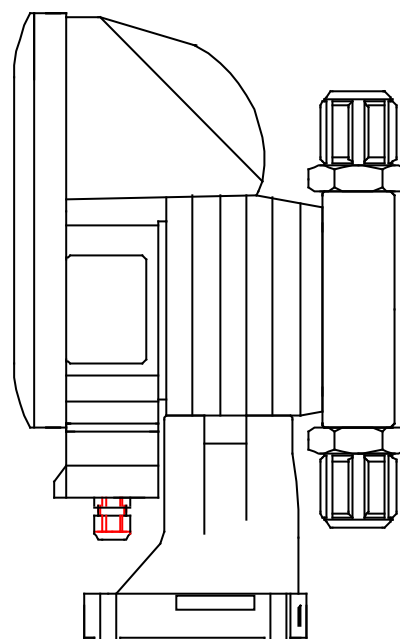
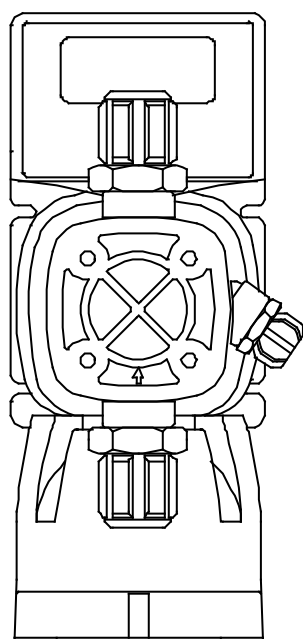


# **РУКОВОДСТВО ПО ЭКСПЛУАТАЦИИ**

## **TEKNA DPG**

(cod. EM00136004)

**Электромагнитный дозирующий насос  
пропорционального типа с цифровым управлением**



## РЕКОМЕНДАЦИИ ПО УСТАНОВКЕ И ЗАПУСКУ НАСОСА ТЕКНА серии DPG

**ВНИМАНИЕ:** ПЕРЕД ИСПОЛЬЗОВАНИЕМ ИЗДЕЛИЯ, ОБРАТИТЕ ВНИМАНИЕ НА ДАННЫЕ, ПРИВЕДЕННЫЕ НА ЭТИКЕТКЕ.

Образец:

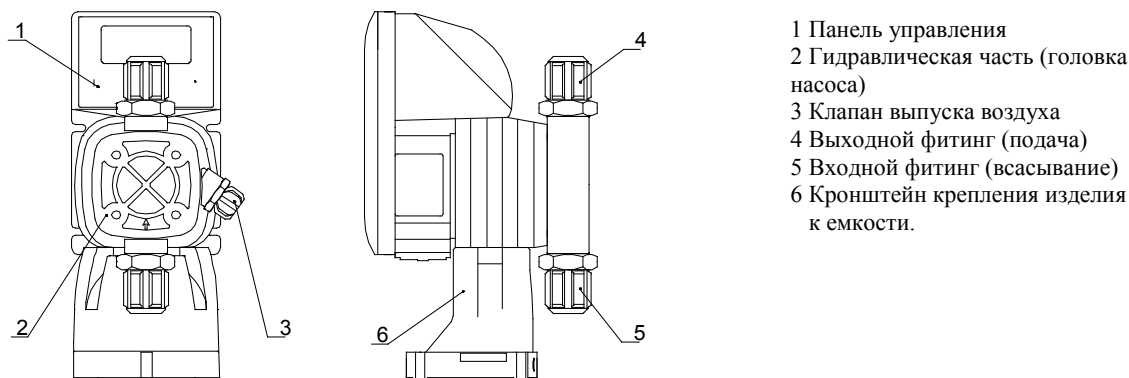
ТЕКНА			400 Spm	
Type	bars	l/hr	Gph	Psi
DPG902 230VAC 50/60 Hz 40 W Fuse 2 A L	<b>10</b>	<b>10</b>	2.64	145
	<b>6</b>	<b>12</b>	3.17	87
	<b>2</b>	<b>15</b>	3.96	29
	Code <b>DPG902ASP0000</b>		Serial n° xxxxxxxx	

ТАБЛИЦА ДЛЯ ВЫБОРА МОДЕЛИ ИЗДЕЛИЯ:

Модель	Давление	Производительность	Объем дозируемой жидкости за впрыск	Соединительный размер	Кол-во впрысков/мин	Вес
	атм	л/час		Вход /Выход		кг
DPG601	12	1.5	0.06	4 / 6	400	1.7
	10	2	0.08			
	6	2.5	0.10			
DPG602	8	5	0.21	4 / 6	400	1.7
	5	6	0.25			
	1	9	0.38			
DPG901	16	6	0.25	4 / 6	400	3.1
	14	7	0.29			
	12	8	0.33			
DPG902	10	10	0.42	4 / 6	400	3.1
	6	12	0.50			
	2	15	0.63			
DPG903	5	25	1.04	8 / 12	400	3.2
	4	40	1.67			
	3	50	2,08			
DPG904	2	60	2.50	8 / 12	400	3.2
	1	80	3.33			
	0	100	4.17			

## **ВВОДНАЯ ЧАСТЬ**

Изделие представляет собой электромагнитный механизм, управляемый при помощи внутренней электрической цепи, и гидравлической части.



Части изделия, контактирующие с дозируемой жидкостью, изготовлены из материала стойкого к химическому воздействию большей части, используемых в природе химических элементов. Однако, перед эксплуатацией изделия, настоятельно рекомендуется проконсультироваться с производителем или его представителем, относительно химической совместимости дозируемой жидкости (химиката) с изделием. Стойкость материалов к химическому воздействию, зависит от множества факторов, и главным образом, от условий эксплуатации. Необходимо учесть, что агрессивность химического раствора отлична от агрессивности входящих в него, отдельных компонентов, и в некоторых случаях, предоставляя информацию о химической совместимости материалов, производитель не гарантирует положительного результата. При малейших сомнениях, рекомендуется произвести предварительные тесты.

### **Компоненты гидравлической части и их материалы**

Головка насоса:	PP (полипропилен)
Коннекторы:	PP (полипропилен)
Диафрагма:	PTFE (тефлон)
Сферические клапаны:	PYREX (стекло теплостойкое промышленное)

### **Комплектация изделия**

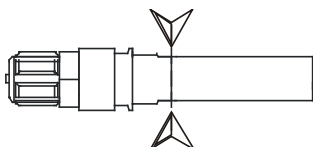
В комплекте с изделием поставляются все аксессуары, необходимые для его монтажа.

- Всасывающий клапан с фильтром в сборе
- Клапан впрыскивания в сборе
- Всасывающая трубка (прозрачная)
- Подающая трубка (прозрачная)
- Трубка клапана выпуска воздуха (белая)
- Набор крепежных винтов
- Кронштейн крепления изделия к емкости
- Данное руководство по эксплуатации

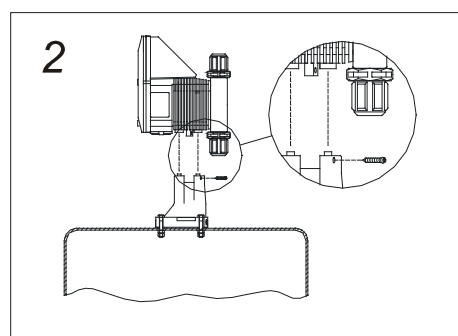
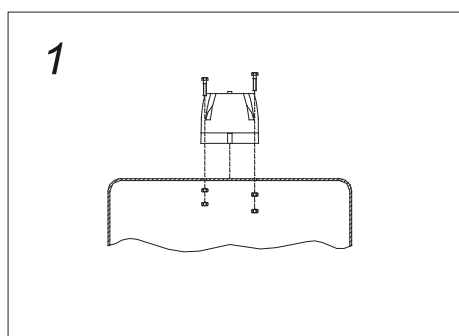
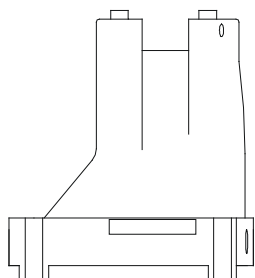
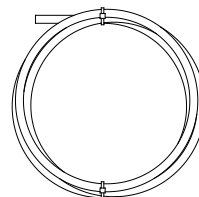
*Всасывающий клапан с фильтром*



*Клапан впрыскивания*



*Трубки ( всасывание, подача, клапана выпуска воздуха)*



Преимущество кронштейна крепления изделия к емкости, состоит в том, что смонтировав раз изделие на поверхности емкости, можно обслуживать его, избегая дальнейшего контакта с содержимым емкости.



