Contents

4 - Zelio Count - counters

Zelio Count - counters
Electromechanical hour counters, 7 digits

Counter type			**XBK H hour counters**
Display type			**Mechanical**
Characteristics			
Function			Hour counters
Supply voltage		**V**	∿ 24 ± 10 % 50 Hz ∿ 115 ± 10 % 50 Hz ∿ 230 ± 10 % 50 Hz
Consumption		**VA**	XBK H70000001M : 0.56 XBK H70000002M : 1 XBK H70000004M : 0.08
Backup capacity			Permanent
Number of digits			7
Display precision			99999.99 h
Digit height		**mm**	5
Counting mode			Adding 1/100 of an hour
Reset			Without
Inputs	Function		Validation
	Type		Contact
Environment			
Conforming to standards			EN 50081-2, EN 50082-2, VDE 0435
Product certifications			UL, CSA (pending)
Temperature	Operation	**°C**	- 10…+ 50
	Storage	**°C**	- 25…+ 70
Degree of protection	Conforming to IEC 529		IP 65
Vibration resistance	Conforming to IEC 68-2-6		3 gn (10 to 150 Hz)
Shock resistance	Conforming to IEC 68-2-27		30 gn (11 ms)
Protection against electric shocks	Conforming to IEC 536		Class II
Mounting and fixing			Flush-mounting unit fixed by a self-locking collar
Connection			Screw terminal block

References :
page 4/3

Dimensions :
page 4/3

Zelio Count - counters
Electromechanical hour counters, 7 digits

References

560844

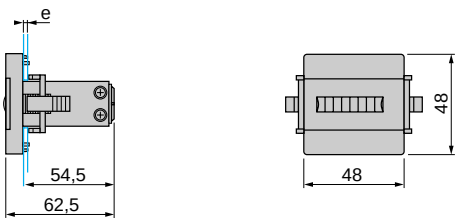
XBK H7000000●M

Supply voltage	Number of display digits	Mains supply frequency	Reset type	Reference	Weight
V		Hz			kg
Hour counters with mechanical display (max. display capacity : 99999.99 h					
∿ **24**	7	50	Without	**XBK H70000004M**	0.060
∿ **115**	7	50	Without	**XBK H70000001M**	0.060
∿ **230**	7	50	Without	**XBK H70000002M**	0.060

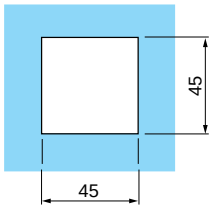
Dimensions

XBK H7000000●M

Flush-mounting



e : panel thickness, 1 mm < e < 2.5 mm



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Characteristics :
page 4/2

Zelio Count - counters
Electromechanical totalising counters, 5 to 8 digits

Counter type			**XBK T totalising counters**
Display type			**Mechanical**
Characteristics			
Functions			Totalising counters with mechanical display
Supply voltage		**V**	⎓ 24 ± 10 % ⎓ 48 ± 10 % ∿ 115 ± 10 %
Consumption		**W/VA**	XBK T50000U10M and XBK T50000U08M and XBK T70000U00M : 1.5 XBK T50000U11M and XBK T60000U10M and XBK T80000U00M : 2.5 XBK T60000U11M : 2.75 XBK T60000U00M : 0.155
Counting frequency		**Hz**	10, 20, 25
Backup capacity			Permanent
Number of digits			5, 6, 7 or 8
Setting accuracy			99999…99999999
Digit height		**mm**	4
Counting mode			Adding
Reset to zero			With or without
Reset type			Manual
Inputs	Function		Counting
	Type		Contact
Mechanical life in millions of pulses			10 except XBK T60000U10M and XBK T80000U00M : 200
Environment			
Conforming to standards			EN 50081-2, EN 50082-2
Product certifications			UL, CSA (pending) (except XBK T60000U00M)
Temperature	Operation	**°C**	- 10…+ 50 except XBK T60000U00M : - 10...+ 70
	Storage	**°C**	-20…+ 60 except XBK T60000U00M : - 40…+ 85
Degree of protection	Conforming to IEC 529		IP 40 except XBK T60000U00M : IP 65
Vibration resistance	Conforming to IEC 68-2-6		5 gn (10 to 150 Hz)
Shock resistance	Conforming to IEC 68-2-27		30 gn (6 ms)
Protection against electric shocks	Conforming to IEC 536		Class II
Mounting and fixing			Flush-mounting
Connection			By AMP lugs on a cable connector

References : page 4/5
Dimensions : page 4/5
Schemes : page 4/5

Zelio Count - counters

Electromechanical totalising counters, 5 to 8 digits

References

560824

XBK T50000U●●M

560825

XBK T60000U00M

560826

XBK T60000U1●M

560827

XBK T70000U00M

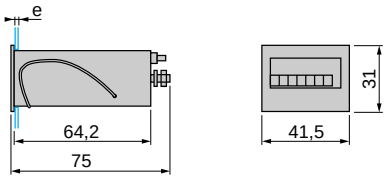
560828

XBK T80000U00M

Supply voltage	Number of display digits	Counting frequency	Reset type	Reference	Weight
V		kHz			kg
Totalising counters with mechanical display					
⎓ **24**	5	20	Manual	**XBK T50000U10M**	0.100
	6	25	Without	**XBK T60000U00M**	0.030
		25	Manual	**XBK T60000U10M**	0.150
	7	20	Without	**XBK T70000U00M**	0.100
	8	25	Without	**XBK T80000U00M**	0.150
⎓ **48**	5	20	Without	**XBK T50000U08M**	0.100
∿ **115**	5	10	Manual	**XBK T50000U11M**	0.100
	6	10	Manual	**XBK T60000U11M**	0.030

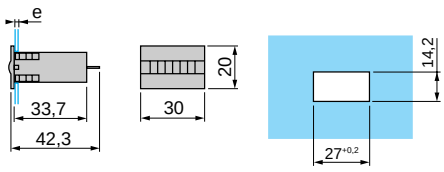
Dimensions

XBK T50000U●●M, XBK T70000U00M — Flush-mounting

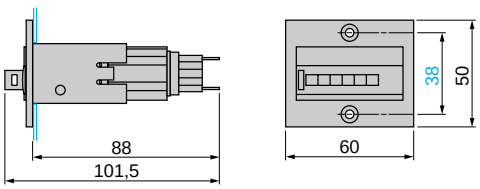


e : panel thickness, 1 mm < e < 2.5 mm

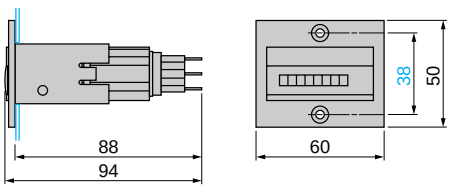
XBK T60000U00M — Flush-mounting



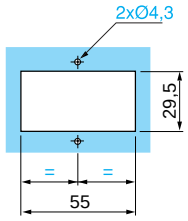
XBK T60000U1●M



XBK T80000U00M

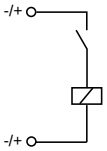


Common flush-mounting

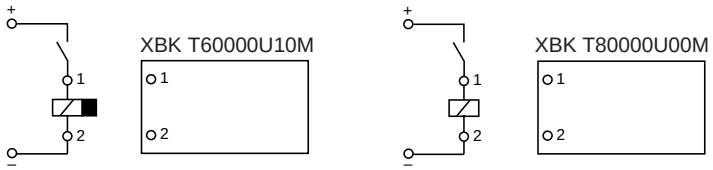


Schemes

XBK T50000U●●M, XBK T70000U00M



XBK T80000U00M, XBK T60000U1●M



Characteristics : page 4/4

Zelio Count - counters
Electromechanical preselection counters, 5 digits

Counter type			**XBK P5 preselection counters**
Display type			**Mechanical**
Characteristics			
Function			Preselection counters
Supply voltage		**V**	⎓ 24 ± 10 %
Consumption		**W**	2.5
Counting frequency		**Hz**	25
Number of digits			5
Display capacity			99999
Digit height		**mm**	4
Number of presets			1
Preset display			Adding (continuous) or subtracting (non continuous)
Counting mode			Adding or subtracting
Reset			Adding from zero or subtracting from the preset value
Reset type			Manual or manual and electrical
Type of input signals			Contact (20 VA/220 V/1 A max)
Output type			Contact (volt-free)
Connection			By AMP lugs on a cable connector
Environment			
Conforming to standards			EN 50081-2 and EN 50082-2, EN 61010
Product certifications			XBK P5●●●D●●M : CSA (pending) XBK P5●●●U●●M : UL/CSA (pending)
Temperature	Operation	**°C**	- 10…+ 50
	Storage	**°C**	- 40…+ 85
Degree of protection	Conforming to IEC 529		IP 40
Vibration resistance	Conforming to IEC 68-2-6		5 gn (10 to 150 Hz)
Shock resistance	Conforming to IEC 68-2-27		30 gn (6 ms)
Protection against electric shocks	Conforming to IEC 536		Class II
Mounting and fixing			Removable and flush-mounting Fixing by screws on front panel

