



Positively driven coupling relay in industrial enclosure 2 NO contacts / 2 NC contacts 24 V to 240 V AC/DC SIL 2 / PL c Screw terminals

product brand name	SIRIUS
product designation	force-guided coupling relay
design of the product	fail-safe up to SIL 2/PL c
product type designation	3RQ1
<b>General technical data</b>	
product feature protective coating on printed-circuit board	No
consumed active power	2.3 W
insulation voltage for overvoltage category III according to IEC 60664 with degree of pollution 3 rated value	300 V
degree of pollution	3
surge voltage resistance rated value	4 kV
shock resistance	
• according to IEC 60068-2-27	11g / 15 ms
vibration resistance	
• according to IEC 60068-2-6	10 ... 55 Hz: 0.35 mm
operating frequency maximum	360 1/h
switching behavior	monostable
mechanical service life (operating cycles) typical	10 000 000
thermal current of the switching element with contacts maximum	5 A
reference code according to IEC 81346-2	K
Substance Prohibitance (Date)	05/31/2018
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol - 79-94-7 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol - 119-47-1 2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one - 71868-10-5 4,4'-isopropylidenediphenol (Bisphenol A, BPA) - 80-05-7
Weight	0.183 kg
<b>Product Function</b>	
suitability for operation device connector 3ZY12	No
<b>Control circuit/ Control</b>	
control supply voltage at AC	
• at 50 Hz	24 ... 240 V
• at 60 Hz	24 ... 240 V
control supply voltage at DC	24 ... 240 V
operating range factor control supply voltage rated value at DC	
• initial value	0.7
• full-scale value	1.1
operating range factor control supply voltage rated value at AC at 50 Hz	
• initial value	0.85

• full-scale value	1.1
<b>operating range factor control supply voltage rated value at AC at 60 Hz</b>	
• initial value	0.85
• full-scale value	1.1
<b>ON-delay time</b>	
• at AC maximum	50 ms
• at DC maximum	50 ms
<b>OFF-delay time maximum</b>	60 ms
<b>Switching Function</b>	
<b>design of the switching function</b>	NC contact and NO contact
<b>Mechanical data</b>	
<b>product component plug-in socket</b>	No
<b>Short-circuit protection</b>	
design of the fuse link for short-circuit protection of the auxiliary switch required	fuse gL/gG: 6 A
<b>Auxiliary circuit</b>	
<b>material of switching contacts</b>	AgSnO <sub>2</sub> + Au flash
<b>number of NC contacts for auxiliary contacts</b>	2
<b>number of NO contacts for auxiliary contacts</b>	2
number of CO contacts for auxiliary contacts	0
<b>type of voltage</b>	AC/DC
<b>Inputs/ Outputs</b>	
<b>output current minimum</b>	10 mA
<b>ampacity of the output relay at AC-15</b>	
• at 250 V at 50/60 Hz	1.5 A
<b>ampacity of the output relay at DC-13</b>	
• at 24 V	1 A
• at 125 V	0.2 A
• at 250 V	0.1 A
<b>Electromagnetic compatibility</b>	
EMC emitted interference according to IEC 60947-1	ambience A (industrial sector)
EMC immunity according to IEC 60947-1	corresponds to degree of severity 3
<b>conducted interference</b>	
• due to burst according to IEC 61000-4-4	2 kV
• due to conductor-earth surge according to IEC 61000-4-5	2 kV (line to ground)
• due to conductor-conductor surge according to IEC 61000-4-5	1 kV (line to line)
<b>field-based interference according to IEC 61000-4-3</b>	10 V/m
<b>electrostatic discharge according to IEC 61000-4-2</b>	4 kV contact discharging, 8 kV air discharging
<b>Display</b>	
<b>product component LED</b>	Yes
<b>Safety related data</b>	
<b>product function</b>	
• positively driven operation according to IEC 60947-5-1	Yes
<b>suitability for use</b>	
• safety-related switching on	No
• safety-related switching OFF	Yes
<b>safe state</b>	safe shutdown
<b>test wear-related service life necessary</b>	Yes
<b>stop category according to IEC 60204-1</b>	0
<b>MTTFd</b>	470 a
IEC 62061	
<b>Safety Integrity Level (SIL)</b>	
• according to IEC 62061	SIL 2
ISO 13849	
<b>performance level (PL) according to ISO 13849-1</b>	PL c
<b>category according to ISO 13849-1</b>	1
<b>device type according to ISO 13849-1</b>	1
<b>overdimensioning according to ISO 13849-2 necessary</b>	No
IEC 61508	

