

# Declaration of Conformity

Reference number: SM6-24-20180409\_01

This declaration of conformity is established in accordance with ISO / IEC 17050-1

It strictly follows Schneider-Electric corporate rules regarding switchboard design, assembly, wiring, testing and quality control and is constantly trained and audited by our corporate design and quality department to ensure constant compliance with these rules.

No modification occurred on the products concerned since the issue date of the related test reports.

Grenoble (France), April 9<sup>th</sup>, 2018

This document consists of 12 pages.

SM6 24kV На основании чл.36а ал.3 от ЗОП

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Document validity period: 2 years

### Schneider Electric Industries SAS

Postal address / Adresse postale :  
Site 38TEC  
28, Rue Henri Tarze  
F-38050 Grenoble Cedex 9  
Tel. +33 (0)4 76 57 60 60



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Société par actions simplifiée au capital de 896 313 776 euros  
954 503 439 rcs Nanterre – code APE : 2712Z  
Siret : 954 503 439 01719  
n° ident. TVA : FR 04 954 503 439  
Siège social : 35, rue Joseph Monier  
F – 92500 Rueil-Malmaison

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Stamp: КОПИО С ОРИГИНАЛА  
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# Declaration of Conformity

Reference number: SM6-24-20180409\_01

This declaration of conformity is established in accordance with ISO / IEC 17050-1

**Object designation:** SM6 24kV Range**Subject:** Compliance of performances regarding to IEC 62271-200

- Insulation level
- Rated current
- Short-time withstand and peak withstand current
- Making and breaking

We undersigned, Bertrand VERPILLOT, SM6 24kV Range Technical Leader, and Eric MARTY, SM6 24kV Range Product Manager, hereby declare that the SM6 24kV Range is tested according to the IEC 62271-200 standard.

## List of units and performances level

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Site 38TEC  
28, Rue Henri Tarze  
F-38050 Grenoble Cedex 9  
Tel. +33 (0)4 76 57 60 60

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954 503 439 rcs Nanterre – code APE : 2712Z  
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Specified requirements	Scope of the Declaration	References of Conformity activity assessment results
IM 24KV 630A 25KA		
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	TFR_201700825_012
Temperature rise at rated current	Main Circuit 630A	TFR_201700825_034
Short-time withstand current and peak withstand current	Ik = 25 kA, tk = 1s Ip = 62,5kA peak	AR-MV_2010-01
Making capacity	Mainly active load current Test-duty TDma – Class E3	TFR_201700825_002
Internal Arc	12,5 kAx1s A-FL In the switch compartment- With bottom exhaust configuration	TFR_201106991_037
	12,5 kAx1s A-FL In the cables compartment- With bottom exhaust configuration	TFR_201106991_035
	12,5 kAx1s A-FL In the busbar compartment- With bottom exhaust configuration	TFR_201106991_036
	16 kAx1s A-FLR In the switch compartment- With bottom exhaust configuration	TFR_201106991_030
	16 kAx1s A-FLR In the cables compartment- With bottom exhaust configuration	TFR_201106991_024
	16 kAx1s A-FLR In the busbar compartment- With bottom exhaust configuration	TFR_201004786_001
	16 kAx1s A-FLR In the switch compartment- With top exhaust configuration	TFR_201204355_006
	16 kAx1s A-FLR In the cables compartment- With top exhaust configuration	TFR_201204355_007
	16 kAx1s A-FLR In the busbar compartment- With top exhaust configuration	TFR_201204355_001
	20 kAx1s A-FLR In the switch compartment- With top exhaust configuration	TFR_201106991_099
	20 kAx1s A-FLR In the cables compartment- With top exhaust configuration	TFR_201106991_113
	20 kAx1s A-FLR In the busbar compartment- With top exhaust configuration	TFR_201106991_063
Tests on auxiliary and control circuits	Dielectric: 2kV, 1 min	TFR_201700825_038
	Functional tests at rated, minimum and maximum values of the power supply (IEC 62271-103, § 6.10.2)	TFR_201707001_005

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Site 38TEC  
28, Rue Henri Tarze  
F-38050 Grenoble Cedex 9  
Tel. +33 (0)4 76 57 60 60

[www.schneider-electric.com](http://www.schneider-electric.com)

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954 503 439 rcs Nanterre – code APE : 2712Z  
Siret : 954 503 439 01719  
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# Declaration of Conformity

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IMC 24KV 630A 25KA		
Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	TFR_201006034_001
Temperature rise at rated current	Main Circuit 630A	AAA2575700
Short-time withstand current and peak withstand current	I <sub>k</sub> = 25 kA, t <sub>k</sub> = 1s I <sub>p</sub> = 62,5kA peak	AR-MV_2010-01
Making capacity	Mainly active load current Test-duty TDma – Class E3	TFR_201700825_002
Internal arc	16 kAx1s A-FLR In the cable compartment- With bottom exhaust configuration	TFR_201106991_038
	16 kAx1s A-FLR In the cables compartment- With top exhaust configuration	TFR_201207167_001
	20 kAx1s A-FLR In the busbar compartment- With top exhaust configuration	TFR_201106991_049

IMM 24KV 630A 25KA		
Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	TFR_201506632_001
Temperature rise at rated current	Main Circuit 630A	TFR_201506634_001
Short-time withstand current and peak withstand current	I <sub>k</sub> = 25 kA, t <sub>k</sub> = 1s I <sub>p</sub> = 65kA peak	TFR_201506635_001

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Site 38TEC  
28, Rue Henri Tarze  
F-38050 Grenoble Cedex 9  
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Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
QM 24KV 200A 25KA		
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	TFR_201700825_016
Temperature rise at rated current	Main Circuit 200A	AAA2575700
Short-time withstand current and peak withstand current	I <sub>k</sub> = 25 kA, t <sub>k</sub> = 1s I <sub>p</sub> = 62,5kA peak	AR-MV_2010-01
Transfert current	Rated transition current Test-duty N° 4a	51168390XB
Internal arc	12,5 kAx1s A-FL In the switch compartment- With bottom exhaust configuration	TFR_201106991_037
	12,5 kAx1s A-FL In the cables compartment- With bottom exhaust configuration	TFR_201106991_035
	12,5 kAx1s A-FL In the busbar compartment- With bottom exhaust configuration	TFR_201106991_036
	16 kAx1s A-FLR In the switch compartment- With bottom exhaust configuration	Declaration of conformity SM6-24/20121008/006
	16 kAx1s A-FLR In the cables compartment- With bottom exhaust configuration	
	16 kAx1s A-FLR In the busbar compartment- With bottom exhaust configuration	Declaration of conformity SM6-24/20130321/001
	20 kAx1s A-FLR In the switch compartment- With top exhaust configuration	
	20 kAx1s A-FLR In the cables compartment- With top exhaust configuration	
20 kAx1s A-FLR In the busbar compartment- With top exhaust configuration		
Making capacity on the Earthing Switch	Class E2 – at 2kA on the Earthing Switch	TFR_201700825_049

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Site 38TEC  
28, Rue Henri Tarze  
F-38050 Grenoble Cedex 9  
Tel. +33 (0)4 76 57 60 60



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PM 24KV 200A 25KA		
Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	TFR_201700825_016
Temperature rise at rated current	Main Circuit 200A	AAA2575700
Short-time withstand current and peak withstand current	$I_k = 25 \text{ kA}$ , $t_k = 1 \text{ s}$ $I_p = 62,5 \text{ kA peak}$	AR-MV_2010-01
Internal arc	16 kAx1s A-FLR In the switch compartment- With top exhaust configuration	Declaration of conformity SM6-24/20130626/001
	16 kAx1s A-FLR In the cables compartment- With top exhaust configuration	
	16 kAx1s A-FLR In the busbar compartment- With top exhaust configuration	
	20 kAx1s A-FLR In the switch compartment- With top exhaust configuration	Declaration of conformity SM6-24/20130321/001
	20 kAx1s A-FLR In the cables compartment- With top exhaust configuration	
	20 kAx1s A-FLR In the busbar compartment- With top exhaust configuration	

CM 24KV 50A 25KA		
Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	51165247EA
Temperature rise at rated current	Main Circuit 50A	51249136XA
Short-time withstand current and peak withstand current	$I_k = 25 \text{ kA}$ , $t_k = 1 \text{ s}$ $I_p = 62,5 \text{ kA peak}$	AR-MV_2010-01
Internal arc	16 kAx1s A-FLR In the switch compartment- With top exhaust configuration	Declaration of conformity SM6-24/20121219/001
	16 kAx1s A-FLR In the cables compartment- With top exhaust configuration	
	16 kAx1s A-FLR In the busbar compartment- With top exhaust configuration	
	20 kAx1s A-FLR In the switch compartment- With top exhaust configuration	Declaration of conformity SM6-24_20130909/001
	20 kAx1s A-FLR In the cables compartment- With top exhaust configuration	
	20 kAx1s A-FLR In the busbar compartment- With top exhaust configuration	

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28, Rue Henri Tarze  
F-38050 Grenoble Cedex 9  
Tel. +33 (0)4 76 57 60 60

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CM2 24KV 50A 25KA		
Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	TFR_201204942_001
Temperature rise at rated current	Main Circuit 50A	51249136XA
Short-time withstand current and peak withstand current	I <sub>k</sub> = 25 kA, t <sub>k</sub> = 1s I <sub>p</sub> = 62,5kA peak	AR-MV_2010-01
Internal arc	16 kAx1s A-FLR In the disconnecter compartment- With bottom configuration	TFR_201006208_001
	20kA 1s A-FLR In the cable, busbar and disconnecter compartment With top exhaust configuration	Declaration of conformity SM6-24/20130227/001

DM2 24KV 630A 25KA		
Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	TFR_201700825_013
Temperature rise at rated current	630A	51238888XA
Short-time withstand current and peak withstand current	I <sub>k</sub> = 25 kA, t <sub>k</sub> = 1s I <sub>p</sub> = 62,5kA peak	AR-MV_2010-01
Internal arc	16 kAx1s A-FLR In the disconnecter compartment With bottom exhaust configuration	TFR_201106991_091
	16 kAx1s A-FLR In the cables compartment- With bottom exhaust configuration	TFR_201106991_043
	20 kAx1s A-FLR In the cables compartment- With top exhaust configuration	TFR_201106991_074

