

ESR5 SAFETY RELAYS
153152



Overview



Specifications



Resources

How to buy

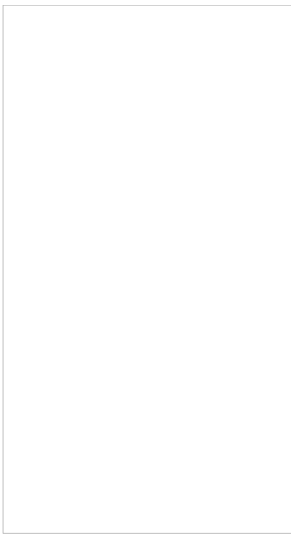


Photo is representative

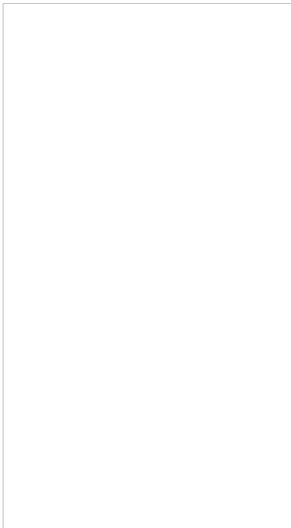


Photo is representative

153152

Eaton ESR5 Safety relay emergency stop/protective paths ESR5-NOS-31-230VAC

How to buy

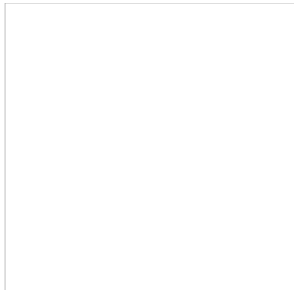


Photo is representative

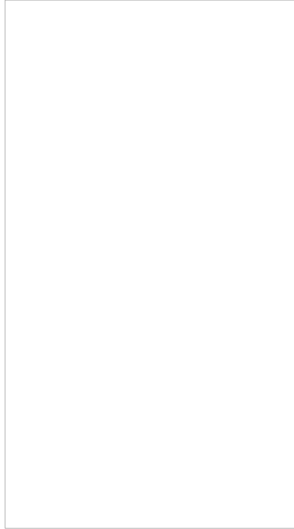


Photo is representative



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**CATALOG NUMBER** 153152

Product specifications

>

MODEL CODE ESR5-NOS-31-230VAC**EAN** 4015081497485**PRODUCT LENGTH/DEPTH** 114.5 mm**PRODUCT HEIGHT** 99 mm**PRODUCT WIDTH** 22.5 mm**PRODUCT WEIGHT** 0.177 kg

CERTIFICATIONS

UL File No.: E29184
2014/30/EU
CSA-C22.2 No. 14-95
UL 508
EN 50156-1
UL report applies to both US and Canada
UL Category Control No.: NKCR; NKCR7
CE
Certified by UL for use in Canada
CSA Class No.: 3211-83; 3211-03
EN 50178
IEC/EN 60204
UL
EN ISO 13849-1
IEC 61508, Parts 1-7
IEC 62061
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) Rail mounting possible
NUMBER OF OUTPUTS (SAFETY RELATED, DELAYED, SEMICONDUCTORS)	0
CONTROL VOLTAGE1 - MIN	230 V
SAFETY TYPE (IEC 61496-1)	None
LED INDICATOR	Status indication of SmartWire-DT network: Green
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 for TÜV Start input Approval according to UL Detachable clamps
VIBRATION RESISTANCE	10 - 150 Hz, Amplitude: 0.15 mm, Acceleration: 2 6)
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX	230 V
STOP CATEGORY (IEC 60204)	0
CONTROL VOLTAGE1 - MAX	230 V
AMBIENT OPERATING TEMPERATURE - MAX	55 °C
CONTROL VOLTAGE1 TYPE	AC
SWITCHING FREQUENCY	Max. 0.5 Hz, Input data
FEATURES	6 kV between A1-A2 / logic / enable and signal current Reinforced insulation 3 Non-delayed enable current paths Safe insulation Basic insulation Automatically/manually monitored start
RESET TIME	20 ms (on actuation via S11/S12) Normally 150 ms (on actuation via A1)
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	Does not apply, since the entire switchgear needs to

