



monitoring relay phase failure, phase sequence and asymmetry monitoring 3x 160-690 V AC, 15-70 Hz 2 changeover contacts spring-loaded terminal SIL 1/PL c

product brand name	SIRIUS
product designation	Line monitoring relay
design of the product	monitoring of phase sequence, phase failure, and phase asymmetry for Safety applications
product type designation	3UG5
<b>General technical data</b>	
product function	line monitoring
display version LED	Yes
design of the display	LED
power loss [W] maximum	1.8 W
power loss [V·A] maximum	5.1 VA
insulation voltage for overvoltage category III according to IEC 60664	
• with degree of pollution 2 rated value	690 V
• with degree of pollution 3 rated value	690 V
degree of pollution	3
type of voltage	
• for monitoring	AC
• of the operating voltage for actuation	AC/DC
surge voltage resistance rated value	6 kV
shock resistance according to IEC 60068-2-27	sinusoidal half-wave 15g / 11 ms
vibration resistance according to IEC 60068-2-6	10 ... 55 Hz: 0.35 mm
switching behavior	monostable
mechanical service life (operating cycles) typical	10 000 000
electrical endurance (operating cycles) at AC-15 at 230 V typical	100 000
thermal current of the switching element with contacts maximum	5 A
reference code according to IEC 81346-2	K
Substance Prohibitance (Date)	06/01/2023
SVHC substance name	Lead - 7439-92-1 Lead monoxide (lead oxide) - 1317-36-8 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol - 119-47-1
Weight	0.156 kg
<b>Product Function</b>	
product function	
• undervoltage detection	No
• overvoltage detection	No
• phase sequence recognition	Yes
• phase failure detection	Yes
• asymmetry detection	Yes; not adjustable, indirectly by monitoring the voltage limit values
• overvoltage detection 3 phase	No
• undervoltage detection 3 phases	No

<ul style="list-style-type: none"> <li>• voltage window recognition 3 phase</li> <li>• adjustable open/closed-circuit current principle</li> <li>• auto-RESET</li> <li>• neutral conductor monitoring adjustable</li> </ul>	No
<ul style="list-style-type: none"> <li>• adjustable open/closed-circuit current principle</li> </ul>	No
<ul style="list-style-type: none"> <li>• auto-RESET</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• neutral conductor monitoring adjustable</li> </ul>	No
suitability for use safety-related circuits	Yes
<b>Control circuit/ Control</b>	
<b>type of voltage of the control supply voltage</b>	AC
<b>control supply voltage 1 at AC</b>	
<ul style="list-style-type: none"> <li>• at 50 Hz</li> <li>• at 60 Hz</li> </ul>	200 ... 690 V
	200 ... 690 V
<b>operating range factor control supply voltage rated value at AC at 50 Hz</b>	
<ul style="list-style-type: none"> <li>• initial value</li> <li>• full-scale value</li> </ul>	0.85
	1.1
<b>operating range factor control supply voltage rated value at AC at 60 Hz</b>	
<ul style="list-style-type: none"> <li>• initial value</li> <li>• full-scale value</li> </ul>	0.85
	1.1
<b>Supply voltage</b>	
supply voltage frequency rated value	70 ... 15 Hz
<b>Interfaces</b>	
design of the interface bluetooth	No
<b>Measuring circuit</b>	
<b>measurable voltage 1 at AC</b>	160 ... 760 V
<b>measurable voltage 2 at AC</b>	160 ... 760 V
<b>adjustable response delay time</b>	
<ul style="list-style-type: none"> <li>• when starting</li> <li>• with lower or upper limit violation</li> </ul>	0.1 s
	0.1 s
<b>buffering time in the event of power failure minimum</b>	20 ms
<b>response time maximum</b>	500 ms
<b>relative temperature-related measurement deviation</b>	1 %
<b>Precision</b>	
<b>relative metering precision</b>	5 %
<b>temperature drift per °C</b>	0.003 %/°C
<b>Short-circuit protection</b>	
<b>design of the fuse link</b>	
<ul style="list-style-type: none"> <li>• for short-circuit protection of the NO contacts of the relay outputs required</li> <li>• for short circuit protection of the NC contacts of the relay outputs required</li> </ul>	gL/gG: 6 A or MCB type C: 1 A
	gL/gG: 6 A or MCB type C: 1 A
<b>Communication/ Protocol</b>	
protocol is supported IO-Link protocol	No
<b>type of voltage supply via input/output link master</b>	No
<b>Auxiliary circuit</b>	
<b>material of switching contacts</b>	AgSnO2
number of NC contacts delayed switching	0
number of NO contacts delayed switching	0
<b>number of CO contacts</b>	
<ul style="list-style-type: none"> <li>• for auxiliary contacts</li> <li>• delayed switching</li> </ul>	2
	0
<b>operating frequency with 3RT2 contactor maximum</b>	5 000 1/h
<b>contact reliability of auxiliary contacts</b>	one incorrect switching operation of 100 million switching operations (17 V, 5 mA)
<b>contact rating of auxiliary contacts according to UL</b>	R300 / B300
<b>Main circuit</b>	
<b>number of poles for main current circuit</b>	3
<b>operating voltage</b>	
<ul style="list-style-type: none"> <li>• at AC <ul style="list-style-type: none"> <li>— at 50 Hz rated value</li> <li>— at 60 Hz rated value</li> </ul> </li> </ul>	690 ... 690 V
	690 ... 690 V
<b>ampacity of the output relay at AC-15</b>	
<ul style="list-style-type: none"> <li>• at 250 V at 50/60 Hz</li> </ul>	3 A

