

SIEMENS

SITRANS F

Coriolis Flowmeters

SITRANS FCT030 transmitter

Quick Start

Before installing, including in hazardous areas, refer to the Operating Instructions on the internet or on the SITRANS F literature CD-ROM. They contain detailed safety regulations, information and specifications which must be observed when installing. Documentation and approvals can be found on the internet:

Flow documentation (<http://www.siemens.com/flowdocumentation>)

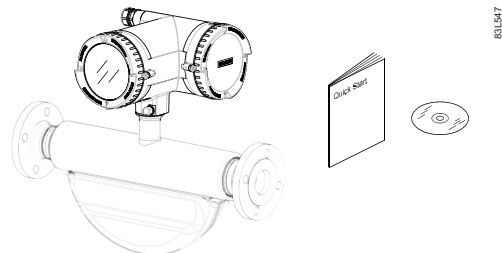
CAUTION

Correct, reliable operation of the device requires proper transport, storage, positioning and assembly. The device must be carefully operated and maintained. Only qualified personnel should install or operate this device.

Items supplied

Compact system

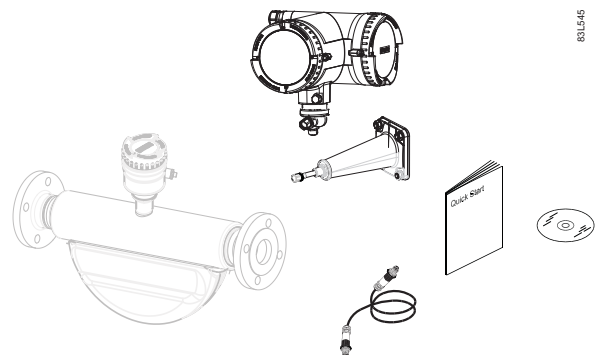
- SITRANS FC430 sensor and compact mounted transmitter
- Packet of cable glands
- Quick Start guide
- CD containing software, certificates and device manuals



Remote system

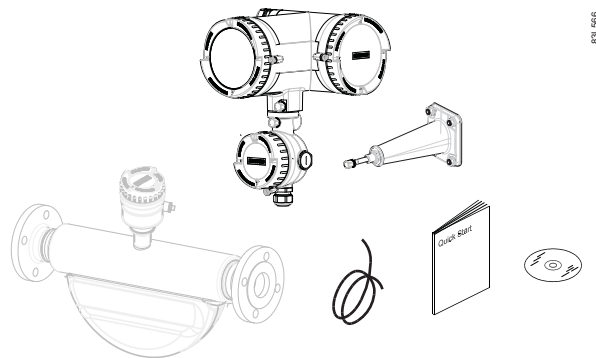
With M12 connection

- SITRANS FCS400 sensor
- SITRANS FCT030 transmitter with M12 socket assembled
- Mounting bracket and cushion pad
- Sensor cable with M12 connector
- Packet of cable glands
- Quick Start guide
- CD containing software, certificates and device manuals



With terminal housing

- SITRANS FCS400 sensor
- SITRANS FCT030 transmitter with terminal housing assembled
- Mounting bracket and cushion pad
- Sensor cable
- Packet of cable glands
- Quick Start guide
- CD containing software, certificates and device manuals



Note

Scope of delivery may vary, depending on version and add-ons. The contents list in the product package lists all included parts.

Note

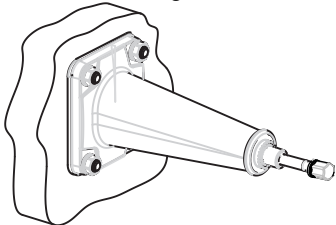
Sensor installation

The installation of the FCS400 sensor is described in the SITRANS FCS400 Quick Start (A5E03649755).

