

# Timers Multifunction Types DMC01, PMC01

CARLO GAVAZZI



DMC01C



DMC01D



PMC01

- Time range 0.1 s to 100 h
- 7 knob selectable functions
  - Op - Delay on operate, manual start
  - Oa - Delay on operate, automatic and manual start
  - In - Interval, manual start
  - Ia - Interval, automatic and manual start
  - Nr - Interval with no time reset, manual start
  - Na - Interval with no time reset, automatic and manual start
  - Dr - Delay on release
- Knob selection of time range
- Knob adjustable time setting
- External adjustable time setting available
- Repeatability:  $\leq 0.2\%$
- DC supply for PNP/NPN and Namur sensors
- Output: 8 A SPDT or 2 x 8 A SPDT relay
- For mounting on DIN-rail in accordance with DIN/EN 50 022 or Plug-in
- 22.5 mm or 45 mm Euronorm or 36 mm Plug-in module housing
- LED indication for relay status and power supply ON

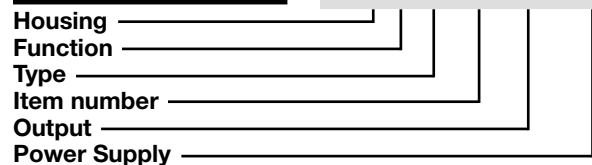
## Product Description

Multi-voltage timer with 7 knob selectable functions and 7 knob selectable time ranges within 0.1s and 100h. Remote time setting available.

15 VDC, 10 mA (1 relay) or 24 VDC, 15 mA (2 relays) supply for PNP/NPN sensors and 8.2 VDC supply for Namur sensor. For mounting on DIN-rail (DMC01) or Plug-in (PMC01).

## Ordering key

**DMC 01 C B23**



## Type Selection

Mounting	Output	Housing	Supply: 24 VDC	Supply: 24 or 48 VAC	Supply: 115 or 230 VAC	
For DIN-rail	1 x SPDT	D - 22.5 mm	<b>DMC 01 C 724</b>	<b>DMC 01 C B48</b>	<b>DMC 01 C B23</b>	
For DIN-rail	2 x SPDT	D - 45 mm	<b>DMC 01 D 724</b>	<b>DMC 01 D B48</b>	<b>DMC 01 D B23</b>	
Mounting	Output	Housing	Supply: 24 VDC	Supply: 24 VAC	Supply: 115 VAC	Supply: 230 VAC
Plug-in	1 x SPDT	P - Housing	<b>PMC 01 C 724</b>	<b>PMC 01 C 024</b>	<b>PMC 01 C 115</b>	<b>PMC 01 C 230</b>
Plug-in	2 x SPDT	P - Housing	<b>PMC 01 D 724</b>	<b>PMC 01 D 024</b>	<b>PMC 01 D 115</b>	<b>PMC 01 D 230</b>

## Time Specifications

<b>Time ranges</b> Knob selectable	0.1 to 1 s 1 to 10 s 6 to 60 s 60 to 600 s 0.1 to 1 h 1 to 10 h 10 to 100 h	<b>Reset</b> Manual reset of time and/or relay Pulse duration Power supply interruption 1 relay versions: 2 relays versions:	Close the trigger contact $\geq 10$ ms $\geq 700$ ms $\geq 200$ ms
<b>Setting accuracy</b>	$\leq 5\%$	<b>PNP/NPN sensor supply output</b> 1 relay versions: 2 relays versions:	15 VDC, 10 mA 24 VDC, 15 mA pins + and - or 6 and 7 pin + or 6 positive
<b>Repeatability</b>	$\leq 0.2\%$	<b>Namur sensor connection</b>	8.2 VDC, 1k $\Omega$ pins + and S or 6 and 5 pin + or 6 positive
<b>Time variation</b> Within rated power supply Within ambient temperature	$\leq 0.05\%/V$ $\leq 0.2\%/^{\circ}C$		
<b>External time setting</b> Linear remote potentiometer Max length of pot. cable	10 k $\Omega$ 3 m		



