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## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# Electronic multifunction counters with preselection

## → Up counters / Down counters - 48 x 48 - CTR48

- Counter, Tachometer, Chronometer, Multi-totalizer, Batch counter, Preselection totalizer
- Maximum input frequency 40 kHz
- Simple parameter setting, configuration using text menus
- Easy modification of presets
- Scaling factor
- 5 A changeover relay and solid state output
- Removable connectors
- Backlit LCD display (orange) : 2 lines, 6 digits or multicoloured display (green-red)
- IP 65 sealed panel
- Option of locking the keypad, completely or partially (preset, programming)
- Accessories for 72 x 72 or 55 x 55 cut-out, DIN rail adaptor



### Part numbers

Type	Functions	Preset	Voltages	Output	Code
Orange backlight LCD display	Counter, Tachometer, Chronometer, Preselection multi-totalizer	1	10 → 30 V $\overline{\text{DC}}$	1 changeover relay, 1 solid state	87621111
	Counter, Tachometer, Chronometer, Preselection multi-totalizer	1	24 V $\sim$	1 changeover relay, 1 solid state	87621112
	Counter, Tachometer, Chronometer, Preselection multi-totalizer	1	90 → 260 V $\sim$	1 changeover relay, 1 solid state	87621115
	Counter, Tachometer, Chronometer, Multi-totalizer, Batch counter, Preselection totalizer	2	10 → 30 V $\overline{\text{DC}}$	1 changeover relay, 1 NO relay, 2 solid state	87621121
	Counter, Tachometer, Chronometer, Multi-totalizer, Batch counter, Preselection totalizer	2	24 V $\sim$	1 changeover relay, 1 NO relay, 2 solid state	87621122
	Counter, Tachometer, Chronometer, Multi-totalizer, Batch counter, Preselection totalizer	2	90 → 260 V $\sim$	1 changeover relay, 1 NO relay, 2 solid state	87621125
Multicoloured LCD display (green-red)	Counter, Tachometer, Chronometer, Preselection multi-totalizer	1	10 → 30 V $\overline{\text{DC}}$	1 changeover relay, 1 solid state	87621211
	Counter, Tachometer, Chronometer, Preselection multi-totalizer	1	24 V $\sim$	1 changeover relay, 1 solid state	87621212
	Counter, Tachometer, Chronometer, Preselection multi-totalizer	1	90 → 260 V $\sim$	1 changeover relay, 1 solid state	87621215
	Counter, Tachometer, Chronometer, Multi-totalizer, Batch counter, Preselection totalizer	2	10 → 30 V $\overline{\text{DC}}$	1 changeover relay, 1 NO relay, 2 solid state	87621221
	Counter, Tachometer, Chronometer, Multi-totalizer, Batch counter, Preselection totalizer	2	24 V $\sim$	1 changeover relay, 1 NO relay, 2 solid state	87621222
	Counter, Tachometer, Chronometer, Multi-totalizer, Batch counter, Preselection totalizer	2	90 → 260 V $\sim$	1 changeover relay, 1 NO relay, 2 solid state	87621225

### Accessories

Description	Code
Adaptor for 72 x 72 mm cut-out	26546842
Adaptor for 55 x 55 mm cut-out	26546846
DIN rail adaptor	26546841

## General characteristics

### Environmental characteristics

Supply	10 → 30 V $\overline{\text{---}}$ / 24 V $\sim$ / 90 → 260 V $\sim$
Relative humidity (no condensation)	EN 60068-2-30 40/93% RLF
Altitude	0 < 2000 m
Certifications	UL - cULus (pending) - CE
Vibration resistance in 3 axes	10-55 Hz / 1 min / XYZ EN 60068-2-6: 30 min. in each direction
Connection by screw terminals	Removable
Protection	Conforming to standard EN 60529 IP65 for panel / IP20 for connections
Front panel watertight seal	✓
Temperature limits use (°C)	-20 → +65
Temperature limits stored (°C)	-25 → +75
Weight (g)	150 $\overline{\text{---}}$ version 250 $\sim$ version

