

Timing relay, 2W, 0.05s-100h, multi-function, 24-240VAC/DC, potentiometer connection



Part no. ETR4-70-A  
 Catalog No. 031888  
 Alternate Catalog No. XTTR6A100H70B  
 EL-Nummer (Norway) 4133311

**Delivery program**

Product range				ETR4 timing relays
Basic function				Timer relays
Function				Multi-functional On-delayed Off-delayed Fleeting contact on energization Fleeting contact on de-energization Flashing, pulse initiating On- and Off-delayed Pulse forming Pulse generating
				With potentiometer connection (10 kΩ) Changeover contact can be converted to 2 timed contacts or 1 non-delayed contact and 1 timed contact Adjustable timing functions
Number of changeover contacts				2
Time range				0.05 s - 100 h
Time range				0.05 - 1 s 0.15 - 3 s 0.5 - 10 s 1.5 - 30 s 5 - 100 s 15 - 300 s 1.5 - 30 min 15 - 300 min 1.5 - 30 h 5 - 100 h
<b>Rated operational current</b>				
AC-14				
300 V	$I_e$	A		3
380 V 400 V 415 V	$I_e$	A		3
				Value applies starting with release 001.
AC-15				
220 V 230 V 240 V	$I_e$	A		3
300 V	$I_e$	A		3
380 V 400 V 415 V	$I_e$	A		3
				Value applies starting with release 001.
Voltage range	$U_{LN}$	V		24 - 240 V AC, 50/60 Hz 24 - 240 V DC
Width		mm		22.5
Terminal marking according to EN 50042				
Terminal marking according to EN 50042				

**Technical data**

**General**

Standards				Standard IEC/EN 61812 VDE 0435
Lifespan, mechanical				
AC operated	Operations	$\times 10^6$		30
DC operated	Operations	$\times 10^6$		30
Climatic proofing				Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature				

Ambient temperature, storage	°C	- 45 - + 85
Open	°C	-25 - +60
Enclosed	°C	- 25 - + 45
Mounting position		As required
Mechanical shock resistance (IEC/EN 60068-2-27)		
Half-sinusoidal shock, 20 ms	g	
Make contact	g	4
Degree of protection		
Terminals		IP20
Weight	kg	0.1
Terminal capacities	mm <sup>2</sup>	
Solid	mm <sup>2</sup>	1 x (0.5 - 2.5) 2 x (0.5 - 1.5)
Flexible with ferrule	mm <sup>2</sup>	1 x (0.5 - 2.5) 2 x (0.5 - 1.5)
Solid or stranded	AWG	1 x (20 - 14)

## Contacts

Rated impulse withstand voltage	$U_{imp}$	V AC	4000
Rated impulse withstand voltage	$U_{imp}$	V AC	6000
			Value applies starting with release 001.
Overvoltage category/pollution degree			III/2
Rated insulation voltage	$U_i$	V AC	400
Rated insulation voltage	$U_i$	V AC	600
			Value applies starting with release 001.
Rated operational voltage	$U_e$	V AC	300
Rated operational voltage	$U_e$	V AC	440
			Value applies starting with release 001.
Safe isolation to EN 61140			
between coil and auxiliary contacts		V AC	250
between the auxiliary contacts		V AC	250
Making capacity			
AC-14 $\cos \varphi = 0.3$ 400 V		A	48
AC-15 $\cos \varphi = 0.3$ 220 V		A	50
DC-11 L/R - 40 ms		x $I_e$	1.1
Breaking capacity			
AC-14 $\cos \varphi = 0.3$ 440 V		A	3
AC-15 $\cos \varphi = 0.3$ 220 V		A	3
DC-11 L/R - 40 ms		x $I_e$	1.1
Rated operational current	$I_e$	A	
AC-14	$I_e$		
380 V 400 V 415 V	$I_e$	A	3
			Value applies starting with release 001.
AC--14			
440 V	$I_e$	A	3
AC-15			
220 V 230 V 240 V	$I_e$	A	3
DC-11			
Note			Making and breaking conditions to DC13, time constant as stated
L/R max. 15 ms		A	
24 V	$I_e$	A	1.5
L/R max. 50 ms		A	1.2
Conv. thermal current	$I_{th}$	A	6
Short-circuit rating without welding			
Note			When supplied directly from mains or transformer > 1000 VA
Max. fuse, make contacts		A gG/gL	6

Max. fuse, break contacts		A gG/gL	6
Max. overcurrent protective device, 220/230 V		Type	FAZ-B4/1-HI