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Site 38TEC  
28, Rue Henri Tarze  
F-38050 Grenoble Cedex 9  
Tel. +33 (0)4 76 57 60 60

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954 503 439 rcs Nanterre – code APE : 2712Z  
Siret : 954 503 439 01719  
n° ident. TVA : FR 04 954 503 439  
Siège social : 35, rue Joseph Monier  
F – 92500 Rueil-Malmaison

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# Declaration of Conformity

Reference number: SM6-24-20180409\_01

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Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
DM1-A 24KV 630A 25KA		
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	TFR_201700825_014
Temperature rise at rated current	630A	51253674EC
Short-time withstand current and peak withstand current	$I_k = 25 \text{ kA}$ , $t_k = 3 \text{ s}$ $I_p = 65 \text{ kA peak}$	TFR_201106991_013
Internal arc	12,5 kAx1s A-FL In the disconnecter compartment With bottom exhaust configuration	TFR_201106991_041
	12,5 kAx1s A-FL In the cables compartment- With bottom exhaust configuration	TFR_201106991_039
	12,5 kAx1s A-FL In the busbar compartment- With bottom exhaust configuration	TFR_201106991_040
	16 kAx1s A-FLR In the switch compartment- With bottom exhaust configuration	TFR_201106991_031
	16 kAx1s A-FLR In the cables compartment- With top exhaust configuration	TFR_201004786_005
	16 kAx1s A-FLR In the busbar compartment- With bottom exhaust configuration	TFR_201004786_004
	20 kAx1s A-FLR In the switch compartment- With top exhaust configuration	Declaration of conformity SM6-24/20130502/004
	20 kAx1s A-FLR In the cables compartment- With top exhaust configuration	TFR_201106991_124
	20 kAx1s A-FLR In the busbar compartment- With top exhaust configuration	TFR_201106991_071
Tests on auxiliary and control circuits	Dielectric: 2kV, 1 min	TFR_201700825_039
	Functional tests at rated, minimum and maximum values of the power supply (IEC 62271-103, § 6.10.2)	TFR_201707001_006 (applicable)
Making capacity on the Earthing Switch	Class E2 – at 20kA	TFR_201700825_020

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Postal address / Adresse postale :  
Site 38TEC  
28, Rue Henri Tarze  
F-38050 Grenoble Cedex 9  
Tel. +33 (0)4 76 57 60 60

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F – 92500 Rueil-Malmaison

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# Declaration of Conformity

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DM1-D 24KV 630A 25KA		
Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	51165254EA
Temperature rise at rated current	Main Circuit 630A	TFR_201106991_003
Short-time withstand current and peak withstand current	$I_k = 25 \text{ kA}$ , $t_k = 1 \text{ s}$ $I_p = 62,5 \text{ kA peak}$	AR-MV_2010-01
Internal arc	20kAx1s A-FLR in the cable, busbar and switch compartment With top exhaust configuration	SM6-24/20130502/002
Tests on auxiliary and control circuits	Dielectric: 2kV, 1 min	TFR_201700825_039 (applicable)
	Functional tests at rated, minimum and maximum values of the power supply (IEC 62271-103, § 6.10.2)	TFR_201707001_006 (applicable)

DM1-W 24KV 630A 25KA		
Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	51253675EA
Temperature rise at rated current	630A	51253676EE
Short-time withstand current and peak withstand current	$I_k = 25 \text{ kA}$ , $t_k = 1 \text{ s}$ $I_p = 62,5 \text{ kA peak}$	AR-MV_2010-01
Internal arc	16 kAx1s 1s A-FLR in the cable, busbar and switch compartment With top exhaust configuration	Declaration of conformity SM6-24/20121219/002
Tests on auxiliary and control circuits	Dielectric: 2kV, 1 min	TFR_201700825_039 (applicable)
	Functional tests at rated, minimum and maximum values of the power supply (IEC 62271-103, § 6.10.2)	TFR_201707001_006

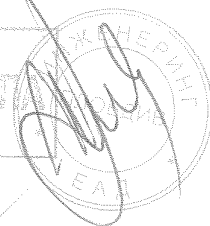
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Site 38TEC  
28, Rue Henri Tarze  
F-38050 Grenoble Cedex 9  
Tel. +33 (0)4 76 57 60 60

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DM1-M 24KV 630A 25KA		
Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	with CTs and phase/earth VTs: TFR_201404600_001 TFR_201408948_001
		with CTs and phase/phase VTs: TFR-201404987_001 TFR-201404990_001
Short-time withstand current and peak withstand current	I <sub>k</sub> = 25 kA, t <sub>k</sub> = 1s I <sub>p</sub> = 62,5kA peak	TFR_201403794_001

DMVL-A 24KV 630A 20KA		
Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	TFR_200903156_003
Temperature rise at rated current	630A	AAA25513EA
Short-time withstand current and peak withstand current	I <sub>k</sub> = 25 kA, t <sub>k</sub> = 1s I <sub>p</sub> = 62,5kA peak	2006-0905-00
Internal arc	16 kAx1s A-FLR In the cable compartment- With bottom exhaust configuration	TFR_201106991_045
	16 kAx1s A-FLR In the switch compartment- With bottom exhaust configuration	TFR_201106991_046
	20kAx1s A-FLR In the cable, busbar and switch compartment With top exhaust configuration	Declaration of conformity SM6-24/20130322/002

CVM 7,2KV 250A 6,3KA		
Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
Insulation level	Common value: 20KV-1min at power frequency 60kV peak 1.2/ 50µs	TFR_200801251_016
Temperature rise at rated current	Main Circuit 400A	TFR_200801251_018
Short-time withstand current and peak withstand current	I <sub>k</sub> = 6,3 kA, t <sub>k</sub> = 1s I <sub>p</sub> = 16,4kA peak	TFR_200800877_003
Internal arc	16 kAx1s A-FLR In the cable compartment- With bottom exhaust configuration	TFR_201106991_047 (250A)
	16 kAx1s A-FLR In the disconnecter compartment With bottom exhaust configuration	TFR_201106991_048 (250A)
	16 kAx1s A-FLR In the cable compartment- With top exhaust configuration	TFR_201207167_009 (400A)
	20 kAx1s A-FLR In the cable compartment- With top exhaust configuration	TFR_201106991_128

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28, Rue Henri Tarze  
F-38050 Grenoble Cedex 9  
Tel. +33 (0)4 76 57 60 60

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GAM 24KV 630A 25KA		
Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	TFR_201006034_001
Temperature rise at rated current	630A	51167175EA
Short-time withstand current and peak withstand current	I <sub>k</sub> = 25 kA, t <sub>k</sub> = 1s I <sub>p</sub> = 62,5kA peak	201006034_002
Internal arc	16 kAx1s A-FLR In the cable compartment- With top exhaust configuration	TFR_201207167_002
	20 kAx1s A-FLR In the cable compartment- With top exhaust configuration	TFR_201106991_050

GAM2 24KV 630A 25KA		
Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	51165328EA
Temperature rise at rated current	630A	51167175EA
Short-time withstand current and peak withstand current	I <sub>k</sub> = 25 kA, t <sub>k</sub> = 1s I <sub>p</sub> = 62,5kA peak	AR-MV_2010-01
Internal arc	16 kAx1s A-FLR In the cable compartment- With bottom exhaust configuration	TFR_201004786_003
	16 kAx1s A-FLR In the cable compartment- With top exhaust configuration	TFR_201207167_011
	20 kAx1s A-FLR In the cable compartment- With top exhaust configuration	TFR_201106991_138

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28, Rue Henri Tarze  
F-38050 Grenoble Cedex 9  
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TM 24KV 200A 25KA		
Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	51165247EA
Temperature rise at rated current	50A	51249136XA
Short-time withstand current and peak withstand current	I <sub>k</sub> = 25 kA t <sub>k</sub> = 1s I <sub>p</sub> = 62,5kA peak	AR-MV_2010-01

NSM 24KV 630A 25KA		
Specified Requirements	Scope of the Declaration	Reference of Conformity activity assessment results
Insulation level	Common value: 50kV-1min at power frequency 125kV peak 1.2/ 50µs	TFR_201106991_009 TFR_201106991_115
Temperature rise at rated current	Main Circuit 630A	TFR_201106991_003
Short-time withstand current and peak withstand current	I <sub>k</sub> = 25 kA t <sub>k</sub> = 1s I <sub>p</sub> = 62,5kA peak	AR-MV_2010-01
Making capacity	Mainly active load current Test-duty N° 1 and 2a	51238841XB

Document validity period: 2 years

## Schneider Electric Industries SAS

Postal address / Adresse postale :  
Site 38TEC  
28, Rue Henri Tarze  
F-38050 Grenoble Cedex 9  
Tel. +33 (0)4 76 57 60 60

[schneider-electric.com](http://schneider-electric.com)

Page 12 of 12

Legal information / Mentions légales  
Société par actions simplifiée au capital de 896 313 776 euros  
954 503 439 rcs Nanterre – code APE : 2712Z  
Siret : 954 503 439 01719  
n° ident. TVA : FR 04 954 503 439  
Siège social : 35, rue Joseph Monier  
F - 92500 Rueil-Malmaison

-242-



VOLTA

centre d'essais

station d'essais à grande puissance

F-38050 Grenoble cedex 9

51168380XB

ESEF

ensemble des stations d'essais Françaises

SP76

11250 Mores sur Loing

# TEST REPORT No. AB 3596 b

Apparatus : High-voltage switchgear and controlgear

Designation : Assembly of 3 cubicles SM6 types IM + DMI-D + GBC-A1

Rated voltage 12 kV-Rated normal current 630 A-Rated frequency 50/60 Hz

Manufacturer : MERLIN GERIN - Grenoble - FRANCE

Object : Short-time and peak withstand current tests rated at : 25 kA - 1 s - 62.5 kA peak

Tested for : MERLIN GERIN

Date(s) of tests : 08 / 07 / 1993

These tests were carried out in accordance with : Customer request based on IEC publications 298 (1990) and 694 (1990) § 6.5

The performance of the apparatus tested and the results obtained are shown in the tables, oscillograms and photographs enclosed.