References : page 4/7
Dimensions : page 4/7
Schemes : page 4/7

Zelio Count - counters
Electromechanical preselection counters, 5 digits

References

560838

XBK P50100D●0M

560839

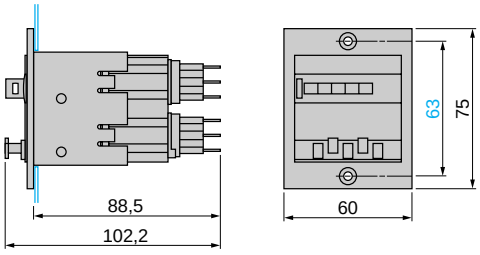
XBK P50100U●0M

Supply voltage	Number of display digits	Counting frequency	Number of presets	Reset type	Reference	Weight
V		kHz				kg
Subtracting preselection counters with mechanical display						
⎓ **24**	5	25	1	Manual	**XBK P50100D10M**	0.200
				Manual and electrical	**XBK P50100D20M**	0.240
Adding preselection counters with mechanical display						
⎓ **24**	5	25	1	Manual	**XBK P50100U10M**	0.200
				Manual and electrical	**XBK P50100U20M**	0.240

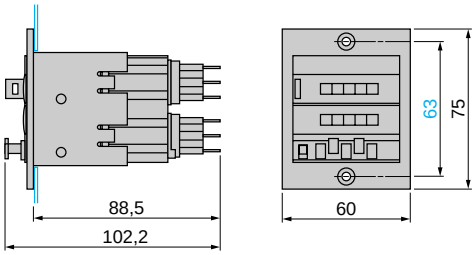
4

Dimensions

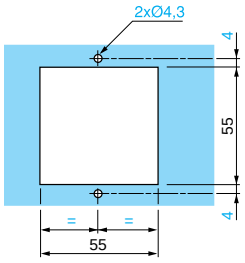
XBK P50100D●0M



XBK P50100U●0M

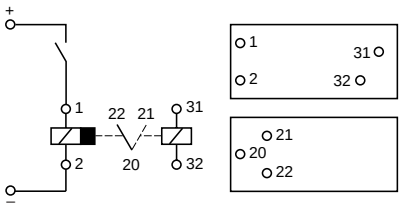


Common flush-mounting



Schemes

XBK P50100D●0M, XBK P50100U●0M



Characteristics :
page 4/6

Zelio Count - counters

Electronic preselection and multifunction counters, 48 x 48, 6 digits, LCD or LED

Counter type			**Preselection XBK P6**
Display type			**LCD or LED**
Characteristics			
Functions	Mulltifunction		Counter, 'Batch' counter, totalising counter, tachometer and chronometer
Supply voltage		**V**	⎓ 24 or ∿ 230 ± 10 % or ∿ 115 ± 10 %
Sensor supply voltage			⎓ 12 to 24 (50 mA max) for XBK P6●●30G32E or XBK P6●●30G31E
Consumption			150 mA ⎓ 24 V, 50mA ∿ 230 V or ∿ 115 V
Counting frequency		**Hz**	5000 (2500 for bi-directional counting)
Number of digits			6
Display capacity			999999
Digit height		**mm**	7.6 (LED) or 9 (LCD)
Number of presets			1 or 2
Preset display			Non continuous
Counting mode			5 programmable modes : - single counter input, - single counter with phase discriminator, - differential inputs, - summing inputs, - counting direction inputs. (Counter input resistance 5 kΩ)
Reset			2 modes : reset to zero and reset to preset value
Reset type			Manual, electrical and automatic
Output type			Relay,changeover (response time 5 ms) : ⎓ 5 V < Uc < ⎓ 30 V ∿ 5 V < Uc < ∿ 250 V 10 mA < I < 1 A Transistor PNP : ⎓ 12…24 V, 10 mA max
Connection			Screw terminal block
Minimum duration of counting pulse		**ms**	17 at 30 Hz 0.1 at 5 KHz
Environment			
Conforming to standards			EN 50081-2 and EN 50082-2, EN 61010
Product certifications			UL, C-UL (pending)
Temperature	Operation	**°C**	- 0…+ 50
	Storage	**°C**	- 20…+ 70
Degree of protection	Conforming to IEC 529		IP 65
Vibration resistance	Conforming to IEC 68-2-6		1 gn (10 to 150 Hz)
Shock resistance	Conforming to IEC 68-2-27		10 gn (18 ms)
Protection against electric shocks	Conforming to IEC 536		Class II
Mounting and fixing			Flush-mounting unit and fixing by a self-locking clamp with setscrews

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References : page 4/9
Dimensions : page 4/9
Schemes : page 4/9

Zelio Count - counters

Electronic preselection and multifunction counters, 48 x 48, 6 digits, LCD or LED

References

560820

XBK P61●30G3●E

560821

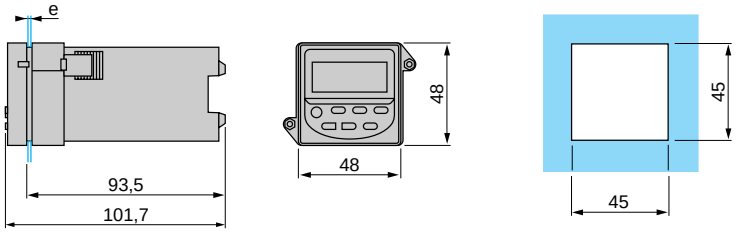
XBK P62●30G3●E

Supply voltage	Number of display digits	Counting frequency	Number of presets	Reference	Weight
V		kHz			kg
Manual, electrical and automatic reset					
Preselection counters with LCD display					
⎓ **24**	6	5	1	**XBK P61130G30E**	0.150
			2	**XBK P61230G30E**	0.150
∿ **115**	6	5	1	**XBK P61130G31E**	0.250
			2	**XBK P61230G31E**	0.250
∿ **230**	6	5	1	**XBK P61130G32E**	0.250
			2	**XBK P61230G32E**	0.250
Preselection counters with LED display					
⎓ **24**	6	5	1	**XBK P62130G30E**	0.150
			2	**XBK P62230G30E**	0.150
∿ **230**	6	5	1	**XBK P62130G32E**	0.250
			2	**XBK P62230G32E**	0.250

