

ZX020

Electronic Counter



- Mini housing 48 x 24 mm (1.890 x 0.945")
- Bright LED display 6 decades/ 8mm (0.315")
- Add-on frame for 50 x 25 mm (1.969 x 0.984")
- Counting frequency 15 – 60 kHz (depending on operating mode)
- Selectable filter for use with mechanical inputs
- Adjustable scaling factor and divider
- 10 – 30 volts DC supply
- Protection class IP65 (front side)
- Applicable as event counter, differential counter, summing counter, position counter
- Power down memory (10 years)
- Easy to set up by menu support

Operating Instructions



Safety Instructions

- This manual is an essential part of the unit and contains important hints about function, correct handling and commissioning. Non-observance can result in damage to the unit or the machine or even in injury to persons using the equipment!
- The unit must only be installed, connected and activated by a qualified electrician
- It is a must to observe all general and also all country-specific and application-specific safety standards
- When this unit is used with applications where failure or maloperation could cause damage to a machine or hazard to the operating staff, it is indispensable to meet effective precautions in order to avoid such consequences
- Regarding installation, wiring, environmental conditions, screening of cables and earthing, you must follow the general standards of industrial automation industry
- - Errors and omissions excepted –

| Version: | Description: |
|---------------------|--------------------------------------|
| Zx02001b/K/hk/Jan02 | valid for models before august, 2006 |
| Zx02002a/K/hk/Dec06 | 60 kHz, Divider, (x4), summing mode |
| ZX02002b/hk/Aug07 | Modification of temperature range |

Table of Contents

| | |
|---|----|
| 1. Operation of the front keys | 4 |
| 2. Operational parameters | 5 |
| 2.1. Input polarity | 5 |
| 2.2. Input filter | 5 |
| 2.3. Input Mode of count impulses | 5 |
| 2.4. Impulse scaling factor | 6 |
| 2.5. Decimal point | 6 |
| 2.6. Set/Reset mode | 6 |
| 2.7. Set point | 7 |
| 2.8. End of program | 7 |
| 3. Terminal Assignments | 8 |
| 4. Delivery includes: | 8 |
| 5. Specifications | 9 |
| 6. Dimensions | 10 |
| 6.1. Mounting without use of add-on frames | 10 |
| 6.2. Bezel 50 x 25 mm (1.969 x 0.984") for clip mounting | 10 |
| 6.3. Bezel 50 x 25 mm (1.969 x 0.984") for screw mounting | 10 |

1. Operation of the front keys

To enter the setup mode, keep both front keys down while you switch power on.

You can also enter the setup mode when the unit is already powered on, by keeping both front keys down at the same time for approx. 5 seconds.

The display will then show



Prog

As soon as you release the keys, the unit starts to alternate between display of the actual parameter text and the associated setting, in a cycle of two seconds.

Press the key on the right to increment the actual set value to next.

For numeric entries, use the left key to select the decade and the right key to scroll the digit.

To continue to the next parameter, keep the left key down while you press the right key.

When you have reached the item „Endprog“, you get the choice to select

–„Yes“: this will store your entries to the unit and switch to normal operation.

–„No“: this will start the menu again and your previous data will not be stored.

2. Operational parameters

Please enter all of the subsequent parameters, as explained in section 1.

2.1. Input polarity

| | | |
|------------------------------|-------|--|
| INPOL | InpoL | |
| <input type="checkbox"/> nPn | nPn | NPN: All inputs must switch to "0" |
| <input type="checkbox"/> PnP | PnP | PNP: All inputs must switch to "+". For Namur: Set to NPN, see 3. |

2.2. Input filter

| | | |
|------------------------------|--------|---|
| FILTER | Filter | |
| <input type="checkbox"/> OFF | Off | Filter off: Counting frequency up to 60 kHz (see specifications) |
| <input type="checkbox"/> ON | on | Filter on. Maximum counting frequency 30 Hz |

