

ESR Electronic Safety Relays

Technical Data

				ESR3-NO-31	ESR4-NO-31	ESR4-NO-21
General						
Standards				UL, CSA, IEC/EN 60 947, VDE 0660, IEC/EN 60 255, CE		
Mechanical lifespan	operations	$\times 6$	10	10	10	
Max. operating frequency		Ops./h	3600	3600	3600	
Climatic proofing				Damp heat DIN 50 016: 24 hour cycle, 23 °C, 83% relative humidity, 40 °C, 92% relative humidity		
Ambient temperature	min./max.	°C	-25/+55	-25/+55	-25/+55	
Storage temperature	min./max.	°C	-25/+70	-25/+70	-25/+70	
Mounting position				as required	as required	as required
Vibration resistance				5, to IEC/EN 60 068-2-6, frequency: 10 – 55 Hz, amplitude: 0,35 mm		
Degree of protection						
Enclosure				IP 40	IP 40	IP 40
Terminals				IP 20	IP 20	IP 20
Protection against direct contact from the front when actuated by perpendicular test finger (IEC 536)				finger and back-of-hand proof		
Dimensions				page 02/061	page 02/061	page 02/061
Weight				kg	0.36	0.2
Terminal capacity						
flexible with ferrule				mm ²	1 × (0.5 – 1.5) 2 × (0.5 – 1.5)	1 × (0.25 – 2.5) 2 × (0.25 – 0.5)
solid				mm ²	1 × (0.75 – 2.5) 2 × (0.75 – 2.5)	1 × (0.14 – 2.5) 2 × (0.14 – 0.75)
solid or stranded				AWG	-	18 - 16
Terminal screws						
Poizidriv screwdriver				size	2	-
Standard screwdriver				mm	-	0,6 × 3,5
Tightening torque				Nm	1	0,6
Main circuits						
Rated impulse withstand voltage U_{imp}				V AC	4000	4000
Overvoltage category / pollution degree						
outside				III/3	III/3	III/ 3
inside				III/2	III/2	III/2
Rated insulation voltage U_i				V AC	300	300
Rated operational voltage U_e				V AC/DC	230	230
Rated operational current I_e						
AC-15				230 V	A	6
DC-13				24 V (360 Ops/h)	A	6
				24 V (3600 Ops/h)	A	3
Max. summation current of all poles				A	18	12
Short-circuit protection						
Fuse				gG/gL A	6	6

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ESR4-NV3(30)-30 ESR4-NT30-30	ESR4-NM-21	ESR4-NZ-21	ESR4-NE-42	ESR4-VE3-42
UL, CSA, IEC/EN 60 947, VDE 0660, IEC/EN 60 255, CE				
10	10	10	10	10
3600	3600	3600	3600	3600
Damp heat 24 DIN 50 016: 24 hour cycle, 23 °C, 83% relative humidity, 40 °C, 92% relative humidity				
-25/+55	-25/+55	-25/+55	-25/+55	-25/+55
-25/+70	-25/+70	-25/+70	-25/+70	-25/+70
as required	as required	as required	as required	as required
5, to IEC/EN 60 068-2-6, frequency: 10 – 55 Hz, amplitude: 0,35 mm				
IP 40	IP 40	IP 40	IP 40	IP 40
IP 20	IP 20	IP 20	IP 20	IP 20
finger and back-of-hand proof				
page 02/061	page 02/061	page 02/061	page 02/061	page 02/061
0.2	0.2	0.2	0.2	0.2
1 × (0.25 – 2.5) 2 × (0.25 – 0.5)	1 × (0.25 – 2.5) 2 × (0.25 – 0.5)	1 × (0.25 – 2.5) 2 × (0.25 – 0.5)	1 × (0.25 – 2.5) 2 × (0.25 – 0.5)	1 × (0.25 – 2.5) 2 × (0.25 – 0.5)
1 × (0.14 – 2.5) 2 × (0.14 – 0.75)	1 × (0.14 – 2.5) 2 × (0.14 – 0.75)	1 × (0.14 – 2.5) 2 × (0.14 – 0.75)	1 × (0.14 – 2.5) 2 × (0.14 – 0.75)	1 × (0.14 – 2.5) 2 × (0.14 – 0.75)
18 - 16	18 - 16	18 - 16	18 - 16	18 - 16
–	–	–	–	–
0.6 × 3.5	0.6 × 3.5	0.6 × 3.5	0.6 × 3.5	0.6 × 3.5
0.6	0.6	0.6	0.6	0.6
4000	4000	4000	4000	4000
III/3	III/3	III/3	III/3	III/3
III/2	III/2	III/2	III/2	III/2
300	300	300	300	300
230	230	230	230	230
6	6	6	6	6
6	6	6	6	6
3	3	3	3	3
12	12	12	12	12
6	6	6	6	6

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Magnet system					
Actuating voltage U_c		V AC	230	24	24
		V DC	–	24	24
Voltage tolerance	pick-up	$\times U_c$	0.85 – 1.1	0.85 – 1.1	0.85 – 1.1
Power consumption					
	AC operated 50/60 Hz	VA/W	3.2/2.5	2.4/1.4	3.5/2.1
	DC operated	W	–	1.3	1.5
Control circuit					
Rated output voltage		V DC	≤ 24	≤ 24	≤ 24
No-load voltage		V DC	≤ 40	–	–
Rated current		mA	40	40	50
Max. ohmic resistance of conductor		Ω	70	70	70
Short-circuit current		A	1	1.4	2.2
Protection			short-circuit protected transformer	PTC resistor	PTC resistor
Response time		ms	–	2000	2000
Recovery time		ms	–	3000	3000
Inputs					
Rated current		mA	Y13, Y14: 40 Y12, Y31: 15	Y2: 40	S12: 30 S31, S22: 20
Response time t_{A1} (with reset monitoring)		ms	80	–	80
Response time t_{A1} (without reset monitoring)		ms	500	50	60
Reset time t_R/t_{R1}		ms	50/100	40	40/100
Min. contact closing time t_M		ms	50	50	50
Recovery time t_W		ms	500	< 50	500
Synchronous monitoring time t_S		ms	–	–	–
EMC					
Emitted interference			to EN 50 081-1 and EN 50 081-2		
Noise immunity			to EN 50 082-2		

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–	–	24	24	–
24	24	24	24	24
0.85 – 1.1	0.85 – 1.1	0.85 – 1.1	0.85 – 1.1	0.85 – 1.1
–	–	2.7/1.6	2.7/1.5	–
2.5	2.7	1.5	1.0	1.0
≤ 24	≤ 24	≤ 24	–	–
–	–	–	–	–
50	50	60	–	–
70	70	70	–	–
2.2	0.1	1	–	–
PTC resistor	Electronic protection	PTC resistor	–	–
2000	5	2000	–	–
3000	5	3000	–	–
S12, S22, S31: 25 S34, S35: 40	S12: 30 S31, S22: 20	Y2: 60 Y11, Y21: 60	–	–
30	80	–	–	–
200	60	40	25	25
25/adjustable	40/100	< 50	15	–
200	50	–	–	–
500	500	< 250	–	–
–	–	< 500	–	–
to EN 50 081-1 and EN 50 081-2				
to EN 50 082-2				