**ВНИМАНИЕ**

***Соблюдайте осторожность при использовании изделия.***

#### **МЕРЫ ПРЕДОСТОРОЖНОСТИ ПРИ УСТАНОВКЕ И ОБСЛУЖИВАНИИ ИЗДЕЛИЯ**

##### **- H<sub>2</sub>SO<sub>4</sub> СЕРНАЯ КИСЛОТА**

- Данное изделие было испытано с водой. При дозировании некоторых химикатов (на пример серная кислота), возможна нежелательная реакция с остатками воды в гидравлической части изделия. Поэтому тщательно высушите гидравлическую часть изделия (головку насоса, диафрагму). Для этого, изделие должно предварительно проработать несколько минут «всухую» (без всасывания дозируемой жидкости), в режиме максимальной производительности с опущенной вниз трубкой подачи, до момента когда из трубки не вытекут последние капельки воды.

- Установите изделие в месте, где температура окружающей среды не превышает 40°C и относительная влажность ниже 90%. Чтобы избежать повышения температуры внутри изделия, не устанавливайте его под прямыми солнечными лучами. Корпус изделия достаточно водостойкий и пылеотпорный, что позволяет использовать его вне помещения. Не погружайте изделие в воду.
- Установите изделие в месте, удобном для его дальнейшего обслуживания. Хорошо укрепите изделие, во избежание вибрации.
- Удостоверьтесь, что напряжение питающей электрической сети, соответствует значению, указанному на этикетке изделия.
- **ВНИМАНИЕ: ПЕРЕД ВЫПОЛНЕНИЕМ КАКИХ ЛИБО РАБОТ ПО РЕМОНТУ ИЛИ ОБСЛУЖИВАНИЮ ИЗДЕЛИЯ, УБЕДИТЕСЬ, ЧТО ИЗДЕЛИЕ ОТСОЕДИНЕНО ОТ ВНЕШНЕЙ ЭЛЕКТРИЧЕСКОЙ СЕТИ, ВСЕ КЛАПАНЫ ИЗДЕЛИЯ ЗАКРЫТЫ, А ТАКЖЕ СТРАВЛЕНО ВСЕ ДАВЛЕНИЕ КАК ИЗ ИЗДЕЛИЯ, ТАК И ИЗ ПОДАЮЩЕЙ И ВСАСЫВАЮЩЕЙ МАГИСТРАЛИ.**
- При обслуживании изделия, используйте защитную одежду, перчатки и защитные очки.
- При использовании изделия в системах под давлением, удостоверьтесь, что давление системы не превышает максимально допустимого значения, приведенного на этикетке изделия.

### **МОНТАЖ**

Изделие должно быть установлено в месте, где обеспечивается легкий доступ как к емкости с химикатом, так и к точке его впрыскивания. Изделие имеет высокий класс защиты IP65 и поэтому, может эксплуатироваться вне помещения.

- Установите изделие в месте, где температура окружающей среды не превышает 40°C и относительная влажность ниже 90%. Чтобы избежать повышения температуры внутри изделия, не устанавливайте его под прямыми солнечными лучами.

### **ЭЛЕКТРИЧЕСКАЯ ЧАСТЬ**

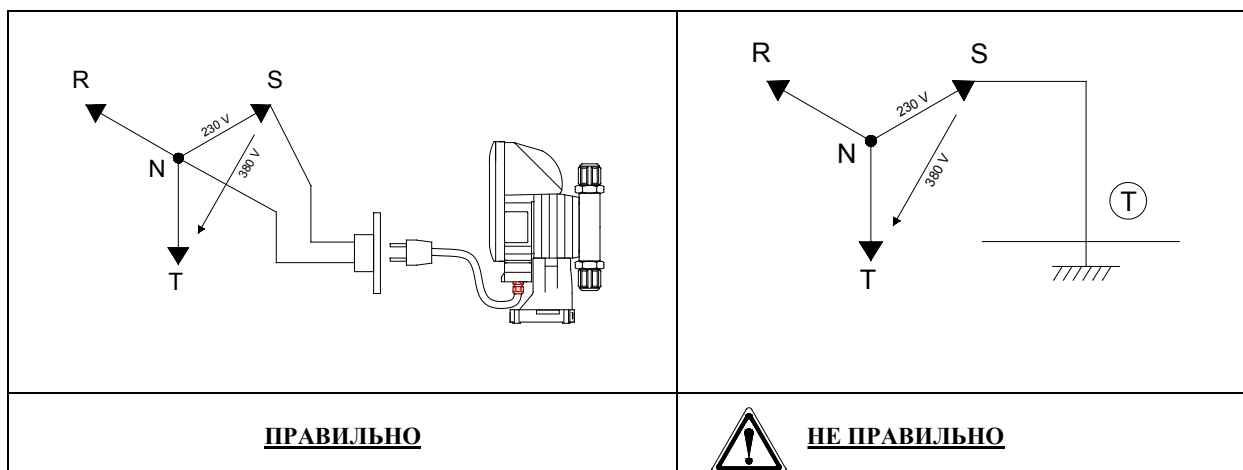
Изделие должно быть подсоединено к внешнему источнику электрического питания, параметры которого соответствуют данным, приведенным на этикетке изделия.

Насосы TEKNA не требуют заземления, так как в них используются компоненты с двойной электрической изоляцией

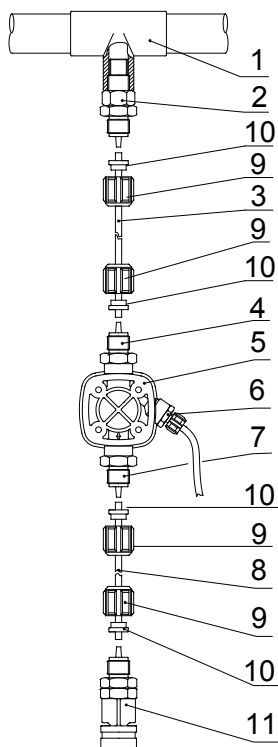
Внутренняя электрическая цепь изделия, спроектирована так, что позволяет выдерживать некоторые скачки напряжения внешней питающей сети.

Не устанавливайте изделие вблизи электрического оборудования, вырабатывающего большое электрическое напряжение.

Если подключение питающего напряжения осуществляется от трехфазной сети 380 В, необходимо использовать провода «+» и «0». Не используйте вместо провода «0» провод «земля».

