Eaton 191796

Eaton ESR5 Safety relay emergency stop/protective door/light curtain monitoring with wide range input, 24 V-230 VDC/AC

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PRODUCT NAME	Eaton ESR5 Safety relay
CATALOG NUMBER	191796
PRODUCT LENGTH/DEPTH	114.5 mm
PRODUCT HEIGHT	113 mm
PRODUCT WIDTH	22.5 mm
PRODUCT WEIGHT	0.17 kg
CERTIFICATIONS	Certified by UL for use in Canada CSA-C22.2 No. 14-95 IEC/EN 60947-5-1 UL 508 2014/30/EU CE IEC 62061 UL report applies to both US and Canada EN 50156-1 EN ISO 13849-1 UL UL File No.: E29184 IEC 61508, Parts 1-7 Machines 2006/42/EG

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TYPE	• Emergency stop category 0; emergency switching off • Feedback circuit • Light curtain • 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	-40 °C
FEATURES	Start button monitoring 4 kV basic insulation between all current paths and enclosure 4 kV basic insulation between 23/24 and 33/34 enable signal current paths and 41/42 signaling current path Manual start 3 Non-delayed enable current paths Safe insulation Automatic start 6 kV reinforced insulation between all other current paths
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.

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CHARACTERISTIC CURVE	eaton-safety-relays-esr5-safety-relay-characteristic-curve-004.eps eaton-safety-relays-esr5-safety-relay-characteristic-curve-003.eps eaton-safety-relays-esr5-safety-relay-characteristic-curve-002.eps eaton-safety-relays-esr5-safety-relay-characteristic-curve-010.eps
DECLARATIONS OF CONFORMITY	eaton-safety-relay-declaration-of-conformity-uk251136en.pdf
□□□	eaton-safety-relays-esr5-safety-relay-wiring-diagram-016.eps
□□	eaton-safety-relays-relay-esr5-safety-relay-dimensions-003.eps

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 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:	Detachable clamps

	Approval according to UL Start input Feedback circuit
POLLUTION DEGREE	2
AIR PRESSURE	795 - 1080 hPa (operation)
ALTITUDE	Max. 2000 m
CATEGORY (EN 954-1)	None
DEGREE OF PROTECTION	Terminals: IP20 Installation location: ≥ IP54 IP20 Enclosure: IP20
ENVIRONMENTAL CONDITIONS	Condensation: Non-condensing
NUMBER OF INPUTS	One- and two-channel
FUNCTIONS	2-channel 1-channel
SAFETY PERFORMANCE LEVEL (EN ISO 13849-1)	Level e
AMBIENT OPERATING TEMPERATURE - MAX	55 °C
AMBIENT OPERATING TEMPERATURE - MIN	-40 °C
AMBIENT STORAGE TEMPERATURE - MAX	85 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	2.7 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
LIFETIME	240 month
NUMBER OF OUTPUTS (SAFETY RELATED, DELAYED) WITH CONTACT	0
NUMBER OF OUTPUTS (SAFETY RELATED, DELAYED, SEMICONDUCTORS)	0
NUMBER OF OUTPUTS (SAFETY RELATED, UNDELAYED) WITH CONTACT	0
NUMBER OF OUTPUTS (SAFETY RELATED, UNDELAYED,	0

SEMICONDUCTORS)	
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	0
NUMBER OF OUTPUTS (SIGNALING FUNCTION, UNDELAYED, SEMICONDUCTORS)	0
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX	230 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MIN	24 V
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX	230 V
VOLTAGE TYPE	AC/DC
CONNECTION TYPE	M3 screw terminals
MOUNTING POSITION	As required
BREAKING POWER	40 W max., inductive load (τ = 40 ms), at 48 V DC 35 W max., inductive load (τ = 40 ms), at 110 V DC 1500 VA, max., resistive load (τ = 0 ms), at 250 V AC 48 W max., inductive load (τ = 40 ms), at 24 V DC 33 W max., inductive load (τ = 40 ms), at 220 V DC
OVERVOLTAGE CATEGORY	III
MOUNTING WIDTH	22.5 mm
SUITABLE FOR	Monitoring of magnetic switches Monitoring of emergency-stop circuits If the sensor circuit is interrupted, the safety relay switches to safe mode Module used to safely interrupt electrical circuits Monitoring of

