

Chronos 2 electronic timers - 17.5 mm

- Multi-function or mono-function
- Multi-range (7 ranges, available options)
- Multi-voltage
- SPDT relay output: 10A - 250V
- Screw or spring terminals
- 1 LED status indicator
- Option of connecting a small cord to the control input
- 3-wire sensor control option



Technical specifications

Timing

Repetition accuracy (with constant parameters) $\pm 0.5\%$ (CEI 1812-1)

Drift

- Temperature $\pm 0.05\% / ^\circ\text{C}$
- Voltage $\pm 0.2\% / \text{V}$

Display precision according to IEC 1812-1 $\pm 10\% / 25^\circ\text{C}$

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 $>10\text{ ms}$

Power supply

Multi-voltage power supply depending on version, see pages 6/2, 6/3

Frequency 50/60 Hz

Operating range 85 to 110 % U_n
(85 to 120 % U_n 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 AAC 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 5×10^6 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 1 LED

- Flashing green when on

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

Other information

For special features, functions etc. please contact us.

Timing 0.1s • 100h 0.1s • 100h

Types

Screw terminals **MUR1** **MAR1**

Spring terminals — —

Part numbers and voltage

24V $\sim$ / 24 • 240V $\sim$ **88 826 105** **88 826 115**

12 V $\sim$ / $\sim$ — —

12 • 240 V $\sim$ / $\sim$ — —

Functions

Multi-function

A - At - B - C - H - Ht -

Di - D - Ac - Bw

Bifunction

A - At

Nominal current 10 A

10 A

Timing ranges (7 ranges)

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

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

cUL listed UL listed CSA recognized

Temperatures limits

- use

-20 $^\circ\text{C}$ + 60 $^\circ\text{C}$

- stored

-30 $^\circ\text{C}$ + 60 $^\circ\text{C}$

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

- 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

2 x 2.5 mm²

- with ferrule

2 x 1.5 mm²

Spring terminals, 2 terminals per connection point

- flexible wire

1.5 mm²

- rigid wire

2.5 mm²

Casing material

Self-extinguishing

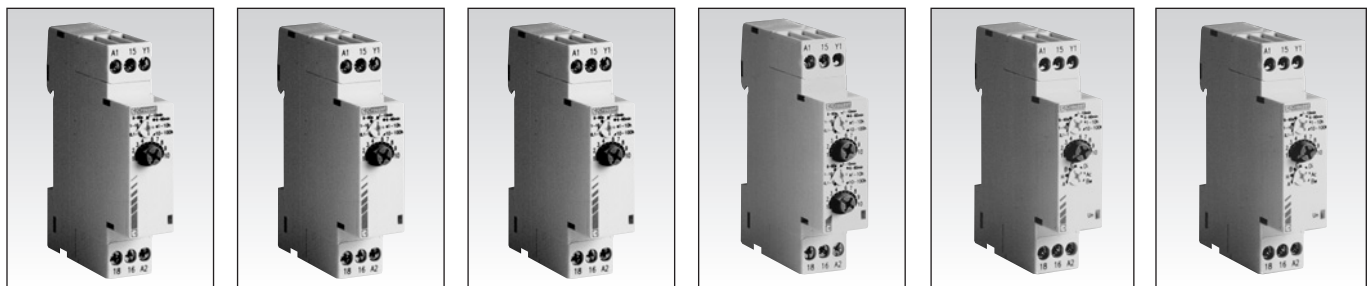
Weight: 17.5 mm casing

60 g

Products and specifications subject to change without notice.

Consult factory for application assistance.

