

# OPERATING INSTRUCTIONS

## XTC5400



48 x 48

Please maintain these instructions and review them prior to using the unit:

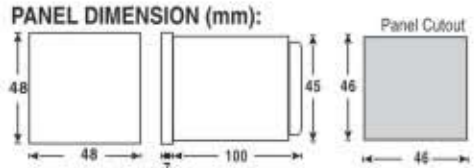
- Warning:**
- This unit is panel mounted type with its output terminals getting connected to the host equipment. Such equipment shall also comply with basic EMV/EMC and safety requirements like BS EN 61326-1 and BS EN 61010 respectively.
  - To avoid electric shock, power supply of the unit should be kept off while wiring. Wiring should be done strictly as per the terminal layout, given in the manual.
  - Use lugged terminals to meet M3.5 screws.
  - The unit does not have a built-in fuse. External fuse with a rating of 275VAC/1A is recommended.

- Caution:**
- This unit is not intended for outdoor use.
  - The power connection cable must have a cross-section of at least 1mm<sup>2</sup> and insulation capacity of at least 1.5kV.
  - The output connections must not be loaded beyond the specified values/range.
  - Avoid inflow of dust and contact of conductive material with the internal circuitry of the unit.
  - The unit must not operate in presence of heating sources, caustic vapors, oil, steam, vibration or impact etc.
  - Use clean moist cloth soaked in water for cleaning. Care must be taken to avoid entry of water into the circuitry through the ventilation holes.

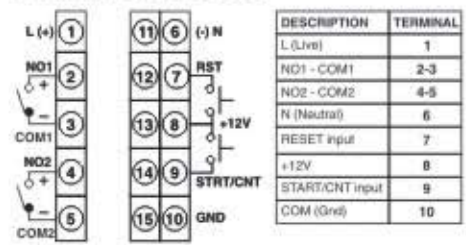
### SPECIFICATIONS

1	Supply Voltage	90 to 270VAC/DC, 50/60 Hz.
2	Display	Dual 4 digit, 7 segment LED. Upper Display (current value): 0.5" height, red color. Lower display (selectable): 0.3" height, green color.

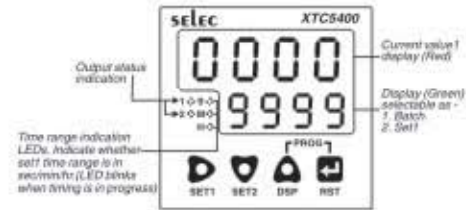
3	Operating modes	<b>Timer:</b> Relay 1: On delay, Interval, Cyclic On first, Cyclic Off first. Relay 2: As above + Batch. <b>Counter:</b> Relay 1: On delay, Interval, Auto reset, Time pulse repeat. Relay 2: As above + Batch.
4	Time ranges	<b>Timer:</b> 99.99 / 999.9 / 9999 sec, 99.59 min:sec, 999.9 / 9999 min, 99:59 hr:min 999.9 / 9999 hr. <b>Counter:</b> -999 to 9999 counts.
5	Resolution	0.001, 0.01, 0.1, 1.
6	Direction	Timer - Down. Counter - Up / Down.
7	Led indications	Output status, sec, min, hr.
8	Set points	Dual.
9	Start input	Pulse start.
10	Sensor inputs	3 to 12VDC from Proximity switches, Encoders, Potential free contacts.
11	Sensor supply	12VDC, 30mA (Short circuit protected).
12	Input speed	3 Hz, 30 Hz, 5 kHz.
13	Scale factor	0.001 to 9.999 x 10 <sup>n</sup> where n = -3, -2, -1, 0, 1, 2.
14	Reset	On power interruption, Front panel reset, Terminal reset.
15	Output	2 NO
16	Relay rating	5A @ 230VAC.
17	Memory retention	10 years.
18	Accuracy	<b>Timer:</b> + 0.05% of setting or 50msec whichever is greater. <b>Counter:</b> ± 2 counts.
19	Mounting	Panel mounting.
20	Temperature	Operating: 0 - 50 ° C. Storage: -20 - 75 ° C.
21	Humidity	95% RH.
22	Housing	Flame retardant plastic.
23	Weight	175 grams (approx).