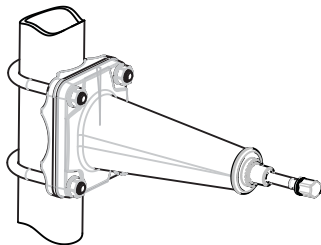
Remote mounting

Wall mounting

1. Prepare holes with aid of mounting bracket.
2. Fasten mounting bracket with cushion pad to wall (torque 10 Nm).



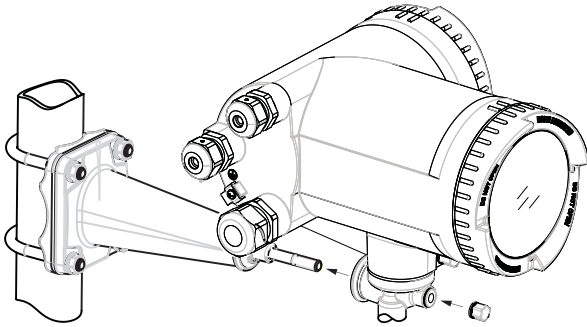
Pipe mounting



1. Mount mounting bracket with cushion pad on pipe using fastening brackets/U-bolts and supplied pipe adaptor. Note: U-bolts and other miscellaneous hardware are not supplied with the flowmeter.
2. Tighten nuts (torque 10 Nm).

Mounting the transmitter

1. Remove screw from mounting bracket.
2. Mount transmitter on mounting bracket taking care that the flutes on the mating faces are correctly engaged.



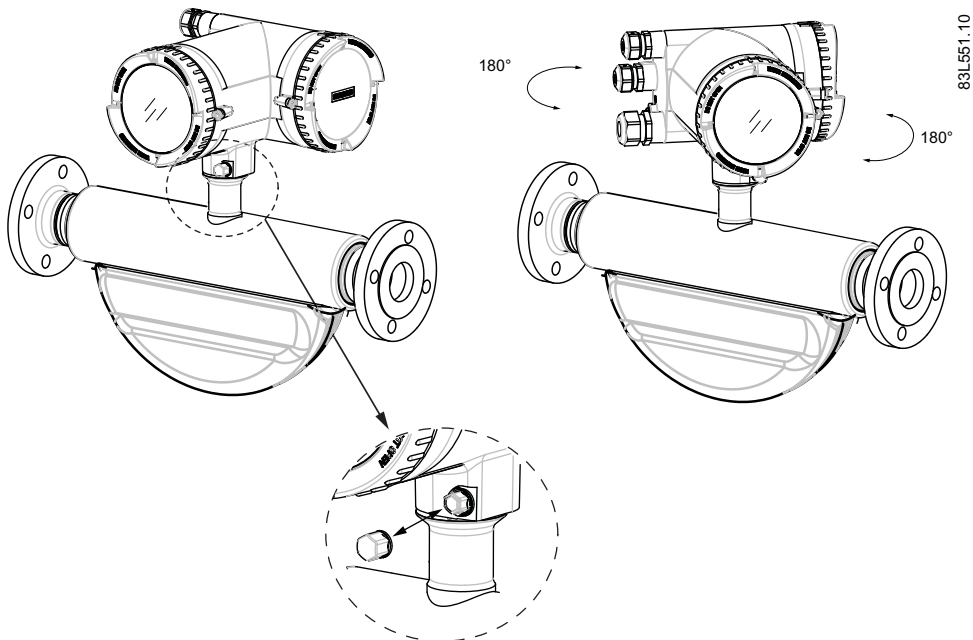
3. Firmly tighten screw on mounting bracket (torque: 25 Nm).

Turning the transmitter

In a remote configuration, the transmitter can be turned horizontally and vertically. In a compact configuration, the transmitter can be turned horizontally only.

Horizontal rotation

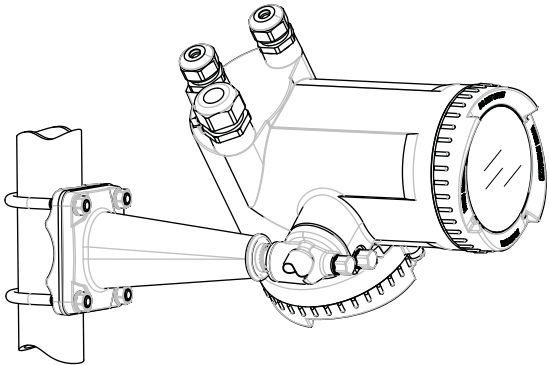
1. Unscrew cap from lock screw.
2. Loosen lock screw at transmitter pedestal using 5 mm Allen key.
3. Carefully rotate transmitter into desired position.



