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22.5mm Chronos 2 Timers

Crouzet Products / Automation Controls / Electronic Timers / 22.5mm Chronos 2 Timers

PRODUCT FEATURES

- Multi-function or mono-function
- Multi-range (7 ranges, available options)
- Multi-voltage
- SPDT relay output: 10 A - 250 V (T_R versions)
- DPDT relay output: 10 A - 250 V (T_2R versions)
- Screw or spring terminals
- LED status indicator
- 3-wire sensor control option
- cUL, UL listed, CSA recognized, CE Approved



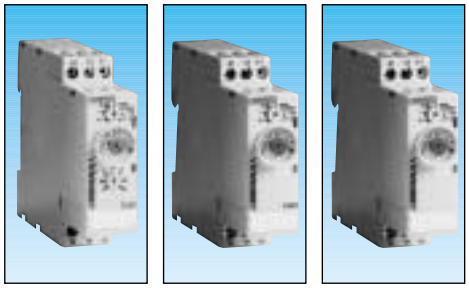
22.5mm Chronos 2 Timers

Type	Function	Connection	Supply Voltage	Nominal Rating	Part number
TUR1	**Multifunction**	Screw Terminal	24VDC, 24-240VAC	10A SPDT	**88865105**
TAR1	A,At (Delay-on-Make)	Screw Terminal	24VDC, 24-240VAC	10A SPDT	**88865115**
TBR1	B (Single Shot)	Screw Terminal	24VDC, 24-240VAC	10A SPDT	**88865125**
TCR1	C (Delay-on-Break)	Screw Terminal	24VDC, 24-240VAC	10A SPDT	**88865135**
THR1	H,Ht (Interval)	Screw Terminal	24VDC, 24-240VAC	10A SPDT	**88865145**
TLR1	Li,L (Repeat Cycle)	Screw Terminal	24VDC, 24-240VAC	10A SPDT	**88865155**
TQR1	Q (Star Delta)	Screw Terminal	24VDC, 24-240VAC	10A SPDT	**88865175**
TUR4	**Multifunction**	Screw Terminal	12VAC/DC	10A SPDT	**88865100**
TUR3	**Multifunction**	Screw Terminal	12-240VAC/DC	10A SPDT	**88865103**
TURc3	**Multifunction**	Spring Terminal	12VAC/DC	10A SPDT	**88865503**
TXR1	**Multifunction**	Screw Terminal	12-240VAC/DC	10A SPDT	**88865185**
TU2R1	**Multifunction**	Screw Terminal	24VDC, 24-240VAC	1+1 10A DPDT	**88865305**
TA2R1	A,At (Delay-on-Make)	Screw Terminal	24VDC, 24-240VAC	2 10A DPDT	**88865215**

Chronos 2 electronic timers - 22.5 mm

Relay output 1 DTDP relay

- **Multi-function or mono-function**
- **Multi-range (7 ranges, available options)**
- **Multi-voltage**
- **Output 1 relay: 8 A - 250 V (10 A UL)**
- **Screw or spring terminals**
- **1 LED status indicators**
- **Option of connecting an external power supply to the control input**
- **3-wire sensor control option**



Timing	0.1s • 100h	0.1s • 100h	0.1s • 100h
Types			
Screw terminal	**TUR1**	**TAR1**	**TBR1**
Spring terminal	—	—	—
Part numbers and voltage			
24V dc / 24 • 240V ac	**88 865 105**	**88 865 115**	**88 865 125**
12 V ac / dc	—	—	—
12 • 240 V ac /d c	—	—	—
Functions	Multi-function A-At - B - C - H-Ht Di-D - Ac - Bw	Bifunction A - At	Mono-function B
Nominal current	10A	10A	10A

Timing ranges (7 ranges)

0.1s - 1s - 10 s , 6s - 60s , 1 min - 10 min , 6min - 60min , 1 h - 10 h - 100 h

TQR1: Selectable switching time
20 / 40 / 60 / 80 / 100 / 120 / 140 ms

Technical specifications

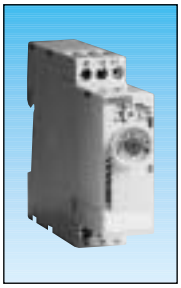
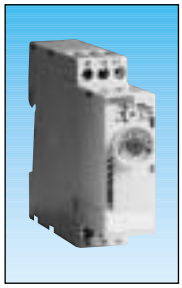
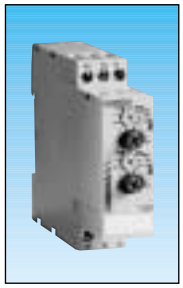
Timing	
Repetition accuracy (with constant parameters)	± 0.5 % (CEI 1812-1)
Drift	
- Temperature	± 0.05 % / °C
- Voltage	± 0.2 % / V
Display precision according to IEC 1812-1	±10 % / 25 °C
Minimum pulse duration	
- Typically (relay version)	30 ms
- Typically (solid state version)	50 ms
- Typically under 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	10 A AC 10 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

