



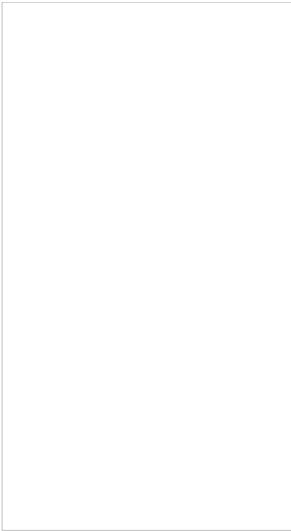
ESR5 SAFETY RELAYS
118705


Overview


Specifications


Resources

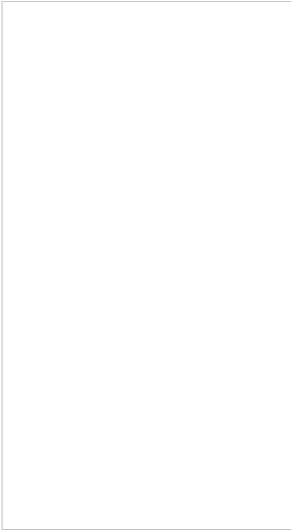
How to

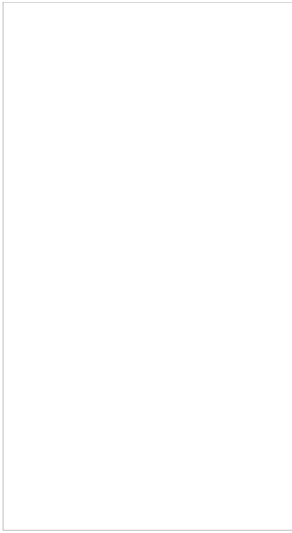
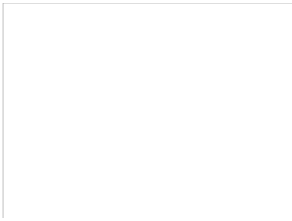


118705

Eaton ESR5 Safety relay emergency stop/protective
DC, 4 enabling paths(2del.)

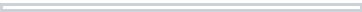
How to buy





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118707

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



118706

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

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General specifications

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GENERAL SPECIFICATIONS

Product specifications

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PRODUCT NAME	Eaton ESR5 Safety relay
CATALOG NUMBER	118705
MODEL CODE	ESR5-NV3-30
EAN	4015081168453
PRODUCT LENGTH/DEPTH	114.5 mm
PRODUCT HEIGHT	99 mm
PRODUCT WIDTH	22.5 mm
PRODUCT WEIGHT	0.171 kg
CERTIFICATIONS	EN ISO 13849-1 CE CSA Class No.: 3211-83; 3211-03 IEC 61508, Parts 1-7 UL File No.: E29184 UL 508 UL report applies to both US and Canada IEC/EN 60204 EN 50178 Certified by UL for use in Canada IEC 62061 2014/30/EU CSA-C22.2 No. 14-95 UL Category Control No.: NKCR; NKCR7 UL Machines 2006/42/EG

