APPLICATIONS

WHERE ARE CHRONOS TIMERS FOUND?

In electrical cabinets associated with other automation functions for the following markets:

- Food industry
- Industrial automation systems
- Lighting
- Building equipment
- HVAC
- Small or large industrial machines

Packaging

Controlling heat sealing times on blister packs, packaging bags, etc.

TIMER
MAR1, MUR1, MXR1

Illuminated signs

Managing flashing on illuminated signs.

TIMER
MLR

Ice maker

Managing the duration of refrigeration.

TIMER
TUR1, MUR, MAR

Lighting for mobile homes

Managing the duration of outdoor lighting of a mobile home if the light switch is left switched on.

TIMED IMPULSE RELAY
MXR

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A COMPANY OF INNOVISTA SENSORS

CROUZET

CHRONOS 2 TIMERS

TIME MANAGEMENT

THE BASICS

Crouzet,
a brand of Custom Sensors & Technologies, is a specialist in electromechanical, electronic technology, and software engineering. Based on Crouzet's 50 years of experience in time management, as well as experience in physical and mechanical values, we offer a range of automation components that includes: logic controllers, timers, control relays, counters, tachometers, machine safety equipment, and temperature controllers.

These products are particularly suited for use in water treatment, waste processing, renewable energy, HVAC, access control, building equipment, agriculture and industrial automation markets.

This document gives an overview of
the Chronos 2 DIN rail mounted timers.

These timers are available in 3 casings:

- DIN rail modular casing (width: 17.5 mm)
- DIN rail industrial casing (width: 22.5 mm)
- Plug-in industrial casing (width: 35 mm).

FEATURES OF THE CHRONOS 2 TIMERS

- Available in **mono**- or **multifunction** versions, to meet the specific needs of each application.
- **A timing range** of up to 100 hrs to cope with prolonged processing operations.
- **A range of power** supplies from 12 to 240 V in one unit for optimised stocks.
- Recognised **quality** and **reliability** ensures the correct operation of equipment.

SELECTION GUIDE
CHRONOS 2 DIN RAIL MOUNTED TIMERS

DIN rail modular casings - The 17.5 mm range will migrate to new part numbers. The chart below shows the new part numbers

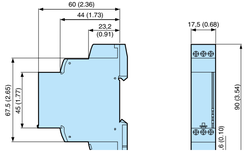
Casing width (mm)	Connections	Functions	Type of output	Output(s)	Timing	Supply	New part number	Old part number	Type
	17.5	Screw terminals	A / At / B / C / H / Ht Di / D / Ac / Bw	Relay	1 x 8 A changeover	0.1 s ⇨ 100 h	24 V ⎓ / 24 ⇨ 240 V ∿	88 827 105	88 826 105	MUR1
			A / At					88 827 115	88 826 115	MAR1
			B					88 827 125	88 826 125	MBR1
			C					88 827 135	88 826 135	MCR1
			H / Ht					88 827 145	88 826 145	MHR1
			L / Li				12 V ⎓	88 827 150	88 826 150	MLR4
							24 V ⎓ / 24 ⇨ 240 V ∿	88 827 155	88 826 155	MLR1
	17.5	Screw terminals	A / At / B / C / H / Ht Di / D / Ac / Bw	Relay	1 x 8 A changeover	0.1 s ⇨ 100 h	12 V ⎓	88 827 100	88 826 100	MUR4
		Spring terminals					12 ⇨ 240 V ⎓	88 827 103	88 826 103	MUR3
		Screw terminals	Ad / Ah / N / O / P Pt / TL / Tt / W				24 V ⎓ / 24 ⇨ 240 V ∿	88 827 503	88 826 503	MURc3
								88 827 185	88 826 185	MXR1
	17.5	Screw terminals	A / At / B / C / H / Ht Di / D / Ac / Bw	Solid state	0.7 A	0.1 s ⇨ 100 h	24 ⇨ 240 V ∿	88 827 004	88 826 004	MUS2
			A				24 ⇨ 240 V ⎓	88 827 014	88 826 014	MAS5
			H / Ht				24 ⇨ 240 V ∿	88 827 044	88 826 044	MHS2
			L / Li					88 827 054	88 826 054	MLS2