The responsibility for conformity of any apparatus having the same designation with that tested rests with the Manufacturer.

The documents forming part of this report are :

Rating of the apparatus	page(s) 2 to 6
Record of proving tests	page(s) 7
Conditions of proving tests	page(s) 8
Test result tables	page(s) 9 - 10
Oscillograms	page(s) 11
Photographs	page(s) none

The test report comprises 11 page(s)

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Grenoble 18 / 08 / 1993

На основании чл.36а ал.3 от  
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На основании чл.36а ал.3 от ЗОП

## RATINGS OF THE METAL-ENCLOSED SWITCHGEAR ACCORDING TO IEC 298

Manufacturer	: MERLIN GERIN
Designation	: Cubicles SM6 types IM + DMI-D + GBC-A1
Number of phases	: 3
Voltage	kV: 12
Power frequency withstand voltages (1 min)	
- to earth and between phases	kV: 28
- across the isolation distance	kV: 32
Lightning impulse withstand voltages	
- to earth and between phases	kV: 75
- across the isolation distance	kV: 85
Frequency	Hz: 50/60
Normal current	A: 630
Peak withstand current	KA: 62.5
Short-time withstand currents	
- main circuit	KA: 25
- earthing switch	KA: 25
- earth bar	KA: 25
Duration of short-circuit	s: 1
Arcing withstand due to an internal fault	KA: /
- duration	s: /
- type of accessibility	/
Degree of protection	: IP2X
Dimensions	/
Weight	/
Drawing(s) No.	: 3731945-A (page 6)

The metal-enclosed switchgear, is composed of :

- Cubicle type IM : 1 switch SM6, 1 earthing switch.
- Cubicle type DMI-D : 1 disconnector, 1 circuit-breaker SF1, 3 current transformers, 1 earthing switch.
- Cubicle type GBC-A1 : 3 current transformers, 3 voltage transformers.

ВЕРНО С ОРИГИНАЛОМ

## RATINGS OF THE HV SWITCH ACCORDING TO IEC 265

Manufacturer	: MERLIN GERIN
Designation	: SM6
Number of poles	: 3
Type of switch	: with increased operating frequency
Class	: indoor
Voltage	kV: 12
Power frequency withstand voltage (1 min)	kV: 28
Lighting impulse withstand voltage	kV: 75
Frequency	Hz: 50/60
Normal current	A: 630
Breaking capacities	
Mainly active load	A: 630
No-load transformer	A: /
Closed-loop	A: 630
Cable-charging	A: 25
Line-charging	A: /
Earth-fault	A: /
Cable-charging under earth-fault conditions	A: /
Making capacity	kA: /
Peak withstand current	kA peak: 62.5
Short-time withstand current	kA R.M.S.: 25
- duration	s: 1
Mechanical endurance	Operating cycles: 1000
Interrupting medium	: gas SF6
Absolute pressure required at 20 °C	bar: 1.4
Operating temperatures	minimum °C: - 15 maximum °C: + 40
Degree of protection	: IP2XC
Drawing(s) No.	: 3731945-A (page 6)

ВАРНО С ОРИГИНАЛА



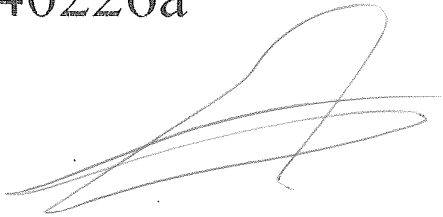
# RAPPORT D'ESSAIS

51238873XA  
20040226a



# TEST REPORT

51238873XB  
A20040226a



ВЪРНО С ОРИГИНАЛА



**RAPPORT D'ESSAIS n° 20040226 a****Appareil** : Appareillage sous enveloppe métallique**Désignation** : MERLIN GERIN Cellule SM6 type IM + IM

Tension assignée 24 kV - Courant assigné 630 A - Fréquence assignée 50/60 Hz

**Constructeur** : SCHNEIDER ELECTRIC INDUSTRIES SAS - Rueil-Malmaison - FRANCE**Objet** : Essai d'arc dû à un défaut interne assigné à:  
- 12.5 kA - 1 s - triphasé  
- dans le compartiment raccordement câbles**Demandeur des essais** : SCHNEIDER ELECTRIC**Date(s) des essais** : 30/09/2004**Laboratoire d'essais** : VOLTA – 38050 Grenoble - FRANCELes essais ont été faits suivant : **la norme CEI 62271-200 (2003) Annexe A**

Le fonctionnement de l'appareil essayé et les résultats obtenus sont consignés dans les tableaux de résultats, oscillogrammes et photos ci-joints.

La responsabilité de la conformité à l'appareil essayé, de tout appareil ayant la même désignation, incombe au Constructeur.

Le rapport est composé des documents suivants :

Caractéristiques de l'appareil	2 page(s)
Liste des essais effectués	1 page(s)
Conditions des essais	5 page(s)
Tableaux des résultats d'essais	2 page(s)
Photographies	2 page(s)
Oscillogrammes	1 page(s)
Plans de l'appareil	1 page(s)

Le rapport comprend 15 pages

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L'accréditation par la Section Essais du COFRAC atteste de la compétence du laboratoire pour les seuls essais couverts par l'accréditation.

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ВЯРНО С ОПИ

На основание чл.36а ал.3 от  
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**TEST REPORT No. A20040226 a**

**Apparatus** : *Metal-enclosed switchgear*

**Designation** : *MERLIN GERIN Cubicle SM6 type IM + IM*  
*Rated voltage 24 kV - Rated normal current 630 A - Rated frequency 50/60 Hz*

**Manufacturer** : *SCHNEIDER ELECTRIC INDUSTRIES SAS - Rueil-Malmaison - FRANCE*

**Object** : *Arcing test due to internal fault rated at:*  
*- 12.5 kA - 1 s - three-phase*  
*- in the cable connection compartment*

**Tested for** : *SCHNEIDER ELECTRIC*

**Date(s) of tests** : *30/09/2004*

**Test laboratory** : *VOLTA – 38050 Grenoble - FRANCE*

These tests were carried out in accordance with : **Standard IEC 62271-200 (2003) Annex A**

The performance of the apparatus tested and the results obtained are shown in the tables, oscillograms and photographs enclosed.  
The responsibility for conformity of any apparatus having the same designation with that tested rests with the Manufacturer.

The documents forming part of this report are :

Ratings of the apparatus	2 page(s)
Record of proving tests	1 page(s)
Conditions of proving tests	5 page(s)
Test result tables	2 page(s)
Photographs	2 page(s)
Oscillograms	1 page(s)
Drawings of the apparatus	1 page(s)

The test report comprises 15 pages

This record of proving test shall only be reproduced in the complete form.

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ВЕРНО С О На основании чл.36а ал.3 от ЗОП

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# TEST REPORT

No. 200903584\_001

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ВЯРНО С ОРИГИНАЛА

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### TEST REPORT No. 200903584\_001

**Delivered to** : SCHNEIDER ELECTRIC INDUSTRIES SAS - Rueil-Malmaison - FRANCE

**Equipment**

Designation : Metal-enclosed switchgear

Reference : SM6-24 type IM 375

Rated voltage 24 kV - Rated normal current 630 A - Rated frequency 50/60 Hz

Trademark : SCHNEIDER ELECTRIC

**Type of test** : Arcing test due to internal fault in the busbar compartment rated at :  
- 12.5 kA - 1 s - three-phase

**Date(s) of tests** : 20/11/2009

**Place of tests** : VOLTA - Grenoble - FRANCE

These tests were carried out in accordance with : **Standard IEC 62271-200 (2003-11) Annex A**

**Conclusion** :

**Satisfactory result - Classification IAC : AFL validated**

The results obtained during the tests consigned in this test report justify the above assigned characteristics stated by the manufacturer.

This document results from tests carried out on a sample. It does not prejudice the compliance of the whole manufactured products with the tested specimen.

This report contains : 17 pages with : 1 oscillogram(s) and 2 drawing(s) of the apparatus.

Grenoble 12/03/2010

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## RATINGS OF THE METAL-ENCLOSED SWITCHGEAR ACCORDING TO IEC 62271-200

Manufacturer	:	SCHNEIDER ELECTRIC INDUSTRIES SAS
Designation	:	SM6-24 type IM 375
Number of phases	:	3
Voltage	kV :	24
Power frequency withstand voltage (1 min)		
- to earth and between poles	kV :	50
- accross the isolating distance	kV :	60
Lightning impulse withstand voltage		
- to earth and between poles	kV peak :	125
- accross the isolating distance	kV peak :	145
Frequency	Hz :	50/60
Normal current	A :	630
Peak withstand current	kA :	52
Short-time withstand current (duration)		
- main circuit	kA :	20 (1 s)
- earthing switch	kA :	20 (1 s)
- earth bar	kA :	20 (1 s)
Arcing withstand due to an internal fault	kA :	12.5
- duration	s :	1
- classification IAC	:	AFL
Degree of protection	:	IP3X
Dimensions (H x W x D)	mm :	2050x375x940
Weight	kg :	130
Drawing(s) No.	:	/
Metal-enclosed switchgear equipped with	:	1 switch 1 earthing switch

ВАРНО С ОРВИГИНАЛА

Test report

No. 201504464\_007

ВЯРНО С ОРИГИНАЛА



Power and Functional Pole

## Test report

**No. 201504464\_007**

Delivered to : SCHNEIDER ELECTRIC INDUSTRIES SAS - Rueil-Malmaison - FRANCE

### Equipment

Designation : Metal-enclosed switchgear

Reference : Switchboard SM6 Type IM + IM + IM

Rated voltage 24 kV - Rated normal current 630 A - Rated frequency 50/60 Hz

Trademark : SCHNEIDER ELECTRIC

Manufacturer : SCHNEIDER ELECTRIC INDUSTRIES SAS

Type of test : Arcing test due to internal fault rated at:

- 20 kA - 1 s - three-phase - 50 Hz

- IAC Classification A-FLR

- In the cable connection compartment of left IM cubicle

- With top exhaust configuration

- With front of the switchboard positioned in front of the rear wall

Date(s) of tests : 9 December 2015

Place of tests : VOLTA Labs - Grenoble - FRANCE

These tests were carried out in accordance with :

Customer request based on standard IEC 62271-200 (2011-10) § 6.106 & Annex A.A

## Conclusion

The results of the test performed in the cables connection compartment of the left IM cubicle of the switchboard are in accordance with the requirements of the customer request.

