

# Universal counter: Counter / Timer / Tachometer / Frequency

4 presets, analog output, serial interface, Ethernet interface

Display LED 3 colors, 5 digits

Format DIN 48 x 96 mm

NE1218

# Operating Instructions



NE1218

## Features

- **Display 5 digits, LED 14 mm**  
3 colours red, green and amber
- **Universal counting inputs**  
Sensor NPN, PNP, Namur, TTL, in voltage 10-300 VAC or encoder 2x90°
- **Functions MINI, MAXI in tachometer / frequency**
- **3 programmable inputs**
- **2 or 4 presets with relay or electronic outputs**
- **Analog output 4-20 mA or 0-10 V**
- **Serial interface RS232, RS485 or Ethernet interface**
- **Power supply voltage**  
85 to 260 VAC or 100 to 300 VDC  
10,5 to 70 VDC or 21 to 53 VAC

## Technical data

### Device configurable in

- Pulses counters: Main XP + Totalizer  $\Sigma$
- Timers: Main XP + Totalizer  $\Sigma$
- Tachometer XP with rotation direction + Pulses totalizer  $\Sigma$
- Frequency XP

#### ⇒ Main counter XP

5 digits with sign, from -99999 to 99999  
Decimal point programmable  
Adding or subtracting  
Scaling factor  
Repositioning offset value

#### 5 counting modes, 2 inputs A and B

Unidirectional 1 input A  
Unidirectional 1 input A + Stop count input B  
Differential 2 inputs A - B  
Bidirectional 1 input A + direction input B (Up/Down)  
Bidirectional 2 inputs A 90° B

#### 5 operating modes, 2 or 4 presets

Parallel comparison, Main presets, Step presets, Self-adjusting

#### ⇒ Timer XP

5 digits, 4 resolutions  
999 s 99/100 s - 999 min 59 s - 999 h 59 min - 99999 h  
Adding or subtracting  
Repositioning offset value

#### 2 counting modes, 2 inputs A and B

Count the time while input A is activated  
Start counting on input A, Stop on input B

#### 5 operating modes, 2 or 4 presets

Parallel comparison, Main presets, Step presets, Self-adjusting

#### ⇒ Tachometer XP

5 digits, from 0 to 99999, decimal point programmable  
Measure and display speeds, cadencies, ....  
Measure and display duty cycle PWM  
Scaling factor

#### 2 counting modes, 2 inputs A and B

Unidirectional 1 input A  
Bidirectional 2 inputs A 90° B

#### Functions MINI, MAXI

The MIN and MAX functions continuously record the minimum and maximum values of the measures.

### Operating modes, 2 or 4 presets

Parallel comparison of the presets as high threshold (over speed) or low threshold (under speed)

#### ⇒ Frequency XP

5 digits, from 0 to 99999, decimal point programmable  
Unidirectional 1 input A -- Display unit in Hz

#### Functions MINI, MAXI

The MIN and MAX functions continuously record the minimum and maximum values of the measures.

### Operating modes, 2 or 4 presets

Parallel comparison of the presets as high or low threshold

#### ⇒ Pulses or time totalizer $\Sigma$

8 digits with sign, from -99999999 to 99999999, displayed in 2x 4 digits, Lxxxx and Hxxxx for values >99999  
Decimal point programmable  
Adding or subtracting  
Scaling factor  
Repositioning offset value

### Counting modes and Operating modes

Identical to the counting modes and operating modes of the counter XP used as pulses counter or as timer. Or as batch counter from the counter XP used as pulses counter.

### 5 operating modes, 2 or 4 presets

Parallel comparison, Main presets, Step presets, Self-adjusting

### Display

5 digits, LED 14 mm, 3 colours red, green and amber  
Overflow display capacity indicated by "oUEr"  
Delivered with 100 self-adhesive labels

### Counting inputs

Programmable in

- **NPN, PNP, Namur, TTL or encoder 2x90°**  
Counting frequency 15 kHz max  
Tachometer frequency from 0,01 Hz to 10 kHz max  
Control voltage 5 to 24 VDC max
- **Free potential input**  
Frequency 20 Hz max  
Control voltage 0 VDC delivered by the counter
- **Supply VAC – 1 input only**  
Frequency 20 Hz max  
Control voltage 10 à 300 VAC max

# Universal counter: Counter / Timer / Tachometer / Frequency

## 4 presets, analog output, serial interface, Ethernet interface

### Display LED 3 colors, 5 digits

#### Format DIN 48 x 96 mm

**NE1218**

#### Sensor / Encoder supply

- 20 VDC current 100 mA max  
 - 8.2 VDC (sensor Namur) current 30 mA max

#### Programmable inputs

The functions associated to the 3 control inputs are programmable and make among other things, to reset the count values, ...

Optocoupled inputs logic NPN  
 Control voltage < 40 VDC

#### 2 relay outputs option

Inverter contact  
 Switching power 260 VAC / 1A / 150 VA

#### 4 relay outputs option

Closing contact with a common point  
 Switching power 260 VAC / 0,1A / 50 VA

#### 4 Electronic outputs PNP or NPN option

Voltage max. 50 V  
 Current max. 50 mA

#### Serial interface RS232 or RS485

To connect the counter to:  
 - a PC or a PLC for the acquisition of production data or for programming the device.  
 - a printer to keep a written record of production data

Removable connectors type RJ45  
 Protocol ASCII, ISO 1745 or Modbus RTU  
 Speed max. 19200 bauds

#### Ethernet interface 10/100

Protocol Modbus TCP  
 Connection Connector RJ45

#### Analog output 4-20 mA or 0-10 V

Converts the display value of the counter XP or the totalizer Σ to current or voltage

Resolution 13 bits  
 Accuracy 0,1% ±1 bit  
 Response time 50 ms  
 Load max. 500 Ω

#### Power supply voltage

85 to 260 VAC and 100 to 300 VDC  
 10,5 to 70 VDC and 21 to 53 VAC  
 Power consumption 8 W

Weight 160 g

Ambient temperature -10 °C ... +60°C

Protection face side IP65

Dimensions 48 x 96 x 90 mm

Cut-out dimensions 45 x 93 mm

Built-in housing Clip frame

#### Connection

Plug-in screw connectors with spring retention system, core cross-section 1,5 mm<sup>2</sup> max.