<ul style="list-style-type: none"> <li>• at 400 V at 50/60 Hz</li> </ul>	3 A
<b>ampacity of the output relay at DC-13</b>	
<ul style="list-style-type: none"> <li>• at 24 V</li> <li>• at 110 V</li> <li>• at 125 V</li> <li>• at 230 V</li> <li>• at 250 V</li> </ul>	1 A 0.2 A 0.2 A 0.1 A 0.1 A
<b>operational current at 17 V minimum</b>	5 mA
<b>continuous current of the DIAZED fuse link of the output relay</b>	6 A
<b>Electromagnetic compatibility</b>	
EMC emitted interference according to IEC 60947-1	class A
<b>conducted interference</b>	
<ul style="list-style-type: none"> <li>• due to burst according to IEC 61000-4-4</li> <li>• due to conductor-earth surge according to IEC 61000-4-5</li> <li>• due to conductor-conductor surge according to IEC 61000-4-5</li> </ul>	2 kV (power ports), 2 kV (signal ports) 2 kV 1 kV
<b>field-based interference according to IEC 61000-4-3</b>	10 V/m
<b>electrostatic discharge according to IEC 61000-4-2</b>	6 kV contact discharge / 8 kV air discharge
<b>Galvanic isolation</b>	
<b>design of the electrical isolation</b>	galvanic isolation
<b>galvanic isolation</b>	
<ul style="list-style-type: none"> <li>• between input and output</li> <li>• between the outputs</li> <li>• between the voltage supply and other circuits</li> </ul>	Yes Yes Yes
<b>Safety related data</b>	
<b>safe state</b>	off
IEC 62061	
<b>Safety Integrity Level (SIL) according to IEC 62061</b>	SIL 1
PFHD with high demand rate according to IEC 62061	7.3734E-7 1/h
ISO 13849	
performance level (PL) according to EN ISO 13849-1	c
<b>performance level (PL) according to ISO 13849-1</b>	PL c
<b>category according to ISO 13849-1</b>	1
IEC 61508	
Safety Integrity Level (SIL) according to IEC 61508	SIL 1
<b>safety device type according to IEC 61508-2</b>	Type B
<b>PFHD with high demand rate according to IEC 61508</b>	7.3734E-7 1/h
PFDavg with low demand rate according to IEC 61508	0.0011
<b>Safe failure fraction (SFF)</b>	91.08 %
hardware fault tolerance according to IEC 61508	0
T1 value of service life according to IEC 61508	20 a
Electrical Safety	
<b>protection class IP on the front according to IEC 60529</b>	IP20
<b>Connections/ Terminals</b>	
<b>product component removable terminal for main circuit</b>	Yes
<b>product component removable terminal for auxiliary and control circuit</b>	Yes
<b>type of electrical connection</b>	spring-loaded terminal (push-in)
<b>type of connectable conductor cross-sections</b>	
<ul style="list-style-type: none"> <li>• solid</li> <li>• finely stranded with core end processing</li> <li>• finely stranded without core end processing</li> <li>• for AWG cables solid</li> <li>• for AWG cables stranded</li> </ul>	1x (0.5 ... 4 mm <sup>2</sup> ) 1x (0.5 ... 2.5 mm <sup>2</sup> ) 0.5 ... 4 mm <sup>2</sup> 1x (20 ... 12) 20 ... 12
<b>connectable conductor cross-section</b>	
<ul style="list-style-type: none"> <li>• solid</li> <li>• finely stranded with core end processing</li> <li>• finely stranded without core end processing</li> </ul>	0.5 ... 4 mm <sup>2</sup> 0.5 ... 2.5 mm <sup>2</sup> 0.25 ... 1.5 mm <sup>2</sup>
<b>AWG number as coded connectable conductor cross section</b>	
<ul style="list-style-type: none"> <li>• solid</li> </ul>	24 ... 12

