

# Monitoring Relays 3-Phase Voltage selection Type DPA55

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- 3-phase monitoring relay for phase sequence
- Detects if voltage is at the desired level ( $\pm 10\%$  or  $\pm 15\%$ )
- Measures own power supply
- Wide power supply range: 208 to 480 VAC ( $\pm 15\%$ )
- Output: 5 A SPDT relay normally energized
- For mounting on DIN-rail in accordance with DIN/EN 50 022
- 17.5 mm DIN-rail housing (DIN 43880)
- LED indication for relay and power supply ON

## Product Description

3-Phase relay for detection of incorrect mains voltage. Also detecting incorrect phase sequence and phase loss. This unit allows to stop incorrect power supply voltage when different from the desired one.  
Power supply range from 208

to 480 VAC plus selection of the different possible nominal voltages. For mounting on DIN-rail. Housing 17.5 mm wide suitable both for back and front panel mounting.

## Ordering Key

**DPA 55 C M44**

Housing \_\_\_\_\_  
Function \_\_\_\_\_  
Type \_\_\_\_\_  
Item number \_\_\_\_\_  
Output \_\_\_\_\_  
Power supply \_\_\_\_\_

## Type Selection

**Mounting**

DIN-rail

**Output**

SPDT

**Supply: 208 to 480 VAC**

**DPA 55 C M44**

## Input Specifications

|                            |                                                |
|----------------------------|------------------------------------------------|
| <b>Input</b><br>L1, L2, L3 | Terminals L1, L2, L3<br>Measures on own supply |
| <b>Measuring range</b>     | 177 to 550 VAC                                 |
| <b>Hysteresis</b>          | < 3V                                           |

## Supply Specifications

|                                                                                |                                                                                             |
|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <b>Power supply</b><br>Rated operational voltage through terminals: L1, L2, L3 | Overvoltage cat. II<br>(IEC 60664, IEC 60038)<br>208 to 480 VAC $\pm 15\%$ ,<br>45 to 65 Hz |
| <b>Rated operational power</b>                                                 | 18 VA @ 400 VAC, 50 Hz<br>Supplied by L1 and L3                                             |

## Output Specifications

|                                            |                                                                |
|--------------------------------------------|----------------------------------------------------------------|
| <b>Output</b>                              | SPDT relay, N.E.                                               |
| <b>Rated insulation voltage</b>            | 250 VAC                                                        |
| <b>Contact ratings (AgSnO<sub>2</sub>)</b> | $\mu$                                                          |
| Resistive loads AC 1                       | 5 A @ 250 VAC                                                  |
| DC 12                                      | 5 A @ 24 VDC                                                   |
| Small inductive loads AC 15                | 2.5 A @ 250 VAC                                                |
| DC 13                                      | 2.5 A @ 24 VDC                                                 |
| <b>Mechanical life</b>                     | $\geq 30 \times 10^6$ operations                               |
| <b>Electrical life</b>                     | $\geq 10^5$ operations<br>(at 8 A, 250 V, $\cos \varphi = 1$ ) |
| <b>Operating frequency</b>                 | $\leq 7200$ operations/h                                       |
| <b>Dielectric strength</b>                 |                                                                |
| Dielectric voltage                         | $\geq 2$ kVAC (rms)                                            |
| Rated impulse withstand volt.              | 4 kV (1.2/50 $\mu$ s)                                          |



General Specifications

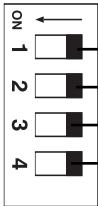
|                                                                                                                                                                  |                                                                                                |                                                                             |                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Reaction time</b><br>Alarm ON delay<br>Alarm OFF delay                                                                                                        | < 100 ms<br>< 300 ms                                                                           | <b>Housing</b><br>Dimensions<br>Material                                    | 17.5 x 81 x 67.2 mm<br>PA66                                                                               |
| <b>Accuracy</b><br>Temperature drift<br>Repeatability                                                                                                            | (15 min warm-up time)<br>± 1000 ppm/°C<br>± 0.5% on full scale                                 | <b>Weight</b>                                                               | Approx. 80 g                                                                                              |
| <b>Indication for</b><br>Power supply ON<br>Relay ON                                                                                                             | LED, green<br>LED, yellow                                                                      | <b>Screw terminals</b><br>Tightening torque                                 | Max. 0.5 Nm<br>acc. to IEC 60947                                                                          |
| <b>Environment</b><br>Degree of protection<br>Pollution degree<br>Operating temperature<br>@ Max. voltage, 50 Hz<br>@ Max. voltage, 60 Hz<br>Storage temperature | IP 20<br>2<br>-20 to +60°C, R.H. < 95%<br>-20 to +50°C, R.H. < 95%<br>-30 to +80°C, R.H. < 95% | <b>Approvals</b><br><b>CE Marking</b><br><b>EMC</b><br>Immunity<br>Emission | UL, CSA<br>Yes<br>Electromagnetic Compatibility<br>According to EN 61000-6-2<br>According to EN 61000-6-3 |