### General characteristics

Reset to zero or to preset	On panel: if not locked during programming Electrical: automatic, voltage or solid state (NPN or PNP depending on programming)
Minimum pulse time	Impulse counter: < 15 ms Chronometer: 500 $\mu$ s
Option to protect against reset from front panel	✓
Scale factor (each input pulse is multiplied by this figure)	00.0001 → 99.9999
Scaling factor (each input impulse is divided by this value)	01.0000 → 99.9999
Decimal point selectable for ease of reading	0 0.0 0.00 0.000 0.0000 0.00000
Sensor supply version $\sim$	24 V $\overline{\text{---}}$ -20/+15% 50 mA
Programming and current value backed up via EEPROM memory	✓ Service life 10 years

### Operating characteristics

Functions	Preselection counter, Tachometer, Chronometer, Multi-totalizer, Batch counters, Totalizer
Number of presets	1 or 2
Display	LCD with orange backlighting/Multicoloured LCD (green-red)
Height digits (mm)	LCD 9
Display details	- 999 999 → 999 999

### Input characteristics

Inputs	2 counter inputs 1 reset input, 1 gate input
Input modes	Dir: Directional AS: up/dn AA: up/up PP: phase PP2: phase 2 PP4: phase 4
Input type	Voltage or solid state
High level	8 V $\overline{\text{---}}$ → 30 V $\overline{\text{---}}$
Low level	0 → 2 V $\overline{\text{---}}$

### Solid state output characteristics

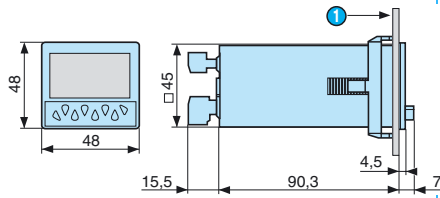
Maximum current	30 mA
Max. voltage	10 → 30 V $\overline{\text{---}}$ for the $\overline{\text{---}}$ version 24 V $\overline{\text{---}}$ -20/+15%

### Relay output characteristics

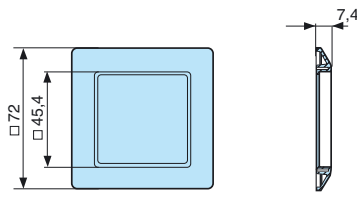
Changeover relay	✓
NO contact	Depending on version
Maximum current	5 A
Minimum current	10 mA
Maximum voltage	30 V $\overline{\text{---}}$ / 250 V $\sim$
Min. voltage	5 V $\sim$
Response time	< 13 ms
Mechanical life (operations)	20 x 10 <sup>6</sup>
Number of operations to 5 A	5 x 10 <sup>4</sup>
Output modes: maintained or pulsed	0.01 → 99.99 s

## Dimensions (mm)

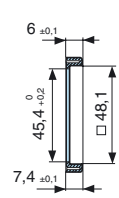
26546842 - Adaptor for 72 x 72 mm cut-out



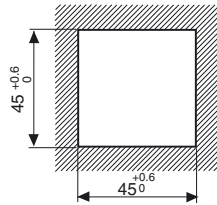
1 10.5 max.



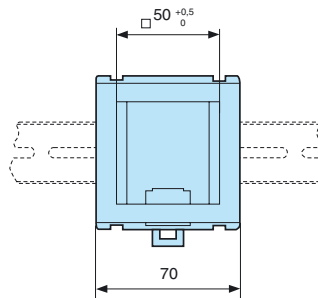
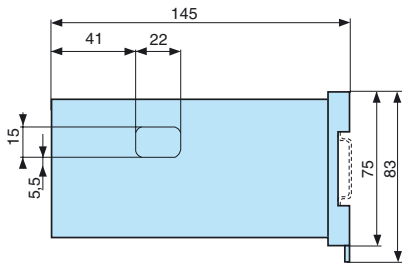
26546846 - Adaptor for 55 x 55 mm cut-out



### Panel cut-out

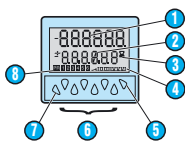


26546841 - DIN rail adaptor



## Principles

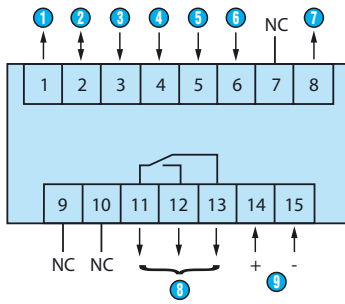
### Display and buttons



- 1 Current value
- 2 Selected value
- 3 Chronometer display
- 4 Active output indication
- 5 Prog/mode button
- 6 Preset control buttons
- 7 Button required for programming parameters
- 8 Shows which value is displayed