PRODUCT SPECIFICATIONS

RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	0 A
OPERATING VOLTAGE AT AC, 50 HZ - MIN	0 V
10.11 SHORT-CIRCUIT RATING	Is the panel builder's responsibility. The specification must be observed.
RATED OPERATIONAL VOLTAGE	24 V DC (power supply) Approx. 24 V DC at input, starting and feedback circuit 230 V AC
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	24 V
SAFETY TYPE (IEC 61496-1)	None
LED INDICATOR	Status indication of SmartWire-DT network: Green
PROOF TEST	240 Months (High Demand)
AIR PRESSURE	795 - 1080 hPa (operation)
OPERATING VOLTAGE AT AC, 60 HZ - MAX	0 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	0 V
FITTED WITH:	Approval for TÜV Start input Selectable cross-circuit detection Detachable clamps Feedback circuit Approval according to UL
VIBRATION RESISTANCE	10 - 150 Hz, Amplitude: 0.15 mm, Acceleration: 26g
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 50 HZ - MAX	26.4 V
STOP CATEGORY (IEC 60204)	0 1
CONTROL VOLTAGE 1 - MAX	24 V
AMBIENT OPERATING TEMPERATURE - MAX	45 °C
CONTROL VOLTAGE 1 TYPE	DC
SWITCHING FREQUENCY	Max. 0.5 Hz, Input data
FEATURES	Automatic start Manual start Basic insulation 2 Non-delayed enable current paths
RESET TIME	Normally 100 ms (delayed contacts) 20 ms (non-delayed contacts)
RECOVERY TIME	330 ms (restart)
AMBIENT OPERATING TEMPERATURE - MIN	-20 °C
SUPPLY VOLTAGE AT AC, 60 HZ - MAX	0 V
10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS	Does not apply, since the entire switchgear needs to be replaced
POWER SUPPLY CIRCUIT	1.8 W (DC operated)
10.2.6 MECHANICAL IMPACT	Does not apply, since the entire switchgear needs to be replaced

10.3 DEGREE OF PROTECTION OF ASSEMBLIES	Does not apply, since the entire switchgear needs to be protected
VOLTAGE TYPE	DC
QUADRATIC SUMMATION CURRENT	55 A ² (I ² H ² = I1 ² + I2 ² + I3 ² + I4 ² + I5 ²)
CATEGORY (EN 954-1)	4
NOMINAL CURRENT	3.5 A
PRODUCT CATEGORY	Electronic safety relays
TERMINAL CAPACITY	2 x (0.2 – 1) mm ² , solid 24 - 12 AWG, solid or stranded 1 x (0.2 – 2.5) mm ² , solid 2 x (0.25 – 1) mm ² , flexible with ferrule 1 x (0.25 – 2.5) mm ² , flexible with ferrule
HEAT DISSIPATION CAPACITY PDISS	0 W
CONTROL VOLTAGE 2 TYPE	DC
SHORT-CIRCUIT CURRENT	0.1 A, Input data
POWER LOSS	Normally 7.8 W
PICK-UP TIME	150 ms typ. (at U _c in automatic mode) 150 ms typ. (controlled start, K1, K2 - for UN manual mode) 150 ms typ. (controlled start, K1, K2 - for UN automatic mode) 150 ms typ. (at U _c in manual mode)
INRUSH CURRENT	0.025 - 6 A
10.9.2 POWER-FREQUENCY ELECTRIC STRENGTH	Is the panel builder's responsibility.
DEGREE OF PROTECTION	Terminals: IP20 IP20 Installation location: ≥ IP54 Enclosure: IP20
OVERVOLTAGE CATEGORY	III
NUMBER OF INPUTS	One- and two-channel
AMBIENT STORAGE TEMPERATURE - MAX	70 °C
POLLUTION DEGREE	2
RELEASE-DELAY - MAX	30 s
NUMBER OF OUTPUTS (SAFETY RELATED, UNDELAYED, SEMICONDUCTORS)	0
SAFETY PARAMETER (IEC 62061)	SIL 3 only for high demand requirements, Safety integrity level Cat. 4, Category 18 x 10 ⁻¹⁰ , PFHd, Probability of failure per hour SIL 3, Safety integrity level SILCL 3, Safety integrity level claim limit SIL 3, Safety integrity level, In accordance with IEC 62061
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	4000 V AC
FUNCTIONS	1-channel

