



ZX020

Miniature Low Cost Counter for Input Frequencies up to 60 kHz

Product Features:

- Miniature panel housing
- Bright LED display with 6 digits
- Add-on frame for clip or screw mounting
- Counting frequency 15 to 60 kHz (depends on counting mode)
- Selectable filter for use with mechanical inputs
- Adjustable scaling factor and divider
- Protection class IP65 (front side)
- Diverse counting modes (e. g. event, difference, summing or position)
- Easy to set up by menu support
- 10 to 30 VDC power supply




2. Front Key Operation

2.1. Enter the Setup Mode

There are two different ways to enter the setup mode:

- keep both front keys pressed when powering on
- keep both front keys pressed for 5 seconds, if the power is already on

2.2. Parameter Settings

With an activated setup mode , the display shows:	
After <u>releasing the keys</u> , the display shows:	
In order to cancel the setup <u>hold the left key pressed and additionally press the right one</u>	
By <u>pressing the right key</u> , the display changes to:	
To jump into the first parameter , <u>hold the left key pressed and additionally press the right one</u>	
After <u>releasing the keys</u> , the display alternates between the parameter title and the setting of the parameter. After <u>pressing any key</u> , only the parameter value for setting is displayed.	
<u>Press the right key</u> , to jump into the next parameter.	
For numerical inputs <u>select the decade with the left key and change the value by the right one</u>	
To jump into the next parameter , <u>hold the left key pressed and additionally press the right one</u>	
After reaching the last menu item " Endpro ", two selections can be done: „ Yes “: will <u>store</u> all new entries, before the unit automatically switches to normal operation. „ No “: will <u>repeat</u> the setup routine. The latest values will remain without saving and can be checked or modified before they are permanently stored.	

3. Operational parameters

Please enter all of the subsequent parameters, as explained in section [2](#).

3.1. Input polarity

InPoL	InpoL	
nPn	nPn	NPN: All inputs must switch to "0"
PnP	PnP	PNP: All inputs must switch to "+". For Namur: Set to NPN, see chapter 4 .

3.2. Input filter

FiLteR	Filter	
off	Off	Filter off: Counting frequency up to 60 kHz see "Technical Specifications" (chapter 6)
on	on	Filter on. Maximum counting frequency 30 Hz

3.3. Input Mode of count impulses

InPut	Input	
Cnt.dir	Cnt.dir	Input A: Count input Input B: Direction select up/down
uP .dn	Up .dn	Differential: Input A: increments Input B: decrements
uP .uP		Summing: Input A: increments Input B: increments
QuAd	Quad	Quadrature up/down for signals A/B, 2 x 90° Counts rising edge of input A
QuAd 2	Quad 2	Similar to "quad", but with impulse doubling. Counts rising and falling edges of input A
QuAd 4	Quad 4	Similar to "quad", but with impulse quadrupling. Counts all edges of inputs A and B

3.4. Impulse scaling factor

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

3.5. Decimal point

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

3.6. Set/Reset mode

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

3.7. Set point

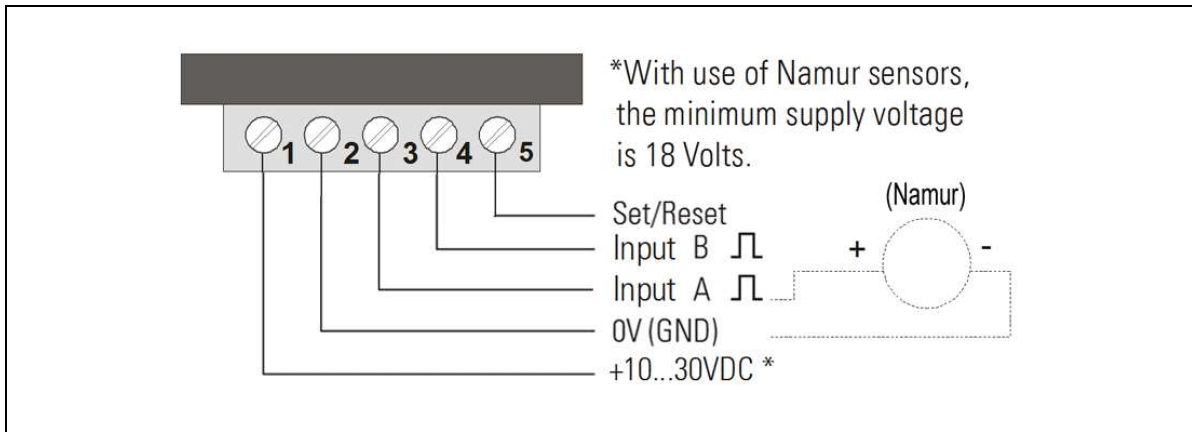
SEtPt	Setpt		
-199999	-199999	Upon a Set/ Reset command, the counter sets to the value entered here.	
999999	99.9999	Range -199 999....999 999.	