Standard DIN EN 61010-1 Protection class II  
Overvoltage category II  
Pollution degree 2

Emitted interference DIN EN 61000-6-3

Interference immunity DIN EN 61000-6-2

Approval CE

#### Part number

NE1218.    AX01

- | Power supply
- 4** 85 to 265 VAC and 100 to 300 VDC
- 5** 10,5 to 70 VDC and 21 to 53 VAC
- |
- | Outputs
- 0** Without
- 1** 2 relay outputs
- 2** 4 relay outputs
- 3** 4 electronic outputs PNP
- 4** 4 electronic outputs NPN    **5** Analog output 4-20 mA
- 6** 2 relay outputs + analog output 4-20 mA
- 7** 4 relay outputs + analog output 4-20 mA
- 8** 4 electronic outputs PNP + analog output 4-20 mA
- 9** 4 electronic outputs NPN + analog output 4-20 mA
- A** Analog output 0-10 V
- B** 2 relay outputs + analog output 0-10 V
- C** 4 relay outputs + analog output 0-10 V
- D** 4 electronic outputs PNP + analog output 0-10 V
- E** 4 electronic outputs NPN + analog output 0-10 V
- |
- | Interface
- 0** Without
- 1** RS485
- 2** RS232
- 3** Ethernet

#### Accessory

**ZPA4.001** Mounting accessory for DIN rail

## 1. Operation

### 1.1. Counter XP + Totalizer $\Sigma$

The counter XP can be programmed in four different modes: pulses counters, timer, tachometer and frequency.  
The totalizer  $\Sigma$  works as counter or timer depending of the selected mode of counter XP. When totalizer  $\Sigma$  is used as pulses counter like XP, he can be programmed as batch counter. In this mode the totalizer  $\Sigma$  is incremented at each time that a selected preset from XP is reached.

**For example:**

The counter XP is used to measure a length to be cut and the totalizer  $\Sigma$  counts the number of parts produced.

### 1.2. Counters and Timers presets

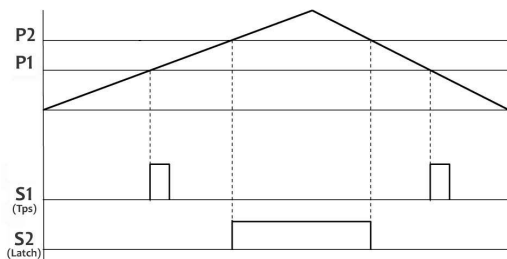
The counter has 2 or 4 optional presets with relay outputs or 4 presets with static outputs PNP or NPN. These outputs can be assigned by programming separately to the counter XP or to the totalizer  $\Sigma$ . The presets named P1, P2, P3 and P4 are respectively associated with the outputs named S1, S2, S3 and S4.

The operating mode of the presets and the switching time of the outputs are programmable:

#### a) Main preset mode *IndEP* – Mode 1

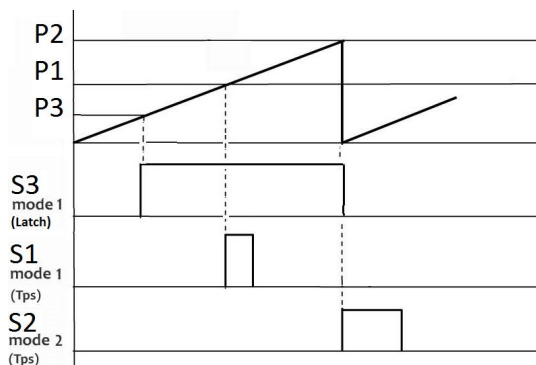
The output is activated:

- when the preset value is reached by counting in the increasing or decreasing direction and if the switching time of the output is programmed as a pulse contact (Tps).
- when the counting value is  $\geq$  to the preset value and if the switching time of the output is programmed as permanent contact (Latch).



#### b) Main preset mode *rESet* – Mode 2

The output is activated when the preset value is reached by counting, the counter is automatically reset at the offset value. In this mode the switching time of the output can only be programmed as a pulse contact (Tps). The other outputs programmed in permanent contact (Latch) are deactivated.



#### c) Main preset mode *StoP* – Mode 3

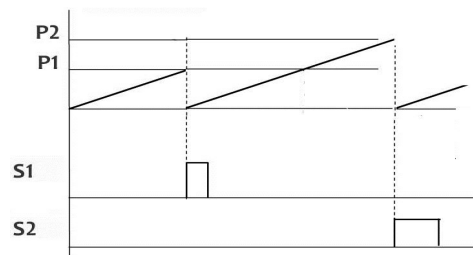
The output is activated as a pulse contact or as a permanent contact when the preset value is reached by counting. The counter stops counting and the counting will only start again after a Reset command.

#### d) Main preset mode *CLEAr* – Mode 4

The output is activated as a pulse contact or as permanent contact when the preset value is reached by counting. The output of the previous preset is disabled; P2 disables S1, P3 disables S2, P4 disables S3 and P1 disables S4.

#### e) Step preset mode *CSCdE* – Mode 5

The counter searches, from the repositioning value, first the preset P1 then P2, P3, P4 programmed in CSCdE mode and performs an automatic reset after reaching each preset. The other outputs programmed in permanent contact (Latch) are deactivated.

