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⎓	1 changeover relay, 1 solid state	**87621111**
	Counter, Tachometer, Chronometer, Preselection multi-totalizer	1	24 V∿	1 changeover relay, 1 solid state	**87621112**
	Counter, Tachometer, Chronometer, Preselection multi-totalizer	1	90 → 260 V∿	1 changeover relay, 1 solid state	**87621115**
	Counter, Tachometer, Chronometer, Multi-totalizer, Batch counter, Preselection totalizer	2	10 → 30 V⎓	1 changeover relay, 1 NO relay, 2 solid state	**87621121**
	Counter, Tachometer, Chronometer, Multi-totalizer, Batch counter, Preselection totalizer	2	24 V∿	1 changeover relay, 1 NO relay, 2 solid state	**87621122**
	Counter, Tachometer, Chronometer, Multi-totalizer, Batch counter, Preselection totalizer	2	90 → 260 V∿	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⎓	1 changeover relay, 1 solid state	**87621211**
	Counter, Tachometer, Chronometer, Preselection multi-totalizer	1	24 V∿	1 changeover relay, 1 solid state	**87621212**
	Counter, Tachometer, Chronometer, Preselection multi-totalizer	1	90 → 260 V∿	1 changeover relay, 1 solid state	**87621215**
	Counter, Tachometer, Chronometer, Multi-totalizer, Batch counter, Preselection totalizer	2	10 → 30 V⎓	1 changeover relay, 1 NO relay, 2 solid state	**87621221**
	Counter, Tachometer, Chronometer, Multi-totalizer, Batch counter, Preselection totalizer	2	24 V∿	1 changeover relay, 1 NO relay, 2 solid state	**87621222**
	Counter, Tachometer, Chronometer, Multi-totalizer, Batch counter, Preselection totalizer	2	90 → 260 V∿	1 changeover relay, 1 NO relay, 2 solid state	**87621225**

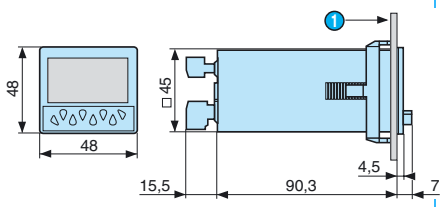
Accessories

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

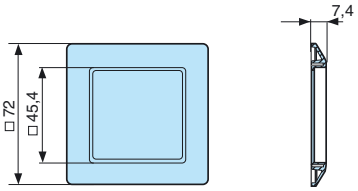
Environmental characteristics	
Supply	10 → 30 V⎓ / 24 V ∿ / 90 → 260 V∿
Relative humidity (no condensation)	EN 60068-2-30 40/93% RLF
Altitude	0 < 2000 m
Certifications	UL - cULus (pending) - CE
Vibration resistance in 3 axes	10-55 Hz / 1 min / XYZ EN 60068-2-6: 30 min. in each direction
Connection by 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 ⎓ version 250 ∿ 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 µs
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 ∿	24 V⎓ -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⎓ → 30 V⎓
Low level	0 → 2 V⎓
Solid state output characteristics	
Maximum current	30 mA
Max. voltage	10 → 30 V⎓ for the ⎓ version 24 V⎓ -20/+15%
Relay output characteristics	
Changeover relay	✓
NO contact	Depending on version
Maximum current	5 A
Minimum current	10 mA
Maximum voltage	30 V⎓ / 250 V∿
Min. voltage	5 V≂
Response time	< 13 ms
Mechanical life (operations)	20 x 10^6
Number of operations to 5 A	5 x 10^4
Output modes: maintained or pulsed	0.01 → 99.99 s

Dimensions (mm)

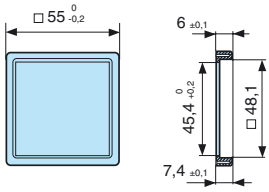


① 10.5 max.