204 Airline Drive, Suite 300, Coppell, Texas 75019 / Tel: (800) 677-5311 / FAX: (800) 677-3865 / www.crouzet-usa.com



0.1s • 100h	0.1s • 100h	0.1s • 100h	0.1s • 100h	0.1s • 100h	0.1s • 100h
MBR1	MCR1	MHR1	MLR1	MUR4	MUR3
—	—	—	—	—	MURc3
88 826 125	88 826 135	88 826 145	88 826 155	—	—
—	—	—	—	88 826 100	—
—	—	—	—	—	88 826 103 88 826 503
Mono-function	Mono-function	Bifunction	Bifunction	Multi-function	Multi-function
B	C	H - Ht	Li - L	A - At - B - C - H - Ht - Di - D - Ac - Bw	A - At - B - C - H - Ht - Di - D - Ac - Bw
10 A	10 A	10 A	10 A	10 A	10 A

Function diagrams

Function A
Delay on Make
1 relay



Function H
Interval
1 relay



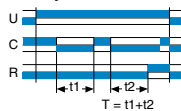
Function Li
Repeat Cycle
On Time First



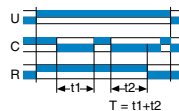
Function C
Delay on Break
1 relay



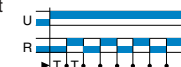
Function At
Accumulative Delay on Make
1 relay



Function Ht
Accumulative Interval
1 relay



Function D
Repeat Cycle, Equal On/Off Time.
Off Time First
Pause start



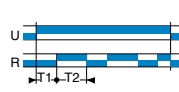
Function Bw
Pulse output (adjustable)
1 relay



Function B
Single Shot
1 relay



Function L
Repeat Cycle
Offtime First



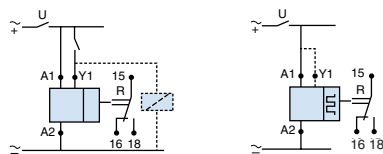
Function Di
Repeat Cycle
Equal On/Off Time. On Time First



Function Ac
Combo Delay on Make/Delay on Break. Equal On/Off Time
1 relay



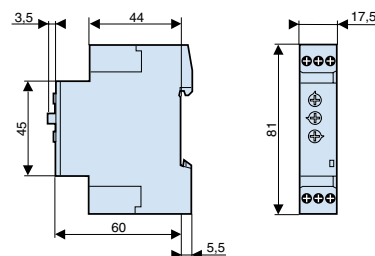
Connections (Y1 = C, Function diagrams)



Functions:
A - At / H - Ht / B / C
Di - D / Ac / Bw

Li
L :
A1 Y1

Dimensions



To order, specify:

1 Type

2 Part number

Example: Chronos 2 Timers MUR1 88 826 105

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Chronos 2 electronic timers - 17.5 mm

Solid state output

- Multi-function or mono-function
- Multi-range (7 ranges, available options)
- Multi-voltage
- Solid state output: 0.7 A - 250 V (0.5 A UL)
- Screw or spring terminals
- 1 LED status indicator

Technical specifications

Timing

Repetition accuracy (with constant parameters) $\pm 0.5\%$
(CEI 1812-1)

Drift

- Temperature $\pm 0.05\% / ^\circ\text{C}$
- Voltage $\pm 0.2\% / \text{V}$

Display precision according to IEC 1812-1 $\pm 10\% / 25^\circ\text{C}$

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- Typically (solid state version) 50 ms
- Typically under load (relay version) 100 ms

Maximum reset time by de-energisation

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- Typically (solid state version) 350 ms

Immunity to breaks in supply voltage: typically $>10\text{ ms}$

Power supply

Multi-voltage power supply depending on version,
see page 6/5

Frequency 50/60 Hz

Operating range 85 to 110 % U_n
(85 to 120 % U_n 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: Solid state output

Rated power 0.7 A AC/DC
20 $^\circ\text{C}$ (0.5A UL)

Derating 5 mA / $^\circ\text{C}$

Maximum admissible current 20 A $\leq 10\text{ ms}$

Minimum breaking current 10 mA

Off-state leakage $< 5\text{ mA}$

Voltage breaking capacity 250V AC/VDC

Maximum voltage drop at terminals 3 fils 4V - 2 fils 8V

Electrical life 10^8 operations

Mechanical life 10^8 operations

Breakdown voltage acc. to IEC 664, IEC 255-5 2.5 kV to 1 mA / 1 min.