2.3. Input Mode of count impulses

| | | |
|---------------------------------|---------|---|
| INPUT | Input | |
| <input type="checkbox"/> Cntdir | Cnt.dir | Input A: Count input Input B: Direction select up/down |
| <input type="checkbox"/> UP.dn | Up .dn | Differential: Input A: increments Input B: decrements |
| <input type="checkbox"/> UP.UP | | Summing: Input A: increments Input B: increments |
| <input type="checkbox"/> QUAD | Quad | Quadrature up/down for signals A/B, 2 x 90° Counts rising edge of input A |
| <input type="checkbox"/> QUAD 2 | Quad 2 | Similar to "quad", but with impulse doubling. Counts rising and falling edges of input A |
| <input type="checkbox"/> QUAD 4 | Quad 4 | Similar to "quad", but with impulse quadrupling. Counts all edges of inputs A and B |

2.4. Impulse scaling factor

| | | | |
|-----------------|---------|---------|---|
| FActor | Factor | | |
| | 00.0001 | 00.0001 | Multiplies the input pulses with the factor set. |
| | 99.9999 | 99.9999 | Setting range 0.0001 to 99.9999. Setting "0" will not be accepted. |
| d. U. So | Divider | | |
| | 00.0001 | 00.0001 | Divides the input pulses by the divider set. |
| | 99.9999 | 99.9999 | Setting range 0.0001 to 99.9999. Setting "0" will not be accepted. |

2.5. Decimal point

| | | | |
|-----------|-------|-------|--|
| dP | dP | | |
| | 0 | 0 | Sets the decimal point of the display. |
| | 0.000 | 0.000 | (Max. 3 decimal places) |

2.6. Set/Reset mode

| | | | |
|---------------|--------|--------|--|
| rESnrd | resmd | | |
| | Man.el | Man.el | Manual Set/ Reset function by the red front key and electrical Set/ Reset by the rear input. |
| | No res | no rES | All Set/ Reset functions disabled. |
| | El res | EL rES | Electrical Set/ Reset only by input "Reset". |
| | Manre | ManreE | Manual Set/ Reset only by the red front key. |

2.7. Set point

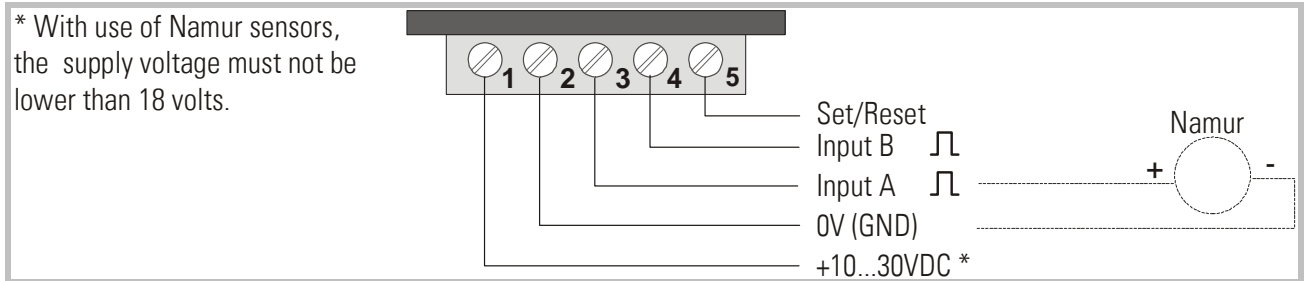
| | | |
|----------------|---------|--|
| SEtPt | Setpt | |
| -199999 | -199999 | Upon a Set/ Reset command, the counter sets to the value entered here. |
| 999999 | 99.9999 | Range – 199 999....999 999. |

2.8. End of program

| | | |
|---------------|--------|--|
| EndPro | Endpro | |
| no | No | Select "No" to return to the beginning of the menu for verification of settings. |
| YES | Yes | Select "Yes" to store data and exit the menu. |

3. Terminal Assignments

(also printed to the top of the unit)



4. Delivery includes:

- Panel mounting clip
- Bezel for screw mounting with panel cut out 50 x 25mm
- Bezel for clip mounting with panel cut out 50 x 25mm
- Sealing

