

## SITRANS F C MASSFLO®

*MASS flowmeters*

*Signal converter type MASS 6000 19"*

*sensor type MASS 2100*



Order no.: FDK:521H1179

SFIDK.PS.028.R1.02 - A5E00253632





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## 1. Introduction



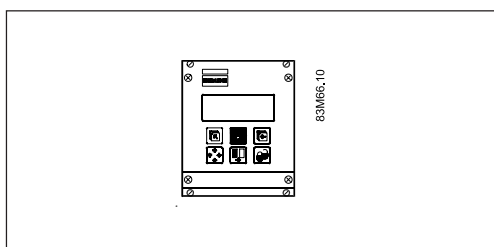
For safety reasons it is important that the following points, especially the points marked with a warning sign, are read and understood before the system is being installed:

- Installation, connection, commissioning and service must be carried out by personnel who are qualified and authorized to do so.
- It is very important that the same people have read and understand the instructions and directions provided in this manual and that they follow the instructions and directions before taking the equipment into use!
- People who are authorized and trained by the owner of the equipment may operate the equipment.
- The installation must ensure that the measuring system is correctly connected and is in accordance with the connection diagram. The signal converter has to be earthed unless the power supply is galvanically isolated.
- The mains protective earth wire must be connected to the PE  terminal in accordance with the diagram.
- In applications with working pressures/media that can be dangerous to people, surroundings, equipment or others in case of pipe fracture, we recommend that special precautions such as special placement, shielding or installation of a security guard or a security valve should be made when the sensor is being installed.
- Siemens Flow Instruments want to assist by estimating the chemical resistance of the sensor parts that are in connection with the media, but it is at any time the customer's responsibility, which materials are chosen and Siemens Flow Instruments takes no responsibility if the sensor corrodes!
- Equipment used in hazardous areas must be Ex-approved and marked  for Europe and UL for USA.  
It is required that the special directions provided in the manual and in the Ex certificate must be followed!
- Installation of the equipment must comply with national regulations.  
Example EN 60079-14 for Denmark.
- Repair and service can be done by approved Siemens Flow Instruments personnel only.

## 2. Installation

## 2.1 Installation of signal converter MASS 6000

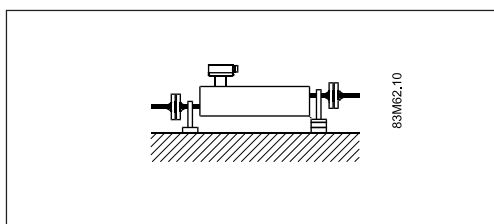
 **Safe area only!**



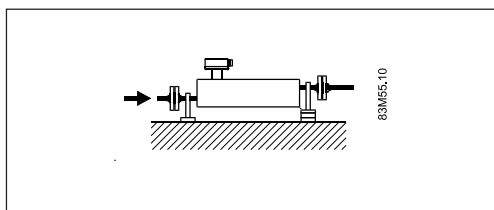
Signal converter MASS 6000 can be installed in the **safe area only!**

## 2.2 Installation of sensor MASS 2100

 **Hazardous area**

**Category 1 equipment**

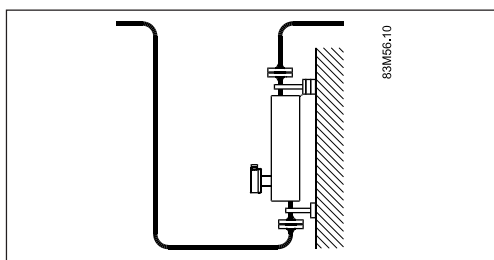
Sensor MASS 2100 may be installed in zone 0, zone 1 and zone 2.

**Horizontal mounting**

Mount the sensor on a vibration-free wall or steel frame as shown.

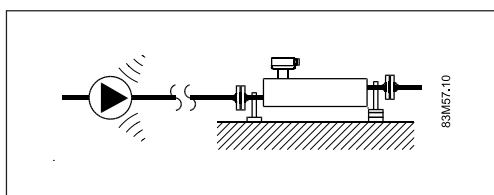
Ensure that the sensor is not emptied of liquid (during normal operation) otherwise incorrect measurement will occur.

**With low flow, horizontal mounting is recommended, in this position air bubbles are easier to remove.**

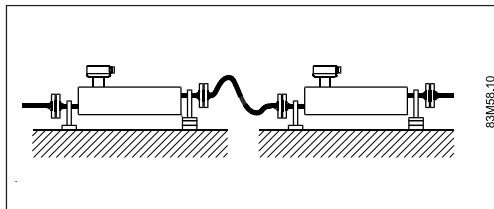
**Vertical mounting**

Locate the sensor low in the system in order to avoid an under-pressure in the sensor separating air/gas in the liquid.

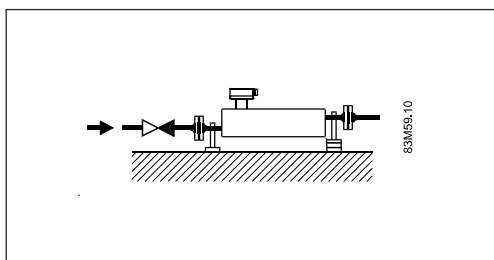
**If the liquid is volatile or contains solid particles, vertical mounting is not recommended.**

**Vibration**

Always locate the flowmeter as far away as possible from components that generate mechanical vibration in the piping.

**Cross talk**

Cross talk between sensors mounted close to each other may disturb the measurement. To avoid cross talk never mount more than one sensor on each frame and mount flexible hose connections between the sensors as shown.

**Zero-point adjustment**

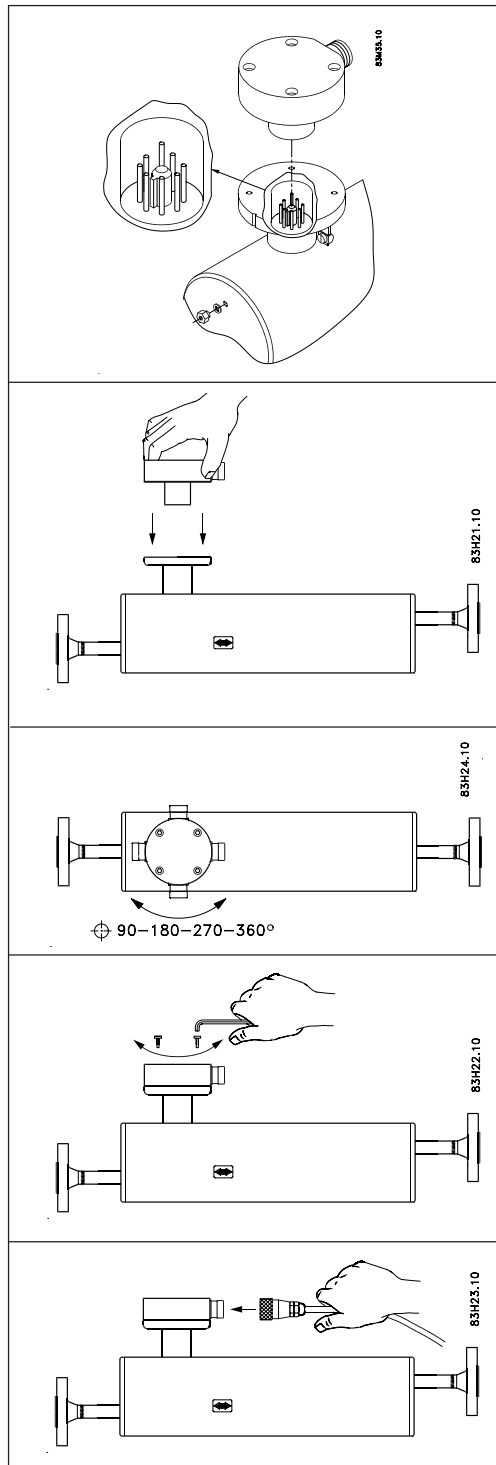
To facilitate zero-point adjustment, a valve with tight shut-off should always be mounted in connection with the sensor as a proper zero-point setting is essential for a good accuracy.

**Note**

Please read and follow the directions stated in the instruction DKFD.PI.028.P1.52 regarding build-in of sensor.

The instruction is supplied with the sensor.

**Installation of sensor**  
**MASS 2100** (continued)



Mount the adaptor on top of the sensor interface, if not already mounted. When fitting the multiple plug, please make sure that it is correctly oriented (note the little tap).

The adaptor can be oriented in 4 directions.

Tighten the 4 screws with a 4 mm Allen key to secure the adaptor.

Mount the multiple plug in the adaptor and tighten the glands on the plug to obtain optimum sealing. Note the wire colours when connecting the MASS 6000. Refer to the diagram for electrical wiring under "Electrical connection".

### 2.3 Ex survey according to Directive 94/9/EC (ATEX)

as an example:

II 2G E Ex ia IIC T6

Directive 94/9/EC (ATEX)

#### Instrument groups

I	Applies to instruments used in underground mining operations, as well as their above ground operations, which can be endangered by mine gas and/or flammable dusts.
II	Applies to instruments used in the remaining areas which can be endangered by a potentially explosive atmosphere.

#### Instrument category

Labelling with gases	Labelling with dusts	Definition
1G (0)	1D (20)	Instruments of this category are for use in areas where ignitable atmospheres, caused by a mixture of air and gasses, vapours or mists or by dust/air mixtures, can exist all of the time or for long periods of time or else frequently.
2G (1)	2D (21)	Instruments of this category are for use in areas where ignitable atmospheres caused, by a mixture of air and gasses, vapours or mists or by dust/air mixtures, can exist some of the time.
3G (2)	3D (22)	Instruments of this category are for use in areas where ignitable atmospheres, caused by a mixture of air and gasses, vapours or mists or by dust/air mixtures, are not likely to exist. However, if they do occur then in all probability, only seldom or for short periods of time.

(The figures in brackets refer to IEC)

Built according to European norm = E

Explosion protected electrical equipment = Ex

Ex protection labelling in square brackets refers to "Associated electrical equipment"

#### Type of protection

o Oil encapsulated	i	Intrinsic safety (ia, ib)
p Pressurized apparatus	n	Non-incentive equipment
q Powder filling	m	Encapsulation
d Flameproof enclosure	s	Special protection
e Increased safety		

#### Explosion groups

Gases and vapours (examples)	Minimum ignition energy [mJ]	EN/IEC
• Ammonia	-	IIA
• Acetone, aircraft fuel, benzene, crude oil, diesel oil, ethane, ethanoic acid, ether, gasolines, heating oil, hexane, methane, propane	0.18	IIA
• Ethylene, isoprene, town gas	0.06	IIB
• Acetylene, carbon disulphide, hydrogen	0.02	IIC

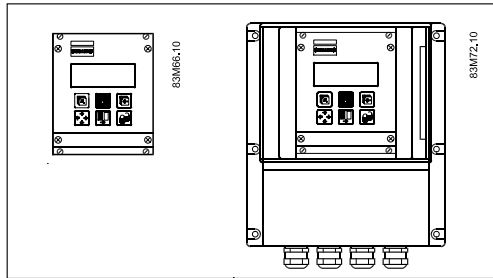
#### Ignition temperature

Maximum surface temperature		EN / IEC
450°C	842°F	T1
300°C	572°F	T2
200°C	392°F	T3
135°C	275°F	T4
100°C	212°F	T5
85°C	185°F	T6

EN 50014

## 2.4 Overview and intrinsically safe data

**MASS 6000 19" IP 20 & IP 65 [EEx ia] IIC**



Can **only** be installed in **safe area!**

### **MASS 6000 intrinsically safe data**

$U_o$ : 16 V;  $I_o$ : 122 mA

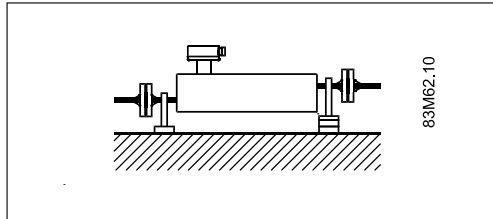
$P_o$ : 0.52 W

$L_o$ : 2 mH

$L_o/R_o$ : 100  $\mu\text{H}/\Omega$

$C_o$ : 200 nF

**MASS 2100  
EEx ia IIC T3...T6**



### **Category 1 equipment**

Sensor MASS 2100 may be installed in zone 0, zone 1 and zone 2.

