## SIEMENS

## Data sheet

## 3UG4511-2AN20



III product phase-out III The preferred successor type is 3UG5511-2AR20 phase sequence monitoring 3x160-260 V 1 CO analog monitoring relay phase sequence monitoring 3 x 160...260 V 50...60 Hz AC 1 changeover contact spring-loaded connection system

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product brand name	SIRIUS		
product designation	Line monitoring relay		
design of the product	1 function		
product type designation	3UG4		
General technical data			
product function	Phase monitoring relay		
display version LED	Yes		
insulation voltage for overvoltage category III according to IEC 60664			
<ul> <li>with degree of pollution 3 rated value</li> </ul>	690 V		
degree of pollution	3		
type of voltage			
<ul> <li>for monitoring</li> </ul>	AC		
<ul> <li>of the control supply voltage</li> </ul>	AC		
surge voltage resistance rated value	6 kV		
protection class IP	IP20		
shock resistance according to IEC 60068-2-27	sinusoidal half-wave 15g / 11 ms		
vibration resistance according to IEC 60068-2-6	1 6 Hz: 15 mm, 6 500 Hz: 2g		
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	К		
Substance Prohibitance (Date)	05/01/2012		
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		
Product Function			
product function			
<ul> <li>undervoltage detection</li> </ul>	No		
<ul> <li>overvoltage detection</li> </ul>	No		
<ul> <li>phase sequence recognition</li> </ul>	Yes		
<ul> <li>phase failure detection</li> </ul>	No		
asymmetry detection	No		
<ul> <li>overvoltage detection 3 phase</li> </ul>	No		
undervoltage detection 3 phases	No		
<ul> <li>voltage window recognition 3 phase</li> </ul>	No		
<ul> <li>adjustable open/closed-circuit current principle</li> </ul>	No		
• auto-RESET	Yes		
Control circuit/ Control			

control supply voltage at AC       100201 V         • • 160 Hz rated value       100201 V         • • India value       100201 V         • • India value       1         • • India value       0         • • India value       1         • • India value       1         • • India value       1         • • • • • • • • • • • • • • • • • • •				
• • rich U Er mind value     160 280 V       • • rich u value     1       • • indit value     1       •	control supply voltage at AC			
operating range factor control supply voltage rated value at <ul> <li>A at 8 bit</li> <li>A at 8 bit<!--</td--><td><ul> <li>at 50 Hz rated value</li> </ul></td><td colspan="3">160 260 V</td></li></ul>	<ul> <li>at 50 Hz rated value</li> </ul>	160 260 V		
AC at 69 Hz	• at 60 Hz rated value	160 260 V		
• Initial cale value     1       A cation is, portating regree factor control supply voltage rated value at • Initial value     1       • Initial value     0       • Initial value     0       • Initial value     0       • Initial value     1       • Initial value     0       • Initial value     1       • Initial value     3       • Initial value     3       • Initial value     3       • Initial value     3       • Initial value     1       • Initial value     1       •				
operating range factor control supply voltage rated value at A cat 60 /r /r A cat 60 /r	<ul> <li>initial value</li> </ul>	1		
A c a to transmission of the second s	• full-scale value	1		
Idesarding circuit     1       Measuring circuit     450 ms       Auxiliary circuit     100260 V       response time maximum     450 ms       Auxiliary circuit     0       number of NC contacts delayed switching     0       - for auxiliary contacts     1       - of auxiliary contacts     3       - ampacity of the output relay at AC-15     3 A       - at 20 V at 5050 Hz     3 A       - at 20 V at 5050 Hz     3 A       - at 22 V     0 2 A       - at 23 V     0 2 A       - at 24 V     0 A       - operational current at 17 V minimum     5 mA       - operational current at 17 V minimum     5 mA       - output to but according to IEC 6100-44     2 kV       - ule to conductor-onductors auge according to IEC 6100-45     2 kV       - ule to conductor-onductors auge according to IEC 6100-45     2 kV       - ule to conductor-onductors auge according to IEC 6100-45     1 kV    <				
Massuring circuit         Image: Circuit           response time maximum         450 ms           Auxiliary circuit         Image: Circuit           number of NC contacts delayed switching         0           number of CC contacts         1           • delayed switching         1           • of auxiliary contacts         1           • delayed switching         0           partial for agreency with 3FI2 contactor maximum         5000 1/h           Main circuit         3           mamber of the output role of t	• initial value	1		
measurable voltage at AC         160280 V           response time maximum         450 ms           Auxiliary criterit         450 ms           number of NC contacts delayed switching         0           number of CO contacts delayed switching         0           in delayed switching         1           idelayed switching         1           idelayed switching         1           idelayed switching         1           idelayed switching         3           mappetry of the output relay at AC-16         3           id 250 V at 5000 ftz         3 A           ampetry of the output relay at AC-13         3           id 250 V at 5000 ftz         3 A           id 250 V         02 A <t< td=""><td>• full-scale value</td><td>1</td></t<>	• full-scale value	1		
response time maximum     450 ms       Auxiliary circuit     0       number of NC contacts delayed switching     0       number of NC contacts     0       inter of NC contacts     1       oparating frequency with SR12 contactor maximum     5 000 1/h       Main circuit     3       number of NO contacts delayed switching     1       oparating frequency with SR12 contactor maximum     5 000 1/h       Main circuit     3       number of Doles for main current circuit     3       ampacity of the output relay at AC-15     3A       • at 250 V at 5080 Hz     3A       • at 250 V     0.1 A       operating frequency leaves     3A       ampacity of the output relay at DC-13     3A       • at 250 V     0.1 A       operational current at 17 V minimum     5 mA       continuous current of the DIA2ED fuse link of the output     4A       eta 250 V     0.1 A       conductoric-ath supper according to IEC 61000-4.5     2 kV       • due to conductor-ath supper according to IEC 61000-4.5     2 kV       • due to conductor-ath supper according to IEC 61000-4.2     6 kV contactor ath supper according to IEC 61000-4.2       • due to conductor-ath supper according to IEC 61000-4.2     6 kV contactor ath supper according to IEC 61000-4.2       • between the voltage supply and other circuits <td>Measuring circuit</td> <td></td>	Measuring circuit			