5. Specifications

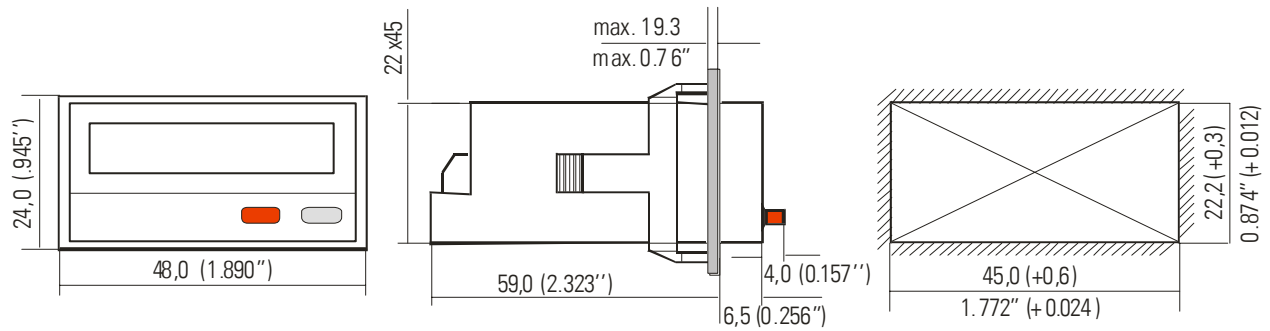
| | | |
|------------------------------------|---|---|
| Power supply UB | : | 10...30 Vdc, max. 50 mA |
| Display | : | 6 Decade / 8mm (0.315") |
| Inputs | : | 3 x NPN / PNP / Namur, Ri = 10 kOhm |
| Counting frequency | : | depending on operating conditions, see table 30 Hz with filter switched on |
| Minimum pulse width for Reset | : | 5 msec |
| Switching thresholds of inputs | : | Low = 0V....0.2 x UB High = 0.6 x UB...30V |
| Shape of input wave | : | any (Smith trigger inputs) |
| Data retention | : | 10 years, 10 ⁶ store cycles |
| Operating temperature | : | -20°... + 55° C (-4 ... +131° F) |
| Storage temperature | : | -25°... + 70° C (-13 ... +158° F) |
| Weight | : | 50g |
| Protection class (front side only) | : | IP 65 |
| Conformity and Standards | : | EMC 89/336/EEC: EN 61000-6-2 EN 61000-6-3 LV73/23/EEC: EN 61010-1 |

Maximum counting frequency with respect to operating mode and power supply:

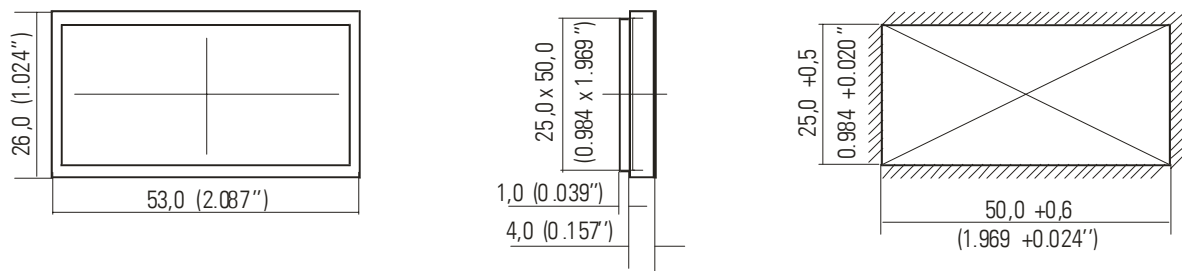
| Mode | Input power 24 VDC | Input power 12 VDC |
|---------|--------------------|--------------------|
| CntDir | 60 kHz | 20 kHz |
| Up-Down | 25 kHz | 15 kHz |
| Up-Up | 25 kHz | 15 kHz |
| Quad | 25 kHz | 15 kHz |
| Quad2 | 25 kHz | 15 kHz |
| Quad4 | 15 kHz | 15 kHz |

6. Dimensions

6.1. Mounting without use of add-on frames



6.2. Bezel 50 x 25 mm (1.969 x 0.984'') for clip mounting



6.3. Bezel 50 x 25 mm (1.969 x 0.984'') for screw mounting