• stranded	20 ... 12
<b>stripped length</b>	10 mm
<b>Installation/ mounting/ dimensions</b>	
<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
<b>required spacing</b>	
• with side-by-side mounting	
— forwards	0 mm
— backwards	0 mm
— upwards	0 mm
— downwards	0 mm
— at the side	0 mm
• for grounded parts	
— forwards	0 mm
— backwards	0 mm
— upwards	0 mm
— at the side	0 mm
— downwards	0 mm
• for live parts	
— forwards	0 mm
— backwards	0 mm
— upwards	0 mm
— downwards	0 mm
— at the side	0 mm

<b>Ambient conditions</b>	
installation altitude at height above sea level maximum	2 000 m
<b>ambient temperature</b>	
• during operation	-25 ... +60 °C
• during storage	-40 ... +85 °C
• during transport	-40 ... +85 °C
relative humidity during operation maximum	70 %

<b>Environmental footprint</b>	
Environmental Product Declaration(EPD)	Yes
global warming potential [CO2 eq] total	18 kg
global warming potential [CO2 eq] during manufacturing	5.65 kg
global warming potential [CO2 eq] during operation	12.3 kg
global warming potential [CO2 eq] after end of life	-0.03 kg

<b>Approvals Certificates</b>	
<b>General Product Approval</b>	EMV



TUEV



<b>Test Certificates</b>	<b>other</b>	<b>Environment</b>
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[Type Test Certificates/Test Report](#)

[Confirmation](#)



[Environmental Confirmations](#)

<b>Further information</b>
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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=3UG5512-2BR21>

Cax online generator

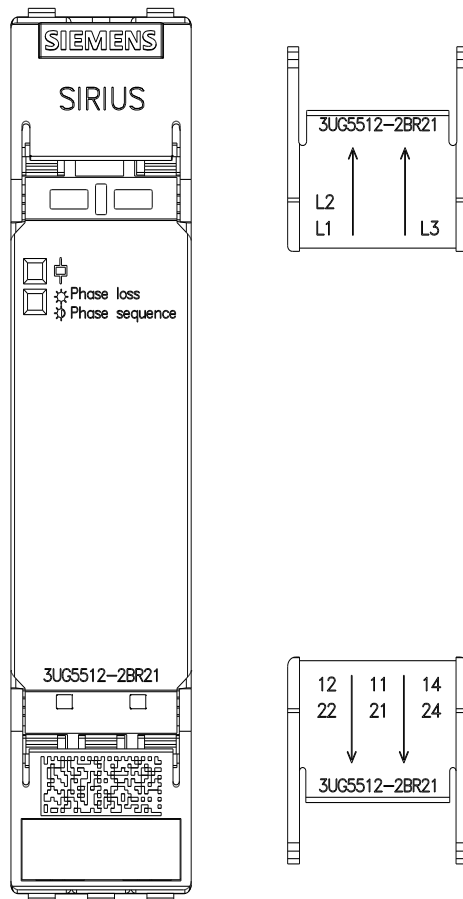
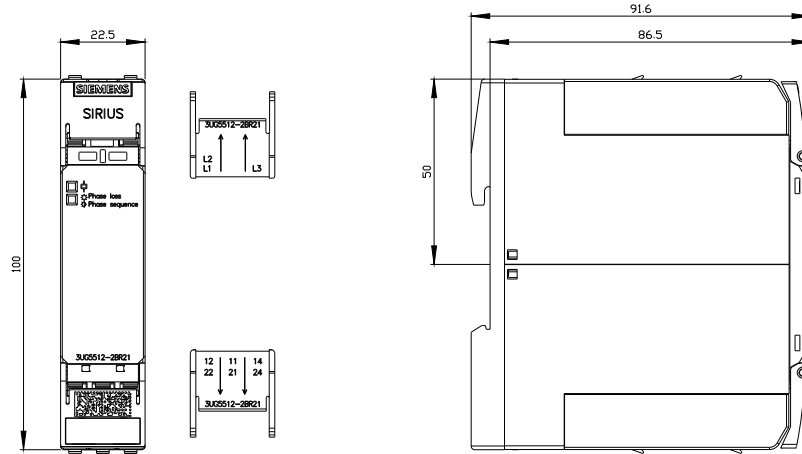
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3UG5512-2BR21>