Display

State displayed by 1 LED

- Flashing green when on

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

Other information

For special features, functions etc. please contact us.

Timing

Types

Part numbers and voltage

24 • 240 V ~ 50 • 60 Hz

24 • 240 V ~ 50 • 60 Hz

Functions

Nominal current

Timing ranges (7 ranges)

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

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 cUL listed CSA recognized

Temperatures limits

- use

-20 $^\circ\text{C}$ + 60 $^\circ\text{C}$

- stored

-30 $^\circ\text{C}$ + 60 $^\circ\text{C}$

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

- 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

2 x 2.5 mm²

- with ferrule

2 x 1.5 mm²

Spring terminals, 2 terminals per connection point

- flexible wire

1.5 mm²

- rigid wire

2.5 mm²

Casing material

Self-extinguishing

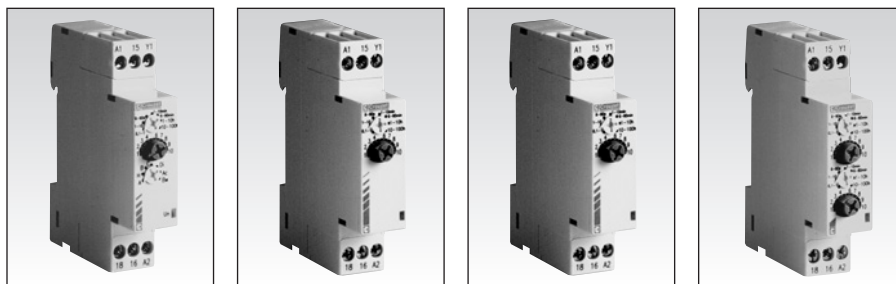
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0.1s • 100h	0.1s • 100h	0.1s • 100h	0.1s • 100h
MUS2	MAS5	MHS2	MLS2

1

88 826 004	—	88 826 044	88 826 054
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2

—	88 826 014	—	—
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Multi-function A - At - B - C - H - Ht - Di - D - Ac - Bw	Mono-function A	Mono-function H	Bifunction Li - L
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0.7 A, 0.5 A (UL)	0.7 A, 0.5 A (UL)	0.7 A, 0.5 A (UL)	0.7 A, 0.5 A (UL)
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4

Function diagrams

Function A

Delay on Make
1 relay



Function H

Interval
1 relay



Function Li

Repeat Cycle. On Time First.
Pulse start



Function C

Delay on Break
1 relay



Function At

Accumulative Delay on Make
1 relay



Function Ht

Accumulative Interval
1 relay



Function D

Repeat Cycle. Equal On/Off Time.
Off Time First.
Pause start



Function Bw

Pulse output (adjustable)
1 relay



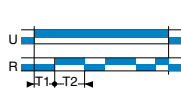
Function B

Single Shot
1 relay



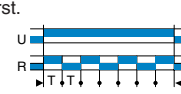
Function L

Repeat Cycle. Off Time First.
Pause start



Function Di

Repeat Cycle. Equal On/Off Times.
On Time First.
Pulse start

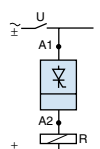


Function Ac

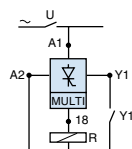
Combo Delay on Make/Delay on Break. Equal On/Off Time.
1 relay



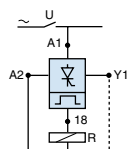
Connections (Y1 = C, Function diagrams)



Functions:
A / H

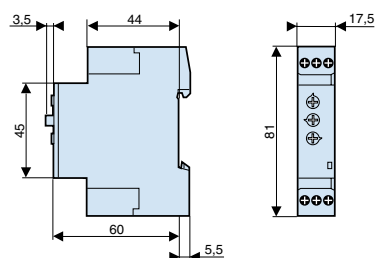


U



Li
L:
A2 Y1

Dimensions



To order, specify:

1 Type

2 Part number

Example: Chronos 2 Timers MUS2 88 826 004

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