

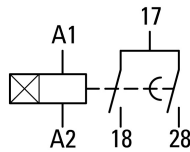


**Timing relay, star-delta, 50 ms, 1W, 3-60s, 400VAC**

**Part no.** ETR4-51-W  
**Article no.** 031885  
**Catalog No.** XTTR6A60S51N

**Delivery program**

Product range				ETR4 timing relays
Basic function				Timer relays
Function				Star-delta switching
				Changeover contact with a changeover time of 50 ms Fixed timing function
Number of changeover contacts				1
Time range				3 - 60 s
Time range				3 - 60 s
<b>Rated operational current</b>				
AC-14				
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
380 V 400 V 415 V	$I_e$	A		3
				Value applies starting with release 001.
Voltage range	$U_{LN}$	V		400 V AC, 50/60 Hz
Width		mm		22.5



Terminal marking according to EN 50042

**Technical data**

<b>General</b>				
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		$mm^2$		
Solid		$mm^2$		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	6000
			Value applies starting with release 001.
Overvoltage category/pollution degree			III/2
Rated insulation voltage	$U_i$	V AC	600
			Value applies starting with release 001.
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

Rated operational voltage	$U_e$	V	
AC			400
Rated frequency AC		Hz	47 - 63
Tolerance AC operated min.		x $U_c$	0.85
Tolerance AC operated max.		x $U_c$	1.1
Voltage tolerance			
Pick-up voltage		x $U_s$	
Min. pick-up voltage, AC operated		x $U_c$	0.85
Pick-up voltage AC operated, max.		x $U_c$	1.1
Power consumption			
Pick-up AC		VA	0.5
Sealing AC		VA	0.5
Duty factor		% DF	100

Maximum operating frequency		Ops/h	4000
Minimum command time			
AC		ms	50
Repetition accuracy (deviation)		%	$\leq$ 0.5
Recovery time (after 100% time delay)		ms	70
Contact changeover time	$t_u$	ms	50

### 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	$I_n$	A	6
Heat dissipation per pole, current-dependent	$P_{vid}$	W	1.4
Equipment heat dissipation, current-dependent	$P_{vid}$	W	0
Static heat dissipation, non-current-dependent	$P_{vs}$	W	0.5
Heat dissipation capacity	$P_{diss}$	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 6.0

Relays (EG000019) / Timer relay (EC001439)

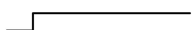
Electric engineering, automation, process control engineering / Low-voltage switch technology / Relay and socket / Timed relay (ecl@ss8.1-27-37-16-05 [AKF092010])

Type of electric connection			Screw connection
Function delay-on energization			No
Function delay on de-energization			No
Function floating contact on energization			No
Function floating contact on de-energization			No
Function star-delta			Yes
Function pulse shaping			No
Function flashing, starting with pause, fixed time			No
Function flashing, starting with pulse, fixed time			No
Clock function, starting with pause, variable			No
Clock function, starting with pulse, variable			No
With plug-in socket			No
Remote operation possible			No
Suitable only for remote control			No
Pluggable on auxiliary contact block			No
Rated control supply voltage $U_s$ at AC 50HZ		V	400 - 400
Rated control supply voltage $U_s$ at AC 60HZ		V	400 - 400
Rated control supply voltage $U_s$ at DC		V	0 - 0
Voltage type for actuating			AC
Time range		s	3 - 60
Number of outputs, undelayed, normally closed contact			0
Number of outputs, undelayed, normally open contact			1
Number of outputs, undelayed, change-over contact			0
Number of outputs, delayed, normally closed contact			0
Number of outputs, delayed, normally open contact			1
Number of outputs, delayed, change-over contact			0
Outputs, reversible delayed/undelayed			No
With semiconductor output			No
Width		mm	23
Height		mm	83
Depth		mm	103

