



ESR5 SAFETY RELAYS
119380



Overview



Specifications



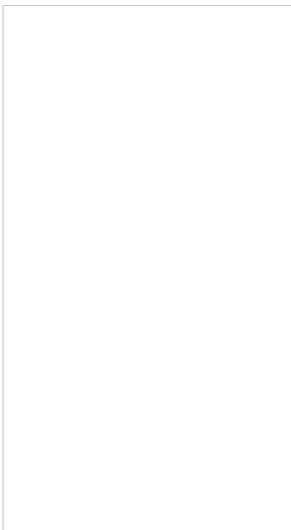
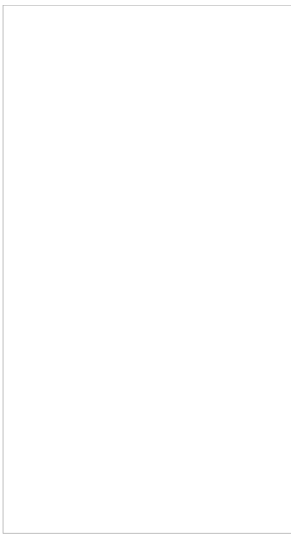
Resources

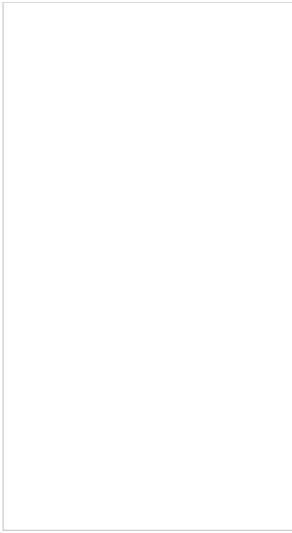
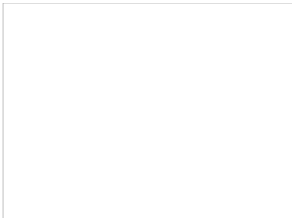
How to

119380

Eaton ESR5 Safety relay emergency stop/protective paths ESR5-NO-31-230VAC

How to buy





Designed to work together

Discover other Eaton products and accessories built to enhance this product.

118707

Eaton ESR5 Contact expansion module,
24VDC/AC, 5 enabling paths

118706

Eaton ESR5 Contact expansion module,
24VDC/AC, 4 enabling paths off-delayed

[View more](#)

[View less](#)

GENERAL SPECIFICATIONS

General specifications

>

PRODUCT NAME Eaton ESR5 Safety relay

Product specifications

>

CATALOG NUMBER 119380

MODEL CODE ESR5-NO-31-230VAC

EAN 4015081175062

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

PRODUCT SPECIFICATIONS

RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN) 0 A

OPERATING VOLTAGE AT AC, 50 HZ - MIN 230 V

10.11 SHORT-CIRCUIT RATING Is the panel builder's responsibility. The specifications must be observed.

RATED OPERATIONAL VOLTAGE 230 V AC (power supply)
230 V AC
Approx. 24 V DC at input, starting and feedback circuit

RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN 0 V

10.4 CLEARANCES AND CREEPAGE DISTANCES Meets the product standard's requirements.

MOUNTING METHOD Top-hat rail fixing (according to IEC/EN 60715, 35 mm)
Rail mounting possible

NUMBER OF OUTPUTS (SAFETY RELATED, DELAYED, SEMICONDUCTORS) 0

CONTROL VOLTAGE 1 - MIN	230 V
SAFETY TYPE (IEC 61496-1)	None
LED INDICATOR	Status indication of SmartWire-DT network: Green
PROOFTEST	240 Months (High Demand) 78 Months (Low Demand)
AIR PRESSURE	795 - 1080 hPa (operation)
OPERATING VOLTAGE AT AC, 60 HZ - MAX	230 V
10.2.3.1 VERIFICATION OF THERMAL STABILITY OF ENCLOSURES	Meets the product standard's requirements.
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
OPERATING VOLTAGE AT AC, 50 HZ - MAX	230 V
FITTED WITH:	Feedback circuit Approval according to UL Approval for TÜV Start input Detachable clamps
VIBRATION RESISTANCE	10 - 150 Hz, Amplitude: 0.15 mm, Acceleration: 2 6)
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX	26.4 V
STOP CATEGORY (IEC 60204)	0
CONTROL VOLTAGE 1 - MAX	230 V
AMBIENT OPERATING TEMPERATURE - MAX	55 °C
CONTROL VOLTAGE 1 TYPE	AC
SWITCHING FREQUENCY	Max. 0.5 Hz, Input data
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 Basic insulation
RESET TIME	20 ms (two-channel) Normally 150 ms (single-channel)
RECOVERY TIME	1000 ms
AMBIENT OPERATING TEMPERATURE - MIN	-20 °C
SUPPLY VOLTAGE AT AC, 60 HZ - MAX	230 V
10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS	Does not apply, since the entire switchgear needs to
POWER SUPPLY CIRCUIT	2.9 W (DC operated) 5.8 W (AC operated 50/60 Hz)

