

Chronos 2 electronic timers - 22,5 mm

312.2270

Relay output, creepage and relay

For information, please refer to the following documents:
 - Relay output: IEC 60947-5-1, IEC 60947-5-2, IEC 60947-5-3
 - Creepage and clearance: IEC 60664-1, IEC 60664-2, IEC 60664-3
 - Relay: IEC 60947-5-1, IEC 60947-5-2, IEC 60947-5-3
 - Timing: IEC 60617-1, IEC 60617-2, IEC 60617-3
 - Display: IEC 60617-1, IEC 60617-2, IEC 60617-3
 - Input: IEC 60617-1, IEC 60617-2, IEC 60617-3
 - Output: IEC 60617-1, IEC 60617-2, IEC 60617-3
 - Power supply: IEC 60617-1, IEC 60617-2, IEC 60617-3
 - Mechanical life: IEC 60617-1, IEC 60617-2, IEC 60617-3
 - Breakdown voltage: IEC 60617-1, IEC 60617-2, IEC 60617-3
 - Impulse voltage: IEC 60617-1, IEC 60617-2, IEC 60617-3
 - Display: IEC 60617-1, IEC 60617-2, IEC 60617-3
 - Input: IEC 60617-1, IEC 60617-2, IEC 60617-3
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 - Breakdown voltage: IEC 60617-1, IEC 60617-2, IEC 60617-3
 - Impulse voltage: IEC 60617-1, IEC 60617-2, IEC 60617-3

Technical specifications

Timing

Repetition accuracy (with constant parameters)	± 0.5 % (CEI 1812-1)
Drift	
- Temperature	± 0.05 % / °C
- Voltage	± 0.2 % / V
Display precision according to IEC 1812-1	± 10 % / 25 °C
Minimum pulse duration	
- Typically (relay version)	30 ms
- Typically (solid state version)	50 ms
- Typically under load (relay version)	100 ms
Maximum reset time by de-energisation	

- Typically (relay version)	100 ms
- Typically (solid state version)	350 ms
Immunity to breaks in supply voltage: typically	>10 ms

Power supply

Multi-voltage power supply	depending on version, see page 1/17
Frequency	50/60 Hz
Operating range	85 to 110 % Un (85 to 120 % Un for 12V AC/DC)
Load factor	100 %
Maximum power consumption	0.6 W 24V AC/DC 1.5 W 230V AC 32 VA 230V AC

Output elements relay output

1 or 2 changeover relays, AgNi (cadmium-free)	2000 VA / 80 W
Rated power	2000 V A / 80W
Maximum breaking current	8 A AC 8 A DC
Minimum breaking current	10 mA / 5 VDC
Voltage breaking capacity	250V AC/VDC
Electrical life	10 ⁵ operations 8 A 250V resistive
Mechanical life	5 x 10 ⁶ operations
Breakdown voltage acc. to IEC 1812-1	2.5 kV / 1min / 1 mA / 50Hz
Impulse voltage acc. to IEC 664-1 IEC 1812-1	5 kV, wave 1.2 / 50 µs

Display

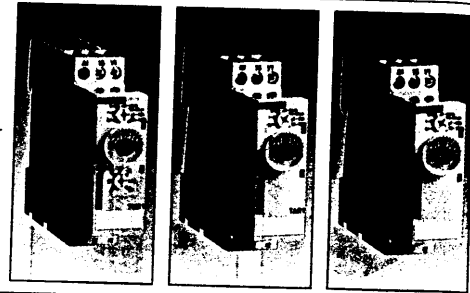
State displayed by 2 LEDs	
- Flashing green when on	
- Relay LED yellow during timing	
Green LED operation indicator	
..... Pulsing:	
- timer on, no timing in progress (except functions Di-D and Li-L)	
..... Flashing:	
- timing in progress	
..... Permanently lit:	
- Relay waiting, no timing in progress	

Input type

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

Other information

Non stocked, minimum order quantity 100 units.



Timing	0.1s • 100h	0.1s • 100h	0.1s • 100h
Types			
Screw terminal	TUR1	TAR1	TBR1
Spring terminal	—	—	—
Part numbers and voltage			
24V ~ / 24 • 240V ~	88 865 105	88 865 115	88 865 125
12 V ~ / —	—	—	—
12 • 240 V ~ / —	—	—	—
Functions	Multi-function A-At - B - C - H-Ht Di-D - Ac - Bw	Bifunction A - At	Mono-function B
Nominal current	8 A	8 A	8 A

Timing ranges (7 ranges)