The results obtained during the tests consigned in this test report justify the above assigned characteristics stated by the manufacturer. This document results from tests carried out on a sample. It does not prejudice the compliance of the whole manufactured products with the tested specimen. The results given in this test report do not take into account the measurement uncertainties.

This report contains : 12 Pages with : 1 oscillogram(s) and 1 drawing(s) of the apparatus.

Grenoble 16/02/2016

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## RATINGS OF THE METAL-ENCLOSED SWITCHGEAR ASSIGNED BY THE MANUFACTURER

Manufacturer	: SCHNEIDER ELECTRIC INDUSTRIES SAS		
Designation	: SM6 Type IM + IM + IM		
Serial number	: LL143330037 (left IM cubicle) DG-2015-W41-1-0034 (middle IM cubicle) HU153910016 (right IM cubicle)		
Installation	indoor : <input checked="" type="checkbox"/>	outdoor :	
Number of phases	: 3		
Voltage	kV : 24		
Power frequency withstand voltage (1 min)			
- to earth and between poles	kV : 50		
- accross the isolating distance	kV : 60		
Lightning impulse withstand voltage			
- to earth and between poles	kV peak : 125		
- accross the isolating distance	kV peak : 145		
Frequency	Hz : 50/60		
Normal current	A : 630		
Peak withstand current	kA : 65		
Short-time withstand current (duration)			
- main circuit	kA : 25 (1s)		
- earthing switch	kA : 25 (1s)		
- earth bar	kA : 5 (1s)		
Arcing withstand due to an internal fault	kA : 20		
- duration	s : 1		
- classification IAC	: A-FLR		
Degree of protection	: IP3X		
Dimensions (H x W x D)	mm : /		
Drawing(s) No.	: NVE3182002 Rev.00		
Metal-enclosed switchboard equipped with	: - 3 SM6 IM cubicles (switch unit)		

ВАРИАНТ С ОРИГИНАЛОМ

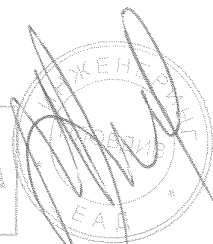
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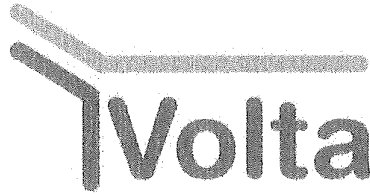
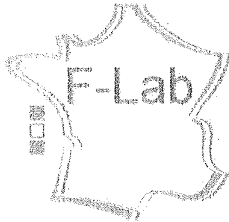
Test report

No. 201700825\_002

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ВЯРНО С ОРИГИНАЛА





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## Test report

**No. 201700825\_002**

**Customer** : SCHNEIDER ELECTRIC INDUSTRIES SAS - Rueil-Malmaison - FRANCE

**Device under test** : Metal-enclosed switchgear

**Reference** : SM6-24 IM  
: Rated voltage 24 kV - Rated normal current 630 A - Rated frequency 50/60 Hz

**Trade mark** : SCHNEIDER ELECTRIC

**Manufacturer** : SCHNEIDER ELECTRIC INDUSTRIES SAS

**Type/Nature of test** : Tests at the short-circuit making capacity rated at:  
- 5 C at 52 kA peak - 24 kV - 50 Hz of switch (test duty TDma)  
- Class E3

**Standards** : IEC 62271-200 (2011-10) & IEC 62271-103 (2011-06) § 6.101

**Date(s) of the tests** : April 12<sup>th</sup> to 19<sup>th</sup> 2017

**Place of tests** : VOLTA - Grenoble - FRANCE

## Conclusion

The results of the tests performed on SM6-24 IM are compliant with the item's requirements of the standards mentioned in this report.

The results obtained during the tests consigned in this test report justify the above assigned characteristics stated by the manufacturer. To declare, or not, the compliance according the standard, it was not take into account of uncertainty measurements in the test results. This document results from tests carried out on a sample. It does not prejudice the compliance of the whole manufactured products with the tested specimen.

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This report contains 16 pages (and 17 oscillogram(s) and 1 drawing(s) of the apparatus as annex).

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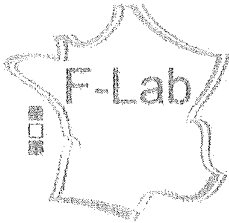
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## RATINGS OF THE METAL-ENCLOSED SWITCHGEAR ASSIGNED BY THE MANUFACTURER

Manufacturer	: SCHNEIDER ELECTRIC INDUSTRIES SAS		
Designation	: SM6-24 IM		
Serial number	: DG-2017-W11-3-0016		
Installation	indoor : <input checked="" type="checkbox"/>	outdoor : <input type="checkbox"/>	
Number of phases	: 3		
Voltage	kV : 24		
Power frequency withstand voltage (1 min)			
- to earth and between poles	kV : 50		
- across the isolating distance	kV : 60		
Lightning impulse withstand voltage			
- to earth and between poles	kV peak : 125		
- across the isolating distance	kV peak : 145		
Frequency	Hz : 50/60		
Normal current	A : 630		
Peak withstand current	kA : 52		
Short-time withstand current (duration)			
- main circuit	kA : 20 (1s)		
- earthing switch	kA : 20 (1s)		
- earth bar	kA : 20 (1s)		
Arcing withstand due to an internal fault	kA : 12.5		
- duration	s : 1		
- classification IAC	: AFL		
Degree of protection	: IP3X		
Dimensions (H x W x D)	mm : 1600 x 960 x 375		
Drawing(s) No.	: 373002102 rev. 01 (sheet 13/13)		
Metal-enclosed switchgear equipped with	: - 1 switch (see page 3) - 1 earthing switch (see page 4)		

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## Test report

N°: 201700825\_012

**Customer** : SCHNEIDER ELECTRIC INDUSTRIES SAS – Rueil-Malmaison – FRANCE

**Device under test** : Metal-enclosed switchgear

**Reference** : SM6-24-IM  
Rated voltage 24 kV - Rated normal current 630 A - Rated frequency 50/60 Hz

**Trade mark** : SCHNEIDER ELECTRIC

**Manufacturer** : SCHNEIDER ELECTRIC INDUSTRIES SAS

**Type/Nature of test** : Dielectric tests

- Power-frequency voltage tests (§6.2.6.1)
- Lightning impulse voltage tests (§6.2.6.2)

**Standard** : According to IEC 62271-1 Ed. 1.1 (2011-08) and IEC 62271-200 Ed 2.0 (2011-10)

**Date(s) of the tests** : From 2017/11/13<sup>th</sup> to 2017/12/11<sup>th</sup>

**Place of tests** : F-Labs - Site Volta – Grenoble - FRANCE

## Conclusion

The results of the tests performed on the switchboard and devices are compliant with the item's requirements of the standard request mentioned in this report.

The results obtained during the tests consigned in this test report justify the above assigned characteristics stated by the manufacturer. To declare, or not, the compliance according the standard, it was not take into account of uncertainty measurements in the test results. This document results from tests carried out on a sample. It does not prejudice the compliance of the whole manufactured products with the tested specimen.

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This report contains 23 pages

Dispatch date of report: 2018/05/18<sup>th</sup>

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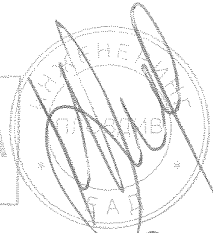




**SUMMARY**

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ВЕРНО С ОРИГИНАЛА





## Type Test Report TFR\_201700825\_034

**Test object:** Load Break Switch disconnecter cubicle

**Type:** SM6 24

**Designation:** IM Advance

Rated voltage:	24 kV	Rated normal current:	630 A	Rated frequency:	50/60 Hz
Rated peak withstand current:	52 kA	Rated short-time withstand current:	20	Rated duration of short-circuit:	1 s

**Manufacturer:** Schneider Electric Industries SAS – Rueil Malmaison - FRANCE

**Client:** Schneider Electric SAS – EPE R&D – GRENOBLE – FRANCE  
( manufacturer representative : Michel Perrone)

**Testing Station:** L.E.M.T – Schneider Electric Industries SAS

**Location of test:** Grenoble

**Date of test:** 19/06/2017 - 23/06/2017

**Test specifications:** These tests are carried out in accordance with IEC 62271-200 Ed2.0 (2011) §6.5 standard.

**Tests performed:** Temperature rise test at 630 A three-phase

**Test results:** The test results of the test performed in the load break switch disconnecter of the switchboard SM6 24 – Advance are in accordance with the requirements of the standard mentioned in this report.

This Report consists of 15 Pages.

**SCHNEIDER ELECTRIC INDUSTRIES SAS  
L.E.M.T - TESTING LABORATORY MEDIUM VOLTAGE**

На основание чл.36а ал.3 от ЗОП

**Grenoble, 19<sup>th</sup> July, 2017**

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Medium Voltage Switchgear

## Notes

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### Test Documents

A **Test Confirmation** is issued immediately after the test on customer request. It confirms that the test was conducted and is valid only until publishing the detailed result in an entire document.