10.2.6 MECHANICAL IMPACT	Does not apply, since the entire switchgear needs to
10.3 DEGREE OF PROTECTION OF ASSEMBLIES	Does not apply, since the entire switchgear needs to
VOLTAGE TYPE	AC
QUADRATIC SUMMATION CURRENT	72 A ² (I ² H ² = I1 ² + I2 ² + I3 ²)
CATEGORY (EN 954-1)	4
NOMINAL CURRENT	35 A
PRODUCT CATEGORY	Electronic safety relays
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
HEAT DISSIPATION CAPACITY PDISS	0 W
CONTROL VOLTAGE 2 TYPE	AC
SHORT-CIRCUIT CURRENT	0.7 A, Input data
POWER LOSS	Normally 5.43 W
PICK-UP TIME	40 ms typ. (at U _c in manual mode) 300 ms typ. (at U _c 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)
INRUSH CURRENT	0.1 - 6 A
10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH	Is the panel builder's responsibility.
DEGREE OF PROTECTION	Installation location: ≥ IP54 Enclosure: IP20 Terminals: IP20 IP20
OVERVOLTAGE CATEGORY	III
NUMBER OF INPUTS	One- and two-channel
AMBIENT STORAGE TEMPERATURE - MAX	85 °C
POLLUTION DEGREE	2
RELEASE-DELAY - MAX	0 s
NUMBER OF OUTPUTS (SAFETY RELATED, UNDELAYED, SEMICONDUCTORS)	0
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 1.89 x 10 ⁻¹⁰ , PFHd, Probability of failure per hour
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	4000 V AC

FUNCTIONS	1-channel 2-channel
BREAKING POWER	48 W max., inductive load ($\tau = 40$ ms), at 24 V DC 68 W max., resistive load ($\tau = 0$ ms), at 110 V DC 33 W max., inductive load ($\tau = 40$ ms), at 220 V DC 230 W max., resistive load ($\tau = 0$ ms), at 48 V DC 40 W max., inductive load ($\tau = 40$ ms), at 48 V DC 88 W max., resistive load ($\tau = 0$ ms), at 220 V DC 35 W max., inductive load ($\tau = 40$ ms), at 110 V DC 144 W max., resistive load ($\tau = 0$ ms), at 24 V DC 2000 VA, max., resistive load ($\tau = 0$ ms), at 250 V
SIL (IEC 61508)	3
TIGHTENING TORQUE	0.6 Nm, Screw terminals
OPERATING VOLTAGE AT DC - MAX	0 V
TYPE	<ul style="list-style-type: none"> • Emergency stop category 0; emergency switching • Feedback circuit • Protective door
10.2.2 CORROSION RESISTANCE	Meets the product standard's requirements.
10.2.4 RESISTANCE TO ULTRA-VIOLET (UV) RADIATION	Meets the product standard's requirements.
10.2.7 INSCRIPTIONS	Meets the product standard's requirements.
NUMBER OF OUTPUTS (SIGNALLING FUNCTION, DELAYED, SEMICONDUCTORS)	0
ENVIRONMENTAL CONDITIONS	Clearance in air and creepage distances according to CSA C22.2, No. 14-95 Condensation: Non-condensing
CURRENT CONSUMPTION	22 mA, AC
MODEL	Basic device
OPERATING VOLTAGE AT DC - MIN	0 V
RELEASE-DELAY - MIN	0 s
10.12 ELECTROMAGNETIC COMPATIBILITY	Is the panel builder's responsibility. The specifications must be observed.
10.2.5 LIFTING	Does not apply, since the entire switchgear needs to be lifted.
STRIPPING LENGTH (MAIN CABLE)	7 mm
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
CONTROL VOLTAGE 2 - MAX	230 V
INPUT	∞ ms, Simultaneity for inputs 1/2
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN	0 V
NUMBER OF OUTPUTS (SIGNALLING FUNCTION,	

