Transmitter for Coriolis Mass Flowmeter Operating the UMC.2 using the HART® Hand-Held Terminal	UMC.2 UMC3

Supplement Operating Instructions

Read these Operating Instructions thoroughly and keep them available for reference

Subject to modifications of the dimensions, weights, and other technical data
Printed in Germany

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1 Name and address of the manufacturer

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2 Type designation

Product type: Transmitter for Coriolis mass flowmeters
Product name: UMC.2, UMC.2A, UMC.2B and UMC3

3 Safety information

These Additional Operating Instructions are part of the Operating Instructions for the transmitters for Coriolis Mass Flowmeters type UMC.2, UMC.2A, UMC.2B and UMC3.
The flowmeter can thus be configured and operated correctly in conjunction with the Operating Instructions for the transmitter and the sensor.

4 Mounting, setup and operating personnel

The required mounting, electrical installation, startup and maintenance work may only be carried out by expert and authorized persons designated by the plant operator. These persons must have read and understood these Operating Instructions and must comply with them.

In addition, the national installation and maintenance guidelines must be observed.

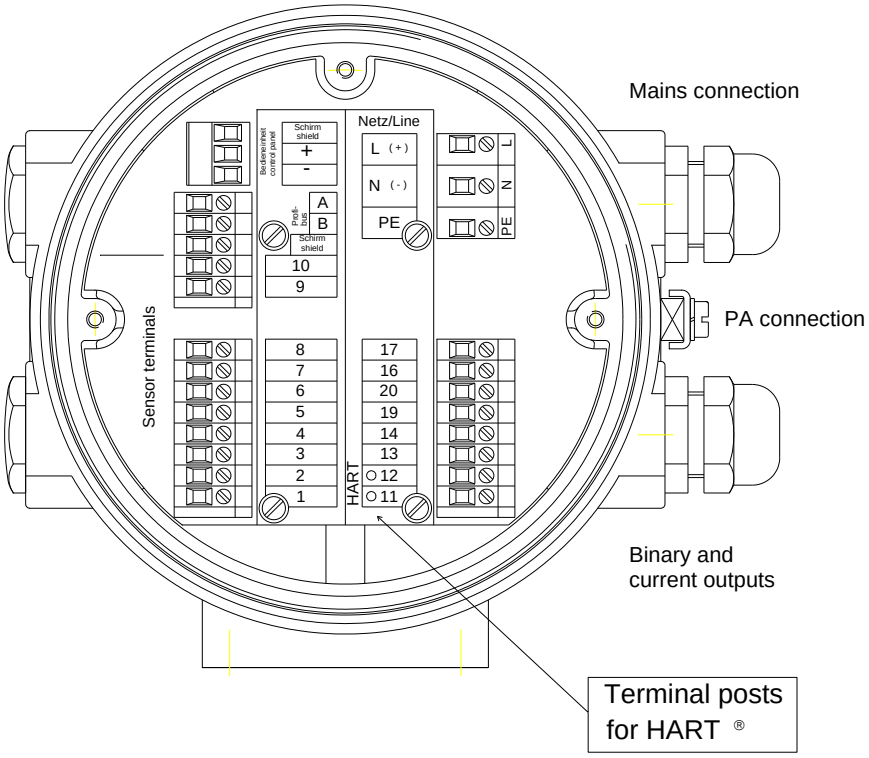
5 Operating the UMC using the hand-held terminal

5.1 Connecting the hand-held terminal

1. Connecting the interface to the corresponding terminals of the supply unit in the safe area.

2. Connecting the interface to the HART terminal posts behind the operator terminal.

   To access these posts, you must first remove the operator terminal.
   A load of approx. 250 ohms (e.g. 270 or 330 ohms) must be connected to current output 1. If the current output is not used for measured-data transmission, the resistor must be screwed into the terminals.



Terminal diagram (standard)

17	+	Binary output
16	-	[Pulse / Frequency]
20	+	Binary output 2
19	-	[Status output]
14	+	Current output 2
13	-	0/4-20mA
12	+	Current output 1
11	-	0/4-20mA, HART ®
No.		Output

Alternatives for current output 2

22	+	Control input
21	-	

5.2 Switching on the hand-held terminal

After connecting the terminal, you can switch it on. If the field device is not identified or if you switch the terminal on before connecting it to the UMC*, the following menu will be displayed:

1) Offline
2) Online
3) Frequency device not being used
4) Utility information about the terminal itself

When you select "Online," the terminal will try to establish a connection a second time.
If the terminal identifies the UMC*, the main menu will appear. From here, the submenus will be called up. The whole menu has a tree structure.