Auxiliary circait	measurable voltage at AC	160 260 V		
number of NC contacts delayed switching         0           number of Contacts         0           • for auxiliary contacts         1           • delayed switching         0           marker of Contacts         1           • delayed switching         1           • delayed switching         1           • delayed switching         3           ampacity of the output relay at AC-15         3 A           • at 250 V at 5060 Hz         3 A           • at 250 V at 5060 Hz         3 A           • at 250 V at 5060 Hz         3 A           • at 250 V at 5000 Hz         3 A           • at 250 V         0.1 A           • at 250 V         0.2 A           • at 250 V         0.1 A           • due to	response time maximum	450 ms		
number of NO contacts delayed switching     0       number of CO contacts     1       • for availing contacts     1       • delayed switching     1       operating frequency with NRT2 contactor maximum     5 000 1/h       Main circuit     3       number of poles for main current circuit     3       anapecity of the output relay at AC-15     -       • at 200 V at 5000 1/z     3 A       • at 240 V at 5000 1/z     3 A       • at 240 V at 5000 1/z     3 A       • at 240 V at 5000 1/z     3 A       • at 250 V     0.1 A       operating frequency     0.1 A       operational current at 17 V minimum     5 mA       continuous current of the DIAZED fuse link of the output relay     4 A       Electronnagnetic compatibility     Electronnagnetic compatibility       conductor-conductor surge according to IEC 61000-4.2     6 kV contact discharge / 8 kV air discharge       elue to conductor-conductor surge according to IEC 61000-4.2     6 kV contact discharge / 8 kV air discharge       calve burst according to IEC 61000-4.2     6 kV contact discharge / 8 kV air discharge       calve burst according to IEC 61000-4.2     6 kV contact discharge / 8 kV air discharge       calve burst according to IEC 61000-4.2     6 kV contact discharge / 8 kV air discharge       calve burst according to IEC 61000-4.2     6 kV contact discharge / 8 kV ai	Auxiliary circuit			
number of C0 contacts       1         • for auxiliary contacts       1         • delayed switching       1         • of auxiliary contacts       1         • delayed switching       1         • of auxiliary contacts       1         • of auxiliary contacts       1         • delayed switching       5000 1/h         Main circuit       3         ampactly of the output relay at AC-15       3 A         • at 260 V at 50060 Hz       3 A         anapacity of the output relay at DC-13       1 A         • at 250 V       0.2 A         • at 250 V       0.1 A         operational current at 17 V minimum       5 mA         continuous current of the DIAZED fuse link of the output relay at DC-13       4 A         • due to burst according to IEC 61000 4-5       2 kV         • due to conductor-conductor surge according to IEC 61000 4-5       1 kV         • due to conductor-conductor surge according to IEC 61000 4-5       1 kV         • due to conductor-conductor surge according to IEC 61000 4-2       1 kV contact discharge / 8 kV air discharge         • due to conductor-conductor surge according to IEC 61000 4-2       1 kV contact discharge / 8 kV air discharge         • due to burst according to IEC 61000 4-2       6 kV contact discharge / 8 kV air discharge <td>number of NC contacts delayed switching</td> <td>0</td>	number of NC contacts delayed switching	0		
• for auxiliary contacts     • delayed switching     • delayed switching     • delayed switching     • for auxiliary contacts     • delayed switching     • for auxiliary contacts     • delayed switching     • for auxiliary contacts     • for auxiliary contact for for the output     • for auxiliary for the output for for for the output     • for auxiliary for the output for for for the output     • for auxiliary auxiliary auxiliary auxiliary     • for auxiliary auxiliary auxiliary auxiliary auxiliary auxiliary auxiliary     • for auxiliary standed without core and processing     • for AWG cables sold     • for AWG cables cold     • for A	number of NO contacts delayed switching	0		
• delayed switching     1       operating frequency with 3RT2 contactor maximum     5 000 1/h       Main circuit     3       ampacity of the output relay at AC-15     • at 250 V at 5060 Hz       • at 260 V at 5060 Hz     3 A       ampacity of the output relay at DC-13     • at 220 V       • at 250 V     0.1 A       operational current at 17 V minimum     5 mA       continuous current of the DIAZED fuse link of the output relay     4 A       relay     0.1 A       operational current at 17 V minimum     5 mA       conducted interference     2 kV       • due to burst according to IEC 61000-4-5     2 kV       • due to burst according to IEC 61000-4-5     1 kV       • due to conductor-earth surge according to IEC 61000-4-5     2 kV       • due to conductor-earth surge according to IEC 61000-4-5     1 kV       • due to conductor-earth surge according to IEC 61000-4-5     1 kV       • due to conductor-earth surge according to IEC 61000-4-5     1 kV       • due to conductor-earth surge according to IEC 61000-4-5     1 kV       • due to conductor-earth surge according to IEC 61000-4-5     1 kV       • due to conductor-earth surge according to IEC 61000-4-5     1 kV       • due to conductor-earth surge according to IEC 61000-4-5     1 kV       • due to conductor-earth surge according to IEC 61000-4-5     1 kV    <	number of CO contacts			