## Connections

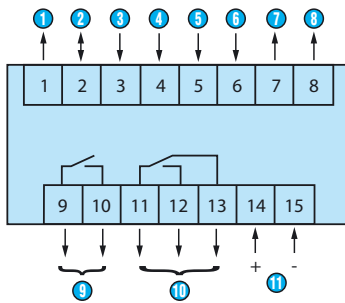
87621111 / 211



- ① Sensor voltage supply (\* UB interconnected)
- ② GND (0 V $\overline{\text{---}}$ )
- ③ INP A (signal A input)
- ④ INP B (signal B input)
- ⑤ Reset (Reset input)
- ⑥ Gate input
- ⑦ Output 1 - 10-30 V $\overline{\text{---}}$ /30 mA
- ⑧ 11-12-13: Output 1
- ⑨ 14-15: Supply

Output: 5 A/250 V $\sim$ /AC: 24 V $\sim$

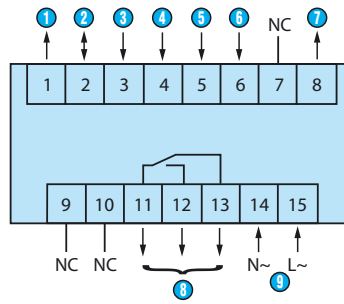
87621121 / 221



- ① Sensor voltage supply (\* UB interconnected)
- ② GND (0 V $\overline{\text{---}}$ )
- ③ INP A (signal A input)
- ④ INP B (signal B input)
- ⑤ Reset (Reset input)
- ⑥ Gate input
- ⑦ Output 1: 10-30 V $\overline{\text{---}}$ /30 mA
- ⑧ Output 2: 10-30 V $\overline{\text{---}}$ /30 mA
- ⑨ 9-10: Output 1
- ⑩ 11-12-13: Output 2
- ⑪ 14-15: Supply

Output: 5 A/250 V $\sim$  / AC: 90  $\rightarrow$  260 V $\overline{\text{---}}$

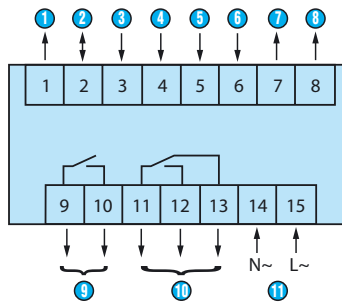
87621112 / 212



- ① Sensor voltage supply
- ② GND (0 V $\overline{\text{---}}$ )
- ③ INP A (signal A input)
- ④ INP B (signal B input)
- ⑤ Reset (Reset input)
- ⑥ Gate input
- ⑦ Output 1 - 24 V $\overline{\text{---}}$ /30 mA
- ⑧ 11-12-13: Output 1
- ⑨ 14-15: Supply

Output: 5 A/250 V $\sim$ /AC: 24 V $\sim$

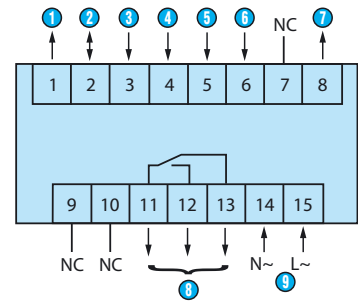
87621122 / 222



- ① Sensor voltage supply
- ② GND (0 V $\overline{\text{---}}$ )
- ③ INP A (signal A input)
- ④ INP B (signal B input)
- ⑤ Reset (Reset input)
- ⑥ Gate input
- ⑦ Output 1: 24 V $\overline{\text{---}}$ /30 mA
- ⑧ Output 2: 24 V $\overline{\text{---}}$ /30 mA
- ⑨ 9-10: Output 1
- ⑩ 11-12-13: Output 2
- ⑪ 14-15: Supply

