



SWITCHGEAR

smartARS pro

vertical fuse switch disconnectors

- thermoplastics of V0 flammability class
- double clearance between open contacts
- arc chutes with deionization plates over every contact
- fast installation using PPN technology
- remote monitoring
- built-in current transformers
- adapted to existing assembly systems
- reversibility - top/bottom cable terminal connection
- wide range of accessories







GENERAL INFORMATION

smartARS pro vertical fuse switch disconnectors are designed for distribution of electricity and protection against short circuits and overloads in three phase alternative current circuits. They are intended for direct installation on horizontal or vertical busbar systems.

smartARS pro fuse switch disconnectors meet technical requirements of polish and european electricity boards and are conformed with EN 60947-1, EN 60947-3, IEC 60947-1, IEC 60947-3 standards. **smartARS pro** fuse switch disconnectors are dedicated for applications which require reliability and safety like low voltage distribution boards installed in transformer substations, industrial low voltage assemblies and cable cabinets.

Design of **smartARS pro** fuse switch disconnectors provides clearly visible, safe gap in the current circuit after the fuse link removal.

smartARS pro fuse switch disconnectors are designed to perform the following functions:

- protection
- energy distribution
- earthing
- switching
- touch protection

CONSTRUCTION

smartARS pro fuse switch disconnectors are manufactured in two versions:

- one pole switching (separately each pole)
- three pole switching (three poles at the same time)

They have manually operated handle therefore making and breaking operations should be done with determined movement.

smartARS pro fuse switch disconnectors are available in following sizes (according to rated current): 00 (160 A); 2 (400 A); 3 (630 A).

smartARS pro fuse switch disconnectors are designed for installation on to 185 mm busbar system.

All plastic parts of fuse switch disconnector **smartARS pro** are made of halogen free, fibre glass strengthened, self extinguishing materials. Thanks to the application of flame retardants the highest flammability class – V0 was achieved. Fuse switch disconnectors made from such thermoplastics self-extinguish in specified time after ignition source is removed. Also dripping of flaming parts of plastic does not occur.

Silver plated contacts provide low power loss. Depending on clamp type, **smartARS pro** fuse switch disconnectors enable user to connect circular or sector-shaped conductors with bare ends or conductors with lug terminals. Arc chutes equipped with steel deionization plates are installed over each contact. **smartARS pro** fuse switch disconnectors are designed for using current transformers and ammeters. Protection degree of IP30 from the front is provided. In opened position **smartARS pro** provide protection degree IP20. Additionally offered accessories enable to install **smartARS pro** fuse switch disconnectors of different sizes on common busbar systems and facilitate operation. All sizes of **ARS pro** fuse switch disconnectors are provided complete with clamps (i. e. screws, V-terminals, 2V-terminals) and shrouds for cable terminals.

Table 1. MAIN TECHNICAL DATA OF smartARS pro

Parameters		smartARS 00 pro	smartARS 2 pro	smartARS 3 pro
Rated thermal current $I_{th}=I_n$ with fuse links	A	160	400	630
Rated voltage U_n	V	690	690	690
Utilization category	690 V	AC-22B	AC-22B	AC-21B
	500 V			AC-22B
	400 V	AC-23B	AC-23B	AC-23B
Rated switching current I_e	A	160	400	630
Rated short-circuit making current	690 V	80	100	80
	500 V	100	120	120
	400 V			
Rated short-circuit withstand current	690 V	80	100	80
	500 V	100	120	120
	400 V			
Rated insulation voltage U_i	V	1000	1000	1000
Rated impulse withstand voltage $U_{imp.}$	kV	12	12	12
Rated frequency	Hz	50-60	50-60	50-60
Mechanical durability	Number of cycles	1600	1000	1000
Electrical durability		200	200	200
IP degree of protection	IP	30	30	30
Fuse links size	-	00	1, 2	3

OPERATING CONDITIONS

- to be installed in the room free of any dust, aggressive or explosive gases,
- altitude up to 2000 meters above sea level,
- outdoor – in cabinets with protection degree > IP 34,
- ambient temperature from -25 °C to +55 °C,
- relative humidity of the air should not be higher than 50% at temperature of +40°.

FUNCTIONALITY

- making and breaking operations should be done with determined movement,
- parallelly moving, double contact system,
- designed for installation on 185 mm busbar system
- two versions: single pole switching (separately each pole) or triple pole switching (three poles at the same time),
- fuse switch disconnectors width: 50 mm (smartARS00 pro), 100 mm (smartARS 2,3 pro)
- suitable for top cable terminal connection,
- possible connection of conductors with lug terminals (screw terminals) or circular/sector-shaped conductors with bare ends (V-terminals, 2V-terminals) using V-clamps
- voltage test is performed through test holes
- possible installation of earthing device
- fast installation using PPN technology
- remote monitoring
- built-in current transformers
- adapted to existing assembly systems

FUSE SWITCH DISCONNECTOR smartARS 00 pro (160 A, 690 V)

For installation on to 185 mm busbar system

Fuse switch disconnectors' width 50 mm

Switching: three poles simultaneously - operation with two hands or single pole switching