## Magnet systems

Power consumption			
Pick-up AC		VA	2
Sealing AC		VA	2
Pick-up DC		W	1.8
Sealing DC		W	1.8
Duty factor		% DF	100
Maximum operating frequency		Ops/h	4000
Minimum command time			
AC		ms	50
DC		ms	30
Repetition accuracy (deviation)		%	≤ 0.5
Recovery time (after 100% time delay)		ms	70
Contact changeover time	t <sub>u</sub>	ms	4

## Electromagnetic compatibility (EMC)

Electrostatic discharge (ESD)			
applied standard			IEC/EN 61000-4-2
Air discharge		kV	8
Contact discharge		kV	6
Electromagnetic fields (RFI)			
applied standard			IEC/EN 61000-4-3
		V/m	80 - 1000 MHz: 10 1.4 - 2 GHz: 3 2.0 - 2.7 GHz: 1
Radio interference suppression			EN 55011, Class B (conducted) EN 55011, Class B (radiated)
Burst		kV	Supply cables: 2 Signal cables: 1 according to IEC/EN 61000-4-4
power pulses (Surge)			2 kV (symmetrical) 4 kV (asymmetrical) according to IEC/EN 61000-4-5
Immunity to line-conducted interference to (IEC/EN 61000-4-6)		V	10

## Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I <sub>n</sub>	A	6
Heat dissipation per pole, current-dependent	P <sub>vid</sub>	W	1.4
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	0
Static heat dissipation, non-current-dependent	P <sub>vs</sub>	W	1.8
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	60
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			Meets the product standard's requirements.
10.2.5 Lifting			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			Meets the product standard's requirements.

10.5 Protection against electric shock		Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components		Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections		Is the panel builder's responsibility.
10.8 Connections for external conductors		Is the panel builder's responsibility.
10.9 Insulation properties		
10.9.2 Power-frequency electric strength		Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage		Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material		Is the panel builder's responsibility.
10.10 Temperature rise		The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating		Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility		Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function		The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## Technical data ETIM 8.0

Relays (EG000019) / Timer relay (EC001439)			
Electric engineering, automation, process control engineering / Low-voltage switch technology / Relay and socket / Timed relay (ecl@ss10.0.1-27-37-16-05 [AKF092013])			
Type of electric connection			Screw connection
Function delay-on energization			Yes
Function delay on de-energization			Yes
Function floating contact on energization			Yes
Function floating contact on de-energization			Yes
Function star-delta			No
Function pulse shaping			Yes
Function flashing, starting with pause, fixed time			Yes
Function flashing, starting with pulse, fixed time			Yes
Clock function, starting with pause, variable			Yes
Clock function, starting with pulse, variable			Yes
With plug-in socket			No
Remote operation possible			Yes
Suitable as remote control			No
Pluggable on auxiliary contact block			No
Rated control supply voltage Us at AC 50HZ		V	24 - 240
Rated control supply voltage Us at AC 60HZ		V	24 - 240
Rated control supply voltage Us at DC		V	24 - 240
Voltage type for actuating			AC/DC
Nominal current		A	3
Time range		s	0.05 - 360000
Number of outputs, undelayed, normally closed contact			0
Number of outputs, undelayed, normally open contact			0
Number of outputs, undelayed, change-over contact			2
Number of outputs, delayed, normally closed contact			0
Number of outputs, delayed, normally open contact			0
Number of outputs, delayed, change-over contact			2
Outputs, reversible delayed/undelayed			Yes
With semiconductor output			No
Suitable for DIN rail (top hat rail) mounting			Yes
Suitable for front mounting			No
Width		mm	23
Height		mm	83
Depth		mm	103

## Approvals

Product Standards		IEC/EN 61812-1; IEC/EN 60947-5-1; UL 508; CSA-22.2 No. 14; CE marking
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UL File No.		E29184
UL Category Control No.		NKCR
CSA File No.		12528
CSA Class No.		3211-03
North America Certification		UL listed, CSA certified
Degree of Protection		IEC: IP20, UL/CSA Type: -

## Characteristics

### Flow diagram for timing functions

LED legend

Time not running, contact 15 – 18 closed

Time running, contact 15 – 18 closed

Time running, contact 15 – 18 not closed

- ① A2/A1 linked
- ② A2/A1 not linked

11 On-delayed

12 Off-delayed

16 On- and Off-delayed

21 Fleeting contact on energization

22 Fleeting contact on de-energization

42 flashing

81 Pulse generating

82 Pulse shaping

On-Off function

## Dimensions

Applies to release 001 and higher

## Additional product information (links)

### IL0491000Z (AWA2527-1493) Multi-function relay

IL0491000Z (AWA2527-1493) Multi-function relay [https://es-assets.eaton.com/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL0491000Z.pdf](https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL0491000Z.pdf)