118707

Eaton ESR5 Contact expansion module, 24VDC/AC

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191796

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

118705

Eaton ESR5 Safety relay emergency stop/protective door/light curtain, 24 V DC, 4 enabling paths(2del.)

171858

Eaton ESR5 Safety relays for emergency stop/protective door/light curtain monitoring, 24VDC, off-delayed, 0-300 sec.

153152

Eaton ESR5 Safety relay emerger stop/protective door, 230VAC, 3 paths ESR5-NOS-31-230VAC

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GENERAL SPECIFICATIONS

PRODUCT NAME	Eaton ESR5 Contact expansion module
CATALOG NUMBER	118707
MODEL CODE	ESR5-NE-51-24VAC-DC
EAN	4015081168477
PRODUCT LENGTH/DEPTH	114.5 mm
PRODUCT HEIGHT	99 mm
PRODUCT WIDTH	22.5 mm
PRODUCT WEIGHT	0.21 kg
CERTIFICATIONS	UL report applies to both US and Canada UL Category Control No.: NKCR; NKCR7 Certified by UL for use in Canada IEC 61508, Parts 1-7 EN ISO 13849-1 CE UL 508 2014/30/EU UL File No.: E29184 IEC/EN 60204 CSA-C22.2 No. 14-95 UL IEC 62061 EN 50178 CSA Class No.: 3211-83; 3211-03 Machines 2006/42/EG
CATALOG NOTES	The base unit determines the maximum stop catego 61508 and IEC 60204

PRODUCT SPECIFICATIONS

RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	0 A
OPERATING VOLTAGE AT AC, 50 HZ - MIN	24 V
10.11 SHORT-CIRCUIT RATING	Is the panel builder's responsibility. The specificatio must be observed.
RATED OPERATIONAL VOLTAGE	24 V AC/DC (power supply) 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	Rail mounting possible Top-hat rail fixing (according to IEC/EN 60715, 35
NUMBER OF OUTPUTS (SAFETY RELATED, DELAYED	

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
PROOFTEST	240 Months (High Demand) 84 Months (Low Demand)
AIR PRESSURE	795 - 1080 hPa (operation)
OPERATING VOLTAGE AT AC, 60 HZ - MAX	24 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	24 V
FITTED WITH:	Feedback circuit Approval according to UL Approval for TÜV 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	24 V
AMBIENT OPERATING TEMPERATURE - MAX	55 °C
CONTROL VOLTAGE 1 TYPE	AC/DC
SWITCHING FREQUENCY	Max. 0.5 Hz, Input data
FEATURES	Safe insulation 6 kV between A1/A2, 11/12, 23/24, 71/72 and 33/3 63/64 5 Non-delayed enable current paths Basic insulation Basic isolation Reinforced insulation
RESET TIME	Normally 20 ms
AMBIENT OPERATING TEMPERATURE - MIN	-20 °C
SUPPLY VOLTAGE AT AC, 60 HZ - MAX	24 V
10.6 INCORPORATION OF SWITCHING DEVICES AND COMPONENTS	Does not apply, since the entire switchgear needs to
POWER SUPPLY CIRCUIT	2.2 W (DC operated) 2.2 W (AC operated 50/60 Hz)
10.2.6 MECHANICAL IMPACT	Does not apply, since the entire switchgear needs to

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10.3 DEGREE OF PROTECTION OF ASSEMBLIES	Does not apply, since the entire switchgear needs to
VOLTAGE TYPE	AC/DC
QUADRATIC SUMMATION CURRENT	72 A² ($ITH^2 = I1^2 + I2^2 + I3^2 + I4^2 + I5^2$)
CATEGORY (EN 954-1)	4
NOMINAL CURRENT	92 A
PRODUCT CATEGORY	Electronic safety relays
TERMINAL CAPACITY	2 x (0.2 – 1) mm², solid 24 - 12 AWG, solid or stranded 1 x (0.25 – 2.5) mm², flexible with ferrule 2 x (0.25 – 1) mm², flexible with ferrule 1 x (0.2 – 2.5) mm², solid
HEAT DISSIPATION CAPACITY PDISS	0 W
CONTROL VOLTAGE 2 TYPE	AC/DC
POWER LOSS	Normally 5.8 W
PICK-UP TIME	20 ms typ. (at U_c in manual mode) 20 ms typ. (K1, K2 - for UN manual operation) 20 ms typ. (at U_c in automatic mode) 20 ms typ. (K1, K2 - for UN automatic 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 Installation location: ≥ IP54 IP20 Enclosure: IP20
OVERVOLTAGE CATEGORY	III
NUMBER OF INPUTS	1-channel
AMBIENT STORAGE TEMPERATURE - MAX	70 °C
POLLUTION DEGREE	2
FEEDBACK CURRENT PATH	Feedback current path
RELEASE-DELAY - MAX	0 s
NUMBER OF OUTPUTS (SAFETY RELATED, UNDELAYED, SEMICONDUCTORS)	0
SAFETY PARAMETER (IEC 62061)	1.02 x 10-10, PFHd, Probability of failure per hour Cat. 4, Category SIL 3, Safety integrity level, In accordance with IEC SIL 3, Safety integrity level SILCL 3, Safety integrity level claim limit
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	4000 V AC
FUNCTIONS	1-channel