### TERMINAL CONNECTIONS

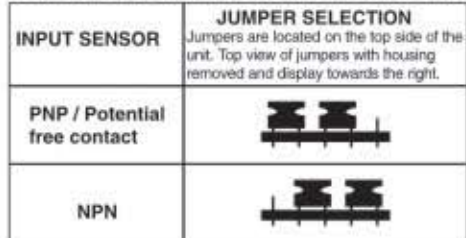


### FRONT PANEL IDENTIFICATION



KEYS	FUNCTIONS
	Enter / Exit configuration mode
	1. Selects the digit to be altered. Selected digit blinks. With every press of , next digit towards the right starts blinking. 2. Programming for Set1.
	1. Decrements value of blinking digit. 2. Scrolls down to previous option for configuration parameter. 3. Programming for set 2.
	1. Increments value of blinking digit. 2. Scrolls up to next option for configuration parameter. 3. Programming lower display options 4. Display Batch value.
	1. Scrolls to next config. parameter and stores previous parameter setting. 2. Front panel RST.

### JUMPER SELECTION FOR INPUT SENSOR:-

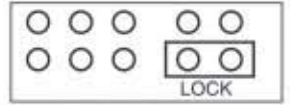


Note: Same jumper selections remain valid for giving start pulse when using XTC5400 in Timer function.

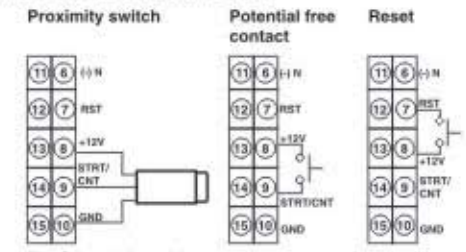
### JUMPER SELECTION TO DISABLE LOCK:-

If the lock password is forgotten / lock feature is not required, connect jumpers as in fig. below to disable lock function. These jumpers are located towards the right of the jumpers for sensor selection.

(Top view of jumpers without housing and display on the right)



### INPUT CONNECTIONS:-



Note: Color codes for proximity sensors: Brown / Red → +12V, Black / Green → CNT, Blue / Black → GND

### SCALE FACTOR

Programmable scale factor facilitates display in desired engineering unit. The number of count pulses received are multiplied with the scale factor, and the result is displayed as shown:

**Display = Number of pulses received x scale factor**  
Scale factor consists of two parts- mantissa & exponent. Mantissa can be set from 0.001 to 9.999 and exponent from -3 to +2. The scale factor value is arrived at as:  
**Scale factor = Mantissa X 10<sup>Exponent</sup>**

### CONFIGURATION SCHEME:

Note: 1. Press to go to the next programming step and store the current programmed value in EEPROM.  
2. If no key is pressed for 2min, the unit will auto-exit from configuration.

Upper display	Lower display	Description
		Press  +  keys to enter configuration
		Configuration Lock <span style="float:right">Default : 0000.</span> The configuration cannot be changed unless a valid lock ID is entered. Press  to select the digit and  to change value of the selected digit
		Press  +  keys to enter configuration
Function		Function - Timer / Counter <b>Timer:</b> Unit functions as a timer <b>Counter:</b> Unit functions as a counter



### 3. Reading Batch.

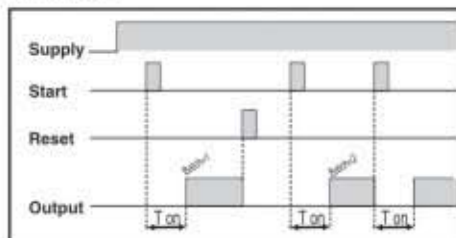
Press Key	Lower Display
▲ momentarily to read batch value. Auto exit from Read function if key is not pressed within 3 sec.	