### **MASS 2100 intrinsically safe data**

See table below.

Terminals	1-2						3-4-9	5-6&7-8
MASS 2100	DI 1.5	DI 3	DI 6	DI 15	DI 25	DI 40	Temp. sensor	Pick ups
$U_i$ [V]	16	16	16	16	16	16	15	15
$I_i$ [mA]	0.132	0.132	0.132	0.132	0.132	0.132	8	15
$P_i$ [W]	0.75	0.75	0.75	0.75	0.75	0.75	0.03	0.056
$L_i$ or [mH]	0.5	0.5 or	1.5 or				10	10
$L_i/R_i$ [ $\mu\text{H}/\Omega$ ]		80	40	30	10	15		
$C_i$ [pF]	50	50	50	50	50	50	50	50

### **Cable between MASS 2100 and MASS 6000**

Maximum distance between sensor MASS 2100 and signal converter MASS 6000 is 300 m with Siemens Flow Instruments cable FDK:083H3005 or FDK:083H3006 or equivalent cable.

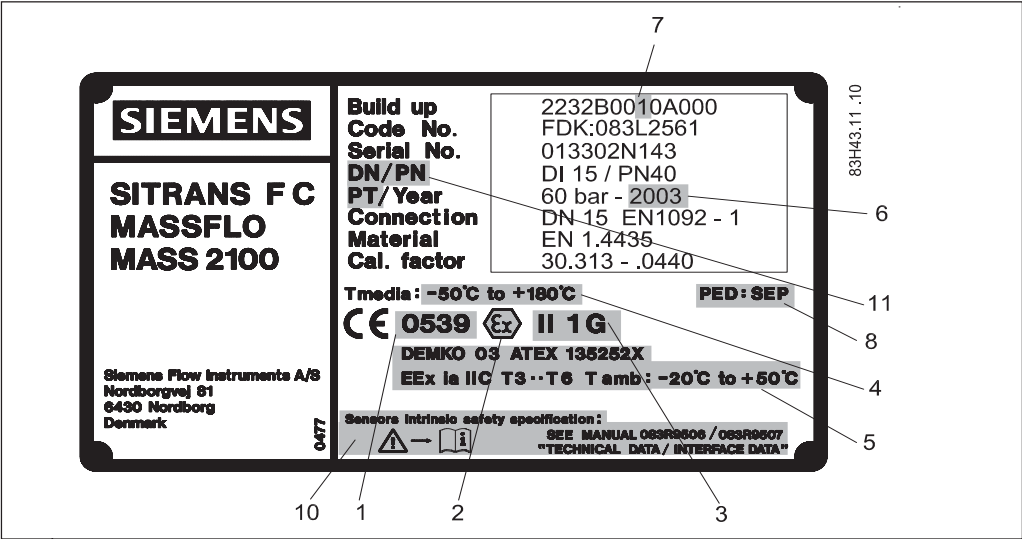
#### **Cable data**

Capacitance	300 [pF/m]
Self-inductance	1 [ $\mu\text{H}/\text{m}$ ]
Resistance	0.05 [ $\Omega/\text{m}$ ]
Maximum length	300 [m]
$C_{\text{max.}}$	100 [nF]
$L_c/R_c$	25 [ $\mu\text{H}/\Omega$ ]
Isolation	0.25 [mm]
Temperature range	-20°C to +105°C
Temperature range (high temperature version)	-20°C to +200°C

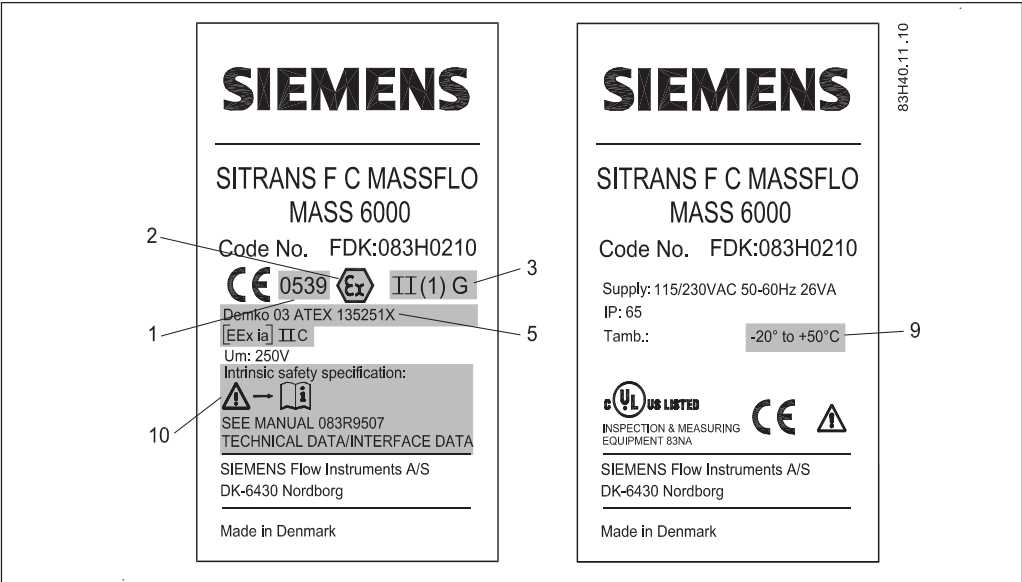
Equivalent cable must have  $L_c/R_c$  ratio lower or equal to 100 [ $\mu\text{H}/\Omega$ ].

2.5 Device identification

Sensor MASS 2100 label



Signal converter  
MASS 6000 19" IP 20 and  
IP 65 label

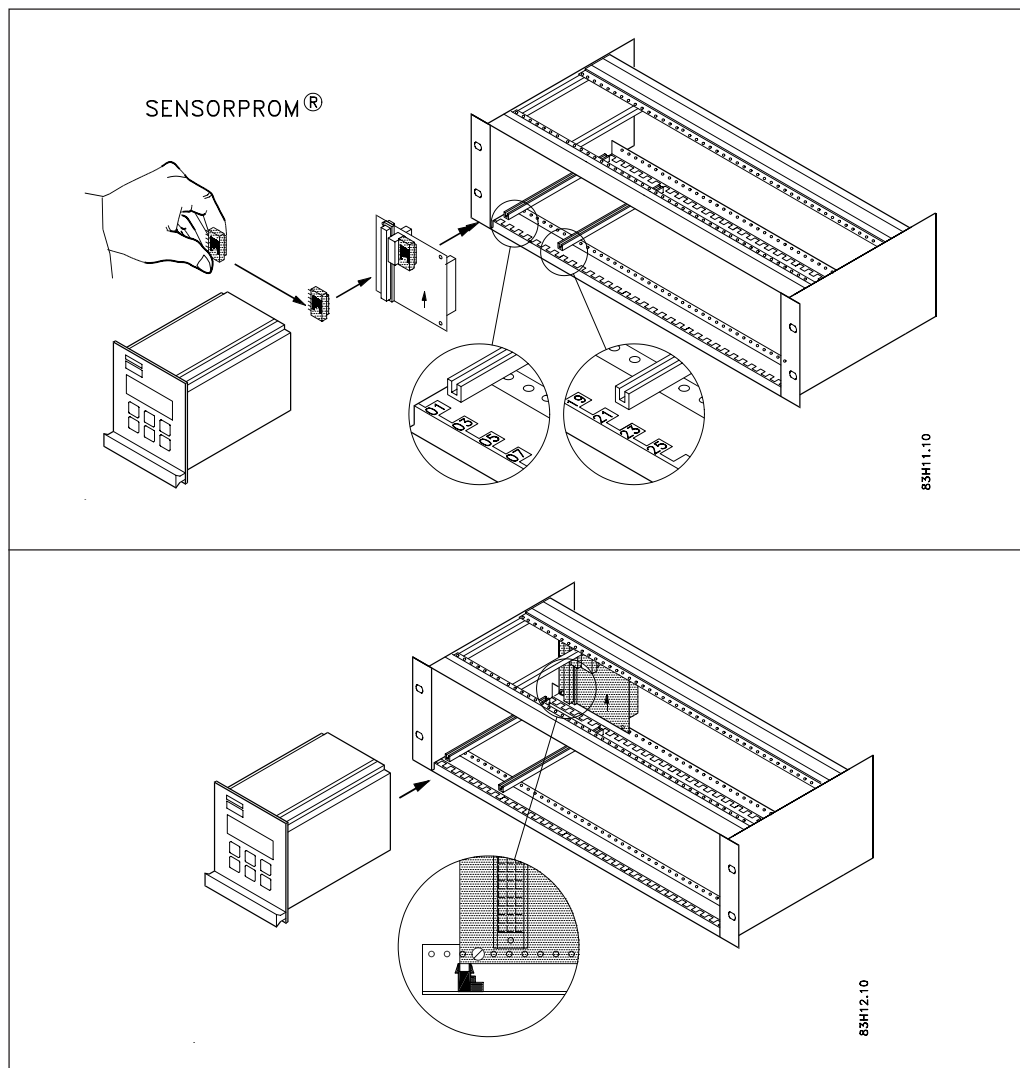


No.	Meaning
1.	Notified body for QA supervision: UL International DEMKO A/S, Denmark
2.	Explosion protected
3.	ATEX Equipment Group and Protection Category
4.	Maximum medium temperature
5.	EC Approval Numbers and Protection Type
6.	Production year
7.	Build-up code, "1" = MASS 2100 sensor
8.	PED = Pressure Equipment Directive 97/23/EC
	<b>PED: SEP</b> marking indicating that the sensor is produced in accordance with "Sound Engineering Practice"
	<b>CE 0200 EN 13480 - category II</b> marking indicating that the sensor conforms to PED-category II
9.	Ambient temperature range
10.	Interface data
11.	DN = sensor size
	PN = max. pressure
	PT = test pressure, sensor pressure tested with 1.5 x PN



## 2.6 Remote installation signal converter MASS 6000


**⚠ Safe area only!**



1. Fit the SENSORPROM® unit on the connection board supplied with the signal converter. The SENSORPROM® unit is supplied with the sensor.
2. Mount the guide rails in the rack system as shown. Distance between guide rails is 21 TE. Guide rails are supplied with the rack system and not with the signal converter.
3. Mount the connection board as shown. The left side of the connection board must flush to the left of the guide rail.
4. Connect the cables as shown under "Electrical connection".
5. Plug the signal converter into the rack system.