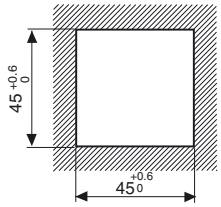
26546842 - Adaptor for 72 x 72 mm cut-out



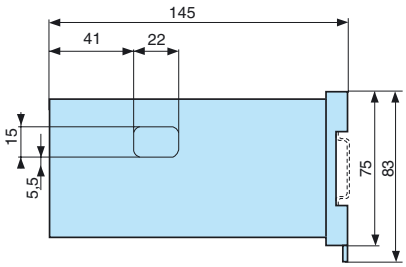
26546846 - Adaptor for 55 x 55 mm cut-out

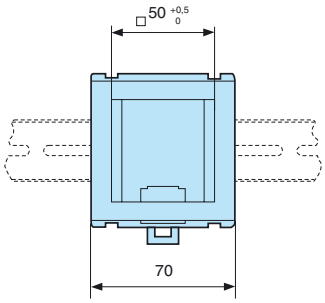


Panel cut-out



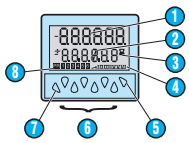
26546841 - DIN rail adaptor





Principles

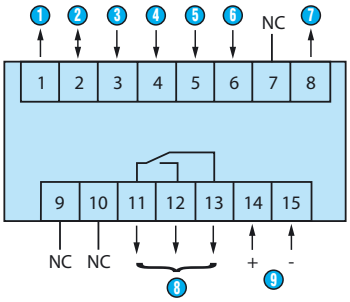
Display and buttons



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

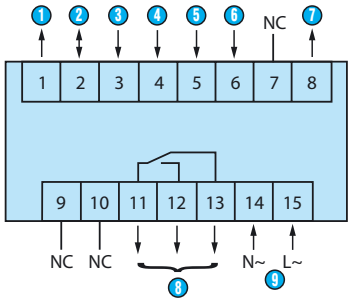
87621111 / 211



1. Sensor voltage supply (* UB interconnected)
2. GND (0 V⎓)
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⎓/30 mA
8. 11-12-13: Output 1
9. 14-15: Supply

Output: 5 A/250 V~/AC: 24 V~

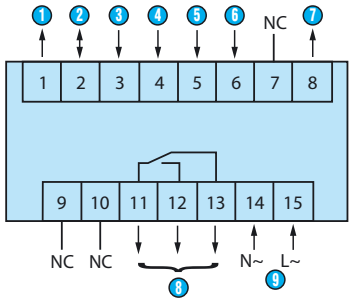
87621112 / 212



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

Output: 5 A/250 V~/AC: 24 V~

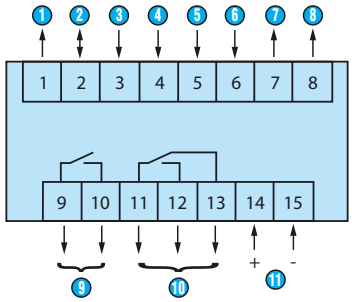
87621115 / 215



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

Output: 5 A/250 V~ / AC: 24 V~

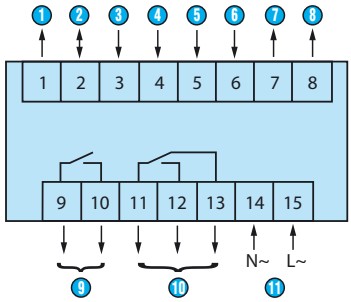
87621121 / 221



1. Sensor voltage supply (* UB interconnected)
2. GND (0 V⎓)
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⎓/30 mA
8. Output 2: 10-30 V⎓/30 mA
9. 9-10: Output 1
10. 11-12-13: Output 2
11. 14-15: Supply