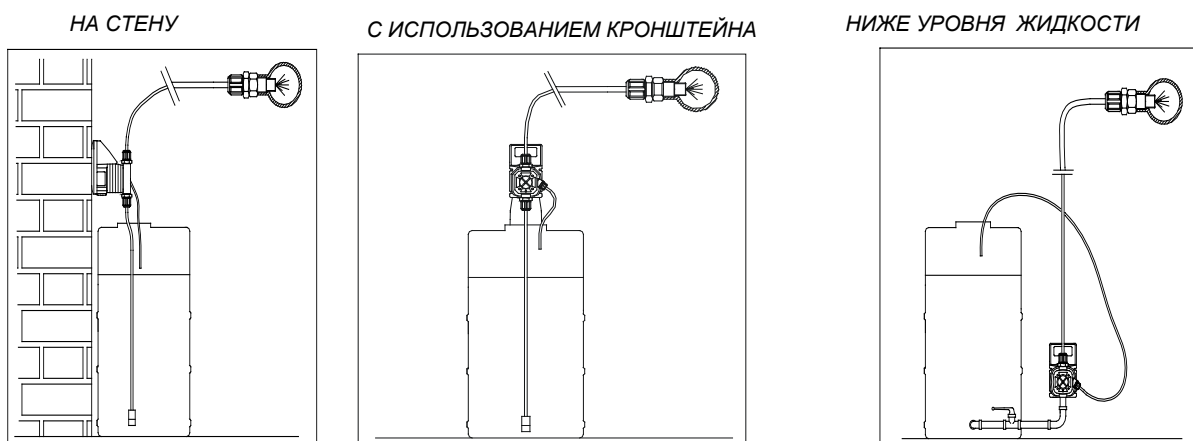


## **ГИДРАВЛИЧЕСКИЕ СОЕДИНЕНИЯ**



- 1 Точка впрыскивания
- 2 Клапан впрыскивания
- 3 Прозрачная подающая трубка
- 4 Выпускной фитинг
- 5 Гидравлическая часть
- 6 Клапан выпуска воздуха
- 7 Всасывающий фитинг
- 8 Прозрачная всасывающая трубка
- 9 Соединительный фитинг.
- 10 Соединительное кольцо
- 11 Всасывающий клапан с фильтром

### **ТИПОВОЙ МОНТАЖ**



Всасывающий клапан с фильтром должен быть обязательно установлен, во избежание засорения в гидравлической части изделия. Установите всасывающий клапан с фильтром на уровне 5-10 см от дна емкости с дозируемым химикатом, чтобы предохранить забивание фильтра механическими загрязнениями, осевшими на дне емкости.

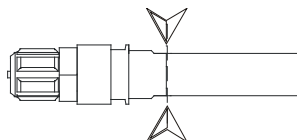
Монтаж ниже уровня жидкости является наиболее предпочтительным, так как обеспечиваются оптимальные условия для всасывания дозируемой жидкости изделием. Этот тип монтажа рекомендован для насосов с низкой производительностью и при использовании химикатов, подверженных образованию воздушных пузырей.

Используйте для соединений, прилагаемые трубки. В случае, если потребуются более длинные трубки, убедитесь, что новые трубки имеют те же параметры (ID и OD), что и в комплекте поставки.

Если трубка клапана выпуска воздуха может быть подвергнута попаданию прямых солнечных лучей, вместо поставляемой белой трубки, рекомендуется использовать трубку черного цвета. Обратитесь за этим к фирме-производителю или к ее представителю на месте.

Для обеспечения правильного дозирования, на линии подачи должен быть установлен впрыскивающий клапан.

Впрыскивающий клапан поставляется в версии с удлинителем. Если удлинитель не нужен, осторожно обрежьте его, как показано на рисунке.



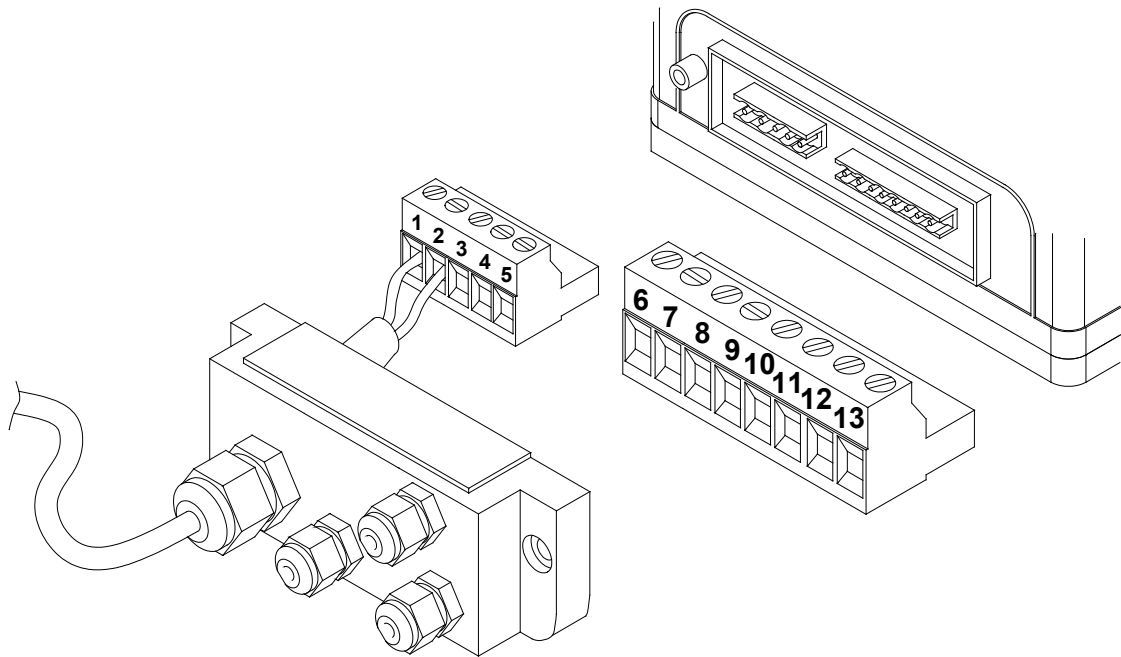
### ШАБЛОНЫ ДЛЯ КРЕПЛЕНИЯ

Монтажный кронштейн	TEKNA серии 600	TEKNA серии 900

### ГАБАРИТНЫЕ РАЗМЕРЫ

TEKNA series 600	TEKNA series 900

## WIRING CONNECTION



### Power supply

1	Phase
2	Neutral

### Relay repeat alarm (optional)

3 Normally closed(NC)	NC= connectors nos. 3 + connectors nos. 5 NO= connectors nos. 4 + connectors nos. 5
4 Normally open (NO)	
5 Common (C)	
6, 7	Not used

### Level probe

8	level alarm with stopped pump connectors nos. 9 + connectors nos. 8 level alarm with pump not stopped connectors nos. 10 + connectors nos. 8
9 lev	
10 preall	

### External Signal

11 -	Input <u>frequency</u> signal ( <b>WATER METER PULSE SENDER</b> ) connectors nos. 12 + connectors nos. 11
12 +	
13 +	Input <u>current</u> signal connectors nos. 13 (pole +) + connectors nos. 11 (pole -)



## MONITORING PANEL

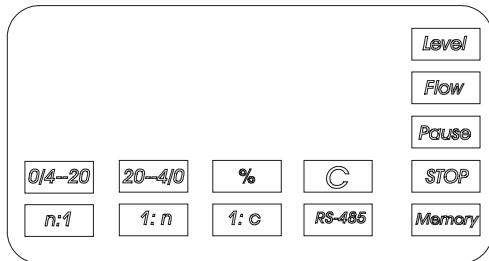


Fig 1: Display

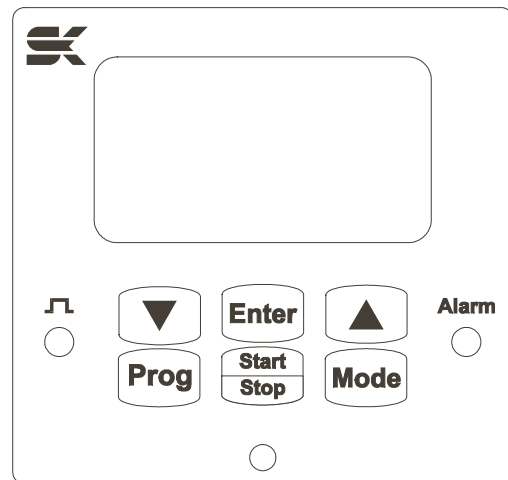


Fig 2: Pannello Comandi

DISPLAY	
Icon	Functions of the pump
Level	Level alarm from a level control probe
Flow	Unavailable
Pause	Unavailable
Stop	Pump at standstill
Memory	Memory function
0/4—20	0/4—20 Mode
20—4/0	20—4/0 Mode
%	Indication of flow-rate value
C	Pump operate on is costant
n:1	n:1 Mode
1:n	1:n Mode
1:C	Unavailable
RS-485	Unavailable

KEYPAD	
key	Functions of the pump
Prog	Programming
Start/Stop	Pump ON/OFF
Enter	To view the flow-rate that has been set
Mode	Flow-rate adjustment
▼	Cursor for changing the setting
▲	Cursor for changing the setting

# TEKNA DPG

## OPERATING PROCEDURES

The Tekna DPG pump is designed to operate either in **CONSTANT MODE** (continuous and constant dosing) or in **PROPORTIONAL MODE** (dosing at a variable flow rate, depending on an outside signal).



