



# TYPE APPROVAL CERTIFICATE



N. ELE274818CS

THIS is to certify that the product below is found to be in compliance with the applicable requirements of the RINA type approval system.

Description	<b>3-Phase Multifunction Monitoring Relay</b>
Type	<b>Series DPC01DM .. Series DPC02DM ..</b>
Applicant	<b>CARLO GAVAZZI CONTROLS S.p.A. Via Safforze , 8 32100 Belluno Italia</b>
Manufacturers	<b>CARLO GAVAZZI CONTROLS S.p.A. Via Safforze , 8 32100 Belluno Italia</b>
Reference standards	<b>RINA Rules for Classification of Ships Part C_ Machinery System and Fire protection Ch.3, Sect. 6, Table 1</b>

Issued in **Genova** on **03 December, 2018**

This certificate is valid until **03 December, 2023**

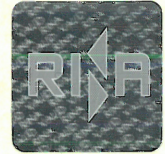
RINA Services S.p.A.

*Valerio Bonanni*





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**Series DPC 01 D M ..** is a three phase monitoring relay for Delta and Star mains. It detects a phase loss and the correct phase sequence and can be set to monitor asymmetry or tolerance and over/ under voltage, with separate adjustable set point. Two independent alarms ON delays can be set from 0.1 to 30 s. Supply voltage is Switch mode and taken for the measured mains and ranges from 208 to 690 V. This relay is particularly required where precise mains symmetry is required.

### Main functions:

TRMS 3-phase over and under voltage, phase sequence, phase loss, asymmetry and tolerance monitoring relay  
Own Supply, measurement  
Up to 400 Hz Delta and Star mains  
Switch Mode Power Supply  
2 Separate adjustable set point  
2 Individual adjustable alarm ON delay  
Output 2 relay SPDT  
DIN rail mounting according to DIN / EN50 022

### Power supply L1, L2, L3, N

Delta Voltage 208 to 690 Vac  $\pm 15\%$   
Star Voltage 120 to 400 Vac  $\pm 15\%$

### Input L1, L2, L3 N measuring ranges 177 to 793V<sub>ACLL</sub> \_ rated voltages DIP switch selectable

Upper level +2 to +22% of nominal voltage.  
Lower level -22 to -2% of nominal voltage.  
Asymmetry 2 to 22% of nominal voltage  
Tolerance 2 to 22% of nominal voltage

### Output

2 x SPDT relays N.E. AC15: 2.5A @ 250Vac

**Series DPC 02 D M ..** is a 3-Phase or 3-phase + neutral line voltage monitoring relay for phase sequence, phase loss, over and under voltage (separately adjustable set points), over and under frequency, 2 individually adjustable alarm delays. Supply voltage, with switch mode power supply, through the measured mains.

### Main functions:

TRMS 3-phase over and under voltage, over and under frequency, phase sequence and phase loss monitoring relay  
Delta and Star mains  
Own supply measurement  
Switch mode power supply  
2 Separate adjustable set point  
2 Individual adjustable alarm delays  
Output 2 relay SPDT  
DIN Rail mounting according to DIN / EN 50022

### Power supply L1, L2, L3, N

Delta Voltage 208 to 690 Vac  $\pm 15\%$   
Star Voltage 120 to 400 Vac  $\pm 15\%$

### Input L1, L2, L3 N measuring ranges 177 to 793V<sub>ACLL</sub> \_ rated voltages DIP switch selectable

Ranges:  
Upper level +2 to +22% of nominal voltage.  
Lower level -22 to -2% of nominal voltage.  
Frequency window 10 to 110% of the selected range

### Output

2 x SPDT relays N.E. AC15: 2.5A @ 250Vac



## N. ELE274818CS

Approved Types	Power supply - Delta-	Power supply - Star-	Measuring ranges	Frequency Hz	Output
DPC 01 D M 11 400Hz	100 to 115 Vac	-----	85 to 132 Δ Vac	50 to 400	2 X SPDT
DPC 01 D M23	208 to 240 Vac	-----	177 to 275 Δ Vac	50 to 60	2X SPDT
DPC 01 D M23 400Hz	208 to 240 Vac	-----	177 to 275 Δ Vac	50 to 400	2X SPDT
DPC 01 D M44	208 to 690 Vac	120 to 400 Vac	177 to 793 Δ Vac	50 to 400	2X SPDT
DPC 01 D M48	380 to 480 Vac	220 to 277 Vac	323 to 550 Δ Vac	50 to 60	2X SPDT
DPC 01 D M48 400 Hz	380 to 415 Vac	220 to 240 Vac	323 to 475 Δ Vac	50 to 400	2X SPDT
DPC 01 D M49 400 Hz	440 to 480 Vac	254 to 277 Vac	375 to 550 Δ Vac	50 to 400	2X SPDT
DPC 01 D M69	600 to 690 Vac	347 to 400 Vac	510 to 793 Δ Vac	50 to 60	2X SPDT
DPC 01 D M69 400Hz	600 to 690 Vac	347 to 400 Vac	510 to 793 ΔVac	50 to 400	2X SPDT

Approved Types	Power supply - Delta-	Power supply - Star-	Measuring ranges	Frequency Hz	Output
DPC 02 D M23	208 to 240 Vac	-----	177 to 275 Δ Vac	50 to 60	2X SPDT
DPC 02 D M44	208 to 690 Vac	120 to 400 Vac	177 to 793 Δ Vac	50 to 60	2X SPDT
DPC 02 D M48	380 to 415 Vac	220 to 240 Vac	323 to 475Δ Vac	50 to 60	2X SPDT
DPC 02 D M49	440 to 480 Vac	254 to 277 Vac	374 to 552 Δ Vac	50 to 60	2X SPDT
DPC 02 D M69	600 to 690 Vac	347 to 400 Vac	510 to 739 Δ Vac	50 to 60	2X SPDT

### Test reports:

**EUROTEST Laboratory** Test Report n. EMC01 16744-18178, (24/09/2018)  
**EUROTEST Laboratory** Test Report n. INS01 16744-18178, (24/09/2018)  
**EUROTEST Laboratory** Test Report n. CLM 01 16744-18178, (24/09/2018)  
**EUROTEST Laboratory** Statement n. TR01 16744-18178, (26/11/2018)  
**TUV SUD** Test Report n. VIB 1161599A rev. 01, (14/11/2018)

Test Procedure Carlo Gavazzi n. P-040-536-001 (17/07/2018)

### Technical description:

Monitoring relays \_True RMS 3-Phase, 3-Phase + N, Multifunction \_type DPC01 (03/07/2018)  
 Monitoring relays \_True RMS 3-Phase, 3-Phase + N, Multifunction \_type DPC02 (03/07/2018)  
 Monitoring relays \_True RMS 3-phase, 3-Phase + N, Multifunction \_type DPC01 , PPC01 (06/04/10)  
 Monitoring relays \_True RMS 3-Phase, 3-Phase + N, Multifunction \_type DPC02 (12/05/2010)