## Output Specifications

<b>Output</b>	1 or 2 x SPDT relay
<b>Rated insulation voltage</b>	250 VAC (RMS)
<b>Contact Ratings (AgSnO<sub>2</sub>)</b>	μ
Resistive loads	AC 1 8 A @ 250 VAC DC 12 5 A @ 24 VDC
Small inductive loads	AC 15 2.5 A @ 250 VAC DC 13 2.5 A @ 24 VDC
<b>Mechanical life</b>	≥ 30 x 10 <sup>6</sup> operations
<b>Electrical life</b>	≥ 10 <sup>5</sup> operations (at 8 A, 250 V, cos φ = 1)
<b>Operating frequency</b>	< 7200 operations / h
<b>Dielectric strength</b>	
Dielectric voltage	2 kVAC (RMS)
Rated impulse withstand volt.	4 kV (1.2/50 μs)

## Supply Specifications

<b>Power supply</b>	Overvoltage cat. III (IEC 60664, IEC 60038)
Rated operational voltage through terminals:	
A1, A2 or A1, A3 (DMC01)	
B48	24 or 48 VAC ± 15% 45 to 65 Hz
B23	115 or 230 VAC ± 15% 45 to 65 Hz
724	24 VDC ± 20%
2, 10 (PMC01)	
024	24 VAC ± 15%, 45 to 65 Hz
115	115 VAC ± 15%, 45 to 65 Hz
230	230 VAC ± 15%, 45 to 65 Hz
724	24 VDC ± 20%
<b>Voltage interruption</b>	≤ 10 ms
<b>Rated operational power</b>	
AC supply:	5 VA
DC supply:	2 W

## General Specifications

<b>Power ON delay</b>	≤ 100 ms
<b>Reaction time from trigger</b>	
Delayed contact(s)	< 10 ms
Instantaneous contact	< 20 ms
<b>Indication for</b>	
Power supply ON	LED, green
Output relays ON	LED, yellow (flashing when timing)
<b>Environment</b>	(EN 60529)
Degree of protection	IP 20
Pollution degree	3 (DMC01), 2 (PMC01) (IEC 60664)
Operating temperature	-20 to 60 °C, R.H. < 95%
Storage temperature	-30 to 80 °C, R.H. < 95%
<b>Housing dimensions</b>	
DMC01C	22.5 x 80 x 99.5 mm
DMC01D	45 x 80 x 99.5 mm
PMC01	36 x 80 x 94 mm
<b>Weight</b>	120 to 260g depending on model
<b>Screw terminals</b>	(DMC01)
Tightening torque	Max 0.5 Nm according to IEC EN 60947
<b>Approval</b>	UL, CSA
<b>CE Marking</b>	Yes
<b>EMC</b>	
Immunity	Electromagnetic Compatibility
Emission	According to EN 61000-6-2 According to EN 61000-6-3
<b>Timer Specifications</b>	According to EN 61812-1

## Function/Range/Time Setting

Adjust the function setting the DIP switches 1 to 6 as shown below (1 to 4 for DMC01Cxxx).

**Note 1:** DIP switch 5 must be kept ON when using PMC01Dxxx.

**Note 2:** DIP switch 6 does not have any effect on the PMC01Cxxx working mode.

To access the DIP switches open the grey plastic cover using a screwdriver as shown below.

**Upper knob:**  
Selection of function:  
Op - Delay on operate, manual start  
Oa - Delay on operate, automatic and manual start

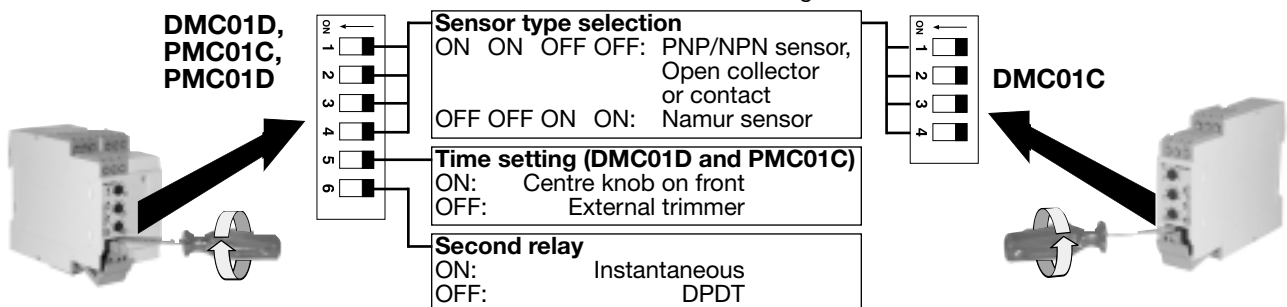
In - Interval, manual start  
Ia - Interval, automatic and manual start  
Nr - Interval with no time reset, manual start  
Na - Interval with no time reset, automatic and manual start  
Dr - Delay on release

**Centre knob:**  
Time setting on relative

scale: 1 to 10 with respect to the chosen range.