For a better understanding of the functions and programming of the Tekna DPG pump, please see the programming diagram provided on pages 17 to 19 and to Figures 1 and 2, showing the display and the control panel of the Tekna DPG.

### STARTING UP THE PUMP



The pump factory settings are as follows:

- operating mode	constant
- flow rate is displayed as	percentage
- working frequency	maximum (400 strokes/min)
- operation	STOP
- "illuminated" icons	<b>STOP</b> and <b>C</b>

### MANUAL PRIMING

Start the pump pressing the **START/STOP** key ( **STOP** icon turns off). Press the  and  keys simultaneously. The pump will start at the maximum frequency of 400 strokes a minute, If the keys are released, the pump will return to its previous condition.

### ADJUSTING THE FLOW RATE

To adjust the flow rate, press the **Mode** button and either the  or the  arrow to increase or decrease respectively the flow rate value shown on the display, which is indicated as a percentage of the maximum flow rate. The letter P will appear on the display, followed by the percentage value of the flow rate. While this is being shown, the **%** icon is illuminated.

E.g. P 80 means that the pump is dosing a quantity equivalent to 80% of the quantity it would have dosed at the maximum frequency, that it is to say it is dosing at a rate of 320 strokes/min.

The value varies from 100% (corresponding to 400 strokes/min) to 0% (0 strokes/min).

**NOTE:** 0% corresponds to 1, 2, 3 strokes/min also. At 4 (or 5, 6, 7) strokes/min the flow rate will be 1%, and so on.

It is also possible to view the flow rate that has been set as a working frequency. To change the type of viewing from a percentage of the maximum flow rate to the working frequency or vice versa, it is sufficient to keep the **Mode** key depressed for at least 3 seconds; the display will change automatically.

The letter F will appear on the display together with the value that has been set in strokes per minute;

E.g.. F 350 means that the pump is dosing at a frequency of 350 strokes per minute.

The frequency varies from a maximum of 400 strokes/min (maximum flow rate) to a minimum of 0 stroke/min.(minimum flow rate).

To adjust the flow rate press the **Mode** button and either the  $\triangle$  or the  $\nabla$  arrow to increase or lower the value of the working frequency.

NOTE: The flow rate is adjustable both with the pump at a standstill, when the **Stop** icon is illuminated, and during dosing.

### CHECKING THE LEVEL OF THE LIQUID TO BE DOSED

To check the level of the liquid to be dosed, it is possible to use a model LEV-4 level probe (item n° 9900121051).

There are two modes of operation:

- Connection of the level probe to connectors nos. 8 and 9 (see CONNECTION DIAGRAM).  
When the liquid reaches the required level, the pump will stop. On the display the **Level** icon will light up and the **Alarm** LED will light up.
- Connection of the level probe to connectors nos. 8 and 10 (see CONNECTION DIAGRAM).  
When the liquid reaches the required level, the pump will NOT BE STOPPED. On the display the **Level** icon will light up and the **Alarm** LED will start to flash.

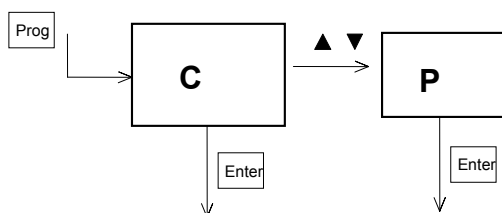
### SELECTING THE MODE

The Tekna DPG pump has been designed to operate either in the CONSTANT MODE or in the PROPORTIONAL MODE.

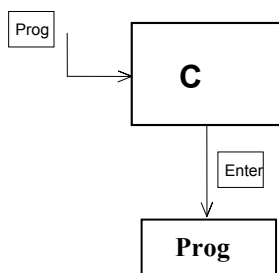
To select the operating mode press the **Prog** key. The letter C will appear on the display, while the **C** icon will start to flash (**Stop** icon illuminated).

Use the  $\triangle$  or  $\nabla$  arrows to select the required mode, P (proportional mode) or C (constant mode).

Press the **Enter** button to confirm the choice made.



### CONSTANT MODE



Once the CONSTANT MODE has been chosen (see above) and has been confirmed by pressing the **Enter** button, the word **Prog** will appear on the display for about one second. After this the value of the flow rate that has been set will be shown (for adjustment and the type of displaying see the section on Adjustment of the flow rate). The **C** icon will remain illuminated. In this mode the pump will carry out continuous and constant dosing at the flow rate that has been set (see Adjustment of the flow rate).

The pump is started up and stopped manually by pressing the **START/STOP** button (the **Stop** icon will be off or illuminated respectively).

**WARNING:** The pump may stop automatically if a pump-stop signal is given by the level probe (**Level** icon illuminated and **Alarm** LED steady on), see the section on Checking the level of the liquid to be dosed.

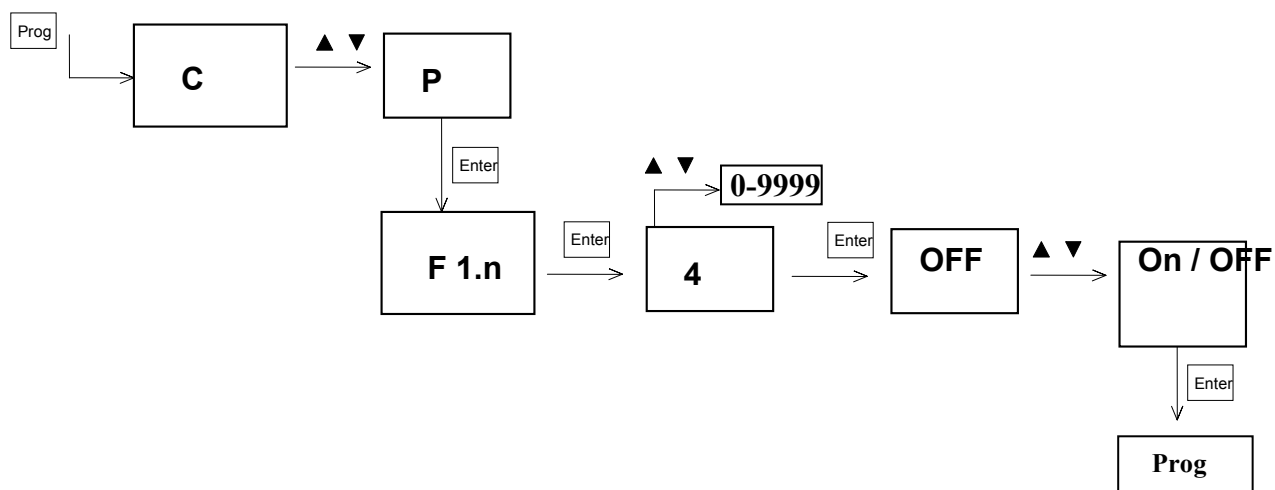
## **PROPORTIONAL MODE**

In this mode the pump doses at a variable flow rate depending on an outside signal; It is possible to chose any of the following options:

1. **Mode 1:n**. After each external pulse, for instance from a water-meter connected to the pump, the pump will dose “n” strokes.
2. **Mode n:1**. After each “n” external pulses, for instance from a water-meter connected to the pump, the pump will dose 1 stroke
3. **Mode 0/4—20**. The pump will dose at a flow rate that is proportional to an input signal of the type 0/4-20 mA.
4. **Mode 20—0/4**. The pump will dose at a flow rate that is proportional to an input signal of the type 20-4/0 mA.