## 2.7 Approvals


**Sensor MASS 2100 DI 1.5, DI 3, DI 6, DI 15, DI 25 and DI 40**

CE 0539  II 1 G  
 DEMKO 03 ATEX 135252X  
 EEx ia IIC T3...T6

**Temperature classes for ambient temperature between –20°C to +50°C:**

T3 (max. surface < 200°C) for liquid temperature lower than 180°C  
 T4 (max. surface < 135°C) for liquid temperature lower than 135°C  
 T5 (max. surface < 100°C) for liquid temperature lower than 100°C  
 T6 (max. surface < 85°C) for liquid temperature lower than 85°C

**Signal converter MASS 6000**

CE 0539  II (1) G  
 DEMKO 03 ATEX 135251X  
 [EEx ia] IIC  
 Ambient temperature –20°C to +50°C

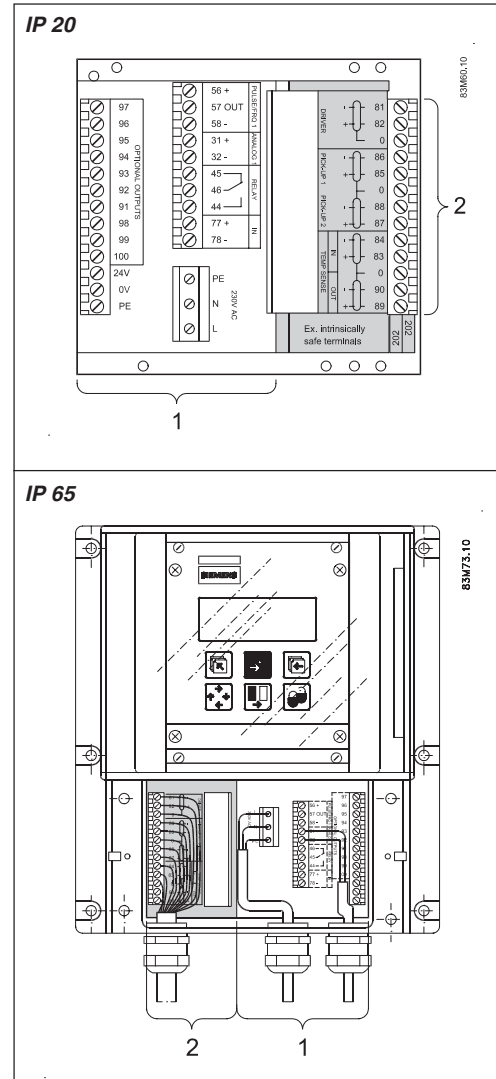
**Notified body**

The SITRANS F C MASSFLO® mass flowmeter was tested for approval by:  
 UL International DEMKO A/S  
 Lyskaer 8, P.O. Box 514  
 DK-2730 Herlev  
 Denmark

**2.8 Special conditions for safe use**

- The intrinsic safety output terminals are located in the same room as the input terminals and the final installation shall secure the spacing of 50 mm between the intrinsic safety terminals and the non-intrinsic safety terminals. To prevent mixing of cables between intrinsically safe terminals and all other terminals, an isolating plate is mounted in the terminals room.
- The signal converter shall always be connected to ground using the internal terminal.
- The code number FDK:083H0202, FDK:083H0203, FDK:083H0206 and FDK:083H0207 shall be installed in a 19" rack with an ingress protection of at least IP 20.
- For IP 65 Siemens Flow Instruments code number FDK:083F5037 can be used.
- On the connection board are terminals marked „No wiring connections“. These terminals are not for field wiring but only for connection to MASS 6000 SENSORPROM®.
- The 24 V input voltage for the 24 Volt version shall be from a safety-isolated transformer according to EN 60742 or EN 61558-1.

## 3. Electrical connection

3.1 Electrical connection  
IP 20 & IP 65

## 1. Connection terminals to:

- Power supply
- In- and output

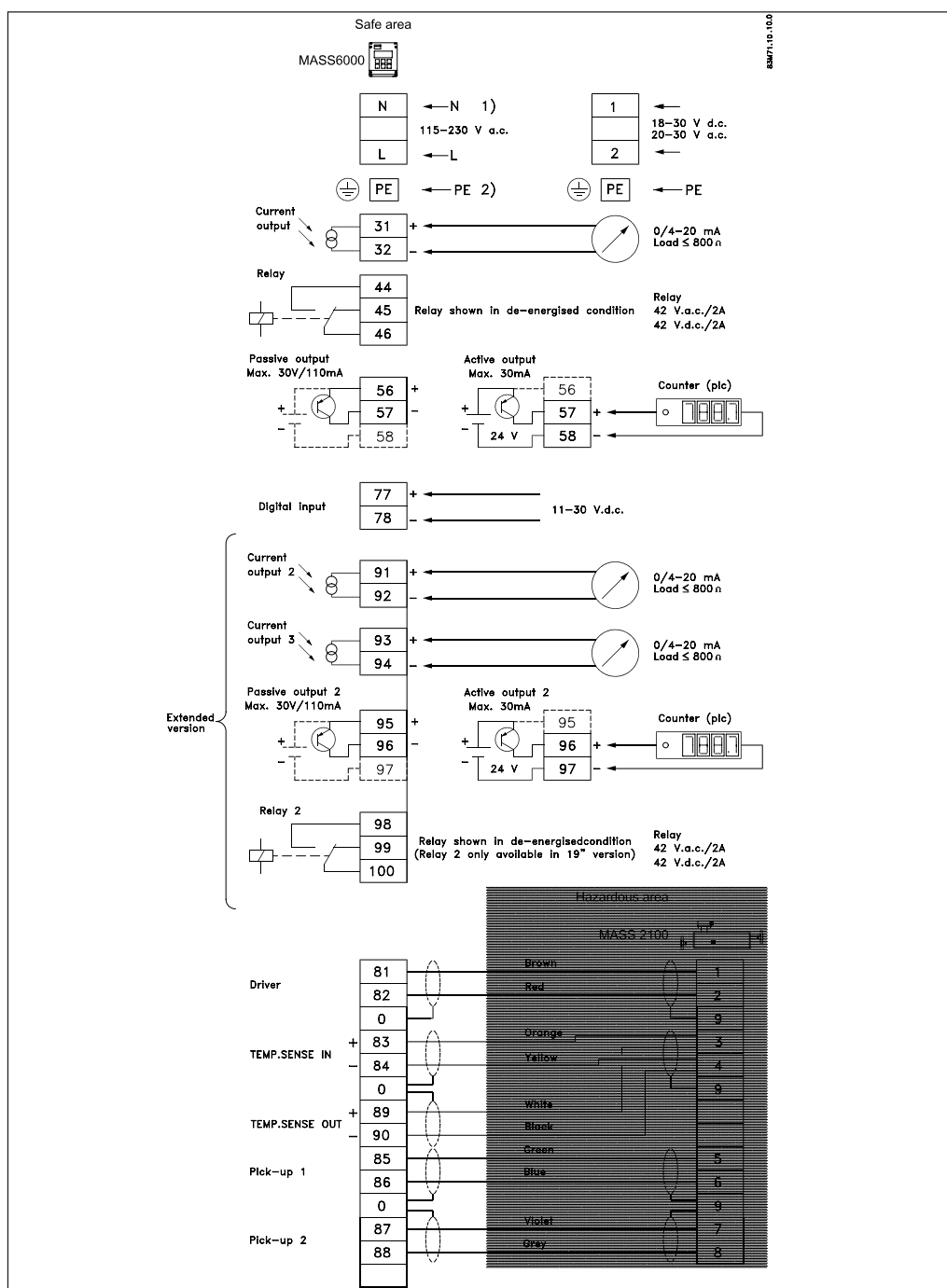
2. Connection terminals to:  
MASS 2100 sensor

**⚠ Intrinsically safe terminals!**

It is an absolute requirement that the wires/terminals of the intrinsically safe circuits **cannot** get into contact with the wires of the other cables. The distance between cables/wires therefore must be at least 50 mm.

It is recommended to fasten the cables/wires in a way that they, even in case of an error, **cannot** get into contact with each other. Make the wire ends as short as possible.

### 3.2 Signal converter MASS 6000 & sensor MASS 2100



#### Installation



- 1) Mains supply 115 to 230 V a.c. from building installation Class II. A switch or circuit-breaker (max. 15 A) shall be included in the building installation. It must be in close proximity to the equipment and within easy reach of the OPERATOR, and it shall be marked as the disconnecting device for the equipment.

- 2) **The mains protective earth wire must be connected to the PE terminal, if the earth wire is not connected, personnel can be exposed to 115V/230V.**

Required cable min. AGW16 or 1.5 mm<sup>2</sup> Cu wire.

The insulation between the connected mains supply and 24 V a.c./d.c. supply for the flowmeters, models 24 V a.c./d.c. shall at least be rated with double or reinforced insulation at mains voltage.

For field wiring installation **National Installation Code** shall be met of the country, where the flowmeters are installed.

Main voltage terminals must be out of reach for OPERATOR to avoid any hazards!


#### Digital output

If the internal resistance of the loads exceeds 10KΩ, it is recommended to connect an external 10KΩ load resistor in parallel to the load.

# SITRANS F C MASSFLO® 4. Technical data

## 4. Technical data

### 4.1 Sensor MASS 2100. Versions DI 1.5, DI 3, DI 6, DI 15, DI 25, DI 40

Versions	mm inch	DI 1.5 1/16	DI 3 1/8	DI 6 1/4	DI 15 5/8	DI 25 1	DI 40 1 1/2
							
<b>Inside pipe diameter</b> (Sensor consists of one continuous pipe)	mm	1.5	3.0	6.0	14.0	29.7	43.1
<b>Pipe wall thickness</b>	mm	0.25	0.5	1.0	1.0	2.0	2.6
<b>Mass flow measuring range</b>	kg/h	0-65	0-250	0-1,000	0-5,600	0-25,000	0-52,000
<b>Density</b>	g/cm <sup>3</sup>	0.1-2.9					
<b>Fraction e.g.</b>	°Brix	0-100					
<b>Temperature °C</b>							
Standard		-50 to +125					
High temperature version		-50 to +180					
<b>Liquid pressure measuring pipe 1)</b>							
Stainless steel	bar	230	230	265	130	110	105
Hastelloy C-22	bar	365	350	410	200	185	170
<b>Materials</b>							
Measuring pipe, flange-,		1.4435/1.4404 (AISI 316 L) (Stainless steel)					
Thread connection as standard		2.4602 (Hastelloy C-22)					
<b>Enclosure and enclosure material</b>		IP 65 and 1.4404 (AISI 316 L) (Stainless steel)					
<b>Enclosure, burst pressure</b>	bar	70	190	190	140	90	50
<b>Process connections 2)</b>							
<b>Flange</b>							
DIN 2635, PN 40				DN 10	DN 15	DN 25	DN 40
ANSI B16.5, Class 150				1/2"	1/2"	1"	1 1/2"
ANSI B16.5, Class 600 (Class 300)				1/2"	1/2"	1"	1 1/2"
<b>Dairy (screwed connector, PN 25/40) 3)</b>							
DIN 11851				DN 10	DN 15	DN 32	DN 40
ISO 2853/BS 4825 part 4 (SS3351)				25 mm	25 mm	38 mm	51 mm
<b>Clamp (PN 16) 3)</b>							
ISO 2852/BS 4825 part 3 (SMS3016)				25 mm	25 mm	38 mm	51 mm
<b>Thread</b>							
ISO 228/1, PN 100		G 1/4"	G 1/4"				
ANSI/ASME B1.20.1, PN 100		1/4" NPT	1/4" NPT				
<b>Cable connection</b>		Multiple plug connection to sensor 5 × 2 × 0.35 mm <sup>2</sup> twisted and screened in pairs, ext. Ø 12 mm					
<b>Ex-version 4)</b>		EEx ia II C T3-T6, DEMKO 03 ATEX 135252X					
<b>Weight approx.</b>	kg	2.6	4	8	12	48	48

1) Max. at 20°C, DIN 2413, DIN 17457

2) Other connections to order, see handbook chapter 9, "Ordering"


3) Material, 1.4401 or corresponding

4) Intrinsically safe approval: CENELEC

#### Intrinsically safe interface

Terminals	1-2						3-4-9	5-6&7-8
MASS 2100	DI 1.5	DI 3	DI 6	DI 15	DI 25	DI 40	Temp. sensor	Pick ups
U <sub>i</sub> [V]	16	16	16	16	16	16	15	15
I <sub>i</sub> [mA]	0.132	0.132	0.132	0.132	0.132	0.132	8	15
P <sub>i</sub> [W]	0.75	0.75	0.75	0.75	0.75	0.75	0.03	0.056
L <sub>i</sub> or [mH]	0.5	0.5 or	1.5 or				10	10
L <sub>i</sub> /R <sub>i</sub> [μH/Ω]		80	40	30	10	15		
C <sub>i</sub> [pF]	50	50	50	50	50	50	50	50