operating frequency with 3RT2 contactor maximum         5 000 1/h           Main circuit	<ul> <li>for auxiliary contacts</li> </ul>	1		
Main circuit       3         number of poles for main current circuit       3         ampacity of the output relay at AC-15       3A         • at 250 V at 50/60 Hz       3A         • at 250 V       3A         ampacity of the output relay at DC-13       1A         • at 24 V       1A         • at 250 V       0.2 A         • at 250 V       0.2 A         • at 250 V       0.1 A         operational current at 17 V minimum       5 mA         continuous current of the DAZED fuse link of the output       4A         else to compatibility       2 kV         conducted interference       4A         • due to conductor-conductor surge according to IEC 61000-4-4       2 kV         • due to conductor-conductor surge according to IEC 61000-4-3       10 V/m         electorstatic discharge according to IEC 61000-4-3       10 V/m         electorstatic discharge according to IEC 61000-4-2       6 kV contact discharge / 8 kV air discharge         Calvanic isolation       Yes         • between the utputs       Yes         • between the utputs       Yes         • between the volage supply and other circuits       Yes         • batwaen the volage supply and other circuits       Yes         • between the volage supply	<ul> <li>delayed switching</li> </ul>	1		
Main circuit       3         number of poles for main current circuit       3         ampacity of the output relay at AC-15       3A         • at 250 V at 50/60 Hz       3A         • at 250 V       3A         ampacity of the output relay at DC-13       1A         • at 24 V       1A         • at 250 V       0.2 A         • at 250 V       0.2 A         • at 250 V       0.1 A         operational current at 17 V minimum       5 mA         continuous current of the DAZED fuse link of the output       4A         else to compatibility       2 kV         conducted interference       4A         • due to conductor-conductor surge according to IEC 61000-4-4       2 kV         • due to conductor-conductor surge according to IEC 61000-4-3       10 V/m         electorstatic discharge according to IEC 61000-4-3       10 V/m         electorstatic discharge according to IEC 61000-4-2       6 kV contact discharge / 8 kV air discharge         Calvanic isolation       Yes         • between the utputs       Yes         • between the utputs       Yes         • between the volage supply and other circuits       Yes         • batwaen the volage supply and other circuits       Yes         • between the volage supply	operating frequency with 3RT2 contactor maximum	5 000 1/h		
ampacity of the output relay at AC-15       3 A         • at 250 V at 5000 Hz       3 A         ampacity of the output relay at DC-13       3 A         • at 24 V       1 A         • at 250 V       0.2 A         • at 250 V       0.1 A         operational current at 17 V minimum       5 mA         continuous current of the DIAZED fuse link of the output       4 A         relay       4 A         elue to burst according to IEC 61000-4.4       2 kV         • due to burst according to IEC 61000-4.4       2 kV         • due to conductor-earth surge according to IEC 61000-4.5       2 kV         • due to conductor-conductor surge according to IEC 61000-4.2       10 V/m         electrostatic discharge according to IEC 61000-4.2       10 V/m         electrostatic discharge according to IEC 61000-4.2       6 kV contact discharge / 8 kV air discharge         Calvanci isolation       10 V/m         • between the uotputs       Yes         • oold       2x (0.25 .	Main circuit			
ampacity of the output relay at AC-15       3 A         • at 250 V at 5000 Hz       3 A         ampacity of the output relay at DC-13       3 A         • at 24 V       1 A         • at 250 V       0.2 A         • at 250 V       0.1 A         operational current at 17 V minimum       5 mA         continuous current of the DIAZED fuse link of the output       4 A         relay       4 A         elue to burst according to IEC 61000-4.4       2 kV         • due to burst according to IEC 61000-4.4       2 kV         • due to conductor-earth surge according to IEC 61000-4.5       2 kV         • due to conductor-conductor surge according to IEC 61000-4.2       10 V/m         electrostatic discharge according to IEC 61000-4.2       10 V/m         electrostatic discharge according to IEC 61000-4.2       6 kV contact discharge / 8 kV air discharge         Calvanci isolation       10 V/m         • between the uotputs       Yes         • oold       2x (0.25 .	number of poles for main current circuit	3		
• at 250 V at 50/60 Hz       3 A         • at 400 V at 50/60 Hz       3 A         ampacity of the output relay at DC-13       0.2 A         • at 24 V       1 A         • at 250 V       0.2 A         • at 250 V       0.1 A         operational current at 17 V minimum       5 mA         continuous current of the DIAZED fuse link of the output       4 A         electromagnetic compatibility       2 kV         conducted Interference       2 kV         • due to conductor-conductor surge according to IEC 61000-4-5       2 kV         • lue to conductor-conductor surge according to IEC 61000-4-5       2 kV         electrostatic discharge according to IEC 61000-4-3       10 V/m         electrostatic discharge according to IEC 61000-4-3       10 V/m <td></td> <td></td>				
• at 400 V at 50/60 Hz     3 A       ampacity of the output relay at DC-13        • at 24 V     1 A       • at 125 V     0.2 A       • at 250 V     0.1 A       operational current at 17 V minimum     5 mA       continuous current of the DIAZED fuse link of the output relay     4 A       relay     2 kV       conducted interference     2 kV       • due to burst according to IEC 61000-4.4     2 kV       • due to conductor-conductor surge according to IEC 61000-4.5     1 kV       field-based interference according to IEC 61000-4.2     1 kV       • due to conductor-conductor surge according to IEC 61000-4.2     1 kV       field-based interference according to IEC 61000-4.3     10 V/m       electrostatic discharge according to IEC 61000-4.2     6 kV contact discharge / 8 kV air discharge       Galvanic isolation     galvanic isolation       galvanic isolation     Yes       • between the outputs     Yes       of of connectable conductor cross-sections     Yes       • oid     2 x (0.25 1.5 mm <sup>2</sup> )       • oid     2 x (0.25 1.5 mm <sup>2</sup> )       • oind with core end processing     2 x (0.25 1.5 mm <sup>2</sup> )       • oind with core		3 A		