**The succession of operations that are required to set the preferred mode is illustrated below. In the block diagrams accompanying the various steps, the values that are shown on the display refer to the default values.**



### 1) **mode 1:n**



This mode enables n strokes to be dosed for each pulse received from an outside source, for instance from a water-meter able to send out pulses.

These strokes are dosed at the maximum working frequency (400 strokes/min).



Press the **Prog** button and select the PROPORTIONAL MODE (see Programming). On confirming the PROPORTIONAL MODE by pressing the **Enter** key, mode 1.n is entered directly: the indication **F 1.n** will appear on the display and the **1:n** icon will flash.

If the **Enter** key is pressed, this mode is confirmed and the value of n will appear on the display. This refers to the number of strokes the pump will provide for each pulse received. The  or  arrows can be used to increase or decrease this value respectively.

**Example:** If I have connected my pump to a water-meter of the CB1 range able to provide pulses (1 pulse/l), and I have selected  $n=8$ , this will mean that for every pulse received from the water-meter my pump will provide 8 strokes. That is to say, for each litre of water passing through the water-meter the pump will dose 8 strokes.

Once the value has been set, it must be confirmed by pressing the **Enter** key. Then it is possible to go on to set the **Memory** function (see below).

The indication **OFF** (or **ON**) will appear on the display, to signal that the **Memory** function has been disabled (or enabled). The **Memory** icon will flash.

The arrows keys  or  can be used to change the indication (**ON** or **OFF**).

#### MEMORY

This function consists of storing any external pulses in the event that the pump was not able to provide all the programmed strokes. These pulses are stored by the microprocessor, up to a maximum of 65,535, and the “missing” strokes are returned as soon as possible, for example when no more external signals are received by the pump (example: no more water is running through the water-meter).

- **Memory** function set to **OFF** (**Memory** icon extinguished)

The pump does not store the excess pulses, however it does signal a situation of under- dosing, causing the display to indicate **ALL2**. This will disappear as soon as the set parameters are reinstated.

- **Memory** function set to **ON** (**Memory** icon illuminated)

As soon as the pump starts to store the excess pulses, the **Memory** icon will start to flash, until all the corresponding strokes have been returned.

If the storage capacity is exhausted (more than 65,535 pulses stored) the alarm will also be activated (the **Memory** icon will continue to flash)

Dosing of the pulses that have been stored can be interrupted by pressing both the  and  keys at the same time.

Dosing of the pulses will then be resumed starting from the next incoming external signal (example: if the water starts to run through the water-meter again).

**WARNING:** If the dosing pump is switched off, any pulses stored will be deleted.

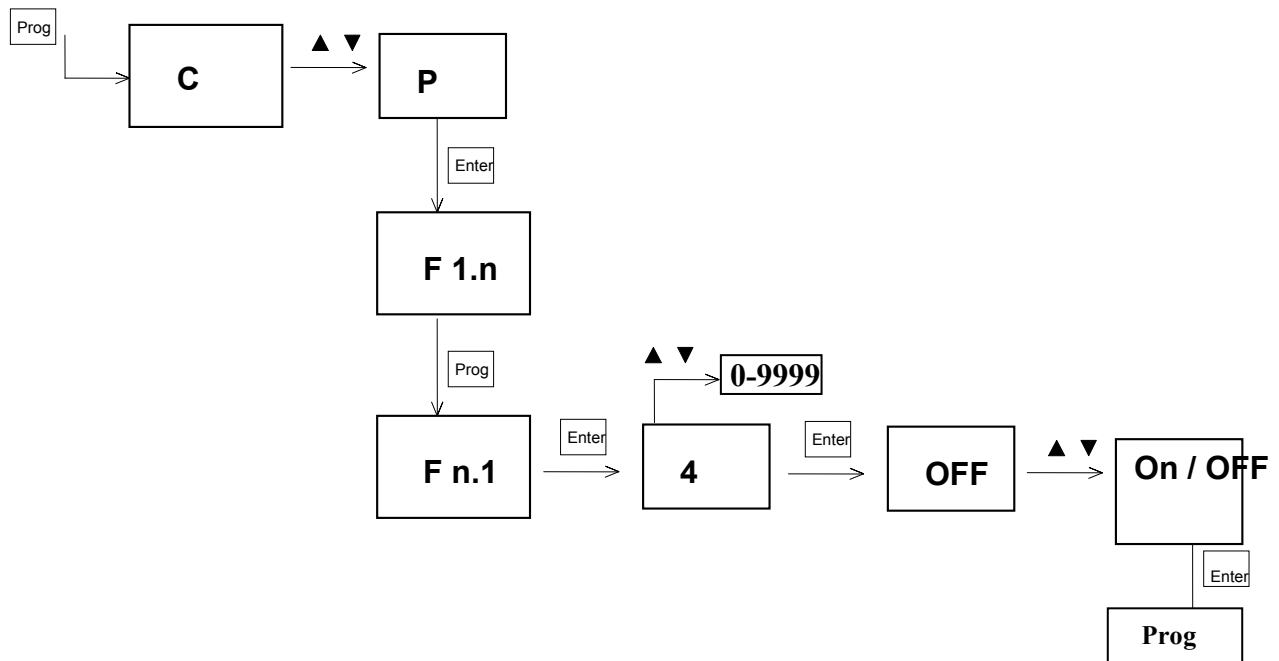
Press **Enter** to confirm the selected settings and exit from programming. The indication **Prog** will appear on the display for about one second, after which the value of previously set flow rate will appear.

To start the pump press the **START/STOP** button (the **Stop** icon will be extinguished). While the pump is working on the display will appear the number of strokes the pump is dosing (count down).

**WARNING:** The pump may stop due to a possible pump-stopping signal given by the level probe (**Level** icon illuminated and **Alarm** LED steady on). Please see the section on Checking the level of liquid to be dosed.

Please see the example on pag. 20

## 2) n:1 mode



This mode enables one stroke to be dosed for every n pulses received from an outside source, for example from a water-meter capable of sending pulses.

Press the **Prog** button and select the PROPORTIONAL MODE (see Programming).

On pressing the **Enter** key and the **Prog** key (see diagram), the n:1 mode is entered directly and the indication **F n.1** will appear on the display while the **n:1** icon will flash.

If the **Enter** key is pressed, this mode is confirmed and the value of n will appear on the display. This refers to the number of impulses received by the pump from the outside source after which the pump will provide a stroke. The **▲ ▼** or **▲ ▼** arrows can be used to increase or decrease this value respectively.

**Example:** If I have connected my pump to a water-meter of the CB1 range able to provide pulses (1 pulse/L), and I have selected n=8, this will mean that for every 8 pulses received from the water-meter my pump will provide 1 stroke. That is to say, for every 8 litres of water passing through the water-meter the pump will dose 1 stroke.

Once the value has been set, it must be confirmed by pressing the **Enter** key. Then it is possible to go on to set the **Memory** function (see below).

The indication **OFF** (or **ON**) will appear on the display, to signal that the **Memory** function has been disabled (or enabled). The **Memory** icon will flash.

The arrows keys **▲ ▼** or **▲ ▼** can be used to change the indication (**ON** or **OFF**).

### MEMORY

This function consists of storing any external pulses in the event that the pump was not able to provide all the programmed strokes. These pulses are stored by the microprocessor, up to a maximum of 65,535, and the “missing” strokes are returned as soon as possible, for example when no more external signals are received by the pump (example: no more water is running through the water-meter).



- **Memory** function set to **OFF** (**Memory** icon extinguished)

The pump does not store the excess pulses, however it does signal a situation of under- dosing, causing the display to indicate **ALL2**. This will disappear as soon as the set parameters are reinstated.