Dimensions

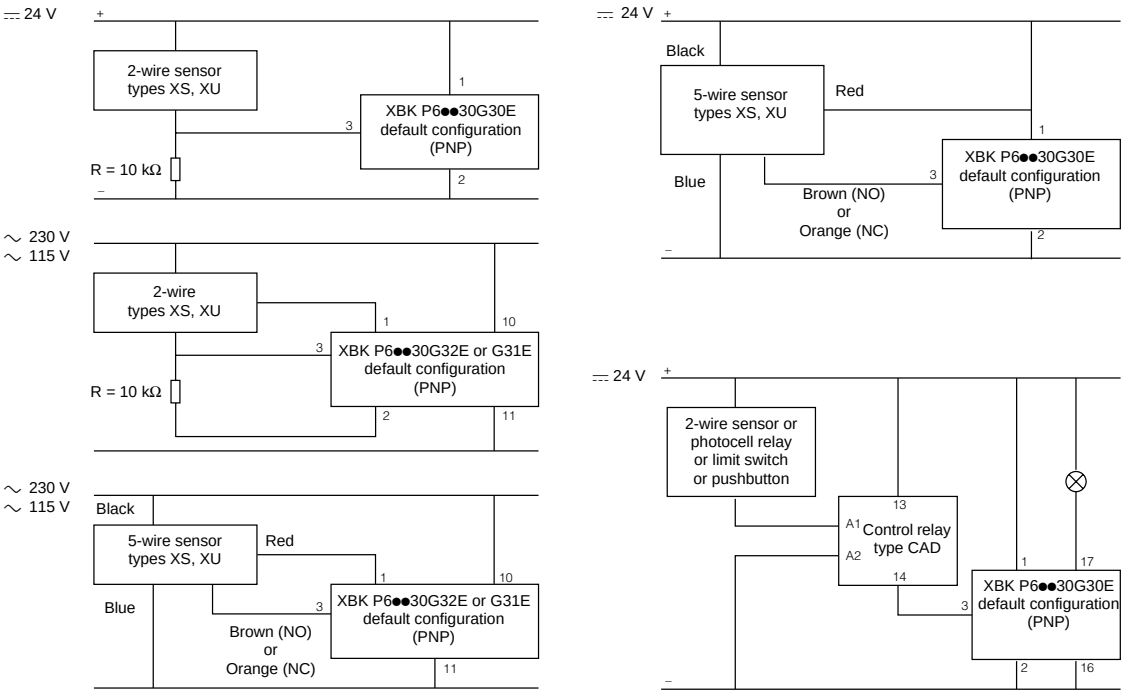
XBK P6●●30G3●E

Flush-mounting



Schemes

XBK P6●●30G3●E



Characteristics : page 4/8

Zelio Count - counters

Electronic totalising counters, 24 x 48, 8 digits, LCD

Technical characteristics

Function			Impulse counter	
Display			8 digit LCD	
Digit height		**mm**	7	
Counting capacity			0…99 999 999	

Input characteristics

Counter type			**RC 87 610 040**	**RC 87 610 050**
Input type			1 slow counting input by volt-free contact or NPN open-collector transistor (terminals 3 - 4) 1 fast counting input by voltage level (terminals 3 - 5)	1 slow counting input
Voltage	Terminals 3 - 5	**V**	⎓ 4…30	–
	Terminals 4 - 5	**V**	–	∿ / ⎓ 5…50
	Terminals 5 - 6	**V**	–	∿ 48…240

Reset characteristics *(1)*

Front panel	Dipswitch n° 2 to OFF		Inhibited	Inhibited
	Dipswitch n° 2 to ON		Enabled	Enabled
Voltage	Terminals 2 - 3	**V**	–	∿ / ⎓ 5…50
	Terminals 1 - 2	**V**	–	∿ 48…240

Counting speed characteristics

Counting speed (slow counting)		**Hz**	40	40
Slow counting (minimum impulse duration)	Low level	**ms**	12	12
	High level	**ms**	12	12
Fast counting	Low level	**µs**	70	–
	High level	**µs**	70	–
Input levels		**V**	⎓ 4…30	⎓ 4…30
Input impedance		**kΩ**	3.5 min	3.5 min

Supply characteristics

2 alkaline batteries	Life		4 years
1 lithium battery	Life		8 years
			Supply can be switched off via Dipswitch n° 1 located on the underside of the device

General characteristics

Conforming to standards			VDE 0110, IEC 664, 348, 255.4, 255.5, 801.2, 801.4
Product certifications			c UL us, CSA
Material			Self-extinguishing
Connection			By 6 screw terminals on back of the device
Clamping capacity		**mm²**	2 x 1.5
Mounting method			By yoke
Front panel degree of protection			IP 66
Temperature limits	Operation	**°C**	-10…+ 55
	Storage	**°C**	-20…+ 70
Insulation resistance	Conforming to IEC 255.5	**MΩ**	100 (⎓ 500 V)
Dielectric strength	Conforming to IEC 255.5		2000 V/50 Hz/1 min

(1) The reset is galvanically isolated from the counting input.

References : page 4/11
Dimensions : page 4/11
Schemes : pages 4/11 and 4/19

Zelio Count - counters

Electronic totalising counters, 24 x 48, 8 digits, LCD

- *LCD display, 8 digits, digit height 7 mm*
- *Powered by alkaline batteries or lithium battery*
- *Counting inputs : solid state (⎓ 4…30 V) or voltage (up to ⎓/∿ 240 V)*
- *Dimensions DIN - 24 x 48 mm*
- *Reset on front panel or external with inhibit facility*

References

RC 87 610 050

Totalising counters, LCD 24 x 48

Description	Reference	Weight kg
Solid state input, lithium battery	**RC 87 610 040**	0.060
Voltage input, lithium battery	**RC 87 610 050**	0.065

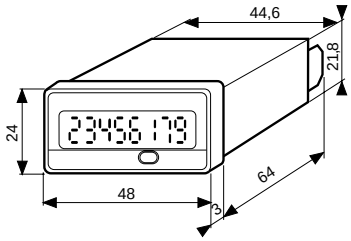
Accessories

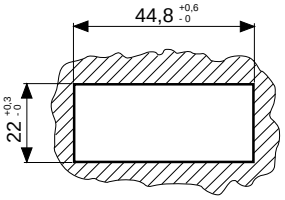
Description	Dimensions	Reference	Weight kg
Adaptors for panel cut-out	25 x 50 mm (dimensions 29 x 54 mm)	**RC 26 546 829**	0.002
	45 x 45 mm (dimensions 52 x 52 mm)	**RC 26 546 830**	0.008
	Ø 50 mm (dimensions Ø 73 mm)	**RC 26 546 831**	0.011

Dimensions

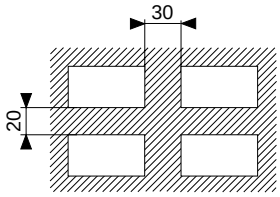
RC 87 610 0●0

Panel cut-out
(Max. thickness 10mm) 1 unit

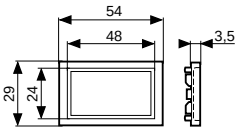




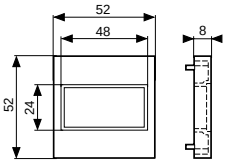
4 units



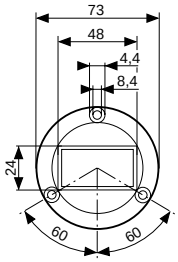
RC 26 546 829



RC 26 546 830

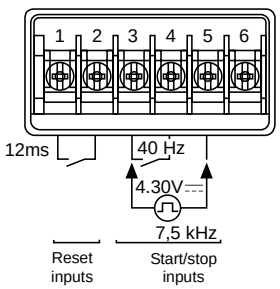


RC 26 546 831



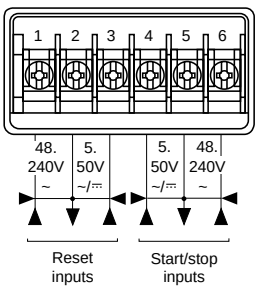
Schemes (other schemes on page 4/19)

RC 87 610 040



Terminals
1 - Reset input
2 - 0 V reset
3 - 0 V counting
4 - Slow counting
5 - Fast counting

RC 87 610 050



Terminals
1 - Reset ∿ 48…240 V
2 - 0 V reset
3 - Reset ∿/⎓ 5…50 V
4 - ∿/⎓ 5…50 V
5 - 0 V
6 - ∿ 48…240 V

Characteristics : page 4/10

Zelio Count - counters

Electronic total/partial impulse counters, 24 x 48, 8 digits, LCD

Technical characteristics

Function			Impulse counter	
Display			8 digit LCD	
Digit height		**mm**	7	
Counting capacity			0…99 999 999	

Input characteristics

Counter type			**RC 87 610 240**	**RC 87 610 250**
Input type			1 counting input by volt-free contact or NPN or PNP open-collector transistor (terminals 3 - 4)	1 galvanically isolated counting input
Minimum time closed		**ms**	40	–
Voltage	Terminals 4 - 5	**V**	–	∿ / ⎓ 5…50
	Terminals 5 - 6	**V**	–	∿ 48…240

Reset to zero characteristics *(1)*

Front panel			Partial counter always enabled	
External (total counter)			Volt-free contact or NPN or PNP open-collector transistor (terminals 1 - 2)	
Minimum time closed		**ms**	40	40
Voltage	Terminals 2 - 3	**V**	–	∿ / ⎓ 5…50
	Terminals 1 - 2	**V**	–	∿ 48…240

Counting input characteristics

Counting speed (selectable with dispwitch n° 4)		**Hz**	14 or 100	14
Slow counting (minimum impulse duration)	Low level	**ms**	35	
	High level	**ms**	35	
Fast counting (minimum impulse duration)	Low level	**ms**	5	
	High level	**ms**	5	

Supply characteristics

1 lithium battery	Life		5 years
			Supply can be switched off via Dipswitch n° 3 located on the underside of the device

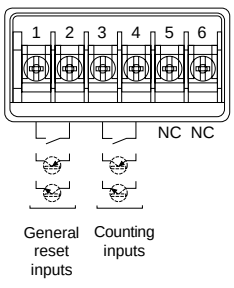
General characteristics

Conforming to standards			VDE 0110, IEC 664, IEC 48, IEC 255.4, IEC 255.5, IEC 801.2, IEC 801.4
Product certifications			c UL us, CSA
Material			Self-extinguishing
Connection			By 6 screw terminals on back of the device
Clamping capacity		**mm²**	2 x 1.5
Fixing			By yoke
Front panel degree of protection			IP 66
Temperatures	Operation	**°C**	- 10…+ 55
	Storage	**°C**	- 20…+ 70

(1) The reset is galvanically isolated from the counting input.