4. Firmly tighten lock screw (torque: 10 Nm).
5. Replace cap onto lock screw (torque: 10 Nm).

Vertical rotation

1. Loosen locking cap at end of mounting bracket by three turns.
2. Carefully loosen and rotate transmitter into desired position (15° steps).



3. Firmly tighten locking cap (torque: 25 Nm).

Connecting

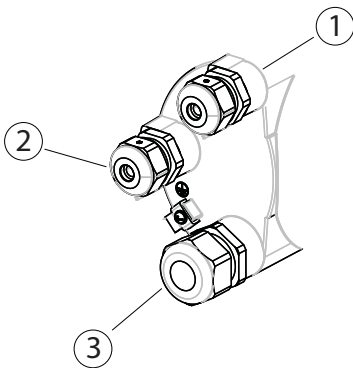
WARNING

As long as the device is energized, the lid of the housing on the sensor connection area may only be opened by qualified personnel.

Before removing the terminal cover, the auxiliary power must be switched off from all poles.

Following installation, the terminal cover must be screwed back on again.

1. Remove blind plugs where required and mount cable glands.

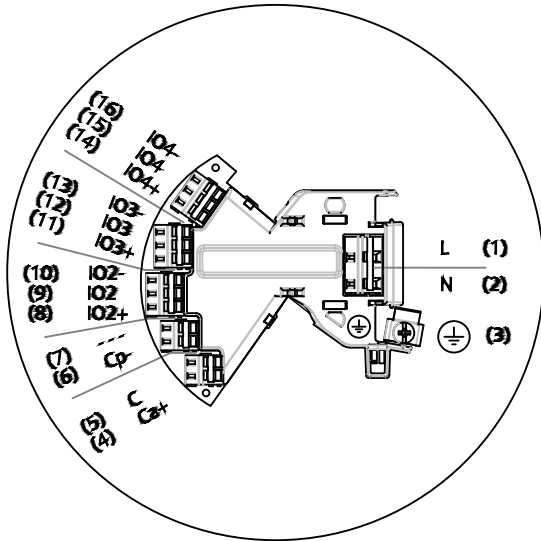


- ① Input/output connection (channels 2 to 4)
- ② Power supply connection
- ③ Current output/HART connection (channel 1)

2. Remove lid lock screw for terminal connections lid.
3. Remove lid for terminal connections.

Application terminals

A label with a graphic showing the terminal connections is placed at the back of the terminal connections lid.

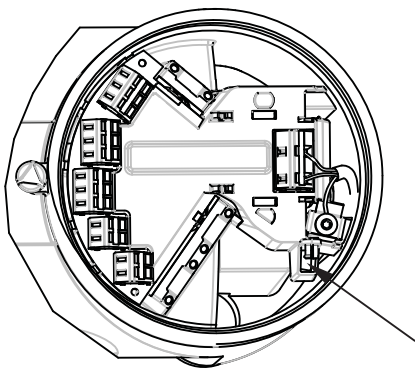


- | | | |
|---|------|---|
| ① | L/+ | Line |
| ② | N/- | Neutral |
| ③ | ⊕ | Ground |
| ④ | Ca+ | Used in current output active configuration |
| ⑤ | C | Used in current output active and passive configuration |
| ⑥ | Cp- | Used in current output passive configuration |
| ⑦ | --- | Not used |
| ⑧ | IO2+ | Signal output active channel 2 positive |
| ⑨ | IO2 | Signal output channel 2 common |
| ⑩ | IO2- | Signal output channel 2 negative |
| ⑪ | IO3+ | Input/output channel 3 positive |
| ⑫ | IO3 | Input/output channel 3 common |
| ⑬ | IO3- | Input/output channel 3 negative |
| ⑭ | IO4+ | Input/output channel 4 positive |
| ⑮ | IO4 | Input/output channel 4 common |
| ⑯ | IO4- | Input/output channel 4 negative |

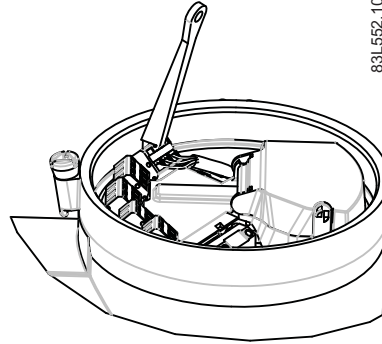
Wiring tool

Use the wiring tool for connecting the cables.