**Lower knob:**  
Setting of time range

**External potentiometer (DMC01D, PMC01C):**  
Time setting on relative scale: 1 to 10 with respect to the chosen range.





## Mode of Operation

### Function Op: Delay on operate, manual start

The time period begins as soon as the trigger contact is closed.  
At the end of the set delay time the relay operates and doesn't release until the trigger contact is closed again or the power supply is disconnected. When the trigger contact is closed, the relay releases and a new time period starts.

### Function Oa: Delay on operate, automatic and manual start

The time period begins as soon as the power supply is connected.  
At the end of the set delay time the relay operates and doesn't release until the trigger contact is closed or the power supply is disconnected. When the trigger contact is closed, the relay releases and a new time period starts.

### Function In: Interval, manual start

The relay operates and the time period begins as soon as the trigger contact is closed. The relay releases at the end of this period or when the power supply is disconnected. The relay operates again when the trigger contact is closed again. If the trigger contact is closed before the end of the delay time, the relay keeps ON and a new time period starts.

### Function Ia: Interval, automatic and manual start

The relay operates and the time period begins as soon as the power supply is connected.  
The relay releases at the end of this period or when the power supply is disconnected. The relay operates again when the trigger contact is closed. If the trigger contact is closed before the end of the delay time, the relay keeps ON and a new time period starts.

### Function Nr: Interval with no time reset, manual start

The relay operates and the time period begins as soon as the trigger contact is closed. The relay releases at the end of this period or when the power supply is disconnected. The relay operates again when the trigger contact is closed again.

### Function Na: Interval with no time reset, automatic and manual start

The relay operates and the time period begins as soon as the power supply is connected.  
The relay releases at the end of this period or when the power supply is disconnected. The relay operates again when the trigger contact is closed.

### Function Dr: Delay on release

The relay operates as soon as the trigger contact is closed. The time period begins when the trigger contact is opened. The relay releases at the end of the set delay time or when the power supply is disconnected. The relay operates again when the input contact is closed again. If it is closed before the end of the delay time the relay keeps ON, a new time period begins as soon as the contact is opened again.

### Example1: Delay on operate with remote control time setting:

Using the delay on operate function, DMC01D or PMC01C can be used to set the working delay of an equipment (i.e. a pump) by a knob placed on a panel. It is only necessary to connect an external potentiometer to the suitable pins (T1, T2, T3 for DMC01D or 8, 9, 11 for PMC01C) and mount the knob on the control panel.

### Note:

The external potentiometer must be connected before the product operates. The cable length must be below 3 m