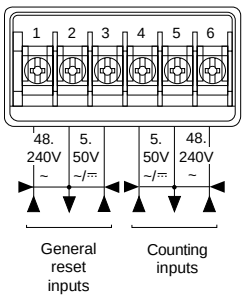
Schemes (other schemes on pages 4/18 and 4/19)

RC 87 610 240



Terminals
1 - General reset input
2 - General reset common
3 - Count common
4 - Counting
5 - Not connected
6 - Not connected

RC 87 610 250



Terminals
1 - Reset ∿ 48…240 V
2 - General reset common
3 - Reset ∿/⎓ 5…50 V
4 - ∿/⎓ 5…50 V
5 - Count common
6 - ∿ 48…240 V

References : page 4/13
Dimensions : page 4/13

Telemecanique

Zelio Count - counters

Electronic total/partial impulse counters, 24 x 48, 8 digits, LCD

- Partial or total count display
- Counting capacity :
  - partial : 0…999 999
  - total : 0…99 999 999
- Counting inputs and reset inputs :
  - RC 87 610 240 : solid state
  - RC 87 610 250 : voltage
- Decimal point
- Integral module for voltage inputs (~ / ⎓ 5…50 V, ~ 48…240 V)
- Powered by lithium battery. Life : 5 years
- Front panel reset for "partial" count
- Front panel or electrical reset for total count
- Accessories for panel cut-out 25 x 50, 45 x 45, Ø 50

References

RC 87 610 240

Total/partial impulse counters, LCD 24 x 48

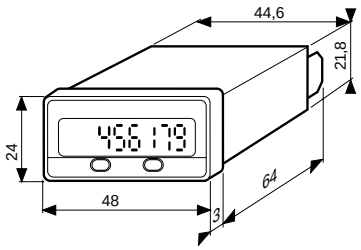
Description	Reference	Weight kg
Solid state input	**RC 87 610 240**	0.060
Voltage input	**RC 87 610 250**	0.065

Accessories

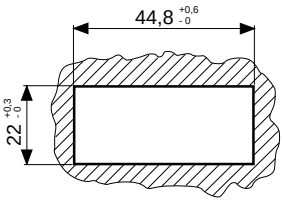
Description	Dimensions	Reference	Weight kg
Adaptors for panel cut-out	25x50 mm (dimensions 29x54 mm)	**RC 26 546 829**	0.002
	45x45 mm (dimensions 52x52 mm)	**RC 26 546 830**	0.008
	Ø 50 mm (dimensions Ø 73 mm)	**RC 26 546 831**	0.011

Dimensions

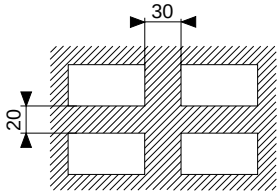
RC 87 610 2●0



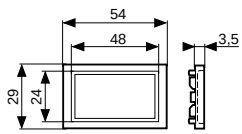
Panel cut-out
(Max. thickness 10mm) 1 unit



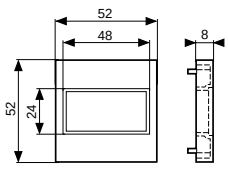
4 units



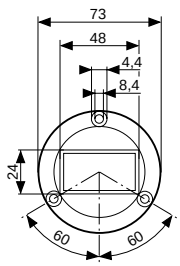
RC 26 546 829



RC 26 546 830



RC 26 546 831



Characteristics : page 4/12
Schemes : page 4/12

Zelio Count - counters

Electronic totalising counters,
hour counters, chronometers,
24 x 48, 6 or 8 digits, LCD

Counter type			RC 87 610 340	RC 87 610 440
Technical characteristics				
Functions			Impulse counter	Hour counter/chronometer
Solid state input			Solid state	Solid state
Display			8 digit LCD	6 digit LCD
Digit height		**mm**	7	7
Counting capacity			0…99 999 999	–
Time ranges			–	0…99 999.9 h 0…99 999.9 min 0…99 999.9 s 0…99 h 59 min 59 s
Time base			–	Quartz (precision ± 50 ppm)
Possibility of reloading current value			–	Yes
Supply 1 lithium battery	Life		8 years	5 years
Input characteristics				
Volt-free contact			–	1 Start/Stop input 40 ms minimum (terminals 3-5) 1 Reset input 100 ms minimum (terminals 1-3) 1 Prog. input (terminals 3-4) 1 enable Reset input (terminals 1-2)
Slow input		**Hz**	40 max	–
In.L Volt-free contact or transistor	T OFF	**ms**	12 min	–
	T ON	**ms**	12 min	–
	Current output	**µA**	52 max	–
	Leakage current in OFF state	**µA**	0.2 max	–
	Residual voltage	**V**	0.4 max	–
	NPN collector		–	–
Fast input		**kHz**	7 max	–
In.H	T OFF	**µs**	70 min	–
	T ON	**µs**	70 min	–
	Level 0	**V**	⎓ 0…1	–
	Level 1	**V**	⎓ 4…30	–
	Current consumption	**mA**	6 max at ⎓ 24 V	–
Reset to zero : Reset			Volt-free contact or transistor	Volt-free contact or transistor
	NPN open collector	**ms**	12 minimum	100 minimum
Enable reset			Front panel	Front panel
Electromagnetic environment characteristics				
Radiated field	Conforming to IEC 1000-4-3		Level 3, 10 V/M, 26 MHz to 1 GHz	
Fast transients	Conforming to IEC 1000-4-4		Level 3, 1 kV	
Damped oscillatory wave	Conforming to IEC 255-4		Level 3, 1 kV	
Electrostatic discharge	Conforming to IEC 1000-2-6		Level 3, 8 kV	
Operating characteristics				
Conforming to standards			VDE 0110, IEC 664, 348, 255.4, 255.5, 801.2, 801.4	
Product certifications			c UL us, CSA	
Material			Self-extinguishing	
Connection by screw terminals on back of the device			5 terminals	
Clamping capacity		**mm²**	2 x 1.5	
Fixing			By yoke	
Degree of protection			IP 64	
Temperature limits	Operation	**°C**	0…+ 55	
	Storage	**°C**	- 25…+ 70	

References :
page 4/15

Dimensions :
page 4/15

Schemes :
page 4/15

Zelio Count - counters

Electronic totalising counters, hour counters, chronometers , 24 x 48, 6 or 8 digits, LCD

- *8 or 6 digits LCD display, digit height 7 mm*
- *Totalising counter:*
  - *7 kHz and 40 Hz inputs*
  - *maximum counting capacity : 99 999 999 impulses*
- *Hour counter/chronometer:*
  - *start/stop inputs*
  - *4 time ranges:*
    - *99 999.9 hours - 99 999.9 min*
    - *99 999.9 s - 99 h 59 min 59 s*
- *Powered by lithium battery:*
  - *reset from front panel or remote reset*

References

RC 87 610 340

Totalising counters, LCD 24 x 48

Description	Reference	Weight kg
Impulse counter	**RC 87 610 340**	0.060
Hour counter/chronometer	**RC 87 610 440**	0.060

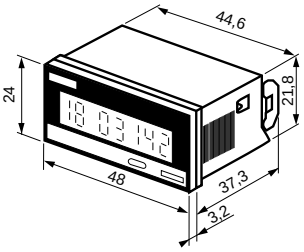
Accessories

Description	Dimensions	Reference	Weight kg
Adaptors for panel cut-out	25x50 mm (dimensions 29x54 mm)	**RC 26 546 829**	0.006
	45x45 mm (dimensions 52x52 mm)	**RC 26 546 830**	0.008
	Ø 50 mm (dimensions Ø 73 mm)	**RC 26 546 831**	0.011

