

## **MASS6000 fraction flow display and settings**

### **1. scope of MASS6000 fraction functionality:**

MASS6000 can provide the following fraction data :

Parameter	Description	Settings
Pct. Fraction A *1	fluid A concentration in %, 0 – 100%	min. and max. scale must be entered in the Basic settings submenu Fraction, when directing the parameter to an output, default is 0 – 100 %
Fraction A *2	Fraction A flow	full scale flow and unit must be entered in Basic settings sub-menu Fraction, default is massflow max. scale and massflow unit
Fraction A text *3	Fraction A fluid text  must be specified by the customer when ordering a fraction meter, the text string can contain 14 characters max.	
Fraction A % *4	Fraction A flow displayed in % of fs. flow	full scale flow and unit must be entered in Basic settings sub-menu: Fraction, default is massflow max. scale and massflow unit
Fraction B	Fraction B flow	full scale flow and unit must be entered in Basic settings sub-menu Fraction, default is massflow max. scale and massflow unit
Fraction B text	Fraction B fluid text  must be specified by the customer when ordering a fraction meter, the text string can contain 14 characters max.	
Fraction B %	Fraction B flow displayed in % of fs. flow	full scale flow and unit must be entered in Basic settings sub-menu Fraction, default is massflow max. scale and massflow unit

\*1: in case the sensor is configured for °Brix/°Plato measurement, Pct. Fraction A will give the °Brix/°Plato value

\*2: in case the sensor is configured for °Brix/°Plato measurement, Fraction A flow will give the sugar part flow

- \*3: in case the sensor is configured for °Brix/°Plato measurement, Fraction A Text will be named “°Brix (°Plato)”
- \*4: in case the sensor is configured for °Brix/°Plato measurement, Fraction A % will give the sugar part flow expressed in % of full scale

## **2. Display settings:**

There are several ways to have the fraction values displayed and sent to the outputs:

### **Display:**

#### **Display upper line:**

Fraction A (flow), Fraction B (flow) and Pct. Fraction A (concentration) can be displayed in the display upper line :

enter MASS6000 menu -> operator menu -> upper line sub menu -> select the parameter to be displayed....)....these settings also require proper settings in the Basic settings menu -> Fraction

#### **Display mid or lower line:**

Fraction A text, Fraction A, Fraction A %, Fraction B text, Fraction B, Fraction B % can be displayed in the mid line or the bottom line:

enter MASS6000 menu -> operator menu -> upper line -> sub line menu (menu following the upper line menu) -> select the parameter to be displayed....)....these settings also require proper settings in the Basic settings menu -> Fraction

## **3. Output settings:**

### **Current output:**

Fraction A (flow), Fraction B (flow) and Pct. Fraction A (concentration) can be directed to the current output:

enter MASS6000 menu -> output menu -> current output -> select the parameter to be indicated by the output (further you have to select output settings: uni/bidirectional, 0-20/4-20 mA and time constant)....these settings also require proper settings in the Basic settings menu -> Fraction

### **Digital output (pulse output selected):**

Fraction A (flow), Fraction B (flow) can be directed to the digital output, when pulse mode is selected:

enter MASS6000 menu -> output menu -> digital output -> choose pulse output -> select the parameter to be indicated by the output (further you have to select output settings: mass/pulse, quadrature, pulse with and polarity)... )....these settings also require proper settings in the Basic settings menu -> Fraction

**Digital output (frequency output selected):**

Fraction A (flow), Fraction B (flow) and Pct. Fraction A (concentration) can be directed to the digital output when frequency mode is selected:

enter MASS6000 menu -> output menu -> digital output -> choose frequency output -> select the parameter to be indicated by the output (further you have to select output settings: uni/bidirectional, f\_max and time constant).... )....these settings also require proper settings in the Basic settings menu -> Fraction

