Specifications



Eaton 031884

Eaton Moeller® series ETR4 Timing relay, star-delta, 50 ms, 1W, 3-60s, 24-240VAC/DC

General specifications	
PRODUCT NAME	Eaton Moeller® series ETR4 Timing relay
CATALOG NUMBER	031884
MODEL CODE	ETR4-51-A
EAN	4015080318842
PRODUCT LENGTH/DEPTH	103 mm
PRODUCT HEIGHT	83 mm
PRODUCT WIDTH	23 mm
PRODUCT WEIGHT	0.115 kg
CERTIFICATIONS	UL 508 UL File No.: E29184 CE CSA Class No.: 3211-03 CSA CSA File No.: 012528 IEC/EN 61812-1 CSA-22.2 No. 14 IEC/EN 60947-5-1 IEC/EN 61000-4-3 UL UL Category Control No.: NKCR IEC/EN 61000-4-2 VDE 0435 Standard IEC/EN 61812

Powering Business Worldwide

Climatic environmental conditions

AMBIENT OPERATING TEMPERATURE - MAX	60 °C
AMBIENT STORAGE TEMPERATURE - MAX	85 °C
AMBIENT OPERATING TEMPERATURE - MIN	-25 °C
AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX	45 °C
AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN	25 °C
AMBIENT STORAGE TEMPERATURE - MIN	45 °C
CLIMATIC PROOFING	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30

Design verification

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.
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 RESIST. OF INSUL. MAT. TO ABNORMAL HEAT/FIRE BY INTERNAL ELECT. 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	Does not apply, since the

AGAINST ELECTRIC SHOCK	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.
10.9.2 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.
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	0 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	1.4 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	6 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	1.8 W

Electrical rating

CONVENTIONAL THERMAL CURRENT ITH OF AUXILIARY CONTACTS (1-POLE, OPEN)	6 A
MAINS VOLTAGE TOLERANCE	24 - 240 V AC (at 50/60 Hz) 24 – 240 V DC
NOMINAL CURRENT	3 A
RATED BREAKING CAPACITY	3 A at AC-15 (cos ϕ = 0.3 220 V) 3 A at AC-14 (cos ϕ = 0.3 440 V) 1.1 x I_e (DC-11 L/R - 40 ms)
RATED MAKING CAPACITY	50 A (AC-15 cos ϕ = 0.3 220 V) 48 A (AC-14 cos ϕ = 0.3 400 V) 1.1 x I_e (DC-11 L/R - 40 ms)
RATED OPERATIONAL CURRENT (IE)	3 A at AC-15, 300 V 3 A at AC-14, 380 V 400 V 415 V 1.5 A at DC-11, 24 V 3 A at AC-15, 380 V 400 V 415 V 3 A at AC-14, 440 V 1.2 A at DC-11, L/R max. 50 ms 3 A at AC-15, 220 V 230 V 240 V 3 A at AC-14, 300 V (NC)
RATED OPERATIONAL VOLTAGE (UE) AT AC - MAX	440 V
SAFE ISOLATION	250 V AC, Between coil and auxiliary contacts, According to EN 61140 250 V AC, Between auxiliary contacts, According to EN 61140
SHORT-CIRCUIT PROTECTION RATING	Max. 6 A gG/gL, fuse, Without welding, Contacts Max. 6 A gG/gL, Fuse, Short-circuit rating without welding, Contacts

Electro magnetic compatibility

AIR DISCHARGE	8 kV
BURST IMPULSE	2 kV, Supply cable 1 kV, Signal cable According to IEC/EN 61000-4-4
CONTACT DISCHARGE	6 kV
ELECTROMAGNETIC FIELDS	3 V/m at 1.4 - 2 GHz (according to IEC EN 61000-4-3) 10 V/m at 80 - 1000 MHz (according to IEC EN 61000-4-3) 1 V/m at 2.0 - 2.7 GHz (according to IEC EN 61000-4-3)
IMMUNITY TO LINE-CONDUCTED INTERFERENCE	10 V (according to IEC/EN 61000-4-6)
RADIO INTERFERENCE CLASS	Class B (EN 55011, conducted) Class B (EN 55011, radiated)
SURGE RATING	2 kV, symmetrical, power pulses (Surge), EMC 4 kV, asymmetrical, power pulses (Surge), EMC According to IEC/EN 61000-4-5, power pulses (Surge), EMC

Features & functions

ELECTRIC CONNECTION TYPE	Screw connection
FUNCTIONS	Fixed timing function Star-delta Star-delta switching

General information

DEGREE OF PROTECTION	IP20 Terminals: IP20
LIFESPAN, MECHANICAL	30,000,000 Operations (AC operated) 30,000,000 Operations (DC operated)

MOUNTING POSITION	As required
NUMBER OF CONTACTS (CHANGE-OVER CONTACTS)	1
OVERVOLTAGE CATEGORY	III
POLLUTION DEGREE	2
PRODUCT CATEGORY	ETR4 timing relays
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	6000 V AC 4000 V AC
SHOCK RESISTANCE	4 g, Make contact, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 20 ms
SUITABLE FOR	DIN rail (top hat rail) mounting
TERMINAL CAPACITY	1 x (20 - 14) AWG, solid or stranded 2 x (0.5 - 1.5) mm², flexible with ferrule 2 x (0.5 - 1.5) mm², solid 1 x (0.5 - 2.5) mm², solid 1 x (0.5 - 2.5) mm², flexible with ferrule
TIME RANGE - MAX	60 s
TIME RANGE - MIN	3 s
TYPE	Timer relay
VOLTAGE TYPE	AC/DC

Magnet system

COMMAND TIME	30 ms, DC 50 ms, AC
CONTACT CHANGEOVER TIME	50 ms
DUTY FACTOR	100 %
OPERATING FREQUENCY	4000 Operations/h
PICK-UP VOLTAGE	0.7 - 1.1 V DC x Uc 0.85 - 1.1 V AC x Uc
POWER CONSUMPTION	1.8 W at DC (Pick-up power) 2 VA at AC (Sealing power) 2 VA at AC (Pick-up power) 1.8 W at DC (Sealing power)
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX	240 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN	24 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX	240 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN	24 V
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MAX	240 V
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN	24 V
RECOVERY TIME	70 ms (after 100 % time delay)
REPETITION ACCURACY	≤ 0.5 % (deviation)

Resources

BROCHURES	EMR6 - EMT6 - ETR4 brochure
CATALOGUES	eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf
CHARACTERISTIC CURVE	eaton-timers-diagram-etr4-timing-relay-characteristic-curve-009.eps
DECLARATIONS OF CONFORMITY	eaton-timing-relay-declaration-of-conformity-uk250986en.pdf eaton-timing-relay-declaration-of-conformity-eu251564en.pdf
DRAWINGS	eaton-timers-contactor-etr4-timing-relay-dimensions.eps eaton-electronic-timers-relay-etr4-timing-relay-dimensions.eps eaton-electronic-timers-relay-etr4-timing-relay-3d-drawing-003.eps eaton-general-m22-symbol.eps
ECAD MODEL	eaton-etr4-timing-relay-eplan-031884.edz
INSTALLATION INSTRUCTIONS	eaton-etr4-xttr6-timing-relays-il04910001z.pdf
MCAD MODEL	DA-CS-etr4_51
WIRING DIAGRAMS	eaton-timers-star-delta-etr4-timing-relay-wiring-diagram.eps

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
DATE:	

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