A **Type Test Report** is issued for type tests which have successfully been carried out in full compliance with the relevant specifications or standards valid at the time of test. For these tests the test object must be clearly identified by technical description, drawing and additional specifications.

A **Test Report** is issued for all other tests which have been carried out according to specifications or standards and/or client instructions. Similarly, this Test Report contains all test results, details of the conditions under which the tests were carried out, also details relating to the behaviour of the test object, and its condition after the tests.

### Measurement uncertainty

To declare, or not, the accordance to the specification, the results uncertainties are not taken into account.

### Addresses

Test laboratory: Schneider Electric  
Testing Laboratory Medium Voltage  
37 quai Paul Louis Merlin  
38050 Grenoble Cedex09  
France

Location of test: Schneider Electric  
Testing Laboratory Medium Voltage  
37 quai Paul Louis Merlin  
38050 Grenoble Cedex09  
France

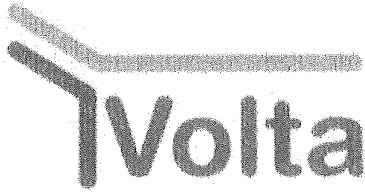
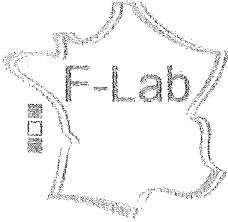
Manufacturer: Schneider Electric Industries SAS  
Rueil Malmaison  
France

Client: Schneider-Electric  
EPE R&D  
37 quai Paul Louis Merlin  
38050 Grenoble Cedex09  
France

### Changes

Replacement for Report: -  
New Version: -  
Explanation of Changes: -





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N° 1-0140 et  
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## Test report

N° : 201700825\_038

Customer : Mr. PERRONE Michel  
Schneider Electric - Energy Business  
37 quai Paul-Louis Merlin, 38000 Grenoble, FRANCE

Device under test : Metal-enclosed switchgear

Reference : SM6 24 - IM  
Rated voltage 24 kV - Rated current 630 A - Rated frequency 50/60 Hz

Trade mark : SCHNEIDER ELECTRIC

Manufacturer : SCHNEIDER ELECTRIC INDUSTRIES SAS

Type/Nature of test : §6.2.10 Dielectric tests on auxiliary and control circuits

Standard : According to IEC 62271-200 Ed. 1.1 (2011/10)

Date(s) of the tests : From 02/10/2017 to 27/10/2017

Place of tests : F-Lab – Site Volta – Grenoble - FRANCE

## Conclusion

The results of the tests performed on the SM6 24 - IM switchgear are in accordance with the item's requirements of the standard mentioned in this report.

The results obtained during the tests consigned in this test report justify the above assigned characteristics stated by the manufacturer. To declare, or not, the compliance according the standard, it was not take into account of uncertainty measurements in the test results. This document results from tests carried out on a sample. It does not prejudice the compliance of the whole manufactured products with the tested specimen.

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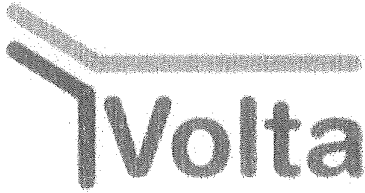
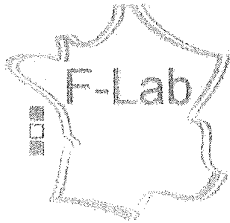


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## Test report

N°: 201700825\_016

**Customer** : SCHNEIDER ELECTRIC INDUSTRIES SAS – Rueil-Malmaison – FRANCE

**Device under test** : Metal-enclosed switchgear

**Reference** : SM6-24-QM  
Rated voltage 24 kV - Rated normal current 630 A - Rated frequency 50/60 Hz

**Trade mark** : SCHNEIDER ELECTRIC

**Manufacturer** : SCHNEIDER ELECTRIC INDUSTRIES SAS

**Type/Nature of test** : Dielectric tests

- Power-frequency voltage tests (§6.2.6.1)
- Lightning impulse voltage tests (§6.2.6.2)

**Standard** : According to IEC 62271-1 Ed. 1.1 (2011-08) and IEC 62271-200 Ed 2.0 (2011-10)

**Date(s) of the tests** : From 2017/11/13<sup>th</sup> to 2017/12/11<sup>th</sup>

**Place of tests** : F-Labs - Site Volta – Grenoble - FRANCE

## Conclusion

The results of the tests performed on the switchboard and devices are compliant with the item's requirements of the standard request mentioned in this report.

The results obtained during the tests consigned in this test report justify the above assigned characteristics stated by the manufacturer. To declare, or not, the compliance according the standard, it was not take into account of uncertainty measurements in the test results. This document results from tests carried out on a sample. It does not prejudice the compliance of the whole manufactured products with the tested specimen.

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ВЪРНО С ОРИГИНАЛА





**1 RATINGS OF THE SWITCHGEAR ACCORDING TO MANUFACTURER**

**Manufacturer** : Schneider Electric Industries SA  
**Designation** : SM6-24-QM

**Installation** Indoor :

**Number of poles** : 3

**Voltage** kV : 24

**Power frequency withstand voltage (1 min)**

- to earth and between poles kV : 50

- across the isolating distance kV : 60

**Lightning impulse withstand voltage**

- to earth and between poles kV peak : 125

- across the isolating distance kV peak : 145

**Frequency** Hz : 50/60

**Normal current** A : 630

**Peak withstand current** kA : 52

**Short-time withstand current (duration)**

- main circuit kA : 20 (1s)

- earthing switch kA : 20 (1s)

**Arcing withstand due to an internal fault** kA : 12,5

- duration s : 1

- classification IAC : A-FL

**Degree of protection** : IP3X

**Drawing n°** : 373002302

**Metal-enclosed switchgear equipped with** : - earthing switch  
- switch  
- disconnecter  
- current transformers  
- downstream earthing switch

The conformity to the drawings of the tested equipment is guaranteed by the manufacturer.





VOLTA

centre d'essais  
station d'essais à grande puissance  
38050 Grenoble cedex France

51168390XB

AB3307

ESEF

ensemble des stations d'essais Français  
BP n° 1  
77250 Moret sur Loing

# TEST REPORT No. AB 3307

Apparatus : *High-voltage cubicle*

Designation : *SM6 type QM*

*Rated voltage 24 kV-Rated normal current 400 A-Rated frequency 50/60 Hz*

Manufacturer : *MERLIN GERIN - Grenoble - FRANCE*

Object : *Rated transition current breaking tests at : 1400 A - 24 kV  
(Test-duty No. 4)*

Tested for : *MERLIN GERIN*

Date(s) of tests : *31 / 08 / 1990*

These tests were carried out in accordance with : **Customer request based on the revision draft 17 A - 266.1 of the IEC publication 420 (1986) § 6.103.4.**

The performance of the apparatus tested and the results obtained are shown in the tables ,  
oscillograms and photographs enclosed .

The responsibility for conformity of any apparatus having the same designation with that tested rests  
with the Manufacturer.

The documents forming part of this report are :

Ratings of the apparatus	page(s) 2 - 3 - 4
Record of proving tests	page(s) 5
Conditions of proving tests	page(s) 6 to 10
Test result tables	page(s) 11 - 12
Oscillograms	page(s) 13 to 18
Photographs	page(s) none

The test report comprises 18 page(s)

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Station Manager .

Grenoble 17 / 10 / 1990

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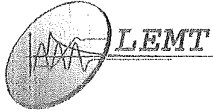
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## RATINGS OF THE HV SWITCH ACCORDING TO IEC 265

Manufacturer	: MERLIN GERIN
Designation	: Cubicle SM6 type QM
Number of poles	: 3
Type of switch	: with increased operating frequency
Class	: indoor
Voltage	kV: 24
Power frequency withstand voltage (1 min)	kV: 50/60
Lighting impulse withstand voltage	kV: 125/145
Frequency	Hz: 50/60
Normal current	A : 400
Breaking capacities	
Mainly active load	A : 400
No-load transformer	A :
Closed-loop	A : 400
Cable-charging	A : 31.5
Line-charging	A :
Earth-fault	A : 95
Cable-charging under earth-fault conditions	A : 55
Making capacity	kA: 31.5
Peak withstand current	kA peak : 31.5
Short-time withstand current	kA R.M.S. : 12.5
- duration	s : 1
Mechanical endurance	Operating cycles : 1000
Interrupting medium	: gaz SF6
Absolute pressure required at 20 °C	bar : 1.4
Operating temperatures	minimum °C : maximum °C :
Degree of protection	: IP2X
Drawing(s) No.	:

КОПИЯ С ОРИГИНАЛА





Laboratoire Essais Moyenne Tension  
Schneider-Electric Industries SAS  
ZAC Champ Saint Ange  
F-38760 Varces

## Test Report

N° TFR\_200902405\_004

To : Eric Saunier-Payerne

**Objective** Temperature rise Test objective : Validation of cubicle SM6-24 QM arc proof

**Test** Starting date : 25/05/2009 Completed date : 15/06/2009

Test performed : test at 130A three-phase on cubicle SM6-24 QM arc proof coupled with a cubicle SM6-24 DM1W arc proof

Standards : CEI62271-200 -

**Items tested** Apparatus : SM6-24 QM ARC PROOF 16kA-1s

Designation : **Schneider Electric SM6-24 QM**

Manufacturer : Schneider Electric SA – Rueil Malmaison - FRANCE

Items identification :

- Serial number : 0913040
- Rated voltage (kV) : 24
- Rated normal current (A) : 200
- Short-circuit breaking current (kA) : 20
- SF6 mass at (Kg): 0,210 (switch)
- Drawing n°:373002302 ind 01 / 51238176F002 ind O2

Samples : 1

**Conclusion** The tests are in accordance with the standard IEC 62271-200

Dept:	LEMT 38V	На основание чл.36а ал.3 от ЗОП
Test leader	Izzo Pasquale	
Number of pages :	11	
Approval date :	30/06/2009	