Safety Integrity Level (SIL) according to IEC 61508	SIL 2
<b>safety device type according to IEC 61508-2</b>	Type A
<b>PFHD with high demand rate according to IEC 61508</b>	6E-7 1/h
PFDAvg with low demand rate according to IEC 61508	0.002
<b>Safe failure fraction (SFF)</b>	85 %
hardware fault tolerance according to IEC 61508	0
T1 value of service life according to IEC 61508	20 a

#### Connections/ Terminals

<b>product component removable terminal for auxiliary and control circuit</b>	Yes
<b>type of electrical connection</b>	screw terminal
wire length at DC maximum	2 000 m
<b>type of connectable conductor cross-sections</b>	
• solid	1x (0.5 ... 4 mm <sup>2</sup> ), 2x (0.5 ... 2.5 mm <sup>2</sup> )
• finely stranded with core end processing	1x (0.5 ... 4 mm <sup>2</sup> ), 2x (0.5 ... 1.5 mm <sup>2</sup> )
• for AWG cables solid	1x (20 ... 12), 2x (20 ... 14)
<b>connectable conductor cross-section</b>	
• solid	0.5 ... 4 mm <sup>2</sup>
• finely stranded with core end processing maximum	4 mm <sup>2</sup>
• finely stranded without core end processing minimum	0.5 mm <sup>2</sup>
<b>AWG number as coded connectable conductor cross section</b>	
• solid	12 ... 20
• stranded	12 ... 20
tightening torque with screw-type terminals	0.6 ... 0.8 N·m
stripped length of the cable for auxiliary and control contacts	10 mm

#### Installation/ mounting/ dimensions

<b>mounting position</b>	any
<b>fastening method</b>	screw and snap-on mounting onto 35 mm DIN rail
<b>height</b>	100 mm
<b>width</b>	22.5 mm
<b>depth</b>	90 mm

#### Ambient conditions

installation altitude at height above sea level maximum	2 000 m
<b>ambient temperature</b>	
• during operation	-25 ... +60 °C
• during storage	-40 ... +80 °C
• during transport	-40 ... +80 °C
relative humidity during operation	10 ... 95 %

#### Approvals Certificates

##### General Product Approval



[TUEV](#)

EMV	Maritime application	other	Railway	Environment
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[Confirmation](#)

[Confirmation](#)

[Environmental Confirmations](#)

#### Further information

##### Information on the packaging

<https://support.industry.siemens.com/cs/ww/en/view/109813875>

##### Information for data generation and storage

<https://support.industry.siemens.com/cs/ww/en/view/109995012>

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=3RQ1000-1HW00>

Cax online generator

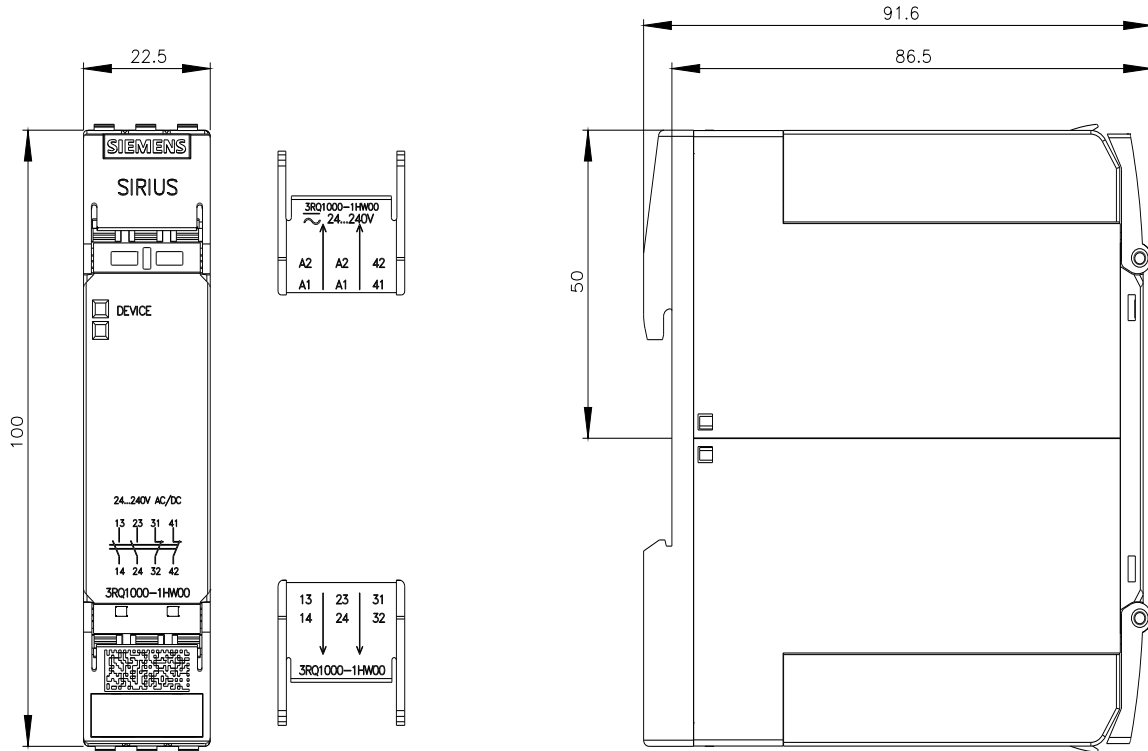
<https://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3RQ1000-1HW00>

