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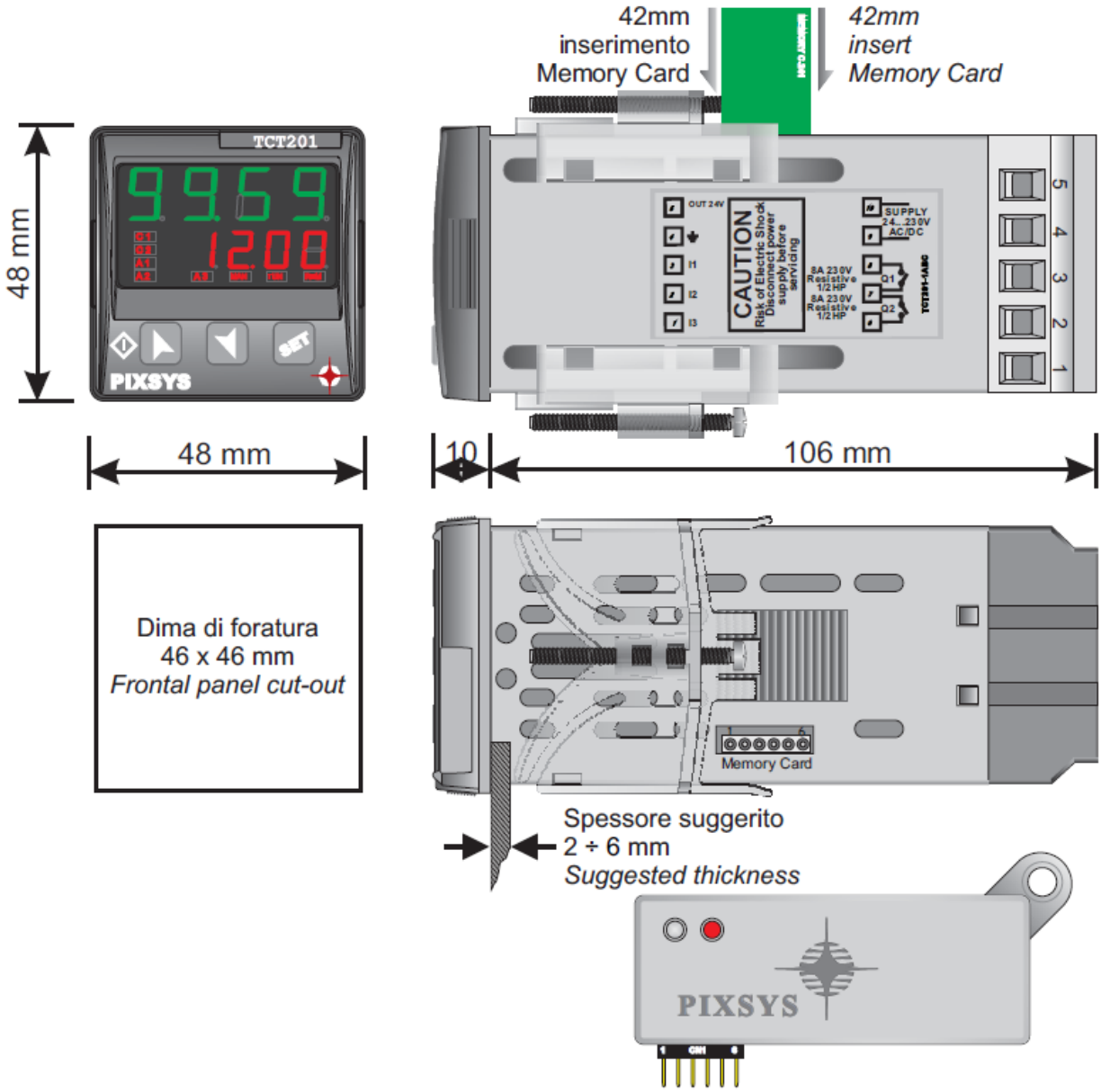
# PIXSYS TCT201 Timer Counter


## Product Usage Instructions

- Thank you for choosing a Pixsys device.
- The Counter TCT201 can be set in 2 different modes: Single or Double counter, all with independent settings.
- This device features universal digital inputs that can be used for various functions such as encoder reading, count functions, and setpoint modifications.
- Before using or connecting the device, carefully read the safety guidelines and programming instructions in the manual.
- Always disconnect the power supply before adjusting hardware settings or electrical wiring.
- Only qualified personnel should handle the device according to the technical data and environmental conditions provided.
- Follow the wiring diagram provided in the manual for proper installation.
- Ensure to disconnect the power supply before servicing or making any electrical connections.