*The performance of the apparatus tested and the results obtained are shown in the tables. This document relate only to the items presented for testing.*  
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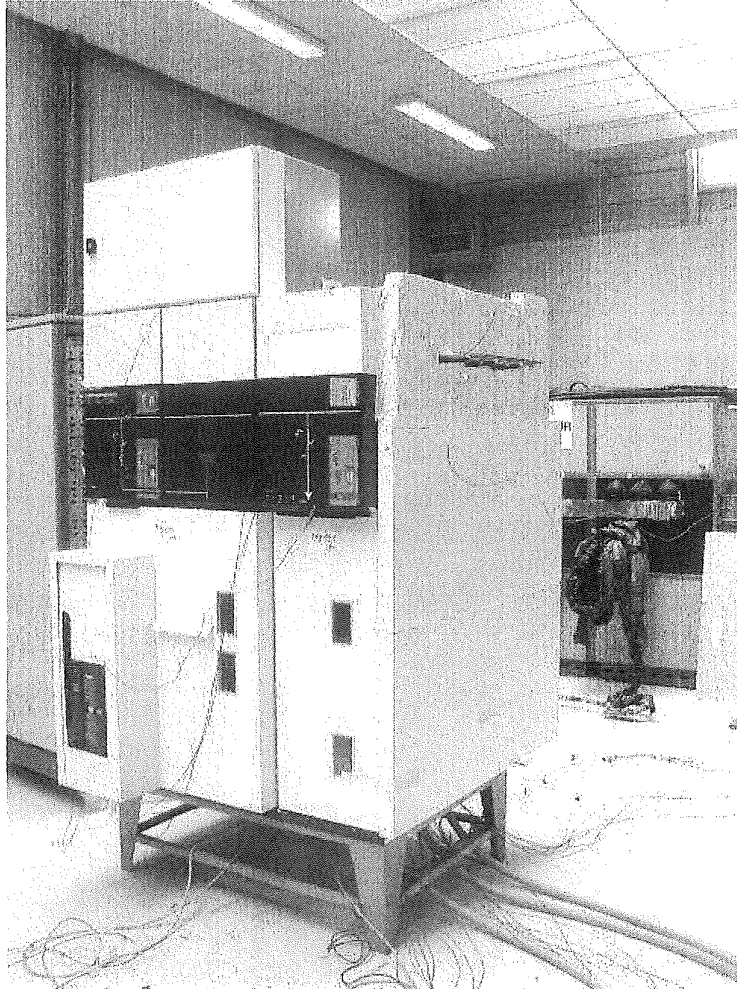
CONTENT

1	PRODUCT DESCRIPTION.....	3
2	TEST DESCRIPTION .....	5
3	RESULTS .....	7
4	OSCILLOGRAM .....	8
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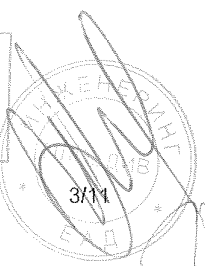
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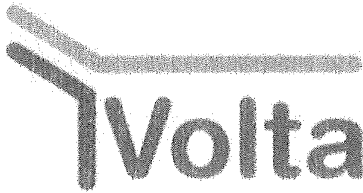
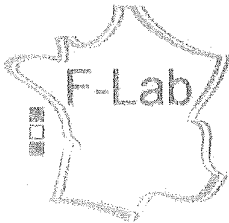
1 PRODUCT DESCRIPTION

1.1 Sampling:



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## Test report

N°: 201700825\_016

**Customer** : SCHNEIDER ELECTRIC INDUSTRIES SAS – Rueil-Malmaison – FRANCE

**Device under test** : Metal-enclosed switchgear

**Reference** : SM6-24-QM  
Rated voltage 24 kV - Rated normal current 630 A - Rated frequency 50/60 Hz

**Trade mark** : SCHNEIDER ELECTRIC

**Manufacturer** : SCHNEIDER ELECTRIC INDUSTRIES SAS

**Type/Nature of test** : Dielectric tests

- Power-frequency voltage tests (§6.2.6.1)
- Lightning impulse voltage tests (§6.2.6.2)

**Standard** : According to IEC 62271-1 Ed. 1.1 (2011-08) and IEC 62271-200 Ed 2.0 (2011-10)

**Date(s) of the tests** : From 2017/11/13<sup>th</sup> to 2017/12/11<sup>th</sup>

**Place of tests** : F-Labs - Site Volta – Grenoble - FRANCE

## Conclusion

The results of the tests performed on the switchboard and devices are compliant with the item's requirements of the standard request mentioned in this report.

The results obtained during the tests consigned in this test report justify the above assigned characteristics stated by the manufacturer. To declare, or not, the compliance according the standard, it was not take into account of uncertainty measurements in the test results. This document results from tests carried out on a sample. It does not prejudice the compliance of the whole manufactured products with the tested specimen.

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ВЕРНО С ОРИГИНАЛА





**1 RATINGS OF THE SWITCHGEAR ACCORDING TO MANUFACTURER**

**Manufacturer** : Schneider Electric Industries SA  
**Designation** : SM6-24-QM

**Installation** Indoor :

**Number of poles** : 3

**Voltage** kV : 24

**Power frequency withstand voltage (1 min)**

- to earth and between poles kV : 50

- across the isolating distance kV : 60

**Lightning impulse withstand voltage**

- to earth and between poles kV peak : 125

- across the isolating distance kV peak : 145

**Frequency** Hz : 50/60

**Normal current** A : 630

**Peak withstand current** kA : 52

**Short-time withstand current (duration)**

- main circuit kA : 20 (1s)

- earthing switch kA : 20 (1s)

**Arcing withstand due to an internal fault** kA : 12,5

- duration s : 1

- classification IAC : A-FL

**Degree of protection** : IP3X

**Drawing n°** : 373002302

**Metal-enclosed switchgear equipped with** : - earthing switch  
- switch  
- disconnecter  
- current transformers  
- downstream earthing switch

The conformity to the drawings of the tested equipment is guaranteed by the manufacturer.

ВЕРНО С ОРИГИНАЛА



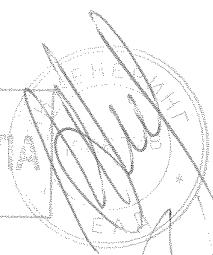
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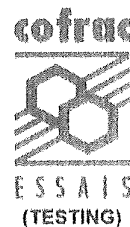
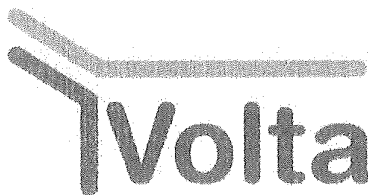
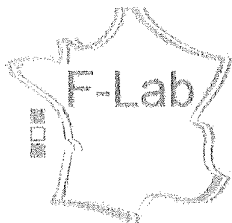
Test report

No. 201700825\_049

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## Test report

**No. 201700825\_049**

**Customer** : SCHNEIDER ELECTRIC INDUSTRIES SAS - Rueil-Malmaison - FRANCE

**Device under test** : Metal-enclosed switchgear

**Reference** : SM6-24 QM  
: Rated voltage 24 kV - Rated normal current 630 A - Rated frequency 50/60 Hz

**Trade mark** : SCHNEIDER ELECTRIC

**Manufacturer** : SCHNEIDER ELECTRIC INDUSTRIES SAS

**Type/Nature of test** : Tests at the short-circuit making capacity rated at:  
- 5 C at 5.2 kA peak - 24 kV - 50 Hz of downstream earthing switch  
- Class E2

**Standards** : IEC 62271-200 (2011-10) § 6.101 & IEC 62271-102 (2013-03) § 6.101

**Date(s) of the tests** : September 27<sup>th</sup> 2017

**Place of tests** : VOLTA - Grenoble - FRANCE

## Conclusion

The results of the tests performed on SM6-24 QM are compliant with the item's requirements of the standards mentioned in this report.

The results obtained during the tests consigned in this test report justify the above assigned characteristics stated by the manufacturer. To declare, or not, the compliance according the standard, it was not take into account of uncertainty measurements in the test results. This document results from tests carried out on a sample. It does not prejudice the compliance of the whole manufactured products with the tested specimen.

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This report contains 10 pages (and 5 oscillogram(s) and 1 drawing(s) of the apparatus as annex).

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## RATINGS OF THE METAL-ENCLOSED SWITCHGEAR ASSIGNED BY THE MANUFACTURER

Manufacturer	: SCHNEIDER ELECTRIC INDUSTRIES SAS		
Designation	: SM6-24 QM		
Serial number	: DG-2017-W14-4-0038		
Installation	indoor : ■■	outdoor :	
Number of phases	: 3		
Voltage	kV : 24		
Power frequency withstand voltage (1 min)			
- to earth and between poles	kV : 50		
- across the isolating distance	kV : 50		
Lightning impulse withstand voltage			
- to earth and between poles	kV peak : 125		
- across the isolating distance	kV peak : 125		
Frequency	Hz : 50/60		
Normal current	A : 630		
Peak withstand current	kA : 52		
Short-time withstand current (duration)			
- main circuit	kA : 20 (1s)		
- earthing switch	kA : 20 (1s)		
- earth bar	kA : 20 (1s)		
Arcing withstand due to an internal fault	kA : 12.5		
- duration	s : 1		
- classification IAC	: AFL		
Degree of protection	: IP3X		
Dimensions (H x W x D)	mm : 1600 x 960 x 375		
Drawing(s) No.	: 373002302 rev. 01 (sheet 10/10)		

Metal-enclosed switchgear equipped with : - 1 switch  
- 1 earthing switch  
- 1 downstream earthing switch (see page 3)  
- 3 fuses

ВЯРНО С ОРИГИНАЛА

## TEST REPORT n°A4197a

**Apparatus** : Metal-enclosed switchgear and controlgear  
**Designation** : MERLIN GERIN SM6 Type GBM  
Rated voltage : 24 kV Rated current : 400 / 630 A  
**Manufacturer** : SCHNEIDER ELECTRIC