The wiring tool is located in the application terminal space.



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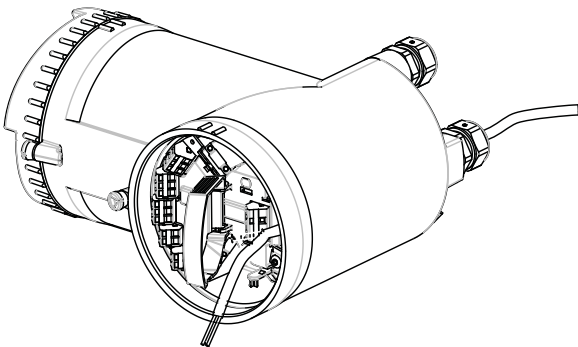
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Wiring tool location

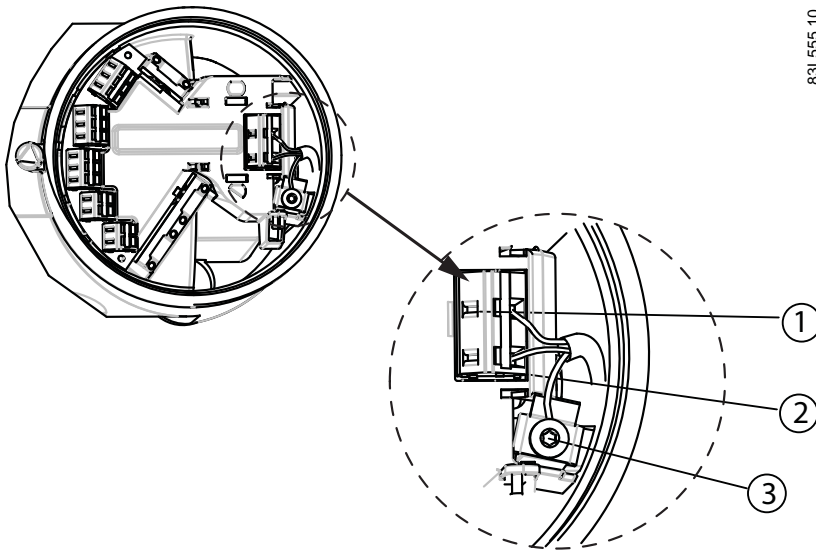
1. Insert wiring tool hook into receptor slot.
2. Press wiring tool wedge into top slot to spread clamp plates.
3. Insert wire.
4. Release wiring tool.

Power supply

1. Flip open power supply terminal protection cover.
2. Remove cap and ferrule from cable gland and slide onto cable.
3. Push cable through open gland and cable path.



4. Restore ferrule and tighten cap to lightly hold cable in place.
5. Connect ground to terminal \ominus and power to terminals L/+ and N/- using wiring tool in the manner shown below at right.



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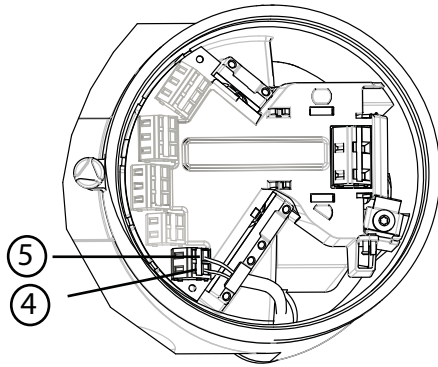
- ① L/+
- ② N/-
- ③ \oplus

AC connection	DC connection
<p>Power: 100 to 240 V AC +10/-15%, 47 to 63 Hz</p>	<p>Power: 24 to 90 V DC +20/-20%</p>

6. Anchor cable with clamp bar.
7. Close and latch power supply terminal protection cover.
8. Tighten cable gland.

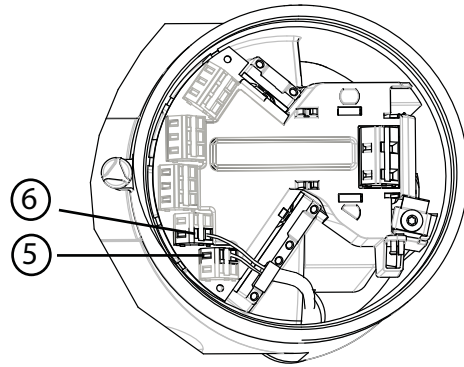
Current output/HART (channel 1)