Output: 5 A/250 V~ / AC: 90 → 260 V⎓

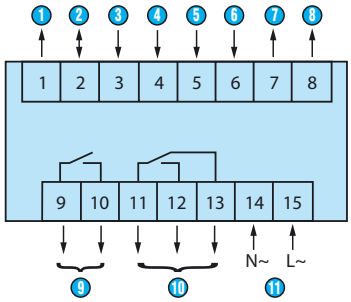
87621122 / 222



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

Output: 5 A/250 V~ / AC: 90 → 260 V⎓

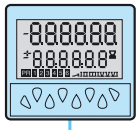
87621125 / 225



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

Output: 5 A/250 V~ / AC: 90 → 260 V⎓

Programming diagram



Cntr

- **Input** — PnP / npn
- **FrQ** — HIGH / Low
  Low=30Hz HIGH=max
- **In.Cnt** — dir / AS / AA / PP / PP2 / PP4
  dir: Count direction
  AS: Differential counting A-B
  AA: Totalising A+B
  PP: Quadrature Input
  PP2: Quadrature with pulse doubling
  PP4: Quadrature x4
- **Out.oP** — rS0 / rSA0 / rSAP2 / bCrSA0 / bCrSA2 / tCrSA0 / tCrSA2 / bCrSo / bCrSP2 / tCrS0 / tCrSP2 / MurS0
  rS0: Count mode Add (reset to zero)
  rSP2: Count mode Sub (reset to main preset)
  rSA0: Count mode Add with automatic reset
  rSAP2: Count mode Sub with automatic reset
  ***bCrSA0**: Count mode Add with automatic reset and batch counter
  ***tCrSA0**: Count mode Add with automatic reset and total counter
  MurS0: Multitotalizer (reset to zero)
  *Only version 2 preset
- **MultPI** — 00,0001...99,9999
- **diVidE** — 01,0000...99,9999
- **dEcPt** — 0 / 0,0 / 0,00 / 0,000 / 0,0000 / 0,00000
- **CoLor**** — rEd / rEdGm
  **Only for multicolor version
- **rESMod** — no rEs / ELrES / Man.rE / Man.EL
  norES: No reset
  ELrEs: Electrical reset
  ManrE: Manual reset
  ManEL: Manual and electrical reset

tiMErC

- **Input** — PnP / npn
- **FrQ** — HIGH / Low
  Low=30Hz HIGH=max
- **StArt** — tcCb / tcCab / tcCbb / tcSb / tcSbb / tcSab / tcAuto
  tcCb: Start/Stop pulse duration on input B (comulative)
  tcCab: Start edge to input A Stop edge to input B (comulative)
  tcCbb: Start edge to input B Stop edge to input B (comulative)
  tcSb: Start/Stop pulse duration on input B (single pulse)
  tcSbb: Start edge to input B Stop edge to input B (single pulse)
  tcSab: Start edge to input A Stop edge to input B (single pulse)
  tcAuto: Control timing of reset
- **Out.oP** — rS0 / rSA0 / rSAP2 / bCrSA0 / tCrSA0 / rSP2
  rS0: Count mode Add (reset to zero)
  rSP2: Count mode Sub (reset to main preset)
  rSA0: Count mode Add with automatic reset
  rSAP2: Count mode Sub with automatic reset
  bCrSA0: Count mode Add with automatic reset and batch counter
  tCrSA0: Count mode Add with automatic reset and total counter
- **tUnit** — SEC / MIN / hour / h.Min.S /
- **dEcPt** — 0 / 0,0 / 0,00 / 0,000 / 0,0000 / 0,00000
- **CoLor** — rEd / rEdGm
- **rESMod** — no rEs / ELrES / Man.rE / Man.EL
  norES: No reset
  ELrEs: Electrical reset
  ManrE: Manual reset
  ManEL: Manual and electrical reset

tAcho

- **Input** — PnP / npn
- **FrQ** — HIGH / Low
  Low=30Hz HIGH=max
- **StArt** — tA.AS / tA.AA / tA.PP / tA.A
  tA.AS: Differential measurement A-B
  tA.AA:Total measurement A+B
  tA.PP: Freq. Measurement with direction (phase)
  tA.A: Single frequency measurement
- **MultPI** — 00,0001...99,9999
- **diVidE** — 01,0000...99,9999
- **tUnit** — U.MIN / U.SEC
- **dEcPt** — 0 / 0,0 / 0,00 / 0,000 / 0,0000 / 0,00000
- **AVG** — oFF / AVG2 / AVG5 / AVG 10 / AVG 20
  Moving average
- **StuPtm** — 00.0..99,9
  Start delay
- **WAit0** — 00.0..99,9
  Waiting time
- **CoLor**** — rEd / rEdGm
  **Only for multicolor version