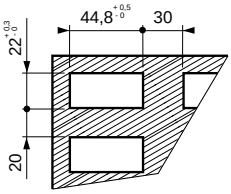
4

Dimensions

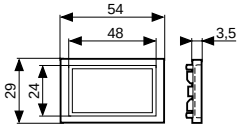
RC 87 610 ●40



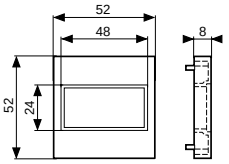
Panel cut-out



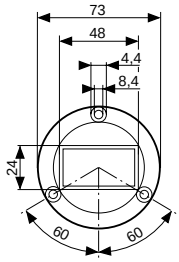
RC 26 546 829



RC 26 546 830

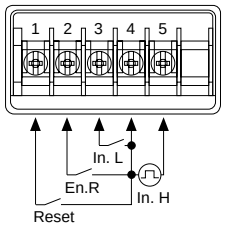


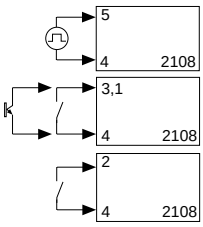
RC 26 546 831



Schemes

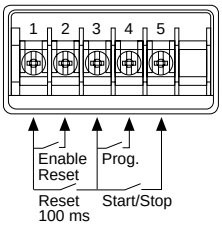
RC 87 610 340

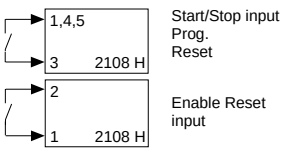




Terminals
1 - Reset input
2 - Enable Reset
3 - Slow counting
4 - OV
5 - Fast counting

RC 87 610 440





Terminals
1 - Reset input
2 - Enable Reset
3 - Common
4 - Prog.
5 - Start/Stop

Characteristics : page 4/14

Zelio Count - counters

Electronic hour counters, 24 x 48, 6 digits, LCD

Technical characteristics

Function			Hour counter
Display			6 digit LCD
Digit height		**mm**	7
Time ranges			0…99 999.9 h 0…99 999.9 min 0…99 999.9 s 0…99 h 59 min 59 s
Time base			Quartz (precision ± 50 ppm)
Possibility of reloading current value			Yes

Input characteristics

Counter type			**RC 87 610 140**	**RC 87 610 150**
Input type			1 start/stop input by volt-free contact or open-collector transistor (terminals 3-4)	1 start/stop input
Voltage	Terminals 4 - 5	**V**	–	∼ / ⎓ 5…50
	Terminals 5 - 6	**V**	–	∼ 48…240 - 50/60 Hz
Minimum time closed		**ms**	40	–
Minimum impulse time	∼	**ms**	–	50
	⎓	**ms**	–	35

Reset characteristics *(1)*

Front panel	Dipswitch n° 2 to OFF		Inhibited	Inhibited
	Dipswitch n° 2 to ON		Enabled	Enabled
External			Volt-free contact or open-collector transistor (terminals 1 - 2)	–
Minimum time closed		**ms**	100	–
Minimum impulse time		**ms**	–	100
Voltage	Terminals 2 - 3	**V**	–	∼ / ⎓ 5…50
	Terminals 1 - 2	**V**	–	∼ 48…240 - 50/60 Hz

Supply characteristics

1 lithium battery	Life		5 years
			Supply can be switched off via Dipswitch n° 1 located on the underside of the device

General characteristics

Conforming to standards			VDE 0110, IEC 664, 348, 55.4, 255.5, 801.2, 801.4
Product certifications			c UL us, CSA
Material			Self-extinguishing
Connection			By 6 screw terminals on back of the device
Clamping capacity		**mm²**	2 x 1.5
Mounting method			By yoke
Front panel degree of protection			IP 66
Temperature limits	Operation	**°C**	-10…+ 55
	Storage	**°C**	-20…+ 70

(1) The reset is galvanically isolated from the counting input.

References : page 4/17
Dimensions : page 4/17
Schemes : page 4/17

Zelio Count - counters
Electronic hour counters, 24 x 48, 6 digits, LCD

- *Counting inputs and reset inputs : solid state or voltage*
- *Integral module for voltage inputs(⏦ or ⎓ 5…50 V, ⏦ 48…240 V)*
- *4 time ranges :*
  - *99 999.9 h - 99 999.9 min*
  - *99 999.9 s - 99 h 59 min 59 s*
- *Possibility of reloading current value*
- *Powered by lithium battery. Life 5 years*
- *Reset on front panel or external with inhibit facility*

References

RC 87 610 150

Hour counters, LCD 24 x 48

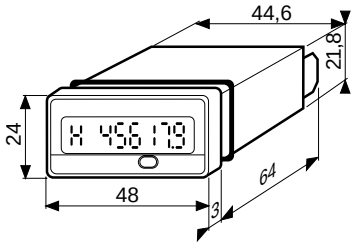
Description	Reference	Weight kg
Solid state input	**RC 87 610 140**	0.060
Voltage input	**RC 87 610 150**	0.065

Accessories

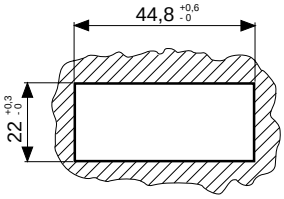
Description	Dimensions	Reference	Weight kg
Adaptors for panel cut-out	25x50 mm (dimensions 29x54 mm)	**RC 26 546 829**	0.002
	45x45 mm (dimensions 52x52 mm)	**RC 26 546 830**	0.008
	Ø 50 mm (dimensions Ø 73 mm)	**RC 26 546 831**	0.011

Dimensions

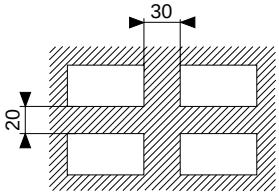
RC 87 610 1●0



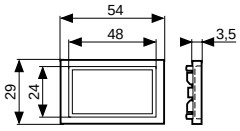
Panel cut-out
(Max. thickness 10 mm) 1 unit



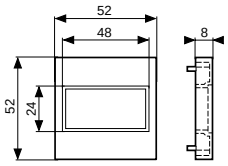
4 units



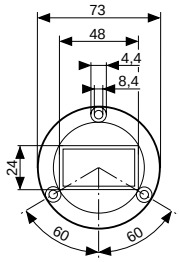
RC 26 546 829



RC 26 546 830

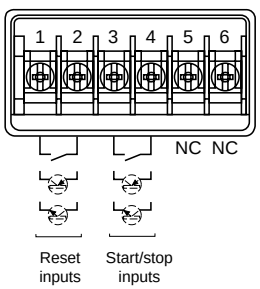


RC 26 546 831



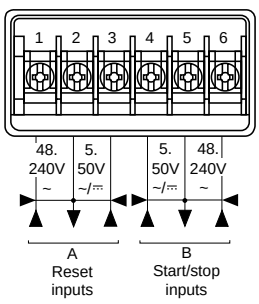
Schemes (other schemes on page 4/19)

RC 87 610 140



Terminals
1 - Reset input
2 - Reset common
3 - Start/stop common
4 - Start/stop input
5 - N/C
6 - N/C

RC 87 610 150



Terminals
1 - Reset ⏦ 48…240 V
2 - Reset common
3 - Reset ⏦/⎓ 5…50 V
4 - ⏦/⎓ 5…50 V
5 - Start/stop common
6 - ⏦ 48…240 V

Characteristics : page 4/16

Zelio Count - counters
Counters 24 x 48

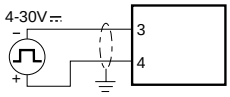
Connection schemes

RC 87 610 240

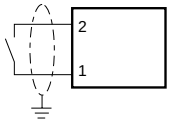
Fast counting input

Counting and general reset input

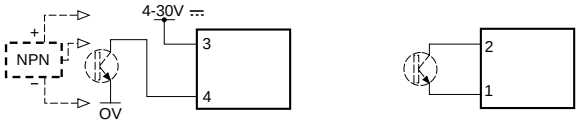
Voltage



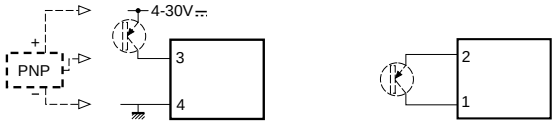
Volt-free contact



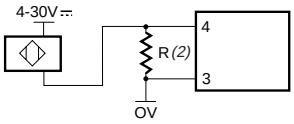
NPN transistor or 3-wire NPN proximity sensor *(1)*
(RC 87 610 240)



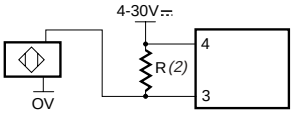
PNP transistor or 3-wire PNP proximity sensor *(1)*
(RC 87 610 240)



2-wire proximity sensor



2-wire proximity sensor



(1) For sensor with leakage current ≤ 0.1 mA.
(2) R = 470 Ω / 2 Ω for a 2-wire sensor with leakage current ≤ 1.5 mA.