1. Remove cap and ferrule from cable gland and slide onto cable.
2. Push cable through open gland and cable path.
3. Restore ferrule and tighten cap to lightly hold cable in place.
4. Signal cable screen is folded back over outer sheath and grounded beneath cable clamp.
5. Connect wires to terminals using wiring tool.



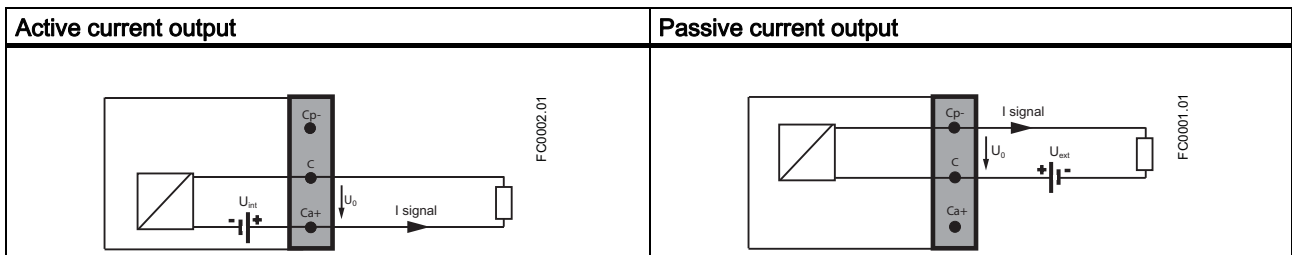
Active current output

- ⑤ C
- ④ Ca+



Passive current output

- ⑥ Cp-
- ⑤ C



6. Tighten cable gland.

Note

Active or passive current output is preselected at ordering.

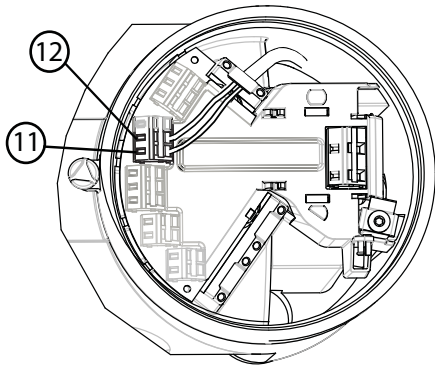
Note

Load

Current output (channel 1): < 500 Ω (HART ≥ 230 Ω)

Inputs and outputs (channels 2 to 4)

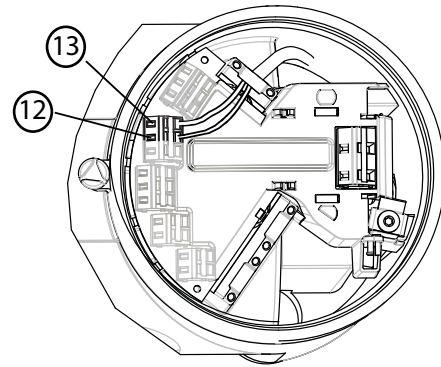
1. Remove cap and ferrule from cable gland and slide onto cable.
2. Push cable through open gland and cable path.
3. Restore ferrule and tighten cap to lightly hold cable in place.
4. Signal cable screen is folded back over outer sheath and grounded beneath cable clamp.
5. Connect wires to terminals using wiring tool.



Active current output

⑫ IO[3] (common)

⑪ IO[3]+ (active)



Passive current output

⑬ IO[3]- (passive)

⑫ IO[3] (common)

Termination example for channel 3

6. Tighten cable gland.

Note

Active or passive current output is preselected at ordering.