Common

- **OutS1** — on / oFF
- **S1**

permanent signal — timed signal

- **tiMES1** — 00.01..99,99s
  Time signal output regulation
- **P1** — Loc / UnLoc / Loc-tr
  Loc: Preset value is locked
  UnLoc: Preset value is open
  UnLoc-tr: Preset valure is locked is possible to open with pression key with 10s
- ****OutS2** — on / oFF
- ****S2**

permanent signal — timed signal

**Only version 2 preset

- **tiMES1** — 00.01..99,99s
  Time signal output regulation
- **P2** — Loc / UnLoc / Loc-tr
  Loc: Preset value is locked
  UnLoc: Preset value is open
  UnLoc-tr: Preset valure is locked is possible to open with pression key with 10s
- **PrG** — Loc / UnLoc
  Loc: Press Key R and P into 15s after powerOn to enter in the programming
  UnLoc: Press Key R and P for 3 sec to enter in the programming

Counter

Output operation modes	rSo / rSP2 bCrS0 bCrSP2 tCrS0 tCrSP2 MurS0	rSA0	rSAP2 bCrSA0 bCrSA2 tCrSA0 tCrSA2
dir	40 kHz	5.2 kHz	4.2 kHz
AS AA	20 kHz	4.4 kHz	4.2 kHz
PP PP2	20 kHz	2.2 kHz	2.1 kHz
PP4	15 kHz	1.1 kHz	1.0 kHz

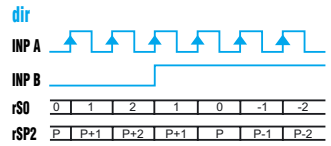
Tachometer

tA.A tA.AS tA.AA	40 kHz
Quad	20 kHz

Crouzet

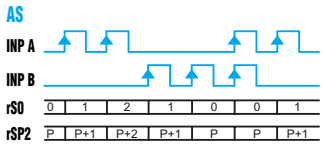
Curves

Counter: dir



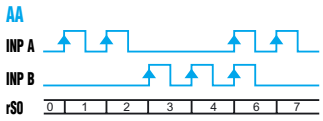
Inp A: counter input
Inp B: count direction
rS0: Display 0 → Preset
rSP2: Display Preset → 0

Counter: AS



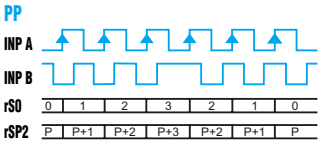
Inp A: Add. counter input 1
Inp B: sub. counter input 2
rS0: Display 0 → Preset
rSP2: Display Preset → 0

Counter: AA



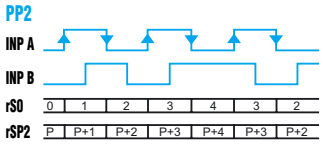
Inp A: Add. counter input 1
Inp B: sub. counter input 2
rS0: Display 0 → Preset

Counter: PP



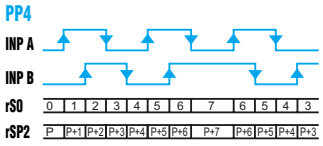
A 90° B
Inp A: Counter input
Counting on an edge
Inp B: Reversal of direction
rS0: Display 0 → Preset
rSP2: Display Preset → 0

Counter: PP2



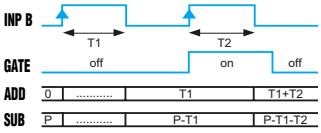
A 90° B
Inp A: Counter input
Counting on a rising edge and on a falling edge
Inp B: Reversal of direction
rS0: Display 0 → Preset
rSP2: Display Preset → 0

Counter: PP4



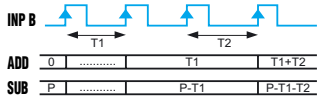
A 90° B
Inp A: Counter input
Counting on a rising edge and on a falling edge
Inp B: Counter input
Counting on a rising edge and on a falling edge, reversal of direction
rS0: Display 0 → Preset
rSP2: Display Preset → 0