References :
page 4/13

Zelio Count - counters
Counters 24 x 48

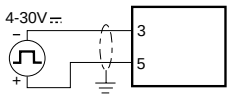
Connection schemes

RC 87 610 040, RC 87 610 140

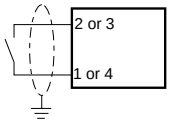
Fast counting input RC 87 610 040

Slow counting or reset input RC 87 610 040
Start/Stop or reset input RC 87 610 140

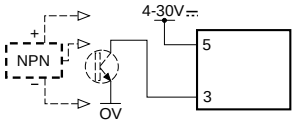
Voltage

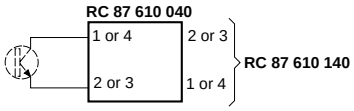


Volt-free contact

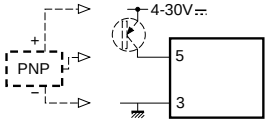


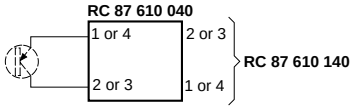
NPN transistor (RC 87 610 140)
NPN transistor or 3-wire NPN proximity sensor *(1)*
(RC 87 610 040)



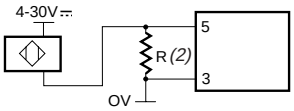


PNP transistor (RC 87 610 140)
PNP transistor or 3-wire PNP proximity sensor *(1)*
(RC 87 610 040)

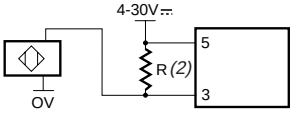




2-wire proximity sensor



2-wire proximity sensor

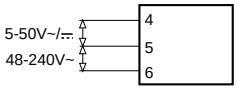


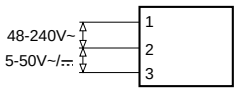
RC 87 610 050, RC 87 610 150, RC 87 610 250

Counting input RC 87 610 050, RC 87 610 250
Start/Stop input RC 87 610 150

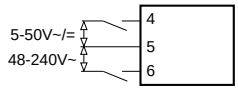
Reset RC 87 610 050, RC 87 610 150, RC 87 610 250

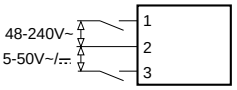
Voltage



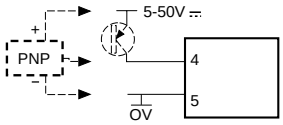


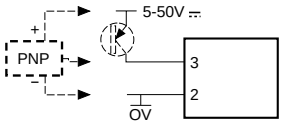
Live contact



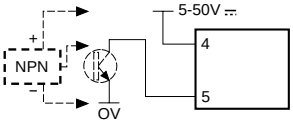


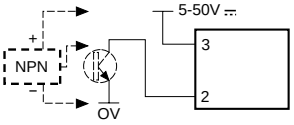
PNP transistor or 3-wire PNP proximity sensor *(1)*



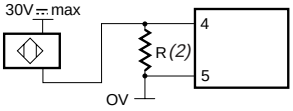


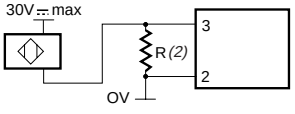
NPN transistor or 3-wire NPN proximity sensor *(1)*



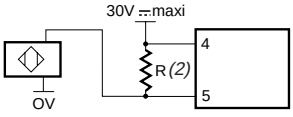


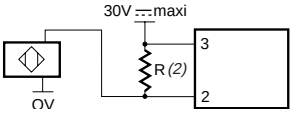
2-wire proximity sensor





2-wire proximity sensor





(1) For sensor with leakage current ≤ 0.1 mA.
(2) R = 470 Ω / 2 Ω for a 2-wire sensor with leakage current ≤ 1.5 mA.

References :
pages 4/11 to 4/17

Zelio Count - counters

Electronic preselection and multifunction counters

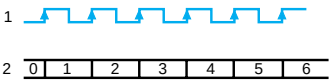
Models RC 87 618 and RC 87 619

Input modes

Input mode

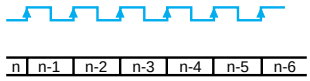
PNP : count on rising edge
NPN : count on falling edge

UP



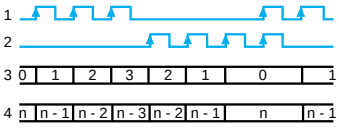
1 *Input IN1*
2 *Display*

DN



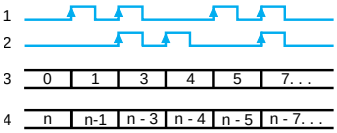
1 *Input IN1*
2 *Display*

IND



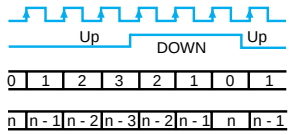
1 *Input IN1 count in the direction of the cycle*
2 *Input IN2 count in the opposite direction from the cycle*
3 *Display (O...P) 2 channel up/down counters*
4 *Display (P...O) 2 channel up/down counters*

CUMUL



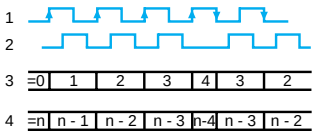
1 *Input IN1 count in the direction of the cycle*
2 *Input IN2 count in the opposite direction from the cycle*
3 *Display (O...P) 2 channel up/down counters*
4 *Display (P...O) 2 channel up/down counters*

DIR



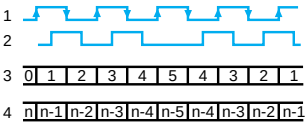
1 *Input IN1 input pulses*
2 *Input IN2 reversal of counting direction*
3 *Display (O...P) 1 channel up/down counters*
4 *Display (P...O) 1 channel up/down counters*

PH



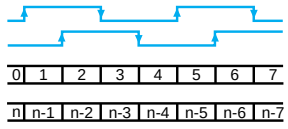
1 *Input IN1 (signals 90° out of phase)*
2 *Input IN2 (signals 90° out of phase)*
3 *Display (O...P)*
4 *Display (P...O)*

PH2



1 *Input IN1 counts on rising and falling edges*
2 *Input IN2 direction of count reversed if IN2 in advance of IN1*
3 *Display (O...P)*
4 *Display (P...O)*

PH4

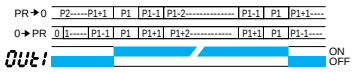


1 *Input IN1 counts on rising and falling edges*
2 *Input IN2 counts on rising and falling edges, direction of count reversed if IN2 in advance of IN1*
3 *Display (O...P)*
4 *Display (P...O)*

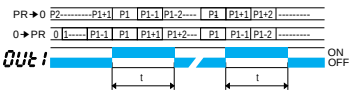
Output modes

Single cycle nAnU

2 presets

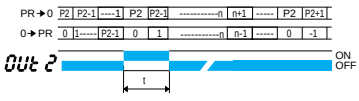


Maintained



Pulsed (transient pulse)
(t = 0.1…9.9 s)

Repetitive cycle AUtO



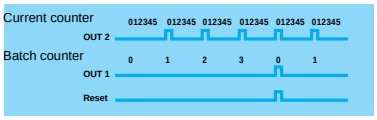
Pulsed with auto Reset to value of P2 (or P for 1 preset)
(t = 500 ms)
t = 0.1 s to 9.9 s for multifunction

Batch counter function

Principle

P1 is the “batch” preset.
When P2 is displayed, the value displayed on the upper digits represents the current counter value (reset to P2). In this configuration the “RST” key on the front panel of the device reinitialises the current value. When P1 (batch preset) is displayed, the value displayed on the upper digits represents the value of the Batch counter. In this configuration the “RST” on the front panel of the device resets the batch counter.
An "electrical" reset (RST terminal) still resets the current counter value and that of the batch counter.