ampacity of the output relay at DC-13       1A         • at 25 V       0.2 A         • at 250 V       0.1 A         operational current at 17 V minimum       5 mA         continuous current of the DIAZED fuse link of the output relay       4A         continuous current of the DIAZED fuse link of the output relay       4A         conducted interference       4A         • due to burst according to IEC 61000-4-4       2 kV         • due to conductor-conductor suge according to IEC 61000-4-5       2 kV         • due to conductor-conductor suge according to IEC 61000-4-5       1 kV         offield-based interference according to IEC 61000-4-3       10 V/m         electrostatic discharge according to IEC 61000-4-2       6 kV contact discharge / 8 kV air discharge         Galvanic isolation       9 eleven the voltage supply and other circuits       Yes         • between the voltage supply and other circuits       Yes       Connectable conductor cross-sections         • solid       2x (0.25 1.5 mm²)       2x (0.25 1.5 mm²)         • inely stranded without core end processing       2x (0.25 1.5 mm²)         • for AWG cables solid       2x (2.4 16)         • or AWG cables solid       2x (2.4 16)         • or AWG cables solid       0.25 1.5 mm²         • finely stranded without core end pr				
• at 24 V1 A• at 125 V0.2 A• at 250 V0.1 Aoperational current at 17 V minimum5 mAcontinuous current of the DIAZED fuse link of the output4 AElectromagnetic compatibility4 Aconducted interference2 kV• due to burst according to IEC 61000-4-42 kV• due to conductor-conductor surge according to IEC 61000-4-52 kV• due to conductor-conductor surge according to IEC 61000-4-310 V/melectrostatic discharge according to IEC 61000-4-310 V/mgalvanic Isolation9• between the outputsYes· between the outputsYes· between the outputsYes· between the outputsYes· ordic component removable terminal for auxillary and type of electrical connectableYes· ordic classing2x (0.25 1.5 mm <sup>2</sup> )· solid2x (24 16)· or AWG cables solid2x (24 16)· or AWG				
• at 250 V       0.1 A         operational current at 17 V minimum       5 mA         continuous current of the DIAZED fuse link of the output relay       4 A         Electromagnetic compatibility       4 A         conductor-conductor-earth surge according to IEC 61000-4-5       2 kV         • due to borst according to IEC 61000-4-5       1 kV         • field-based interference       2 kV         • due to conductor-conductor surge according to IEC 61000-4-2       1 kV         field-based interference according to IEC 61000-4-2       6 kV contact discharge / 8 kV air discharge         Calvanic Isolation       9 kev contact discharge / 8 kV air discharge         electrostatic discharge according to IEC 61000-4-2       6 kV contact discharge / 8 kV air discharge         Contractions/Terminals       Yes         product component removable terminal for auxiliary and control circuits       Yes         control circuit       Yes         • between the outputs       Yes         • product component removable terminal for auxiliary and control circuit       Yes         (inely stranded without core end processing       2x (0.25 1.5 mm²)         • solid       2x (0.25 1.5 mm²)         • finely stranded without core end processing       2x (24 16)         connectable conductor cross-section       2x (24 16) </td <td></td> <td>1 A</td>		1 A		
• at 250 V     0.1 A       operational current at 17 V minimum     5 mA       continuous current of the DIAZED fuse link of the output relay     4 A       Electromagnetic compatibility     4 A       continuous current of the DIAZED fuse link of the output relay     4 A       Electromagnetic compatibility     4 A       contoucted interference     4 A       • due to burst according to IEC 61000-4-4     2 kV       • due to conductor-conductor surge according to IEC 61000-4-5     2 kV       field-based interference according to IEC 61000-4-3     10 V/m       electrostatic discharge according to IEC 61000-4-2     6 kV contact discharge / 8 kV air discharge       Galvanic isolation     galvanic isolation       galvanic isolation     9 kV contact discharge / 8 kV air discharge       Connections/ Terminals     Yes       Product component removable terminal for auxiliary and control circuit     Yes       ype of electrical connection     spring-loaded terminals       type of electrical connection     spring-loaded terminals       type of electrical conductor cross-sections     2x (0.25 1.5 mm <sup>2</sup> )       • for AWG cables stranded     2x (24 16)       • for AWG cables stranded     2x (24 16)       • forely stranded with core end processing     0.25 1.5 mm <sup>2</sup> • finely stranded with core end processing     0.25 1.5 mm <sup>2</sup>				
operational current at 17 V minimum         5 mA           continuous current of the DIAZED fuse link of the output relay         4 A           Electromagnetic compatibility         4 A           conducted interference         4 A           • due to burst according to IEC 61000-4-4         2 kV           • due to conductor-canth surge according to IEC 61000-4-5         2 kV           • due to conductor-conductor surge according to IEC 61000-4-3         10 V/m           field-based interference         6 kV contact discharge / 8 kV air discharge           Galvanic isolation         6 kV contact discharge / 8 kV air discharge           galvanic isolation         Yes           • between input and output         Yes           • between the voltage supply and other circuits         Yes           Connections/ Terminals         Yes           product component removable terminal for auxiliary and control circuit         Yes           type of electrical connection         spring-loaded terminals           type of connectable conductor cross-sections         2x (0.25 1.5 mm²)           • solid         2x (24 16)           • finely stranded with core end processing         2x (24 16)           connectable conductor cross-section         2x (24 16)           • finely stranded with core end processing         0.25 1.5 mm				