	optoelectronic protection equipment Safety relay for monitoring one or two-channel signal generators and control of actuators
RELATIVE HUMIDITY	< 75 %
LED INDICATOR	Status indication of SmartWire-DT network: Green LED
PICK-UP TIME	< 100 ms typ. (at U_e in manual mode) < 150 ms typ. (at U_e in automatic mode)
INPUT	∞ ms, Simultaneity for inputs 1/2
MODEL	Basic device
SAFETY TYPE (IEC 61496-1)	None
SAFETY PARAMETER (EN ISO 13849-1)	Cat. 4, Category PL e, Performance level
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MIN	24 V
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MAX	230 V
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MIN	24 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-CURRENT-DEPENDENT PVS	2.9 W
PRODUCT CATEGORY	Electronic safety relays
SIL (IEC 61508)	3
PROOFTEST	56 Months (Low Demand) 240 Months (High Demand)
QUADRATIC SUMMATION CURRENT	72 A^2 ($ITH^2 = I1^2 + I2^2 + In^2$)
RATED OPERATIONAL VOLTAGE	230 V AC
RESET TIME	Normally < 20 ms (when

	driven via the sensor circuits)
SAFETY PARAMETER (IEC 62061)	Cat. 4, Category SIL 3, Safety integrity level, In accordance with IEC 61508 10 x 10-10, PFHd, Probability of failure per hour SILCL 3, Safety integrity level claim limit SIL 3, Safety integrity level
UNINTERRUPTED CURRENT	6 A N/O, Limiting continuous current
SHORT-CIRCUIT PROTECTION	6 A gL/gG, For output circuits, External
STOP CATEGORY (IEC 60204)	0
SWITCHING CAPACITY	0.05 W 5 A, DC-13 at 24 V, Outputs
SWITCHING FREQUENCY	Max. 1 Hz, Input data
POWER CONSUMPTION	2.9 W
CONTROL VOLTAGE 1 - MIN	24 V
CONTROL VOLTAGE 1 - MAX	230 V
CONTROL VOLTAGE 2 - MIN	24 V
CONTROL VOLTAGE 2 - MAX	230 V
CONTROL VOLTAGE 1 TYPE	AC/DC
CONTROL VOLTAGE 2 TYPE	AC/DC
VOLTAGE TYPE OF SUPPLY VOLTAGE	AC/DC
VOLTAGE TYPE OF OPERATING VOLTAGE	AC/DC
RATED SWITCH CURRENT	5 A
SUPPLY VOLTAGE AT AC, 50 HZ - MIN	24 V
SUPPLY VOLTAGE AT AC, 50 HZ - MAX	230 V
SUPPLY VOLTAGE AT AC, 60 HZ - MIN	24 V
SUPPLY VOLTAGE AT AC, 60 HZ - MAX	230 V
SUPPLY VOLTAGE AT DC - MIN	24 V
SUPPLY VOLTAGE AT DC - MAX	230 V

OPERATING VOLTAGE AT AC, 50 HZ - MIN	24 V
OPERATING VOLTAGE AT AC, 50 HZ - MAX	230 V
OPERATING VOLTAGE AT AC, 60 HZ - MIN	24 V
OPERATING VOLTAGE AT AC, 60 HZ - MAX	230 V
OPERATING VOLTAGE AT DC - MIN	24 V
OPERATING VOLTAGE AT DC - MAX	230 V

PROJECT NAME:
PROJECT NUMBER:
PREPARED BY:
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