SIEMENS

Data sheet

3RH2140-2XF40-0LA2



Contactor relay for railway 4 NO DC 72-125V, 0,7...1,25*US, with integrated varistor Size S00, Spring-type terminal suitable for PLC outputs

product designation Contactor relay for railway applications 3RH2 General technical data size of contactor product extension auxiliary switch insulation voltage with degree of pollution 3 at AC rated value surge voltage resistance rated value * at DC shock resistance at rectangular impulse * at DC mechanical service life (switching cycles) * of contactor with added electronically optimized auxiliary switch block typical * of the contactor with added auxiliary switch block typical	product brand name	SIRIUS		
Seneral technical data	product designation	Contactor relay for railway applications		
size of contactor product extension auxiliary switch product extension auxiliary switch insulation voltage with degree of pollution 3 at AC rated value surge voltage resistance rated value shock resistance at rectangular impulse at DC 10g / 5 ms, 5g / 10 ms shock resistance with sine pulse at DC 15g / 5 ms, 8g / 10 ms mechanical service life (switching cycles) of contactor typical of the contactor with added electronically optimized auxiliary switch block typical of the contactor with added auxiliary switch block typical of the contactor with added auxiliary switch block typical of the contactor with added auxiliary switch block typical avoid to the contactor with added auxiliary switch block typical reference code according to IEC 81346-2 K Substance Prohibitance (Date) Ambient conditions installation altitude at height above sea level maximum ambient temperature during operation during operation during operation during storage relative humidity minimum relative humidity minimum relative humidity minimum relative humidity at 55 °C according to IEC 60068-2-30 maximum Main circuit no-load switching frequency at DC 1 500 1/h Control circuit/ Control type of voltage of the control supply voltage control supply voltage at DC related value operating range factor control supply voltage rated value of magnet coil at DC initial value 0,7	product type designation	3RH2		
product extension auxiliary switch insulation voltage with degree of pollution 3 at AC rated value surge voltage resistance rated value e at DC shock resistance at rectangular impulse e at DC shock resistance with sine pulse e at DC to g/5 ms, 5g / 10 ms shock resistance with sine pulse e at DC for contactor typical of the contactor with added electronically optimized auxiliary switch block typical of the contactor with added auxiliary switch block typical of the contactor with added auxiliary switch block typical reference code according to IEC 81346-2 Substance Prohibitance (Date) Ambient conditions installation altitude at height above sea level maximum ambient temperature oldring operation -40 +70 °C -55 +80 °C relative humidity an immum relative humidity an immum relative humidity an immum relative humidity and so of the control supply voltage or relative funding frequency at DC control circuit/ Control type of voltage of the control supply voltage rated value of magnet coil at DC initial value or initial value 0,72 initial value 0,77	General technical data	General technical data		
insulation voltage with degree of pollution 3 at AC rated value surge voltage resistance rated value • at DC shock resistance with sine pulse • at DC mechanical service life (switching cycles) • of contactor typical • of the contactor with added electronically optimized auxiliary switch block typical • of the contactor with added auxiliary switch block typical • of the contactor with added auxiliary switch block typical • of the contactor with added auxiliary switch block typical • of the contactor with added auxiliary switch block typical • of the contactor with added auxiliary switch block typical • of the contactor with added auxiliary switch block typical • of the contactor with added auxiliary switch block typical reference code according to IEC 81346-2 K Substance Prohibitance (Date) Ambient conditions installation altitude at height above sea level maximum ambient temperature • during operation • during storage • during storage relative humidity minimum at DC oncload switching frequency • at DC 1 500 1/h Control circuit/ Control type of voltage of the control supply voltage Control supply voltage at DC • rated value • initial value 0.7	size of contactor	S00		
surge voltage resistance rated value shock resistance at rectangular impulse • at DC shock resistance with sine pulse • at DC mechanical service life (switching cycles) • of contactor typical • of the contactor with added electronically optimized auxiliary switch block typical • of the contactor with added auxiliary switch block typical reference code according to IEC 81346-2 K Substance Prohibitance (Date) Ambient conditions installation altitude at height above sea level maximum ambient temperature • during operation • during storage relative humidity minimum relative humidity minimum relative humidity at 55 °C according to IEC 60068-2-30 maximum Main circuit no-load switching frequency • at DC or rated value operating range factor control supply voltage control supply voltage at DC • rated value operating range factor control supply voltage rated value of magnet coil at DC • initial value 6 kV 10 007 5 ms, 5g / 10 ms 10 00 000 10 000	product extension auxiliary switch	Yes		
shock resistance at rectangular impulse		690 V		
shock resistance with sine pulse at DC shock resistance with sine pulse at DC mechanical service life (switching cycles) of contactor typical of the contactor with added electronically optimized auxiliary switch block typical of the contactor with added auxiliary switch block typical reference code according to IEC 81346-2 K Substance Prohibitance (Date) Amblent conditions installation altitude at height above sea level maximum ambient temperature oluring operation during storage relative humidity minimum relative humidity minimum relative humidity at 55 °C according to IEC 60068-2-30 maximum Main circuit no-load switching frequency at DC control supply voltage at DC rated value operating range factor control supply voltage rated value of magnet coil at DC o initial value o initial value 0,72 initial value 15g / 5 ms, 8g / 10 ms 15 000 000 15 000 000 16 000 000 16 000 000 16 000 000 16 000 000 16 000 000 16 000 000 16 000 000 16 000 000 16 000 000 16 000 000 16 000 000 16 000 000 16 000 000 16 000 00	surge voltage resistance rated value	6 kV		
shock resistance with sine pulse	shock resistance at rectangular impulse			
mechanical service life (switching cycles) of contactor typical of the contactor with added electronically optimized auxiliary switch block typical of the contactor with added auxiliary switch block typical of the contactor with added auxiliary switch block typical reference code according to IEC 81346-2 K Substance Prohibitance (Date) Ambient conditions installation altitude at height above sea level maximum ambient temperature of during operation of during storage relative humidity minimum relative humidity at 55 °C according to IEC 60068-2-30 maximum Main circuit no-load switching frequency of to Voltage of the control supply voltage control supply voltage at DC operating range factor control supply voltage rated value of magnet coil at DC ointial value of the contactor typical and 000 000 10 000 000 10 000 000 10 000 00	• at DC	10g / 5 ms, 5g / 10 ms		
