

# Programmable event counter

## Technical data:

Code : MC400  
Model : AP-410 AP\_420 AP\_430  
Supply : 220 v , 50 Hz , +/- 10%  
Range : 0 ...9999  
Output : Relay (5 A / 250 Vac)  
Amb. Temp.: -10...+50 C  
Programming: by front panel keys  
Dimensions : 72x72 mm front panel mounting



## Features:

- Process value is saved automatically at power failures.
- Auto reset using watch dog.
- Multifunction (auto/semi-auto/manual modes of operation).
- On line parameter editing.
- UP or DOWN counting.
- Slow (mechanical switch) and fast(Electronic ) pulse inputs.
- Programmable timer for output Relay “ON time” (auto mode only)

## Details:

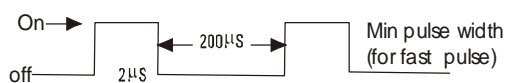
### A : Front panel

- 1- Set key : This key is used to:
  - Display and edit preset value.
  - Enter programming mode .
  - Display and edit parameter values.
- 2- UP key : This key is used to :
  - Increase parameter value .
  - Choose the next parameter.
- 3- DN. key : This key is used to :
  - Decrease parameter value .
  - Choose the previous parameter.
- 4- R key : This key is used to :
  - Clear the count (Reset to zero)
- 5- LED-OUT1 : Relay 1 status (ON=Relay is active)
- 6- LED-OUT2 : Relay 2 status (ON=Relay is active)

### B : Rare side (Input /Output)

## INPUTS:

- 1- Supply : Supply terminals ( 220 v , 50 Hz , +/- 10%)
- 2- Input 1 : terminals for applying input counting pulse.  
(applying a low pulse (-) to this terminal is counted as one pulse)

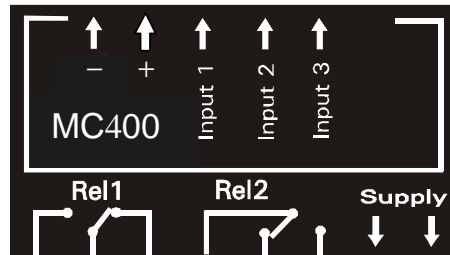


- 3- Input 2 :Remote reset terminal  
(applying a low pulse (-) to this terminal will reset the unit to zero)
- 4- Input 3 : Terminal for down counting mode  
(connecting this terminal to a low (-) will put the unit in down counting mode.

**OUTPUTS:**

15...18 V dc, 50 mA output to be used for sensors etc.

Output relay (5 A / 250 Vac)



**Operating Instructions :**

- This unit operates in two deferent modes, Normal mode (Displaying Process value .) Programming mode (Displaying parameters). Connect supply and pulsing wires ,apply power and the unit will start operation in normal mode.
- To view and edit the set value (S\_V) press the “Set” key S\_V will be displayed in blinking mode ,use UP or DN key to edit the value.
- To view and edit the operator programmable parameters, Press and hold the “Set” key until the first parameters “Func” is Displayed ,release the set key ,now you can view the para. value by pressing the “Set” key” again and while pressing “Set” key “edit the value by UP/DN keys,or use UP/DN keys to choose another parameter and view or edit it’s value.Releasing the set key will save the new value in memory.  
If untouched the unit will return to normal mode after timeout.

Please do not confuse Parameter values with parameter menus (for example “Func”is a parameter menu but “Auto” or “Au.Hd “ are parameter values)

Table 1 shows available parameters and corresponding possible values.

**Parameter description:**

Para.	Possible value
Func.	Auto-Hand-Au.Hd
Au.dt.	0..99.9
PuLS	Slo-FAST
Slo.n	0..20
SAUE	YES-no

Func. : Choose Auto-semi auto or manual mode.

- In automatic mode. When P\_V =S\_V
  - 1- Relay 1 and LED 1 will turn on and stay on for a time period specified by the “Au.dt.” parameter
  - 2- The P\_V will reset to zero , counting will continue none stop .  
Note: If in down counting mode ,when P\_V=0 counting will be stopped ,to start counting again disconnect the (-) from “input 3” terminal to put the unit in UP counting mode.
- In manual mode. When P\_V =S\_V
  - 1- Counting will be stopped.
  - 2-Relay 1 and LED 1 will turn on and stay on.
  - 3-To turn Relay 1 and LED 1 off and resume counting again, the unit must be reset to zero by pressing “R” key .
- In Semi auto mode. When P\_V =S\_V
  - 1- Counting will NOT be stopped.
  - 2-Relay 1 and LED 1 will turn on and stay on.but Counting will NOT be stopped.  
This mode is considered to be useful when a break is applied to stop the counting pulses(it will show the number of pulses counted after applying the break.if number of pulse counted is more than 9999 or less than -1999 ,the display will show “OVER”)
  - 3-To turn Relay 1 and LED 1 off, the unit must be reset to zero by pressing “R” key .

Au.dt.: Delay time (in 0.1 sec) for output relay “ON time ” in auto mode

PuLS: type of counting pulse (Slow/Fast)

- Choose “SLO”: when counting pulse is provided by mechanical micro-switch or the like . the maximum number of pulse per second which can be counted in this mode is 20 .specify the number of pulse per second (1....20) in the “Slo.n” parameter for better noise rejection.

Slo.n:

- specify the number of pulse per second (1....20) for better noise rejection

SAUE:

- “YES” the process value is saved in memory at power cuts or when the unit is turned off ,and when powered on the unit will resume operation from saved value.
- “no” the process value is NOT saved in memory at power cuts or when the unit is turned off.

An example

Lets suppose the unit has to operate in automatic mode and the counting pulses are provided by a mechanical micro-switch and we expect to get three counting pulses per second and we also want the process value to be saved in memory at power cuts.

Because we want automatic operation we must specify the relay “on time “ lets suppose we need the relay to be active for 3.5 seconds when P\_V=S\_V.

According to the given conditions the parameters should be set as follows.

Parameter	Value
Func.	Auto
Au.dt.	3.5
PuLS	Slo
Slo.n	a number between 2 and 5
SAVE	YES

#### OPTIONAL parameters

The following optional parameters are implemented on request(MODEL AP\_ 420).

(Do not hesitate to contact us for additional requests. )

Parameter	possible value
C.E.	1._.n/n._.1
CE.n.	1....100

Parameter description.

C.E. : (Count Edit operater)

- choos (1.\_.n) ”one to many” to multiply each pulse by the number specified in the CE.n.”parameter.
- choos (n.\_.1) ”many to one” to devide each pulse by the number specified in the “CE.n.” parameter.

CE.n : (Count Edit scale)

- The counted pulse will be edited (multiplied or devided) by this scale.