continuous current of the DIAZED fuse link of the output relay       4 A         control compatibility       Electromagnetic compatibility         conducted interference <ul> <li>due to bours according to IEC 61000-4-4</li> <li>2 kV</li> <li>due to conductor-canth surge according to IEC</li> <li>field-based interference according to IEC 61000-4-3</li> <li>10 V/m</li> <li>electrostatic discharge according to IEC 61000-4-3</li> <li>10 V/m</li> <li>electrostatic discharge according to IEC 61000-4-3</li> <li>6 kV contact discharge / 8 kV air discharge</li> </ul> <li>Galvanic isolation         <ul> <li>between input and output</li> <li>Yes</li> <li>between the voltage supply and other circuits</li> <li>Yes</li> </ul> </li> <li>obetween the voltage supply and other circuits</li> <li>Yes</li> <li>connectable conductor cross-sections</li> <li>solid</li> <li>finely stranded with core end processing</li> <li>2x (0.25 1.5 mm<sup>2</sup>)</li> <li>x (0.25 1.5 mm<sup>2</sup>)</li> <li>for AWG cables stranded</li> <li>2x (24 16)</li> <li>connectable conductor cross-section</li> <li>solid</li> <li>0.25 1.5 mm<sup>2</sup></li> <				
relay       Field         Electromagnetic compatibility         conducted interference         • due to burst according to IEC 61000-4-5         • due to conductor-earth surge according to IEC 61000-4-5         • due to conductor-conductor surge according to IEC 61000-4-5         field-based interference according to IEC 61000-4-3         • due to conductor-conductor surge according to IEC 61000-4-3         field-based interference according to IEC 61000-4-2         electrostatic discharge according to IEC 61000-4-2         galvanic isolation         • between input and output         • between the outputs         • between the voltage supply and other circuits         Yees         Connections/ Terminals         product component removable terminal for auxiliary and control circuit         type of connection         solid       2x (0.251.5 mm <sup>3</sup> )         • solid       2x (0.251.5 mm <sup>3</sup> )         • finely stranded without core end processing       2x (0.251.5 mm <sup>3</sup> )         • for AWG cables stranded       2x (2416)         connectable conductor cross-section       2x (0.251.5 mm <sup>3</sup> )         • for AWG cables stranded       2x (2416)         connectable conductor cross-section       0.251.5 mm <sup>3</sup> • finely stranded with core end processing	•			
conducted interference       2 kV         • due to burst according to IEC 61000-4-4       2 kV         • due to conductor-ceraft surge according to IEC 61000-4-5       2 kV         • due to conductor-conductor surge according to IEC 61000-4-5       1 kV         field-based interference according to IEC 61000-4-3       10 V/m         electrostatic discharge according to IEC 61000-4-2       6 kV contact discharge / 8 kV air discharge         Galvanic isolation       galvanic isolation         • between input and output       Yes         • between the outputs       Yes         • for onnectable conductor cross-sections       \$\stringsingle         • solid       2x (0.25 1.5 mm²)         • for AWG cables solid	•			
• due to burst according to IEC 61000-4-4 $2 \text{ kV}$ • due to conductor-earth surge according to IEC 61000-4-5 $2 \text{ kV}$ • due to conductor-conductor surge according to IEC $1 \text{ kV}$ • follo0-4-5 $1 \text{ kV}$ • feld-based interference according to IEC 61000-4-2 $6 \text{ kV}$ contact discharge / $8 \text{ kV}$ air discharge• deterostatic discharge according to IEC 61000-4-2 $6 \text{ kV}$ contact discharge / $8 \text{ kV}$ air discharge• deterostatic discharge according to IEC 61000-4-2 $6 \text{ kV}$ contact discharge / $8 \text{ kV}$ air discharge• deterostatic discharge according to IEC 61000-4-2 $6 \text{ kV}$ contact discharge / $8 \text{ kV}$ air discharge• deterostatic discharge according to IEC 61000-4-2 $6 \text{ kV}$ contact discharge / $8 \text{ kV}$ air discharge• deterostatic discharge according to IEC 61000-4-2 $6 \text{ kV}$ contact discharge• between input and outputYes• between the voltage supply and other circuitsYes• between the voltage supply and other circuitsYes• between the voltage supply and other circuitsYes• control circuityes• product component removable terminal for auxiliary and control circuitspring-loaded terminals• type of connectable conductor cross-sections $2 \times (0.25 \dots 1.5 \text{ mm}^2)$ • finely stranded with core end processing $2 \times (24 \dots 16)$ • for AWG cables solid $2 \times (24 \dots 16)$ • for AWG cables solid $2 \times (24 \dots 15 \text{ mm}^2)$ • finely stranded with core end processing $0.25 \dots 1.5 \text{ mm}^2$ • solid $0.25 \dots 1.5 \text{ mm}^2$ • finely stranded with	Electromagnetic compatibility			
• due to conductor-earth surge according to IEC 61000-4-5       2 kV         • due to conductor-conductor surge according to IEC 61000-4-3       1 kV         field-based interference according to IEC 61000-4-2       6 kV contact discharge / 8 kV air discharge         Galvanic isolation       6 kV contact discharge / 8 kV air discharge         galvanic isolation       Yes         • between input and output       Yes         • between the outputs       Yes         • control circuit       Yes         type of connectable conductor cross-sections       spring-loaded terminals         type of electrical connection       spring-loaded terminals         type of cannectable conductor cross-sections       2 x (0.25 1.5 mm²)         • finely stranded with core end processing       2 x (24 16)         • for AWG cables stranded       2 x (24 16)         • finely stranded with core end processing       0.25 1.5 mm²         • solid       0.25 1.5 mm² <t< td=""><td>conducted interference</td><td></td></t<>	conducted interference			
