



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 3 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
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Test item description	Low-voltage fuse-switch-disconnectors	
Trade Mark		
Manufacturer	APATOR S.A. 87-100 Toruń, Gdańska nr 4a lok. C4, POLAND	
Model/Type reference	smart ARS 3-6-M PRO-PV (three pole operated) smart ARS 3-6-V PRO-PV (three pole operated) smart ARS 3-6-2V PRO-PV (three pole operated)	
Ratings	800V a.c. / 400A / 50-60Hz / 3-pole	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	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	
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
Testing location/ address		
Tested by (name, function, signature)		
Approved by (name, function, signature) ..		
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
Testing location/ address		
Tested by (name + signature)		
Witnessed by (name, function, signature) ..		
Approved by (name, function, signature) ..		
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	
<input type="checkbox"/>	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 3-6-M PRO-PV	smart ARS 3-6-V PRO-PV	smart ARS 3-6-2V PRO-PV
Constructional Requirements		CR1	---	---
TSQ I	Temperature-rise	TR3M	TR3V	TR32V
	Dielectric properties			
	Making and breaking	7-8	---	---
TSQ II		9	---	---
TSQ III		---	---	---
TSQ IV		18-19	---	---
TSQ V		TR3M	---	---

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 3-6-. 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 3-6-M PRO-PV	Fuse-switch-disconnector for busbar system 185 mm mounting, 3 pole operated <ul style="list-style-type: none"> ▪ screw terminals M12 (outgoing): Max. cross-section 2 x185 mm² Min. cross-section 35mm² Rated torque 65Nm ▪ screw terminals M12 (busbars): Max. cross-section 100 x 10 mm² Min. cross-section 40 x 5 mm² Rated torque 65Nm
smart ARS 3-6-V PRO-PV	Fuse-switch-disconnector for busbar system 185 mm mounting, 3 pole operated <ul style="list-style-type: none"> ▪ single V-shape terminals (outgoing): Max. cross-section 2 x 185 mm² Min. cross-section 70 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 65Nm
smart ARS 3-6-2V PRO-PV	Fuse-switch-disconnector for busbar system 185 mm mounting, 3 pole operated <ul style="list-style-type: none"> ▪ double V-shape terminals (outgoing): Max. cross-section 2 x 240 mm² Min. cross-section 70 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 65Nm

Type tests performed with following clamps:

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

Copy of marking plate:



 APATOR 	
Typ  ARS 3-6-M PRO-PV Nr63-073822-004 Un=800V~	
AC-21B/800V/400A	 In=Ie=400A NH 3 Pn=41W 50-60Hz IP 30 PN-EN 60947-3
Odstawowo 57C, 87-148 Łysomice	

 APATOR 	
Typ  ARS 3-6-V PRO-PV Nr63-073822-002 Un=800V~	
AC-21B/800V/400A	 In=Ie=400A NH 3 Pn=41W 50-60Hz IP 30 PN-EN 60947-3
Odstawowo 57C, 87-148 Łysomice	

 APATOR 	
Typ  ARS 3-6-2V PRO-PV Nr63-073822-006 Un=800V~	
AC-21B/800V/400A	 In=Ie=400A NH 3 Pn=41W 50-60Hz IP 30 PN-EN 60947-3
Odstawowo 57C, 87-148 Łysomice	

Test item particulars:	
- method of operation	Dependent manual operation
- suitability for isolation.....	suitable
- degree of protection	IP 30 (only front side) IP 20 (all other parts)
- 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 V a.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)	400
- conventional free air thermal current I_{th} with solid-links (A).....	---
- rated operational current I_e (A).....	400
- rated uninterrupted current I_u (A)	400
- 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 NH3 (400A)/gS (gRL)

<p>Possible test case verdicts:</p> <p>- test case does not apply to the test object.....: N/A</p> <p>- test object does meet the requirement: P (Pass)</p> <p>- test object does not meet the requirement.....: F (Fail)</p>	
<p>Testing</p> <p>Date of receipt of test item: 07/2018</p> <p>Date (s) of performance of tests.....: 07/2018 to 08/2018</p>	
<p> </p>	
<p>General remarks:</p> <p>"(see Enclosure #)" refers to additional information appended to the report.</p> <p>"(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.</p>	
<p>Manufacturer's Declaration per sub-clause 6.2.5 of IEC60947-2:</p>	
<p>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</p>	<p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> Not applicable</p>
<p>When differences exist; they shall be identified in the General product information section.</p>	
<p>Name and address of factory (ies).....: APATOR S.A Centrum Ostaszewo 57 C 87-148 Lysomice, POLAND</p>	
<p>General product information:</p> <p style="text-align: center;">Low-voltage fuse-switch-disconnectors (for use with NH3 fuse-links)</p> <p style="text-align: center;">type</p> <p style="text-align: center;">smart ARS 3-6-. PRO-PV (three pole operated)</p>	

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 41W. Fuse-links with rated voltage 800V of the appropriate size (NH3) may have a power dissipation exceeding this value.

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

41W

will not be exceeded for use in uninterrupted duty.