## 4.2 Signal converter MASS 6000

	
<b>MASS 6000 19" IP 20/IP 65 version</b>	
<b>Measurement of</b>	Mass flow [kg/s], volume flow [l/s], fraction [%], Brix, density [kg/m <sup>3</sup> ], temperature [°C]
<b>Current output</b>	
<i>Current</i>	0-20 mA or 4-20 mA
<i>Load</i>	< 800 ohm
<i>Time constant</i>	0-30 s adjustable
<b>Digital output</b>	
<i>Frequency</i>	0-10 kHz, 50% duty cycle
<i>Time constant</i>	0-30 s adjustable
<i>Active</i>	24 V d.c., 30 mA, 1 K $\Omega$ $\leq$ R <sub>load</sub> $\leq$ 10 K $\Omega$ , short-circuit-protected
<i>Passive</i>	3-30 V d.c., max. 110 mA, 1 K $\Omega$ $\leq$ R <sub>load</sub> $\leq$ 10 K $\Omega$
<b>Relay</b>	
<i>Type</i>	Change-over relay
<i>Load</i>	42 V / 2 A peak
<i>Functions</i>	Error level, error number, limit, direction
<b>Digital input</b>	11-30 V d.c.
<i>Functionality</i>	Start/hold/continue batch, zero-point adjust, reset totalizer 1/2, force output, freeze output
<b>Galvanic isolation</b>	All inputs and outputs are galvanically isolated, isolation voltage 500 volts
<b>Cut-off</b>	
<i>Low-flow</i>	0-9.9% of maximum flow
<b>Limit function</b>	Mass flow, volume flow, fraction, density, sensor temperature
<b>Totalizer</b>	Two eight-digit counters for forward, net or reverse flow
<b>Display</b>	Background illumination with alphanumerical text, 3 x 20 characters to indicate flow rate, totalized values, settings and faults.
	Reverse flow indicated by negative sign
<b>Zero-point adjustment</b>	Manual via keypad or remote via digital input
<b>Ambient temperature</b>	Operation: -20°C to +50°C
	During storage: -40°C to +70°C (Humidity max. 95%)
<b>Communication</b>	Prepared for client mounted add-on modules
<b>Enclosure 19"</b>	
<i>Material</i>	Aluminium/steel (DIN 41494)
<i>Rating</i>	IP 20 to IEC 529 and DIN 40050 (1 m w.g. for 30 min.)
<i>Mechanical load</i>	18-1000 Hz random, 3.17G rms, in all directions, to IEC 68-2-36
<b>Supply voltage</b>	115/230 V a.c. +10% to -10%, 50-60 Hz
	18-30 V d.c. or 20-30 V a.c.
<b>Power consumption</b>	230 V a.c.: 9 VA max.
	24 V d.c.: 6 W I <sub>N</sub> = 250 mA, I <sub>ST</sub> = 2 A (30 msec)
<b>EMC performance</b>	
<i>Emission</i>	EN 50081-1 (Light industry)
<i>Immunity</i>	EN 50082-2 (Industry)
<b>Ex-approval</b>	[EEx ia] II C, DEMKO 03 ATEX 135251X
<b>Maintenance</b>	The flowmeter has a built-in error log/pending menu which should be inspected on a regular basis
<b>Fuse</b>	T 400 mA, T 250 V (IEC 127). Not replaceable by operator
<b>Cable</b>	Max. 300 m with cable code no. FDK:083H3005 or FDK:083H3006
	C: max. 300 [pF/m]; L <sub>c</sub> /R <sub>c</sub> : max. 100 [ $\mu$ H/ $\Omega$ ]
	The total cable capacity have to be max. 200 nF

**Intrinsically safe interface**

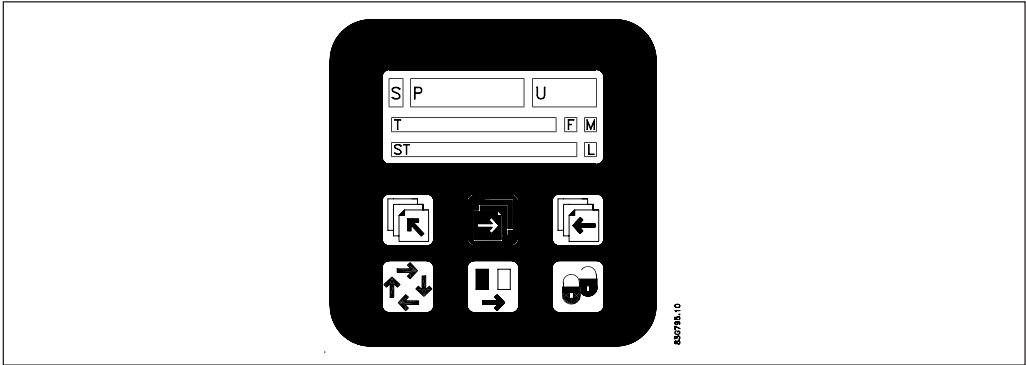
Terminals	81-82	83-84 & 89-90	85-86 & 87-88
U <sub>o</sub> [V]	16	15	15
I <sub>o</sub> [mA]	122	8	15
P <sub>o</sub> [W]	0.55	0.03	0.056
L <sub>o</sub> or [mH]	2 or	10	10
L <sub>o</sub> /R <sub>o</sub> [ $\mu$ H/ $\Omega$ ]	100		
C <sub>o</sub> [nF]	200	200	200

4.3 Output characteristic  
MASS 6000

Output characteristics 0-20 mA	Bidirectional mode		Unidirectional mode	
4-20 mA				
Frequency				
Pulse output				
Relay	Power supply off 		Power supply on 	
Error relay	No error 		Error 	
Limit switch or direction switch	1 set point 		2 set points 	
	Low flow (Reverse flow) 		Intermediate flow 	
	High flow (Forward flow) 		High flow/ Low flow 	
	Batch on digital output 			

5. Commissioning

5.1 Keypad and display layout



Keypad

The keypad is used to set the flowmeter. The function of the keys are as follows:

- TOP UP KEY

This key (hold 2 sec.) is used to switch between operator menu and setup menu. In the converter setup menu, a short press will cause a return to the previous menu.
- FORWARD KEY

This key is used to step forward through the menus. It is the only key normally used by the operator.
- BACKWARD KEY

This key is used to step backward through the menus.
- CHANGE KEY

This key changes the settings or numerical values.
- SELECT KEY

This key selects the figures to be changed.
- LOCK/UNLOCK KEY

This key allows the operator to change settings and gives access to submenus.

Display

The display is alphanumerical and indicates flow values, flowmeter settings and error messages. The upper line is for primary flow readings and will always show either mass flowrate, volume flowrate, density, temperature, totalizer 1 or totalizer 2. The line is divided into 3 fields.

- S: Sign field
- P: Primary field for numerical value
- U: Unit field

The centre line is the title line (T) with individual information according to the selected operator or setup menu.

The lowest line is the subtitle line (ST) which either will add information to the title line or keep individual information independent of the title line.

F: The alarm field. Two flashing triangles will appear by a fault condition.

M: The mode field. The symbols indicate the following.

	Communication mode		Basic settings
	Service mode		Output
	Operator menu		External input
	Product identity		Sensor characteristic
	Language mode		Reset mode

L: The lock field. Indicates the function of the lock key.

	Ready for change		Access to submenu (Press )
	Value locked		RESET MODE: Zero setting of totalizers and initialization of setting



## 5.2 Menu build-up

The menu structure of a specific type of signal converter is shown in a menu overview map. Details of how a specific parameter is set is shown in a menu detail map for the specific parameter. The menu structure is valid for the title and subtitle line only. The upper line is for primary readings only and will always be active with either mass flowrate, volume flowrate, density, temperature, totalizer 1 or totalizer 2.

The menu is built up in two parts. An **operator menu** and a **setup menu**.

### Operator menu

The operator menu is for daily operation. The operator menu is customised in the **operator menu** setup. The signal converter always starts in the **operator menu** no. 1. The page forward and page backward keys are used to step through the operator menus.

### Setup menu

The setup menu is for commissioning and service only.

Access to the setup menu is gained by pressing the top up key for 2 seconds. The setup menu will operate in two modes:

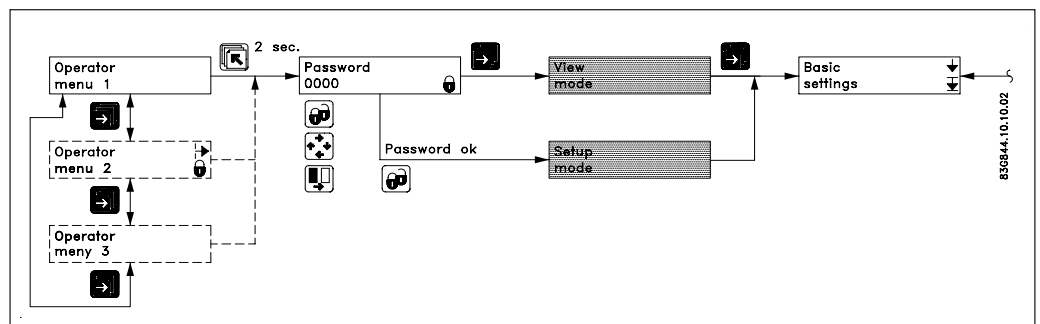
- View mode
- Setup mode

**View mode** is a read only mode. The pre-selected settings can only be scanned.

**Setup mode** is a read and write mode. The pre-selected settings can be scanned and changed. Access to the setup mode is protected with a password. The factory set password is 1000.

Access to a submenu in the set up menu is gained by the lock key. A short press on the top up key will bring you back to the previous menu. A long press (2 sec.) on the top up key will exit the setup menu and bring you back to the operator menu no. 1.

### 5.2.1 Password



The **SETUP MENU** can be operated in two different modes:

**VIEW MODE** (Read only)

**CHANGE MODE** (Read and write mode)

Access to view mode is always gained by pressing the forward key when in the password menu.