mechanical service life (switching cycles) • of contactor typical • of the contactor with added electronically optimized auxiliary switch block typical • of the contactor with added auxiliary switch block typical • of the contactor with added auxiliary switch block typical reference code according to IEC 81346-2 K Substance Prohibitance (Date) Ambient conditions installation altitude at height above sea level maximum ambient temperature • during operation • during storage relative humidity minimum relative humidity at 55 °C according to IEC 60068-2-30 maximum Main circuit no-load switching frequency • at DC 1 500 1/h Control circuit/ Control type of voltage of the control supply voltage DC control supply voltage at DC • rated value • initial value 0 0,7	shock resistance with sine pulse			
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reference code according to IEC 81346-2 K Substance Prohibitance (Date) 10/01/2009 Ambient conditions installation altitude at height above sea level maximum 2 000 m ambient temperature • during operation -40 +70 °C • during storage -55 +80 °C relative humidity minimum 10 % relative humidity at 55 °C according to IEC 60068-2-30 95 % maximum Main circuit no-load switching frequency • at DC 1 500 1/h Control circuit/ Control type of voltage of the control supply voltage Control supply voltage at DC • rated value operating range factor control supply voltage rated value of magnet coil at DC • initial value 0.7		5 000 000		
Substance Prohibitance (Date) Ambient conditions installation altitude at height above sea level maximum ambient temperature • during operation • during storage relative humidity minimum relative humidity at 55 °C according to IEC 60068-2-30 maximum Main circuit no-load switching frequency • at DC Control circuit/ Control type of voltage of the control supply voltage control supply voltage at DC • rated value operating range factor control supply voltage rated value of magnet coil at DC • initial value 10/01/2009 Ambient conditions -40 +70 °C -40 +70 °C -55 +80 °C -55 +80 °C -55 +80 °C -55 +80 °C -10 % -		10 000 000		
installation altitude at height above sea level maximum ambient temperature • during operation • during storage relative humidity minimum relative humidity at 55 °C according to IEC 60068-2-30 maximum Main circuit no-load switching frequency • at DC Control circuit/ Control type of voltage of the control supply voltage control supply voltage at DC • rated value operating range factor control supply voltage rated value of magnet coil at DC • initial value 2 000 m 2 000 m 2 000 m 3 000 m 4 0 +70 °C 4 0 +70 °C 4 0 +80 °C 95 % 95 % 95 % DC Control circuit/ Control type of voltage of the control supply voltage DC control supply voltage at DC • rated value 0 0.7	reference code according to IEC 81346-2	K		
installation altitude at height above sea level maximum ambient temperature • during operation • during storage relative humidity minimum relative humidity at 55 °C according to IEC 60068-2-30 maximum Main circuit no-load switching frequency • at DC Control circuit/ Control type of voltage of the control supply voltage control supply voltage at DC • rated value operating range factor control supply voltage rated value of magnet coil at DC • initial value 2 000 m -40 +70 °C -40 +70 °C -55 +80 °C -10 % -50 % DS % DS % DC -10 ** -10 *	Substance Prohibitance (Date)	10/01/2009		
ambient temperature • during operation • during storage relative humidity minimum relative humidity at 55 °C according to IEC 60068-2-30 maximum Main circuit no-load switching frequency • at DC Control circuit/ Control type of voltage of the control supply voltage control supply voltage at DC • rated value operating range factor control supply voltage rated value of magnet coil at DC • initial value -40 +70 °C -55 +80 °C 10 % 10 % 11 500 1/h 12 500 1/h DC -2 125 V 0.7	Ambient conditions			
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during storage relative humidity minimum relative humidity at 55 °C according to IEC 60068-2-30 maximum Main circuit no-load switching frequency at DC 1 500 1/h Control circuit/ Control type of voltage of the control supply voltage control supply voltage at DC • rated value operating range factor control supply voltage rated value of magnet coil at DC • initial value o 10 % 10 %	ambient temperature			
relative humidity minimum relative humidity at 55 °C according to IEC 60068-2-30 maximum Main circuit no-load switching frequency at DC 1 500 1/h Control circuit/ Control type of voltage of the control supply voltage control supply voltage at DC rated value operating range factor control supply voltage rated value of magnet coil at DC initial value 10 % DC 1 500 1/h DC 72 125 V	 during operation 	-40 +70 °C		
relative humidity at 55 °C according to IEC 60068-2-30 maximum Main circuit no-load switching frequency	during storage	-55 +80 °C		
maximum Main circuit no-load switching frequency ■ at DC Control circuit/ Control type of voltage of the control supply voltage control supply voltage at DC ■ rated value operating range factor control supply voltage rated value of magnet coil at DC ■ initial value 0.7	relative humidity minimum	10 %		
no-load switching frequency • at DC Control circuit/ Control type of voltage of the control supply voltage control supply voltage at DC • rated value operating range factor control supply voltage rated value of magnet coil at DC • initial value 1 500 1/h DC 72 125 V 0.7		95 %		
● at DC Control circuit/ Control type of voltage of the control supply voltage control supply voltage at DC ● rated value operating range factor control supply voltage rated value of magnet coil at DC ● initial value 1 500 1/h DC 72 125 V 0.7	Main circuit			
type of voltage of the control supply voltage control supply voltage at DC rated value operating range factor control supply voltage rated value of magnet coil at DC initial value one initial value one of the control supply voltage at DC	no-load switching frequency			
type of voltage of the control supply voltage control supply voltage at DC • rated value operating range factor control supply voltage rated value of magnet coil at DC • initial value operating value operating range factor control supply voltage rated value of magnet coil at DC operating value operating	• at DC	1 500 1/h		
control supply voltage at DC • rated value 72 125 V operating range factor control supply voltage rated value of magnet coil at DC • initial value 0.7	Control circuit/ Control			
 rated value operating range factor control supply voltage rated value of magnet coil at DC initial value initial value 72 125 ∨ 0.7 	type of voltage of the control supply voltage	DC		
operating range factor control supply voltage rated value of magnet coil at DC • initial value 0.7	control supply voltage at DC			
value of magnet coil at DC ● initial value 0.7	rated value	72 125 V		
• full-scale value 1.25	• initial value	0.7		
	full-scale value	1.25		

