

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

# Chronos 2 electronic timers - 22.5 mm

## Relay output 1 DTDP relay

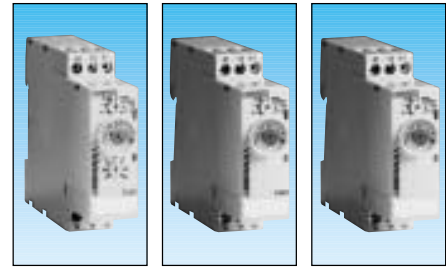
- Multi-function or mono-function
- Multi-range (7 ranges, available options)
- Multi-voltage
- Output 1 relay: 8 A - 250 V (10 A UL)
- Screw or spring terminals
- 1 LED status indicators
- Option of connecting an external power supply to the control input
- 3-wire sensor control option

### Technical specifications

<b>Timing</b>	
Repetition accuracy (with constant parameters)	± 0.5 % (CEI 1812-1)
<b>Drift</b>	
- 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
<b>Power supply</b>	
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
<b>Output elements relay output</b>	
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 <sup>5</sup> operations 8 A 250V resistive
Mechanical life	5 x 10 <sup>6</sup> 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
<b>Display</b>	
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

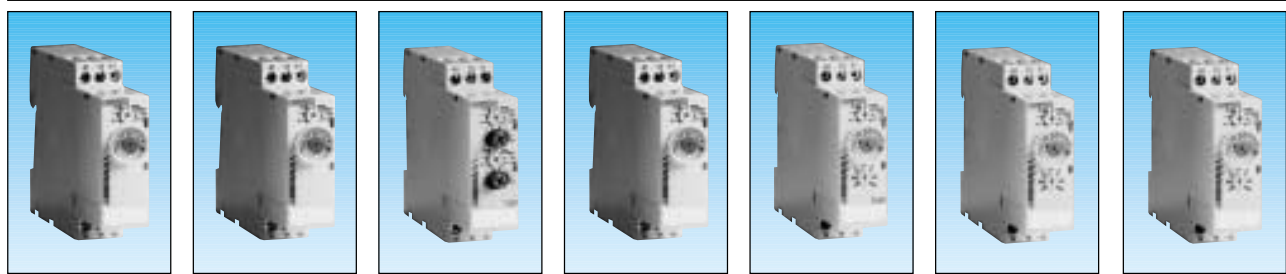
Non stocked items, minimum order quantity 100 units.



Timing	0.1s • 100h	0.1s • 100h	0.1s • 100h
<b>Types</b>			
Screw terminal	TUR1	TAR1	TBR1
Spring terminal	—	—	—
<b>Part numbers and voltage</b>			
24V dc / 24 • 240V ac	88 865 105	88 865 115	88 865 125
12 V ac / dc	—	—	—
12 • 240 V ac / dc	—	—	—
<b>Functions</b>			
	Multi-function	Bifunction	Mono-function
	A-At - B - C - H-Ht	A - At	B
	Di-D - Ac - Bw		
<b>Nominal current</b>			
	10A	10A	10A
<b>Timing ranges (7 ranges)</b>			
0.1s - 1s - 10 s - 6s - 60s - 1 min - 10 min - 6min - 60min - 1 h - 10 h - 100 h			
<b>TQR1:</b> 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 listed	
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	
- 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)	
Fixing: Symmetrical DIN rail (EN 50022)	Class B 35 mm
Connection capacity	
- without ferrule	2 x 2.5 mm <sup>2</sup>
- with ferrule	2 x 1.5 mm <sup>2</sup>
Spring terminals, 2 terminals per connection point	
- flexible wire	1.5 mm <sup>2</sup>
- rigid wire	2.5 mm <sup>2</sup>
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	0.1s • 100h	0.1s • 100h
TCR1	THR1	TLR1	TQR1	TUR4	TUR3	TXR1
—	—	—	—	—	TURc3	—
88 865 135	88 865 145	88 865 155	88 865 175	88 865 100	88 865 103 88 865 503	88 865 185
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	10 A	10 A	10 A	10 A

1

2

4

**Function diagrams**

**Function A**

Delay on energisation  
1 relay



**Function H**

Timing on energisation  
1 relay



**Function Li**

Asymmetrical recycler 1 relay  
Pulse start



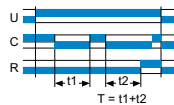
**Function C**

Timing after impulse  
1 timer



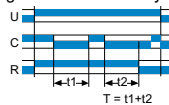
**Function At**

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



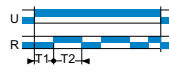
**Function B**

Timing on impulse one shot  
1 relay



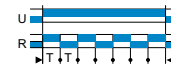
**Function L**

Asymmetrical recycler 1 relay  
Pause start



**Function Di**

Flip-flop 1 relay  
Pulse start



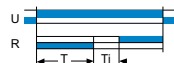
**Function Ac**

Timing after closing and opening  
of control contact  
1 relay



**Function Q**

Star-delta

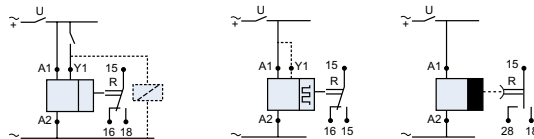


MXR1 functions see page 4/i, 4/ii

**Connections**

Y1=C (function diagrams)