Pressing the left-arrow key takes you to the previous menu. You can access all parameters of the UMC* without entering a password. The user of the terminal must accept full responsibility for the consequences of configuration changes.

5.3 Programming

In the following, several submenus will be explained.

Display menu-type

Mass flo
5.58 MetTon/h

Help Exit

This submenu can only display a value. You cannot edit it.
Press Exit to exit from this menu. By pressing Help, you can display some information about the displayed value.

"Entering values" menu type

Mass flo URV
12.00 MetTon/h current value

[12.00] edited value

Help Del ESC Enter

The current value of the parameter will be displayed in the top line.
The second line shows a copy of this value. This line can be edited.
Values are entered using the numeric keys.
Use the "Del" function to delete individual digits.
You can exit the submenu without saving your entry by pressing ESC.
Use Enter to save the new value and exit from the submenu.

If the value has been saved using Enter in the submenu, the following command will appear at the bottom of the next higher menu level:

SEND HOME

Before the parameter can be used by the UMC, you have to submit it with "SEND."
Pressing Home returns you to the main menu.

"Release function" menu type

Reset totl
Press OK to reset totl

ABORT OK

By pressing Abort, you exit from the submenu without releasing the function; pressing OK will release the function.

Selection menu-type

PV unit
kg/h
kg/h
kg/min
kg/s
MetTon/h
g/min

ESC ENTER

You can select a unit with the cursor keys and save it by pressing ENTER. Pressing ESC will discard the entry.

If the value has been saved using Enter in the submenu, the following command will appear at the bottom of the next higher menu level:

SEND HOME

Before the parameter can be used by the UMC, it must be submitted with "SEND."
Pressing Home returns you to the main menu.

Overview

Main menu		
1) Device setup		
2) PV	5.58 MetTon/h	Mass flow
3) PV AO	11.43 mA	Current
4) LRV	0.00 MetTon/h	Lower-range value
5) URV	12.00 MetTon/h	Upper-range value of mass flow

1) Device setup	
Displaying the measured values	
2) Diag/Service	
3) Basic setup	
4) Detailed setup	
5) Review	Summary of “Basic setup“

1) Process variables — Displaying the measured values
- 1) Mass flo
- 2) Vol flo
- 3) Dens
- 4) Temp
- 5) Totalizer
  - 1) Unit — g, kg, MetTon, Cum, L, gal, Impgal
  - 2) Forward flow — Displaying the measured values
  - 3) Reverse flow
  - 4) Reset totl

2)Diag/Service

- 1) Status — Display of self-test and system errors, variables outside limits
- 2) Simulation
- 3) Calibration — Zero-point calibration
- 4) Reset device — "Perform Master Reset"

1) Status — Display of self-test and system errors, variables outside limits
- 1) Device (Example)

No communication	OFF	Faulty communication within the UMC* (ON)
Dens not calibrated	OFF	Density not calibrated (ON)
Dens measurement	OFF	Densitiy measurement is off (ON)
System error	OFF	A system error occurred (ON)

- 2) Self-test — Self-test error
  - Self-test: — See error messages in the Operating Instructions
    - T
    - S
    - E
    - R
- 3) Out of range — Variables outside limits (ON)
  - Mass flo
  - Vol flo
  - Dens
  - Temp
  - overflow forward tot — Totalizer overflow
  - overflow reverse tot

2) Simulation
- 1) Start simulation
  - When you access the submenu, the simulation will be started.
  - By pressing OK you exit the menu and deactivate simulation.
  - By pressing Abort you exit the menu and deactivate simulation.
- 2) Status out -
- 3) Pulse out | — Values to be simulated
- 4) Current out 1 |
- 5) Current out 2 -

3) Calibration
- 1) Zero trim — Zero-point calibration, will take a few seconds
- 2) PV — Displaying the current mass flow rate

4) Reset device — "Perform Master Reset"

3) Basic setup	
1) Tag	Measuring point
2) PV unit	Unit of mass flow rate kg/h kg/min kg/s MetTon/h g/min
3) Range values	
4) Device information	
5) Xfer function	Linear
6) PV damp	Time constant