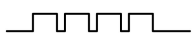
## Characteristics

### Flow diagram for timing functions

LED legend



Time not running, contact 15 – 18 closed



Time running, contact 15 – 18 closed

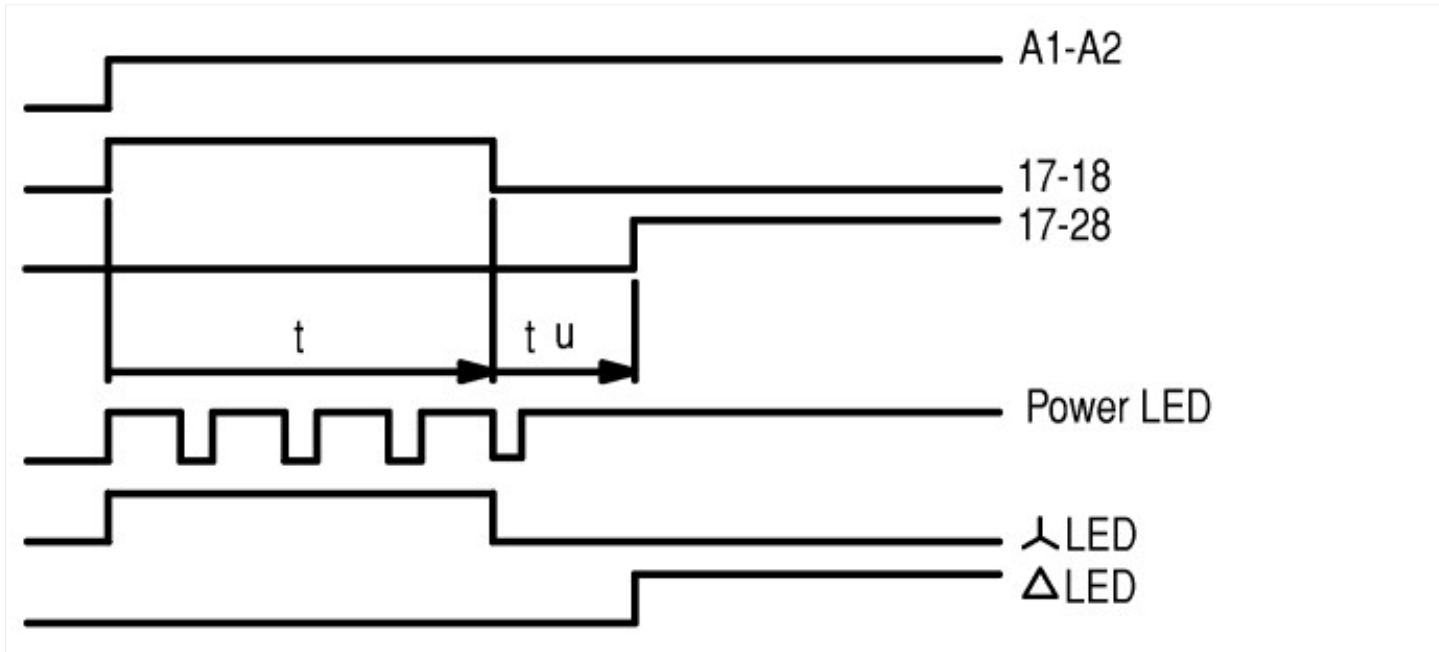


Time running, contact 15 – 18 not closed

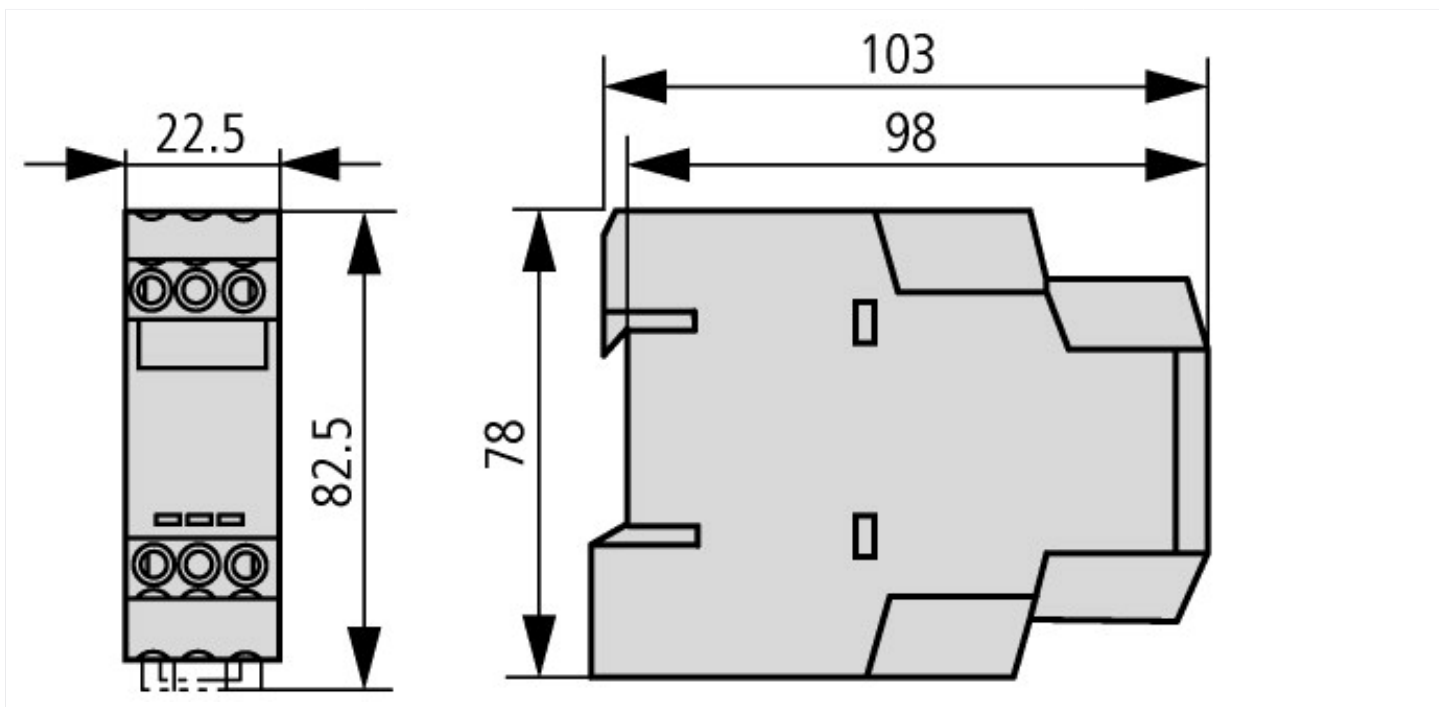
① A2/A1 linked

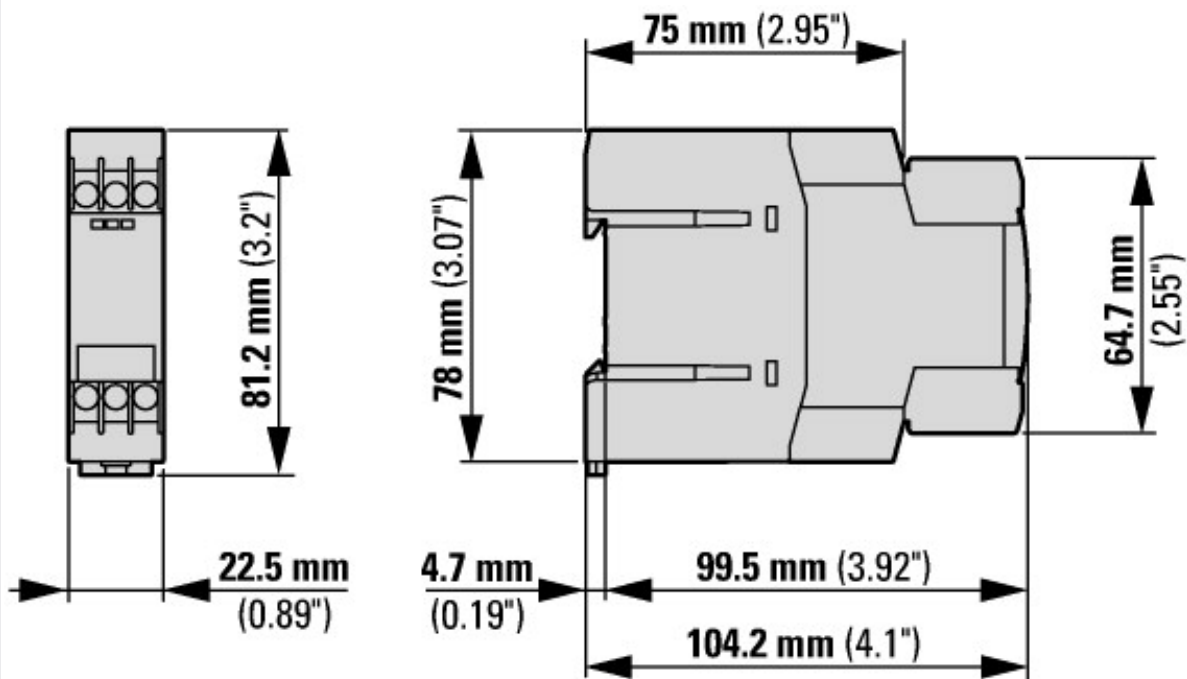
② A2/A1 not linked

51 Star-delta



**Dimensions**





Applies to release 001 and higher

### Additional product information (links)

#### IL049003ZU Timing relay

IL049003ZU Timing relay [ftp://ftp.moeller.net/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL049003ZU2015\\_01.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL049003ZU2015_01.pdf)

#### IL04910001Z (AWA2527-1485) Timing relay, star-delta relay, multifunction relay

IL04910001Z (AWA2527-1485) Timing relay, star-delta relay, multifunction relay [ftp://ftp.moeller.net/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL04910001Z2016\\_05.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL04910001Z2016_05.pdf)