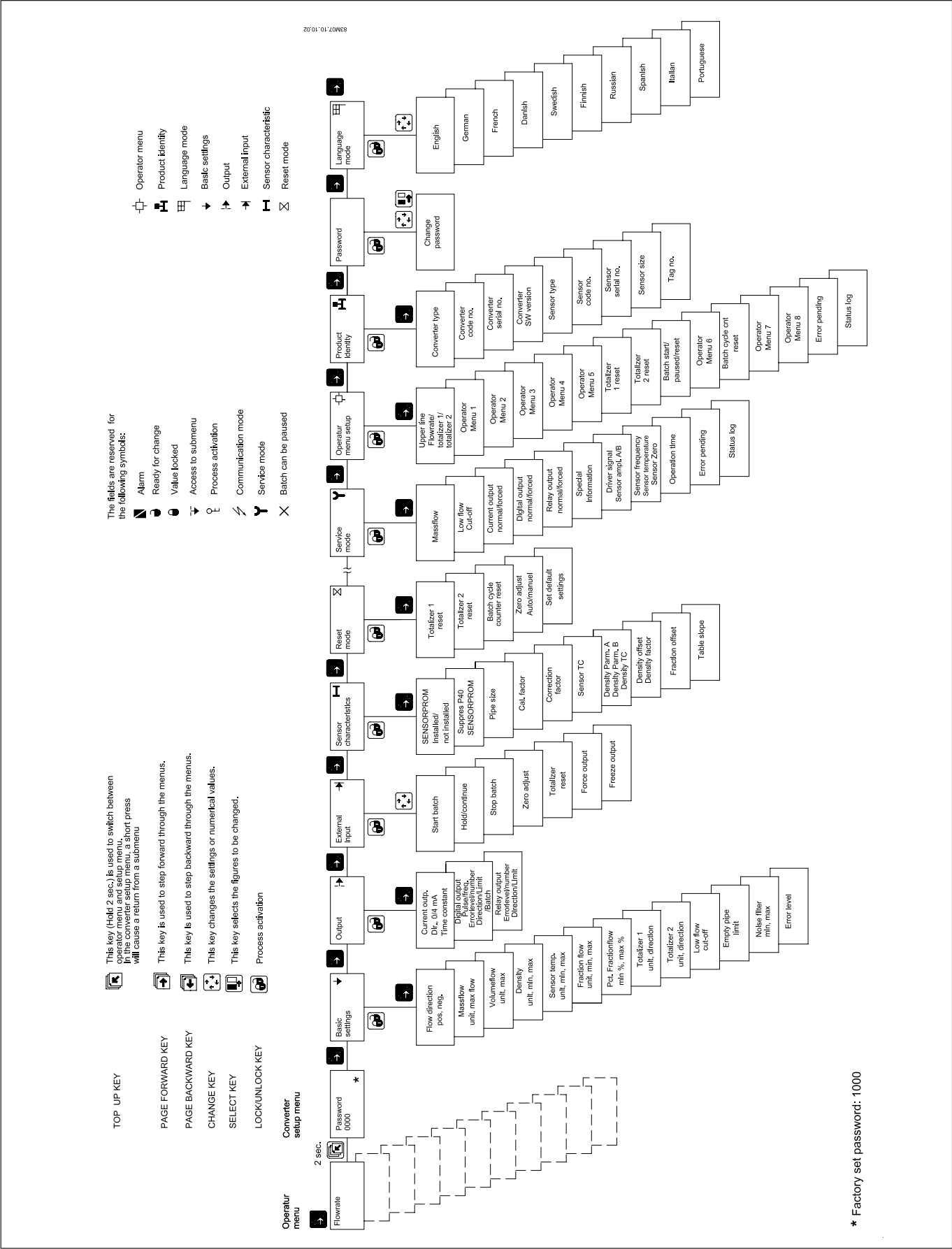
Access to change mode is protected by a user code. The user code is factory set to 1000, but can be changed to any value between 1000 and 9999 in the change password menu.

The factory setting of 1000 can be re-established as follows:

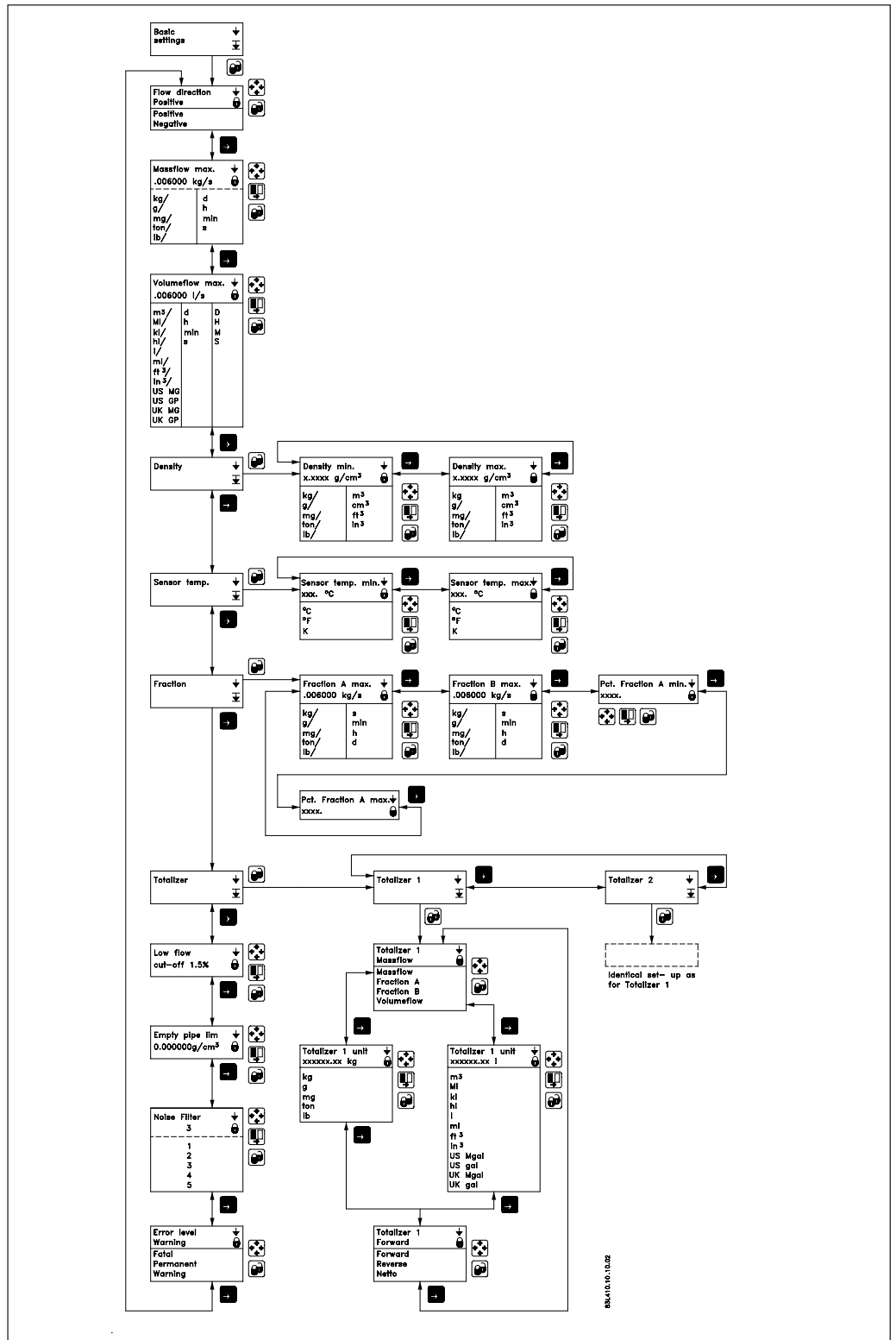
- Switch off power supply
- Press the TOP UP key while switching on the power supply

The user code is now reset to 1000.

5.3 Menu overview



## 5.4 Menu details

*Basic settings menu*

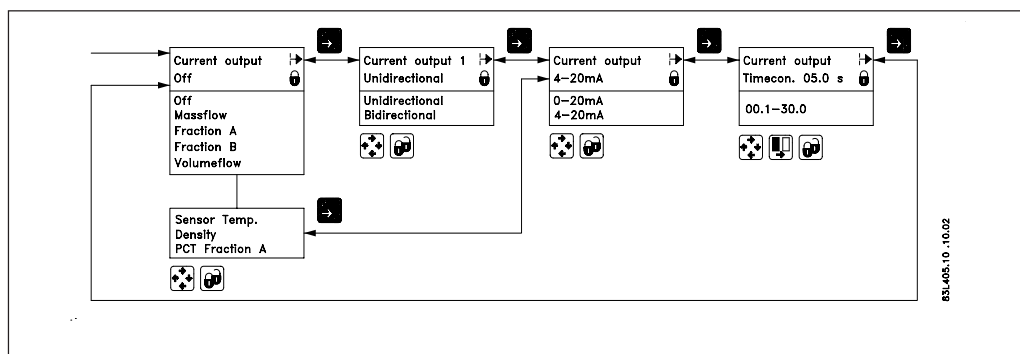
The decimal point for flowrate, totalizer 1 and totalizer 2 can be individually positioned.

- open the respective window.
- ensure that the cursor is positioned below the decimal point. Use the SELECT KEY .
- move the comma to the required position. Use the CHANGE KEY .

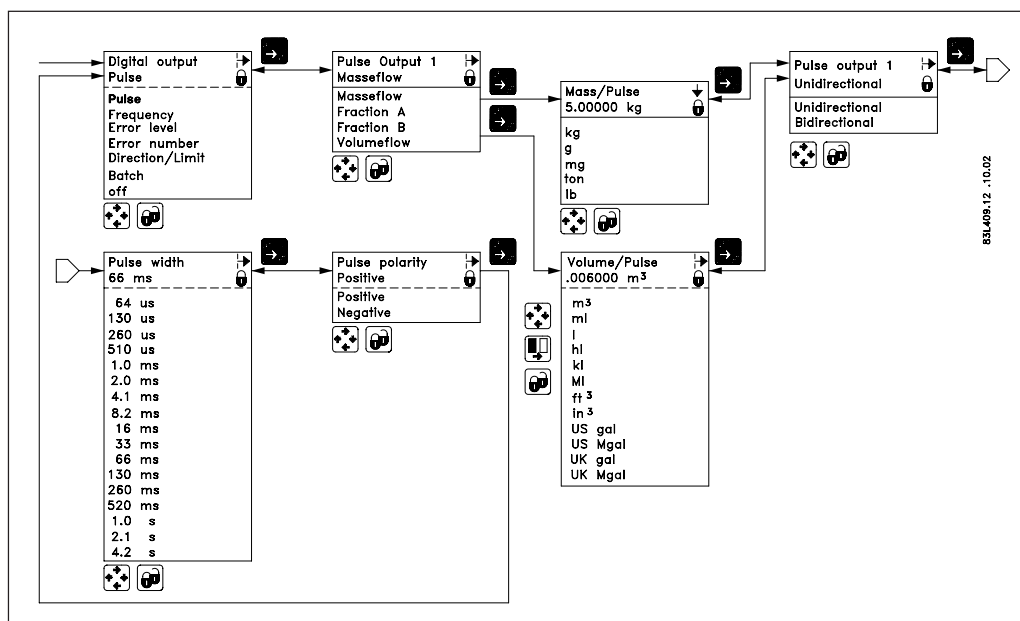
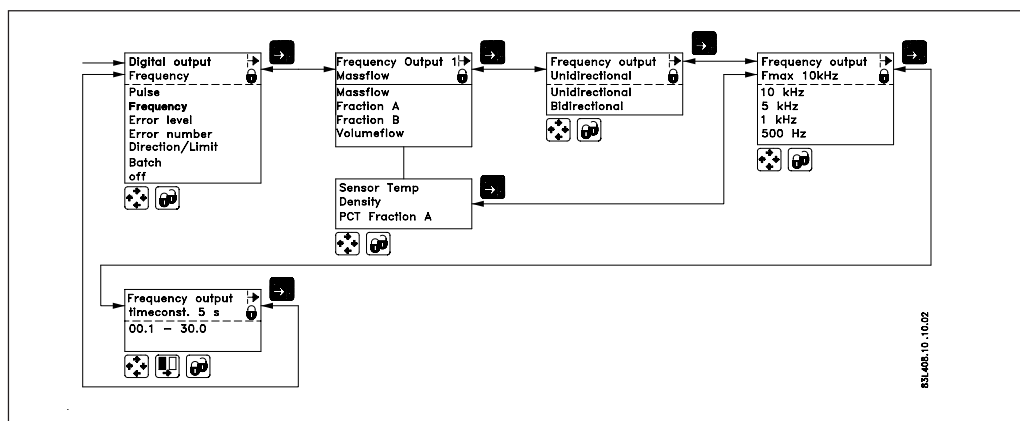
Units are changed by means of the CHANGE KEY with the cursor placed below the unit selected. Select units (moving the cursor) by means of the SELECT KEY .

Totalizer 2 is not visible when batch is selected as digital output.