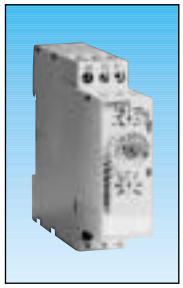
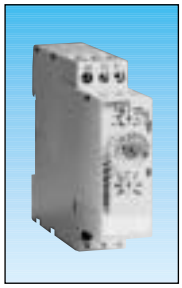
General specifications

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 listed	
Temperatures limits - use - stored	 -20 °C + 60 °C -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 - casing - front face (except Tk2R1)	 IP 20 IP 40 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 - Immunity to electrostatic discharges acc. to IEC 1000-42	Level III (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 - with ferrule	 2 x 2.5 mm² 2 x 1.5 mm²
Spring terminals, 2 terminals per connection point - flexible wire - rigid wire	 1.5 mm² 2.5 mm²
Casing material	Self-extinguishing
Weight: 22.5 mm casing	90 g

Other information

Non stocked items, minimum order quantity 100 units.

0.1s • 100h	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**	**TXR1**
—	—	—	—	—	—	—
88 865 135	**88 865 145**	**88 865 155**	**88 865 175**	—	— —	**88 865 185**
—	—	—	—	**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	Ad - Ah - N - O - P - Pt - TL - Tt - W
10 A	10 A	10 A	10A	10 A	10 A	10 A

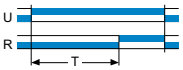
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2

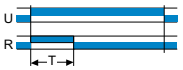
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Function diagrams

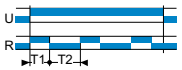
Function A
Delay on energisation
1 relay



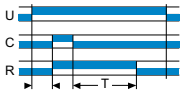
Function H
Timing on energisation
1 relay



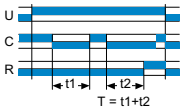
Function Li
Asymmetrical recycler 1 relay
Pulse start



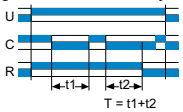
Function C
Timing after impulse
1 timer



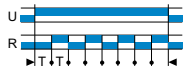
Function At
Timing on energisation with memory
1 relay



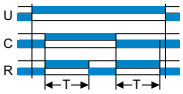
Function Ht
Delay on energisation with memory
1 relay



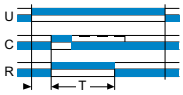
Function D
Flip-flop 1 relay
Pause start



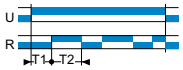
Function Bw
Pulse output (adjustable)
1 relay



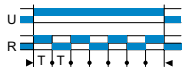
Function B
Timing on impulse one shot
1 relay



Function L
Asymmetrical recycler 1 relay
Pause start



Function Di
Flip-flop 1 relay
Pulse start



Function Ac
Timing after closing and opening of control contact
1 relay

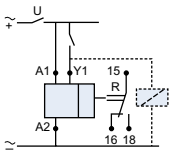


Function Q
Star-delta



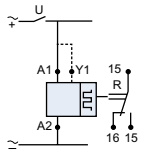
MXR1 functions see page 4/i, 4/ii

Connections

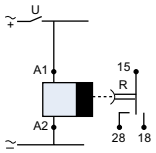


Functions :
A - At / H - Ht / B / C
Di - D / Ac / BW
Ad - Ah - N - O - P
Pt - TL - Tt - W

Y1=C (function diagrams)

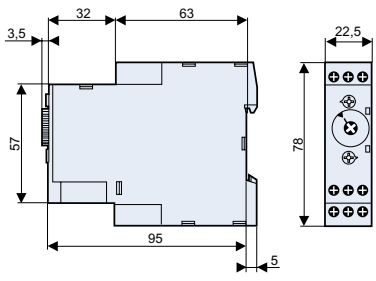


Li
L :
A1 Y1



Q

Dimensions



To order, specify:

Standard products

1 Type

2 Part number

Example: Chronos 2 Timers TAR1 88 865 115

Relay output 2 DPDT relays

- Multi-function or mono-function
- Multi-range (7 ranges, available options)
- Multi-voltage
- Relays output 2: 8 A - 250 V (10 A UL) including 1 instantaneous
- Screw terminals
- 1 LED status indicators
- Option of connecting an external power supply to the control input
- 3-wire sensor control option

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 voltag: typically	>10 ms
Power supply	
Multi-voltage power supply	depending on version, see page 1/13
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	10 A AC 10 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 items, minimum order quantity 100 units.