## SIZE AND INSTALLATION




| LED | MEANING |
|---|---|
|  | Report the activation of Q1 |
|  | Report the activation of Q2 |
|  | Report serial transmission by the TCT201 |

## SETPOINT MODIFICATION

| | PRESS | DISPLAY |
|---|---|---|
| 1 | SET | Visualizes SETPOINT 1 / 2 |
| 2 | or | Modify selected SET |

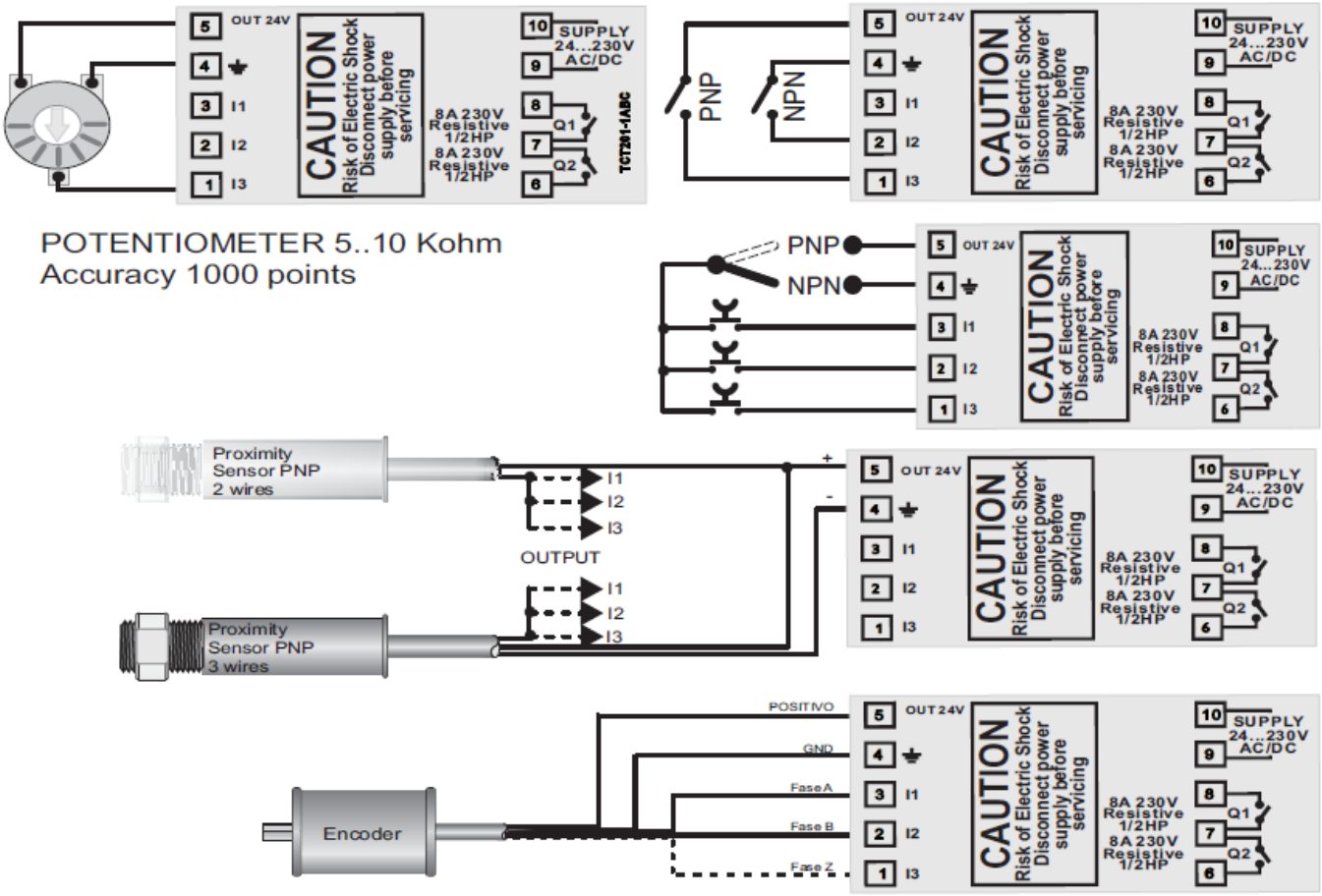
## TECHNICAL DATA

- Operating temperature: Operating temperature 0-40°C, humidity 35..95uR%
- Sealing: IP65 (with gasket) on front panel, IP20 box and terminal bloks
- Material: PC ABS UL94V0 self-extinguishing
- Digital Inputs: 3PNP/NPN configurable as analogue for potentiometers.(max 28 Vdc in PNP mode)
- Outputs OUT 24V: 2 relays 8A resistive charge 30mA(24Vac),40mA(24 Vdc),60mA (110…230Vac)
- Back-UP: Rechargeable battery, approx. 60days autonomy
- Programming Software: Labsoftview 2.6 or later
- Power Supply: 24…230Vac/Vdc +/-15% 50/60Hz / 2W

## INTRODUCTION

- Thanks for choosing a Pixsys device. Counter TCT201 can be set in 2 different modes: Single or Double counter, all with independent settings. 3 universal digital inputs are available (NPN/PNP/Potential free contact) and can be used for bidirectional encoders reading, or Up/Down count function, count inversion, Lock/ Hold to lock or hold current visualisation.
- One input is also analogue in order to allow setpoint modification by an external potentiometer.
- Read carefully the safety guidelines and programming instructions contained in this manual before using/connecting the device.