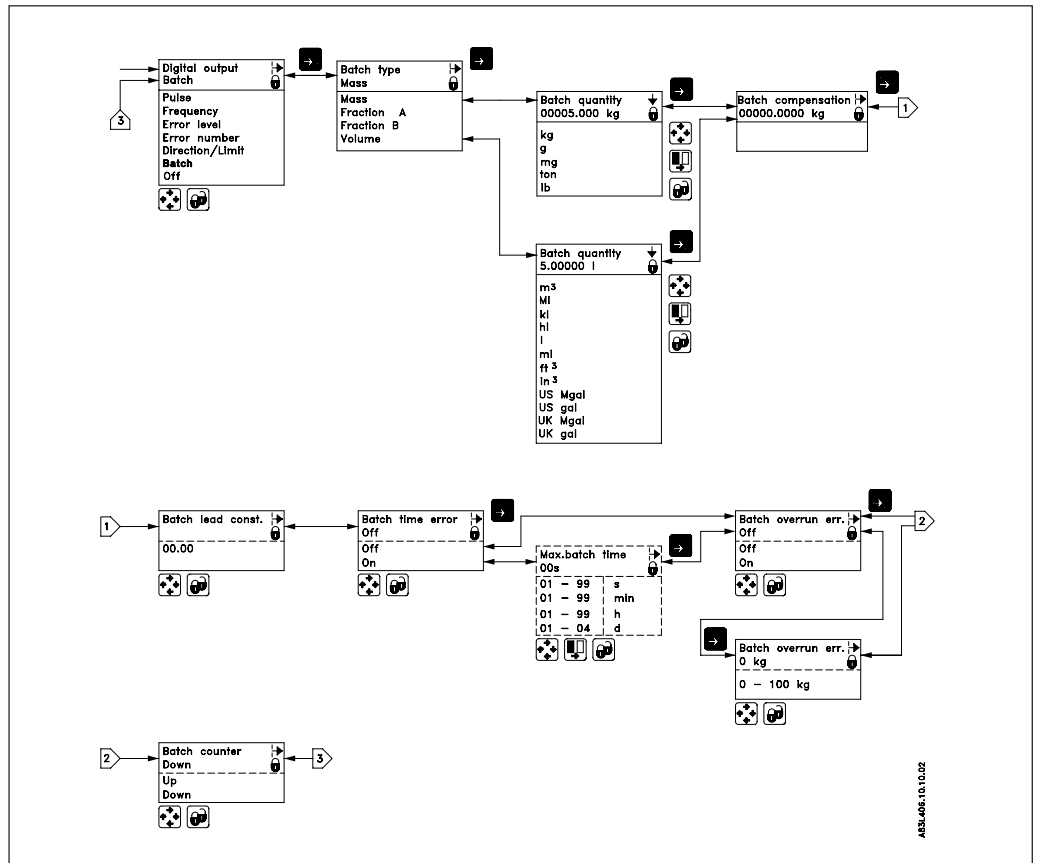
## 5.5 Outputs setting menu

**Current output**

The current output must be set off when not used.

**Digital output  
Pulse****Digital output  
Frequency**

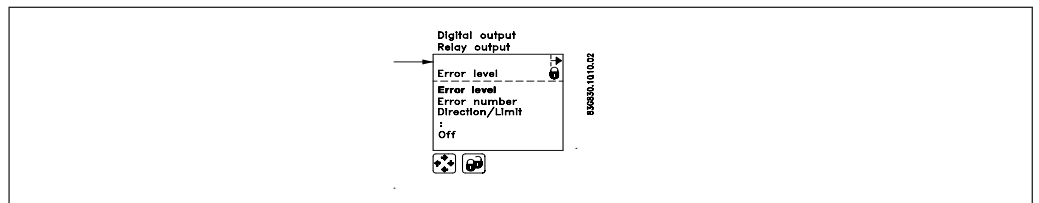
### Digital output Batch



### Relay output

#### Error level

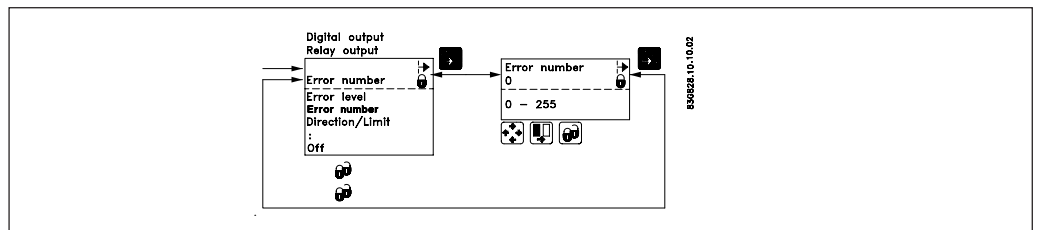
(Also possible through digital output)



Acceptance level is set in the basic settings menu.

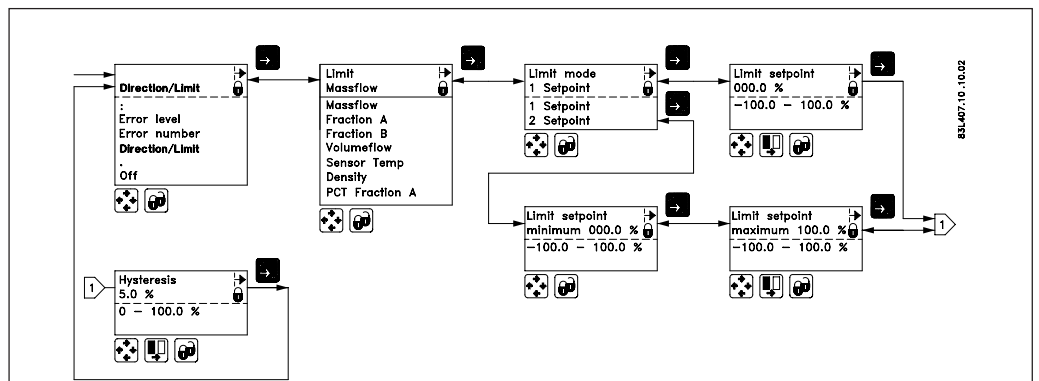
### Error number

(Also possible through digital output)



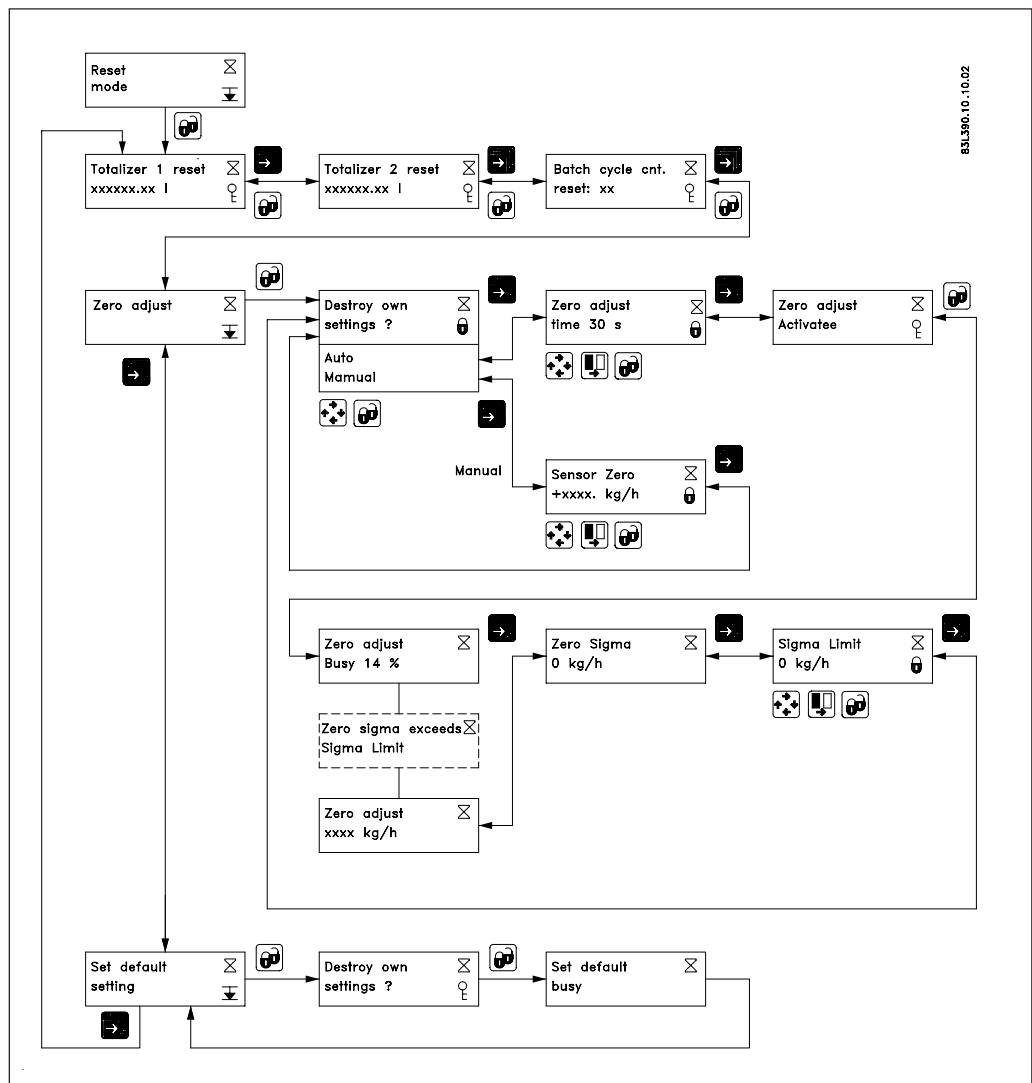
### Limit switch & direction switch

(Also possible through digital output)



**Direction flow:** Select 1 setpoint at zero flow; Hysteresis at 5 %.

## 5.6 Reset mode

**Reset mode**

In the reset mode menu the totalizer 1 and 2 and the batch cycle counter can be reset.

**0-point adjustment**

0-point adjustment of the flow meter is done in the **Zero adjust** menu. The adjustment can be made automatically where the meter measures and calculates the correct 0-point. In manual mode the 0-point can be programmed if this is known. Normally the **Automode** is used.

**Zero adjust time** determines the period of time for the 0-point adjustment. As default a period of 30 sec. is used which normally is enough for a stable 0-point measurement. If however the flowmeter is used where small flow rates are measured very accurately, a longer integration time can be selected, to obtain a better 0-point measurement.

**Setting the 0-point** is carried out by activating **Zero adjust**. A number of individual 0-point adjustments are then made. The 0-point found is shown as **Zero adjust**. The value **Zero Sigma** shows the standard deviation of the individual measurements made. The standard deviation (Zero Sigma) must be within a window, which is predefined by Siemens Flow Instruments. This window is called **Sigma Limit**. If the standard deviation is outside the window the following message is shown in the display: "Zero Sigma exceeds Sigma Limit". In this case check the installation, ensure that the pipe is full and that there is absolute 0-flow present. Then repeat the 0-point adjustment. The new 0-point is automatically stored in the SENSORPROM® and hence will remain at power down situations.