Naming of Chronos 2 timers

M	U	ø/2	R	1
Dimensions	Functions	Output(s)	Type of output	Supply
M: 17.5 mm	A: A function	ø: 1 Output	R: Relay	1: 24 V ⎓ / 24 ⇨ 240 V ∿
T: 22.5 mm	B: B function	2: 2 Outputs	S: Solid state	2: 24 ⇨ 240 V ∿
R: 22.5 mm	C: C function			3: 12 ⇨ 240 V ⎓
O: Plug-in 8 pins	H: H function			4: 12 V ⎓
P: Plug-in 11 pins	L: L function			5: 24 ⇨ 240 V ⎓
	Q: Q function			6: 230 ⇨ 440 V ∿
	U: Multifunction (A-At-B-C-H-Ht-Di-D-Ac-Bw)			
	X: Multifunction (Ad-Ah-N-O-P-Pt-TL-Tt-W)			

Dimensions in mm (inches)

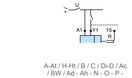
DIN rail modular casings (17.5 mm)



All Chronos 2 timers are CE, UL, cUL, CSA, GL certified

Connections

One changeover relay output



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

Li - L

Solid state relay

A / H

L / Li

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

DIN rail industrial casings

Casing width (mm)	Connections	Functions	Type of output	Output(s)	Timing	Supply	Part number	Type
 22.5	Screw terminals	A / At / B / C / H / Ht Di / D / Ac / Bw	Relay	1 x 8 A changeover	0.1 s ⇨ 100 h	24 V ⎓ / 24 ⇨ 240 V ∿	88 865 105	TUR1
		A / At					88 865 115	TAR1
		B					88 865 125	TBR1
		C					88 865 135	TCR1
		H / Ht					88 865 145	THR1
		L / Li					88 865 155	TLR1
		Q					88 865 175	TQR1
							88 866 175	RQR1*
		K		2 x 8 A changeover	0.1 s ⇨ 160 s		88 865 265	TK2R1
 22.5	Screw terminals	A / At / B / C / H / Ht Di / D / Ac / Bw	Relay	1 x 8 A changeover 1 inst. or timed 8 A	0.1 s ⇨ 100 h	12 V ⎓	88 865 300	TU2R4
				1 x 8 A changeover			88 866 300	RU2R4*
		A / At		2 x 8 A changeover		24 V ⎓ / 24 ⇨ 240 V ∿	88 865 100	TUR4
							88 865 215	TA2R1
		A / At / B / C / H / Ht Di / D / Ac / Bw		1 x 8 A changeover		12 ⇨ 240 V ⎓	88 866 215	RA2R1*
	Spring terminals						88 865 103	TUR3
							88 865 503	TURc3
 22.5	Screw terminals	Ad / Ah / N / O / P Pt / TL / Tt / W	Relay	1 x 8 A changeover 1 inst. or timed 8 A	0.1 s ⇨ 100 h	24 V ⎓ / 24 ⇨ 240 V ∿	88 865 385	TX2R1
							88 866 385	RX2R1*
							88 865 185	TXR1
		Q		1 x 8 A changeover		230 ⇨ 440 V ∿	88 865 176	TQR6
							88 866 176	RQR6*
		A / At / B / C / H / Ht Di / D / Ac / Bw		1 x 8 A changeover 1 inst. or timed 8 A		12 ⇨ 240 V ⎓	88 865 303	TU2R3
							88 866 303	RU2R3*
						24 V ⎓ / 24 ⇨ 240 V ∿	88 865 305	TU2R1
							88 866 305	RU2R1*

* Available in 2014. The new part number's casings are different from the existing casings. Find out more on the technical datasheets available on www.crouzet.com

Removable industrial casings

Casing width (mm)	Connections	Functions	Type of output	Output(s)	Timing	Supply	Part number	Type
 35	Removable 8-pin base	A / At / B / C / H / Ht Di / D / Ac / Bw	Relay	1 x 8 A changeover	0.1s ⇨ 100 h	24 V ⎓ / 24 ⇨ 240 V ∿	88 867 105	OUR1
		A		2 x 8 A changeover			88 867 215	OA2R1
		C					88 867 135	OCR1
		L / Li					88 867 155	OLR1
		A / At / B / C / H / Ht Di / D / Ac / Bw		1 x 8 A changeover		12 V ⎓	88 867 100	OUR4
						12 ⇨ 240 V ⎓	88 867 103	OUR3
 35	Removable 11-pin base	A / At / B / C / H / Ht Di / D / Ac / Bw	Relay	1 x 8 A changeover 1 inst. or timed 8 A	0.1s ⇨ 100 h	24 V ⎓ / 24 ⇨ 240 V ∿	88 867 305	PU2R1
		A / At		2 x 8 A changeover			88 867 415	PA2R1
		C					88 867 435	PC2R1
		L / Li					88 867 455	PL2R1
		A / At / B / C / H / Ht Di / D / Ac / Bw		1 x 8 A changeover 1 inst. or timed 8 A		12 V ⎓	88 867 300	PU2R4
						12 ⇨ 240 V ⎓	88 867 303	PU2R3

FUNCTION DIAGRAMS
GENERIC FUNCTIONS

U : Supply
R : Output relay or load
T : Timing
∞ : Infinity
C (Y1) : Command

A function Delay on energisation

Single shot timing which starts on energisation.