**Object** : Dielectric tests  
- Lightning impulse voltage tests  
- Power-frequency voltage tests

**Tested for** : SCHNEIDER ELECTRIC

**Date(s) of tests** : 27 May 1991

These tests were carried out in accordance with : Customer request based on IEC 298 § 6.1 (1990)  
IEC 694 § 6.1 (1980)

*The performance of the apparatus tested and the results obtained are shown in the tables, oscillograms and photographs enclosed.  
This document relate only to the items presented for testing.*

The documents forming part of this test report are :

Apparatus ratings	page(s) 2
Test records	page(s) 3
Test conditions	page(s) 4
Test results	page(s) 5 and 6
Oscillograms	page(s) /
Photographs / Drawings	page(s) 7 and 8
The test report comprises :	8 pages

*This test report can only be copied as a photographic facsimile in its entirety.*

Varcès, 27 March 1996

**Technical manager**

На основание чл.36а ал.3 от  
ЗОП

**Testing laboratory manager**

На основание чл.36а ал.3 от  
ЗОП

ВЯРНО С ОРГИНАЛА

APPARATUS RATINGS

Manufacturer : SCHNEIDER ELECTRIC  
Designation : MERLIN GERIN SM6  
: Type GBM

Number of poles : 3

Voltage kV : 24  
Power frequency withstand voltage (1 min) kV : 50  
Lightning impulse withstand voltage kV : 125

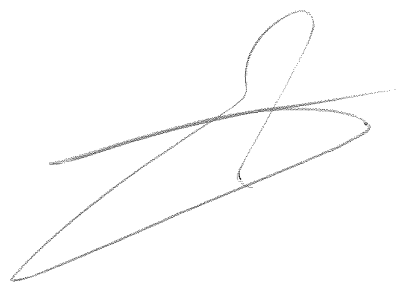
Frequency Hz : 50

Normal current A : 400 / 630

Short time withstand current kA : 20 s : 1  
Peak withstand current kA : 50

Degree of protection : IP2XC

Drawing n° : 3729897



ВЯРНО С ОРИГИНАЛА



VOLTA

centre d'essais

station d'essais à grande puissance  
F-38050 Grenoble cedex 9

51168258XA

A0476c

ESEF

ensemble des stations d'essais français  
BP n° 1  
77250 Moret sur Loing

# RAPPORT D'ESSAIS n° A 0476 c

Appareil : *Appareillage à haute tension*

Désignation : *Cellule SM6 type GBM*

*Tension assignée 12 kV - Courant assigné 630 A - Fréquence assignée 50/60 Hz*

Constructeur : *MERLIN GERIN - Grenoble - FRANCE*

Objet : *Essais au courant de courte durée et à la valeur de crête du courant admissibles assigné à :  
25 kA - 1 s - 62.5 kA crête*

Demandeur des essais : *MERLIN GERIN*

Date(s) des essais : *02 / 04 / 1991*

Les essais ont été faits suivant : **demande du Client basée sur la publication CEI 694 (1980) § 6.5**

Le fonctionnement de l'appareil essayé et les résultats obtenus sont consignés dans les tableaux de résultats, oscillogrammes et photos ci-joints.

La responsabilité de la conformité à l'appareil essayé, de tout appareil ayant la même désignation, incombe au Constructeur.

Le rapport est composé des documents suivants :

Caractéristiques de l'appareil	page(s) 2 - 3
Liste des essais effectués	page(s) 4
Conditions des essais	page(s) 5 - 6
Tableaux des résultats d'essais	page(s) 7
Oscillogrammes	page(s) 8
Photographies	page(s) néant

Le rapport comprend 8 page(s)

Seule la reproduction intégrale de ce rapport est permise sans l'autorisation écrite du Chef de la Station d'Essais.

Grenoble le 11 / 02 / 1992

Le Responsable Technique

На основании чл.36а ал.3 от  
ЗОП

На основании чл.36а ал.3 от ЗОП

# VOLTA

centre d'essais  
station d'essais à grande puissance  
F-38050 Grenoble cedex 9

n° A 0476 c

page 2

## CARACTERISTIQUES ASSIGNEES DE L'APPAREIL SELON CEI

Constructeur : MEPLIN GERIN	Désignation : Cellule SM6 type GBM
Nombre de pôles : 3	Courant
Nombre d'éléments par pôle : 1	- THERMIQUE CONVENTIONNEL : 630 A
Nature du courant - AC : <input type="checkbox"/>	- ININTERROMPU : 630 A
- DC : <input type="checkbox"/>	Service
Milieu de coupure - AIR : <input type="checkbox"/>	- ININTERROMPU : <input type="checkbox"/>
- GAZ SF6 : <input type="checkbox"/>	- AUTRE : <input type="checkbox"/>
- VIDE : <input type="checkbox"/>	Fréquence
- HUILE : <input type="checkbox"/>	- 50 Hz : <input type="checkbox"/>
Fermeture - ELECTRIQUE : <input type="checkbox"/>	- 60 Hz : <input type="checkbox"/>
- MANUELLE : <input type="checkbox"/>	Pouvoir de
Ouverture - ELECTRIQUE : <input type="checkbox"/>	- FERMETURE EN COURT-CIRCUIT :
- MANUELLE : <input type="checkbox"/>	- COUPURE EN COURT-CIRCUIT :
Entretien - AVEC : <input type="checkbox"/>	Catégorie de performance
- SANS : <input type="checkbox"/>	- P1 :
Présentation - FIXE : <input type="checkbox"/>	- P2 :
- BOITIER MOULE : <input type="checkbox"/>	- AUTRE : <input type="checkbox"/>
- DEBROCHABLE : <input type="checkbox"/>	Courant de courte durée : 25 kA - 1 s - 62.5 kA crête
- AUTRE : <input type="checkbox"/>	Mode de connexion
Tension - D'EMPLOI : 12 kV	- BARRES : <input type="checkbox"/>
- D'ISOLEMENT : 28 kV - 75 kV choc	- CABLES : <input type="checkbox"/>
Pouvoir de coupure assigné en court-circuit	- AUTRE : <input type="checkbox"/>
- COMPOSANTE PERIODIQUE :	TTR
- COMPOSANTE APERIODIQUE :	- VALEUR DE CRETE :
Tension d'alimentation du	- VITESSE D'ACCROISSEMENT :
- MOTEUR :	- FACTEUR DE PREMIER POLE :
- DISPOSITIF DE FERMETURE :	Pression du
- DISPOSITIF D'OUVERTURE :	- MILIEU DE COUPURE :
TYPE DE LA COMMANDE :	PLAN (S) N° : 3 729 897 (page 3)

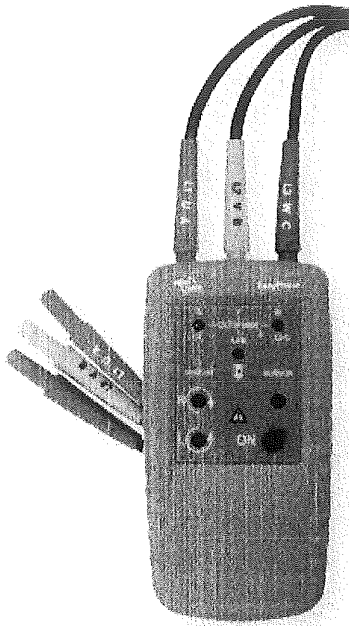
ВЯРНО С ОРИГИНАЛА

-311-

# Test tools

## EasyPhase

Article number: 626005051



### Phase- / motor rotation tester

The EasyPhase is a simple 4-in-1 test tool for indication of phase rotation, indication of an open phase and field rotation indication of motors. The tester is ideal for installing conveyor lines, pump systems and interconnected drivers.

The tester is battery operated and is supplied with leads (red, yellow and blue), alligator clamps, manual, battery and vinyl bag.

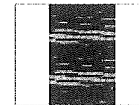
### Features

- Determine rotary field direction
- Determine motor connection
- Indication of open phase
- Magnetic field detection

### Including



Test leads



Alligator clamps



Bag

- Batteries
- Manual

### Specifications

Function	Range
Voltage	120...600 VAC
Frequency	2...400 Hz

Specifications	
Power consumption	Approx. 3.5 mA at phase rotation, approx. 20 mA at motor rotation direction
Supply	1x 9V battery
Overvoltage category	CAT.III 600 V
Standard	EN 61010-1
Dimensions	275 x 124 x 61 mm
Weight	± 130 g





# Operating mechanisms

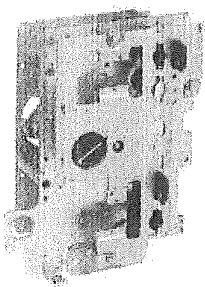
The control devices required for the unit operating mechanisms are centralised on the front panel. The different types of operating mechanism are presented in the table opposite.

Operating speeds do not depend on the operator, except for the CS.