- Disconnect the power supply before proceeding to the hardware settings or electrical wiring. Only qualified personnel should be allowed to use the device and/or service it and in accordance to the technical data and environmental conditions listed in this manual.
- Do not dispose of electric tools together with household waste materials in observance of European Directive 2002/96/CE

## WIRING DIAGRAM




**Potentiometer**

To modify Set1 or Set2 by an external potentiometer, follow the steps below:

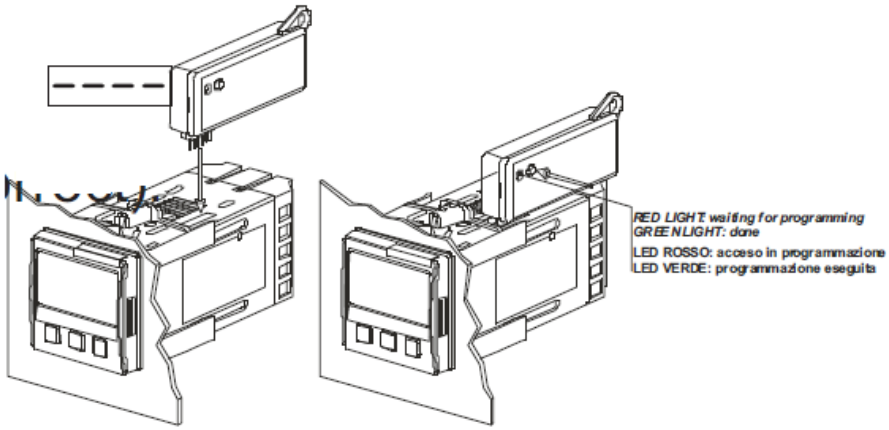
1. Use potentiometers 5kOhm to 10kOhm
2. Connect the cursor to pin I3; a wrong connection may damage the potentiometer and lead to lock of the device.
3. accuracy on input is max 1000 points, therefore set the parameters “Upper limit” and “Lower limit” with a max difference of 1000 units.
   (Ex.: LoS1 to 50,0 and uPS1 to 150,0 to modify time value related to Set1 between 50 and 150 seconds with steps of one tenth). Greater differences would make the less significant digit.
4. To calibrate the scale of the potentiometer, enter the configuration mode and select: Hin.3 as Pot Fin 3 as Set1 or Set2 P.tAr as Enable
   Exit configuration mode and place the potentiometer at the minimum level and press key, then place the potentiometer at max level and press the primary key: the device automatically exit the calibration procedure.
   N.B.:Aswitch-off of the device would interrupt the calibration.