## 6. Service

## 6.1 List of error numbers

Error No.	Error text Remedy text	#Comment	Outputs status	Input status
1	<b>I1 - Power on</b> OK	Power on has activated	Active	Active
2	<b>I2 - Add-on module</b> Applied	A new module has been added to the system	Active	Active
3	<b>I3 - Add-on module</b> Install	An add-on module is defect or has been removed. This can also be an internal add-on module	Active	Active
4	<b>I4 - Param. corrected</b> OK	A less vital parameter in the converter has been replaced by its default value	Active	Active
20	<b>W20 - Totalizer 1</b> Reset manually	During initialisation the check of the saved totalize value has failed. It is not possible to rely on the saved totalizer value any more. The totalizer value must be reset manually in order to rely on future readings	Active	Active
20	<b>W20 - Totalizer 2</b> Reset manually	During initialisation the check of the saved totalize value has failed. It is not possible to rely on the saved totalizer value any more. The totalizer value must be reset manually in order to rely on future readings	Active	Active
21	<b>W21 - Pulse overflow</b> Adjust pulse settings	Actual flow is too big compared with pulse width and mass/pulse	Reduced pulse width	Active
22	<b>W22 - Batch timeout</b> Check installation	Duration of batching has exceeded a predefined max. time	Batch output on zero	Active
23	<b>W23 - Batch overrun</b> Check installation	Batch quantity has exceeded a predefined maximum overrun mass or volume	Batch output on zero	Active
24	<b>W24 - Batch neg. flow</b> Check flow direction	Negative flow direction during batch	Active	Active
30	<b>W30 - Flowsaturated</b> Adjust max. flow	Flow is above $Q_{max}$ settings	Max. 120 %	Active
31	<b>W31 - Empty pipe</b>	Pipe is empty	Zero	Active
32	<b>W32 - Temp. to high</b> Adjust temperature	The temperature of the fluid has exceeded the max. temperature rating of the sensor (180°C)	Active	Active
33	<b>W33 - Temp. to low</b> Adjust temperature	The temperature of the fluid has exceeded the min. temperature rating of the sensor (-50°C)	Active	Active
34	<b>W34 - Zero Adj. fail</b> Check flow = zero	The zero-point adjustment values are outside the limit because there is not zero flow in the sensor. Check zero-flow conditions, valves, pumps etc.	Active	Active
35	<b>W35 - Current Out 1</b> Check max. settings	Current output exceeds 120%. Ensure that the sensor is correctly sized and check max. flow setting	Active	Active
36	<b>W36 - Freq/Pulse Out1</b> Check max. settings	Freq/Pulse output exceeds 120%. Ensure that the sensor is correctly sized and check max. flow setting	Active	Active
40	<b>P40 - SENSORPROM®</b> Insert	SENSORPROM® unit not installed	Active	Active
41	<b>P41 - Parameter range</b> Switch off and on	A parameter is out of range. The error will disappear at the next power-on	Active	Active
42	<b>P42 - Current output</b> Check cables	Current loop is disconnected or the loop resistance is too big	Active	Active
43	<b>P43 - Internal error</b> Switch off and on	Internal error	Active	Active
49	<b>P49 - Protec. viol.</b> Switch off and on	Too many errors occurred at the same time. Some <b>errors</b> are not detected correctly	Active	Active
50	<b>P50 - Temp. cable</b> Check cable	Error in temperature sensor, check cables and connectors	Active	Active
51	<b>P51 - Pick-up 1</b> Check cable/install.	Pick-up 1 amplitude too low. Check cables or application for damping (air/gas in liquid)	Active	Active
52	<b>P52 - Pick-up 2</b> Check cable/install.	Pick-up 2 amplitude too low. Check cables or application for damping (air/gas in liquid)	Active	Active
60	<b>F60 - CAN comm. error</b> Converter/add-on module	CAN bus communication error. An add-on module, the display module or the converter is defect	Zero	Inactive
61	<b>F61 - SENSORPROM® err.</b> Replace	It is not possible to rely on the data in SENSORPROM® unit	Active	Active
62	<b>F62 - SENSORPROM® ID</b> Replace	The SENSORPROM® unit ID do not comply with the product ID. The SENSORPROM® unit is from another type of product SITRANS F C MASSFLO, SITRANS F US SONOFLO etc.	Zero	Inactive
63	<b>F63 - SENSORPROM®</b> Replace	It is not possible to read from the SENSORPROM® unit	Active	Active
70	<b>F70 - Pick-up phase</b>	Check cables/polarity	Active	Active
71	<b>F71 - Driver phase</b>	Check cables/polarity	Active	Active
80-83	<b>F80, 81, 82, 83 - Internal error</b>	Restart or replace	Active	Active
84	<b>F84 - Sensor level</b>	Pick-up amplitude saturated	Active	Active
97	<b>F97 - Add-on module to old</b>	Replace	Active	Active

Error code level:

W = Warning, F = Fatal, P = Permanent

6.2 Troubleshooting  
MASS 6000

Symptom	Output signals	Error code	Cause	Remedy
<b>Empty display</b>	Minimum		1. Supply voltage 2. MASS 6000 defective	1. Check supply voltage 2. Replace MASS 6000
<b>No flow signal</b>	Minimum		1. Current output deselected 2. Digital output deselected 3. Reverse flow direction	1. Activate current output 2. Activate digital output 3. Change direction
		W31	Measuring pipe empty	Ensure that the measuring pipe is full
		F60	Internal error	Replace MASS 6000
	Undefined	P42	1. No load on current output 2. MASS 6000 defective	1. Check cables/connections 2. Replace MASS 6000
		P41	Initializing error	Switch off MASS 6000, wait 5 s and switch on again
<b>Indicates flow with no flow in pipe</b>	Undefined		Measuring pipe empty	Select empty pipe limit Ensure that the measuring pipe is full of liquid
<b>Unstable flow signal</b>	Unstable		1. Pulsating flow 2. Air bubbles in medium 3. Vibrations 4. Pump noise	1. Increase time constant 2. Ensure medium does not contain air bubbles 3. Ensure that the sensor is mounted on a rigid frame without vibrations 4. Ensure that pump frequency is different from resonance frequency of sensor
<b>Measuring error</b>	Undefined		Faulty zero-point	Make new zero-point adjustment
		P40	No SENSORPROM® unit	Install SENSORPROM® unit
		F61	Deficient SENSORPROM® unit	Replace SENSORPROM® unit
		F62	Wrong SENSORPROM® unit	Replace SENSORPROM® unit
		F63	Defective SENSORPROM® unit	Replace SENSORPROM® unit
		F80-83	Loss of internal data	Replace MASS 6000
	Maximum	W30	Flow exceeds 120% of $Q_{\max}$ .	Check $Q_{\max}$ . (Basic Settings)
		W21	Pulse overflow • Mass/pulse too small • Pulse width too large	Change mass/pulse Change pulse width
<b>Loss of totalizer data</b>	OK	W20	Initializing error	Reset totalizer manually



## 7.1 Build-up ordering

☐ Standard versions

MASS 2100 -

## Meter size and process connection

## Pipe thread (only available with type of contact faces 'A')

G 1/4" ISO 228-1, PN 100 .....	1401	1411	1421			
1/4" NPT, ANSI/ASME B 1.20.1, PN 100 .....	1402	1412	1422			
G 1/2" ISO 228-1, PN 100 .....				1433		
1/2" NPT, ANSI/ASME B 1.20.1, PN 100 .....				1434		
G 1" ISO 228-1, PN 100 .....					1445	
1" NPT, ANSI/ASME B 1.20.1, PN 100 .....					1446	
G 2" ISO 228-1, PN 100 .....						1457
2" NPT, ANSI/ASME B 1.20.1, PN 100 .....						1458

## Flange

DN 10, DIN 2635, PN 40 .....	2221					
DN 15, DIN 2635, PN 40 .....	2222	2232				
DN 25, DIN 2635, PN 40 .....		2233	2243			
DN 40, DIN 2635, PN 40 .....			2245	2255		
DN 50, DIN 2635, PN 40 .....				2256		
DN 10, DIN 2637, PN 100 .....	2421					
DN 15, DIN 2637, PN 100 .....	2422	2432				
DN 25, DIN 2637, PN 100 .....		2433	2443			
DN 40, DIN 2637, PN 100 .....			2445	2455		
DN 50, DIN 2637, PN 100 .....				2456		
1/2", ANSI B 16.5, Class 150, (ISO 7005-1, PN 20) .....	3121	3131				
3/4", ANSI B 16.5, Class 150, (ISO 7005-1, PN 20) .....	3122	3132				
1", ANSI B 16.5, Class 150, (ISO 7005-1, PN 20) .....			3143			
1 1/2", ANSI B 16.5, Class 150, (ISO 7005-1, PN 20) .....			3145	3155		
2", ANSI B 16.5, Class 150, (ISO 7005-1, PN 20) .....				3156		
1/2", ANSI B 16.5, Class 600, (ISO 7005-1, PN 100) .....	3421	3431				
3/4", ANSI B 16.5, Class 600, (ISO 7005-1, PN 100) .....	3422	3432				
1", ANSI B 16.5, Class 600, (ISO 7005-1, PN 100) .....			3443			
1 1/2", ANSI B 16.5, Class 600, (ISO 7005-1, PN 100) .....			3445	3455		
2", ANSI B 16.5, Class 600, (ISO 7005-1, PN 100) .....				3456		

## Dairy (only available with type of contact faces 'A')

DN 10, DIN 11851 (screwed connection) PN 40 .....	4221					
DN 15, DIN 11851 (screwed connection) PN 40 .....	4222	4232				
DN 25, DIN 11851 (screwed connection) PN 40 .....		4233				
DN 32, DIN 11851 (screwed connection) PN 40 .....			4244			
DN 40, DIN 11851 (screwed connection) PN 25 .....			4245			
DN 50, DIN 11851 (screwed connection) PN 25 .....				4256		
DN 65, DIN 11851 (screwed connection) PN 25 .....				4257		
25 mm, Clamp, SMS 3016, ISO 2852, BS 4825 part 3, PN 16 .....	5123	5133				
38 mm, Clamp, SMS 3016, ISO 2852, BS 4825 part 3, PN 16 .....			5146			
51 mm, Clamp, SMS 3016, ISO 2852, BS 4825 part 3, PN 16 .....				5158		
25 mm, ISO 2853, SS 3351, BS 4825 part 4 (screwed connection), PN 16 .....	6123	6133				
38 mm, ISO 2853, SS 3351, BS 4825 part 4 (screwed connection), PN 16 .....			6146			
51 mm, ISO 2853, SS 3351, BS 4825 part 4 (screwed connection), PN 16 .....				6158		

## Type of contact faces

For pipe thread / Dairy connection. State 'A' only .....	A
End Flange Facings DIN 2526, form C (PN 40), form E (PN 100)/ANSI B 16.5 (ISO 7005-1) type 11 .....	B
End Flange Facings DIN 2512 Nut form N .....	C
End Flange Facings ANSI B 16.5 (ISO 7005-1) small groove .....	D

## Wetted materials

1.4435 (Stainless steel 316L) .....	0
2.4602 (Hastelloy C-22) (Only available for connections specified as standard versions, exclusive dairy connections) .....	1

## Heated sensor (Except for DI 1.5)

(Hastelloy not available in DI 40)

No heating connection .....	0
Flange heating connection: DIN 2635, PN 40 .....	1
Flange heating connection: ANSI B 16.5 Class 150 .....	2

## Version DI 1.5

Sensor ATEX 1G EEx ia IIC T4-T6 (max. 125°C) .....	2
Sensor ATEX 1G EEx ia IIC T3-T6 (max. 180°C) .....	3

## Versions DI 3, DI 6, DI 15, DI 25, and DI 40

Sensor ATEX 1G EEx ia IIC T3-T6 .....	1
Sensor ATEX 1G EEx ia IIC T3-T6 inclusive compact ATEX 2G EEx de [ia/ib] IIC T6 converter .....	D
Sensor inclusive compact IP 67, 24 V a.c./d.c. converter .....	E
Sensor inclusive compact IP 67, 230 V a.c./d.c. converter .....	F

## Configuration

Standard .....	0
Density .....	1
Brix/Plato .....	2
Fraction flow (specified by customer), contact Siemens Flow Instruments .....	Z

## Flow calibration

Standard calibration included in sensor (3 flow x 2 points) .....	A
Standard calibration, matched pair (3 flow x 2 points; FDK:085F7351) .....	B
Customer specified, matched pair (5 flow x 2 points; FDK:085F7372) .....	C
Accredited calibration (EN 45001), certificate DANAK, matched pair (5 flow x 2 points; FDK:085F7382) .....	D
Customer specified calibration, non matched pair (5 flow x 2 points; FDK:085F7353) .....	E

## Certificate EN 45014 (for wetted parts) (Certificate not available for dairy connections, material 1.4404 or 1.4435)

None .....	0
Pressure testing PED 97/23/EC .....	1
None .....	0
Material certificate EN10204-3.1B .....	1
None .....	0
Welding certificate NDT, X-ray, EN 25817/B (Not possible to get on DI 1.5 and DI 3 sensors) .....	1

## 7.2 Build-up ordering - High pressure versions

## Meter size and process connection

## Pipe thread

G 1/4" ISO 228-1 .....	
1/4" NPT, ANSI/ASME B 1.20.1 .....	
G 1/2" ISO 228-1 .....	
1/2" NPT, ANSI/ASME B 1.20.1 .....	
G 1" ISO 228-1 .....	
1" NPT, ANSI/ASME B 1.20.1 .....	
G 2" ISO 228-1 .....	
2" NPT, ANSI/ASME B 1.20.1 .....	