Factory configuration	Software configuration	Channel 2	Channel 3	Channel 4	
Signal output Active	Analog, pulse, frequency or status output If status: alarm class, alarm number, one-stage dosing, or two-stage dosing	X	X	X	
Signal output Passive	Analog, pulse, frequency or status output If status: alarm class, alarm number, one-stage dosing, or two-stage dosing	X	X	X	
Signal input Active	Start dosing, stop dosing, reset tot. 1, reset tot. 2, reset all totalizers, start zero point adjustment, pause/resume dosing, force output, or freeze output		X	X	

Signal input Passive	Start dosing, stop dosing, reset tot. 1, reset tot. 2, reset tot. 3, reset all totalizers, start zero point adjustment, pause/resume dosing, force output, or freeze output		X	X	 FC0006.01
Relay output	Alarm class, alarm number, one-stage dosing, or two-stage dosing		X	X	 FC0007.01 Normally open
Relay output	Alarm class, alarm number, one-stage dosing, or two-stage dosing		X	X	 FC0008.01 Normally closed

Note

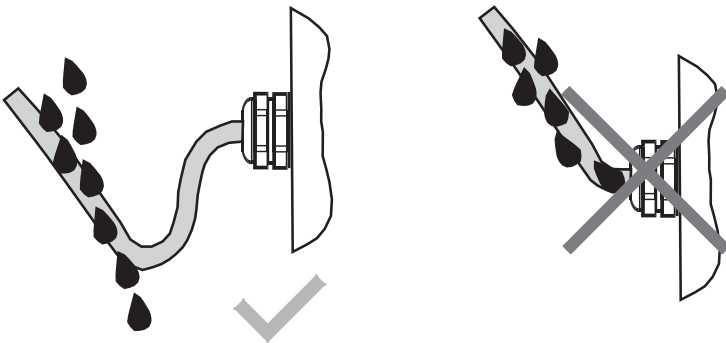
Load

Signal output: < 500 Ω

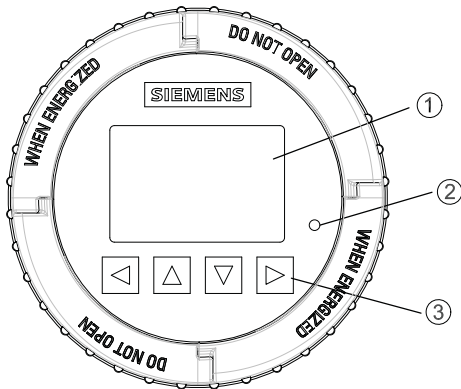
Relay output: 30 V AC/DC, 100 mA

Connection check-up

1. Check individual wire installation by tugging firmly.
2. Firmly tighten cable glands and insert blanking plugs in unused cable entries.
3. Remove o-ring from lid.
4. Reinstall lid and screw in until mechanical stop. Wind back lid by one turn.
5. **Mount o-ring by pulling it over the lid and tighten lid cover until you feel friction from the o-ring on both sides. Wind lid by one quarter of a turn to seal on the o-ring.**
6. Reinstall and tighten lid lock screw where supplied.
7. Ensure that moisture does not penetrate to inside of electronics housing by creating a drip loop (bend cables downward) immediately before cable glands.



Local user interface



- ① Full graphical display
- ② LED (for indication of key operation)
- ③ Capacitance proximity keypad

Note

LUI timeout

If no key is pressed for 10 minutes, the display switches to show operation view.

Note

Operation does not require opening of the device. This means that the high degree of protection of IP67 and safety in hazardous locations are guaranteed at all times.

Using the menu structure

There are three view types:

- **Operation view**
The operator view shows up to six operation views. The operation views are fully configurable to show different process values in different operation view types. Depending on the operation view type configuration the view is either measurement view or alarm view.
 - Measurement view: Displays the measurement values.
 - Alarm view: Displays the active alarms in a list.
- **Navigation view**
The navigation view shows the menus and parameters. The navigation view is used to navigate to the menus and parameters in the device.
- **Parameter view**
The parameter view can be entered from the navigation view. The parameter view is used to view and edit the parameters.