**MEMORY CARD (optional)**

- Parameters and setpoint values can be copied from one device to another using the Memory car.

**There are two methods:**

- With the device connected to the power supply insert the memory card when the controller is off.
- On activation display 1 shows and display 2 shows (Only if the values stored on Mmeory Card are correct).
- By pressing the key display 2 shows LoAd
- Confirm using the key .
- The device loads the new data and starts again.




**With the controller disconnected from the power supply**

- The memory card is equipped with an internal battery with a life of about 1000 uses.
- Insert the memory card and press the programming button.
- When writing the parameters, the LED turns red and on completing the procedure, it changes to green. It is possible to repeat the procedure.

## UPDATING MEMORY CARD

- To update the memory card values, follow the procedure described in the first method, setting display 2 ---- to so as not to load the parameters on the controller.

- Enter the configuration and change at least one parameter.
- Exit configuration. Changes are saved automatically.

## LOADING DEFAULT VALUES

| | PRESS | DISPLAY | DO |
|---|---|---|---|
| 1 | SET for 3 seconds | Display 1 shows 0000 with 1°digit blinking, while Display 2 shows PASS | |
| 2 | Or | Modifies blinking digit and pass to the next one pressing SET | Enter password 9999 |
| 3 | to confirm | Device loads default values | Switch the device off and restart it |

## MODIFY CONFIGURATION PARAMETERS

| | PRESS | DISPLAY | DO |
|---|---|---|---|
| 1 | SET for 3 seconds | Display 1 shows 0000 with first digit blinking, while Display 2 shows PASS | |
| 2 | or | Modifies blinking digit and pass to the next one pressing | Enter password 1234 |
| 3 | to confirm | Display shows first parameter of configuration table Func | |
| 4 | or | Scroll paremeters | |
| 5 | + or | Increase or decrease visualized value pressing and an arrow key | Enter the new data that will be saved when releasing arrow key |
| 6 | + | End configuration, controller exits from programming mode | |

## PARAMETERS LIST

### FUNCTION CONFIGURATION

| | | | |
|---|---|---|---|
| Func. | **P-01 Counter Function** | ***Counter functions*** | |
| SinG | Single (1 Counter) | *1 counter functioning* | Default |
| doub | Double (2 Counters) | *2 counters functioning* | |

## BACKUP MEMORY CONFIGURATION

| | | | |
|---|---|---|---|
| PoME. | **P-02 Power-off Memory** | ***Power-off memory*** | |
| dIS. | Disable | *No counter stored at power-off* | Default |
| cnt.1 | Counter 1 | *Counter 1 stored at power-off* | |
| cnt.2 | Counter 2 | *Counter 2 stored at power-off* | |
| ALL | All Counters | *All counters stored at power-off* | |

## INPUT CONFIGURATION

| | | | |
|---|---|---|---|
| H. in.1 | **P-03 Hardware input 1** | ***Input 1 hardware configuration*** | |
| H. in.2 | **P-04 Hardware input 2** | ***Input 2 hardware configuration*** | |
| H. in.3 | **P-05 Hardware input 3** | ***Input 3 hardware configuration*** | |
| nPn | NPN | *NPN (not available on input 3)* | |
| PnP | PNP | *PNP* | Default |
| ttL | TTL | *TTL* | |
| Pot. | Potent. | *Potentiometer (available only for input 3)* | |
| F iL.1 | **P-06 Filter Delay Input 1** | ***Input 1 digital filter configuration*** | |
| F iL.2 | **P-07 Filter Delay Input 2** | ***Input 2 digital filter configuration*** | |
| F iL.3 | **P-08 Filter Delay Input 3** | ***Input 3 digital filter configuration*** | |
| 0.0 | No delay | *Input filter desabled* | Default |
| 0.5 | 0,5 ms | *Filter of 0,5 ms* | |
| | ... | *...(Step 0,5 ms)* | |
| 100.0 | 100,0 ms | *Filter of 100,0 ms* | |