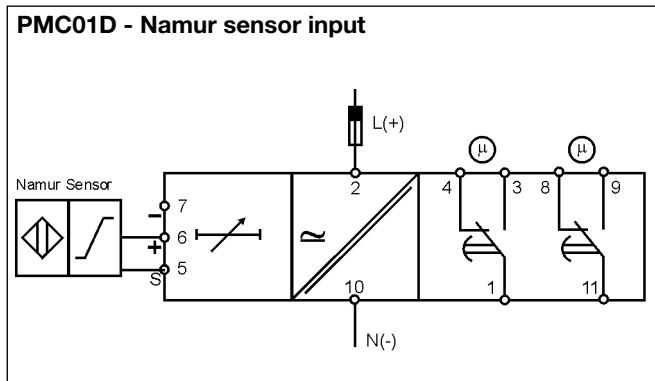
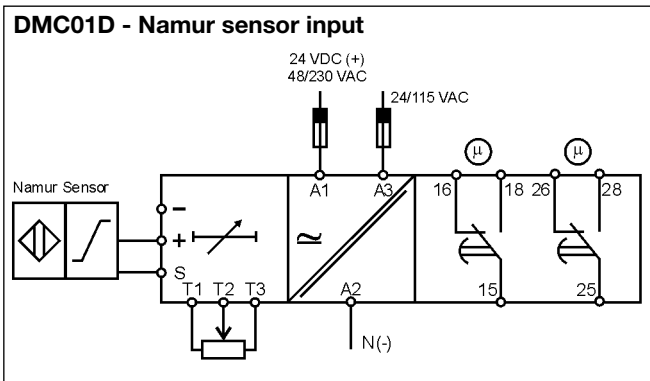
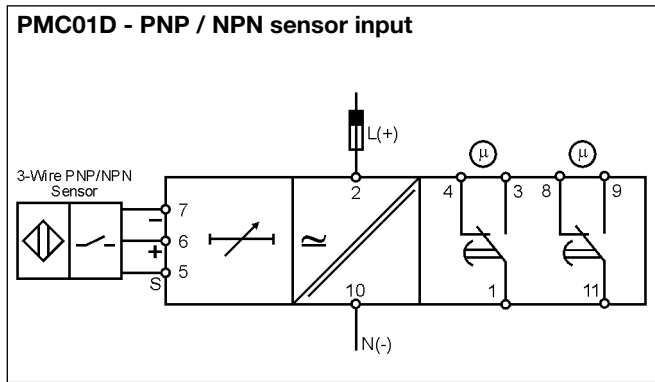
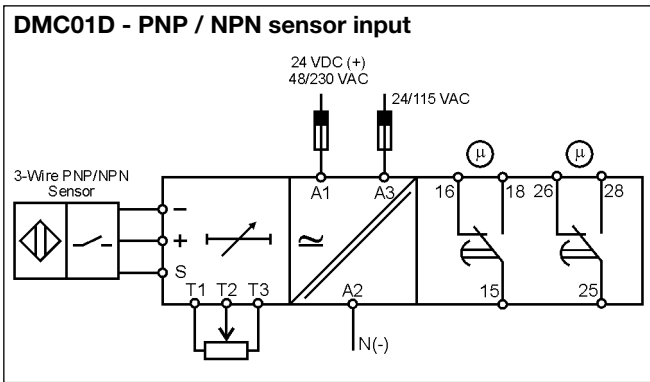
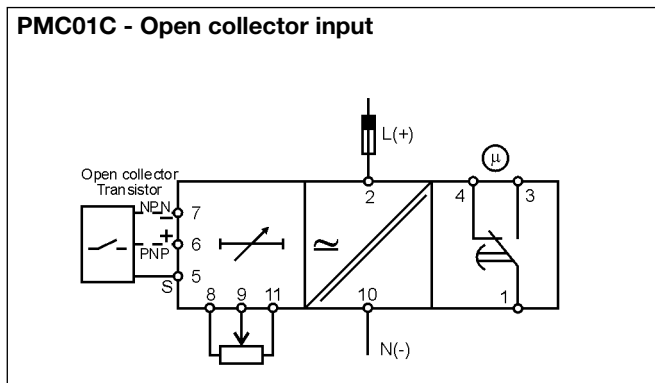
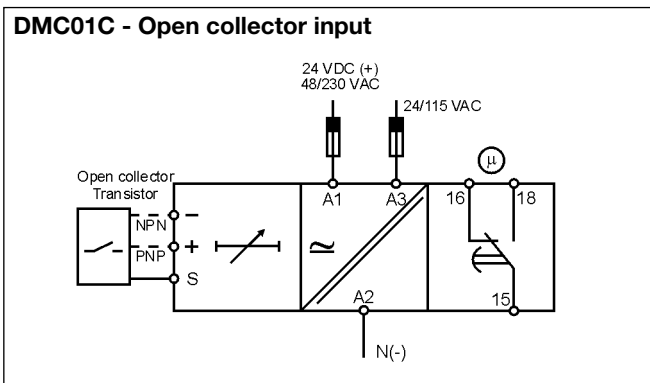
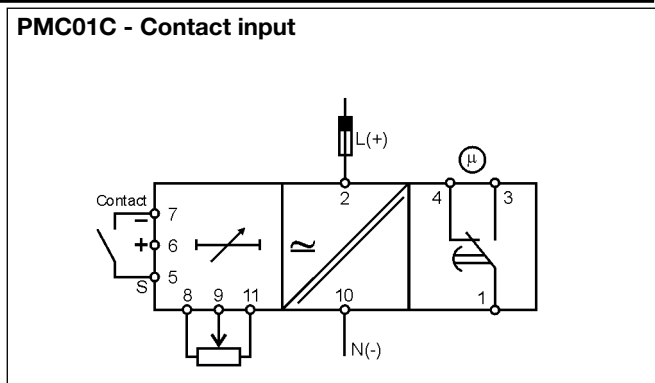
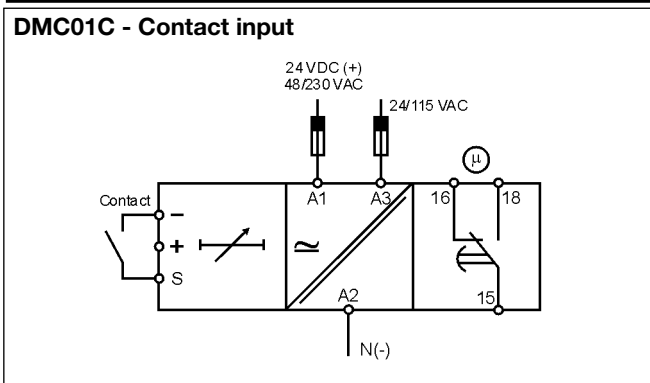
### Example 2: Interval with NPN or Namur proximity sensor.