• due to conductor-conductor surge according to IEC       1 kV         field-based interference according to IEC 61000-4-3       10 V/m         electrostatic discharge according to IEC 61000-4-3       6 kV contact discharge / 8 kV air discharge         Galvanic isolation       6 kV contact discharge / 8 kV air discharge         galvanic isolation       Yes         • between input and output       Yes         • between the outputs       Yes         • between the voltage supply and other circuits       Yes         Connections/Terminals       Yes         product component removable terminal for auxiliary and control circuit       Spring-loaded terminals         type of electrical connection       spring-loaded terminals         type of connectable conductor cross-sections       \$ x (0.25 1.5 mm²)         • finely stranded with core end processing       2x (0.25 1.5 mm²)         • for AWG cables solid       2x (24 16)         connectable conductor cross-section       \$ solid         • finely stranded with core end processing       0.25 1.5 mm²         • solid       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²	<ul> <li>due to burst according to IEC 61000-4-4</li> </ul>	2 kV		
61000-4-5         field-based interference according to IEC 61000-4-3       10 V/m         electrostatic discharge according to IEC 61000-4-2       6 kV contact discharge / 8 kV air discharge         Galvanic isolation       galvanic isolation         • between input and output       Yes         • between the outputs       Yes         • between the voltage supply and other circuits       Yes         Connections/ Terminals       Yes         product component removable terminal for auxiliary and control circuit       Yes         type of electrical connection       spring-loaded terminals         type of electrical connection       spring-loaded terminals         type of electrical connection       spring-loaded terminals         isolid       2x (0.25 1.5 mm²)         • finely stranded with core end processing       2x (0.25 1.5 mm²)         • for AWG cables solid       2x (24 16)         connectable conductor cross-section       solid         • finely stranded with core end processing       0.25 1.5 mm²         • solid       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm² <t< td=""><td><ul> <li>due to conductor-earth surge according to IEC 61000-4-5</li> </ul></td><td>2 kV</td></t<>	<ul> <li>due to conductor-earth surge according to IEC 61000-4-5</li> </ul>	2 kV		
electrostatic discharge according to IEC 61000-4-2       6 kV contact discharge / 8 kV air discharge         Galvanic isolation       galvanic isolation            • between input and output         • between the outputs         • between the voltage supply and other circuits         Yes             • between the voltage supply and other circuits        Yes             connections/Terminals        Yes             product component removable terminal for auxiliary and         control circuit        Yes             type of electrical connection        spring-loaded terminals             type of connectable conductor cross-sections        spring-loaded terminals             type of connectable conductor cross-sections        solid             inely stranded with core end processing        2x (0.25 1.5 mm²)             inely stranded without core end processing        2x (24 16)             tor AWG cables solid        0.25 1.5 mm²             inely stranded with core end processing        0.25 1.5 mm²             e solid        0.25 1.5 mm²	° °	1 kV		
Galvanic isolation         galvanic isolation         • between input and output       Yes         • between the outputs       Yes         • between the voltage supply and other circuits       Yes         Connections/ Terminals       Yes         product component removable terminal for auxiliary and control circuit       Yes         type of electrical connection       spring-loaded terminals         type of connectable conductor cross-sections       solid         • finely stranded with core end processing       2 x (0.25 1.5 mm²)         • for AWG cables solid       2x (24 16)         • for AWG cables stranded       2x (24 16)         connectable conductor cross-section       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • for AWG cables stranded       2x (24 16)         connectable conductor cross-section       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely	field-based interference according to IEC 61000-4-3	10 V/m		
galvanic isolation       Yes         • between input and output       Yes         • between the outputs       Yes         • between the voltage supply and other circuits       Yes         Connections/ Terminals       Yes         product component removable terminal for auxiliary and control circuit       Yes         type of electrical connection       spring-loaded terminals         type of connectable conductor cross-sections       solid         • solid       2x (0.25 1.5 mm²)         • finely stranded with core end processing       2x (0.25 1.5 mm²)         • for AWG cables solid       2x (24 16)         • for AWG cables stranded       2x (24 16)         • solid       0.25 1.5 mm²         • solid       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded without co	electrostatic discharge according to IEC 61000-4-2	6 kV contact discharge / 8 kV air discharge		
• between input and output       Yes         • between the outputs       Yes         • between the voltage supply and other circuits       Yes <b>Connections/ Terminals</b> Yes         product component removable terminal for auxiliary and control circuit       Yes         type of electrical connection       spring-loaded terminals         type of connectable conductor cross-sections       spring-loaded terminals         • solid       2x (0.25 1.5 mm²)         • finely stranded with core end processing       2x (0.25 1.5 mm²)         • for AWG cables solid       2x (24 16)         • for AWG cables stranded       2x (24 16)         • solid       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • for AWG number as coded connectable conductor cross       400 mm²	Galvanic isolation			