Disable
Counter = Set 1
Counter = Set 2
Counter = Set 1+Output Duration 1
Counter = Set 2+Output Duration 2
Counter = Visualized counts
Counter = Set 1-Output Duration 1
Counter = Set 2-Output Duration 2

| | | | |
|---|---|---|---|
| A. in. 1 | **P-09 Active State Input 1** | ***Active state input 1*** | |
| A. in2 | **P-10 Active State Input 2** | ***Active state input 2*** | |
| A. in3 | **P-11 Active State Input 3** | ***Active state input 3*** | |
| HLEu | High Level | *High level (available only for input 1)* | |
| LLEu | Low Level | *Low level (available only for input 2)* | |
| r iSi | Rising edge | *Rising edge* | Default |
| FALL | Falling edge | *Falling edge* | |
| F. in3 | **P-12 Function Input 3** | ***Function associated to input 3*** | |
| d iS | Disable | *Desabled* | |
| Enc2 | Encoder Z | *Loading encoder Z* | |
| Ld. 1 | Load Counter 1 | *Loading counter 1* | Default |
| Ld. 2 | Load Counter 2 | *Loading counter 2* | |
| Ld. 12 | Load Counter 1&2 | *Loading counters 1 and 2* | |
| SEt 1 | Set1 | *Set1 setting by potentiometer* | |
| SEt2 | Set2 | *Set2 setting by potentiometer* | |
| FtuP | **P-13 Function Key UP** | ***Function associated to UP (up arrow key)*** | |
| d iS | Disable | *Desabled* | Default |
| Ld. 1 | Load Counter 1 | *Loading counter 1* | |
| Ld. 2 | Load Counter 2 | *Loading counter 2* | |
| Ld. 12 | Load Counter 1&2 | *Loading counters 1 and 2* | |
| PtAr. | **P-14 Potentiom. Tarature** | ***Potentiometer calibration procedure*** | |
| d iS | Disable | *Desabled* | Default |
| En | Enable | *Enabled* | |

## COUNTER CLOCK CONFIGURATION

| | | | |
|---|---|---|---|
| CLC. 1 | **P-15 Clock Counter 1** | ***Counter 1 count mode selection*** | |
| CLC2 | **P-33 Clock Counter 2** | ***Counter 2 count mode selection*** | |
| d iS | Disable | *Desabled* | Default C2 |
| Enc. | Encoder | *Bidirectional encoder (I1) phase A, (I2) phase B* | |
| uP.-- | I1 Up, I2 Off | *UP mode (I1)* | Default C1 |
| da-- | I1 Down, I2 Off | *DOWN mode (I1)* | |
| --uP | I1 Off, I2 Up | *UP mode (I2)* | |
| --da | I1 Off, I2 Down | *DOWN mode (I2)* | |
| uPda | I1 Up, I2 Down | *UP mode (I1) - DOWN mode (I2)* | |
| uP. d | I1 Up, I2 Incr./Decr. | *UP mode (I1) with reverse direction (I2)* | |
| uPEL | I1 Up, I2 En./Lock | *UP mode (I1) with count lock (I2)* | |
| uPEH | I1 Up, I2 En./Hold | *UP mode (I1) with keeping value on display (I2)* | |
| daEL | I1 Down, I2 En./Lock | *DOWN mode (I1) with count lock (I2)* | |
| daEH | I1 Down, I2 En./Hold | *DOWN mode (I1) with keeping value on display (I2)* | |
| ac2 | Output Counter 2/1 | *UP count on rising edge of counter 2/1* | |

## COUNTER DISPLAY CONFIGURATION

| | | | |
|---|---|---|---|
| d iC. 1 | **P-16 Display Counter 1** | ***Counter 1 visualization selection*** | |
| d iC2 | **P-34 Display Counter 2** | ***Counter 2 visualization selection*** | |

| | | | |
|---|---|---|---|
| d iS | Disable | *Counter value not visualized* | Default C2 |
| U iSu | Visualized | *Counter value visualized* | Default C1 |
| dPC. 1 | **P-17 Decimal Point Counter 1** | ***Counter 1 visualization format*** | |
| dPC.2 | **P-35 Decimal Point Counter 2** | ***Counter 2 visualization format*** | |
| 0 | 0 | *No decimal digit visualization* | **Default** |
| 0.0 | 0.0 | *1 decimal digit visualization* | |
| 0.00 | 0.00 | *2 decimal digits visualization* | |
| 0.000 | 0.000 | *3 decimal digits visualization* | |
| inC. 1 | **P-18 Counter 1 input counts** | ***Counter 1 input counts (1...9999)*** | Default 1 |
| inC.2 | **P-36 Counter 2 input counts** | ***Counter 2 input counts (1...9999)*** | Default 1 |
| u iC. 1 | **P-19 Counter 1 Visualized Counts** | ***Counter 1 visualized counts (1...9999)*** | Default 1 |
| u iC.2 | **P-37 Counter 2 Visualized Counts** | ***Counter 2 visualized counts (1...9999)*** | Default 1 |