design of the surge suppressor	Varistor
closing power of magnet coil at DC	4.5 W
holding power of magnet coil at DC	0.75 W
closing delay	
• at DC	30 70 ms
opening delay	
• at DC	25 45 ms
arcing time	10 15 ms
residual current of the electronics for control with signal <0> at DC at 24 V maximum permissible	10 mA
Auxiliary circuit	
number of NO contacts for auxiliary contacts	4
instantaneous contact	4
identification number and letter for switching elements	40 E
operational current at AC-12 maximum	10 A
operational current at AC-15	
at 230 V rated value	10 A
• at 400 V rated value	3 A
at 500 V rated value	2 A
at 690 V rated value	1 A
operational current at 1 current path at DC-12	
• at 24 V rated value	10 A
• at 110 V rated value	3 A
at 220 V rated value	1 A
• at 440 V rated value	0.3 A
at 600 V rated value	0.15 A
operational current with 2 current paths in series at DC-12	
at 24 V rated value	10 A
at 60 V rated value	10 A
• at 110 V rated value	4 A
at 220 V rated value	2 A
• at 440 V rated value	1.3 A
at 600 V rated value operational current with 3 current paths in series at	0.65 A
DC-12	
at 24 V rated value	10 A
• at 60 V rated value	10 A
• at 110 V rated value	10 A
• at 220 V rated value	3.6 A
• at 440 V rated value	2.5 A
at 600 V rated value	1.8 A
operating frequency at DC-12 maximum	1 000 1/h
operational current at 1 current path at DC-13	
at 24 V rated value	10 A
• at 110 V rated value	1 A
at 220 V rated value	0.3 A
• at 440 V rated value	0.14 A
at 600 V rated value	0.1 A
operational current with 2 current paths in series at DC-13	
at 24 V rated value	10 A
• at 60 V rated value	3.5 A
• at 110 V rated value	1.3 A
at 220 V rated value	0.9 A
• at 440 V rated value	0.2 A
at 600 V rated value operational current with 3 current paths in series at	0.1 A
DC-13	
at 24 V rated value	10 A

