

# Chronos 2 timers

## → 17.5 mm DIN rail mounting

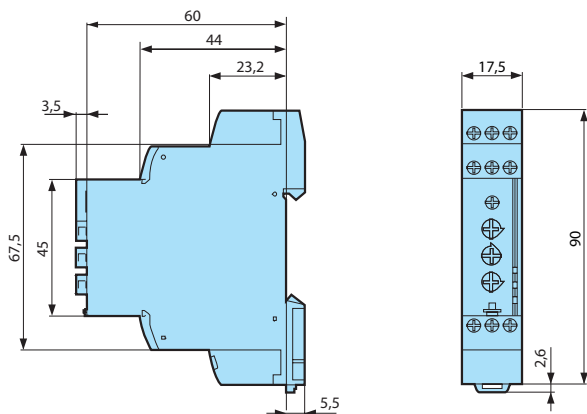
- Relay or solid state output
- Multi-function or mono-function
- Multi-range
- Multi-voltage
- Screw or spring terminals
- LED status indicator (relay version)
- Option of connecting an external power supply to the control input
- 3-wire sensor control option



### Part numbers

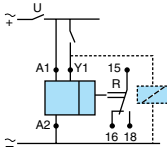
Type	Functions	Timing	Output	Nominal rating	Connections	Supply voltage	Code
MUR1	A - At - B - C - H - Ht - Di - D - Ac - Bw	0.1 s → 100h	1 changeover relay	8 A	Screw terminals	24 V $\overline{\text{---}}$ / 24 → 240 V $\sim$	88 827 105
MAR1	A - At	0.1s → 100h	1 changeover relay	8 A	Screw terminals	24 V $\overline{\text{---}}$ / 24 → 240 V $\sim$	88 827 115
MBR1	B	0.1s → 100h	1 changeover relay	8 A	Screw terminals	24 V $\overline{\text{---}}$ / 24 → 240 V $\sim$	88 827 125
MCR1	C	0.1s → 100h	1 changeover relay	8 A	Screw terminals	24 V $\overline{\text{---}}$ / 24 → 240 V $\sim$	88 827 135
MHR1	H - Ht	0.1s → 100h	1 changeover relay	8 A	Screw terminals	24 V $\overline{\text{---}}$ / 24 → 240 V $\sim$	88 827 145
<b>MLR4</b>	<b>Li - L</b>	<b>0.1s → 100h</b>	<b>1 changeover relay</b>	<b>8 A</b>	<b>Screw terminals</b>	<b>12 V <math>\sim</math> / <math>\overline{\text{---}}</math></b>	<b>88 827 150</b>
MLR1	Li - L	0.1s → 100h	1 changeover relay	8 A	Screw terminals	24 V $\overline{\text{---}}$ / 24 → 240 V $\sim$	88 827 155
MUR4	A - At - B - C - H - Ht - Di - D - Ac - Bw	0.1s → 100h	1 changeover relay	8 A	Screw terminals	12 V $\sim$ / $\overline{\text{---}}$	88 827 100
MUR3	A - At - B - C - H - Ht - Di - D - Ac - Bw	0.1s → 100h	1 changeover relay	8 A	Screw terminals	12 → 240 V $\sim$ / $\overline{\text{---}}$	88 827 103
MURc3	A - At - B - C - H - Ht - Di - D - Ac - Bw	0.1s → 100h	1 changeover relay	8 A	Spring terminals	12 → 240 V $\sim$ / $\overline{\text{---}}$	88 827 503
MXR1	Ad - Ah - N - O - P - Pt - TL - Tt - W	0.1s → 100h	1 changeover relay	8 A	Screw terminals	24 V $\overline{\text{---}}$ / 24 → 240 V $\sim$	88 827 185
MUS2	A - At - B - C - H - Ht - Di - D - Ac - Bw	0.1s → 100h	Solid state	0.7 A	Screw terminals	24 → 240 V $\sim$	88 827 004
MAS5	A	0.1s → 100h	Solid state	0.7 A	Screw terminals	24 → 240 V $\sim$ / $\overline{\text{---}}$	88 827 014
MHS2	H	0.1s → 100h	Solid state	0.7 A	Screw terminals	24 → 240 V $\sim$	88 827 044
MLS2	Li - L	0.1s → 100h	Solid state	0.7 A	Screw terminals	24 → 240 V $\sim$	88 827 054

### Dimensions (mm)



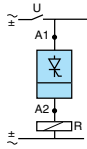
## Connections

### 1 changeover relay output



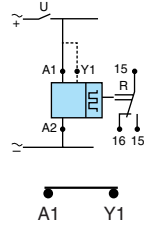
A-At / H-Ht / B / C / Di-D / Ac / BW  
Ad - Ah - N - O - P - Pt - Tl - Tt - W