SETPOINT CONFIGURATION

| | | | |
|---|---|---|---|
| d iS. 1 | **P-20 Display Set 1** | ***Counter 1 setpoint visualization selection*** | |
| d iS.2 | **P-38 Display Set 2** | ***Counter 2 setpoint visualization selection*** | |
| d iS | Disable | *Setpoint value not visualized* | Default C2 |
| U iSu | Visualized | *Setpoint value visualized* | |
| Mod i | Modifiable | *Setpoint value visualized and modifiable* | Default C1 |
| LoS. 1 | **P-21 Lower Limit Set 1** | ***Set 1 minimum value (0...9999)*** | Default 0 |
| LoS.2 | **P-39 Lower Limit Set 2** | ***Set 2 minimum value (0...9999)*** | Default 0 |
| uPS. 1 | **P-22 Upper Limit Set 1** | ***Set 1 maximum value (0...9999)*** | Default 999 |
| uPS.2 | **P-40 Upper Limit Set 2** | ***Set 2 maximum value (0...9999)*** | Default 999 |

AUTOMATIC LOAD CONFIGURATION

| | | | |
|---|---|---|---|
| AL.C. 1 | **P-23 Automatic Load Counter 1** | ***Counter 1 automatic loading*** | |
| AL.C.2 | **P-41 Automatic Load Counter 2** | ***Counter 2 automatic loading*** | |

| | | | |
|---|---|---|---|
| d iS | Disable | *Automatic loading desabled* | Default |
| SEt 1 | Counter = Set 1 | *Loading if counter = Set1* | |
| SEt2 | Counter = Set 2 | *Loading if counter = Set2* | |
| Sod 1 | Counter = Set 1+Output Duration 1 | *Loading if counter = Set1 + "Output Duration 1"* | |
| Sod2 | Counter = Set 2+Output Duration 2 | *Loading if counter = Set2 + "Output Duration 2"* | |
| u iC. 1 | Counter = Visualized counts | *Loading if counter = "Visualized Counts"* | |
| S-d. 1 | Counter = Set 1-Output Duration 1 | *Loading if counter = Set1 - "Output Duration 1"* | |
| S-d2 | Counter = Set 2-Output Duration 2 | *Loading if counter = Set2 - "Output Duration 2"* | |
| Sdt. 1 | Counter = Set 1 after Out. Dur. 1(time) | *Loading if counter = Set1 "Output Duration 1"* | |
| Sdt2 | Counter = Set 2 after Out. Dur. 2(time) | *Loading if counter = Set2 "Output Duration 2"* | |

## COUNTER LOAD VALUE CONFIGURATION

| | | | |
|---|---|---|---|
| C.Ld. 1 | **P-24 Counter Load Value 1** | ***Counter 1 loading value*** | Default 0 |
| C.Ld2 | **P-42 Counter Load Value 2** | ***Counter 2 loading value*** | Default 0 |

## COUNTER OUTPUT MODE CONFIGURATION

| | | | |
|---|---|---|---|
| C.oM. 1 | **P-25 Counter 1 Output Mode** | ***Counter 1 output mode*** | |
| C.oM2 | **P-43 Counter 2 Output Mode** | ***Counter 2 output mode*** | |
| SEt. 1 | Counter ≥Set | *Output active if Counter ≥Set* | **Default** |
| t iME | Counter ≥Set * Output Duration (time) | *Output active for "Output Duration" time if Counter ≥Set* | |
| Coun | Counter ≥Set * Output Duration (counts) | *Output active for "Output Duration" counts if Counter ≥Set* | |
| SE. 12. | Counter ≥Set1+Set2 | *Output active if Counter ≥Set1+Set2* | |
| -SE. 1 | Counter ≤Set | *Output active if Counter ≤Set* | **Default** |
| -t iM | Counter ≤Set * Output Duration (time) | *Output active for "Output Duration" time if Counter ≤Set* | |
| -Cou | Counter ≤Set * Output Duration (counts) | *Output active for "Output Duration" counts if Counter ≤Set* | |
| -S. 12. | Counter ≤Set1+Set2 | *Output active if Counter ≤Set1+Set2* | |