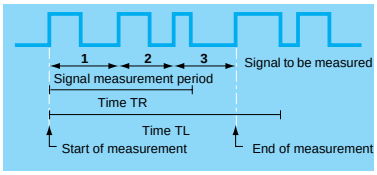
Example



On a packing line, bottles need to be counted into packs of 6 bottles and then despatched in a box containing a batch of 4 packs.
P2 : current counter preset value : 00006
P1 : batch counter preset value : 00004

Characteristics : pages 4/22 and 4/23
References : pages 4/24 and 4/25
Dimensions : pages 4/24 and 4/25
Schemes : pages 4/24 and 4/25

Zelio Count - counters
Electronic preselection and multifunction counters
Models RC 87 618 and RC 87 619



Totalising counter function

On multifunction version:
- totalising counter reset via front panel only,
- current value reset via front panel and electrical.

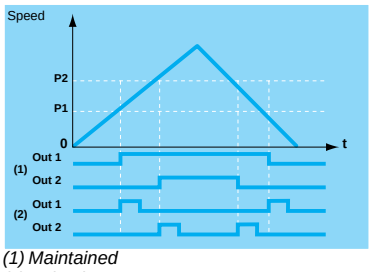
Tachometer function

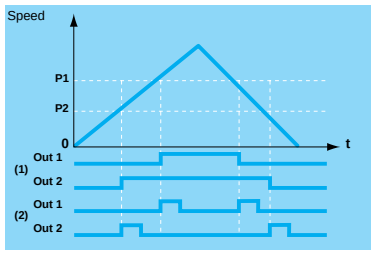
Measurement principle

Measurement begins on a rising edge of the signal to be measured.
The measurement time is greater than TR, but less than TL.
Measurement stops at the end of the current period (3) after TR.

If the period (3) does not end before TL, the measurement result will be zero (0).
The outputs are updated at the end of each measurement according to the selected output mode.
- Maintained output : output active if the measured speed is greater than the preset speed.
- Pulsed output : output activated during time T, when the preset threshold is crossed.

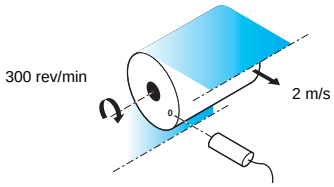
Measurement accuracy : 100 + (200/TR) PPM
Example : for TR = 1 s : 300 PPM (0.03 %).





(1) Maintained
(2) Pulsed output

Application example



You wish to display a linear speed of 2.00 m/s for a drive pulley rotating at 300 rev/min. A sensor on this pulley delivers one pulse, per revolution, i.e. :

$$V = \frac{Ns \cdot Coef \cdot RPX}{n}$$

Required display : V = 2.00 (result in m/s → RPX = 1). Given that : n = 1

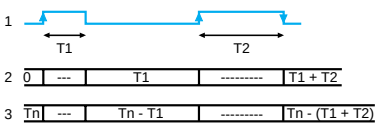
$$Ns = \frac{300}{60} = 5$$

$$\text{Dwhere } Coef = \frac{V \cdot n}{Ns \cdot RPX} \rightarrow Coef = \frac{200 \cdot 1}{5 \cdot 1} = 40$$

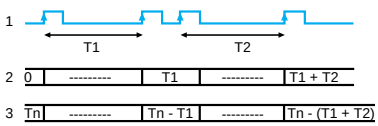
In addition, the decimal point is positioned in the hundreds (xxxx.xx). Selection of TR : you wish the measurement to be updated every 2 seconds → TR = 2 s.
Select TL > TR, for example TL = 3 s.
The tachometer function can also be used to calculate a flow rate.

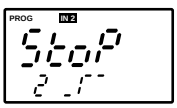
Chronometer function (precision : 150 ppm)

1 *Input IN1*
2 *Display (0...PR), 1 channel pulse measurement*
3 *Display (PR...0), 1 channel pulse measurement*

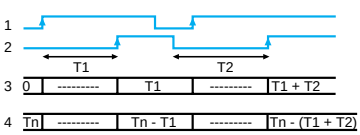


1 *Input IN1*
2 *Display (0...PR), 1 channel period measurement*
3 *Display (PR...0), 1 channel period measurement*





1 *Input IN1 (start counting)*
2 *Input IN2 (stop counting)*
3 *Display (0...PR), measurement on 2 separate channels*
4 *Display (PR...0), measurement on 2 separate channels*



Characteristics : pages 4/22 and 4/23
References : pages 4/24 and 4/25
Dimensions : pages 4/24 and 4/25
Schemes : pages 4/24 and 4/25

Zelio Count - counters
Electronic preselection and multifunction counters
Models RC 87 618 and RC 87 619

Counter type			RC 87 618 ●●●		RC 87 619 ●●●		
Technical characteristics							
Functions			Preselection up/down counters				
	Mulltifunction		Counters, “Batch” counters, tachometers and chronometers		Counters, “Batch” counters, totalising counters, tachometers and chronometers		
Number of presets			1 or 2				
Back-lit or red illuminated display	Current value		5 digits		6 digits		
	Preset		5 digits		6 digits		
Digit height	Current value	**mm**	8		10		
	Preset	**mm**	4		6		
Display capacity			- 9999…+ 99999				
Simultaneous readout of count value and one preset			Yes		Yes		
Input characteristics							
Inputs			2 counting inputs IN1, IN2		2 counting inputs IN1, IN2, 1 inhibit input		
Input modes (see page 4/20)			UP, DN, DIR, IND, CUMUL PH, PH2, PH4				
Input by contact			Voltage or solid state for 3-wire and 2-wire detection using external resistor (NPN or PNP depending on wiring)		Voltage or solid state (NPN/PNP depending on wiring)		
Counting speed	Counters		5 kHz or 30 Hz 2.5 kHz PH4		5 kHz (2.5 kHz in phase x 4) 30 Hz in debounce mode		
	Mulltifunction		Counter	Tachometer	Counter	Tachometer	Totalising counter
	UP, DOWN, DIR	**kHz**	7.5	9	7.5	9	6
	IND, CUMUL (IN1, IN2 non simultaneous)	**kHz**	7.5	9	7.5	9	6
	IND, CUMUL (IN1, IN2 simultaneous)	**kHz**	4	5	4	5	3
	PH, PH2	**kHz**	5 (except in Batch mode) : 4 kHz)		5 (except in Batch mode) : 4 kHz)		3.5
	PH4	**kHz**	2.5	4	2.5	4	1.5
Low level		**V**	⎓ 0…1				
High level		**V**	⎓ 4…30				
Impedance		**kΩ**	10				
Reset characteristics							
Reset to zero or to preset value	Front panel		If not protected in programming phase				
	Electrical		By contact, voltage or solid state (NPN or PNP depending on wiring)		By contact, voltage or solid state (NPN or PNP)		
Minimum pulse time		**ms**	5				
Low level		**V**	⎓ 0…1				
High level		**V**	⎓ 4…30				
Impedance		**kΩ**	10				
Option to protect against reset from front panel			Yes				
Scale factor (each input pulse is multiplied by this figure)			00.001…99.999				
Decimal point selectable for ease of reading			xxxxx, xxxx.x, xxx.xx, xx.xxx		xxxxxx, xxxxx, x, xxxx, xx, xxx.xx, xx.xxxx		
Sensor supply	∿ version		⎓ 12 or 100 V				
	⎓ version		Un- 2 V/100 mA				
Configuration and current value saved			In EEPROM memory				

Functions : pages 4/20 and 4/21
References : pages 4/24 and 4/25
Dimensions : pages 4/24 and 4/25
Schemes : pages 4/24 and 4/25