• between the outputs       Yes         • between the voltage supply and other circuits       Yes <b>Connections/Terminals</b> Yes         product component removable terminal for auxiliary and control circuit       Yes         type of electrical connection       spring-loaded terminals         type of connectable conductor cross-sections       solid         • solid       2x (0.25 1.5 mm²)         • finely stranded with core end processing       2x (0.25 1.5 mm²)         • finely stranded without core end processing       2x (24 16)         • for AWG cables solid       2x (24 16)         • for AWG cables stranded       2x (24 16)         • finely stranded with core end processing       0.25 1.5 mm²         • for AWG cables stranded       2x (24 16)         • for AWG cables stranded       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded without core end processing       0.25 1.5 mm²         • finely stranded without core end processing       0.25 1.5 mm²         • fi	galvanic isolation			
• between the voltage supply and other circuits       Yes         Connections/Terminals       Yes         product component removable terminal for auxiliary and control circuit       Yes         type of electrical connection       spring-loaded terminals         type of connectable conductor cross-sections       •         • solid       2x (0.25 1.5 mm²)         • finely stranded with core end processing       2x (0.25 1.5 mm²)         • finely stranded without core end processing       2x (24 16)         • for AWG cables solid       2x (24 16)         • solid       0.25 1.5 mm²         • solid       0.25 1.5 mm²         • solid       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • for AWG cables stranded       0.25 1.5 mm²         • solid       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded without core end processing       0.25 1.5 mm²         • finely stranded without core end processing       0.25 1.5 mm² <td><ul> <li>between input and output</li> </ul></td> <td>Yes</td>	<ul> <li>between input and output</li> </ul>	Yes		
Connections/ Terminals         product component removable terminal for auxiliary and control circuit       Yes         type of electrical connection       spring-loaded terminals         type of connectable conductor cross-sections          • solid       2x (0.25 1.5 mm²)         • finely stranded with core end processing       2x (0.25 1.5 mm²)         • finely stranded without core end processing       2x (2.25 1.5 mm²)         • for AWG cables solid       2x (24 16)         • for AWG cables stranded       2x (24 16)         • finely stranded with core end processing       0.25 1.5 mm²         • for AWG cables stranded       2x (24 16)         • for AWG cables stranded       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded without core end processing       0.25 1.5 mm²         • finely stranded without core end processing       0.25 1.5 mm²         • finely stranded without core end processing       0.25 1.5 mm²	between the outputs	Yes		
Connections/ Terminals         product component removable terminal for auxiliary and control circuit       Yes         type of electrical connection       spring-loaded terminals         type of connectable conductor cross-sections          • solid       2x (0.25 1.5 mm²)         • finely stranded with core end processing       2x (0.25 1.5 mm²)         • finely stranded without core end processing       2x (2.25 1.5 mm²)         • for AWG cables solid       2x (24 16)         • for AWG cables stranded       2x (24 16)         • finely stranded with core end processing       0.25 1.5 mm²         • for AWG cables stranded       2x (24 16)         • for AWG cables stranded       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded without core end processing       0.25 1.5 mm²         • finely stranded without core end processing       0.25 1.5 mm²         • finely stranded without core end processing       0.25 1.5 mm²	<ul> <li>between the voltage supply and other circuits</li> </ul>	Yes		
control circuitspring-loaded terminalstype of electrical connectable conductor cross-sectionsspring-loaded terminals• solid2x (0.25 1.5 mm²)• finely stranded with core end processing2x (0.25 1.5 mm²)• finely stranded without core end processing2x (0.25 1.5 mm²)• for AWG cables solid2x (24 16)• for AWG cables stranded2x (24 16)• for AWG cables stranded2x (24 16)• finely stranded with core end processing0.25 1.5 mm²• finely stranded with core end processing0.25 1.5 mm²• finely stranded with core end processing0.25 1.5 mm²• solid0.25 1.5 mm²• finely stranded with core end processing0.25 1.5 mm²• finely stranded without core end processing0.25 1.5 mm²				
control circuitspring-loaded terminalstype of electrical connectable conductor cross-sectionsspring-loaded terminals• solid2x (0.25 1.5 mm²)• finely stranded with core end processing2x (0.25 1.5 mm²)• finely stranded without core end processing2x (0.25 1.5 mm²)• for AWG cables solid2x (24 16)• for AWG cables stranded2x (24 16)• for AWG cables stranded2x (24 16)• finely stranded with core end processing0.25 1.5 mm²• finely stranded with core end processing0.25 1.5 mm²• finely stranded with core end processing0.25 1.5 mm²• solid0.25 1.5 mm²• finely stranded with core end processing0.25 1.5 mm²• finely stranded without core end processing0.25 1.5 mm²	product component removable terminal for auxiliary and	Yes		
type of connectable conductor cross-sections• solid2x (0.25 1.5 mm²)• finely stranded with core end processing2 x (0.25 1.5 mm²)• finely stranded without core end processing2x (0.25 1.5 mm²)• for AWG cables solid2x (24 16)• for AWG cables stranded2x (24 16)• for AWG cables stranded2x (24 16)• for AWG cables stranded0.25 1.5 mm²• solid0.25 1.5 mm²• finely stranded with core end processing0.25 1.5 mm²• finely stranded without core end processing0.25 1.5 mm²• finely stranded without core end processing0.25 1.5 mm²• finely stranded without core end processing0.25 1.5 mm²				