6 digit batch can be read with 2MSDs on the upper display.

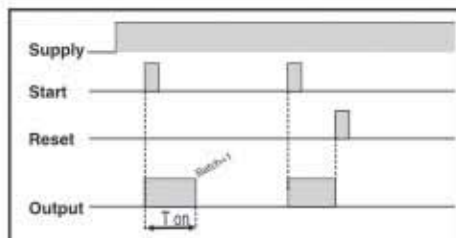
**Note:** When viewing 6 digit batch value, lower display LSD dp blinks and batch value is displayed for 3 sec. If lower display is selected as batch, and batch value exceeds 4 digits, the lower display LSD dp is on continuously indicating that the batch value has exceeded 4 digits.

### TIMER MODE

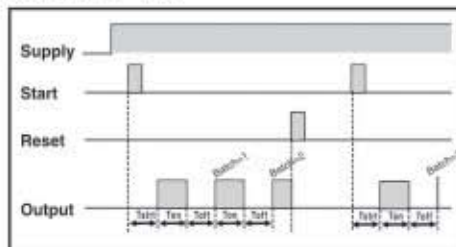
#### 1. On delay



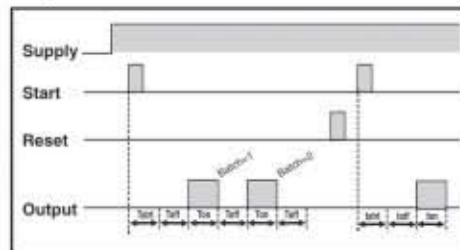
#### 2. Interval



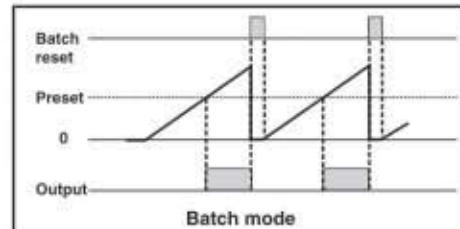
#### 3. Cyclic ON - First



### 4. Cyclic OFF - First



### 5. Batch mode



### Setting of Counter functions :

Upper display	Lower display	Description
Press <b>▲</b> key to enter programming for Scale factor mantissa		
Scale factor mantissa	Default : 1.000	
Press <b>▲</b> key to enter programming for Scale factor Exponent		
Scale factor Exponent	Default : 0	
		Scale factor Exponent: 0 / 1 / 2 / -3 / -2 / -1.

Upper display	Lower display	Description
Press <b>▲</b> key to enter programming for Resolution		
Resolution	Default : 1	
		Resolution : 1 / 0.1 / 0.01 / 0.001.
Press <b>▲</b> key to enter programming for Maximum input speed.		
Maximum Input Speed	Default : 30Hz	
		Speed : 3Hz / 30Hz / 5KHz.
Press <b>▲</b> key to enter programming for Direction		
Counting Direction	Default : Up	
		<b>Direction:</b> Up and Down <b>Up:</b> Counting starts from 0 and proceeds towards set point. <b>Down:</b> Counting starts from set point and proceeds down to 0.
Press <b>▲</b> key to enter programming for Relay 1 mode		
Relay 1 operating mode	Default : ON Delay	
		<b>Relay1 operating mode:</b> ON delay / Interval. Refer waveforms for details.
Press <b>▲</b> key to enter programming for Relay2 operating mode		
Relay 2 operating mode	Default : ON Delay	
		<b>Relay2 mode ranges:</b> ON delay / Interval / Batch.