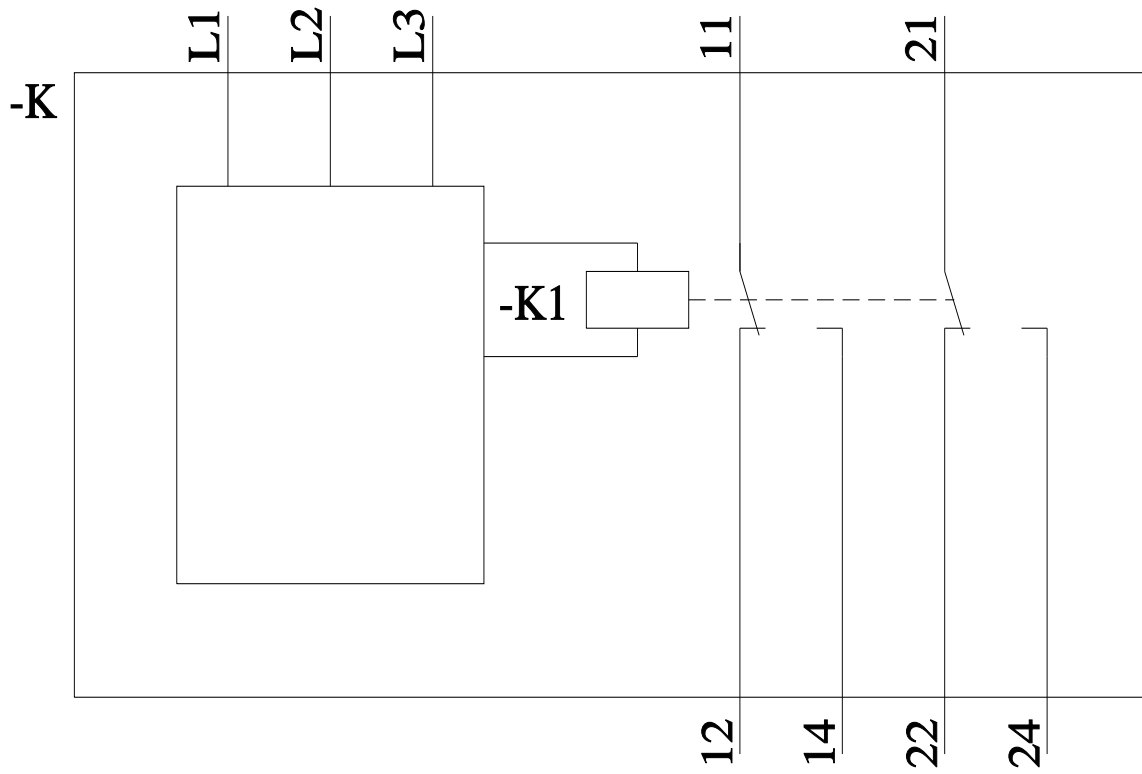
Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

<https://support.industry.siemens.com/cs/ww/en/ps/3UG5512-2BR21>

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

[http://www.automation.siemens.com/bilddb/cax\\_de.aspx?mlfb=3UG5512-2BR21&lang=en](http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3UG5512-2BR21&lang=en)





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