Timing

Types

Part numbers and voltage

24V ⎓ / 24 • 240V ∼

12 V ∼ / ⎓

Functions

Nominal current

Timing ranges (7 ranges)

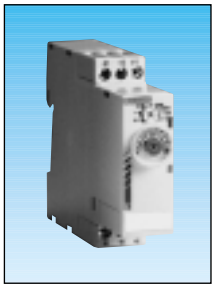
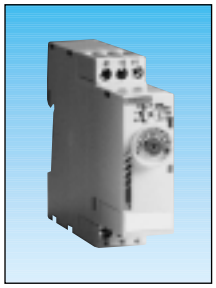
0.1s - 1s - 10 s , 6s - 60s , 1 min - 10 min , 6min - 60min , 1 h - 10 h - 100 h

TK2R1 (4 ranges)

0.06 s - 0.6 s - 2.5 s - 20 s - 160 s

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 1000-42	(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
Casing material	Self-extinguishing
Weight: 22.5 mm casing	90 g

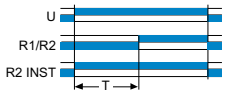






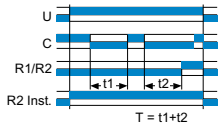
0.1s • 100h	0.1s • 100h	0.1s • 100h	0.1s • 100h	0.1s • 100h
TU2R1	**TA2R1**	**TK2R1**	**TU2R4**	**TX2R1**
88 865 305	**88 865 215**	**88 865 265**	**88 865 300**	**88 865 385**
Multi-function A - At - B - C - H - Ht - Di - D - Ac - Bw	Bifunction A - At	Mono-function K	Multi-function A - At - B - C - H - Ht - Di - D - Ac - Bw	Multi-function Ad - Ah - N - O - P - Pt - TL - Tt - W
8 A	8 A	8 A	8 A	8 A
2 timers including 1 instantaneous	2 timers	2 timers	2 timers including 1 instantaneous	2 timers including 1 instantaneous

Function diagrams

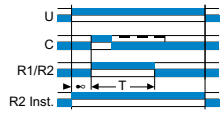
Function A
Delay on energisation
2 timers or
2 relays, including 1 instantaneous



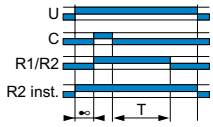
Function At
Timing on energisation with memory
2 timers or
2 relays, including 1 instantaneous



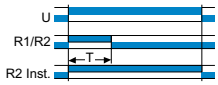
Function B
Timing on impulse one shot
2 timers or 2 relays,
including 1 instantaneous



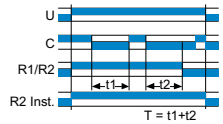
Function C
Timing after impulse
2 timers or 2 relays,
including 1 instantaneous



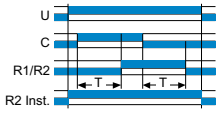
Function H
Timing on energisation
2 timers or 2 relays,
including 1 instantaneous



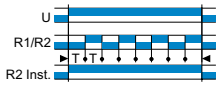
Function Ht
Delay on energisation with memory
1 relay
2 timers or 2 relays,
including 1 instantaneous



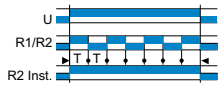
Function Ac
Timing after closing and opening of control contact
2 timers or 2 relays,
including 1 instantaneous



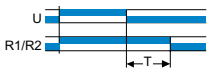
Function D
Flip-flop
Pause start
2 timers or 2 relays,
including 1 instantaneous



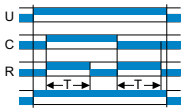
Function Di
Flip-flop
Pulse start
2 timers or 2 relays,
including 1 instantaneous



Function K
Delay on de-energisation
True delay OFF
2 relays

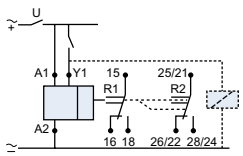


Function Bw
Pulse output (adjustable)
2 timers or 2 relays,
including 1 instantaneous

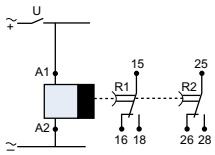


MXR1 functions see page 1/10, 1/11

Connections

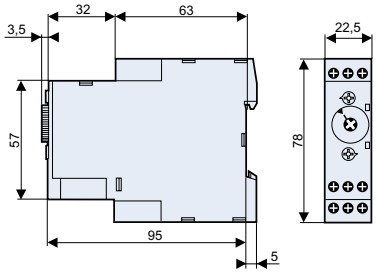


Functions :
A - At / H - Ht / B / C
Di - D / Ac / BW
Ad - Ah - N - O - P
Pt - TL - Tt - W



K

Dimensions



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