Upper display	Lower display	Description
Press <b>▲</b> key to enter programming for Run mode		
Run mode	Default : Over run	
		<b>Run mode ranges:</b> Overrun / Non overrun. <b>Overrun:</b> Counter continues counting above the set point. <b>Non Overrun:</b> Counter does not count any pulses received after reaching the set point.
Press <b>▲</b> key to enter programming for Operating mode		
Operating mode	Default : Delay	
		<b>Operating mode ranges:</b> Delay / Auto reset / Time pulse repeat. Refer waveforms for details
Press <b>▲</b> key to enter programming for Front panel batch reset		
Front panel batch reset.	Default : Yes	
		<b>Front panel batch reset :</b> Yes / No. <b>Yes:</b> Batch value can be reset from front panel. <b>No:</b> Batch value cannot be reset from front panel
Press <b>▲</b> key to enter programming for Batch reset		
Batch reset	Default : No	
NOTE: Prompted only if Front panel batch reset is No.		
		<b>Batch reset :</b> Yes and No. <b>Yes:</b> Batch value is reset immediately <b>No:</b> Batch value not is reset
Press <b>▲</b> key to enter programming for Front panel reset		
Front panel reset.	Default : Yes	
		<b>Front panel reset :</b> Yes / No. <b>Yes:</b> Unit can be reset from the front panel <b>No:</b> Unit cannot be reset from the front panel

Press **⏏** key to enter programming for Power on reset.

Power on reset. *Default : No*

**Power on reset ranges:**  
Yes / No.  
**Yes:** unit is reset at power ON.  
**No:** Unit is not reset at power ON.

Press **⏏** key to enter programming for Reset all.

Reset all parameters to default *Default : No*

**Reset all parameters to default :** Yes and No  
**Yes:** All parameters are set to factory set values. All set points are set to 0.

### PROGRAMMING - COUNTER

**Temporary display:** Lower display shows parameter name for 1sec and then its value

Enter programming as per the given procedure.  
**To program set points:** Press **⏏** to select the digit. The selected digit blinks. Press **⏏** key to change its value. Press **⏏** key to go to the next parameter (if applicable). If the edited parameter is the last parameter, the unit will quit programming.

**To select lower display options:** Press **⏏** key to select particular option and then press **⏏** key to quit programming.

**To select reset option:** Press **⏏** key to select particular option and then press **⏏** key for 1.5 sec to quit programming.

### 1. Programming for Set point 1 :

Press Key	Lower Display
<b>⏏</b> for 1.5 sec to Enter / Exit online programming for Set1. (Auto program out after 2min)	Applicable when Set1 in On delay / Interval mode. Set point 1 SEt 1 1234
	Applicable when Set1 in On delay / Interval mode + Autoreset mode. Set point 1 Autoreset time SEt 1 RT 1234 1234 Exit Set point programming
<i>Default : 100 AR / TPR time = 10sec</i>	Applicable when Set1 in On delay / Interval mode + Time Pulse Repeat. Set point 1 Time pulse repeat SEt 1 TPR 1234 1234 Exit Set point programming

*Autoreset time range: 0 to 999.0 sec.*  
*TPR time range: 0 to 999.0 sec.*

Note: \* sign indicates that the digit blinks.

### 2. Programming for Set point 2 :

**Note:** Set2 should always be less than Set1, except when Set 2 is in Batch mode.

Press Key	Lower Display
<b>⏏</b> for 1.5 sec to Enter / Exit online programming for Set2. (Auto program out after 2min)	Applicable when Set2 in On delay / Interval mode. Set point 2 SEt 2 1234
	Applicable when Set2 in Batch mode. Set point 2 SEt 2 1234

*Default : 90.*

Note: \* sign indicates that the digit blinks.

### 3. Programming for Lower display options.

Press Key	Lower Display
<b>⏏</b> for 1.5 sec to Enter programming for lower display. (Auto program out after 2min)	Batch bEtch * Exit programming Set point 1 SEt 1 * Exit programming

Note: \* sign indicates that the digit blinks.

### 4. Programming for Reset.

Press Key	Lower Display
<b>⏏</b> for 1.5 sec to Enter / Exit online programming for reset.	Applicable in AR / TPR mode Reset RSt Batch reset bRSt

Note: \* sign indicates that the display blinks.