- **Memory** function set to **ON** (**Memory** icon illuminated)

As soon as the pump starts to store the excess pulses, the **Memory** icon will start to flash, until all the corresponding strokes have been returned.

If the storage capacity is exhausted (more than 65,535 pulses stored) the alarm will also be activated (the **Memory** icon will continue to flash)

Dosing of the pulses that have been stored can be interrupted by pressing both the  and  keys at the same time. Dosing of the pulses will then be resumed starting from the next incoming external signal (example: if the water starts to run through the water-meter again).

**WARNING:** If the dosing pump is switched off, any pulses stored will be deleted.

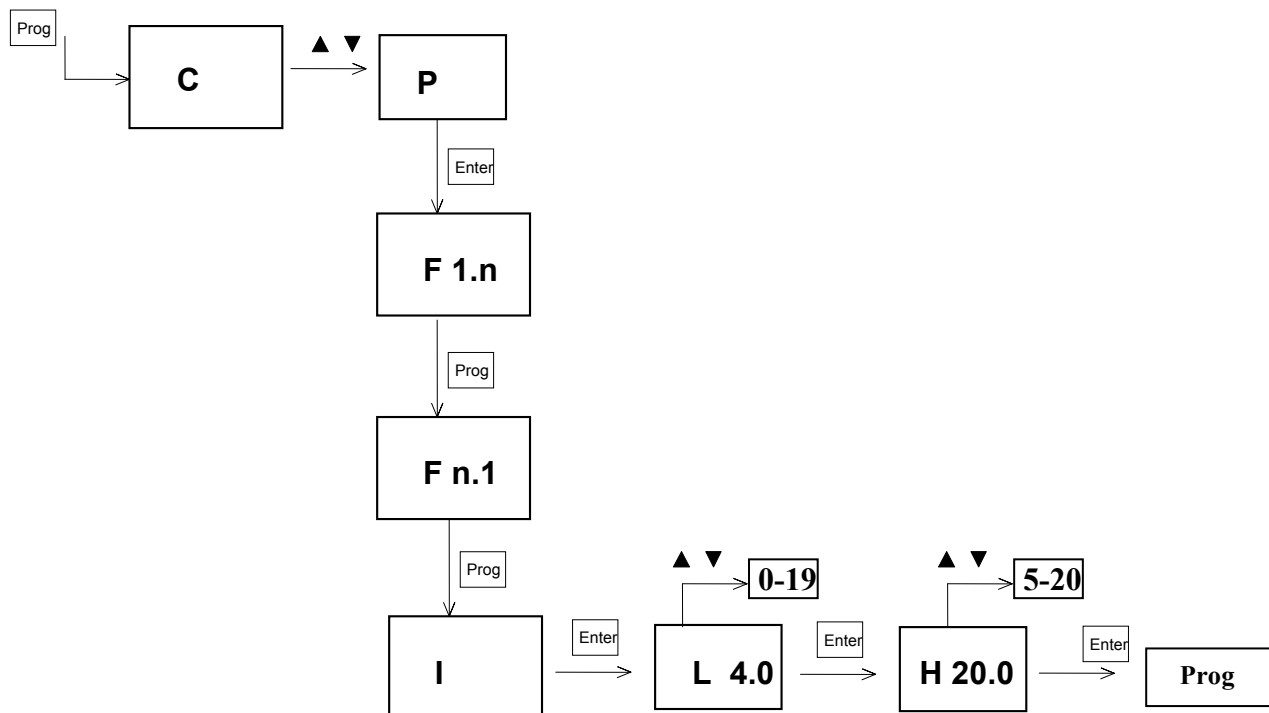
Press **Enter** to confirm the selected settings and exit from programming. The indication **Prog** will appear on the display for about one second, after which the value of previously set flow rate will appear.

To start the pump press the **START/STOP** button (the **Stop** icon will be extinguished). While the pump is working on the display will appear the number of pulses the pump is waiting for dose one stroke (count down).

**WARNING:** The pump may stop due to a possible pump-stopping signal given by the level probe (**Level** icon illuminated and **Alarm** LED steady on). Please see the section on Checking the level of liquid to be dosed.

Please see the example on pag. 20

### 3) **Mode: 0/4—20**



In this mode the pump will dose at a flow rate that is proportional to an input signal of the type 0/4--20 mA. It is possible to establish a current value at which the pump will dose at the minimum rate (0 stroke/min), and a current rate at which the pump will dose at the maximum flow rate, equal to the value of the flow rate that we have established (see the section on Adjustment of the flow rate).

Press the **Prog** button and select the PROPORTIONAL MODE (see Programming). By pressing the **Enter** key once and the **Prog** key twice (see diagram), the 0/4—20 mode is entered directly and the indication **I** will appear on the display. The **0/4—20** icon will start to flash.

By pressing the **Enter** key, this mode is “entered”, and the letter L will appear on the display together with the current value at which the pump will dose at the minimum rate. The arrows keys  $\triangle$  or  $\nabla$  can be used to increase or decrease this value.

If the **Enter** key is pressed again, the letter H will appear on the display, together with the current value at which the pump will dose at the maximum flow rate. The arrows keys  $\triangle$  or  $\nabla$  can be used to increase or decrease this value.

Note: The value of H must necessarily exceed the value of L.

WARNING: Having set first the value of L, the value of H can be set at a value 1 mA higher than L as a minimum. Having set first the value of H, the value of L can be set at a value 1mA lower than H at a maximum.

Press **Enter** to confirm the settings and then exit from programming. The word **Prog** will appear on the display for about one second, after which the value of the flow rate corresponding to the current signal received by the pump will be displayed (as a frequency or as a % value, see the section on Adjustment of the flow rate).



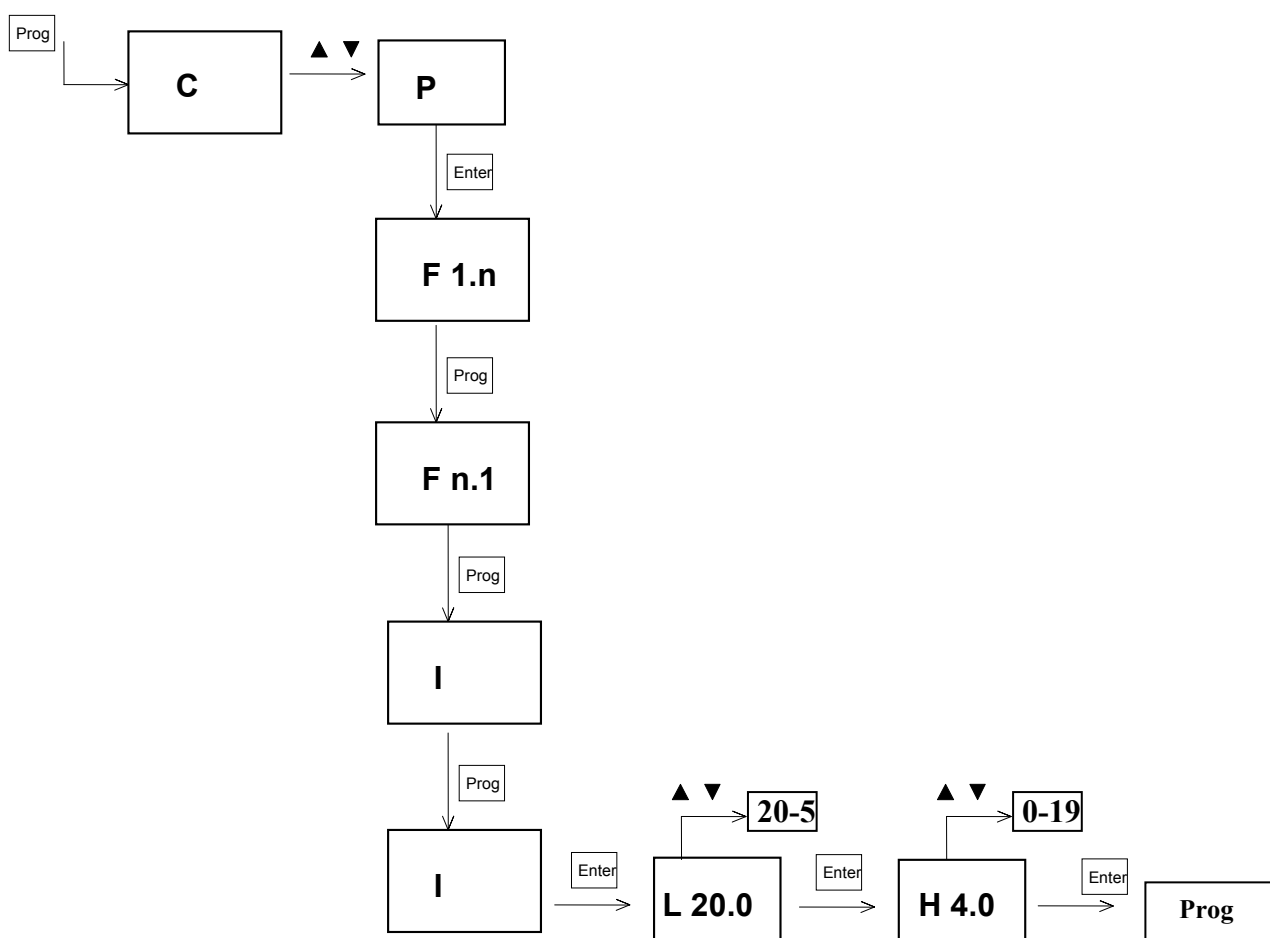
To start the pump press the **START/STOP** button (the **Stop** icon will be extinguished or illuminated respectively).