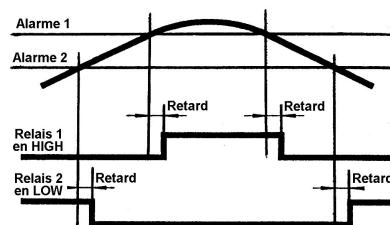


### 1.3. Tachometer and Frequency presets

The operating mode is programmable:

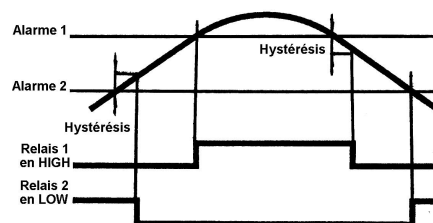
#### a) Limit output as time delay

The time delay acts on both sides of the preset when the display value passes through it in the increasing or decreasing direction. This delay is programmable in seconds from 0 to 99.



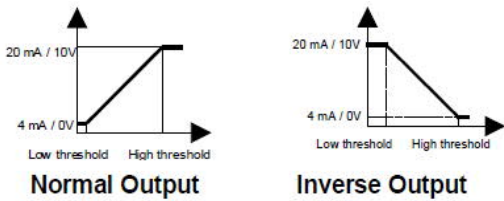
#### b) Asymmetrical hysteresis

The output is activated immediately when the display value passes through the preset; however, the output is deactivated after the hysteresis programmed in display units.

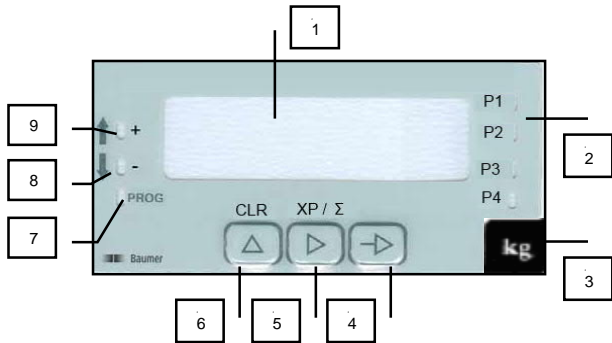


### 1.4. Analog output 0-10V or 4-20mA

The counter can be optionally equipped with an analog output that delivers a 0-10V or 4-20mA signal directly or indirectly proportional to the evolution of the counter XP or totalizer  $\Sigma$  value.



## 2. Description of Keyboard and Display



N°	Designation	Function RUN	Function PROG
1	DISPLAY	Data display area	
2	LED P1 to P4	Activation of output 1 to 4	
3	LABEL	Stick the "units" label here	
4	KEY →	Enter in manufacturer PROG mode	Selection of programming line
5	KEY ▷	Display of the counter XP or totalizer $\Sigma$	Digit selection
6	KEY ▲	Reset button Access to user PROG mode	Incrementing the selected digit
7	LED PROG		Manufacturer PROG mode or user PROG mode active
8	LED - ↓	Counting sign - Direction tachometer - ▼	
9	LED + ↑	Counting sign + Direction tachometer + ▲	

## 3. Operating and Programming

### OPERATING mode

#### Key CLR

The key allows at any time, depending on the displayed value, a repositioning of the counter XP at the offset value or a repositioning of the totalizer  $\Sigma$  which has its own offset value.

The key can be disabled by programming.

#### Key XP/ $\Sigma$

Each time you press this key, the values of the counter XP and if used the totalizer  $\Sigma$  appears successively.

### PROGRAMMING Mode « User »

This programming mode allows the user to program the values of the presets Set1 to Set4 and the offset positioning values of the counter XP and totalizer  $\Sigma$ .

To access to the programming mode, press and hold the key ▲ for 3 seconds.

The values accessible to the user are selected in chapter 4. Programming Access Control.

### PROGRAMMING Mode « Manufacturer »

This programming mode allows to configure the operation of the counter. It is divided into 6 modules:

- Input and Counting mode configuration
- Display configuration
- Presets configuration
- Analog output configuration
- Serial or Ethernet interface configuration
- Control inputs configuration

With the key →, you may access the programming mode, a configuration module or scroll the various lines to be programmed.

With the key ▷, you may select a configuration module to be programmed, an operating option or a digit to be modified.

With the key ▲, you may increment the selected digit.

### Procedure

1° Press the key →, the message [Code] is displayed.  
Enter the access code to go into the programming mode.

If the code is correct, the message [Pro] is displayed and the LED PROG is lit ; otherwise the message [Error] is displayed for a few seconds.

By default the access code is 0000.

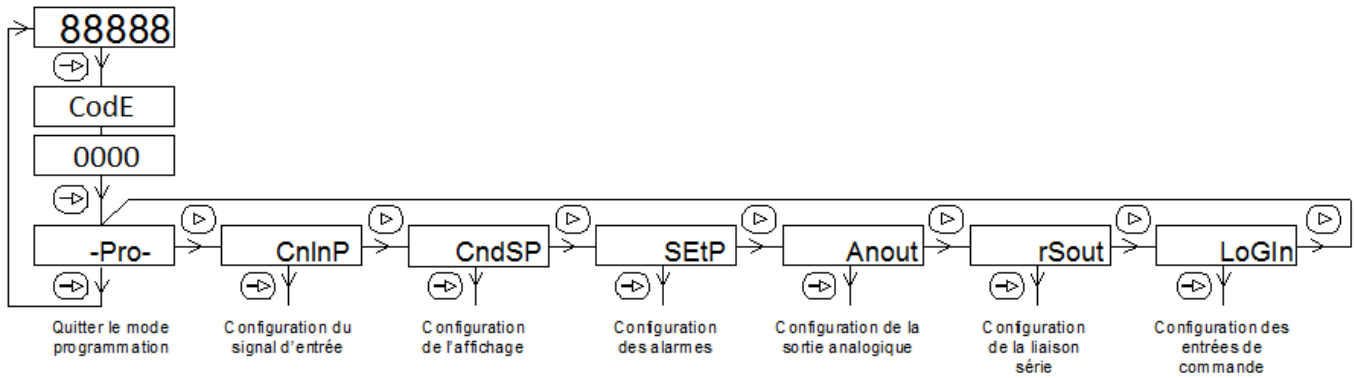
2° Use the key ▷ to select the module to be programmed ; the various modules are identified by a name.