DELAYED) WITH CONTACT	0
10.8 CONNECTIONS FOR EXTERNAL CONDUCTORS	Is the panel builder's responsibility.
CONTROL VOLTAGE 2 - MIN	230 V
VOLTAGE TYPE OF OPERATING VOLTAGE	AC
PROTECTION	Finger and back-of-hand proof, Protection against dirt, actuated from front (EN 50274)
SWITCHING VOLTAGE	250 V
SUPPLY VOLTAGE AT DC - MIN	0 V
CLIMATIC PROOFING	Damp heat, constant, to IEC 60068-2-3 Dry heat to IEC 60068-2-2
EMITTED INTERFERENCE	According to EN 61000-6-4
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	5.43 W
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MAX	0 V
NUMBER OF OUTPUTS (SIGNALLING FUNCTION, UNDELAYED) WITH CONTACT	1
10.9.3 IMPULSE WITHSTAND VOLTAGE	Is the panel builder's responsibility.
RESISTANCE	11 Ω (impedance)
10.5 PROTECTION AGAINST ELECTRIC SHOCK	Does not apply, since the entire switchgear needs to be protected
SUPPLY VOLTAGE AT DC - MAX	0 V
MOUNTING POSITION	As required
SAFETY PARAMETER (EN ISO 13849-1)	PL e, Performance level 230,000 switching cycles, B10d Cat. 4, Category
ELECTRIC CONNECTION TYPE	Screw connection
NUMBER OF OUTPUTS (SIGNALLING FUNCTION, UNDELAYED, SEMICONDUCTORS)	0
10.13 MECHANICAL FUNCTION	The device meets the requirements, provided the instructions in the instruction leaflet (IL) is observed.
10.9.4 TESTING OF ENCLOSURES MADE OF INSULATING MATERIAL	Is the panel builder's responsibility.
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
SAFETY PERFORMANCE LEVEL (EN ISO 13849-1)	Level e
SHORT-CIRCUIT PROTECTION	Fuse 4 A gL/gG (Signal current paths), For output current Fuse 10 A gL/gG (Enable current paths), For output current Short-circuit proof, 115 V/230 V, Fuse for control circuit

NUMBER OF OUTPUTS (SAFETY RELATED, DELAYED) WITH CONTACT	0
SUPPLY VOLTAGE AT AC, 60 HZ - MIN	230 V
OPERATING TEMPERATURE - MIN	-20 °C
UNINTERRUPTED CURRENT	6 A N/O, Limiting continuous current 5 A N/C, Limiting continuous current
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	0 W
RATED SWITCH CURRENT	4 A
SUITABLE FOR	Module used to safely interrupt electrical circuits Monitoring of position switches Safety relay for monitoring emergency stop and prot Monitoring of emergency-stop circuits
POWER CONSUMPTION	5.43 W
INTERFERENCE IMMUNITY	According to EN 61000-6-2
OPERATING TEMPERATURE - MAX	55 °C
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.
CONNECTION TYPE	M3 screw terminals
LIFESPAN, MECHANICAL	10,000,000 Operations
VOLTAGE TYPE OF SUPPLY VOLTAGE	AC
RELATIVE HUMIDITY	< 75 %
SUPPLY VOLTAGE AT AC, 50 HZ - MIN	230 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN	20.4 V
10.7 INTERNAL ELECTRICAL CIRCUITS AND CONNECTIONS	Is the panel builder's responsibility.
SUPPLY VOLTAGE AT AC, 50 HZ - MAX	230 V
10.10 TEMPERATURE RISE	The panel builder is responsible for the temperature Eaton will provide heat dissipation data for the devi
MATERIAL	Enclosure: Polyamide (PA), not reinforced Contacts: silver tin oxide, gold plated (AgSnO2, 0.
NUMBER OF OUTPUTS (SAFETY RELATED, UNDELAYED) WITH CONTACT	3
PERMISSIBLE TOTAL CABLE RESISTANCE	50 Ω (input and starting circuits for UN)
OPERATING VOLTAGE AT AC, 60 HZ - MIN	230 V

SCREWDRIVER SIZE	2, Terminal screw, Pozidriv screwdriver 0.6 x 3.5 mm, Terminal screws
DUTY FACTOR	100 %
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX	230 V
SHORT-CIRCUIT PROTECTION RATING	10A gL/gG, NEOZED (N/O), Output fuse, External 6A gL/gG, NEOZED (N/C), Output fuse, External,
MOUNTING WIDTH	22.5 mm
ALTITUDE	Max. 2000 m
RATED INSULATION VOLTAGE (UI)	250 V

Brochures

Certification reports

Characteristic curve

Drawings

eCAD model

Installation instructions

Manuals and user guides

mCAD model

119380



Eaton is an intelligent power management company dedicated to improving the quality of life and protecting the environment for people everywhere. We are guided by our commitment to do business right, to operate sustainably and to help our customers manage power — today and well into the future. By

capitalizing on the global growth trends of electrification and digitalization, we're accelerating the planet's transition to renewable energy and helping to solve the world's most urgent power management challenges.