Output: 5 A/250 V $\sim$  / AC: 90  $\rightarrow$  260 V $\overline{\text{---}}$

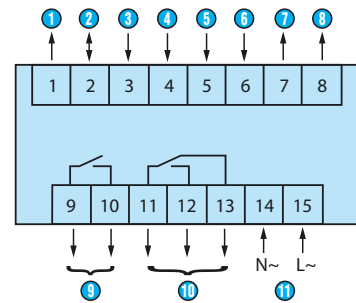
87621115 / 215



- ① Sensor voltage supply
- ② GND (0 V $\overline{\text{---}}$ )
- ③ INP A (signal A input)
- ④ INP B (signal B input)
- ⑤ Reset (Reset input)
- ⑥ Gate input
- ⑦ Output 1 - 24 V $\overline{\text{---}}$ /30 mA
- ⑧ 11-12-13: Output 1
- ⑨ 14-15: Supply

Output: 5 A/250 V $\sim$  / AC: 24 V $\sim$

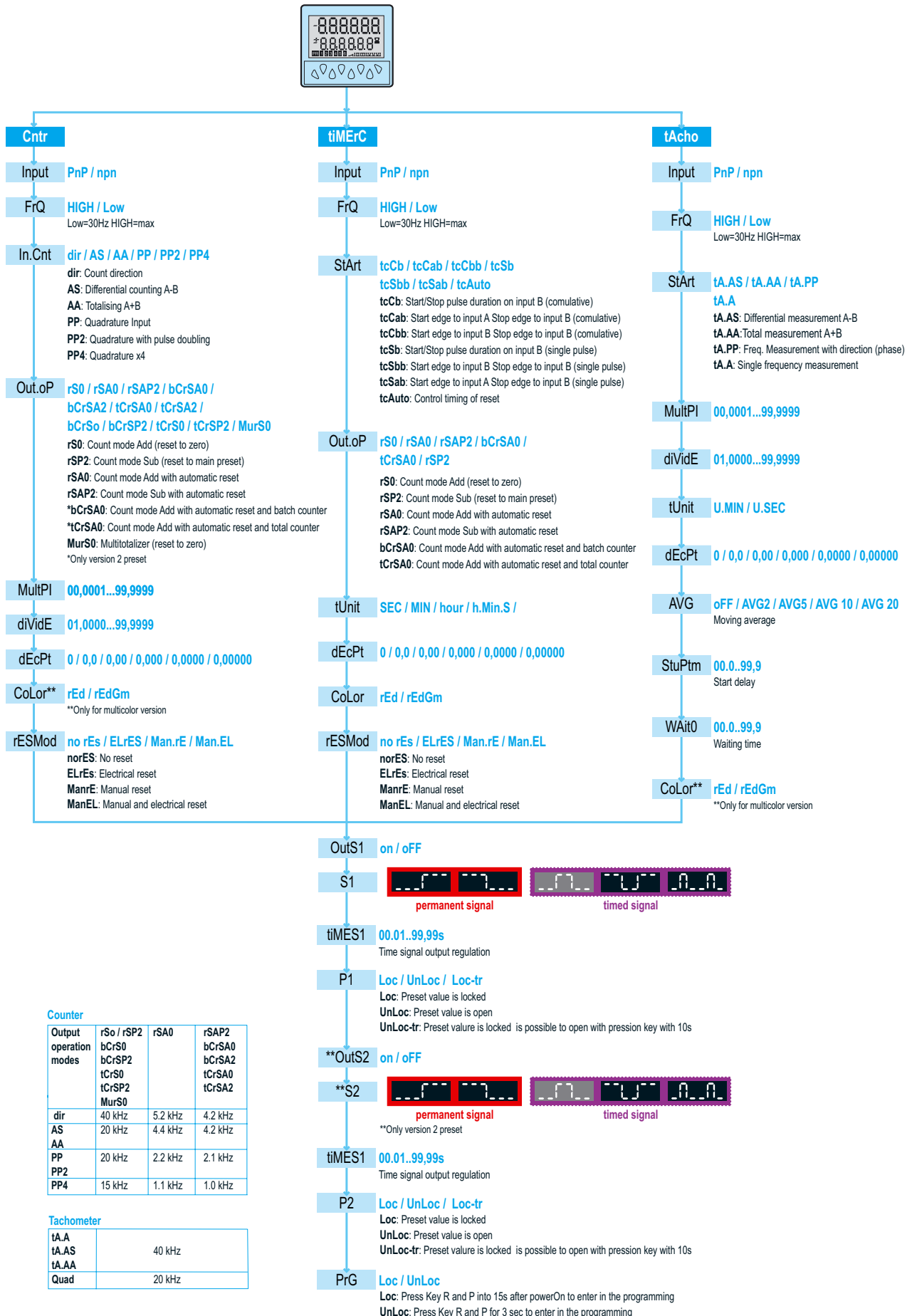
87621125 / 225



- ① Sensor voltage supply
- ② GND (0 V $\overline{\text{---}}$ )
- ③ INP A (signal A input)
- ④ INP B (signal B input)
- ⑤ Reset (Reset input)
- ⑥ Gate input
- ⑦ Output 1: 24 V $\overline{\text{---}}$ /30 mA
- ⑧ Output 2: 24 V $\overline{\text{---}}$ /30 mA
- ⑨ 9-10: Output 1
- ⑩ 11-12-13: Output 2
- ⑪ 14-15: Supply

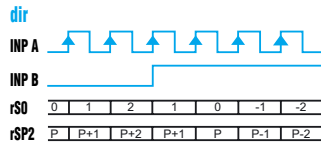
Output: 5 A/250 V $\sim$  / AC: 90  $\rightarrow$  260 V $\overline{\text{---}}$

## Programming diagram



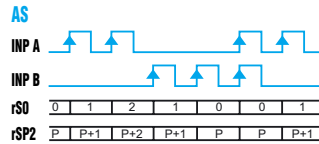
# Curves

## Counter: dir



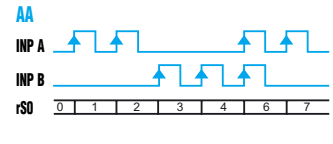
Inp A: counter input  
 Inp B: count direction  
 rS0: Display 0 → Preset  
 rSP2: Display Preset → 0

## Counter: AS



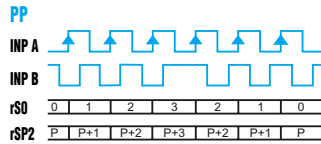