BREAKING POWER	288 W max., Output data, resistive load (τ = 0 ms) N/C contact 11/12 71/72) 42 W max., Output data, inductive load (τ = 40 ms 42 W max., Output data, inductive load (τ = 40 ms 88 W max., Output data, resistive load (τ = 0 ms), 42 W max., Output data, inductive load (τ = 40 ms 42 W max., Output data, inductive load (τ = 40 ms 144 W max., Output data, resistive load (τ = 0 ms) N/C contact 11/12 71/72) 1500 VA max., Output data, resistive load (τ = 0 m N/C contact 11/12 71/72) 110 W max., Output data, resistive load (τ = 0 ms)
SIL (IEC 61508)	3
TIGHTENING TORQUE	0.6 Nm, Screw terminals
OPERATING VOLTAGE AT DC - MAX	24 V
TYPE	Contact expansions
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 CSA C22.2, No. 14-95 Condensation: Non-condensing
CURRENT CONSUMPTION	92 mA, AC 92 mA, DC
MODEL	Expansion device
OPERATING VOLTAGE AT DC - MIN	24 V
RELEASE-DELAY - MIN	0 s
10.12 ELECTROMAGNETIC COMPATIBILITY	Is the panel builder's responsibility. The specificatio must be observed.
10.2.5 LIFTING	Does not apply, since the entire switchgear needs to
STRIPPING LENGTH (MAIN CABLE)	7 mm
SWITCHING CAPACITY	0.4 W In accordance with IEC 60947-5-1, Outputs 4 A at 360 O/h, AC-15 at 230 V, Outputs 3 A at 3600 O/h, AC-15 at 230 V, Outputs 4 A at 360 O/h, DC-13 at 24 V, Outputs 2.5 A at 3600 O/h, DC-13 at 24 V, 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 (SIGNALING 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	AC/DC
PROTECTION	Finger and back-of-hand proof, Protection against di 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
EMITTED INTERFERENCE	According to EN 61000-6-4
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	5.8 W
RATED CONTROL SUPPLY VOLTAGE (US) AT DC - MAX	24 V
NUMBER OF OUTPUTS (SIGNALING 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	24 V
MOUNTING POSITION	As required
SAFETY PARAMETER (EN ISO 13849-1)	Cat. 4, Category PL e, Performance level 230,000 switching cycles, B10d
ELECTRIC CONNECTION TYPE	Screw connection
NUMBER OF OUTPUTS (SIGNALING 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 e
SHORT-CIRCUIT PROTECTION	Fuse 6 A gL/gG, For output circuits, External
NUMBER OF OUTPUTS (SAFETY RELATED, DELAYED) WITH CONTACT	0
SUPPLY VOLTAGE AT AC, 60 HZ - MIN	24 V

SUPPLY VOLTAGE AT AC, 60 HZ - MIN	24 V
OPERATING TEMPERATURE - MIN	-20 °C
UNINTERRUPTED CURRENT	6 A N/O, Limiting continuous current 3 A N/C, Limiting continuous current
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	0 W
RATED SWITCH CURRENT	4 A
SUITABLE FOR	Monitoring of position switches Safety relay contact expansion block per DIN EN602 1 for contact multiplication Monitoring of emergency-stop circuits The expansion unit can be used for contact multipli stop relays and two-hand controls
POWER CONSUMPTION	2.2 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/DC
RELATIVE HUMIDITY	< 75 %
SUPPLY VOLTAGE AT AC, 50 HZ - MIN	24 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	24 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	5
OPERATING VOLTAGE AT AC, 60 HZ - MIN	24 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	24 V
SHORT-CIRCUIT PROTECTION RATING	6 A, Output fuse, Output data
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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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.