Chronometer: Start tcCb



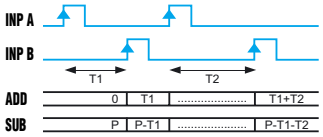
Inp A: No function
Inp B: On/Off
Cumulative time counting
Add: Display 0 → Preset
Sub: Display Preset → 0

Chronometer: Start tcCbb



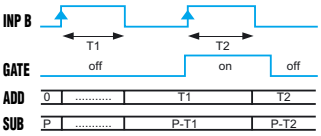
Inp A: No function
Inp B: On/On/Off
Cumulative time counting
Add: Display 0 → Preset
Sub: Display Preset → 0

Chronometer: Start tcCAb



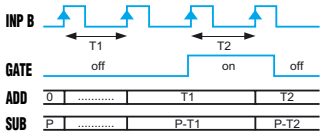
Inp A: On
Inp B: Off
Cumulative time counting
Add: Display 0 → Preset
Sub: Display Preset → 0

Chronometer: Start tcSb



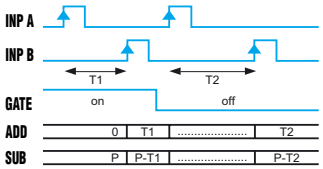
Inp A: No function
Inp B: On/Off
Individual time counting while B is active, automatic reset before each new count
Add: Display 0 → Preset
Sub: Display Preset → 0

Chronometer: Start tcSbb



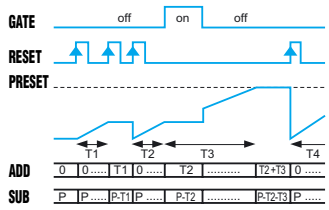
Inp A: No function
Inp B: On/Off
Individual time counting, automatic reset before each new count
Add: Display 0 → Preset
Sub: Display Preset → 0

Chronometer: Start tcSAb



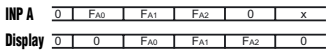
Inp A: On
Inp B: Off
Individual time counting, automatic reset before each new count
Add: Display 0 → Preset
Sub: Display Preset → 0

Chronometer: Start tcAuto



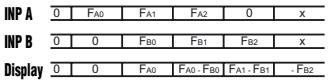
Inp A: No function
Inp B: No function
Time counting command via Reset (manual or electrical)
Add: Display 0 → Preset
Sub: Display Preset → 0
The Gate input has a display memory function

Tachometer: Start tA.A



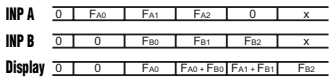
Inp A: Frequency input
Inp B: No function

Tachometer: Start tA.AS



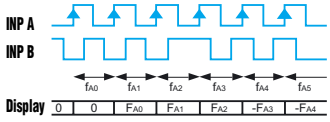
Inp A: Frequency input 1
Inp B: Frequency input 2
Formula: A - B

Tachometer: Start tA.AA



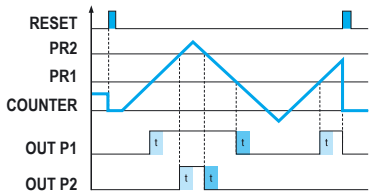
Inp A: Frequency input 1
Inp B: Frequency input 2
Formula: A + B