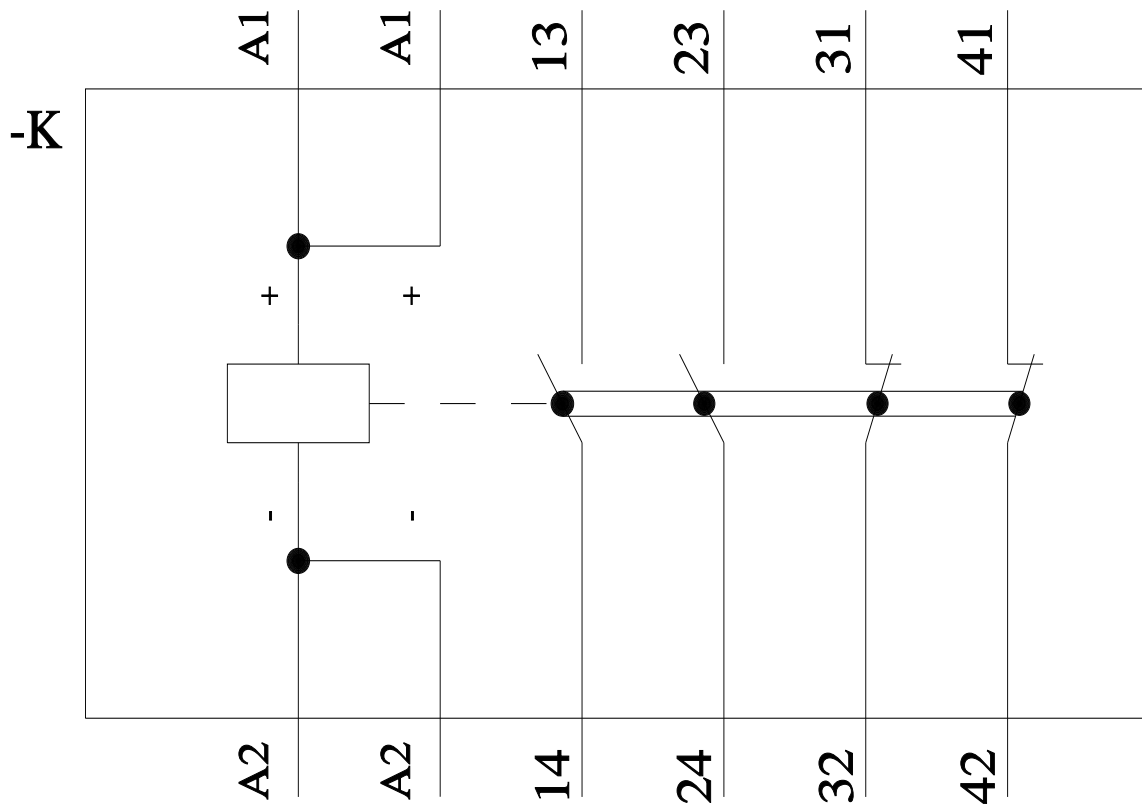
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3RQ1000-1HW00>

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

[https://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3RQ1000-1HW00&lang=en](https://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3RQ1000-1HW00&lang=en)





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