Units	Type of operating mechanism						
	Switch/disconnector / downstream earthing switch				Circuit breaker		
	CIT	CI1	CI2	CS	CC	RI	P2
IM, IMB, IMM	■	□	□				
IMC	■	□	□				
PM	■	□	□ <sup>(1)</sup>				
QM		■	□				
QMC, QMB		■	□				
CM, CM2, CVM				■			
DM1-A, DM1-D, DM1-M, DM1-S, DM1-Z, DM2, DMVL-A, DMVL-D				■		■	
DM1-A <sup>(2)</sup> , DM1-W				■	■	■	
DMV-A, DMV-D	■						■
NSM-cables, NSM-busbars			■				
GAM 24 kV					■		
SM, TM, GAM 36 kV				■			
EMB	■						

■ Provided as standard  
 □ Other possibility  
 (1) Only SM6-36  
 (2) 1250 A version

Operating mechanism type	CI1		CI2			CS			
Unit applications	Load-break switch Fused switch		Load-break switch Fuse switch combination		Load-break switch Fuse switch combination		Disconnector		
Main circuit switch	Closing	Opening	Closing	Opening	Mechanism charging	Closing	Opening	Closing	Opening
Manual operating mode	Hand lever	Hand lever	Hand lever	Push button	Hand lever	Push button	Push button	Hand lever	Hand lever
Electrical operating mode (option)	Motor	Motor	Motor	Coil	Motor	Coil	Coil	N/A	N/A
Speed of operation	1 to 2 s	1 to 2 s	4 to 7 s	35 ms	4 to 7 s	55 ms	35 ms	N/A	N/A
Network applications	Remote control network management		Remote control transformer protection		Remote control network management, need of quick reconfiguration (generator source, loop)			N/A	
Earthing switch	Closing	Opening	Closing	Opening	N/A	Closing	Opening	Closing	Opening
Manual operating mode	Hand lever	Hand lever	Hand lever	Hand lever	Hand lever	Hand lever	Hand lever	Hand lever	Hand lever



IM, IMB

## Double-function operating mechanism CIT

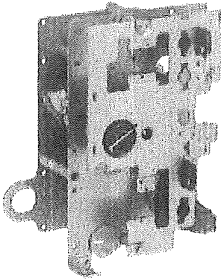
- **Switch function**  
Independent-operation opening or closing by lever or motor.
- **Earthing-switch function**  
Independent-operation opening or closing by lever. Operating energy is provided by a compressed spring which, when released, causes the contacts to open or close.
- **Auxiliary contacts**
  - switch (2 O + 2 C)\*,
  - switch (2 O + 3 C) and earthing switch (1 O + 1 C),
  - switch (1 C) and earthing switch (1 O + 1 C) if motor option.
- **Mechanical indications**  
Fuses blown in unit PM.
- **Motor option**
  - motor severe environment and communication

(\*) Included with the motor option



## Operating mechanisms

PM105615



QM

## Double-function operating mechanism CI1

• **Switch function**

- independent-operation closing by lever or motor.

Operating energy is provided by a compressed spring which, when released, causes the contacts to open or close.

- independent-operation opening by push-button (O) or trip units.

• **Earthing-switch function**

Independent-operation closing and opening by lever.

Operating energy is provided by a compressed spring which, when released, causes the contacts to open or close.

• **Auxiliary contacts**

- switch (2 O + 2 C) \*
- switch (2 O + 3 C) and earthing switch (1 O + 1 C),
- switch (1 C) and earthing switch (1 O + 1 C) if motor option,
- fuses blown (1 C).

• **Mechanical indications**

Fuses blown in units QM.

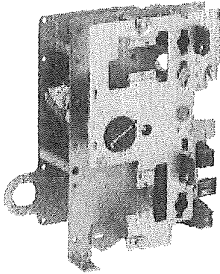
• **Opening releases**

- shunt trip.

• **Motor option**

- standard or severe environment and communication

PM105616



## Double-function operating mechanism CI2

• **Switch function**

- independent-operation closing in two steps:

1 - operating mechanism recharging by lever or motor,

2 - stored energy released by push-button (I) or trip unit.

- independent-operation opening by push-button (O) or trip unit.

• **Earthing-switch function**

Independent-operation closing and opening by lever.

Operating energy is provided by a compressed spring which, when released, causes the contacts to open or close.

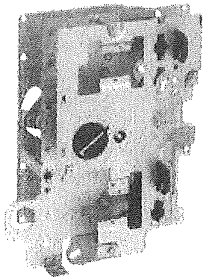
• **Auxiliary contacts**

- switch (2 O + 2 C) \*
- switch (2 O + 3 C) and earthing switch (1 O + 1 C),
- switch (1 C) and earthing switch (1 O + 1 C) if motor option.

• **Opening release shunt trip**• **Closing release shunt trip**• **Motor option**

- standard or severe environment and communication

PM105617



## Double-function operating mechanism CS

• **Disconnecter and earth switch functions**

Dependent-operation opening and closing by lever.

• **Auxiliary contacts**

- disconnecter (2 O + 2 C) for units DM1-A, DM1-D, DM1-W, DM2, DMVL-A, DMVL-D, CVM,

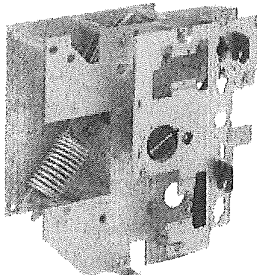
- disconnecter (2 O + 3 C) and earthing switch (1 O + 1 C) for units DM1-A, DM1-D, DM1-W, DM2, DMVL-A, DMVL-D, CVM,

- disconnecter (1 O + 2 C) for units CM, CM2, TM, DM1-A, DM1-D, DM2, DMVL-A, DMVL-D, CVM.

• **Mechanical indications**

Fuses blown in units CM, CM2 and TM.

PM105618



## Single-function operating mechanism CC

• **Earthing switch function**

Independent-operation opening and closing by lever.

Operating energy is provided by a compressed spring which, when released, provokes opening or closing of the contacts.

• **Auxiliary contacts**

Earthing switch (1 O + 1 C).

(\*) Included with the motor option.

ВЕРНО С ОРИГИНАЛА



Приложение 3 към Техническо предложение

**СРОКОВЕ ЗА ДОСТАВКА**

№	Наименование	Мярка	Количество със срок на доставка до 7 кал. дни	Количество със срок на доставка до 30 кал. дни
1	2	3		4
1	КРУ 24(25)/630/16, SF6 тов. прекъсвач - К	бр.	1	2
2	КРУ 12/630/16, SF6 тов. прекъсвач - К	бр.	1	2
3	КРУ 24(25)/630/16, SF6 тов. прекъсвач - Т	бр.	1	2
4	КРУ 12/630/16, SF6 тов. прекъсвач - Т	бр.	1	2
5	КРУ 24(25)/630/16, SF6 тов. прекъсвач - ШС	бр.	1	1
6	КРУ 12/630/16, SF6 тов. прекъсвач - ШС	бр.	1	1
7	КРУ 24(25)/630/16, SF6 тов. прекъсвачи - ККТ	бр.	1	1
8	КРУ 12/630/16, SF6 тов. прекъсвачи - ККТ	бр.	1	1
9	КРУ 24(25)/630/16, SF6 тов. прекъсвачи - КККТ	бр.	1	1
10	КРУ 12/630/16, SF6 тов. прекъсвачи - КККТ	бр.	1	1
11	КРУ 24(25)/630/16, SF6 тов. прекъсвачи - ККТТ	бр.	1	1
12	КРУ 12/630/16, SF6 тов. прекъсвачи - ККТТ	бр.	1	1
13	Капак краен/ляв или десен/	бр.	В зависимост от срока на доставка на модула КРУ за окомплектоване	В зависимост от срока на доставка на модула КРУ за окомплектоване
14	Връзки шинни 630А, компл.за КРУ	бр.	В зависимост от срока на доставка на модула КРУ за окомплектоване	В зависимост от срока на доставка на модула КРУ за окомплектоване
15	Лост за управление, КРУ 24kV	бр.	В зависимост от срока на доставка на модула КРУ за окомплектоване	В зависимост от срока на доставка на модула КРУ за окомплектоване
16	Изкл.боб.за КРУ24/630/16, тов.прек.-Т	бр.	В зависимост от срока на доставка на модула КРУ за окомплектоване	В зависимост от срока на доставка на модула КРУ за окомплектоване
17	Моторно задвижване за телеуправл. На КРУ	бр.	В зависимост от срока на доставка на модула КРУ за окомплектоване	В зависимост от срока на доставка на модула КРУ за окомплектоване
18	Укзател за сфазирание	бр.	В зависимост от срока на доставка на	В зависимост от срока на доставка на

			модула КРУ за окомплектоване	модула КРУ за окомплектоване
19	К-т каб.гл.за КРУ, за модул „К“, 20kV, 185m <sup>2</sup>	бр.	В зависимост от срока на доставка на модула КРУ за окомплектоване	В зависимост от срока на доставка на модула КРУ за окомплектоване
20	К-т каб.гл.за КРУ, за модул „К“, 20kV, 95m <sup>2</sup>	бр.	В зависимост от срока на доставка на модула КРУ за окомплектоване	В зависимост от срока на доставка на модула КРУ за окомплектоване

**Забележки:**

- 1/ Срокът на доставките започва да тече от датата на изпращане на поръчката.
- 2/ Количествата в колона 4, със срок на доставка до 7 /седем/ календарни дни, се доставят след SAP поръчка до посочените в обявлението складове на Възложителя за покриване на спешни нужди на Възложителя.
- Възложителят може до поръчва посоченото спешно количество веднъж месечно.
- 3/ В случай, че крайният срок на доставката съвпада с празничен или неработен ден, то доставката се извършва не по-късно от първия работен ден след изтичането на срока.
- 4/ При поръчки на Възложителя на количества в рамките на потвърдените от Изпълнителя и недоставени в посочените срокове, ще бъдат налагани неустойки, съгласно условията на договора.
- 5/ Възложителят може да поръча количества по-малки от посочените в колони 4 и 5.
- 6/ Възложителят може да поръчва количества по-високи от посочените в колони 4 и 5, като това обстоятелство ще бъде посочено текстово в съответната поръчка изпратена към Изпълнителя. С потвърждението на поръчката, Изпълнителят вписва в същата очаквана дата за доставка на количествата надвишаващи посочените в колони 4 и 5.
- 7/ Количествата за доставка в колони 4 и 5 са отделни и независими едно от друго.
- 8/ Количествата за доставка в колона 5 не включват в себе си количествата за доставка в колона 4.
- 9/ Възложителят има право да направи едновременно поръчки за доставка на количества от колони 4 и 5.

- Забележка:**
1. При необходимост, когато се поръча КРУ за охрана трансформатор и се поръча изключвателна бобина, при доставката бобината да бъде монтирана вътре в КРУ-то;
  2. При необходимост, когато се поръча КРУ с моторче за телеуправление, то трябва да пристигне оборудвано заедно с моторчето.
  3. Сроковете на доставка на резервните части, предвид окомплектоването, са съобразно сроковете на доставка на комплектните комутационни устройства

На основание чл.36а ал.3 от ЗОП

Дата 18.03.2020 г.

ПОДПИС и ПЕЧАТ:

