SIEMENS

product brand name

Data sheet 3UG4816-2AA40

SIRIUS



Digital monitoring relay for 3-phase voltage with N-conductor for IO-Link 50...60 Hz AC 3 x 160 to 690 V Phase sequence, Phase failure Phase asymmetry Undervoltage and overvoltage Hysteresis 1-20 V Line stabilization delay Tripping delay time 1 change-over contact, spring-type connection system

display version LED design of the display Insulation voltage for overvoltage category III according to IEC 60664 ● with degree of pollution 2 rated value ● for monitoring ● of the control supply voltage ■ for monitoring ● of the control supply voltage Protection class IP shock resistance acc. to IEC 60068-2-27 wibration resistance acc. to IEC 60068-2-6 mechanical service life (switching cycles) typical electrical endurance (switching cycles) at AC-15 at 230 V typical reference code acc. to IEC 81346-2 relative repeat accuracy Substance Prohibitance (Date) Protection Lass IP IPA No No AC 690 V AC 690 V AC 690 V	product brand name	SIRIUS
product type designation 30roal technical data product function display version LED Aesign of the display insulation voltage for overvoltage category III according to IEC 60664 • with degree of pollution type of voltage • for monitoring • of the control supply voltage surge voltage resistance rated value for the resistance act. to IEC 60068-2-27 mechanical service life (switching cycles) typical electrical endurance (switching cycles) at AC-15 at 230 V typical electrical endurance (switching element with contacts maximum reference code acc. to IEC 81346-2 Relative repeat accuracy product function • undervoltage detection • phase failure detection • phase failure detection • overvoltage detection • overvoltage detection • overvoltage detection 3 phase • outlage window recognition 3 phase • outlage window recognition 4 pes	product designation	Network monitoring relay with digital setting
product function Phase monitoring relay display version LED No design of the display LCD insulation voltage for overvoltage category Ill according to IEC 60664 • with degree of pollution 2 rated value 690 V degree of pollution • of monitoring • of the control supply voltage DC surge voltage resistance rated value 6 kV protection class IP shock resistance acc. to IEC 60068-2-27 sinusoidal half-wave 15g / 11 ms vibration resistance acc. to IEC 60068-2-27 sinusoidal half-wave 15g / 11 ms vibration resistance acc. to IEC 60068-2-27 sinusoidal half-wave 15g / 11 ms vibration resistance acc. to IEC 60068-2-27 sinusoidal half-wave 15g / 10 ms vibration resistance acc. to IEC 60068-2-27 sinusoidal half-wave 15g / 11 ms vibration resistance acc. to IEC 60068-2-27 sinusoidal half-wave 15g / 11 ms vibration resistance acc. to IEC 60068-2-27 sinusoidal half-wave 15g / 10 ms vibration resistance acc. to IEC 60068-2-27 sinusoidal half-wave 15g / 11 ms vibration resistance acc. to IEC 60068-2-27 sinusoidal half-wave 15g / 11 ms vibration resistance acc. to IEC 60068-2-27 sinusoidal half-wave 15g / 11 ms vibration resistance acc. to IEC 81068-2-27 sinusoidal half-wave 15g / 11 ms 1 6 Hz: 15 mm, 6 500 Hz: 2g mechanical service life (switching cycles) at AC-15 at 230 V typical 1 thermal current of the switching element with contacts maximum reference code acc. to IEC 81346-2	design of the product	5 functions
Phase monitoring relay No Clos	product type designation	3UG4
design of the display LCD Insulation voltage for overvoltage category III according to IEC 60864 • with degree of pollution 2 rated value 690 V degree of pollution 2 type of voltage • for monitoring AC • of the control supply voltage 6k V protection class IP IP20 shock resistance acc. to IEC 60068-2-7 sinusoidal half-wave 15g / 11 ms vibration resistance acc. to IEC 60068-2-6 1 6 Hz: 15 mm, 6 500 Hz: 2g mechanical service life (switching cycles) at AC-15 at 230 V typical electrical endurance (switching cycles) at AC-15 at 230 V typical thermal current of the switching element with contacts maximum reference code acc. to IEC 81346-2 K relative repeat accuracy 1 % Substance Prohibitance (Date) 01.05.2012 Product Function product function • undervoltage detection Yes • overvoltage detection Yes • phase sequence recognition Yes • phase failure detection Yes • undervoltage detection 3 phase Yes	General technical data	
design of the display insulation voltage for overvoltage category III according to IEC 60684 • with degree of pollution 2 rated value degree of pollution 2 type of voltage • for monitoring • of the control supply voltage protection class IP vibration resistance acc. to IEC 60068-2-27 vibration resistance acc. to IEC 60068-2-27 vibration resistance acc. to IEC 60068-2-27 mechanical service life (switching cycles) typical electrical endurance (switching cycles) at AC-15 at 230 V typical thermal current of the switching element with contacts maximum reference code acc. to IEC 81346-2 relative repeat accuracy 1% Substance Prohibitance (Date) roduct Function product function • undervoltage detection • phase sequence recognition • phase failure detection • phase failure detection • phase failure detection • overvoltage detection • undervoltage detection • overvoltage detection • phase failure detection • phase failure detection • phase failure detection • overvoltage detection 3 phase • voltage window recognition 3 phase • adjustable open/closed-circuit current principle • external reset	product function	Phase monitoring relay
insulation voltage for overvoltage category III according to IEC 60684 • with degree of pollution type of voltage • for monitoring • of the control supply voltage of the control supply voltage surge voltage resistance rated value protection class IP shock resistance acc. to IEC 60068-2-27 wibration resistance acc. to IEC 60068-2-6 mechanical service life (switching cycles) typical electrical endurance (switching cycles) typical electrical endurance (switching cycles) typical electrical endurance (switching cycles) at AC-15 at 230 V typical thermal current of the switching element with contacts maximum reference code acc. to IEC 81346-2 Relative repeat accuracy 1 % Substance Prohibitance (Date) product function • undervoltage detection • undervoltage detection • phase sequence recognition • phase failure detection • phase failure detection • phase failure detection • phase failure detection • overvoltage detection 3 phase • voltage window recognition 3 phase • voltage vindow recognition 3 phase	display version LED	No
### IEC 60664 • with degree of pollution 2 rated value degree of pollution type of voltage • for monitoring • of the control supply voltage DC surge voltage resistance rated value protection class IP IP20 shock resistance acc. to IEC 60068-2-27 wibration resistance acc. to IEC 60068-2-6 In 6 Hz: 15 mm, 6 500 Hz: 2g mechanical service life (switching cycles) typical In 6 Hz: 15 mm, 6 500 Hz: 2g mechanical service life (switching cycles) at AC-15 at 230 V typical thermal current of the switching element with contacts maximum reference code acc. to IEC 81346-2 relative repeat accuracy Substance Prohibitance (Date) roduct Function product function • undervoltage detection • undervoltage detection • phase sequence recognition • phase squence recognition • phase squence recognition • phase failure detection • phase squence recognition • undervoltage detection 3 phase • voltage window recognition 3 phase • voltage vindow recognition 2 phase • voltage vindow recognition 3 phase • voltage vindow recognition 2 phase • voltage vindow recognition 3 phase	design of the display	LCD
degree of pollution 2 type of voltage AC of the control supply voltage DC surge voltage resistance rated value 6 kV protection class IP IP20 shock resistance acc. to IEC 60068-2-27 sinusoidal half-wave 15g / 11 ms vibration resistance acc. to IEC 60068-2-6 1 6 Hz: 15 mm, 6 500 Hz: 2g mechanical service life (switching cycles) typical 100 000 000 electrical endurance (switching cycles) at AC-15 at 230 V typical 100 000 thermal current of the switching element with contacts maximum 5 A reference code acc. to IEC 81346-2 K relative repeat accuracy 1 % Substance Prohibitance (Date) 01.05.2012 Product Function Yes product function Yes • undervoltage detection Yes • phase sequence recognition Yes • phase failure detection Yes • phase failure detection 3 phase Yes • undervoltage detection 3 phase Yes • undervoltage detection 3 phase Yes • voltage window recognition 3 phase Yes <tr< td=""><td></td><td></td></tr<>		
type of voltage	 with degree of pollution 2 rated value 	690 V
of the control supply voltage of the control supply voltage surge voltage resistance rated value protection class IP shock resistance acc. to IEC 60068-2-27 sinusoidal half-wave 15g / 11 ms vibration resistance acc. to IEC 60068-2-6 1 6 Hz: 15 mm, 6 500 Hz: 2g mechanical service life (switching cycles) typical electrical endurance (switching cycles) at AC-15 at 230 V typical thermal current of the switching element with contacts maximum reference code acc. to IEC 81346-2 relative repeat accuracy 1 % Substance Prohibitance (Date) Product Function product function undervoltage detection ves vervoltage detection phase sequence recognition phase failure detection yes augmenty detection 3 phase voltage window recognition 3 phase voltage window recognition current principle external reset Possible AC Ves augmenty description 3 phase velous window recognition 2 phase adjustable open/closed-circuit current principle external reset AC BV Ves Ves Ves Ves Ves AC BV Ves Ves Ves Ves Ves Ves Ves	degree of pollution	2
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shock resistance acc. to IEC 60068-2-27 sinusoidal half-wave 15g / 11 ms vibration resistance acc. to IEC 60068-2-6 mechanical service life (switching cycles) typical electrical endurance (switching cycles) at AC-15 at 230 V typical thermal current of the switching element with contacts maximum reference code acc. to IEC 81346-2 K relative repeat accuracy 1 % Substance Prohibitance (Date) Product Function product function • undervoltage detection • overvoltage detection • phase sequence recognition • phase failure detection • asymmetry detection • overvoltage detection 3 phase • overvoltage detection 3 phase • undervoltage detection 3 phase • voltage window recognition 3 phase • voltage window recognition 3 phase • adjustable open/closed-circuit current principle • external reset sinusoidal half-wave 15g / 11 ms 1 6 Hz: 15 mm, 6 500 Hz: 2g 1 6 Hz: 15 mm, 6	surge voltage resistance rated value	6 kV
vibration resistance acc. to IEC 60068-2-6 mechanical service life (switching cycles) typical electrical endurance (switching cycles) at AC-15 at 230 V typical thermal current of the switching element with contacts maximum reference code acc. to IEC 81346-2 Krelative repeat accuracy Substance Prohibitance (Date) Product Function o undervoltage detection o hase sequence recognition o phase failure detection o asymmetry detection o voervoltage detection 3 phase o voervoltage detection 3 phases o voltage window recognition 3 phase o voltage window recognition 3 phase o external reset 1 6 Hz: 15 mm, 6 500 Hz: 2g 100 000	protection class IP	IP20
mechanical service life (switching cycles) typical electrical endurance (switching cycles) at AC-15 at 230 V typical thermal current of the switching element with contacts maximum reference code acc. to IEC 81346-2 relative repeat accuracy Substance Prohibitance (Date) Product Function undervoltage detection overvoltage detection ophase sequence recognition overvoltage detection phase failure detection overvoltage detection 3 phase overvoltage detection 3 phase overvoltage window recognition 3 phase overvoltage detection 3 phase overvoltage window recognition 4 phase window recognition 4	shock resistance acc. to IEC 60068-2-27	sinusoidal half-wave 15g / 11 ms
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reference code acc. to IEC 81346-2 relative repeat accuracy Substance Prohibitance (Date) Product Function product function • undervoltage detection • overvoltage detection • phase sequence recognition • phase failure detection • asymmetry detection • overvoltage detection 3 phase • overvoltage detection 3 phases • undervoltage detection 3 phases • undervoltage detection 3 phases • undervoltage detection 3 phases • voltage window recognition 3 phase • external reset K K	· · · · · · · · · · · · · · · · · · ·	100 000
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Substance Prohibitance (Date) Product Function • undervoltage detection • overvoltage detection • phase sequence recognition • phase failure detection • asymmetry detection • overvoltage detection 3 phase • undervoltage detection 3 phases • undervoltage detection 3 phases • voltage window recognition 3 phase • voltage window recognition 3 phase • external reset 01.05.2012 Yes Yes Yes Yes Yes 91.05.2012	reference code acc. to IEC 81346-2	K
product function • undervoltage detection Yes • overvoltage detection Yes • phase sequence recognition Yes • phase failure detection Yes • asymmetry detection Yes • overvoltage detection Yes • overvoltage detection 3 phase Yes • undervoltage detection 3 phases Yes • voltage window recognition 3 phase Yes • adjustable open/closed-circuit current principle Yes • external reset	relative repeat accuracy	1 %
 product function undervoltage detection overvoltage detection yes phase sequence recognition phase failure detection asymmetry detection overvoltage detection 3 phase undervoltage detection 3 phases voltage window recognition 3 phase voltage window recognition 3 phase eadjustable open/closed-circuit current principle external reset 	Substance Prohibitance (Date)	01.05.2012
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 asymmetry detection overvoltage detection 3 phase undervoltage detection 3 phases voltage window recognition 3 phase voltage window recognition 3 phase adjustable open/closed-circuit current principle external reset Yes Yes 	 phase sequence recognition 	Yes
 overvoltage detection 3 phase undervoltage detection 3 phases voltage window recognition 3 phase adjustable open/closed-circuit current principle external reset Yes Yes 	 phase failure detection 	Yes
 undervoltage detection 3 phases voltage window recognition 3 phase adjustable open/closed-circuit current principle external reset Yes 	 asymmetry detection 	Yes
 voltage window recognition 3 phase adjustable open/closed-circuit current principle external reset Yes Yes 	 overvoltage detection 3 phase 	Yes
 adjustable open/closed-circuit current principle external reset Yes	 undervoltage detection 3 phases 	Yes
• external reset Yes	 voltage window recognition 3 phase 	Yes
	adjustable open/closed-circuit current principle	Yes
• auto-RESET Yes	external reset	Yes
	auto-RESET	Yes

Control circuit/ Control	
control supply voltage at AC	
• at 50 Hz rated value	0 0 V
at 60 Hz rated value	0 0 V
control supply voltage at DC	
• rated value	24 24 V
operating range factor control supply voltage rated	
value at DC	
initial value	1
full-scale value	1
Measuring circuit	
measurable voltage at AC	400 90 V
adjustable response delay time	
when starting	0 999.9 s
with lower or upper limit violation	0 999.9 s
accuracy of digital display	+/-1 digit
Precision	
relative metering precision	5 %
Communication/ Protocol	
protocol is supported IO-Link protocol	Yes
IO-Link transfer rate	COM2 (38,4 kBaud)
point-to-point cycle time between master and IO-Link device minimum	10 ms
type of voltage supply via input/output link master	Yes
data volume	
of the address range of the inputs with cyclical transfer total	4 byte
of the address range of the outputs with cyclical transfer total	2 byte
Auxiliary circuit	
number of NC contacts delayed switching	0
number of NO contacts delayed switching	0
number of CO contacts delayed switching	1
operating frequency with 3RT2 contactor maximum	5 000 1/h
Main circuit	
number of poles for main current circuit	3
ampacity of the output relay at AC-15	
• 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	
• at 24 V	1 A
● at 125 V	0.2 A
• at 250 V	0.1 A
ampacity of the semiconductor output in SIO mode	200 mA
operational current at 17 V minimum	20 mA
continuous current of the DIAZED fuse link of the output relay	4 A
Electromagnetic compatibility	
conducted interference	
 due to burst acc. to IEC 61000-4-4 	2 kV
 due to conductor-earth surge acc. to IEC 61000-4-5 	2 kV
due to conductor-conductor surge acc. to IEC 61000-4-5	1 kV
field-based interference acc. to IEC 61000-4-3	10 V/m
electrostatic discharge acc. to IEC 61000-4-2	6 kV contact discharge / 8 kV air discharge
Galvanic isolation	
galvanic isolation	
between input and output	Yes
between the voltage supply and other circuits	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 	2 x (0.25 1.5 mm²)
 finely stranded without core end processing 	2x (0.25 1.5 mm²)
 at AWG cables solid 	2x (24 16)
at AWG cables stranded	2x (24 16)
connectable conductor cross-section	
• solid	0.25 1.5 mm ²
 finely stranded with core end processing 	0.25 1.5 mm ²
 finely stranded without core end processing 	0.25 1.5 mm ²
AWG number as coded connectable conductor cross section	
• solid	24 16
stranded	24 16
stallation/ mounting/ dimensions	
mounting position	any
fastening method	snap-on mounting
height	103 mm
width	22.5 mm
depth	91 mm
required spacing	
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
mbient conditions	
installation altitude at height above sea level maximum	2 000 m
ambient temperature	
during operation	-25 +60 °C
during storage	-40 +85 °C
during transport	-40 +85 °C
ertificates/ approvals	
	Declaration of