Using the Interval function and a NPN or Namur proximity sensor, DMC01 and PMC01 can be used to monitor the actual presence of an object (i.e. a can) in the right place on a conveyor belt. In fact the sensor triggers the timer each time it detects an object on the belt, so the relay keeps ON as long as there is no gap on the belt. As soon as there is a gap on the belt, the relay switches OFF and an alarm can be activated.

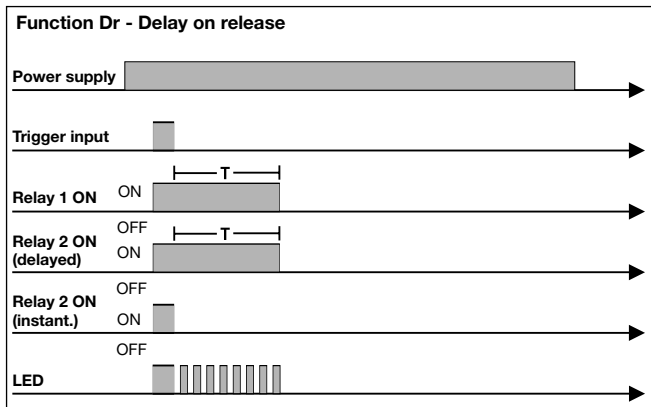
