Eaton 119380

Eaton ESR5 Safety relay emergency stop/protective door, 230VAC, 3 enabling paths ESR5-NO-31-230VAC

PRODUCT NAME	Eaton ESR5 Safety relay
CATALOG NUMBER	119380
PRODUCT LENGTH/DEPTH	114.5 mm
PRODUCT HEIGHT	99 mm
PRODUCT WIDTH	22.5 mm
PRODUCT WEIGHT	0.181 kg
CERTIFICATIONS	UL 508 IEC/EN 60204 CE IEC 62061 UL Category Control No.: NKCR; NKCR7 IEC 61508, Parts 1-7 UL 2014/30/EU UL File No.: E29184 CSA Class No.: 3211-83; 3211-03 EN 50178 UL report applies to both US and Canada CSA-C22.2 No. 14-95 EN ISO 13849-1 Certified by UL for use in Canada Machines 2006/42/EG

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TYPE	• Emergency stop category 0; emergency switching off • Feedback circuit • Protective door
MOUNTING METHOD	Top-hat rail fixing (according to IEC/EN 60715, 35 mm) Rail mounting possible
OPERATING TEMPERATURE - MAX	55 °C
OPERATING TEMPERATURE - MIN	-20 °C
FEATURES	3 Non-delayed enable current paths Reinforced insulation Safe insulation Automatically/manually monitored start 6 kV between A1-A2 / logic / enable and signal current paths Basic insulation
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	Meets the product standard's requirements.

CHARACTERISTIC CURVE	eaton-safety-relays-esr5-safety-relay-characteristic-curve-006.eps
	eaton-safety-relays-relay-esr5-safety-relay-dimensions-002.eps eaton-safety-relays-relay-esr5-safety-relay-3d-drawing-002.eps eaton-general-esr5-safety-relay-symbol-002.eps eaton-general-esr5-safety-relay-symbol.eps

ENCLOSURES	
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 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.
10.9.2 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.
ELECTRIC CONNECTION TYPE	Screw connection
FITTED WITH:	Feedback circuit Approval according to UL Approval for TÜV

	Start input Detachable clamps
POLLUTION DEGREE	2
CLIMATIC PROOFING	Damp heat, constant, to IEC 60068-2-3 Dry heat to IEC 60068-2-2
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	4000 V AC
AIR PRESSURE	795 - 1080 hPa (operation)
ALTITUDE	Max. 2000 m
CATEGORY (EN 954-1)	4
DEGREE OF PROTECTION	Installation location: ≥ IP54 Enclosure: IP20 Terminals: IP20 IP20
ENVIRONMENTAL CONDITIONS	Clearance in air and creepage distances according to EN 50178, UL 508, CSA C22.2, No. 14-95 Condensation: Non-condensing
NUMBER OF INPUTS	One- and two-channel
FUNCTIONS	1-channel 2-channel
SAFETY PERFORMANCE LEVEL (EN ISO 13849-1)	Level e
AMBIENT OPERATING TEMPERATURE - MAX	55 °C
AMBIENT OPERATING TEMPERATURE - MIN	-20 °C
AMBIENT STORAGE TEMPERATURE - MAX	85 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	0 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
NOMINAL CURRENT	35 A
NUMBER OF OUTPUTS (SAFETY RELATED, DELAYED) WITH	0

CONTACT	
NUMBER OF OUTPUTS (SAFETY RELATED, DELAYED, SEMICONDUCTORS)	0
NUMBER OF OUTPUTS (SAFETY RELATED, UNDELAYED) WITH CONTACT	3
NUMBER OF OUTPUTS (SAFETY RELATED, UNDELAYED, SEMICONDUCTORS)	0
NUMBER OF OUTPUTS (SIGNALING FUNCTION, DELAYED) WITH CONTACT	0
NUMBER OF OUTPUTS (SIGNALING FUNCTION, DELAYED, SEMICONDUCTORS)	0
NUMBER OF OUTPUTS (SIGNALING FUNCTION, UNDELAYED) WITH CONTACT	1
NUMBER OF OUTPUTS (SIGNALING FUNCTION, UNDELAYED, SEMICONDUCTORS)	0
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX	26.4 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN	0 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX	230 V
SCREWDRIVER SIZE	2, Terminal screw, Pozidriv screwdriver 0.6 x 3.5 mm, Terminal screws
VOLTAGE TYPE	AC
CONNECTION TYPE	M3 screw terminals
MOUNTING POSITION	As required
BREAKING POWER	48 W max., inductive load (τ = 40 ms), at 24 V DC 68 W max., resistive load (τ = 0 ms), at 110 V DC 33 W max., inductive load

	(τ = 40 ms), at 220 V DC 230 W max., resistive load (τ = 0 ms), at 48 V DC 40 W max., inductive load (τ = 40 ms), at 48 V DC 88 W max., resistive load (τ = 0 ms), at 220 V DC 35 W max., inductive load (τ = 40 ms), at 110 V DC 144 W max., resistive load (τ = 0 ms), at 24 V DC 2000 VA, max., resistive load (τ = 0 ms), at 250 V AC
OVERVOLTAGE CATEGORY	III
SHORT-CIRCUIT PROTECTION RATING	10A gL/gG, NEOZED (N/O), Output fuse, External, Output data 6A gL/gG, NEOZED (N/C), Output fuse, External, Output data
DUTY FACTOR	100 %
EMITTED INTERFERENCE	According to EN 61000-6-4
CURRENT CONSUMPTION	22 mA, AC
MATERIAL	Enclosure: Polyamide (PA), not reinforced Contacts: silver tin oxide, gold plated (AgSnO2, 0.2 µ m Au)
INTERFERENCE IMMUNITY	According to EN 61000-6-2
TIGHTENING TORQUE	0.6 Nm, Screw terminals
MOUNTING WIDTH	22.5 mm
SUITABLE FOR	Module used to safely interrupt electrical circuits Monitoring of position switches Safety relay for monitoring emergency stop and protective door switch Monitoring of emergency-stop circuits
RELATIVE HUMIDITY	< 75 %
LED INDICATOR	Status indication of SmartWire-DT network: Green LED
PICK-UP TIME	40 ms typ. (at U_e in manual mode) 300 ms typ. (at U_e in automatic mode)