***4. Totalizer settings:***

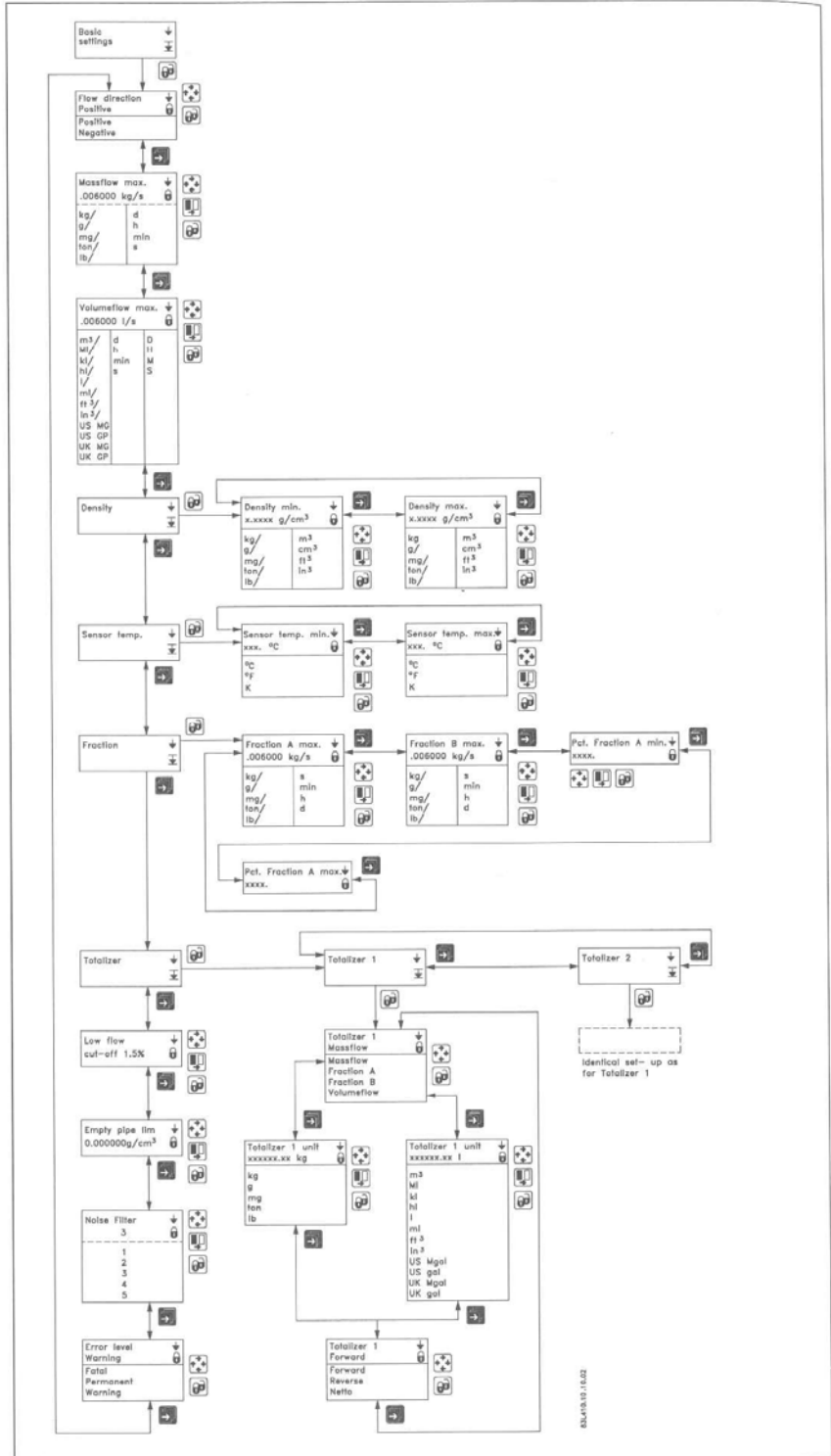
**Totalizers:**

Totalizer 1 and 2 can be used for summing fraction A and Fraction B flow

enter MASS6000 menu -> Basic Settings menu -> totalizer 1/2 -> select the parameter to be totalized -> further you have to select totalizer unit and mode (forward, reverse, net).... )....these settings also require proper settings in the Basic settings menu -> Fraction

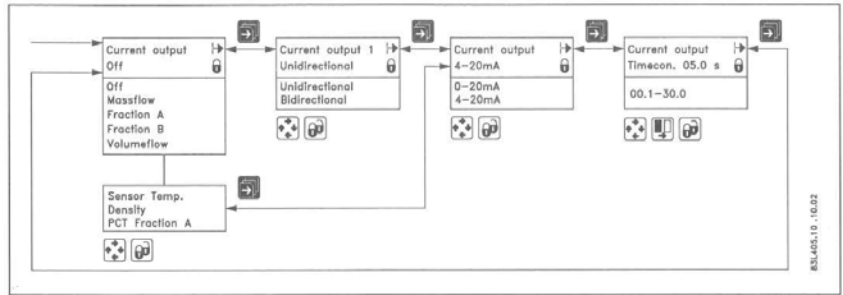
## 5. MASS6000 menu structure:

### 7.4 Basic settings



### 7.5.1 Outputs setting menu

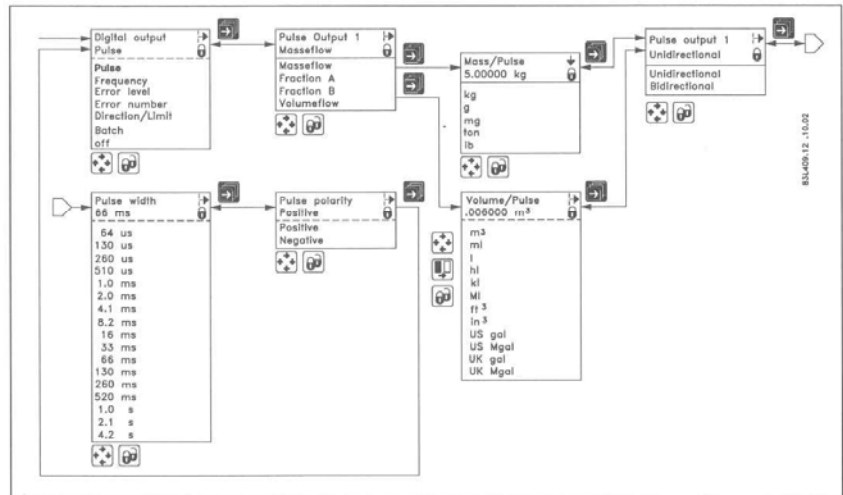
#### Current output



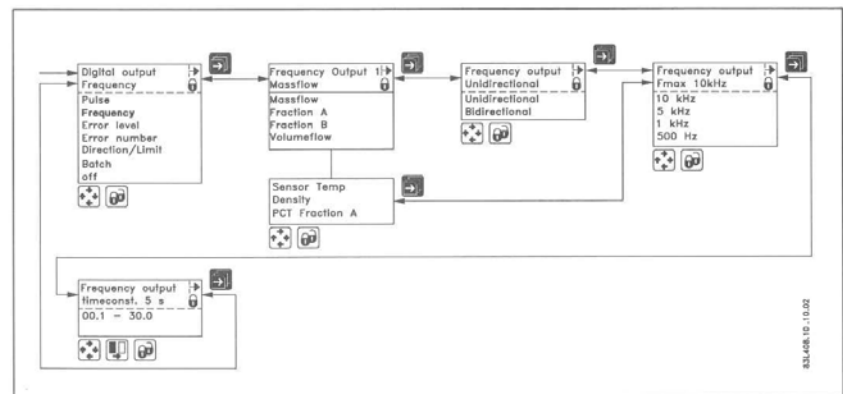
The current output should be set off when not used, otherwise an error will be pending if the meter detects an open loop.

#### Digital output Pulse

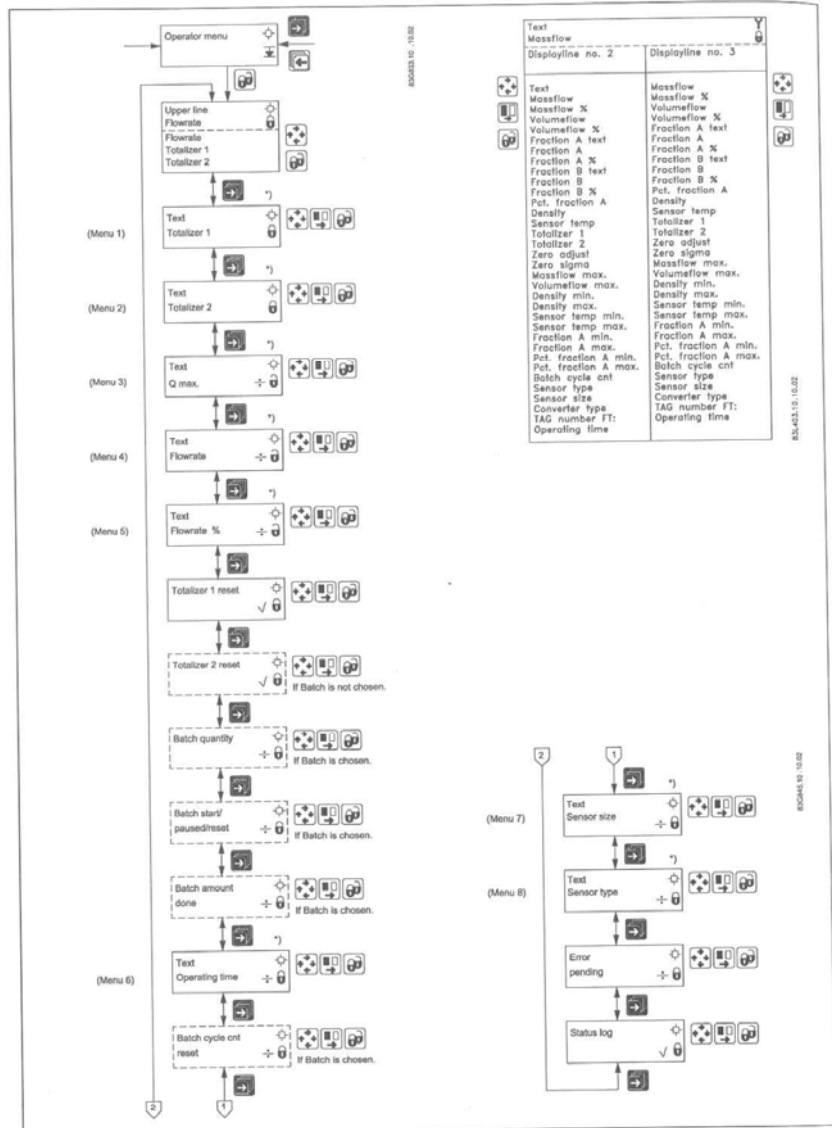
The digital output menu can be used for generating a frequency proportional output signal, for pulse signal (totalizing), indicating error level/number, limit or flow direction or as batch output. Only one function can be implemented for each output section.



#### Digital output Frequency



## 7.5.7 Operator menu setup



The upper line is always active and can never be deselected.

The two lower lines are for individual operator information. The forward key is used by the operator to scroll through information.

- A closed lock key in the operator menu setup, means that the menu is enabled when viewing the operator menu.
- A open lock key symbol, means that the menu is not available in the operator menu.

The middle line can either be used as a heading "Text line" for the lower line, or as a value reading. A flow reading can be individually selected for each menu.

The lower line may be used for an additional flow reading to the reading already available in the upper line.

## 6. Example with fraction settings:

Fraction A, Fraction B and Pct. Fraction A settings:

Fraction A and B flow are measured as massflow and will default have the same max. value and unit as the massflow itself. If the sensor e.g. is a MASS2100 DI40, the default setting for massflow and Fraction A and B flow are 15000 kg/h. In case you have a higher flow rate, you must adjust the massflow max. accordingly. If the fraction concentration can vary between 0 and 100%, you must select Fraction A and B max. flow to the same max. value as the mass flow, otherwise there is a risk that you will get a fraction A or B overflow.

As an example you can think of a situation where the max. massflow is 15000 kg/h and the Fraction A concentration operating range 0- 20% (never higher than 20%). Hence the fraction A flow will always be in the range 0 - 3000 kg/h (never higher than 3000 kg/h) and the fraction B operating range will be 80 - 100% or 12000 to 15000 kg/h. In that case, you can enter the Fraction A max. flow as 3000 kg/h and the Fraction B flow as 15000 kg/h.

When having Fraction A or B flow sent to the current output, the min. value will correspond to 0/4 mA and the max. value will correspond to 20 mA.

When having Fraction A or B flow sent to the frequency output, the min. value will correspond to 0 Hz and the max. value will correspond to the selected max. output frequency (500/1000/2000/5000/10000 Hz).

When having Pct. Fraction A (the concentration value) sent to an output, a value equal to the selected Pct. Fraction A min. will give 0/4 mA and a value equal to the selected Pct. Fraction A max. will give 20 mA.

### MASS6000 Cut-off functionality and fraction flow :

Cut-off works individually on Massflow, Fraction A Flow and Fraction B flow.

Example:

Massflow, Fraction A flow and Fraction B flow fs. are set to 15000 kg/h. Concentration is 25%, cutoff setting is 5%:

massflow rate [kg/h]	fraction A flow rate [kg/h]	fraction B flowrate [kg/h]
15000	3750	11250
5000	1250	3750
3000	Lower than 750 kg/h => 0	2250
2500	0	1875
1000	0	750
900	0	Lower than 750 kg/h => 0
750	0	0
Lower than 750 => 0	0	0