## Wetted materials

1.4435 (Stainless steel 316L) .....	0
2.4602 (Hastelloy C-22) (not available in DI 40) .....	1

## Heated sensor (Except for DI 1.5)

No heating connection .....	0
Flange heating connection: DIN 2635, PN 40 .....	1
Flange heating connection: ANSI B 16.5 Class 150 .....	2

## Version DI 1.5

Sensor ATEX 1G EEx ia IIC T4-T6 (max. 125°C) .....	2
Sensor ATEX 1G EEx ia IIC T3-T6 (max. 180°C) .....	3

## Versions DI 3, DI 6, DI 15, DI 25, and DI 40

Sensor ATEX 1G EEx ia IIC T3-T6 .....	1
Sensor ATEX 1G EEx ia IIC T3-T6 inclusive compact ATEX 2G EEx de [ia/ib] IIC T6 converter .....	D
Sensor inclusive compact IP 67, 24 V a.c./d.c. converter .....	E
Sensor inclusive compact IP 67, 230 V a.c./d.c. converter .....	F

## Configuration

Standard .....	0
Density .....	1
Brix/Plato .....	2
Fraction flow (specified by customer), contact Siemens Flow Instruments .....	Z

## Flow calibration

Standard calibration included in sensor (3 flow x 2 points) .....	A
Standard calibration, matched pair (3 flow x 2 points; FDK:085F7351) .....	B
Customer specified, matched pair (5 flow x 2 points; FDK:085F7372) .....	C
Accredited calibration (EN 45001), certificate DANAK, matched pair (5 flow x 2 points; FDK:085F7382) .....	D
Customer specified calibration, non matched pair (5 flow x 2 points; FDK:085F7353) .....	E

## Certificate EN 45014 (for wetted parts)

None .....	0
Pressure testing PED 97/23/EC .....	1
None .....	0
Material certificate EN10204-3.1B .....	1
None .....	0
Welding certificate NDT, X-ray, EN 25817/B (Not possible to get on DI 1.5 and DI 3 sensors) .....	1

## Max. pressure

Size	Material	Pressure rating [bar]		
		20°C	180°C	Test pressure at 20°C
DI 1.5	316L	230	200	350
DI 1.5	C-22	365	330	550
DI 3	316L	230	230	350
DI 3	C-22	350	310	525
DI 6	316L	265	250	400
DI 6	C-22	410	350	620
DI 15	316L	130	115	200
DI 15	C-22	200	160	300
DI 25	316L	110	105	170
DI 25	C-22	185	145	280
DI 40	316L	105	95	160
DI 40	C-22	170	130	260

### 7.3 Signal converter 19" Ex-version



Description	Version	Supply voltage	Code no.	Symbol
<b>MASS 6000</b> signal converter, [EEx ia] IIC IP 20 version for 19" rack and panel mounting	1 current output	115-230 V.a.c./50/60Hz	<b>FDK:083H0202</b>	
	1 frq./pulse output	24 V a.c./d.c.	<b>FDK:083H0203</b>	
	1 relay output	24 V a.c./d.c.	<b>FDK:083H0206</b>	
	3 current outputs	115-230 V.a.c./50/60Hz	<b>FDK:083H0207</b>	
<b>MASS 6000</b> signal converter, [EEx ia] IIC 19" version wall mounting enclosure IP 65	1 current output	115-230 V.a.c./50/60Hz	<b>FDK:083H0210</b>	
	1 frq./pulse output	24 V a.c./d.c.	<b>FDK:083H0211</b>	
	1 relay output	24 V a.c./d.c.	<b>FDK:083H0214</b>	
	3 current outputs	115-230 V.a.c./50/60Hz	<b>FDK:083H0215</b>	
	2 frq./pulse outputs	24 V a.c./d.c.		
	2 relay outputs	24 V a.c./d.c.		

### Panel mounting kits

Description	Code no.	Symbol
<b>Panel mounting kit for 19" insert (21 TE)</b> IP 65 enclosure in ABS plastic for panel-front mounting	<b>FDK:083F5030</b>	
<b>Panel mounting kit for 19" insert (42 TE)</b> IP 65 enclosure in ABS plastic for panel-front mounting	<b>FDK:083F5031</b>	
<b>Back of panel mounting kit for 19" insert (21 TE)</b> IP 20 enclosure in aluminium	<b>FDK:083F5032</b>	
<b>Back of panel mounting kit for 19" insert (42 TE)</b> IP 20 enclosure in aluminium	<b>FDK:083F5033</b>	
<b>Front cover (7 TE)</b>	<b>FDK:083F4525</b>	

### Cables

Description	Length	Code no.	Symbol
<b>Cable with multiple plug</b> Standard blue cable between MASS 6000 and MASS 2100 5 x 2 x 0,34 mm <sup>2</sup> twisted and screened in pairs Temperature range minus 20°C to plus 110°C	5 m	<b>FDK:083H3015</b>	
	10 m	<b>FDK:083H3016</b>	
	25 m	<b>FDK:083H3017</b>	
	50 m	<b>FDK:083H3018</b>	
	75 m	<b>FDK:083H3054</b>	
<b>Cable with multiple plug</b> High temperature cable between MASS 6000 and MASS 2100 5 x 2 x 0,34 mm <sup>2</sup> twisted and screened in pairs Temperature range minus 70°C to plus 200°C	150 m	<b>FDK:083H3055</b>	
	5 m	<b>FDK:083H3057</b>	

### Add-on module

(only possible to connect to MASS 6000 versions with 1 current output)

Description	Code no.	Symbol
HART®	<b>FDK:085U0226</b>	
Profibus PA	<b>FDK:085U0232</b>	
CANopen	<b>FDK:085U0228</b>	
DeviceNet	<b>FDK:085U0229</b>	
Profibus DP	<b>FDK:085U0230</b>	
MODBUS	<b>FDK:085U0234</b>	

**7.4 Spare parts for MASS 6000 & MASS 2100****Wall boxes  
(Without back plates/PCB)**

Description	Code no.	Symbol
Wall mounting enclosure for MASS 6000 19" version IP 65 (21 TE)	FDK:083F5037	
Wall mounting enclosure for MASS 6000 19" version IP 65 (42 TE)	FDK:083F5038	

**Backplates/PCB for 19" versions**

Description	Enclosure	Version	Code no.	Symbol
Signal converter [EEx ia] IIC IP 20	19"	12-24 V 115-230 V	FDK:083H4273	
Signal converter [EEx ia] for wall mounting enclosure	Wall unit	12-24 V 115-230 V	FDK:083H4275	

**Connectors**

Description	Code no.	Symbol
Multiple plug for cable mounting	FDK:083H5056	
Adaptor for MASS 2100	FDK:083L5052	

**SENSORPROM® memory unit**

2 kB SENSORPROM® unit (Sensor serial no. and code no. must be specified by ordering)	FDK:083H4410	
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8.0 Download certificates Please go to <http://www.siemens.com/flow>

8.1 EU-declaration of conformity



Flow Instruments A/S  
 DK-6430 Nordborg  
 Denmark  
 Telefon: +45 7488 5252  
 Fax: +45 7449 52 50

EC-DECLARATION OF CONFORMITY

SIEMENS Flow Instruments A/S  
 DK-6430 Nordborg, Denmark

declare under our sole responsibility that the products

**SITRANS F C MASSFLO**  
**MASS6000 19" and IP67 signal converters with option modules and sensors**  
**SITRANS F C MASSFLO**  
**MASS2100**

to which this declaration relates is in conformity with the following directive(s), standard(s) or other normative document(s), provided that it is used according to our instructions:

**ATEX directive 94/9/EC (EXplosive ATmospheres)**  
 EN50014-1997 + A2:1999 General Part  
 EN50020-2002 Intrinsic Safety "i"  
 EN50282-1999 Special requirements for equipment group II , Category I

**EMC directive 89/336EEC**  
 EN50081-1:1992 Electromagnetic compatibility - Generic emission standard  
 Part 1: Residential, commercial and light industry  
 EN50082-2:1995 Electromagnetic compatibility - Generic immunity standard  
 Part 2: Industrial environment

**Low voltage directive 73/23 EEC + amendment 93/68/EEC**

EN61010-1:1993 Safety Requirement for Electrical Equipment for Measuring,  
 + A2:1995 Control and Laboratory use.

The tests are documented in the following reports:  
 083R0183, 083R0177, DEMKO no. 126994 project no. 99-04073  
 083R0258, ATEX 132457X MASS6000

Date	Issued by:	Date	Approved by:
2003-09-01	 Gert Jørgensen	2003-09-01	 Michael Tønnes, Head of department

G:\Teams\CAD\MASS\active\083R\083R0174

I0005-003-671

## 8.2 EC type examination certificate

## [1] EC-TYPE EXAMINATION CERTIFICATE



[2] Equipment or Protective System intended for use  
in Potentially Explosive Atmospheres  
Directive 94/9/EC

[3] EC-Type Examination Certificate Number: DEMKO 03 ATEX 135251X

[4] Equipment or Protective System: SITRANS F C MASSFLO, MASS 6000 19" rack.

[5] Manufacturer: Siemens Flow Instruments A/S

[6] Address: Nordborgvej 81, 6430 Nordborg, Denmark

[7] This equipment or protective system and any acceptable variation there to is specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. 135251

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
EN 50014: 1997 E incl. A1+A2; EN 50020: 2002 E

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EC-Type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by the certificate.

[12] The marking of the equipment or protective system shall include the following:

 II (1)G [EEx ia] IIC

On behalf of UL International Demko A/S

Herlev, 2003-09-01

  
Karina Christiansen  
Certification Manager

**UL International Demko A/S**

Lyskaer 8, P.O. Box 514  
DK-2730 Herlev, Denmark  
Telephone: +45 44856565  
Fax: +45 44856500

Certificate: 03 ATEX 135251X

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## 8.2 EC type examination certificate (continued)

## [1] EC-TYPE EXAMINATION CERTIFICATE



[2] Equipment or Protective System intended for use  
in Potentially Explosive Atmospheres  
Directive 94/9/EC

[3] EC-Type Examination Certificate Number: DEMKO 03 ATEX 135252X

[4] Equipment or Protective System: SITRANS F C MASSFLO MASS 2100- DI 1.5; DI 3; DI 6; DI 15; DI 25; DI 40.

[5] Manufacturer: Siemens Flow Instruments A/S

[6] Address: Nordborgvej 81, 6430 Nordborg, Denmark.

[7] This equipment or protective system and any acceptable variation there to is specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S, notified body number 0539 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. 135252

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014: 1997 E incl. A1+A2      EN 50020: 2002 E      EN50284: 1999 E

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EC-Type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by the certificate.

[12] The marking of the equipment or protective system shall include the following:

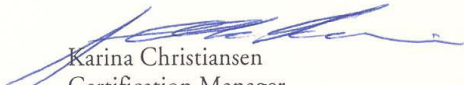


II 1G

EEx ia IIC T3-T6

On behalf of UL International Demko A/S

Herlev, 2003-09-01

  
Karina Christiansen  
Certification Manager

**UL International Demko A/S**

Lyskaer 8, P.O. Box 514  
DK-2730 Herlev, Denmark  
Telephone: +45 44856565  
Fax: +45 44856500

Certificate: 03 ATEX 135252X

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entirety and without any change, schedule included



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We have checked the contents of this manual for agreement with the hardware and software described. Since deviations cannot be precluded entirely, we cannot guarantee full agreement. However, the data in this manual are reviewed regularly and any necessary corrections included in subsequent editions. Suggestions for improvement are always welcomed.

Technical data subject to change without prior notice.

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