3° Use the key → to validate the selected module and after that the keys →, ▷ and ▲ to program the various lines.

After programming the different modules, the indicator stores the modifications and displays the message [StorE] during the save operation.

4° Lock the programming mode, if necessary, with an access code. See chapter 4: Programming Access Control.

## Block Diagram of the Configuration Modules



The configuration modules for serial interface, analog output and preset outputs are only accessible if the counter is equipped with the corresponding options.

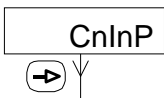
### Time base of the timer

Hr	99999 hours
H.MM	999 hours 59 minutes
M.SS	999 minutes 99 seconds
0.01-S	999.99 seconds

### Counting direction

uP	Adding
do	Subtracting

## 1. Input Configuration and Counting Mode – Counter XP



### Input for channels A and B

-1-	Voltage 10 to 300 VAC - 1 specific channel
-2-	Magnetic sensor
-3-	Namur sensor
-4-	PNP sensor
-5-	NPN sensor
-6-	Inputs encoder 2x90° TTL or HTL
-7-	Input without potential NPN

### Operating mode

ModE	
Count	Pulses counter
CHron	Timer
FrEC	Frequency
tACH	Tachometer

The content of the programming lines below depends on the programming of the operating mode.

### 1.1. Pulses Counter Mode

#### Counting direction

Up	Adding (1)
do	Subtracting (1)
UPdo	Adding / Subtracting (2)

#### Counting mode (1)

In A	Channel A : counting input
In A-b	Channel A : counting input, channel B : stop counting when activated

#### Counting mode (2)

IndEP	2 channels A - B
dIrEC	1 channel A + counting direction B
PHASE	2 channels phased of 90°

### 1.2. Timer Mode

#### Counting mode

In A	Counting as long as channel A is activated
In A-b	Start counting on channel A, stop counting on channel B

### 1.3 Frequency Mode

dECP	Measuring range
888.88	Maxi 999,99 Hz to mini 0,01Hz
8888.8	Maxi 9 999,9 Hz to mini 0,1Hz
88888	Maxi 10 000 Hz to mini 1Hz

### 1.4. Tachometer Mode

The tachometer automatically operates in:

- Counting direction = UPdo
- Counting mode = PHASE ; for use with 1 channel A, input B is not to be connected

#### Display mode

rPM	Tachometer mode
rAtE	Display range mode
dutY	Duty cycle - Fonction PWM

The content of the programming lines below depends on the programming of the display mode.

#### 1.4.1 Tachometer mode

Display of a rotation speed, a linear speed, a cadence, the display unit is the minute.

#### Pulse evaluation

PPr	
00001	Programmable value from 1 to 99999 for a speed display in rpm or m/min, cadence in strokes/min,...

#### Decimal point position

dECP	
88888	No decimal point
8888.8	Decimal point at first digit
888.88	Decimal point at second digit

The PPr value is equal to the number of pulses generated per display unit: revolution, m, etc... depending on the desired display.

**Example:**

Display the rotation speed of a shaft with an encoder delivering 500 pulses/turn. For a display in rpm, the number of pulses per display unit = 500.

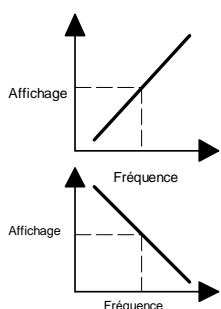
**1.4.2. Display range mode**

Programming of the display range giving the relation between the values to be displayed and the frequency input.

**Selecting the display range**

dIr	Direct display - increasing direction
InU	Inverse display - decreasing direction
Lin	Display range with 2 measure/display points

**Direct display – Reverse display**



**Direct**, the display value increases with the input frequency, to be used to display an hourly production rate, for example.

**Inverse**, the display value decreases with the input frequency, which can be used to display a transit time in a baking tunnel, for example

The line of the display range in these 2 display modes crosses through the input frequency point = 0 Hz.

**Input frequency value**

InP	Programmable value from 1 to 9999
00001	

**Input frequency DP**

000.00	Decimal point position for the value of the previously programmed input frequency
--------	---

**Value to be displayed**

dSP	Display value for the frequency value defined in the previous step
00000	

**DP of the value to be displayed**

00.000	Decimal point position for the previously programmed display value
--------	--

**Example of direct display:**

We want to display the hourly production rate of a press embossing 2 parts at each press stroke. An encoder mounted on the steering wheel of the press delivers 500 pulses per turn.

- At nominal speed the press works at 1 stroke per second:
- 1 press stroke generates 500 imp/sec.
  - the hourly production at this speed is 2 (pieces) x 3600 (sec) = 7200 pieces/hour

**Programming:**

Display range	= Direct
InP	= 500
dSP	= 7200

**Example of inverse display:**

We want to display the cooking time in an oven. An encoder mounted on the drive wheel of the conveyor belt delivers 50 pulses per revolution.

At nominal speed the time of passage in the baking tunnel is 75 s for a drive wheel rotation speed of 300 rpm. The input frequency of the pulses is 300 / 60 = 5 rpm and 5 x 50 imp = 250 imp/s.