Ac function Timing after closing and opening of control contact

After energisation, closing of the control contact results in starting of the time delay T.
Output relay "R" (or the load) changes state at the end of this time delay. After opening of contact C (Y1), relay "R" drops out after a second time delay T.

Ad function Delay on energisation (cannot be reset)

After energisation, a control pulse or latching contact starts timing. At the end of timing, the output is excited. The output will be reset when a new control pulse or latching contact occurs.

Ah function Single shot flip-flop (cannot be reset)

2 timers or
2 relays including
1 instantaneous

After energisation, a control pulse or latching contact starts timing. At the end of timing, the output is excited. The time delay is then reset. At the end of this new time delay, the output reverts to its initial value.

At function Timing on energisation with memory

Adds up the opening time of a contact.

Output relay "R" (or the load) changes state at the end of timing.

B function Timing on impulse (one shot) - Shaping (cannot be reset)

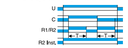
After energisation, an impulse (≥ 50 ms) or a latching contact causes a change in state of the output relay "R" (or the load) which drops out at the end of timing.

Bw function Pulse output (adjustable)

1 relay

On closing and opening of the control contact C (Y1), the output relay "R" (or the load) changes state for as long as the time delay lasts.

2 timers or
2 relays including 1 instantaneous



C function Timing after impulse True delay off (with auxiliary power supply)

After energisation, closing of the control contact C (Y1) results in a change of state of output relay "R" (or the load).
Timing will only start when this contact opens.

D or Di functions Symmetrical flashing

Repetitive cycle which alternately sets the output relay "R" (or the load) to operating and rest position for equal periods of time.

D function:
The cycle starts with relay "R" in rest position.

Di function:
The cycle starts with relay "R" in operating position.

H function Timing on energisation - Pulse output (adjustable)

On energisation, the output relay "R" (or the load) changes state, and stays there for the whole duration of the time delay and drops out at the end of the single shot cycle.

Ht function Delay on energisation with memory

Adds up the total opening time of a contact.
On energisation, the output relay "R" (or the load) changes state, and stays there for the whole duration of the time delay and drops out at the end of the single shot cycle.

K function Delay on de-energisation True delay off (without auxiliary power supply)

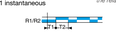
On energisation, the output relay "R" (or the load) changes state. On de-energisation timing starts and the relay "R" will only drop out at the end of this time delay.

L function Asymmetrical flashing

1 relay

Repetitive cycle with two times which can be set independently. Each time delay alternates with a different state of the output relay "R" (or the load).

2 timers or
2 relays including
1 instantaneous



Note: The cycle starts with the relay "R" in the rest position.

Li function Asymmetrical flashing

Repetitive cycle with two times which can be set independently.

N function "Safe-guard"

On the first control pulse, the output is excited.
If the interval between two impulses is longer than the timing value, this occurs normally and the output relay "R" (or the load) will change state at the end of timing. Otherwise, relay "R" stays in its original state until the condition is fulfilled.

O function "Delayed safe-guard"

On energisation, a first timer runs and the output relay "R" (or the load) changes state. On the appearance of a control pulse, relay "R" returns to its initial position and stays there as long as the time interval between 2 impulses is less than the timing value. Otherwise, relay "R" will change state at the end of timing.

P function Delayed fixed-length pulse

Timing
At the
"R" (or

starts on energisation, end of timing, the output relay the load) changes state for approximately 500 ms.

Pt function Impulse counter (delay on)

Adds up the total opening time of a contact.
At the end of timing, the output is excited for approximately 500 ms.

Q function Star-delta" starting

On energisation, the "star" contact closes instantaneously and timing starts.
At the end of timing the Ti "star" contact opens. After a pause of 40 to 100 ms the "delta" contact closes.

TL function Impulse relay

After energisation, a control pulse or latching contact closes the relay. A second control pulse opens the relay.

Tt function Timed impulse relay

After energisation, a control pulse or latching contact closes the relay and starts timing.
The relay opens at the end of timing or on a second control pulse.

W function Timing after pulse on control contact

After energisation, opening of the control contact results in a change in the state of output "R" (or the load) and timing starting.