#### **DATASHEET - ETR4-51-W**

Part no.

**EL-Nummer** (Norway)

No.

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



ETR4-51-W Catalog No. 031885 Alternate Catalog XTTR6A60S51N

4110007



#### **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
Rated operational current			
AC-14			
380 V 400 V 415 V	l <sub>e</sub>	А	3
			Value applies starting with release 001.
AC-15			
220 V 230 V 240 V	l <sub>e</sub>	А	3
380 V 400 V 415 V	I <sub>e</sub>	А	3
			Value applies starting with release 001.
Voltage range	U <sub>LN</sub>	V	400 V AC, 50/60 Hz
Width		mm	22.5
$A1 \qquad 17 \\ 1 \\ -7 \\ -7 \\ -7 \\ -7 \\ -7 \\ -7 \\ $			

Terminal marking according to EN 50042

## **Technical data**

General			
Standards			Standard IEC/EN 61812 VDE 0435
Lifespan, mechanical			
AC operated	Operations	x 10 <sup>6</sup>	30
DC operated	Operations	x 10 <sup>6</sup>	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>	

networknetworknetworknetworkEnded wateringNot being and the sector of th	0-114		2	1
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ContentsNormalization of the sector of the sect	Flexible with ferrule		mm <sup>2</sup>	
head mysike order statusMan<	Solid or stranded		AWG	1 x (20 - 14)
Non-starting with which we have and a starting with which we have a starting with we have a starting wi	Contacts			
Density starting wind wind wind wind wind wind wind wind	Rated impulse withstand voltage	U <sub>imp</sub>	V AC	6000
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Ski skiskot EK S1MSki ski ski ski ski ski ski ski ski ski s	Rated operational voltage	U <sub>e</sub>	V AC	440
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DC11 LR - 4 msImage: main sector of the sector				
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DC-11 LR + 40 msIIIRated operational currentIIIRated operational currentIIIAC-14IIIIAdd V 40 V4 V5 VIIIIAdd V40 V4 V5 VIIII200 V240 V240 V240 V240 V240 V240 V240 V				
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20 V20 V20 V1P P P P 	440 V	۱ <sub>e</sub>	А	3
DC-1AndMain and breaking conditions to DC13, time constant as statedNoteAMain and breaking conditions to DC13, time constant as stated24VNASLR max. 50 msNASConv. thermal currentNASNoteNASNoteNAMain and breaking conditions to DC13, time constant as statedNoteNASNoteNSSNoteNASMax. fuse, break contactsNASNoteNNSMax. fuse, break contactsNASNoteNNNNMax. fuse, break contactsNNNMax. fuse, break contactsNNNActNNNNActNNNNActNNNNActNNNNActNNNNActNNNNActNNNNActNNNN <td>AC-15</td> <td></td> <td></td> <td></td>	AC-15			
NoteMain and breaking conditions to DC13, time constant as statedLR max. 15 msnN24Vn1.5LR max. 50 msn1.2Conv. thermal currentnN3.2Noten1.2NNotenNNMax. fuse, make contactsNNNMax. fuse, f	220 V 230 V 240 V	۱ <sub>e</sub>	А	3
LR max. 15 msAA24 VAA5LR max. 50 msAA2CorrectAAAACorrectAAAANoteAAAAMax. fuse, make contactsAAAAMax. fuse, break contactAAAAMax. fuse, break con	DC-11			
2 VeAAI/A max.50mAAAI/A max.60mAAAI/A max.60mAAAMar.00mAAA	Note			Making and breaking conditions to DC13, time constant as stated
If max 50 msA12L/R max 50 msImportA12Conv. thermal currentImportAAANotAAAANotAAAAAMax. fuse, make contactsAAAAAMax. fuse, break contactsAAA	L/R max. 15 ms		A	
Normal currentHereAreAreAreNorman current protocols devices 2007 200 Mark 1990 Mark 19	24 V	۱ <sub>e</sub>	A	1.5
Note     Max. fuse, make contacts     A g6U     Max. supplied directly from mains or transformer > 1000 VA       Max. fuse, make contacts     A g6U     G     A g6U     G       Max. overcurrent protective device, 220/230 V     V     R2-B4/1-H1     ABC     ABC     A g6U     A g6U     ABC     ABC     A g6U     A g6U     ABC	L/R max. 50 ms		A	1.2
Note     Men supplied directly from mains or transformer > 1000 VA       Max. fuse, make contacts     A gGU     A		I <sub>th</sub>	A	6
Max. fuse, make contacts   A g6/gl   A g6/gl   G     Max. fuse, break contacts   A g6/gl   A g6/gl   G     Max. overcurrent protective device, 220/230 V   Ve   Type   K2-B4/1-HI     Magnet systems   Ve   Ve   Ve     Rated operational voltage   Ve   Ve   Ve     AC   Faced frequency AC   Face   40     Tolerance AC operated min.   Ke   Ke   83     Tolerance AC operated max.   Ke   Ke   10     Power consumption   Ke   Ke   Ke     Pick-up AC   Ve   Ve   Ve     Sealing AC   Ve   Sa   Sa     Duty factor   Ke   Ke   Sa     Max.mun operating frequency   Ke   Ke   Sa				
Max. fuse, break contacts A gG/Q A gG/Q   Max. overcurrent protective device, 220/230 V Type FA2-B/1-H   Marcer systems V FA2-B/1-H   Max. doperational voltage V V   Ac V V   Acter frequency AC I A0   Tolerance AC operated min. I V V   Foreword V V V   Power consumption I V V   Pick-up AC V V V   Sealing AC V V V   Duty factor I V Saling AC   Max. doperating frequency I V Saling AC				
Max. overcurrent protective device, 220/230 V Type FA2-B4/-HI   Magnet systems Rated roperational voltage Ve Ve   AC Ve 40   Rated frequency AC FA2 7-63   Tolerance AC operated min. Ke Ke 10   Prover consumption Ke Ke 10   Prover consumption Ke Ke 10   Prok-up AC Ke Ke 10   Sealing AC Ke Ke 10   Duty factor Ke Ke 10   Max. operating frequency Ke Ke 10				
Agenet systems     Notes       Rated operational voltage     Ve     Ve     Ac     Ac <td></td> <td></td> <td></td> <td></td>				
Rated operational voltageUeVeACImage: Construction of the constru			туре	1742-04/1-DI
AC40Reted frequency ACHz47-63Tolerance AC operated min.TuleTuleTolerance AC operated max.TuleTuleProver consumptionTuleTulePick-up ACTuleTuleSealing ACVA5Duty factorSuSuMaximum operating frequencyTuleSuMaximum operating frequencyTuleSu <tr< td=""><td>Rated operational voltage</td><td>U<sub>e</sub></td><td>V</td><td></td></tr<>	Rated operational voltage	U <sub>e</sub>	V	
Tolerance AC operated min. x Uc 0.85   Tolerance AC operated max. x Uc 1.0   Power consumption x Uc 1.0   Pick-up AC VA 0.5   Sealing AC VA 0.5   Duty factor VA 0.5   Maximum operating frequency Gast VA				400
Tolerance AC operated max. x U <sub>c</sub> 1.1   Power consumption K K   Pick-up AC VA 0.5   Sealing AC VA 0.5   Duty factor K K   Maximum operating frequency Image: Sealing AC K	Rated frequency AC		Hz	47 - 63
Power consumptionPower consumptionPower consumptionPower consumptionPower consumptionVA0.5Pick-up ACVAVA0.5Sealing ACVAVA0.5Duty factor% DF100Maximum operating frequencyOps/m400	Tolerance AC operated min.		x U <sub>c</sub>	0.85
Power consumptionPower consumptionPower consumptionPower consumptionPower consumptionVA0.5Pick-up ACVAVA0.5VA0.5Duty factorVA% DF10VAV	Tolerance AC operated max.		x U <sub>c</sub>	1.1
Pick-up ACVA0.5Sealing ACVA0.5Duty factor% DF10Maximum operating frequencyOps/h400	Power consumption			
Duty factor % DF 100   Maximum operating frequency Ops/h 4000			VA	0.5
Maximum operating frequency Ops/h 4000	Sealing AC		VA	0.5
	Duty factor		% DF	100
Minimum command time	Maximum operating frequency		0ps/h	4000
	Minimum command time			