**Programming:**

Display range	= Inverse
InP	= 250
dSP	= 75

**Display range with 2 measure/display points**

The line of the display range is defined by 2 measurement /display points to establish a proportional relationship between the input signal value and the display value

**InP 1 Value 1st input frequency**

00000	Programmable value from 0 to 99999
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**Decimal point of inP1**

0000.0	Decimal point position for the value InP1 defined in the previous step
--------	--

**dSP 1 Value 1st display point**

00000	Display value for the signal value input defined in the previous step, programmable from 0 to 99999
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**Decimal point of DSP1**

0000.0	Decimal point position for the value dSP1 defined in the previous step
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**InP 2 Value 2nd input frequency**

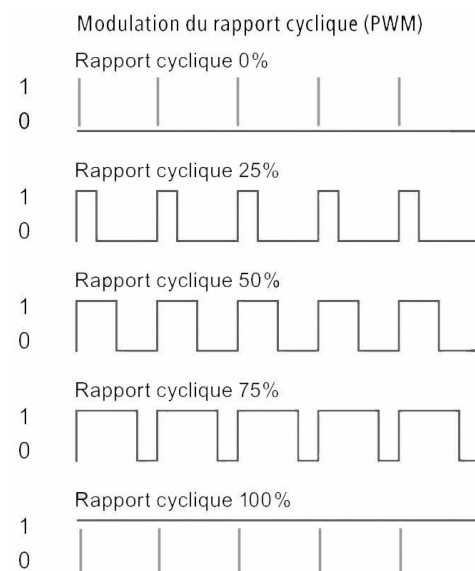
00000	Programmable value from 0 to 99999
-------	------------------------------------

**dSP 2 Value 2nd display point**

00000	Display value for the signal value defined in the previous step, programmable from 0 to 99999 ; the position of the decimal point is fixed by the decimal point of the value of the 1st display point
-------	---

**1.4.3. Duty cycle - Function PWM**

Programming of the display range establishing the relation between the values to be displayed and the value of the PWM duty cycle.



**InP 1 First duty cycle value**

0000	Value programmable from 0 to 100,0%
------	-------------------------------------

**dSP 1 First displayed value**

0000	First displayed value which corresponds to the duty cycle parameter InP1, programmable from 0 to 99999
------	--

### Decimal point for dSP1

000.0 Select decimal point position for the displayed value

### InP 2 Second duty cycle value

0000 Value programmable from 0 to 100,0%

### dSP 2 Second displayed value

0000 Second displayed value which corresponds to the duty cycle parameter InP2, programmable from 0 to 99999. The decimal point position is the same as dSP2

### Period time of the function PWM

t.LIM  
10 Value programmable from 1 to 99 s, this time is the maximum measurement time for the duty cycle = 100%

## 2. Display Configuration

### CndSP



The first step of the module allows you to select one of the different configuration sub-modules using the key . It is identified by a name.

ProC Counter XP (\*)  
totAL Totalizer Σ (\*)  
dISPL Colours and display settings

(\*) Depending on the operating mode selected in menu 1, configuration sub-modules with different programming parameters can be accessed.

### 2.1. Pulses counter mode

#### 2.1.1 Counter XP

##### Decimal point position

dECP  
88888 No decimal point  
8888.8 1 digit after the decimal point  
888.88 2 digits after the decimal point  
88.888 3 digits after the decimal point  
8.8888 4 digits after the decimal point

##### Offset value

oFFS  
±88888 The counter XP is set to this value after a reset

##### Scaling factor value

FAcT  
F.MuLt Multiplier Scaling factor  
F.diV Divider Scaling factor  
88888 Programmable value from 00001 to 99999  
888.88 Decimal point of the scaling factor

#### Example of factor Multt:

Encoder with a resolution of 1000 pulses/turn mounted at the shaft end of a 5 mm pitch worm screw. To display the displacement 1/100th of mm, the factor is 500 (1/100th) / 1000 = 0.500.

#### Example of factor Div:

Resolution encoder 300 pulses/turn mounted on an axis whose number of revolutions is to be counted the factor is equal to 300 / 1 = 300.

#### 2.1.2 Totalizer Σ

totAL  
no Not used  
YES Used, settings below

##### Operating mode

ModE  
rEL Same operation as the counter XP (adding/subtracting)  
AbS The counting pulses are always added  
Set 1 Total incremented when P1 is reached (\*)  
Set 2 Total incremented when P2 is reached (\*)  
Set 3 Total incremented when P3 is reached (\*)  
Set 4 Total incremented when P4 is reached (\*)

(\*) The totalizer Σ works as batch counter. Depending on the option selected, the operating mode of the associated preset is automatically programmed in "Reset" and the output is in pulse contact.

##### Decimal point position

dECP  
88888 No decimal point  
8888.8 1 digit after the decimal point  
888.88 2 digits after the decimal point  
88.888 3 digits after the decimal point  
8.8888 4 digits after the decimal point

##### Offset value

oFFS  
L 8888 The totalizer Σ is set to this value after a reset  
H ±8888

##### Scaling factor value

FAcT  
F.MuLt Multiplier Scaling factor  
F.diV Divider Scaling factor  
88888 Programmable value from 00001 to 99999  
888.88 Decimal point of the scaling factor

### 2.2. Timer mode

#### 2.2.1 Timer XP

##### Offset value

000.00 The counter XP is set to this value after a reset

#### 2.2.2 Timer totalizer Σ

totAL  
No Not used  
YES Used, settings below

##### Offset value

oFFS  
L 8888 The totalizer Σ is set to this value after a reset  
H 8888

## 2.3 Frequency mode

### Frequency XP

#### Scaling factor value

FAcT	
88888	Programmable value from 00001 to 99999
888.88	Decimal point of the scaling factor

#### Display regeneration time

t.AUG	
0.0	Programmable value from 0,0 to 9,9 s

#### Time out

t.LIM	
01.0	Programmable value from 0,1 to 99,9 s, time at the end of which the display is forced to zero if there is no pulse on the input

## 2.4. Tachometer mode

### 2.4.1 Tachometer XP

#### Scaling factor value

FAcT	
88888	Programmable value from 00001 to 99999
888.88	Decimal point of the scaling factor

#### Display regeneration time

t.AUG	
0.0	Programmable value from 0,0 to 9,9 s

#### Time out

t.LIM	
01.0	Programmable value from 0,1 to 99,9 s, time at the end of which the display is forced to zero if there is no pulse on the input

