min Range

Here, the value is set at the 0 or 4 mA to be output.
Setting range: 0 … 8000ml/s (or °C, or m/s) in steps of 0.01

3.2.8.5 Max range

Here, the value is set at the 20 mA to be output.
Setting range: 0 … 8000ml/s (or °C, or m/s) in steps of 0.01

3.2.9 Digital outputs Q1 and Q2 (Q2 only for Flowmax with 8-pin plug available)

3.2.9.1 Function

The digital outputs Q1 and Q2 can be used as a pulse output, for signaling the empty pipe message, for controlling a dosing valve or to limit monitoring.
If "Pulse Output" is selected at one of the two digital outputs, the setting "Frequency output" cannot be selected at the other digital output and vice versa.

Setting range: Off, Pulse Output, Frequency output, Dosing, Negative
                        Flow, Lower Limit, Upper Limit, Empty Pipe

3.2.9.2 Logic

NPN- or PNP-Logic can be selected.
Setting range: PNP / NPN, normal closed / normal open

IMPORTANT!
When using the dosing function the output should not be configured as normal closed!
If the dosing output is configured as normal closed the valve will stay open after the dosing batch.

For further information, please refer to the operating instructions of the respective Flowmax.

IMPORTANT!

3.2.10 Digital input I1 (only for Flowmax with 8-pin plug available)

Flowmax has a digital input that is programmable for the following functions: dosing input, set offset, creeping suppression inactive and reset counter. In order to start a dosing process, 24V DC power is required.

Setting range: Off, Reset Counter, Dosing, Creeping Flow Off, Set Offset

For further information, please refer to the operating instructions of the respective Flowmax.

3.2.11 Diagnostic

Under the menu item "Diagnosis", current unit parameters such as fabrication number, software versions, etc. can be viewed. Some of this information is required for service.

NOTE!
Before contacting MIB, please note the values under "Fab. no.", "Versions", "Values".

NOTICE!

3.2.11.1 S/N.

The serial number of the Flowmax is displayed. In case of service, please inform the MIB service staff about the serial number when contacting MIB.

3.2.11.2 Single command

NOTICE!

The single command function can be used to send encrypted commands to areas that are only accessible to MIB to a connected Flowmax. In this way, in coordination with MIB, changes or adjustments can be made in special cases that would otherwise require the presence of an MIB technician on site. The creation of the code **can only be done by MIB**.

3.2.11.3 Version

Software version, design version and hardware version are displayed. In case of service, please read out and note down the values before contacting MIB.

3.2.11.4 Testing Flow

A test flow can be set for commissioning the process system. In this case, the measuring device behaves as if the test flow is really flowing, even if the measuring device is empty. To start the simulation, Start must be selected, Stop ends the simulation.
When the meter is restarted, the test flow stops and the value is deleted.

Setting range: 0 ... 3200ml/s in steps of 0.1

3.2.11.5 Values

Amplifier stage, phase window, reception amplitude, time of fly, raw flow, offset, maximum measured temperature and current temperature are displayed.
These diagnostic values are important in the event of service and are required by the MIB service staff.

3.2.11.6 PCK + Status

Here, parameterizations and configurations of the connected Flowmax are displayed in shortened form. If necessary, this information can be requested from the MIB service staff.

3.3 Overview of default settings

The default settings are shown in the manual of the Flowmax.

3.4 General Information

Please check the following before powering the FlowCon 200i for the first time:

- Check the electrical connections and cable allocations.
- Checking the connected Flowmax, correct mounting and operating parameters
- Is the connected Flowmax operational?

Once these checks have been carried out and the corresponding conditions fulfilled, switch on the auxiliary power.

FlowCon 200i is operational!

i
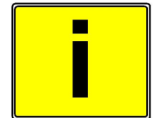
IMPORTANT!

4. Exchange of Device

- **Switch off power before disconnecting the electrical connections!**
- **When removing the unit, follow the safety instructions in chapter 2.3 Electrical connection.**

- Note that after replacing a unit, the settings of the previous unit should possibly be adopted.