	40 ms typ. (K1, K2 - for UN manual operation) 300 ms typ. (K1, K2 - for UN automatic mode) 330 ms typ. (if actuated via A1)
LIFESPAN, MECHANICAL	10,000,000 Operations
INPUT	∞ ms, Simultaneity for inputs 1/2
RECOVERY TIME	1000 ms
RESISTANCE	11 Ω (impedance)
INRUSH CURRENT	0.1 - 6 A
MODEL	Basic device
SAFETY TYPE (IEC 61496-1)	None
SHORT-CIRCUIT CURRENT	0.7 A, Input data
VIBRATION RESISTANCE	10 - 150 Hz, Amplitude: 0.15 mm, Acceleration: 2 g, (IEC/EN 60068-2-6)
SAFETY PARAMETER (EN ISO 13849-1)	PL e, Performance level 230,000 switching cycles, B10d Cat. 4, Category
TERMINAL CAPACITY	1 x (0.25 – 2.5) mm^2, flexible with ferrule 2 x (0.25 – 1) mm^2, flexible with ferrule 24 - 12 AWG, solid or stranded 1 x (0.2 – 2.5) mm^2, solid 2 x (0.2 – 1) mm^2, solid
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN	20.4 V
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MAX	0 V
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN	0 V
RATED INSULATION VOLTAGE (UI)	250 V
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	0 A
RELEASE-DELAY - MAX	0 s
RELEASE-DELAY - MIN	0 s
STATIC HEAT DISSIPATION, NON-	5.43 W

CURRENT-DEPENDENT PVS	
STRIPPING LENGTH (MAIN CABLE)	7 mm
SWITCHING VOLTAGE	250 V
PRODUCT CATEGORY	Electronic safety relays
PROTECTION	Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274)
SIL (IEC 61508)	3
PERMISSIBLE TOTAL CABLE RESISTANCE	50 Ω (input and starting circuits for UN)
POWER LOSS	Normally 5.43 W
POWER SUPPLY CIRCUIT	2.9 W (DC operated) 5.8 W (AC operated 50/60 Hz)
PROOFTEST	240 Months (High Demand) 78 Months (Low Demand)
QUADRATIC SUMMATION CURRENT	72 A^2 ($ITH^2 = I1^2 + I2^2 + I3^2$)
RATED OPERATIONAL VOLTAGE	230 V AC (power supply) 230 V AC Approx. 24 V DC at input, starting and feedback circuit
RESET TIME	20 ms (two-channel) Normally 150 ms (single-channel)
SAFETY PARAMETER (IEC 62061)	SILCL 3, Safety integrity level claim limit SIL 3, Safety integrity level Cat. 4, Category SIL 3, Safety integrity level, In accordance with IEC 61508 1.89 x 10-10, PFHd, Probability of failure per hour
UNINTERRUPTED CURRENT	6 A N/O, Limiting continuous current 5 A N/C, Limiting continuous current
SHORT-CIRCUIT PROTECTION	Fuse 4 A gL/gG (Signal current paths), For output circuits, External Fuse 10 A gL/gG (Enable current paths), For output

	circuits, External Short-circuit proof, 115 V/230 V, Fuse for control circuit supply, Control circuit
STOP CATEGORY (IEC 60204)	0
SWITCHING CAPACITY	In accordance with IEC 60947-5-1, Outputs 0.1 W 5 A at 360 O/h, AC-15 at 230 V, Outputs 5 A at 360 O/h, DC-13 at 24 V, Outputs
SWITCHING FREQUENCY	Max. 0.5 Hz, Input data
POWER CONSUMPTION	5.43 W
CONTROL VOLTAGE 1 - MIN	230 V
CONTROL VOLTAGE 1 - MAX	230 V
CONTROL VOLTAGE 2 - MIN	230 V
CONTROL VOLTAGE 2 - MAX	230 V
CONTROL VOLTAGE 1 TYPE	AC
CONTROL VOLTAGE 2 TYPE	AC
VOLTAGE TYPE OF SUPPLY VOLTAGE	AC
VOLTAGE TYPE OF OPERATING VOLTAGE	AC
RATED SWITCH CURRENT	4 A
SUPPLY VOLTAGE AT AC, 50 HZ - MIN	230 V
SUPPLY VOLTAGE AT AC, 50 HZ - MAX	230 V
SUPPLY VOLTAGE AT AC, 60 HZ - MIN	230 V
SUPPLY VOLTAGE AT AC, 60 HZ - MAX	230 V
SUPPLY VOLTAGE AT DC - MIN	0 V
SUPPLY VOLTAGE AT DC - MAX	0 V
OPERATING VOLTAGE AT AC, 50 HZ - MIN	230 V
OPERATING VOLTAGE AT	230 V

AC, 50 HZ - MAX	
OPERATING VOLTAGE AT AC, 60 HZ - MIN	230 V
OPERATING VOLTAGE AT AC, 60 HZ - MAX	230 V
OPERATING VOLTAGE AT DC - MIN	0 V
OPERATING VOLTAGE AT DC - MAX	0 V

PROJECT NAME:
PROJECT NUMBER:
PREPARED BY:
:

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