### 2.4.1 Totalizer $\Sigma$

totAL	
No	Not used
YES	Used a pulses counter, settings below

#### Counting mode

IndEP	2 channels A - B
dirEC	1 channel A + counting direction B
PHASE	2 channels phased of 90°

#### Operating mode

ModE	
rEL	Same operation as the counter XP (adding/subtracting)
AbS	The counting pulses are always added

#### Decimal point position

dECP	
88888	No decimal point
8888.8	1 digit after the decimal point
888.88	2 digits after the decimal point
88.888	3 digits after the decimal point
8.8888	4 digits after the decimal point

#### Offset value

oFFS	
L 8888	The totalizer $\Sigma$ is set to this value after a reset
H $\pm$ 8888	

#### Scaling factor value

FAcT	
F.MuLt	Multiplier Scaling factor
F.diV	Divider Scaling factor
88888	Programmable value from 00001 to 99999
888.88	Decimal point of the scaling factor

## 2.5. Colours and display settings

#### Display brightness

brIGH	
-Hi-	High brightness
-Lo-	Low brightness

#### Display colour red, green or amber

CoLor	
Run	In operating mode
ProG	In programing mode
totAL	To display the totalizer $\Sigma$

#### Switching off the display

ECo	
-oFF-	Function disabled
-on-	Function activated
01	Programmable value from 1 to 99 s, time at the end of which the display is switch off, only the decimal point of the right digit is lit to indicate that the device is on. Pressing a key will switch on the display.

## 3. Presets configuration

SEtP



The first step of the module allows you to select one of the different configuration sub-modules using the key . It is identified by a name.

SEt1	Preset P1
SEt2	Preset P2
SEt3	Preset P3
SEt4	Preset P4

#### Note:

If the counter is equipped with the option 2 relay outputs, only the corresponding sub-modules can be configured.

Depending on the operating mode selected in menu 1, configuration sub-modules with different programming parameters can be accessed.

## 3.1. Counter and Timer mode

### 3.1.1. Preset P1

SEt 1





### Preset activation

-on-	Preset enabled
-oFF-	Preset disabled, in this case the following steps are not accessible

### Preset using

ProC	Preset assigned to the counter XP
totAL	Preset assigned to the totalizer $\Sigma$

### Preset value if XP

00000	Programmable value from 0 to $\pm 99\ 999$
-------	--

or **Preset value if  $\Sigma$**

L 8888	Programmable value from 0 from $\pm 99\ 999\ 999$
H $\pm 8888$	

### Operating mode

ModE	
indEP	Main preset
rESEt	Main preset & Reset
StoP	Main preset & Stop
CLEAR	Main preset & Clear
CSCdE	Step preset

### Activation direction of the preset

-HI-	Increasing counting, mode HIGH
-Lo-	Decreasing counting, mode LOW

### Switching time of the output

LatCH	Permanent contact
PuLSE	Pulse contact, time value
0.0	programmable from 0.0 to 9.9 sec

### Display colour setting at preset

no CH	The colour of the display is unchanged
ALARm	Red, green or amber display

#### 3.1.2. Preset P2



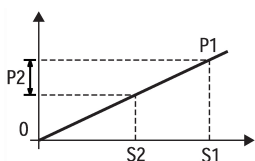
### Preset activation

-on-	Preset enabled (1)
trACK	Self-adjusting preset (2)
-oFF-	Preset disabled, in this case the following steps are not accessible

(1) Programming and operation identical to preset P1.

### Self-adjusting preset (2)

Preset P2 is associated to preset P1. The value P2 represents the value of the floating preliminary and allows output S2 to be activated always at a fixed number of units before or after the preset P1. It is not necessary to retouch P2 when P1 is modified.



### Note:

If the value of P2 is  $> 0$ , the value of the preliminary is  $P1-P2$ .  
 If the value of P2 is  $< 0$ , the preliminary value is  $P1+P2$ . This is true regardless of the offset value  $>$  or  $<$  to P1.

### Preliminary value if XP

00000	Programmable value from 0 to $\pm 99\ 999$
-------	--

or

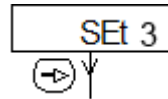
### Preliminary value if $\Sigma$

L 8888	Programmable value from 0 to $\pm 99\ 999\ 999$
H $\pm 8888$	

### Display colour setting at preset

no CH	The colour of the display is unchanged
ALARm	Red, green or amber display

#### 3.1.3. Preset P3

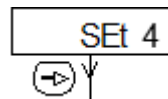


### Preset activation

-on-	Preset enabled (1)
-oFF-	Preset disabled, in this case the following steps are not accessible

(1) Programming and operation identical to preset P1.

#### 3.1.4. Preset P4



### Preset activation

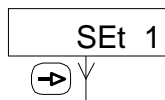
-on-	Preset enabled (1)
trACK	Self-adjusting preset (2)
-oFF-	Preset disabled, in this case the following steps are not accessible

(1) Programming and operation identical to preset P1.

(2) Programming and operation identical to preset P2 in preliminary mode. The preset P4 is associated to preset P3.