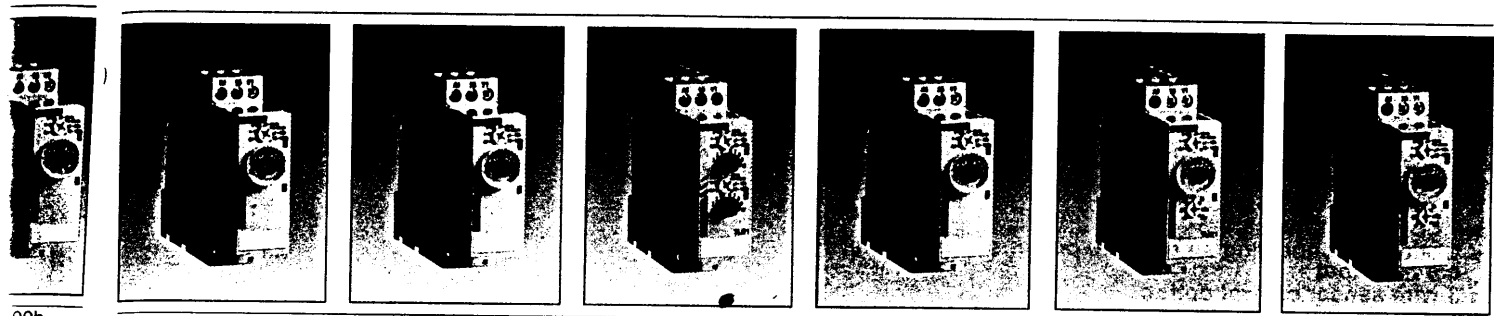
1s - 10 s - 1 min - 10 min - 1 h - 10 h - 100 h

TQR1: Selectable switching time

20 / 40 / 60 / 80 / 100 / 120 / 140 ms

General specifications

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	-20 °C + 60 °C
- stored	-30 °C + 60 °C
Installation category (acc. to IEC 664-1)	Voltage surge category
Creepage distance and clearance acc. to IEC 664-1	4 kV / 3
Degree of protection acc. to IEC 529	
- terminal block	IP 20
- casing	IP 40
- front face (except Tk2R1)	IP 50
Vibration resistance acc. to IEC 68-2-6	f = 10 • 55 Hz A = 0.35 mm
Relative humidity acc. to IEC 68-2-3 without condensation	93 %
Electromagnetic compatibility	Level III
- Immunity to electrostatic discharges acc. to IEC 1000-4-2	(Air 8 K / Contact 6 KV)
- Immunity to electrostatic fields acc. to 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 (common mode 2 KV / residual current mode 1KV)
- Immunity to radiofrequency in common mode acc. to ENV	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
- with ferrule	2 x 1.5 mm ²
Spring terminals, 2 terminals per connection point	
- flexible wire	1.5 mm ²
- rigid wire	2.5 mm ²
Casing material	Self-extinguishing
Weight: 22.5 mm casing	90 g



00h	0.1s • 100h	0.1s • 100h	0.1s • 100h	0.1s • 100h	0.1s • 100h	0.1s • 100h
TCR1	THR1	TLR1	TQR1	TUR4	TUR3	TURc3
88 865 135	88 865 145	88 865 155	88 865 175	88 865 100	88 865 103	88 865 503
Mono-function	Bifunction	Bifunction	Mono-function	Multi-function	Multi-function	Multi-function
C	H - Ht	Li - L	Q	A - At - B - C - H - Ht - Di - D - Ac - Bw	A - At - B - C - H - Ht - Di - D - Ac - Bw	A - At - B - C - H - Ht - Di - D - Ac - Bw
8 A	8 A	8 A	8 A	8 A	8 A	8 A

Function diagrams

Function Delay on energisation 1 relay

Function Timing on energisation 1 relay

Function Asymmetrical recycler 1 relay Pulse start

Function Timing after impulse 1 timer

Function Timing on energisation with memory 1 relay

Function Delay on energisation with memory 1 relay

Function Flip-flop 1 relay Pause start

Function Pulse output (adjustable) 1 relay

Function Timing on impulse one shot 1 relay

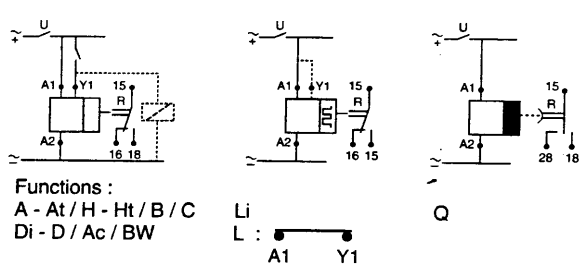
Function Asymmetrical recycler 1 relay Pause start

Function Flip-flop 1 relay Pulse start

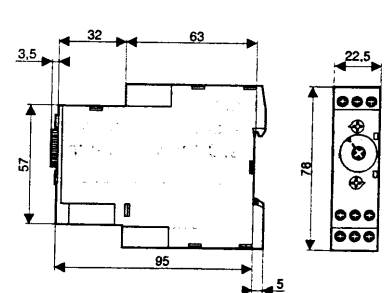
Function Timing after closing and opening of control contact 1 relay

Function Star-delta

Connections



Dimensions



Standard products

1

Type

2

Part number

Example: Chronos 2 Timers TAR1 88 865 115