Inp A: Add. counter input 1  
 Inp B: sub. counter input 2  
 rS0: Display 0 → Preset  
 rSP2: Display Preset → 0

## Counter: AA



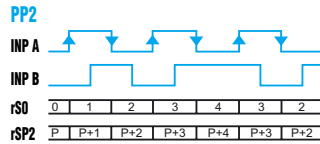
Inp A: Add. counter input 1  
 Inp B: sub. counter input 2  
 rS0: Display 0 → Preset

## Counter: PP



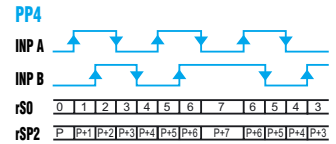
A 90° B  
 Inp A: Counter input  
 Counting on an edge  
 Inp B: Reversal of direction  
 rS0: Display 0 → Preset  
 rSP2: Display Preset → 0

## Counter: PP2



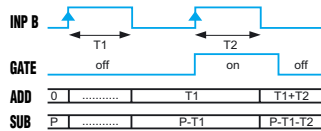
A 90° B  
 Inp A: Counter input  
 Counting on a rising edge and on a falling edge  
 Inp B: Reversal of direction  
 rS0: Display 0 → Preset  
 rSP2: Display Preset → 0

## Counter: PP4



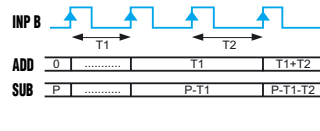
A 90° B  
 Inp A: Counter input  
 Counting on a rising edge and on a falling edge  
 Inp B: Counter input  
 Counting on a rising edge and on a falling edge, reversal of direction  
 rS0: Display 0 → Preset  
 rSP2: Display Preset → 0

## Chronometer: Start tcCb



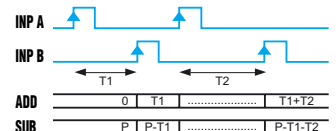
Inp A: No function  
 Inp B: On/Off  
 Cumulative time counting  
 Add: Display 0 → Preset  
 Sub: Display Preset → 0