## 3.2. Tachometer and Frequency mode

#### 3.2.1. Preset P1



### Preset activation

-on-	Preset enabled
-oFF-	Preset disabled, in this case the following steps are not accessible

### Preset using (1)

ProC	Preset assigned to XP
totAL	Preset assigned to the totalizer $\Sigma$ (2)

(1) Only accessible in the tachometer mode

(2) See programming and operation identical to counter or timer, chapter 3.1

### Preset value

00000	Programmable value from 0 to $\pm 99\ 999$
-------	--

### Activation direction of the preset

-HI-	Increasing value, mode HIGH
-Lo-	Decreasing value, mode LOW
-Lo2-	Decreasing value, mode LOW2, the output is not activated when the speed or frequency increases after the power is turned on

### Operating mode

-dLY-	Action delayed by timeout
-HYS-	Hysteresis

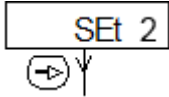
### Configuration Value

00000	Programming the delay (dLY) from 0 to 99 sec or hysteresis (HYS) in display units
-------	---

### Display colour setting at preset

no CH	The colour of the display is unchanged
ALArM	Red, green or amber display

### 3.2.2. Preset P2



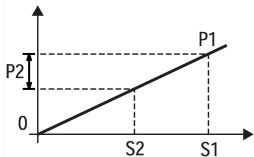
### Preset activation

-on-	Preset enabled (1)
trACK	Self-adjusting preset (2)
-oFF-	Preset disabled, in this case the following steps are not accessible

(1) Programming and operation identical to preset P1.

### Self-adjusting preset (2)

Preset P2 is associated to preset P1. The value P2 represents the value of the floating preliminary and allows output S2 to be activated always at a fixed number of units before or after the preset P1. It is not necessary to retouch P2 when P1 is modified.



### Note:

If the value of P2 is > 0, the value of the preliminary is P1-P2. If the value of P2 is < 0, the preliminary value is P1+P2. This is true regardless of the offset value > or < to P1.

### Preliminary value if XP

00000	Programmable value from 0 to ±99 999
-------	--------------------------------------

or

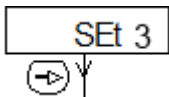
### Preliminary value if Σ

L 8888	Programmable value from 0 to ±99 999 999
H ±8888	

### Display colour setting at preset

no CH	The colour of the display is unchanged
ALArM	Red, green or amber display

### 3.1.3. Preset P3

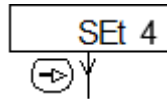


### Preset activation

-on-	Preset enabled
-oFF-	Preset disabled, in this case the following steps are not accessible

(1) Programming and operation identical to preset P1.

### 3.1.4. Preset P4



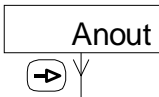
### Preset activation

-on-	Preset enabled (1)
trACK	Self-adjusting preset (2)
-oFF-	Preset disabled, in this case the following steps are not accessible

(1) Programming and operation identical to preset P1.

(2) Programming and operation identical to preset P2 in preliminary mode. The preset P4 is associated to preset P3.

## 4. Analog Output configuration



### Analog output using (1)

ProC	Output assigned to the counter XP
totAL	Output assigned to the totalizer Σ

(1) Only accessible if the totalizer is used.

outLo	Low Scale value if XP
00000	Programmable value from 0 to ±99 999

or

L 8888	Programmable value from 0 to ±99 999 999
H ±8888	

The analog output will start to evolve from this value.

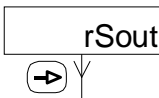
outHI	High Scale value if XP
00000	Programmable value from 0 to ±99 999

or

L 8888	Programmable value from 0 to ±99 999 999
H ±8888	

The full scale of the analog output will be reached at this value.

## 5. Serial Interface configuration « rSout »



The first step of the module allows you to select one of the different configuration sub-modules using the key ►. It is identified by a name.

bAud	Transmission rate
trAnS	Protocol Selection
dLY	Response Time (*)

(\*) These configuration submodules appears only with the serial interface RS485 option.

## 5.1. Transmission setting

bAud



### Transmission Rate

1200	1200 bauds
2400	2400 bauds
4800	4800 bauds
9600	9600 bauds
19200	19200 bauds

Adr

### Indicator Address

01	Value from 01 to 99
----	---------------------

## 5.2. Communication Protocol

trAnS



### Communication Protocol

Prt 1	ASCII
Prt 2	ISO 1745
Prt 3	MODBUS (RTU)

## 5.3. Serial Interface RS485 Response Time

dLY



### Response Send Time

0	No delay
1	Delay of 30 ms
2	Delay of 60 ms
3	Delay of 100 ms

## 6. Ethernet port configuration « EtnEt »

EtnEt



### IP Address Configuration

_	192	Octet n°1
L	168	Octet n°2
C	001	Octet n°3
O	010	Octet n°4

## 7. Control Input Configuration

LoGIn



The first step of the module allows you to select one of the different configuration sub-modules using the key **►**. It is identified by a name.

InP-1	Control Input connector pin 2
InP-2	Control Input connector pin 3
InP-3	Control Input connector pin 4

## 7.1. Control Input Connector pin 2

InP-1



### Function Number

1	Value between 00 and 13
---	-------------------------

## 7.2. Control Input Connector pin 3

InP-2



### Function Number

2	Value between 00 and 13
---	-------------------------

## 7.3. Control Input Connector pin 4

InP-3



### Function Number

6	Value between 00 and 13
---	-------------------------

## LISTE DES FONCTIONS DISPONIBLES

N°	Description	(*)
00	Input deactivated	-
01	The displayed value is stored as the offset value for Proc	F
02	Reset to zero of the offset value for Proc	F
03	Reset to zero of the value Proc, Total, Max, Min or Lo2	N
04	Displayed value Proc, Total, Max or Min	N
05	Send on the serial interface the ASCII codes of Proc, Total, Max, Min, Offset, P1, P2, P3 or P4	F
06	Hold the displayed value	N
07	Change the display luminosity	N
08	Change the display colour	N
09	Quick access to value programming Offset, P1, P2, P3 or P4	F
10	Dummy presets if the outputs are no present	N
11	Simulates one of the 3 keys on the keyboard	F
12	Stop counting	N

(\*) Function activated on Level - N or on Edge – F

## 4. Programming Access Control

- To avoid any accidental modification of the "Manufacturer" programming, it is possible to protect this programming with an access code.
- The "User" programming mode allows the user to program the values of the presets Set1 to Set4 and the offset positioning values. It is possible to disable the user from modifying some specific values.