1) Tag	Measuring point
2) PV unit	Unit of mass flow rate: kg/h kg/min kg/s MetTon/h g/min
3) Range values	
1) PV LRV	Always 0, read-only
2) PV URV	Upper-range value of mass flow rate
3) PV unit	See above
4) PV LSL	Lower limit for measuring range, defaults to –1000 t/h
5) PV USL	Upper limit for measuring range, defaults to +1000 t/h
4) Device information	
1) Model	UMC*
2) Device ID	Commission no., UMC.2B: serial no. of electronics
3) Tag	Measuring point
4) Date	
5) Write protect NO	
6) Descriptor	Description of the measuring point
7) Message	Short text message
8) Revision #'s	
1) Universal rev	
2) Fld device rev	
3) Software rev	
5) Xfer function	Linear
6) PV damp	Time constant

4) Detailed setup	
1) Flow	Unit, MIN, MAX etc.
2) Dens	
3) Temp	
4) Pulse out	Pulse output
5) Test device	Self-test
6) Status out	Status output
7) Current outputs	Current outputs
8) Sensor configuration	Sensor data
9) Language	Operator terminal language
10) Display init	Display mode during startup

1) Flow	
1) Mass flo	
1) MIN	Lower limit value
2) MAX	Upper limit value
3) Hysteresis	Limit value hysteresis
4) Lo flo cutoff	Low-flow volume
5) Hysteresis	Hysteresis of low-flow volume
2) Vol flo	
1) Unit	Cum/h, Cum/min, L/h, L/min, L/s, gal/h, gal/min, gal/s, Impgal/h, Impgal/min, Impgal/s
2) URV	Upper-range value of volume flow rate
3) Flo direction	Forward, Reverse, Forward&Reverse
2) Dens	
1) Measurement	Density measurement on/off
2) Unit	g/L, kg/L, g/Cumcm
3) LRV	Lower-range value in g/L
4) URV	Upper-range value in g/L
5) MIN	Lower limit value in g/L
6) MAX	Upper limit value in g/L
7) Hysteresis	Hysteresis of limit values in g/L
8) Empty Pipe Limit	Empty-pipe limit in g/L
9) Dens constants	Overwriting this parameter activates “Density calibrated” and “Density measurement.”
1) k1	
2) k2	
3) kT	
4) Trel	
3) Temp	
1) Temp LRV	Lower-range value
2) Temp URV	Upper-range value
3) MIN	Limit value for self-test; if the value falls below the limit: self-test error "T"
4) MAX	Limit value for self-test; if the value exceeds the limit: self-test error "T"
4) Pulse out	Pulse output (example)
1) Output Pulse	Pulse or frequency output
2) Pulse width 60msec	Pulse width
3) Pulse per 0.001kg	Pulse value: 1 pulse per 0.001 kg
5) Test device	Self-test (example)
1) Test of sensor OFF	Fitting test on/off
2) Selftest params	Only for the service
1) Sensor ref MIN	
2) Sensor ref MAX	
3) Exciter ref MAX	
4) Sensor base 1	
5) Sensor base 2	
6) Exciter base	
7) Sensor deviation	
8) Exciter maximum	
9) Max. read temperature	Maximum temperature measured, read-only
3) Calibrate	Self-test calibration

6) Status out	Status output (example)
1) Active state Closed	Active state open/closed
2) Relation	Status shows forw. flow, rev. flow, MIN QM, MAX QM, MIN Dens, MAX Dens, Alarm, IMP2 90°, IMP2 180°
7) Current outputs	Current outputs
1) Current output 1	
1) Range	4-20 mA, cannot be changed
2) Relation	Mass flow rate, cannot be changed
3) Alarm	2 mA, 22 mA, not used
2) Current output 2	
1) Range	0/4-20 mA
2) Relation	I2 shows mass flow rate, volume flow rate, density, temperature
3) Alarm	2 mA, 22 mA, not used
8) Sensor configuration	Sensor data
1) Sensor material	Loop consists of 1.45, 1.43, HC4, HB2, tantalum, titanium, nickel, special material
2) Sensor constant	Sensor constant
3) Temp drift	Temperature drift of sensor constant
4) Ref temp	Reference temperature of sensor constant
9) Language	Operator terminal language German, English (French, Italian >> German)
10) Display init	Display mode during startup Mass flo, Vol flo, forw. totl, rev. totl, Dens, Temp, QM&totl forw., QM&Dens, QM&Temp, Test field, Vol flo&totl forw.

6 Notes