Mode of Operation

|                                                                                                                                 |                                                                                |                                                                                                             |                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| DPA55 monitors its own 3- phase power supply. The relay operates when all the phases are present, the phase sequence is correct | and each phase-phase voltage is within the desired tolerance (± 10% or ± 15%). | <b>Example 1</b><br>The relay monitors that the power supply is the correct one for the required equipment. | <b>Example 2</b><br>The relay releases in case of incorrect phase sequence or when the voltage is outside the set limits. |
|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|

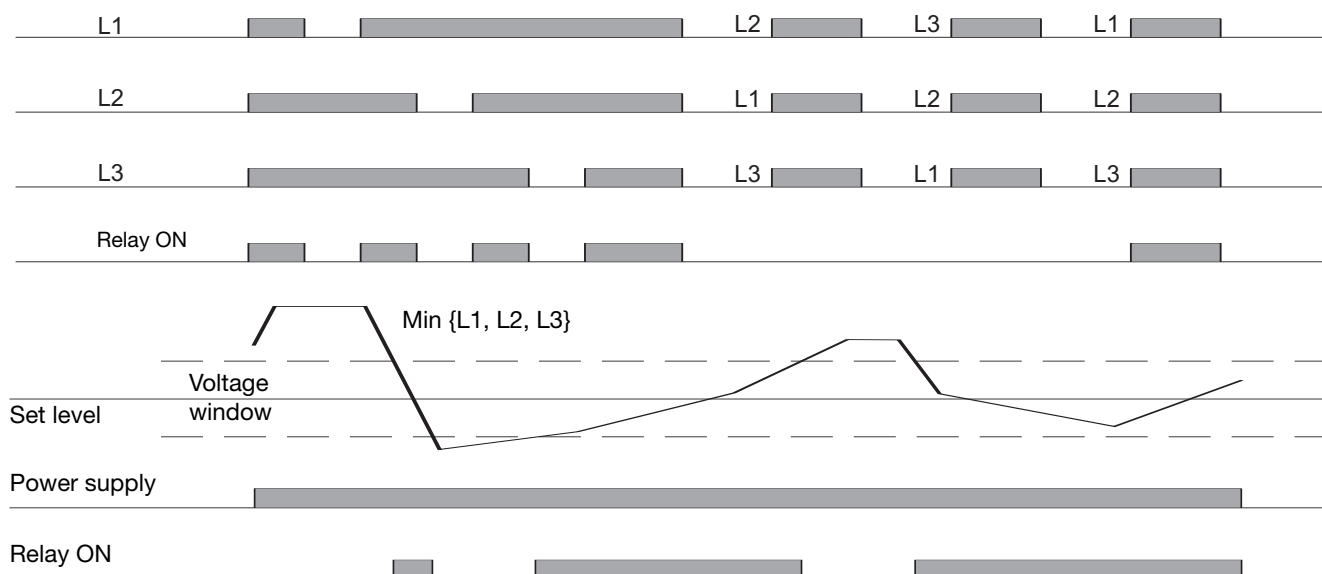
Range setting

Select the proper nominal voltage level using DIP-switches as shown below.



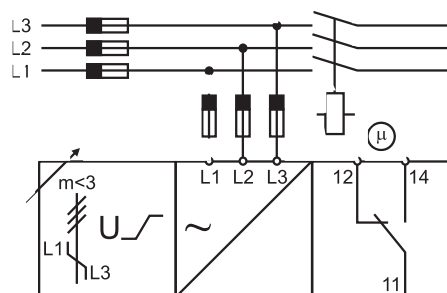
| Voltage window            |     |     |     |
|---------------------------|-----|-----|-----|
| ON: ± 15 %<br>OFF: ± 10 % |     |     |     |
| Measuring range           |     |     |     |
|                           | SW2 | SW3 | SW4 |
| 208 VAC                   | OFF | OFF | OFF |
| 220 VAC                   | OFF | OFF | ON  |
| 230 VAC                   | OFF | ON  | OFF |
| 240 VAC                   | OFF | ON  | ON  |
| 380 VAC                   | ON  | OFF | OFF |
| 400 VAC                   | ON  | OFF | ON  |
| 415 VAC                   | ON  | ON  | OFF |
| 480 VAC                   | ON  | ON  | ON  |

## Operation Diagrams

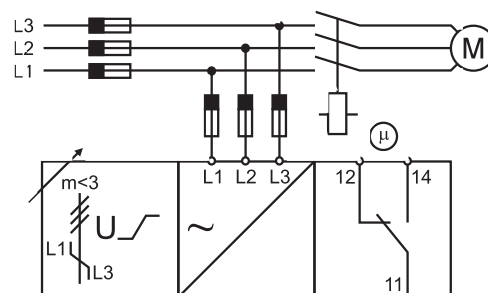


## Wiring Diagrams

**Example 1**



**Example 2**



## Dimensions