### Operating mode

- Press during 5 sec the key  $\rightarrow$ , the message [CodE] is displayed.
- Enter the access code protecting the "Manufacturer" programming. The factory access code is "0000". Value to be entered using the keys  $\blacktriangleright$  and  $\blacktriangle$ .
- The next step of this module allows you to select one of the following 2 options using the key  $\blacktriangleright$  :

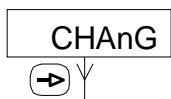
LIST	List of values accessible to the user
CHAnG	Changing the access code



### "User" programming access

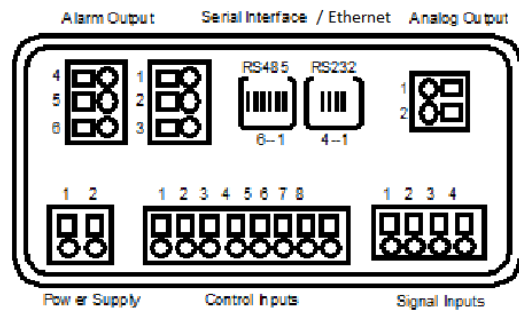
SEt1	Preset P1	0 = allowed, 1 = forbidden
SEt2	Preset P2	
SEt3	Preset P3	
SEt4	Preset P4	
oFS P	Offset counter XP	
oFS t	Offset totalizer $\Sigma$	
rES P	Reset counter XP	
rES t	Reset totalizer $\Sigma$	
MAHMn	Validate on the display with the key $\blacktriangleright$ , in Tachometer and Frequency mode, the MIN/MAX values	

The lines only appear if the counter is equipped with the corresponding options.



----	<b>Access code</b> Code to access at the "Manufacturer" programming and at this Programming Access Control
------	---

## 5. Connections



### Power Supply

Version	VAC	VDC
Terminal 1 :	phase	-
Terminal 2 :	neutral	+

### Signal Inputs

Terminal 1 :	NC
Terminal 2 :	Excitation +20V
Terminal 3 :	Excitation +8,2V
Terminal 4 :	Excitation - / IN -
Terminal 5 :	Channel B +
Terminal 6 :	Channel A +
Terminal 7 :	NC
Terminal 8 :	Input 10-300 VAC

### Analog Output

Terminal 1 :	- 4-20 mA / 0-10 V
Terminal 2 :	+ 4-20 mA / 0 V

### Serial Interface

Interface	RS 232	RS 485
Terminal 1 :	NC	---
Terminal 2 :	TxD	NC
Terminal 3 :	RxD	TR B
Terminal 4 :	GND	TR A
Terminal 5 :		GND
Terminal 6 :		---

### Liaison Ethernet

Interface	RJ45
Terminal 1 :	+Tx
Terminal 2 :	-Tx
Terminal 3 :	+Rx
Terminal 4 :	NC
Terminal 5 :	NC
Terminal 6 :	-Rx
Terminal 7 :	NC
Terminal 8 :	NC

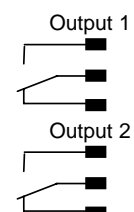


**Flashing green LED:** network activity  
**LED amber fixed:** network connection established

### Alarm Outputs

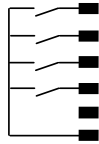
$\Rightarrow$  **2-Relay Option**

Terminal 1 :	Contact NO
Terminal 2 :	Common
Terminal 3 :	Contact NF
Terminal 4 :	Contact NO
Terminal 5 :	Common
Terminal 6 :	Contact NF



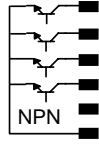
⇒ **4-Relay Option**

- Terminal 1 : Output C1
- Terminal 2 : Output C2
- Terminal 3 : Output C3
- Terminal 4 : Output C4
- Terminal 5 : NC
- Terminal 6 : Common



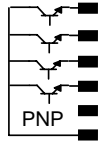
⇒ **4-NPN Static Option**

- Terminal 1 : Output C1
- Terminal 2 : Output C2
- Terminal 3 : Output C3
- Terminal 4 : Output C4
- Terminal 5 : NC
- Terminal 6 : Common



⇒ **4-PNP Static Option**

- Terminal 1 : Output C1
- Terminal 2 : Output C2
- Terminal 3 : Output C3
- Terminal 4 : Output C4
- Terminal 5 : NC
- Terminal 6 : Common



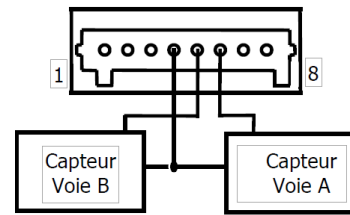
● **Control Inputs**

- Terminal 1 : Common
- Terminal 2 : In1
- Terminal 3 : In2
- Terminal 4 : In3

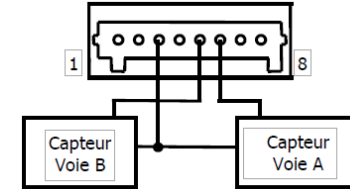


**Connecting Examples**

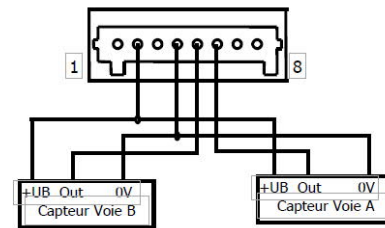
⇒ **Magnetic sensor**



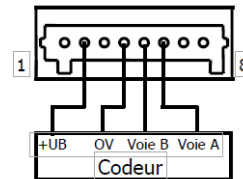
⇒ **Namur Sensor**



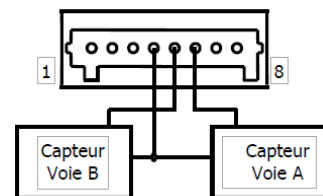
⇒ **PNP/NPN Sensor**



⇒ **PNP/NPN Encoder**



⇒ **Input without potential NPN**



⇒ **Input 10-300 VAC**