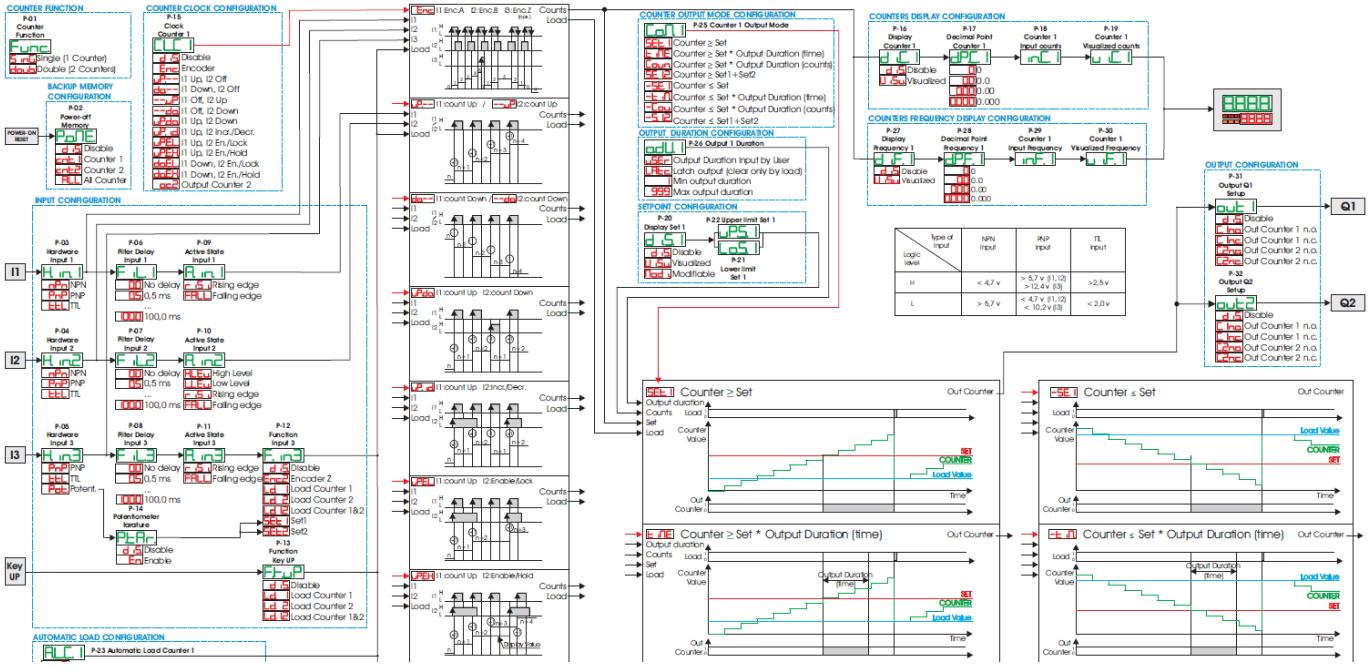
## OUTPUT DURATION CONFIGURATION

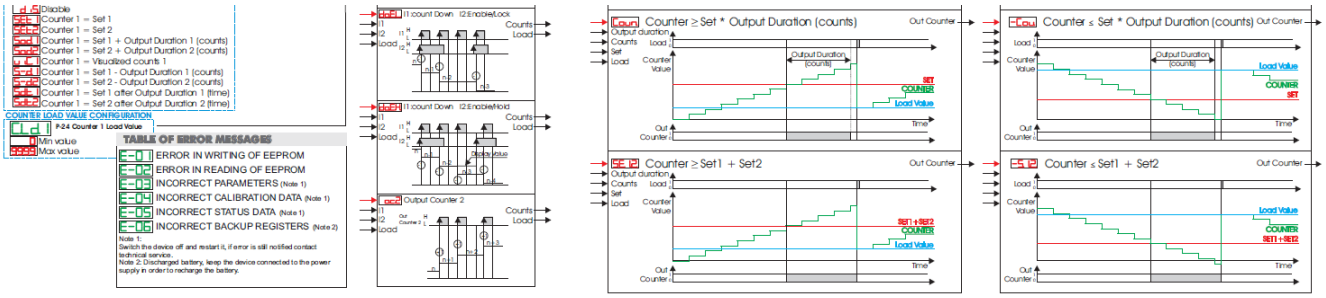
| | | | |
|---|---|---|---|
| odU. 1 | **P-26 Output 1 Duration** | ***Counter 1 output duration*** | Default 10 |
| odU2 | **P-44 Output 2 Duration** | ***Counter 2 output duration*** | Default 10 |

| | | | |
|---|---|---|---|
| uSEr | Output Duration Input by User | *Value modifiable by user* | Default |
| LAtc. | Latch output (clear only by load) | *Latch output resettable by counter loading* | |
| 1 | Min output duration | *Output duration minimum value* | |
| 999 | Max output duration | *Output duration maximum value* | |

## COUNTER FREQUENCY DISPLAY CONFIGURATION

| | | | |
|---|---|---|---|
| d uF. 1 | **P-27 Display Frequency Counter 1** | ***Counter 1 frequency visualization*** | |
| d uF2 | **P-45 Display Frequency Counter 2** | ***Counter 2 frequency visualization*** | |
| d iS. | Disable | *Counter frequency value not visualized* | Default |
| U iSu. | Visualized | *Counter frequency value visualized* | |
| dPF. 1 | **P-28 Decimal Point Frequency Counter 1** | ***Counter 1 frequency format*** | |
| dPF2 | **P-46 Decimal Point Frequency Counter 2** | ***Counter 2 frequency format*** | |
| 0 | 0 | *Visualization with no decimal digit* | **Default** |
| 0.0 | 0.0 | *Visualization with 1 decimal digit* | |
| 0.00 | 0.00 | *Visualization with 2 decimal digits* | |
| 0.000 | 0.000 | *Visualization with 3 decimal digits* | |
| inF. 1 | **P-29 Counter 1 Input frequency** | ***Counter 1 input frequency (1...9999Hz)*** | Default 1 |
