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

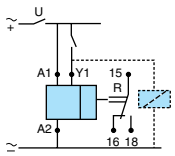


Specifications

Type	Functions	Output	Nominal rating	Connections	Supply voltage	Code
MUR1	A - At - B - C- H - Ht - Di - D - Ac - Bw	1 changeover relay	8 A	Screw terminals	24 V DC / 24 → 240 V AC	88 826 105
MAR1	A - At	1 changeover relay	8 A	Screw terminals	24 V DC / 24 → 240 VAC	88 826 115
MBR1	B	1 changeover relay	8 A	Screw terminals	24V DC / 24 → 240 V AC	88 826 125
MCR1	C	1 changeover relay	8 A	Screw terminals	24 V DC / 24 → 240 V AC	88 826 135
MHR1	H - Ht	1 changeover relay	8 A	Screw terminals	24 V DC / 24 → 240 V AC	88 826 145
MLR1	Li-L	1 changeover relay	8 A	Screw terminals	24 V DC / 24 → 240 V AC	88 826 155
MUR4	A - At - B - C - H - Ht - Di - D - Ac - Bw	1 changeover relay	8 A	Screw terminals	12 V DC / AC	88 826 100
MUR3	A - At - B - C - H - Ht-Di - D - Ac - Bw	1 changeover relay	8 A	Screw terminals	12 → 240V AC / DC	88 826 103
MURc3	A - At - B - C - H - Ht - Di - D - Ac - Bw	1 changeover relay	8 A	Spring terminals	12 → 240 V AC/DC	88 826 503
MXR1	Ad - Ah - N - O - P - Pt - Tl - Tt - W	1 changeover relay	8 A	Screw terminals	24 V DC / 24 → 240 V AC	88 826 185
MUS2	A - At - B - C - H - Ht - Di - D - Ac - Bw	Solid state	0.7 A	Screw terminals	24 → 240 V AC	88 826 004
MAS5	A	Solid state	0.7 A	Screw terminals	24 → 240V AC / DC	88 826 014
MHS2	H	Solid state	0.7 A	Screw terminals	24 → 240 V AC	88 826 044
MLS2	Li - L	Solid state	0.7 A	Screw terminals	24 → 240 V AC	88 826 054

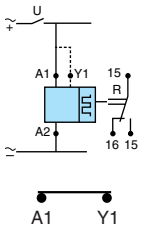
Connections

1 changeover relay output



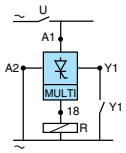
A-At / H-Ht / B / C / Di-D / Ac / BW - Ad - Ah - N - O - P - Pt - Tl - Tt - W

1 changeover relay output



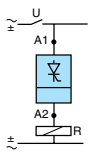
Li - L

Solid state output



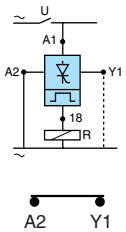
A-At / H-Ht / B / C / Di-D / Ac / BW - Ad - Ah - N - O - P - Pt - Tl - Tt - W

Solid state output



A / H

Solid state output



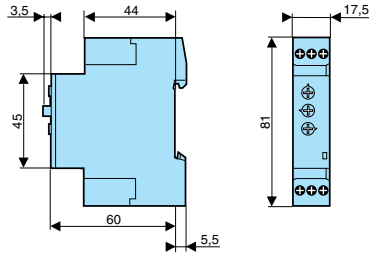
L / Li

General characteristics

see page 45

To order, see page 6

Dimensions

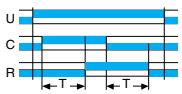


Curves

Function A

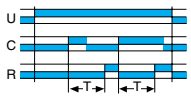
Delay on energisation

Function Ac



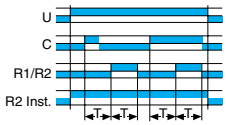
Timing after closing and opening of control contact

Function Ad



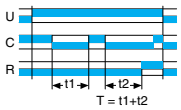
Delay on energisation by switch (non resettable) 1 relay

Function Ah



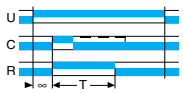
Flashing single cycle by switch (non resettable) 1 relay

Function At



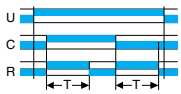
Timing on energisation with memory 1 relay

Function B



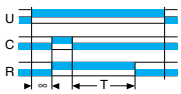
Timing on impulse one short 1 relay

Function Bw



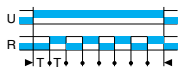
Pulse output (adjustable) 1 relay

Function C



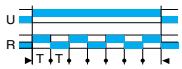
Timing after impulse 1 timer

Function D



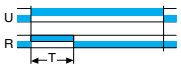
Flip-flop 1 relay Pause start

Function Di



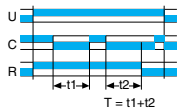
Flip-flop 1 relay Pulse start

Function H



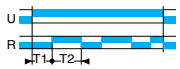
Timing on energisation 1 relay

Function Ht



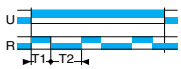
Delay on energisation with memory 1 relay