a at CO V mate d value	4.7.6
• at 60 V rated value	4.7 A
at 110 V rated value at 220 V rated value	3 A
at 220 V rated value	1.2 A
at 440 V rated value at 600 V rated value	0.5 A
at 600 V rated value operating frequency at DC-13 maximum	0.26 A 1 000 1/h
design of the miniature circuit breaker for short-circuit	C characteristic: 6 A; 0.4 kA
protection of the auxiliary circuit up to 230 V	C Characteristic. 6 A, 0.4 kA
contact reliability of auxiliary contacts	1 faulty switching per 100 million (17 V, 1 mA)
UL/CSA ratings	, , ,
contact rating of auxiliary contacts according to UL	A600 / Q600
Short-circuit protection	
design of the fuse link for short-circuit protection of the auxiliary switch required	fuse gL/gG: 10 A
Installation/ mounting/ dimensions	
mounting position	+/-180° rotation possible on vertical mounting surface, can be tilted
	forward and backward by +/- 22.5° on vertical mounting surface, standing, on horizontal mounting surface
fastening method	screw and snap-on mounting onto 35 mm standard mounting rail
side-by-side mounting	Yes
height	70 mm
width	45 mm
depth	73 mm
required spacing	
with side-by-side mounting	
— forwards	10 mm
— upwards	10 mm
— downwards	10 mm
— at the side	0 mm
• for grounded parts	40
— forwards	10 mm
— upwards	10 mm
— at the side	6 mm
— downwards ● for live parts	10 mm
•	10 mm
— forwards	10 mm
— upwards — downwards	10 mm 10 mm
— at the side	6 mm
	O IIIIII
Connections/ Terminals	anring landed terminals
type of electrical connection for auxiliary and control circuit	spring-loaded terminals
connectable conductor cross-section for auxiliary contacts	
solid or stranded	0.5 4 mm²
finely stranded with core end processing	0.5 2.5 mm²
finely stranded without core end processing	0.5 2.5 mm²
type of connectable conductor cross-sections	
for auxiliary contacts	
— solid or stranded	2x (0,5 4 mm²)
 finely stranded with core end processing 	2x (0.5 2.5 mm²)
 finely stranded without core end processing 	2x (0.5 2.5 mm²)
at AWG cables for auxiliary contacts	2x (20 12)
AWG number as coded connectable conductor cross section for auxiliary contacts	20 12
Safety related data	
B10 value with high demand rate according to SN 31920	1 000 000
proportion of dangerous failures	
with low demand rate according to SN 31920	40 %
with high demand rate according to SN 31920	73 %
T1 value for proof test interval or service life according to	20 y
IEC 61508	

protection class IP on the front according to IEC 60529

IP20

touch protection on the front according to IEC 60529

finger-safe, for vertical contact from the front

Certificates/ approvals

General Product Approval

EMC



Confirmation



<u>KC</u>





Functional Safety/Safety of Machinery

Declaration of Conformity

Test Certificates

Marine / Shipping

Type Examination Certificate





Type Test Certificates/Test Report





Marine / Shipping











Confirmation

other

other

Railway

Dangerous Good



Special Test Certificate

Transport Information

Further information

Information- and Downloadcenter (Catalogs, Brochures,...)

https://www.siemens.com/ic10

Industry Mall (Online ordering system)

https://mall.industry.siemens.com/mall/en/en/Catalog/product?mlfb=3RH2140-2XF40-0LA2

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RH2140-2XF40-0LA2

Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

https://support.industry.siemens.com/cs/ww/en/ps/3RH2140-2XF40-0LA2

Image database (product images, 2D dimension drawings, 3D models, device circuit diagrams, EPLAN macros, ...)

http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RH2140-2XF40-0LA2&lang=en

Characteristic: Tripping characteristics, I2t, Let-through current

https://support.industry.siemens.com/cs/ww/en/ps/3RH2140-2XF40-0LA2/char

Further characteristics (e.g. electrical endurance, switching frequency)

http://www.automation.siemens.com/bilddb/index.aspx?view=Search&mlfb=3RH2140-2XF40-0LA2&objecttype=14&gridview=view1

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