| inF2 | **P-47 Counter 2 Input frequency** | ***Counter 2 input frequency (1...9999Hz)*** | Default 1 |
| u uF. 1 | **P-30 Counter 1 Visualized Frequency** | ***Counter 1 visualized frequency*** | Default 1 |
| u uF2 | **P-48 Counter 2 Visualized Frequency** | ***Counter 2 visualized frequency*** | Default 1 |
| out 1 | **P-31 Output Q1 Setup** | ***Output Q1 settings*** | |
| out2 | **P-32 Output Q2 Setup** | ***Output Q2 settings*** | |
| d iS. | Disable | *Desabled output* | Default C2 |
| C. Ino. | Out Counter 1 n.o. | *Counter 1 output on n.o. contact* | Default C1 |
| C. Inc. | Out Counter 1 n.c. | *Counter 1 output on n.c. contact* | |
| C2no. | Out Counter 2 n.o. | *Counter 2 output on n.o. contact* | |
| C2nc. | Out Counter 2 n.c. | *Counter 2 output on n.c. contact* | |






## CONTACT

- PIXSYS www.pixsys.net
- e-mail: sales@pixsys.net – support@pixsys.net
- Software V 2.08
- 2300.10.138-RevG 240314

## FAQ

Q: What is the power supply range for the device?

A: The power supply range is 24 230Vac Vdc 15 50 60Hz 2W.

Q: How long does the backup battery last?

A: The back-up battery provides approximately 60 days of autonomy.

Q: What software is recommended for programming this device?

A: The recommended programming software is Labsoftview 2.6 or later.

# Documents / Resources

| | |
|---|---|
|  | PIXSYS TCT201 Timer Counter [pdf] User Manual<br>TCT201 Timer Counter, TCT201, Timer Counter, Counter |

### References

- User Manual

Counter, Pixsys, TCT201, TCT201 Timer Counter, Timer Counter

Pixsys

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