## Chronometer: Start tcCbb



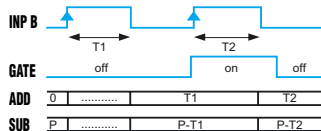
Inp A: No function  
 Inp B: On/Off  
 Cumulative time counting  
 Add: Display 0 → Preset  
 Sub: Display Preset → 0

## Chronometer: Start tcCAb



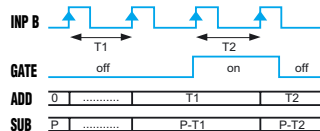
Inp A: On  
 Inp B: Off  
 Cumulative time counting  
 Add: Display 0 → Preset  
 Sub: Display Preset → 0

## Chronometer: Start tcSb



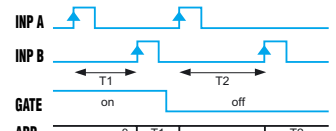
Inp A: No function  
 Inp B: On/Off  
 Individual time counting while B is active, automatic reset before each new count  
 Add: Display 0 → Preset  
 Sub: Display Preset → 0

## Chronometer: Start tcSbb



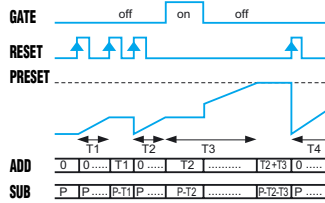
Inp A: No function  
 Inp B: On/Off  
 Individual time counting, automatic reset before each new count  
 Add: Display 0 → Preset  
 Sub: Display Preset → 0

## Chronometer: Start tcSAb



Inp A: On  
 Inp B: Off  
 Individual time counting, automatic reset before each new count  
 Add: Display 0 → Preset  
 Sub: Display Preset → 0

### Chronometer: Start tcAuto



Inp A: No function  
 Inp B: No function  
 Time counting command via Reset (manual or electrical)  
 Add: Display 0 → Preset  
 Sub: Display Preset → 0  
 The Gate input has a display memory function

### Tachometer: Start tA.A

INP A	0	F <sub>A0</sub>	F <sub>A1</sub>	F <sub>A2</sub>	0	x
Display	0	0	F <sub>A0</sub>	F <sub>A1</sub>	F <sub>A2</sub>	0

Inp A: Frequency input  
 Inp B: No function

### Tachometer: Start tA.AS

INP A	0	F <sub>A0</sub>	F <sub>A1</sub>	F <sub>A2</sub>	0	x
INP B	0	0	F <sub>B0</sub>	F <sub>B1</sub>	F <sub>B2</sub>	x
Display	0	0	F <sub>A0</sub>	F <sub>A0</sub> · F <sub>B0</sub>	F <sub>A1</sub> · F <sub>B1</sub>	F <sub>B2</sub>

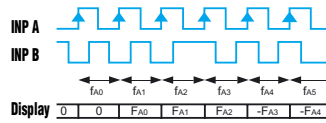
Inp A: Frequency input 1  
 Inp B: Frequency input 2  
 Formula: A · B

### Tachometer: Start tA.AA

INP A	0	F <sub>A0</sub>	F <sub>A1</sub>	F <sub>A2</sub>	0	x
INP B	0	0	F <sub>B0</sub>	F <sub>B1</sub>	F <sub>B2</sub>	x
Display	0	0	F <sub>A0</sub>	F <sub>A0</sub> · F <sub>B0</sub>	F <sub>A1</sub> · F <sub>B1</sub>	F <sub>B2</sub>

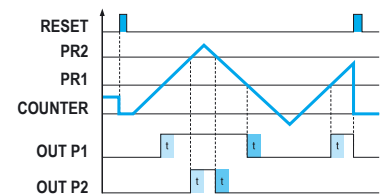
Inp A: Frequency input 1  
 Inp B: Frequency input 2  
 Formula: A + B