Function L



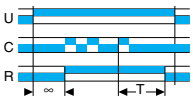
Double temporisation 1 relay

Function Li



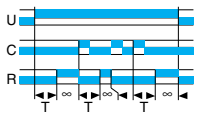
Asymmetrical recycler 1 relay Pulse start

Function N



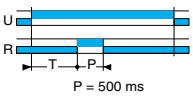
Safe-guard

Function O



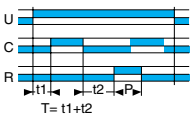
Delayed safe-guard

Function P



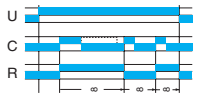
Delayed fixed-length pulse

Function Pt



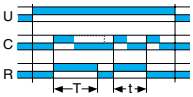
Impulse counter (delay on) 1 relay

Function TI



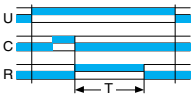
Impulse relay

Function Tt



Timed impulse relay

Function W



Timing after pulse on control contact

Chronos 2 timers: general characteristics

➜ 17.5 mm
➜ 22.5 mm
➜ Plug-in

Timing	
Repetition accuracy with constant parameters	± 0.5 % (IEC 1812-1)
Temperature drift	± 0.05 % / °C
Voltage drift	± 0.2 % / V
Display accuracy according to IEC 1812-1	± 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)	100 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 to 110 % Un (85 to 120 % Un for 12V AC/DC)
Operator factor	100 %
Max. absorbed power	0.6 W 24 V AC/DC 1.5 W 230 V AC 32 VA 230 V AC
Output specification **Relay output**	
1 or 2 changeover relays, AgNi (cadmium-free)	2000 VA/80 W
Rated power	2000 VA/80 W
Maximum breaking current	8 A AC 8A DC
Minimum breaking current	10 mA / 5 V DC
Voltage breaking capacity	250 V AC/V DC
Electrical life (operations)	10 ^{5} operations 8 A 250 V resistive
Mechanical life (operations)	5x10^{6}
Breakdown voltage acc. to IEC 1812-1	2.5 kV /1 min / 1 mA / 50 Hz
Impulse voltage acc. to IEC 664-1, IEC 1812-1	5 kV, wave 1.2 / 50 µs
Solid state output 17.5 mm	
Rated power	0.7 A AC/DC 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 AC/V DC
Maximum voltage drop at terminals	3 wire 4V - 2 wire 8V
Electrical life (operations)	10^{8}
Mechanical life (operations)	10^{8}
Breakdown voltage acc. to IEC 664, IEC 255-5	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
Timing ranges (7 ranges)	1 s - 10 s - 1 min - 10 min - 1 h - 10 h - 100 h

Other characteristics	
Conforming to standards IEC 1812-1, EN 50081-1/2, EN 50082-1/2, LV directives (73/23/EEC + 93/68/EEC (CE marking) + EMC (89/336/EEC + IEC 669-2-3 (17.5 mm))	•
Approvals **UL - CSA - cUL pending**	•
Temperatures limits use (°C)	-20 → +60
Temperature limits stored (°C)	-30 → +60
Installation category (acc. to IEC 664-1)	Voltage surge category
Creepage distance and clearance acc. to IEC 664-1	4 kV / 3
Protection (IEC 529) Terminal	IP 20
Protection (IEC 529) Housing	IP 40
Degree of protection acc. to IEC 529 Front face (except Tk2R1)	IP 50
Vibration resistance acc. to IEC 68-2-6	f = 10 - 55 Hz A = 0.35 mm
Relative humidity no condensation acc. to 68-2-3	93 % without condensation
Electromagnetic compatibility - Immunity to electrostatic discharges acc to IEC 1000-42	Level III (Air 8 KV / Contact 6 KV)
Immunity to electrostatic fields acc. ENV 50140/204 (IEC 1000-4-3)	Level III 10V/m (80 MHz to 1 GHz)
Immunity to rapid transient bursts acc. to IEC 1000-4-4	Level III (direct 2kV / Capacitive coupling clamp 1 KV)
Immunity to shock waves on power supply acc. to IEC 1000-4-5	Level III (2 KV / common mode 2 KV/residual current mode 1KV)
Immunity to radiofrequency in common mode acc. to ENV (CEI 1000-4-6)	Level III (10V rms : 0.15 MHz to 80 MHz)
Immunity to voltage dips and breaks acc. to IEC 1000-4-11	30 %/10 ms 60 %/100 ms > 95 %/5 s
Mains-borne and radiated emissions acc. to EN 55022 (EN 55011 Group 1)	Class B
Fixing : Symmetrical DIN rail (EN 50022)	35 mm
Connection capacity - without ferrule	2 x 2.5 mm^{2}
Connection capacity - with ferrule	2 x 1.5 mm^{2}
Spring terminals, 2 terminals per connection point - flexible wire	1.5 mm^{2}
Spring terminals, 2 terminals per connection point - rigid wire	2.5 mm^{2}
Material housing	Self-extinguishing
Weight : casing 17.5 mm	60 g
Weight : casing 22.5 mm	90 g
Weight : plug-in casing	80 g