Note. If a current higher than the current value at which the pump doses at its maximum flow rate reaches the pump (e.g.: current setting H = 10, current received = 15 mA), the pump will continue to dose at the maximum flow rate that has been set, however the flow rate shown on the display will start to flash, indicating that the input current is higher than the value that has been set.

Note. If a current lower than the current value at which the pump doses at its minimum flow rate reaches the pump (e.g.: current setting L = 5, current received = 4 mA), the pump will no longer dose. Also, the flow rate shown on the display will start to flash, indicating that the input current is lower than the value that has been set.

WARNING: The pump may stop due to a possible halt/stop alarm signal given by the level probe (**Level** icon illuminated and **Alarm** LED steady on), see the section on Checking the level of the liquid to be dosed.

#### 4) Mode: 20—4/0





In this mode, the pump will dose at a flow rate that is proportional to an input signal of the 20-4/0 mA type. It is possible to establish a current value at which the pump will dose at the minimum rate (0 stroke/min), and a current rate at which the pump will dose at the maximum flow rate, equal to the value of the flow rate that we have established (see the section on Adjustment of the flow rate).



Press the **Prog** button and select the PROPORTIONAL MODE (see Programming).

By pressing the **Enter** key once and the **Prog** key three times (see diagram), the 20—4/0 mode will be entered directly and the indication **I** will appear on the display. The **20—4/0** icon will start to flash.

By pressing the **Enter** key, this mode is “entered”, and the letter L will appear on the display together with the current value at which the pump will dose at the minimum rate.

The arrows keys  or  can be used to increase or decrease this value respectively.

If the **Enter** key is pressed again, the letter H will appear on the display, together with the current value at which the pump will dose at the maximum flow rate, equal to the value of the flow rate that has been set (see the section on Adjustment of the flow rate).

The arrows keys  or  can be used to increase or decrease this value respectively.

Note: The value of H must necessarily be lower than the value of L.

**WARNING**: Having set first the value of L, the value of H can be set at a value 1 mA lower than L as a maximum.  
Having set first the value of H, the value of L can be set at a value 1mA higher than H at a minimum.

Press **Enter** to confirm the settings that have been selected and then exit from programming. The word **Prog** will appear on the display for about one second, after which the value of the flow rate corresponding to the current signal received by the pump will be displayed (as a frequency or as a % value, see the section on Adjustment of the flow rate).

To start the pump press the **START/STOP** button (the **Stop** icon will be extinguished or illuminated respectively).

Note. If a current lower than the current value at which the pump doses at its maximum flow rate reaches the pump (e.g.: current setting H = 5, current received = 4 mA), the pump will continue to dose at the maximum flow rate that has been set, however the flow rate shown on the display will start to flash, indicating that the input current is lower than the value that has been set.

Note. If a current higher than the current value at which the pump doses at its minimum flow rate reaches the pump (e.g.: current setting L = 10, current received = 15 mA), the pump will no longer dose. Also, the flow rate shown on the display will start to flash, indicating that the input current is higher than the value that has been set.

**WARNING**: The pump may stop due to a possible halt/stop alarm signal given by the level probe (**Level** icon illuminated and **Alarm** LED steady on), see the section on Checking the level of the liquid to be dosed.

## EXAMPLES

### Example mode 1 : n

I need to dose 120 ppm in one lead with pressure of 12 bars, with:

- Water meter pulse sender mod. CB1 (1 stroke/l)
- dosing pump mod. Tekna DPG 601 (1.5 l/h to 12 bars)

In the below table we see that the model 601 and a water meter CB1, **with n=1 doses 60 ppm**.

The value of concentration of the dosage in table with n=1 is too much low regarding what it is necessary.

In such case I will have to program the DPG pump in **mode 1 : n**.

Setting up **n=2**, I obtain the **120 ppm** wished.

SPECIFICATIONS OF THE PUMP				Values of concentration of the dosage in ppm for n=1 (one stroke of the pump every single signal from the water meter pulse sender)				
model	Back pressure (bar)	Flow rate (l/h)	cc/stroke s	CB4 (4 signals / l)	CB1 (1 signal / l)	WPI (1 signal / 10 l)	WPI (1 signal / 100 l)	WPI (1 signal / 1000 l)
601	12	1,5	0,06	240	60	6	0,60	0,06
	10	2	0,08	320	80	8	0,80	0,08
	6	2,5	0,1	400	100	10	1,00	0,10
602	8	5	0,21	840	210	21	2,10	0,21
	5	6	0,25	1000	250	25	2,50	0,25
	1	9	0,38	1520	380	38	3,80	0,38

901	16	6	0,25	1000	250	25	2,50	0,25
	14	7	0,29	1160	290	29	2,90	0,29
	12	8	0,33	1320	330	33	3,30	0,33
902	10	10	0,42	1680	420	42	4,20	0,42
	6	12	0,5	2000	500	50	5,00	0,50
	2	15	0,63	2520	630	63	6,30	0,63
903	5	25	1,04	4160	1040	104	10,40	1,04
	4	40	1,67	6680	1670	167	16,70	1,67
	3	50	2,08	8320	2080	208	20,80	2,08
904	2	60	2,5	10000	2500	250	25,00	2,50
	1	80	3,33	13320	3330	333	33,30	3,33
	0	100	4,17	16680	4170	417	41,70	4,17

### Adjusting of the working frequency

By adjusting the maximum working frequency (400 strokes/min) we can set up the speed with which the “n” strokes are given after the arrive of the signal from the water meter pulse sender.

**Example:** Setting up n=40, to every impulse from outside the pump will dose 40 strokes.

At the maximum working frequency (400 strokes/min) the pump will employ 6 second to dose 40 strokes; if between two successive signals they passed, as an example, 50 second ones, we could have excess dosaga; if we wished to have a dosage for at least 30 seconds, we have to set the pump with a working frequency of 80 strokes/min.

### Warning:

please test if the pump is fast enough, so as to finish dosing before the arrival of the next signal from the water meter; if not the memory function alarm will be activated.