3.8. 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.	

4. Terminal Assignments

(also printed to the top of the unit)



5. Delivery includes:

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

6. Technical Specifications

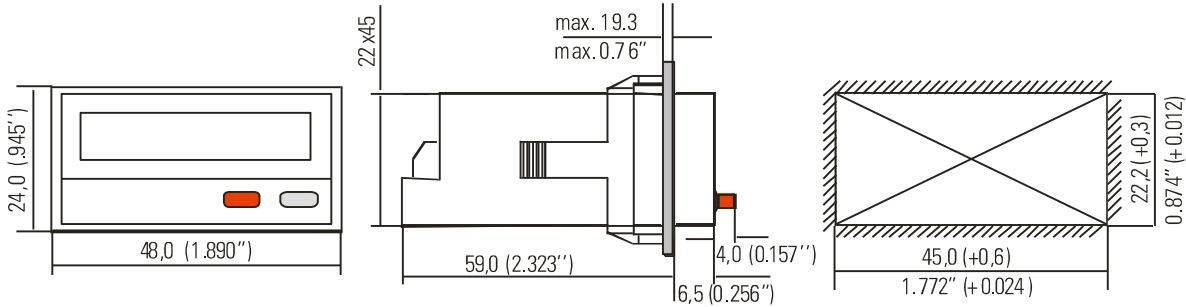
Power supply:	Input voltage: 10 ... 30 VDC Protection circuit: reverse polarity protection Consumption: max. 50 mA
Connections:	Type of connection: screw terminal, 1.5 mm ² / AWG 16
Incremental input:	Characteristic: NPN / PNP / Namur Switching levels: LOW: 0 V ... 0.2 x power supply voltage HIGH: 0.6 x power supply voltage ... 30 V Channels: A, B and Set/Reset Counting frequency: 15 ... 60 kHz (depends on selected counting mode) Pulse form: arbitrary (Schmitt-Trigger) Internal resistance: Ri ≈ 10 kOhm Pulse time (set/reset): min. 5 ms
Power down memory:	Data retention: 10 years Storage Cycles: 10 ⁶
Display:	Type: 6 digit LED, red Digit height: 8 mm / 0.3149 inch Range: -199999 ... 999999
Housing:	Material: plastic Mounting: panel Dimensions: cut out (w x h): 45 x 22 mm resp. 1.772 x 0.866 inch outer dimensions (w x h x d): 48 x 24 x 59 mm resp. 1.889 x 0.9449 x 2.323 inch Miscellaneous: additional bezels for clip or screw mounting are included in the delivery Protection class: front: IP 65 / rear: IP20 Weight: approx. 50 g
Ambient temperature:	Operation: -20°... +55° C / -4° ... 131° F (not condensing) Storage: -25°... +70° C / -13° ... 158° F (not condensing)
Conformity & standards:	EMC 2004/108/EC: EN 61000-6-2, EN 61000-6-3, EN 61000-6-4 RoHS 2011/65/EU: EN 50581

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

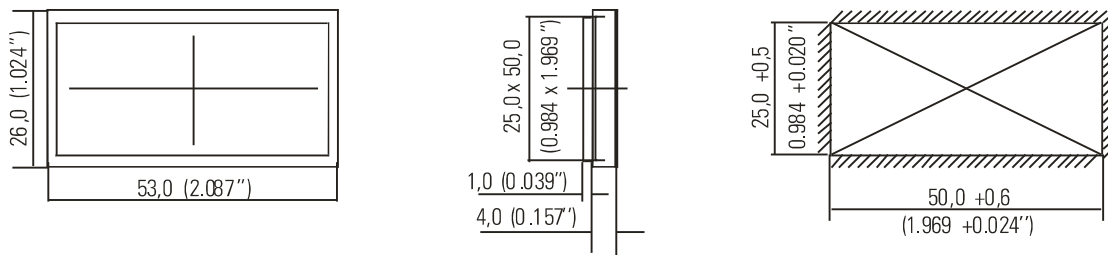
Mode	Power supply 24 VDC	Power supply 12 VDC
CntDir	60 kHz	20 kHz
Up-Down	25 kHz	15 kHz
Up-Up	25 kHz	15 kHz
Quad	25 kHz	15 kHz
Quad2	25 kHz	15 kHz
Quad4	15 kHz	15 kHz

7. Dimensions

7.1. Mounting without use of add-on frames



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



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

