Test Report issued under the responsibility of:

TEST REPORT
IEC 60947-3
Low-voltage switchgear and controlgear
Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units

Report Number. .....:	SGP-11242/smart ARS 2 pro/800V/CB
Date of issue .....:	24.04.2019
Total number of pages.....:	59 pages
Name of Testing Laboratory preparing the Report.....:	AIT Austrian Institute of Technology GmbH
Applicant's name.....:	APATOR S.A.
Address .....:	87-100 Toruń, Gdańska nr 4a lok. C4, POLAND
Test specification:	
Standard.....:	IEC 60947-3:2008, AMD1:2012, AMD2:2015 in conjunction with IEC 60947-1:2007, AMD1:2010, AMD2:2014
Test procedure .....:	CB-Scheme
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC60947_3E
Test Report Form(s) Originator ....:	OVE
Master TRF.....:	Dated 2017-07

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.
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Test item description .....:	Low-voltage fuse-switch-disconnectors
Trade Mark .....:	APATOR
Manufacturer.....:	APATOR S.A. 87-100 Toruń, Gdańska nr 4a lok. C4, POLAND
Model/Type reference.....:	smart ARS 2-6-M PRO-PV (three pole operated) smart ARS 2-6-V PRO-PV (three pole operated) smart ARS 2-6-2V PRO-PV (three pole operated)
Ratings .....:	800V a.c. / 200A / 50-60Hz / 3-pole

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):

☒	**CB Testing Laboratory:**	AIT Austrian Institute of Technology GmbH	
Testing location/ address ..... :		A-1210 Vienna, Giefinggasse 2, AUSTRIA	
Tested by (name, function, signature) ..... :		H. Raheb, MSc	
Approved by (name, function, signature) .. :		DI G. Brauner	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address ..... :			
Tested by (name + signature)..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
Supervised by (name, function, signature) :			

List of Attachments (including a total number of pages in each attachment):

Summary of testing:

		Type + Sample No.		
		smart ARS 2-6-M PRO-PV	smart ARS 2-6-V PRO-PV	smart ARS 2-6-2V PRO-PV
Constructional Requirements		---	CR1	---
TSQ I	**Temperature-rise**	TR2M	TR2V	TR22V
	Dielectric properties			
	Making and breaking	4-5	---	---
TSQ II		6	---	---
TSQ III		---	---	---
TSQ IV		16-17	---	---
TSQ V		TR2M	---	---

Test performed:

A type test was performed according to

- IEC 60947-1 Ed. 5.2:2014
- IEC 60947-3 Ed. 3.2:2015.

The low-voltage fuse-switch-disconnectors

smart ARS 2-6-. PRO-PV

have passed the type test successfully.

Testing location:

AIT Austrian Institute of Technology GmbH
Giefinggasse 2
1210 Vienna
AUSTRIA

The AIT Austrian Institute of Technology GmbH is a recognized CB Testing Laboratory under the responsibility of OVE as the National Certification Body.

Summary of compliance with National Differences (List of countries addressed):

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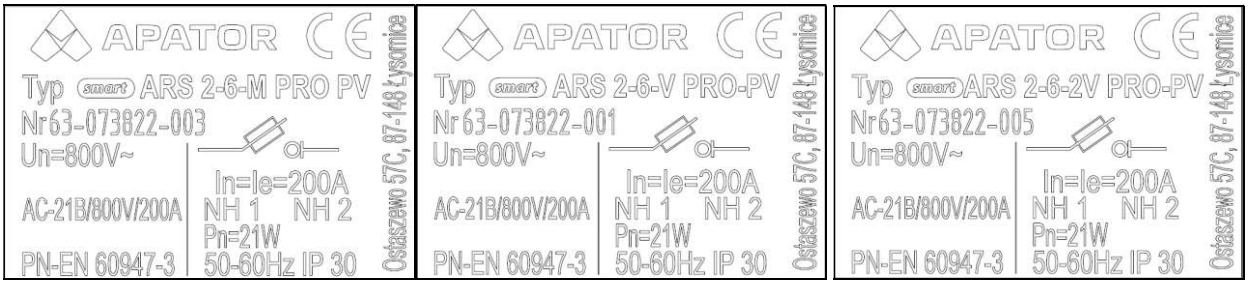
Summary of variants:

Designation	Description
smart ARS 2-6-M PRO	Fuse-switch-disconnector for busbar system 185 mm mounting, 3 pole operated ▪ screw terminals M12 (outgoing): Max. cross-section 240 mm² Min. cross-section 35mm² Rated torque 56Nm ▪ screw terminals M12 (busbars): Max. cross-section 100 x 10 mm² Min. cross-section 40 x 5 mm² Rated torque 56Nm
smart ARS 2-6-V PRO	Fuse-switch-disconnector for busbar system 185 mm mounting, 3 pole operated ▪ single V-shape terminals (outgoing): Max. cross-section 240 mm² Min. cross-section 50 mm² Rated torque 30 Nm ▪ screw terminals M12 (busbars): Max. cross-section 100 x 10 mm² Min. cross-section 40 x 5 mm² Rated torque 56Nm
smart ARS 2-6-2V PRO	Fuse-switch-disconnector for busbar system 185 mm mounting, 3 pole operated ▪ double V-shape terminals (outgoing): Max. cross-section 2 x 240 mm² Min. cross-section 50 mm² Rated torque 30 Nm ▪ screw terminals M12 (busbars): Max. cross-section 100 x 10 mm² Min. cross-section 40 x 5 mm² Rated torque 56Nm

Type tests performed with following clamps:

35-300 SW-B (Al-clamps)	2/35-300 SW-B (Al-clamps)
	

Copy of marking plate:



Test item particulars:	
- method of operation .....:	Dependent manual operation
- suitability for isolation.....:	suitable
- degree of protection .....:	Device in normal operating condition, with covers, closed: IP30
- number of poles.....:	3
- kind of current.....:	AC
-in the case of a.c., number of phases and rated frequency.....:	3, 50-60Hz
- number of positions of the main contacts (if more than two).....:	2
-breaking arrangement for fused devices .....:	---
Rated and limiting values, main circuit:	
- rated operational voltage U_e (V).....:	800 Va.c.
- rated insulation voltage U_i (V) .....:	1000
- rated impulse withstand voltage U_{imp} (kV) ...:	12
- conventional free air thermal current I_{th} with fuse-links (A) .....:	200
- conventional free air thermal current I_{th} with solid-links (A).....:	---
- rated operational current I_e (A).....:	200
- rated uninterrupted current I_u (A) .....:	200
- rated frequency (Hz).....:	50-60
- utilization category.....:	AC-21B
Short-circuit characteristic:	
- rated short-time withstand current I_{cw} (kA)...:	---
- rated short-time making capacity I_{cm} (kA)....:	---
- rated conditional short-circuit current.....:	10 kA / 800V
Control circuits .....:	---
Auxiliary circuits .....:	---
Relays and releases .....:	---
Co-ordination with short-circuit protective devices:	
- kind of protective device.....:	Fuse-links NH1 (200A)/gS (gRL)

Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement .....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
Testing .....:	
Date of receipt of test item .....:	07/2018
Date (s) of performance of tests.....:	07/2018 to 08/2018

General remarks:

"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.

Throughout this report a ☒ comma / ☐ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 6.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies).....:	APATOR S.A Centrum Ostaszewo 57 C 87-148 Lysomice, POLAND

General product information:

Low-voltage
fuse-switch-disconnectors
(for use with NH1 and NH2 fuse-links)

type

smart ARS 2-6-. PRO-PV (three pole operated)

Remark to test performance:

At all tests concerning making and breaking capacity, operational performance capability and performance under short-circuit conditions, a metallic screen were placed to the equipment, in accordance with the arrangements and distances specified by the manufacturer:

- **Distance above to metallic screen: 50mm**
- **Distance lateral to metallic screen: 30mm**

Critical tests such as making and breaking capacity and performance under short-circuit conditions were performed as well as outgoing below and outgoing above.

Remark for use of the fuse-switch-disconnectors:

The maximum power dissipation of the fuse-links suitable for use with the fuse-switch-disconnectors is 21W. Fuse-links with rated voltage 800V of the appropriate size (NH2) may have a power dissipation exceeding this value.

It has to be taken into consideration that the maximum power dissipation of

21W

will not be exceeded for use in uninterrupted duty.