COMPONENTS	
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	$72 A^2$ ($I_{TH}^2 = I_1^2 + I_2^2 + I_3^2$)
CATEGORY (EN 954-1)	1
PRODUCT CATEGORY	Electronic safety relays
TERMINAL CAPACITY	24 - 12 AWG, solid or stranded 2 x (0.2 - 1) mm ² , solid 2 x (0.25 - 1) mm ² , flexible with ferrule 1 x (0.2 - 2.5) mm ² , solid 1 x (0.25 - 2.5) mm ² , flexible with ferrule
HEAT DISSIPATION CAPACITY PDISS	0 W
CONTROL VOLTAGE 2 TYPE	AC
POWER LOSS	Normally 5.43 W
PICK-UP TIME	50 ms typ. (K1, K2 - for UN manual operation) 300 ms typ. (at U _c in automatic mode) 330 ms typ. (if actuated via A1 or S11/S12) 300 ms typ. (K1, K2 - for UN automatic mode) 50 ms typ. (at U _c in manual mode)
INRUSH CURRENT	0.1 - 6 A
10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH	Is the panel builder's responsibility.
DEGREE OF PROTECTION	Terminals: IP20 Enclosure: IP20 IP20 Installation location: ≥ IP54
OVERVOLTAGE CATEGORY	III
NUMBER OF INPUTS	1-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)	Cat. 1, Category SILCL 1, Safety integrity level claim limit SIL 1, Safety integrity level, In accordance with IEC 2.42 x 10 ⁻¹⁰ , PFHd, Probability of failure per hour
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	4000 V AC
FUNCTIONS	1-channel
	88 W max., resistive load (τ = 0 ms), at 220 V DC

BREAKING POWER	40 W max., inductive load ($\tau = 40$ ms), at 48 V DC 2000 VA, max., resistive load ($\tau = 0$ ms), at 250 V DC 48 W max., inductive load ($\tau = 40$ ms), at 24 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 33 W max., inductive load ($\tau = 40$ ms), at 220 V DC 230 W max., resistive load ($\tau = 0$ ms), at 48 V DC 68 W max., resistive load ($\tau = 0$ ms), at 110 V DC
SIL (IEC 61508)	1
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 • 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 (SIGNALING FUNCTION, DELAYED, SEMICONDUCTORS)	0
ENVIRONMENTAL CONDITIONS	Condensation: Non-condensing Clearance in air and creepage distances according to CSA C22.2, No. 14-95
CURRENT CONSUMPTION	22 mA, DC
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	0.01 W In accordance with IEC 60947-5-1, 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 (SIGNALING 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 di actuated from front (EN 50274)
SWITCHING VOLTAGE	250 V
SUPPLY VOLTAGE AT DC - MIN	0 V
CLIMATIC PROOFING	Dry heat to IEC 60068-2-2 Cold to EN 60068-2-1 Damp heat, constant, to IEC 60068-2-3
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.
10.5 PROTECTION AGAINST ELECTRIC SHOCK	Does not apply, since the entire switchgear needs to
SUPPLY VOLTAGE AT DC - MAX	0 V
MOUNTING POSITION	As required
SAFETY PARAMETER (EN ISO 13849-1)	PL c, Performance level 300,000 switching cycles, B10d Cat. 1, 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 inf 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 c
SHORT-CIRCUIT PROTECTION	Fuse 10 A gL/gG (Enable current paths), For output Fuse 6 A gL/gG (Signal current paths), For output
NUMBER OF OUTPUTS (SAFETY RELATED, DELAYED) WITH CONTACT	0
SUPPLY VOLTAGE AT AC, 60 HZ - MIN	230 V
OPERATING TEMPERATURE - MIN	-25 °C
UNINTERRUPTED CURRENT	5 A N/C, Limiting continuous current 6 A N/O, Limiting continuous current

EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	0 W
RATED SWITCH CURRENT	6 A
SUITABLE FOR	Monitoring of emergency-stop circuits Module used to safely interrupt electrical circuits Safety relay for monitoring emergency stop and prot Monitoring of position switches
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	Contacts: silver tin oxide, gold plated (AgSnO ₂ , 0. Enclosure: Polyamide (PA), not reinforced
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

153152



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.