WARNING!

Repair, hazardous substances

Before sending the FlowCon 200i for repair, the following precautions must be taken:

- **Clean all process chemicals from the device.**

Devices judged to be insufficiently cleaned will be returned to sender. No inspection of device will be done until proper cleaning is completed by sender.

WARNING!

- **In any case, enclose a note with a description of the fault that is as exact as possible.**

WARNING!

For a quick and trouble-free processing of your repair order, it is necessary to name a contact person with telephone number as well as e-mail address who can answer possible technical questions of the MIB service personnel.

5. Technical specifications

5.1 Dimensions and weight
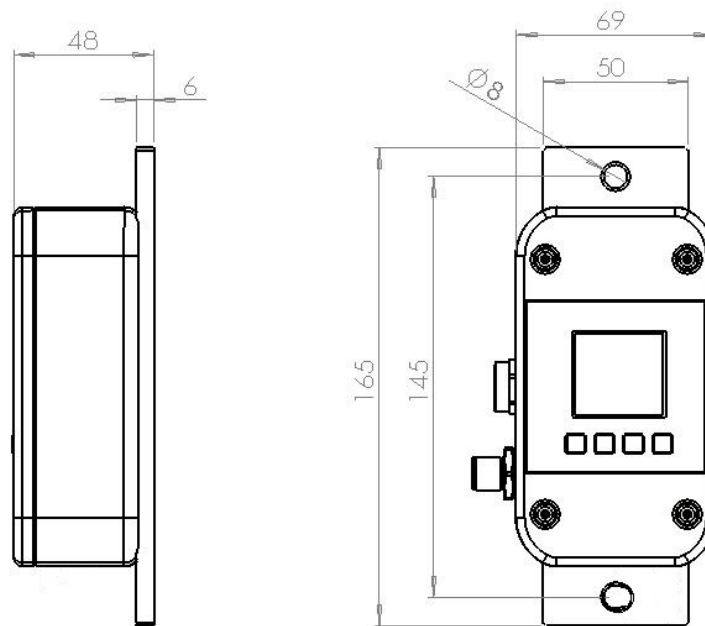
Weight: 330g

5.2 Technical specifications

Housing

Protection class	IP 54
Material	Electronic housing made of PSU (Polysulfone) Mounting plate made of PE black

Electronics

Power supply	18 ... 30VDC
Power input	bei 24VDC 3,6W
Connection	5-pin plug
Ambient temperature	+5 ... +60°C
Storage temperature	0 ... +70°C
Data interface	Data interface for parameterize
Display	LCD illuminated
Folientastatur:	4 Tasten mit Druckpunkt

The Display- and Configuration Unit FlowCon 200i meets the general EMC immunity requirements according to CE, EN 61000-6-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6. It is in conformity with the requirements of the EC directives and has the CE label.

Possible error text FlowCon 200i

Display text	Description	Behavior
Empty Pipe	When "Empty Pipe" is detected, no flow measurement.	Display flashing + text
Low Voltage	When power supply is less than 16V the outputs are inactiv.	Display flashing + text
Searching Flowmax	Message appears if no suitable Flowmax is connected to the FlowCon 200i or a connection problem is present.	only text
Sonic Speed	Actual sonic speed out of specified value. Run basic trim!	only text
Short Circuit	When over load of the digital outputs is detected (>100mA), outputs are inactive.	only text
Lower Limit	When the flow is less than an adjustable limit and the output is configured for limit control. At the same time the configured output is switched.	only text
Upper limit	When the flow is more than an adjustable limit and the output is configured for limit control. At the same time the configured output is switched.	only text
Data safety	Message appears if changes have been carried out by FlowCon 200i and the display menu is left.	only text
Slave mode	Message appears when FlowCon 200i is added for service purposes in the slave mode.	only text
Overflow	Message appears if the measuring range is exceeded. This may occur when starting up or when air bubbles. The message is 30 seconds visible even when the flow is within the allowable range. However, the measurement then works again immediately.	only text, message is displayed 30 sec

6. Accessories

Flowmax 44i
Ultrasonic flowmeter for conductive and non-conductive liquids. Inline measurement of dynamic processes with high accuracy. Nominal diameters DN10 to DN25 with ranges up to 240L / min. Available with different hydraulic connections: inch, NPT and Clamp.