### Tachometer: Start tA.PP

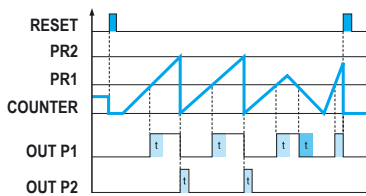


A 90° B  
 Inp A: Frequency input 1  
 Inp B: Reversal of direction

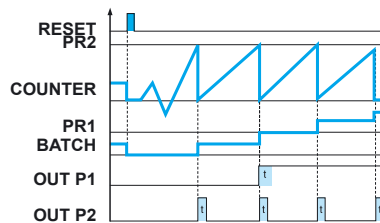
### Output operation: OutoP rS0



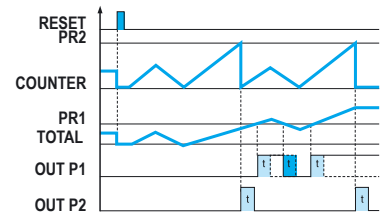
### Output operation: OutoP rSA0



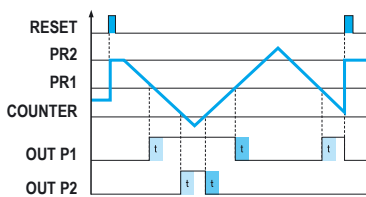
### Output operation: OutoP bCrSA0



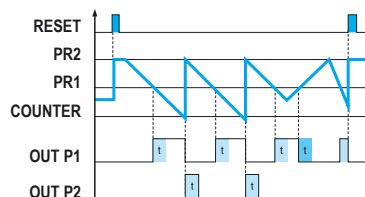
### Output operation: OutoP tCrSA0



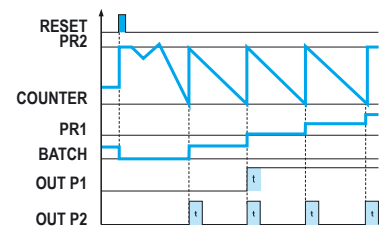
### Output operation: OutoP rSP2



### Output operation: OutoP rSAP2

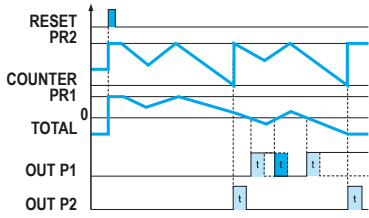


### Output operation: OutoPbCrSA2

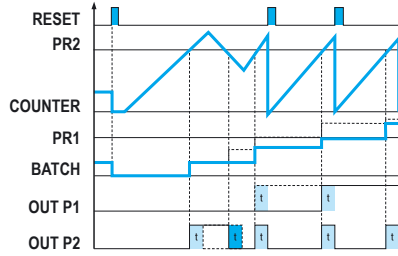




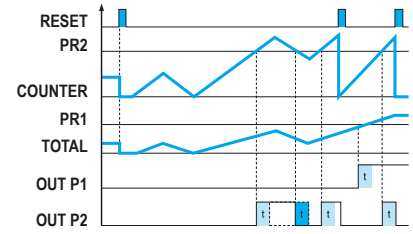
**Output operation: OutoP tCrSA2**



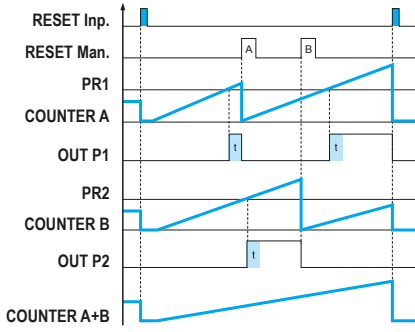
**Output operation: OutoP bCrS0**



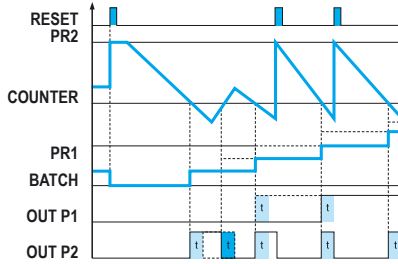
**Output operation: OutoP tCrS0**



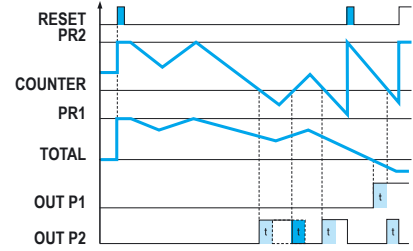
**Output operation: OutoP MurS0 (AA)**



**Output operation: OutoP bCrSP2**



**Output operation: OutoP tCrSP2**



**Output operation: OutoP MurS0 (AS)**