AC		ms	50
Repetition accuracy (deviation)		%	≦ 0.5
Recovery time (after 100% time delay)		ms	70
Contact changeover time	tu	ms	50
Electromagnetic compatibility (EMC)			
Electrostatic discharge (ESD)			
annlied standard			IEC/EN 61000_4_2

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

Design vernication as per indy in 01455			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	А	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	0.5
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.

The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

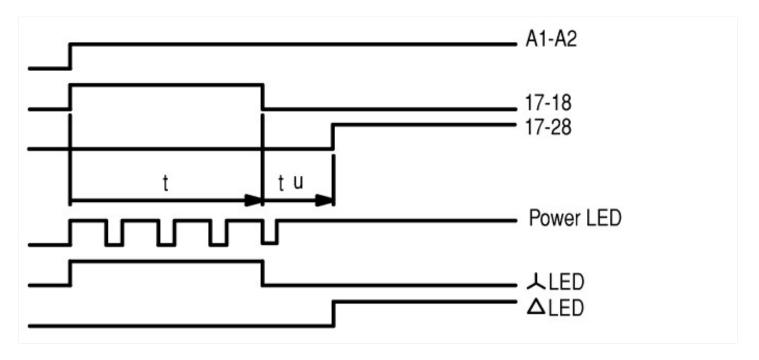
### **Technical data ETIM 7.0**

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			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 for remote control			No	
Pluggable on auxiliary contact block			No	
Rated control supply voltage Us at AC 50HZ	V		400 - 400	
Rated control supply voltage Us at AC 60HZ	V		400 - 400	
Rated control supply voltage Us at DC	V		0 - 0	
Voltage type for actuating			AC	
Nominal current	А		3	
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	
Suitable for DIN rail (top hat rail) mounting			Yes	
Suitable for front mounting			No	
Width	m	ım	23	
Height	m	ım	83	
Depth	m	ım	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