• solid2x (0.25 1.5 mm²)• finely stranded with core end processing2 x (0.25 1.5 mm²)• finely stranded without core end processing2x (0.25 1.5 mm²)• for AWG cables solid2x (24 16)• for AWG cables stranded2x (24 16)• for AWG cables stranded2x (24 16)• for AWG cables stranded0.25 1.5 mm²• solid0.25 1.5 mm²• finely stranded with core end processing0.25 1.5 mm²• finely stranded with core end processing0.25 1.5 mm²• finely stranded with core end processing0.25 1.5 mm²• finely stranded without core end processing0.25 1.5 mm²• finely stranded without core end processing0.25 1.5 mm²• finely stranded without core end processing0.25 1.5 mm²	type of electrical connection	spring-loaded terminals		
• finely stranded with core end processing2 x (0.25 1.5 mm²)• finely stranded without core end processing2x (0.25 1.5 mm²)• for AWG cables solid2x (24 16)• for AWG cables stranded2x (24 16)• connectable conductor cross-section0.25 1.5 mm²• solid0.25 1.5 mm²• finely stranded with core end processing0.25 1.5 mm²• finely stranded with core end processing0.25 1.5 mm²• finely stranded without core end processing0.25 1.5 mm²• finely stranded without core end processing0.25 1.5 mm²• finely stranded without core end processing0.25 1.5 mm²	type of connectable conductor cross-sections			
<ul> <li>finely stranded without core end processing</li> <li>for AWG cables solid</li> <li>for AWG cables stranded</li> <li>for AWG cables stranded</li> <li>for AWG cables stranded</li> <li>2x (24 16)</li> <li>2x (24 16)</li> <li>2x (24 16)</li> <li>2x (24 16)</li> <li>0.25 1.5 mm<sup>2</sup></li> <li>finely stranded with core end processing</li> <li>0.25 1.5 mm<sup>2</sup></li> <li>0.25 1.5 mm<sup>2</sup></li> <li>0.25 1.5 mm<sup>2</sup></li> <li>AWG number as coded connectable conductor cross</li> </ul>	• solid	2x (0.25 1.5 mm²)		
<ul> <li>for AWG cables solid</li> <li>for AWG cables stranded</li> <li>for AWG cables stranded</li> <li>2x (24 16)</li> <li>2x (24 16)</li> <li>connectable conductor cross-section</li> <li>solid</li> <li>0.25 1.5 mm<sup>2</sup></li> <li>finely stranded with core end processing</li> <li>0.25 1.5 mm<sup>2</sup></li> <li>0.25 1.5 mm<sup>2</sup></li> <li>AWG number as coded connectable conductor cross</li> </ul>	<ul> <li>finely stranded with core end processing</li> </ul>	2 x (0.25 1.5 mm²)		
for AWG cables stranded     2x (24 16)      connectable conductor cross-section         • solid         • finely stranded with core end processing         • finely stranded without core end processing         • finely stranded without core end processing         • 25 1.5 mm <sup>2</sup>	<ul> <li>finely stranded without core end processing</li> </ul>	2x (0.25 1.5 mm²)		
connectable conductor cross-section       0.25 1.5 mm²         • solid       0.25 1.5 mm²         • finely stranded with core end processing       0.25 1.5 mm²         • finely stranded without core end processing       0.25 1.5 mm²         AWG number as coded connectable conductor cross       Image: Context and the second context	<ul> <li>for AWG cables solid</li> </ul>	2x (24 16)		
• solid     0.25 1.5 mm²       • finely stranded with core end processing     0.25 1.5 mm²       • finely stranded without core end processing     0.25 1.5 mm²       • AWG number as coded connectable conductor cross     V	<ul> <li>for AWG cables stranded</li> </ul>	2x (24 16)		
<ul> <li>finely stranded with core end processing</li> <li>finely stranded without core end processing</li> <li>0.25 1.5 mm<sup>2</sup></li> <li>0.25 1.5 mm<sup>2</sup></li> </ul>	connectable conductor cross-section			
• finely stranded without core end processing     0.25 1.5 mm <sup>2</sup> AWG number as coded connectable conductor cross	• solid	0.25 1.5 mm <sup>2</sup>		
AWG number as coded connectable conductor cross	<ul> <li>finely stranded with core end processing</li> </ul>	0.25 1.5 mm²		
	<ul> <li>finely stranded without core end processing</li> </ul>	0.25 1.5 mm <sup>2</sup>		

<ul> <li>solid</li> </ul>			24 16				
<ul> <li>stranded</li> </ul>			24 16				
Installation/ mounting/	dimensions						
mounting position			any				
fastening method			snap-on mounting				
height			84 mm				
width			22.5 mm				
depth			91 mm				
required spacing							
<ul> <li>with side-by-side</li> </ul>	e mounting						
— forwards			0 mm				
— backwards			0 mm				
— upwards			0 mm				
— downwards			0 mm				
— at the side							
<ul> <li>for grounded part</li> </ul>	rts						
— forwards			0 mm				
— backwards			0 mm				
— upwards			0 mm				
- at the side			0 mm				
- downwards	3		0 mm				
<ul> <li>for live parts</li> </ul>							
— forwards			0 mm				
— backwards			0 mm				
— upwards			0 mm				
— downwards	3		0 mm				
— at the side			0 mm				
Ambient conditions							
installation altitude at h	eight above sea level max	imum	2 000 m				
ambient temperature			_				
<ul> <li>during operation</li> </ul>			-25 +60 °C				
<ul> <li>during storage</li> </ul>			-40 +85 °C				
<ul> <li>during transport</li> </ul>			-40 +85 °C				
Approvals Certificates							
General Product App	roval						
	~ ~	<b>Confirmation</b>		ŝ	r M F		
				(VL)			
					FHI		
ČÀ	EG-Konf.				EHE		
UK CA	EG-Konf.				CHL		
ČÀ	EG-Konf.				tHL		
ČÂ	EG-Konf.	Test Certificates	ccc	Marine / Shipping	EUL		
				Marine / Shipping	EUL		
	EG-Konf.	Type Test Certif	ic- Special Test Certific-	Marine / Shipping	Lunds		
			ic- Special Test Certific-	Marine / Shipping	Lloyds Register		
		Type Test Certif	ic- Special Test Certific-	Marine / Shipping			
		Type Test Certif	ic- Special Test Certific-	Ĵ.Å. DNV	Lloyds Register		
		Type Test Certif	ic- Special Test Certific-	Ĵ.Å. DNV	Lloyd's Register		
		Type Test Certif	ic- Special Test Certific-	Ĵ.Å. DNV	Lloyds Register		
EMV ECM	KC Railway	<u>Type Test Certif</u> ates/Test Repo Environment	ic <u>- Special Test Certific-</u> rt <u>ate</u>	Ĵ.Å. DNV	Lloyds Register		
	KC	<u>Type Test Certif</u> ates/Test Repo	ic <u>- Special Test Certific-</u> rt <u>ate</u>	Ĵ.Å. DNV	Lloyds Register		
EMV ECM	KC Railway Special Test Certific-	Type Test Certifi ates/Test Repo Environment	ic <u>- Special Test Certific-</u> rt <u>ate</u>	Ĵ.Å. DNV	Lloyds Register		

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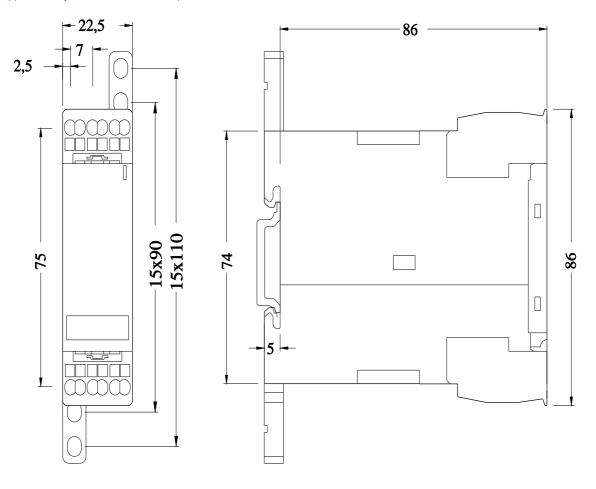
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