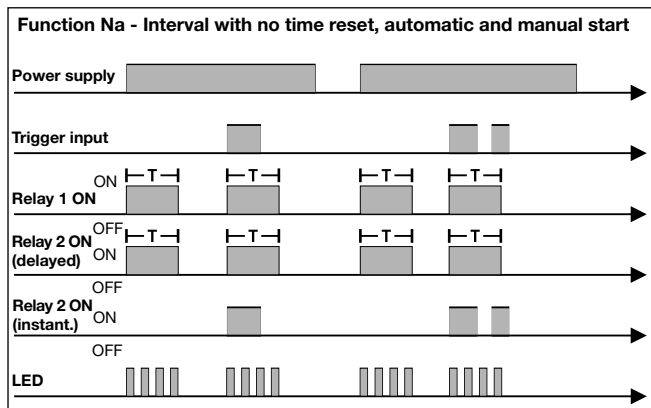
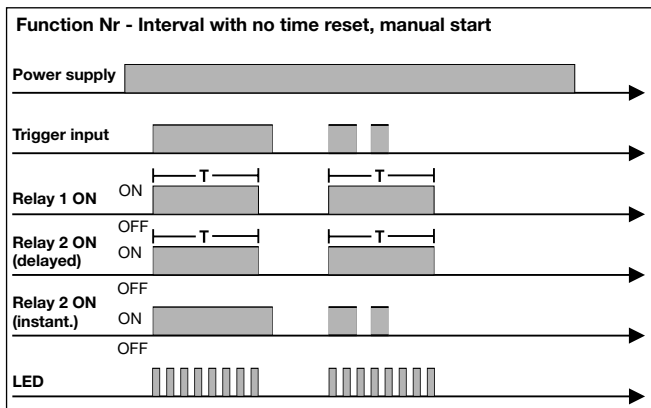
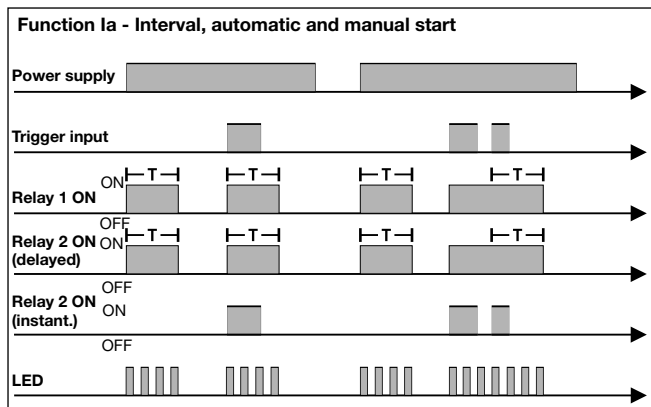
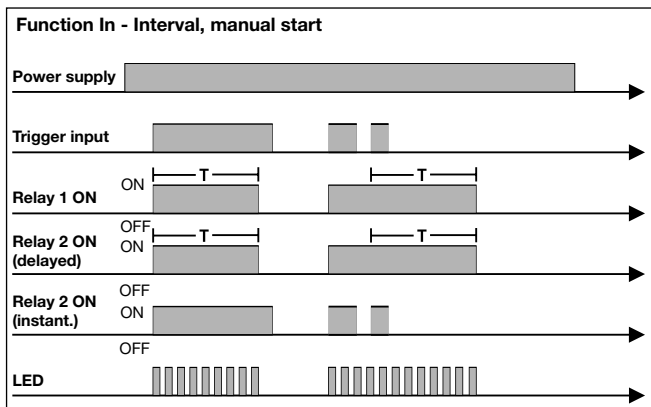
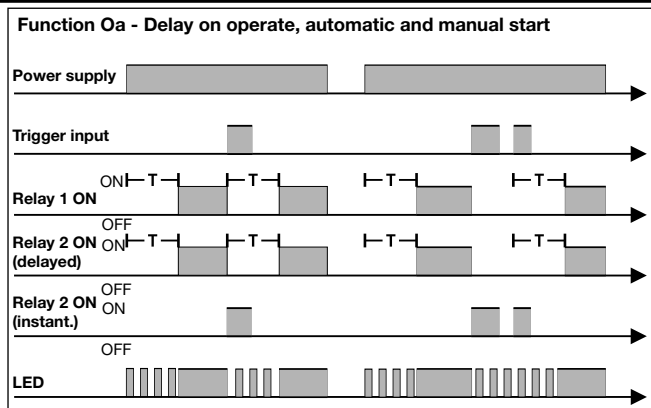
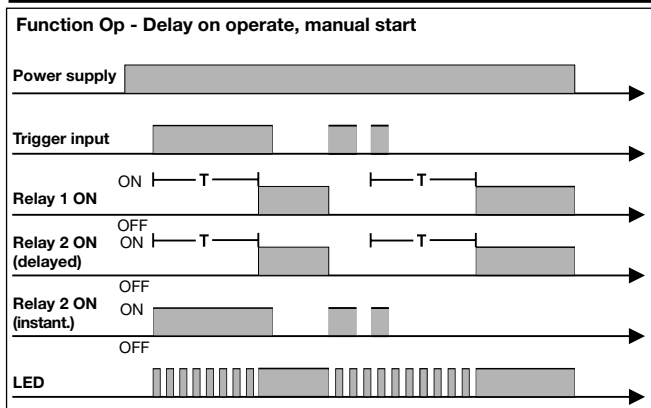
### Yellow LED working mode

- Timing:
  - Slow blinking
- Relay ON:
  - See operation diagrams
- Incorrect knobs position:
  - Fast blinking

## Wiring Diagrams



## Operation Diagrams



## Dimensions