Zelio Count - counters

Electronic preselection and multifunction counters

Models RC 87 618 and RC 87 619

Counter type			RC 87 618 ●●●	RC 87 619 ●●●
Output characteristics				
Solid state outputs				
- Type			NPN open collector	
- Maximum current		**mA**	100	
- Maximum voltage		**V**	⎓ 40	
- Voltage drop		**V**	< 1.5	
- Response time		**µs**	< 250	
Relay outputs				
- Type			2 N/O contacts or 2 solid state depending on model	2 C/O contacts + 2 solid state
- Rated current		**A**	2	
- Maximum voltage		**V**	∿ 250	
- Maximum breaking capacity (resistive) AC-1		**VA**	500	
- Minimum current		**mA**	10	100
- Response time		**ms**	< 10	
- Mechanical life			3 x 10^6 operating cycles	3 x 10^7 operating cycles
- Electrical life at I max. AC-1			1 x 10^5	1 x 10^5
- Output modes : maintained or pulsed (fixed or adjustable pulse duration))			t = 0.1…9.9 s	t = 0.1…9.9 s
- Single cycle or repetitive (immediate auto reset)			Yes	
Supply (min/max values)		**V**	⎓ 10…30, ∿ 20…55, ∿ 80…260	
- Maximum consumption	⎓ version	**W**	4	< 5
	∿ 50/60 Hz version	**VA**	10	< 13
General characteristics				
Immunity to microbreaks	⎓ 10…30 V version	**ms**	10	
	∿ 20…55 V version	**ms**	10	
	∿ 80…260 V version	**ms**	10	
Relative humidity (without condensation)			95 %	
Altitude		**m**	0…2000	
Insulation (IEC 664-1)		**kV**	2.5	
Standards	Conforming to IEC 1000.4.2		Level 3	
	Conforming to IEC 1000.4.3		Level 3	
	Conforming to IEC 1000.4.4		Level 3	
	Conforming to IEC 1000.4.6		Level 3	
	Conforming to IEC 55022/11 group 1		Class A	
Vibration withstand on 3 axes conforming to IEC 68-2-6			10…55 Hz / 0.35 mm	
Material			Self-extinguishing	
Connection			Screw terminals	
Clamping capacity		**mm²**	2 x 1.5	
Front panel fixing			With bracket	
Front panel protection			IP 54	
Front panel seal			Yes	
Temperature limits	Operation	**°C**	0…+ 55	
	Storage	**°C**	- 25…+ 70	
Product certifications			c UL us, CSA	

Functions : pages 4/20 and 4/21
References : pages 4/24 and 4/25
Dimensions : pages 4/24 and 4/25
Schemes : pages 4/24 and 4/25

Zelio Count - counters

Electronic preselection and multifunction counters, 48 x 48, 5 digits, LCD or LED

Model RC 87 618

References

Preselection and multifunction up/down counters 48 x 48

Functions : counter, batch counter, tachometer, chronometer
Counting input modes UP, DN, IND, CUMUL, DIR, PH, PH2, PH4
Time base : 99 h 59 min, 99 min 59 s, 99.99 s, 24 h
2 presets

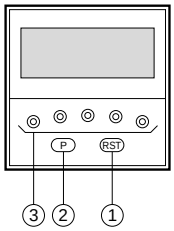
RC 87 618 222

RC 87 618 322

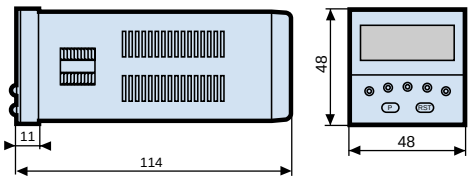
Description	Supply voltage	Outputs	Reference	Weight kg
Back-lit LCD display	∿ 80…260 V	2 N/O	**RC 87 618 228**	0.200
		2 solid state	**RC 87 618 268**	0.200
	∿ 20…55 V	2 N/O	**RC 87 618 224**	0.200
		2 solid state	**RC 87 618 264**	0.200
	⎓ 10…30 V	2 N/O	**RC 87 618 222**	0.200
		2 solid state	**RC 87 618 262**	0.200
Red LED display	∿ 80…260 V	2 N/O	**RC 87 618 328**	0.200
		2 solid state	**RC 87 618 368**	0.200
	∿ 20…55 V	2 N/O	**RC 87 618 324**	0.200
		2 solid state	**RC 87 618 364**	0.200
	⎓ 10…30 V	2 N/O	**RC 87 618 322**	0.200
		2 solid state	**RC 87 618 362**	0.200

Dimensions

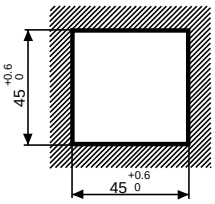
Display



1 *Reset*
2 *Access to all parameters in Prog. mode*
3 *Incrementation of figures and multipliers selection of a parameter value*

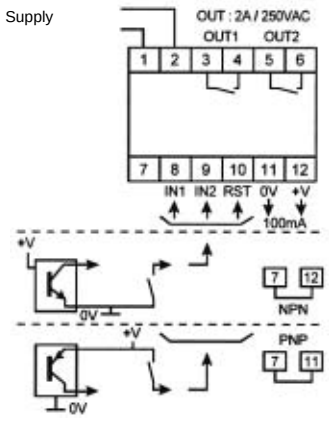


Panel cut-out

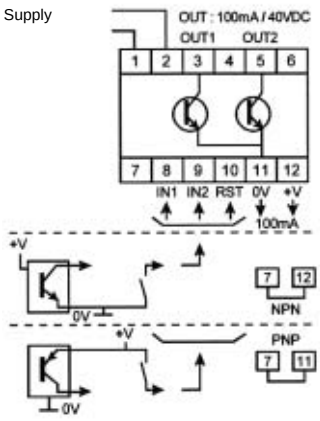


Connection schemes

RC 87 618 22●, RC 87 618 32●



RC 87 618 26●, RC 87 618 36●



Functions : pages 4/20 and 4/21
Characteristics : pages 4/22 and 4/23

Zelio Count - counters

Electronic preselection and multifunction counters, 72 x 72, 6 digits, LCD or LED
Model RC 87 619

References

Preselection and multifunction up/down counters 72 x 72

Functions : counter, batch counter, tachometer, chronometer, totalising counter
Counting input modes UP, DN, IND, CUMUL, DIR, PH, PH2, PH4
Time base : 99 h 59 min, 99 min 59 s, 99.99 s, 24 h, 999.99 h, 999.99 min.
2 presets

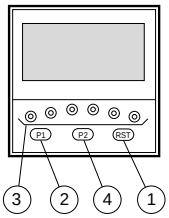
RC 87 619 222

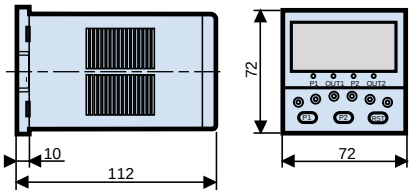
RC 87 619 322

Description	Supply voltage	Outputs	Reference	Weight kg
Back-lit LCD display	∿ 80…260 V	2 C/O + 2 solid state	**RC 87 619 228**	0.290
	∿ 20…55 V	2 C/O + 2 solid state	**RC 87 619 224**	0.290
	⎓ 10…30 V	2 C/O + 2 solid state	**RC 87 619 222**	0.290
Red LED display	∿ 80…260 V	2 C/O + 2 solid state	**RC 87 619 328**	0.290
	∿ 20…55 V	2 C/O + 2 solid state	**RC 87 619 324**	0.290
	⎓ 10…30 V	2 C/O + 2 solid state	**RC 87 619 322**	0.290

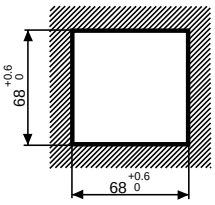
Dimensions

Display





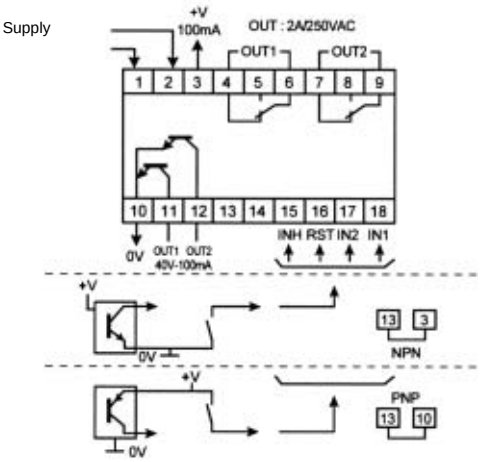
Panel cut-out



1 *Reset*
2/4 *Access to all parameters in Prog. mode*
3 *Incrementation of figures and multipliers selection of a parameter value*

Connection schemes

RC 87 619 22●, RC 87 619 32●



Functions : pages 4/20 and 4/21
Characteristics : pages 4/22 and 4/23