Ordercode   see pricelist Flowmax 44i

Flowmax 42i
Ultrasonic flowmeter for conductive and non-conductive liquids. Inline measurement of dynamic processes with high accuracy. Sizes DN3 to DN15 with ranges up to 60L / min. Available in HDPE, HDPE cross-linked and PP UTG.

Ordercode   see pricelist Flowmax 42i

Flowmax 54i
Ultrasonic flowmeter for conductive and non-conductive liquids. Inline measurement of dynamic processes with high accuracy. Sizes DN25 to DN50 with ranges up to 900L / min. Available in HDPE and HDPE cross-linked.

Ordercode   see pricelist Flowmax 54i

Flowmax 400i
Ultrasonic flowmeter for conductive and non-conductive liquids. Inline measurement of dynamic processes with high accuracy. Nominal diameters DN7 to DN20 with ranges up to 120L / min. Excellent chemical resistance of the synthetic material (PFA).

Ordercode   see pricelist Flowmax 400i

7. Shipment

- FlowCon 200i
- Power supply 24V
- T-peace
- 5-pin- or 8-pin-adapter (depending on version of the Flowmax) for cabling

Appendix

Examples of operation:

Enter Password

Key	Display picture
Set	Password
4 x ∧	40000
Set	X0000
∧	X1000
Set	XX000
4 x ∧	XX400
Set	XXX00
∧	XXX10
Set	XXXX0
4 x ∧	XXXX4
Set	

Reset Counter

Set	Dosing
	Media
	General Adjustment
	Display
	Analog Output QA
Set	General Adustment
	Reset Counter
Set	General Adjustment
	Reset Counter
	Start?
Set	General Adjustment
	Reset Counter
	Done

Set Offset
Use this function only when Flowmax is completely filled with liquid, and there is no flow.

Set	Dosing Media **General Adjustment** Display Analog Output QA
Λ	Language Dosing **Media** General Adjustment Display
Set	**Media** Set Offset
Set	**Media** **Set Offset** Start ?
Set	**Media** **Set Offset** Start ? Done

1-point correction
With the 1-point correction, the meter is calibrated to an operating point. For this purpose, a typical volume for the application is filled into a container and the weight is determined with a scale. Attention: subtract the weight of the container. With inclusion of the density of the medium, the volume (volume = mass / density) is obtained. This has to be compared with the meter display.
Shows the meter for instance 2% more than determined by the scale a value of -02.0% must entered for the 1-point correction.

Set	Dosing Media **General Adjustment** Display Analog Output QA
Λ	Language Dosing **Media** General Adjustment Display
Set	**Media** Set Offset
V	**Media** 1-Point-Correction
Set	**Media** **1-Point-Correction** -00.0%

Setting the sign
Setting the value

| Set | Media
1-Point-Correction
Done |

To enable the correction back to delivery, a correction of 00.0% is to be entered.

Display rotate 90°

Set	Dosing Media General Adjustment Display Analog Output QA
V	Media General Adjustment Display Analog Output QA Digital Output Q1
Set	Display Units
2 x V	Display Rotate Display
Set	Display Rotate Display 0°
3 x V	Display Rotate Display 90°
Set	Display Rotate Display 90° Done

To return your display to its delivery setting, choose Rotate Display 0°.

HEMOMATIK
www.hemomatik.se

Tel +46 (0)8-771 02 20   info@hemomatik.se
Nyckelvägen 7, 142 50   SKOGÅS (Sweden)