Tachometer: Start tA.PP

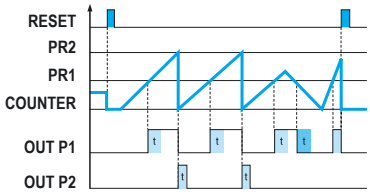


A 90° B
Inp A: Frequency input 1
Inp B: Reversal of direction

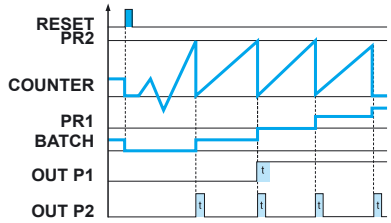
Output operation: OutoP rS0



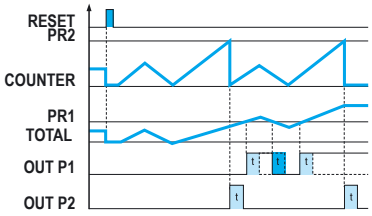
Output operation: OutoP rSA0



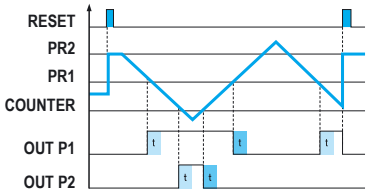
Output operation: OutoP bCrSA0



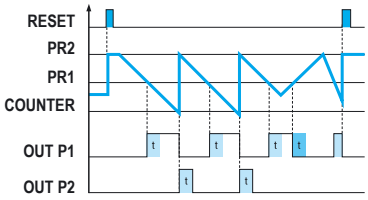
Output operation: OutoP tCrSA0



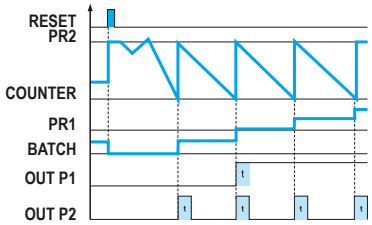
Output operation: OutoP rSP2



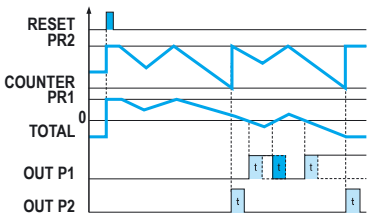
Output operation: OutoP rSAP2



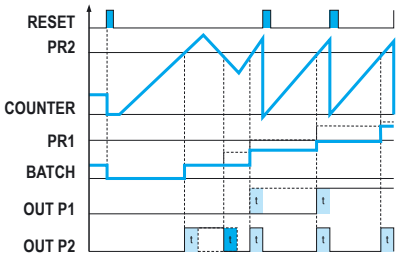
Output operation: OutoPbCrSA2



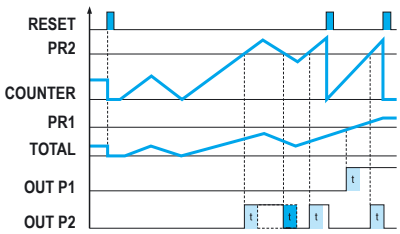
Output operation: OutoP tCrSA2



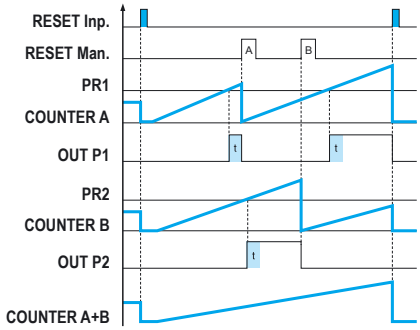
Output operation: OutoP bCrS0



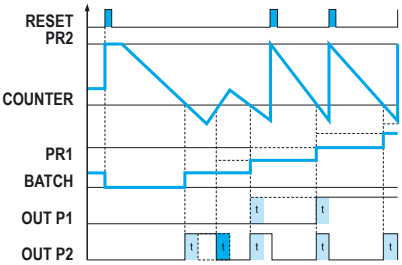
Output operation: OutoP tCrS0



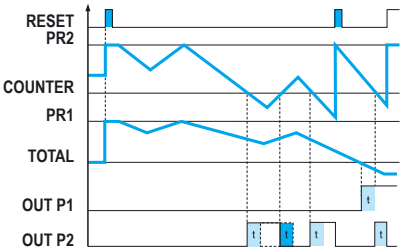
Output operation: OutoP MurS0 (AA)



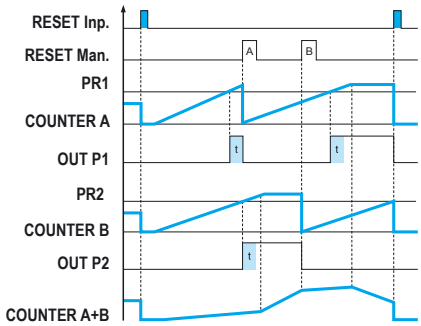
Output operation: OutoP bCrSP2



Output operation: OutoP tCrSP2



Output operation: OutoP MurS0 (AS)



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