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=3UG4816-2AA40

Cax online generator

http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3UG4816-2AA40

 ${\bf Service \& Support~(Manuals,~Certificates,~Characteristics,~FAQs,...)}$

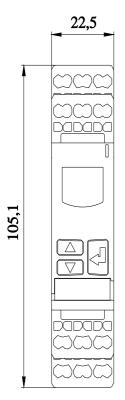
https://support.industry.siemens.com/cs/ww/en/ps/3UG4816-2AA40

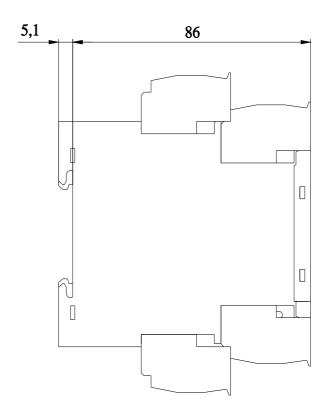
 $Image\ database\ (product\ images,\ 2D\ dimension\ drawings,\ 3D\ models,\ device\ circuit\ diagrams,\ EPLAN\ macros,\ ...)$

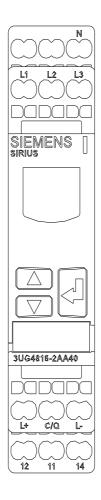
http://www.automation.siemens.com/bilddb/cax_de.aspx?mlfb=3UG4816-2AA40&lang=en

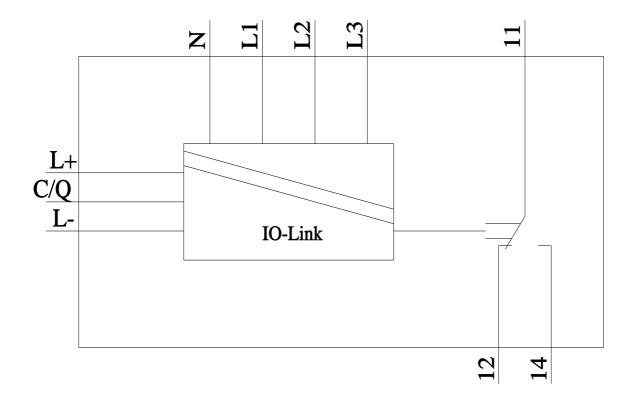
Characteristic: Derating

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