### Read Function

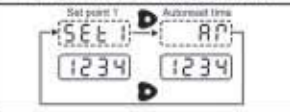
**Temporary display:** Lower display shows parameter name for 1sec and then its value

### 1. Reading of set1 parameters

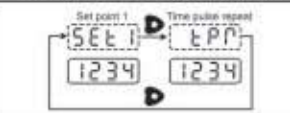
Press Key	Lower Display
<b>⏏</b> momentarily each time to read Set1 value.	Applicable when Set1 in On delay / Interval mode. Set point 1 SEt 1 1234

Auto exit from Read function if key is not pressed within 3 sec.

Applicable when Set1 in On delay / Interval mode + Autoreset mode.



Applicable when Set1 in On delay / Interval mode + Time Pulse Repeat.



### 2. Reading of set2 parameters

Press Key	Lower Display
<b>⏏</b> momentarily each time to read Set 2 value. Auto exit from Read function if key is not pressed within 3 sec.	Applicable when Set2 in On delay / Interval mode. Set point 2 SEt 2 1234

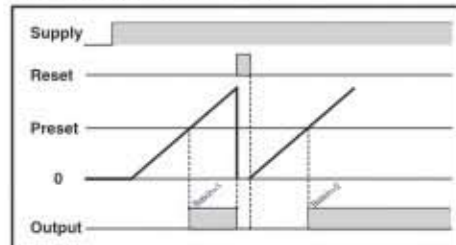
### 3. Reading Batch.

Press Key	Lower Display
<b>⏏</b> Momentarily each time read Set 2 value. Auto exit from Read function if key is not pressed within 3 sec.	Batch bEtch 4 digit batch 1234 4 digit Batch 12 Upper Display 3456 Lower Display 6 digit batch can be read with 2MSDs on upper display.

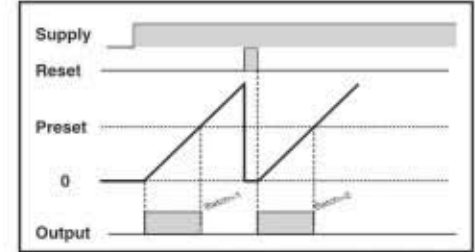
**Note:** When viewing 6 digit batch value, lower display LSD dp blinks and batch value is displayed for 3 sec. If lower display is selected as batch, and batch value exceeds 4 digits, the lower display LSD dp is on continuously indicating that the batch value has exceeded 4 digits.

### COUNTER MODE

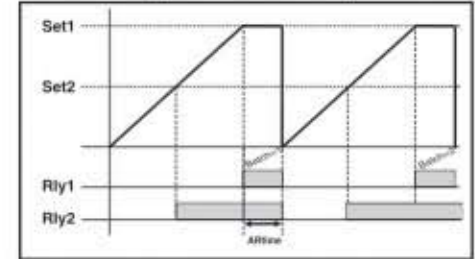
#### 1. ON Delay ( Overrun mode )



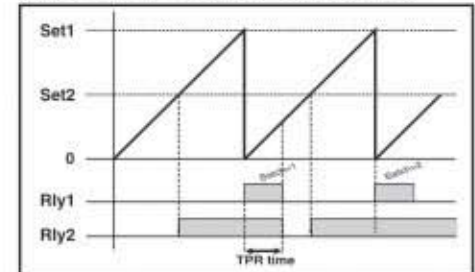
### 2. Interval ( Overrun mode )



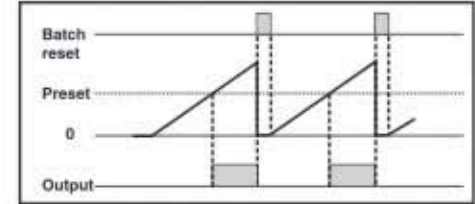
### 3. Auto Reset ( Non Overrun mode )



### 4. Time Pulse Reset ( Non Overrun mode )



### 5. Batch mode



(Specifications subject to change as development is a continuous process).

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