### Example mode n : 1

I have to dose **1.000 ppm** in one lead with a pressure of **2 bar**, having:

- water meter mod. **CB4 (4 imp/l)**
- dosing pump mod. **Tekna DPG 904 (60 l/h a 2 bar)**

In the table on the previous page we see that the model 904 and the water meter CB4, **with n=1 doses 10.000 ppm**

The value of concentration of the dosage in table with n=1 is too high regarding what it is necessary.

In such case I will have to program the DPG pump in **mode n : 1**.

Setting up **n=10, I obtain the 1.000 ppm** wished.

### Adjusting of the working frequency

Adjusting the maximum working frequency (400 strokes/min) we can set up the speed at which the “n” strokes are given after the arrival of the signal from the water meter.

### Warning:

please test if the pump is fast enough , so as to finish dosing before the arrival of the next signal from the water meter; if not the memory function alarm will be activated.

### Example:

A water meter pulse sender mod. 1 stroke/L with a flow rate of 15 mc/h, will give 250 strokes/min; setting the pump with "n"=5, the pump will dose 50 strokes/min ( $50 = 250/5$ ).

If we set up the pump with a maximum flow rate of less than 50 strokes/min (for example 40 strokes/min), the pump is not able to dose all the signal from the water meter and the allarm of memory function alarm will be activated.

NOTE:

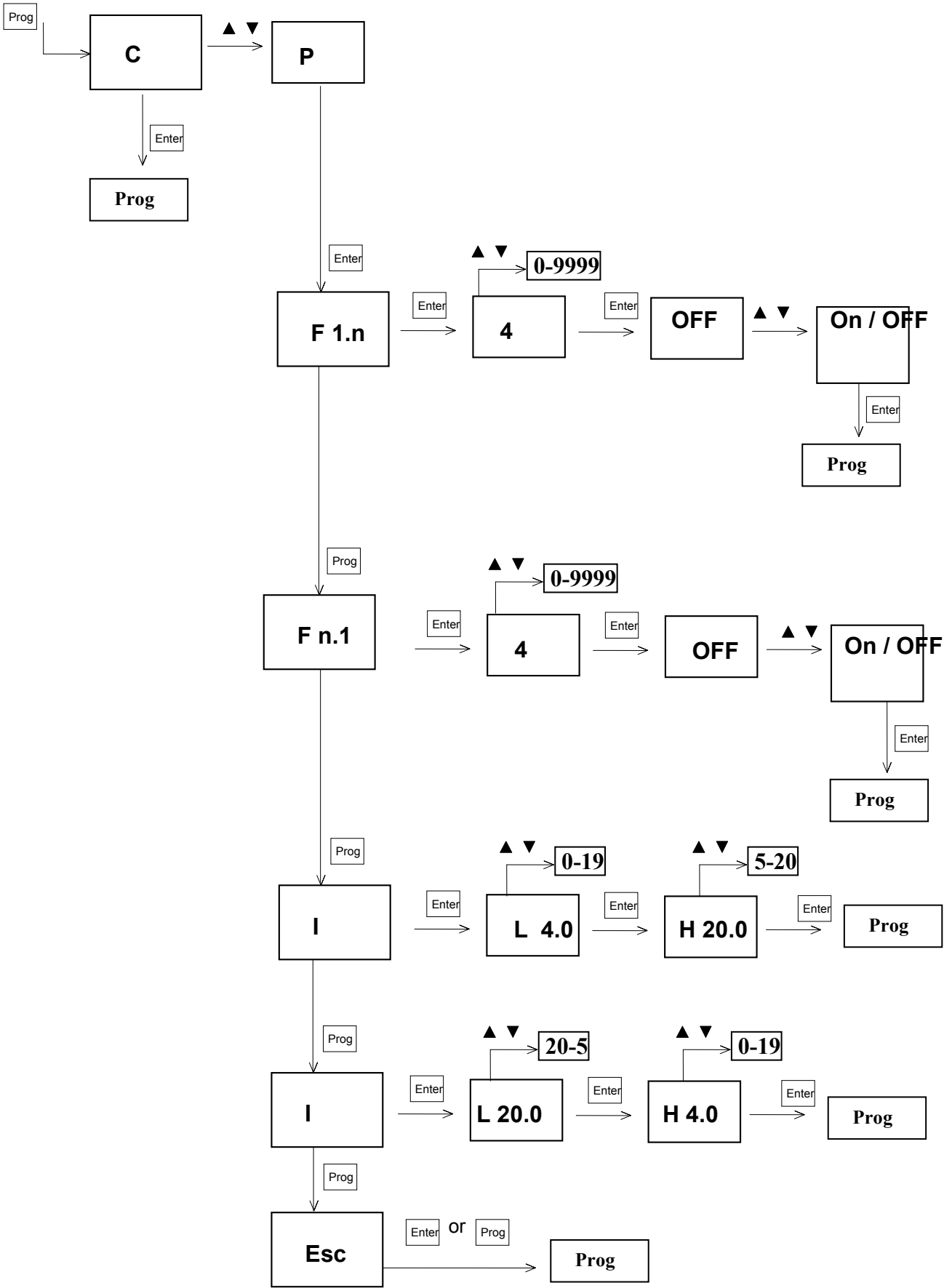
If you are working with different pressures from those shown above, and you need very accurate figures, please calculate as follows:

- 1) With a measured container, test how many ml are lifted by the pump during 60 seconds. (for example 300 ml)
- 2) Divide the number of ml found by 400 (maximum working frequency); these are your cc/strokes (ex  $300/400 = 0,75$  cc/strokes)
- 3) Multiply the cc/strokes found by the number of signals sent by the water meter for every litre of water. Multiply again by 1000 and you'll have the dosing concentration (ppm) (ex with CB4 – 4 signals/L -  $0,75*4*1000=3000$ ppm). (ex with WP1 – 1signal/10 litre = 0,1 signals/L -  $0,75*0,1*1000=75$ ppm)
- 4) According with your ppm request use the mode 1:n or n:1.

**PROGRAMMATION DRAWING**

**CONSTANT MODE**

**PROPORTIONAL MODE**



# ALARM SIGNALS

DISPLAY	PUMP STATE	CAUSE	REMEDY
<b>Level</b> icon + <b>Alarm</b> led on	Pump stopped	The liquid we are dosing has reached the minimum level.	Resupply the dosing liquid. When the liquid is resupplied, the <b>Level</b> icon and the <b>Alarm</b> led turn off. To re-start the pump press the START/STOP key.
<b>Level</b> icon light up + <b>Alarm</b> led flashing	Pump actived	The liquid we are dosing has reached the minimum level.	Resupply the dosing liquid. When the liquid is resupplied, the <b>Level</b> icon and the <b>Alarm</b> led turn off
<b>Memory</b> icon flashing	Pump actived	The pump contains one or more pulses that will be dosed as soon as possible	This icon stops flashing only when no more pulses are stored in the memory (the icon will stay on as this function has been activated) If the dosing pump is switched off, this will cause the stored pulses to be deleted.
<b>Memory</b> icon flashing + <b>Alarm</b> led on	Pump actived	The storage capacity is exhausted (the pump has stored 65,535 pulses) and it is not possible to store more pulses.	This icon stops flashing only when no more pulses are stored in the memory (any way it will be light up due of the Memory function is set on) If the dosing pump is switched off, this will cause the stored pulses to be deleted. The led will switch off when the stored pulses are less than 65,535.
Writing on the display <b>ALL2</b>	Pump actived	During the programming the Memory function was set to OFF, and the pump does not store excess pulses (it is under-dosing)	The writing <b>ALL2</b> will disappear as soon as the pump is ready to dose all external pulses.
Writing on the display <b>t°C</b> + <b>Alarm</b> led on	Pump stopped	The working temperature of the pump is too high (over 100°C for TEKNA 900 series, over 80°C for TEKNA 600 series).	The writing <b>t°C</b> will disappear as soon as the temperature goes down. To re-start the pump press the START/STOP key.
Writing on the display <b>Err</b> + <b>Alarm</b> led on	Pump stopped	Hardware problems.	Contact technical assistance.