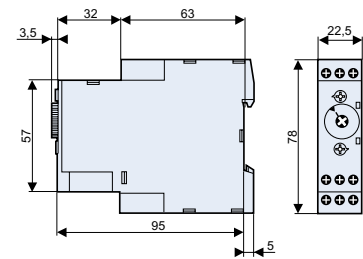
**Dimensions**



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

Li  
L : A1 Y1

Q



**To order, specify:**

Standard products

1 Type

2 Part number

Example: Chronos 2 Timers TAR1 88 865 115

# Chronos 2 electronic timers - 22.5 mm

## 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<sup>5</sup> operations  
 8 A 250V resistive  
 Mechanical life 5 x 10<sup>6</sup> 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

### 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  
 - Immunity to electrostatic discharges acc. to IEC 1000-4-2 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)

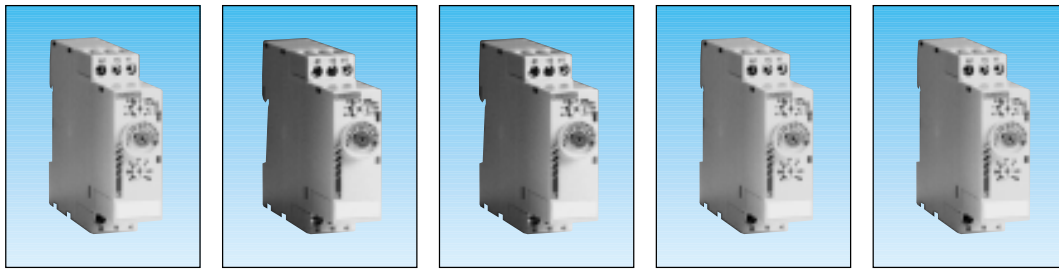
- Immunity to voltage dips and breaks acc. to IEC 1000-4-11 30 % / 10 ms  
 60 % / 100 ms > 95 % / 5 s

- 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 mm<sup>2</sup>  
 - with ferrule 2 x 1.5 mm<sup>2</sup>

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

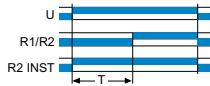
TU2R1	TA2R1	TK2R1	TU2R4	TX2R1
88 865 305	88 865 215	88 865 265	88 865 300	88 865 385
Multi-function A - At - B - C - H - Ht - Di - D - Ac - Bw	Bifunction A - At	Mono-function K	Multi-function A - At - B - C - H - Ht - Di - D - Ac - Bw	Multi-function Ad - Ah - N - O - P - Pt - TL - Tt - W
8 A	8 A	8 A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

1  
2

### Function diagrams

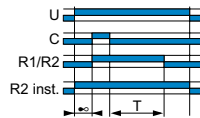
#### Function A

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



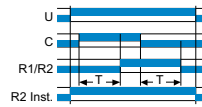
#### Function C

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



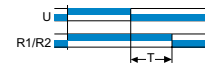
#### Function Ac

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



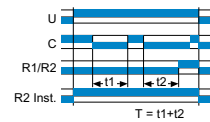
#### Function K

Delay on de-energisation  
True delay OFF  
2 relays



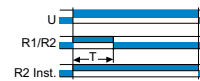
#### Function At

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



#### Function H

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



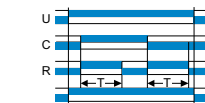
#### Function D

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



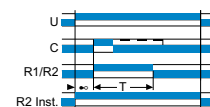
#### Function Bw

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



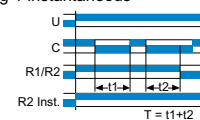
#### Function B

Timing on impulse one shot  
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



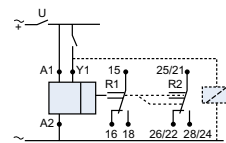
#### Function Di

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

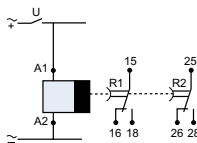


MXR1 functions see page 1/10, 1/11

### Connections

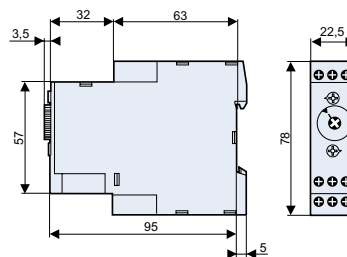


Functions :  
A - At / H - Ht / B / C  
Di - D / Ac / BW  
Ad - Ah - N - O - P  
Pt - TL - Tt - W



K

### Dimensions



### To order, specify:

Standard products

1 Type

2 Part number

Example: Chronos 2 Timers TA2R1 88 865 215