Navigating the operation view

Browse the operation views and menu items using the control buttons as follows:

Table 5-1 Measurement view

Key	Function
⏪	No functionality
⏴	Go to the previous menu in the operation view
⏵	Go to the next menu in the operation view
⏩	Enter the navigation view

Table 5-2 Alarm view level 1

Key	Function
⏪	No functionality
⏴	Go to the previous menu in the operation view
⏵	Go to the next menu in the operation view
⏩	Enter alarm view level 2

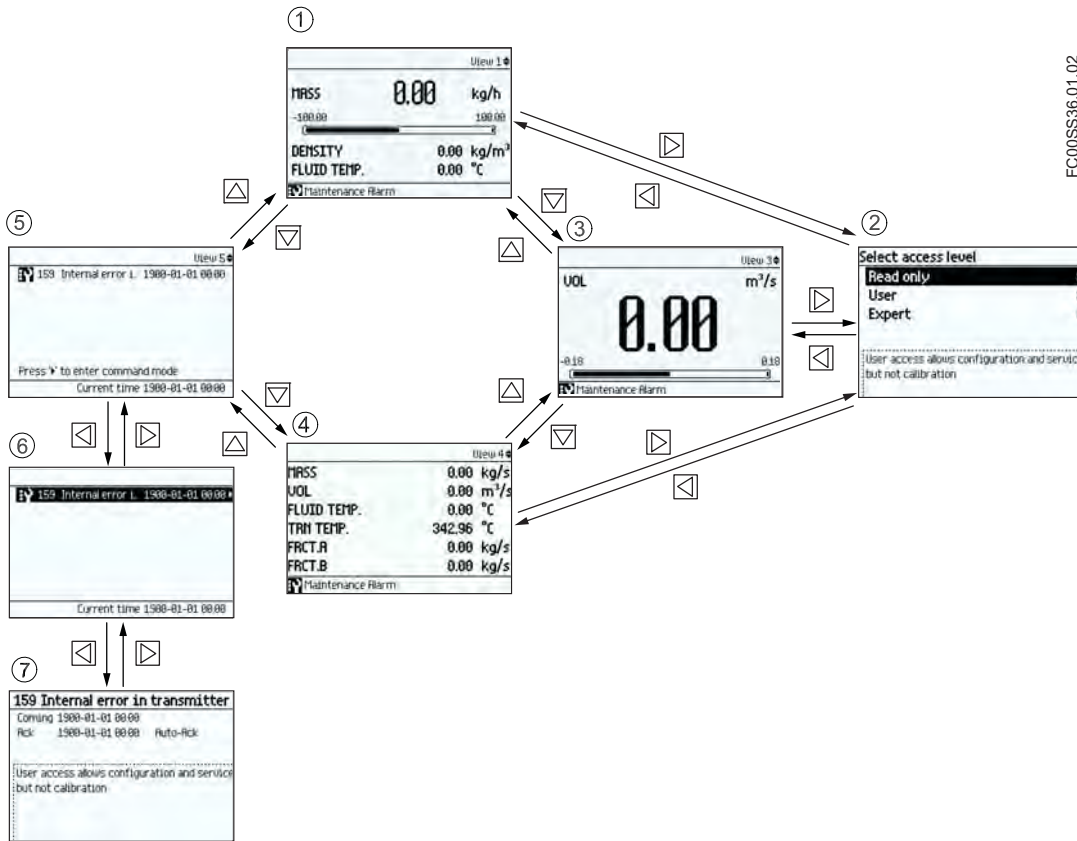
Table 5-3 Alarm view level 2

Key	Function
⏪	Enter alarm view level 1
⏴	Select the item above in the list; keep pressing the key to accelerate scrolling up the selection list
⏵	Select the item below in the list; keep pressing the key to accelerate scrolling down the selection list
⏩	Enter alarm view level 3

Table 5-4 Alarm view level 3

Key	Function
⏪	Enter alarm view level 2
⏴	No functionality
⏵	No functionality
⏩	No functionality

The following graphic shows an example of how to navigate between measurement views and alarm views with measurement views 1, 3, and 4 as well as alarm view 5 enabled.



