



DIGITAL MONITORING RELAY FOR 3-PHASE VOLT. WITH N-COND FOR IO-LINK AC 50 TO 60 HZ 3X 160 TO 690V PHASE SEQUENCE, PHASE FAILURE PHASE ASYMMETRY UNDERVOLTAGE AND OVERVOLTAGE HYSTERESIS 1-20V NETWORK STABILIZATION TIME TRIPPING DELAY TIME 1 CO CONTACT, SPRING-LOADED CONNECTION

|                                          |   |                        |
|------------------------------------------|---|------------------------|
| Product function                         |   | Phase monitoring relay |
| Measuring circuit:                       |   |                        |
| Type of voltage for monitoring           |   | AC                     |
| Number of poles for main current circuit |   | 3                      |
| Measurable voltage at AC                 | V | 90 ... 400             |
| Adjustable voltage range                 | V | 90 ... 400             |
| Adjustable response delay time           |   |                        |
| • when starting                          | s | 0 ... 999.9            |
| • with lower or upper limit violation    | s | 0 ... 999.9            |
| Relative setting accuracy                | % | 0.2                    |
| Relative metering precision              | % | 5                      |
| Accuracy of digital display              |   | +/-1 digit             |
| Relative repeat accuracy                 | % | 1                      |
| General technical data:                  |   |                        |
| Design of the display                    |   | LCD                    |
| Display version LED                      |   | No                     |
| Product function                         |   |                        |
| • undervoltage detection                 |   | Yes                    |

|                                                                                      |    |                                             |
|--------------------------------------------------------------------------------------|----|---------------------------------------------|
| • Overvoltage detection                                                              |    | Yes                                         |
| • phase sequence recognition                                                         |    | Yes                                         |
| • Phase failure detection                                                            |    | Yes                                         |
| • Phase unbalance                                                                    |    | Yes                                         |
| • Overvoltage detection 3 phase                                                      |    | Yes                                         |
| • undervoltage detection 3 phases                                                    |    | Yes                                         |
| • Voltage window recognition 3 phase                                                 |    | Yes                                         |
| • External reset                                                                     |    | Yes                                         |
| • Auto-reset                                                                         |    | Yes                                         |
| • Adjustable open/closed-circuit current principle                                   |    | Yes                                         |
| <b>Starting time after the control supply voltage has been applied</b>               | ms | 1 000                                       |
| <b>Response time maximum</b>                                                         | ms | 450                                         |
| <b>Type of voltage of the control supply voltage</b>                                 |    | DC                                          |
| <b>Control supply voltage</b>                                                        |    |                                             |
| • at AC                                                                              |    |                                             |
| — at 50 Hz rated value                                                               | V  | 0 ... 0                                     |
| — at 60 Hz rated value                                                               | V  | 0 ... 0                                     |
| • at DC rated value                                                                  | V  | 24 ... 24                                   |
| <b>Operating range factor control supply voltage rated value</b>                     |    |                                             |
| • at DC                                                                              |    | 1 ... 1                                     |
| <b>Surge voltage resistance rated value</b>                                          | kV | 6                                           |
| <b>Consumed active power</b>                                                         | W  | 2                                           |
| <b>Protection class IP</b>                                                           |    | IP20                                        |
| <b>Electromagnetic compatibility</b>                                                 |    | IEC 60947-1 / IEC 61000-6-2 / IEC 61000-6-4 |
| <b>Vibration resistance acc. to IEC 60068-2-6</b>                                    |    | 1 ... 6 Hz: 15 mm, 6 ... 500 Hz: 2g         |
| <b>Shock resistance acc. to IEC 60068-2-27</b>                                       |    | sinusoidal half-wave 15g / 11 ms            |
| <b>Installation altitude at height above sea level maximum</b>                       | m  | 2 000                                       |
| <b>Conducted interference due to burst acc. to IEC 61000-4-4</b>                     |    | 2 kV                                        |
| <b>Conducted interference due to conductor-earth surge acc. to IEC 61000-4-5</b>     |    | 2 kV                                        |
| <b>Conducted interference due to conductor-conductor surge acc. to IEC 61000-4-5</b> |    | 1 kV                                        |
| <b>Electrostatic discharge acc. to IEC 61000-4-2</b>                                 |    | 6 kV contact discharge / 8 kV air discharge |
| <b>Field-bound parasitic coupling acc. to IEC 61000-4-3</b>                          |    | 10 V/m                                      |
| <b>Degree of pollution</b>                                                           |    | 2                                           |
| <b>Ambient temperature</b>                                                           |    |                                             |
| • during operation                                                                   | °C | -25 ... +60                                 |
| • during storage                                                                     | °C | -40 ... +85                                 |
| • during transport                                                                   | °C | -40 ... +85                                 |

|                                                                              |      |                         |
|------------------------------------------------------------------------------|------|-------------------------|
| <b>Galvanic isolation</b>                                                    |      |                         |
| • between entrance and outlet                                                |      | Yes                     |
| • between the voltage supply and other circuits                              |      | Yes                     |
| <b>Communication/ Protocol:</b>                                              |      |                         |
| <b>Type of voltage supply via input/output link master</b>                   |      | Yes                     |
| <b>IO-Link transfer rate</b>                                                 |      | COM2 (38,4 kBaud)       |
| <b>Protocol is supported IO-Link protocol</b>                                |      | Yes                     |
| <b>Amount of data</b>                                                        |      |                         |
| • of the address area of the outputs with cyclical transfer total            | byte | 2                       |
| • of the address area of the inputs with cyclical transfer total             | byte | 4                       |
| <b>Point-to-point cycle time between master and IO-Link device minimum</b>   | ms   | 10                      |
| <b>Mechanical data:</b>                                                      |      |                         |
| <b>Width</b>                                                                 | mm   | 22.5                    |
| <b>Height</b>                                                                | mm   | 103                     |
| <b>Depth</b>                                                                 | mm   | 91                      |
| <b>Mounting position</b>                                                     |      | any                     |
| <b>Required spacing for grounded parts</b>                                   |      |                         |
| • forwards                                                                   | mm   | 0                       |
| • Backwards                                                                  | mm   | 0                       |
| • at the side                                                                | mm   | 0                       |
| • upwards                                                                    | mm   | 0                       |
| • downwards                                                                  | mm   | 0                       |
| <b>Required spacing with side-by-side mounting</b>                           |      |                         |
| • forwards                                                                   | mm   | 0                       |
| • Backwards                                                                  | mm   | 0                       |
| • at the side                                                                | mm   | 0                       |
| • upwards                                                                    | mm   | 0                       |
| • downwards                                                                  | mm   | 0                       |
| <b>Required spacing for live parts</b>                                       |      |                         |
| • forwards                                                                   | mm   | 0                       |
| • Backwards                                                                  | mm   | 0                       |
| • at the side                                                                | mm   | 0                       |
| • upwards                                                                    | mm   | 0                       |
| • downwards                                                                  | mm   | 0                       |
| <b>Mounting type</b>                                                         |      | snap-on mounting        |
| <b>Product function removable terminal for auxiliary and control circuit</b> |      | Yes                     |
| <b>Type of electrical connection</b>                                         |      | spring-loaded terminals |
| <b>Type of connectable conductor cross-sections</b>                          |      |                         |

- solid
- finely stranded
  - with core end processing
  - without core end processing
- at AWG conductors
  - solid
  - stranded

2x (0.25 ... 1.5 mm<sup>2</sup>)

2 x (0.25 ... 1.5 mm<sup>2</sup>)

2x (0.25 ... 1.5 mm<sup>2</sup>)

2x (24 ... 16)

2x (24 ... 16)

#### Outputs:

|                                                                          |     |            |
|--------------------------------------------------------------------------|-----|------------|
| <b>Number of NO contacts delayed switching</b>                           |     | 0          |
| <b>Number of NC contacts delayed switching</b>                           |     | 0          |
| <b>Number of CO contacts delayed switching</b>                           |     | 1          |
| Ampacity of the output relay                                             |     |            |
| • at AC-15                                                               |     |            |
| — at 250 V at 50/60 Hz                                                   | A   | 3          |
| — at 400 V at 50/60 Hz                                                   | A   | 3          |
| • at DC-13                                                               |     |            |
| — at 24 V                                                                | A   | 1          |
| — at 125 V                                                               | A   | 0.2        |
| — at 250 V                                                               | A   | 0.1        |
| <b>Thermal current of the switching element with contacts maximum</b>    | A   | 5          |
| <b>Operating current at 17 V minimum</b>                                 | mA  | 20         |
| <b>Continuous current of the DIAZED fuse link of the output relay</b>    | A   | 4          |
| <b>Mechanical service life (switching cycles) typical</b>                |     | 10 000 000 |
| <b>Electrical endurance (switching cycles) at AC-15 at 230 V typical</b> |     | 100 000    |
| <b>Operating frequency with 3RT2 contactor maximum</b>                   | 1/h | 5 000      |

#### Certificates/ approvals:

| General Product Approval                                                                 |                                              |                                                                                         |                                                                                   | Declaration of<br>Conformity                                                                    | Test<br>Certificates                         |
|------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------|
| <br>CCC | <a href="#">Manufacturer<br/>Declaration</a> | <br>UL |  | <br>EG-Konf. | <a href="#">Special Test<br/>Certificate</a> |

| Test<br>Certificates                                       | other                        | Railway                             |
|------------------------------------------------------------|------------------------------|-------------------------------------|
| <a href="#">Type Test<br/>Certificates/Test<br/>Report</a> | <a href="#">Confirmation</a> | <a href="#">Vibration and Shock</a> |

#### Further information

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

<http://www.siemens.com/industrial-controls/catalogs>

##### Industry Mall (Online ordering system)

<http://www.siemens.com/industrymall>

##### Cax online generator

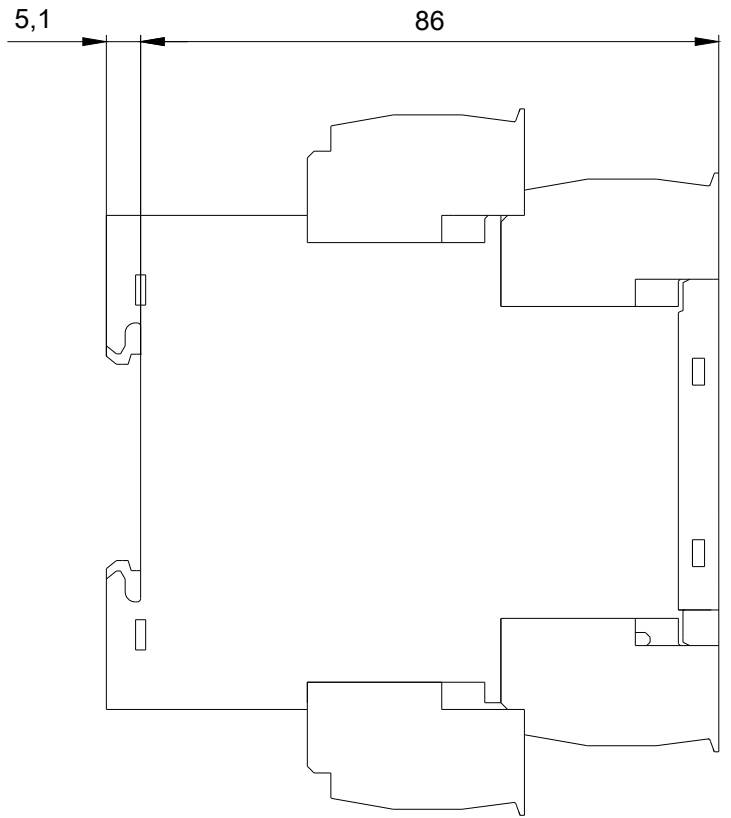
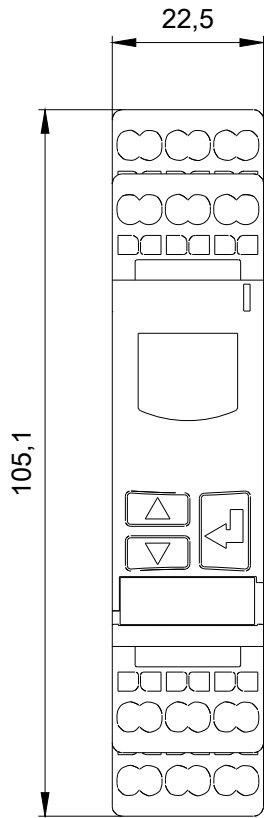
<http://support.automation.siemens.com/WW/CAXorder/default.aspx?lang=en&mlfb=3UG4816-2AA40>

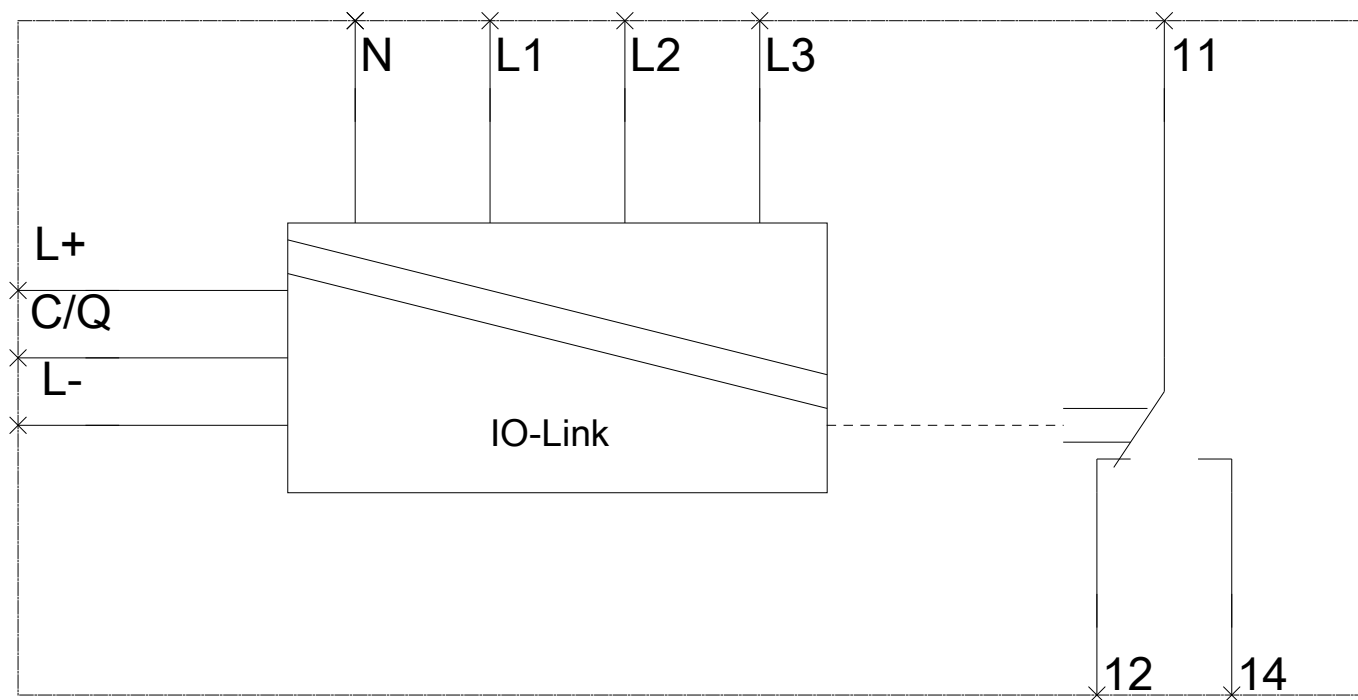
##### Service&Support (Manuals, Certificates, Characteristics, FAQs,...)

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





last modified:

08/12/2017