### Solid state output



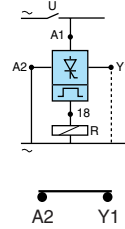
A / H

### 1 changeover relay output



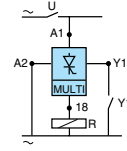
Li - L

### Solid state output



L / Li

### Solid state output



A-At / H-Ht / B / C / Di-D / Ac / BW  
Ad - Ah - N - O - P - Pt - Tl - Tt - W

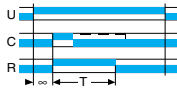
## Curves

### Function A



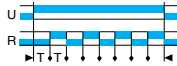
Delay on energisation

### Function B



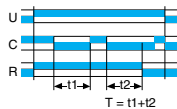
Timing on impulse one short

### Function D



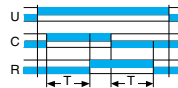
Flip-flop Pause start

### Function Ht



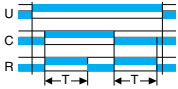
Delay on energisation with memory

### Function Ac



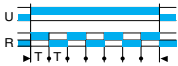
Timing after closing and opening of control contact

### Function Bw



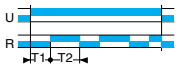
Pulse output (adjustable)

### Function Di



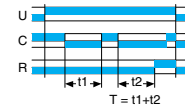
Flip-flop Pulse start

### Function L



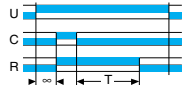
Double temporisation

### Function At



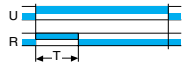
Timing on energisation with memory

### Function C - 1 changeover relay



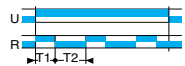
Timing after impulse

### Function H



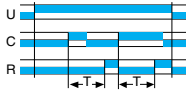
Timing on energisation

### Function Li



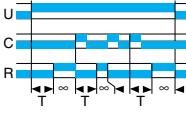
Asymmetrical recycler  
Pulse start

**Function Ad**



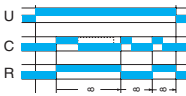
Delay on energisation by switch  
(non resettable)

**Function O**



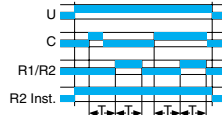
Delayed safe-guard

**Function TI**



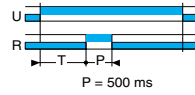
Impulse relay

**Function Ah**



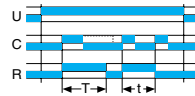
Flashing single cycle by switch  
(non resettable)

**Function P**



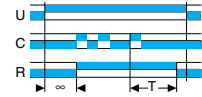
Delayed fixed-length pulse

**Function Tt**



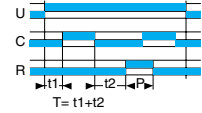
Timed impulse relay

**Function N**



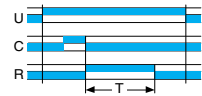
Safe-guard

**Function Pt**



Impulse counter (delay on)

**Function W**



Timing after pulse on control contact

# Chronos 2 timers

## → 17.5 mm DIN rail mounting

### Timing

Timing ranges (7 ranges)	1 s - 10 s - 1 min - 10 min - 1 h - 10 h - 100 h
Repetition accuracy with constant parameters	± 0.5 % (IEC/EN 61812-1)
Drift Temperature	± 0.05 % / °C
Drift Voltage	± 0.2 % / V
Display accuracy according to IEC/EN 61812-1	± 10 % / 25 °C
Minimum pulse duration typically (relay version)	30 ms
Minimum pulse duration typically (solid state version)	50 ms
Minimum pulse duration typically (relay version under load)	100 ms
Maximum reset time by de-energisation typically (relay version)	120 ms
Maximum reset time by de-energisation typically (solid state version)	350 ms
Immunity from micro power cuts : typical	< 10 ms

### Supply

Multi-voltage power supply	Depending on version
Frequency (Hz)	50 / 60
Operating range	85 → 110 % Un 85 → 120 % Un for 12 V ~ / ---
Operator factor	100 %
Max. absorbed power	32 VA (240 V ~ ) 1.5 W (240 V --- ) 0.6 W (24 V --- ) 0.7 VA (12 V ~ ) 0.7 W (12 V --- )

### Output specification

1 or 2 changeover relays, AgNi (cadmium-free)	1 C/O
Rated power	2000 VA/80 W
Maximum breaking current	8 A ~ / 250 V ~ resistive 8 A --- / 30 V --- resistive
Minimum breaking current	10 mA / 5 V ---
Voltage breaking capacity	250 V ~ / 8 A ~ resistive 250 V --- / 0.3 A resistive
Electrical life (operations)	10 <sup>5</sup> 8 A 250 V ~ resistive
Mechanical life (operations)	10 x 10 <sup>6</sup>
Breakdown voltage acc. to IEC/EN 61812-1	2.5 kV / 1 min / 1 mA / 50 Hz
Impulse voltage acc. to IEC/EN 60664-1, IEC/EN 61812-1	5 kV wave 1.2 / 50 µs