- ① Measurement view
- ② Access level view
- ③ Measurement view
- ④ Measurement view
- ⑤ Alarm view - level 1
- ⑥ Alarm view - level 2
- ⑦ Alarm view - level 3

Navigating the navigation view

Browse the navigation view and menu items using the control buttons as follows:

Table 5-5 Navigation view

Key	Function
⏪	Enter the next higher level of the navigation view (for example from level 2 to level 1). If located on level 1 in the navigation view then enter the operation view
⏴	Select the item above in the list; keep pressing the key to accelerate scrolling up the selection list. If the key is pressed when the top item is selected, the bottom item will be highlighted
⏵	Select the item below in the list; keep pressing the key to accelerate scrolling down the selection list. If the key is pressed when the bottom item is selected, the top item will be highlighted
⏩	Enter the next lower level of the navigation view (for example from level 1 to level 2). If a parameter is selected in the navigation view then enter the parameter view

Editing the parameters

When this symbol is shown in the graphics, the four buttons on the LUI are used for changing the parameters as described below.

Table 5-6 Parameter edit view

Key	Function
◀	Select the next left position. If the most left position is selected, exit the parameter edit view without confirming the changes. Keep pressing the key to jump to the most left position
▲	Change the selected number/character. Numeric characters: increase the number by one (for example from 7 to 8) ASCII characters: select the previous character in the alphabet
▼	Change the selected number/character. Numeric characters: decrease the number by one (for example from 8 to 7) ASCII characters: select the next character in the alphabet
▶	Select the next right position. If most right position is selected, confirm the change and exit the parameter edit view. Keep pressing the key to jump to the most right position

Table 5-7 Parameter read only view

Key	Function
◀	Exit parameter edit view
▲	No functionality
▼	No functionality
▶	No functionality

In the following table the menus are entered in **bold** text and the parameters in *italic*.

Quick start

The menu items 1.1 through 1.11 make up a quick start guide.

In the following table only the menus and parameters of the first two levels of the LUI menu structure are listed.

Table 5-8 Main menu

Level 1		Level 2		More information
No.	Name	No.	Name	
1	Quick Start	1.1	<i>Flow Direction</i>	
		1.2	<i>Process Noise Damping</i>	
		1.3	Massflow	Menu item 1.3: Massflow
		1.4	Volumeflow	Menu item 1.4: Volumeflow
		1.5	Density	Menu item 1.5: Density
		1.6	Fluid Temperature	Menu item 1.6: Fluid temperature
		1.7	Fraction	Menu item 1.7: Fraction
		1.8	Totalizer 1	Menu item 1.8: Totalizer 1
		1.9	Totalizer 2	Menu item 1.9: Totalizer 2
		1.10	Totalizer 3	Menu item 1.10: Totalizer 3
		1.11	<i>Start Zero Point Adj.</i>	

Level 1		Level 2		More information
No.	Name	No.	Name	
2	Setup	2.1	Basic Settings	Menu item 2.1: Basic Settings
		2.2	Process Values	Menu item 2.2: Process Values
		2.3	Totalizer	Menu item 2.3: Totalizer
		2.4	Inputs/Outputs	Menu item 2.4: Inputs/Outputs
		2.5	Dosing	Menu item 2.5: Dosing
		2.6	Zero Point Adjustment	Menu item 2.6: Zero Point Adjustment
		2.7	Safe Operation	Menu item 2.7: Safe Operation
		2.8	Display	Menu item 2.8: Display
3	Maintenance & Diagnostics	3.1	Identification	Menu item 3.1: Identification
		3.2	Alarms	Menu item 3.2: Alarms
		3.3	Maintenance	Menu item 3.3: Maintenance
		3.4	Diagnostics	Menu item 3.4: Diagnostics
		3.5	Characteristics	Menu item 3.5: Characteristics
		3.6	SensorFlash	Menu item 3.6: SensorFlash
		3.7	Simulate	Menu item 3.7: Simulate
		3.8	Self Test	Menu item 3.8: Self Test
		3.9	Dosing Test	Menu item 3.9: Dosing Test
4	Communication	4.1	<i>Polling Address (SW)</i>	
		4.2	<i>Polling Address (HW)</i>	
		4.3	<i>TAG</i>	
		4.4	<i>HART Device Type</i>	
		4.5	<i>HART Revision</i>	
		4.6	Mapping of Variables	Menu item 4.6: Mapping of Variables
		4.7	HART Units	Menu item 4.7: HART Units
5	Security	5.1	Access Management	Menu item 5.1: Access Management
6	Language			

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SITRANS FCT030 transmitter
A5E03650800, 03/2012

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions. Responsibility for suitability and intended use of this instrument rests solely with the user.
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