FUNCTIONS	2-channel Time function
BREAKING POWER	144 W max., resistive load ($\tau = 0$ ms), at 24 V DC 42 W max., inductive load ($\tau = 40$ ms), at 24 V DC 88 W max., resistive load ($\tau = 0$ ms), at 220 V DC 1500 VA, max., resistive load ($\tau = 0$ ms), at 250 V AC 23 W max., inductive load ($\tau = 40$ ms), at 220 V DC 288 W max., resistive load ($\tau = 0$ ms), at 48 V DC 33 W max., inductive load ($\tau = 40$ ms), at 48 V DC 25 W max., inductive load ($\tau = 40$ ms), at 110 V DC 90 W max., resistive load ($\tau = 0$ ms), at 110 V DC
SIL (IEC 61508)	3
TIGHTENING TORQUE	0.6 Nm, Screw terminals
OPERATING VOLTAGE AT DC - MAX	24 V
TYPE	<ul style="list-style-type: none"> • Emergency stop category 1; emergency switching • Feedback circuit • Light curtain • 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	Clearance in air and creepage distances according to 508, CSA C22.2, No. 14-95 Condensation: Non-condensing
CURRENT CONSUMPTION	75 mA, DC
MODEL	Basic device
OPERATING VOLTAGE AT DC - MIN	24 V
RELEASE-DELAY - MIN	0.1 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	3 A at 3600 O/h, DC-13 at 24 V, Outputs 5 A at 3600 O/h, AC-15 at 230 V, Outputs 0.4 W In accordance with IEC 60947-5-1, Outputs
CONTROL VOLTAGE 2 - MAX	24 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	24 V
VOLTAGE TYPE OF OPERATING VOLTAGE	DC
PROTECTION	Finger and back-of-hand proof, Protection against direct actuated from front (EN 50274)
SWITCHING VOLTAGE	250 V
SUPPLY VOLTAGE AT DC - MIN	24 V
CLIMATIC PROOFING	Dry heat to IEC 60068-2-2 Damp heat, constant, to IEC 60068-2-3 Cold to EN 60068-2-1
EMITTED INTERFERENCE	According to EN 61000-6-4
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	7.8 W
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MAX	24 V
NUMBER OF OUTPUTS (SIGNALLING FUNCTION, UNDELAYED) WITH CONTACT	0
10.9.3 IMPULSE WITHSTAND VOLTAGE	Is the panel builder's responsibility.
RESISTANCE	500 Ω (impedance)
10.5 PROTECTION AGAINST ELECTRIC SHOCK	Does not apply, since the entire switchgear needs to be protected
SUPPLY VOLTAGE AT DC - MAX	24 V
MOUNTING POSITION	As required
SAFETY PARAMETER (EN ISO 13849-1)	400,000 switching cycles, B10d Cat. 4, Category PL e, Performance level
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 10 A gL/gG NEOZED, For output circuits, External
NUMBER OF OUTPUTS (SAFETY RELATED, DELAYED)	0

WITH CONTACT	✓
SUPPLY VOLTAGE AT AC, 60 HZ - MIN	0 V
OPERATING TEMPERATURE - MIN	-20 °C
UNINTERRUPTED CURRENT	6 A N/O, Limiting continuous current 6 A N/C, Limiting continuous current
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	0 W
RATED SWITCH CURRENT	5 A
SUITABLE FOR	Monitoring of position switches Module used to safely interrupt electrical circuits Safety relay for monitoring emergency stop and prot Monitoring of optoelectronic protection equipment Monitoring of emergency-stop circuits Safety position switch with mechanical securing acti
POWER CONSUMPTION	7.8 W
INTERFERENCE IMMUNITY	According to EN-61000-6-2 According to EN 662061_x
OPERATING TEMPERATURE - MAX	45 °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	0 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.
OFF-DELAY	0.1 - 30 s (± 40 %, K3, K4 adjustable)
SUPPLY VOLTAGE AT AC, 50 HZ - MAX	0 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 (AgSnO2, 0. Enclosure: Polyamide (PA), not reinforced
NUMBER OF OUTPUTS (SAFETY RELATED, UNDELAYED) WITH CONTACT	2
PERMISSIBLE TOTAL CABLE RESISTANCE	500 Ω (input and starting circuits for UN)

OPERATING VOLTAGE AT AC, 60 HZ - MIN	0 V
SCREWDRIVER SIZE	0.6 x 3.5 mm, Terminal screws 2, Terminal screw, Pozidriv screwdriver
DUTY FACTOR	100 %
LIFETIME	240 month
RATED CONTROL SUPPLY VOLTAGE (US) AT AC, 60 HZ - MAX	26.4 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

Wiring diagrams



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