### Solid state output

Rated power	0.7 A ~ / --- 20 °C (0.5 A UL)
Derating	5 mA/ °C
Maximum admissible current	20 A ≤ 10 ms
Minimum breaking current	10 mA
Leakage current	< 5 mA
Voltage breaking capacity	250 V ~ / ---
Maximum voltage drop at terminals	3 wire 4V 2 wire 8V
Electrical life (operations)	10 <sup>8</sup>
Breakdown voltage acc. to IEC/EN 60664-1, IEC 60255-5	2.5 kV to 1 mA / 1 min

### Input type

Volt-free contact  
3-wire PNP output control option  
residual voltage : 0.4V whatever the timer power supply

### General characteristics

Conformity to standards	IEC/EN 61812-1 IEC/EN 61000-6-1 IEC/EN 61000-6-2 IEC/EN 61000-6-3 IEC/EN 61000-6-4
Certifications	CE, UL, cUL, CSA, GL
Temperature limits use (°C)	-20 → +60
Temperature limits stored (°C)	-30 → +60
Installation category (acc. to IEC/EN 60664-1)	Voltage surge category III
Creepage distance and clearance acc. to IEC/EN 60664-1	4 kV / 3 mm
Protection (IEC/EN 60529)	IP20
Degree of protection acc. to IEC/EN 60529 Front face	IP50
Vibration resistance acc. to IEC/EN 60068-2-6	20 m/s <sup>2</sup> 10 Hz → 150 Hz
Relative humidity no condensation acc. to IEC/EN 60068-2-30	93 % non-condensing
Electromagnetic compatibility - Immunity to electrostatic discharges acc to IEC/EN 61000-4-2	Level III (Air 8 kV / Contact 6 kV)
Immunity to radiated, radio-frequency, electromagnetic field acc. CE/EN 61000-4-3	Level I (1 V/m : 2.0 G Hz → 2.7 G Hz) Level II (3 V/m : 1.4 G Hz → 2.0 G Hz) Level III (10 V/m : 80 M Hz → 1 G Hz)
Immunity to rapid transient bursts acc. to IEC/EN 61000-4-4	Level III (direct 2 kV / Capacitive coupling clamp 1 kV)
Immunity to shock waves on power supply acc. to IEC/EN 61000-4-5	Level III (2 kV / common mode 2 kV/ residual current mode 1 kV)
Immunity to radio frequency in common mode acc. to IEC/EN 61000-4-6	Level III (10V rms : 0.15 M Hz to 80 M Hz)
Immunity to voltage dips and breaks acc. to IEC/EN 61000-4-11	0 % residual voltage, 1 cycle 70 % residual voltage, 25/30 cycles
Mains-borne and radiated emissions acc. to EN 55022 (CISPR22), EN55011 (CISPR11)	Class B
Fixing : Symmetrical DIN rail	35 mm
Terminal capacity Single-wire without ferrule	1 x 0.5 → 3.3 mm <sup>2</sup> (AWG 20 → AWG 12) 2 x 0.5 → 2.5 mm <sup>2</sup> (AWG 20 → AWG 14)
Terminal capacity Multi-wire with ferrule	1 x 0.2 → 2.5 mm <sup>2</sup> (AWG 24 → AWG 14) 2 x 0.2 → 1.5 mm <sup>2</sup> (AWG 24 → AWG 16)
Spring terminals, 2 terminals per connection point - flexible wire	2 x 0.2 → 1.5 mm <sup>2</sup> (AWG 24 → AWG 16)
Spring terminals, 2 terminals per connection point - rigid wire	2 x 0.2 → 1.5 mm <sup>2</sup> (AWG 24 → AWG 16)
Housing material	Self-extinguishing

<b>Weight : casing 17.5 mm</b>	88827105 (MUR1) : 63 g
	88827115 (MAR1) : 63 g
	88827125 (MBR1) : 63 g
	88827135 (MCR1) : 62 g
	88827145 (MHR1) : 63 g
	88827150 (MLR4) : 63 g
	88827155 (MLR1) : 64 g
	88827100 (MUR4) : 62 g
	88827103 (MUR3) : 66 g
	88827503 (MURc3) : 59 g
	88827150 (MLR4) : 63 g
	88827185 (MXR1) : 63 g
	88827004 (MUS2) : 55 g
	88827014 (MAS5) : 53 g
	88827044 (MHS2) : 53 g
88827054 (MLS2) : 56 g	

<b>Shock test IEC/EN 60068-2-27</b>	15 g - 11 ms
<b>Short interruption on power line acc to IEC61000-4-11</b>	0 % residual voltage, 250/300 cycles
<b>Insulation resistance according to IEC/EN 60664-1</b>	100 MΩ (500 V <sub>DC</sub> )