Table 2. TECHNICAL DATA

Parameters		smartARS 00 pro	
Rated thermal current $I_{th}=I_n$	A	160	
Rated thermal current $I_{th}=I_n$ with solid links	A	210	
Rated voltage U_n	V	690	
Utilization category	-	AC-22B	AC-23B
		690	400
Rated switching voltage U_e	V	690	
Rated switching current I_e	A	160	
Rated short circuit making current	690 V	kA	80
	500 V		100
Rated short circuit withstand current	690 V	kA	80
	500 V		100
Rated insulation voltage U_i	V	1000	
Rated impulse withstand voltage U_{imp}	kV	12	
Rated frequency	Hz	50-60	
Mechanical durability	Number of cycles	1600	
Electrical durability		200	
IP degree of protection	IP	30	
Fuse links size	-	00	

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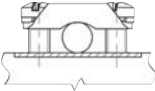

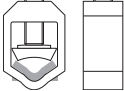

smartARS 00-1 pro

smartARS 00-3 pro

Table 3. VERSIONS

Version		Weight	Article No.
for installation on 185 mm busbar system, ONE POLE SWITCHING - each phase independently			
smartARS 00-1-V pro	cable terminals: V-terminals: V-clamps 25-150SW	2,5 kg	63-001414-001
smartARS 00-1 pro	cable terminals: bridge terminals (S) 4-70mm ² , M8 screw terminals	2,4 kg	63-001414-002
for installation on 185 mm busbar system, THREE POLE SWITCHING - all phases simultaneously			
smartARS 00-3-V pro	cable terminals: V-terminals: V-clamps 25-150SW	2,6 kg	63-001415-001
smartARS 00-3 pro	cable terminals: bridge terminals (S) 4-70mm ² , M8 screw terminals	2,5 kg	63-001415-002
smartARS 00 pro version with adjusted to front line and terminal cover of ARS 2,3 without using adapters			
for installation on 185 mm busbar system, ONE POLE SWITCHING - each phase independently			
smartARS 00-1-V pro	cable terminals: V-terminals: V-clamps 25-150SW	2,6 kg	63-002070-001
smartARS 00-1 pro	cable terminals: bridge terminals (S) 4-70mm ² , M8 screw terminals	2,5 kg	63-002070-002
for installation on 185 mm busbar system, THREE POLE SWITCHING - all phases simultaneously			
smartARS 00-3-V pro	cable terminals: V-terminals: V-clamps 25-150SW	2,7 kg	63-002071-001
smartARS 00-3 pro	cable terminals: bridge terminals (S) 4-70mm ² , M8 screw terminals	2,6 kg	63-002071-002
smartARS 00 pro version with fast installation modules using PPN technology			
for installation on 185 mm busbar system, ONE POLE SWITCHING - each phase independently			
smartARS 00-1-V SM pro	cable terminals: V-terminals: V-clamps 25-150SW	2,7 kg	63-001899-001
smartARS 00-1 SM pro	cable terminals: bridge terminals (S) 4-70mm ² , M8 screw terminals	2,6 kg	63-001899-002
for installation on 185 mm busbar system, THREE POLE SWITCHING - all phases simultaneously			
smartARS 00-3-V SM pro	cable terminals: V-terminals: V-clamps 25-150SW	2,9 kg	63-001904-001
smartARS 00-3 SM pro	cable terminals: bridge terminals (S) 4-70mm ² , M8 screw terminals	2,8 kg	63-001904-002

Table 4. smartARS 00 pro TERMINAL CLAMPS

Description	smartARS 00 pro			
Clamp	S-bridge clamp 2 x M5 x 25	M8 screw*	V- clamp 25-150 SW	HM 10-120
Picture of clamp				
Drawing of clamp				
Cross –section of conductors	4 - 70 mm ²	Lug terminal max 185 mm ²	re ● 16 mm ² - 95 mm ²	re ● 10 mm ² - 70 mm ²
			se ◆ 25 mm ² - 150 mm ²	se ◆ 25 mm ² - 120 mm ²
			rm ⊗ 16 mm ² - 95 mm ²	rm ⊗ 10 mm ² - 70 mm ²
			sm ⊕ 25 mm ² - 150 mm ²	sm ⊕ 25 mm ² - 95 mm ²
Tightening torque	3 Nm**	12 Nm**	20 Nm**	15 Nm**

For stranded conductors using cable ferrules is recommended

*) Bars of maximum width of 20 mm and maximum thickness of 5 mm can be fixed to M type screw terminals.

**) using tension wrench is recommended

***) fuse switch disconnectors with V-terminals are equipped with steel V-clamp HM 10-120 on request

Apator takes responsibility for technical quality of V-terminals manufactured only by the company. Minimum tightening torque (M8 screw) for screws fixing fuse switch disconnector to busbar system – 12 Nm, recommended tightening torque for screws and nuts with property class 8.8 – 21 Nm



FUSE SWITCH DISCONNECTOR smartARS 2 pro (400 A, 690 V) smartARS 3 pro (630 A, 690 V)

For installation on to 185 mm busbar system

Fuse switch disconnecter's width 100 mm

3- pole switching - 3 phases simultaneously or 1-pole switching - each phase separately

Fuse monitoring module

Possibility of connection
of fused tee off adapter for
temporary power supply

Padlocking and sealing in
closed and parked position

Test holes

Possibility of sealing each
phase separately

Rotary cover with labeling
area

smartARS 2 pro

smartARS 2 pro (400 A, 690 V)

Fuse switch disconnecter

designed for operation with NH1 and NH2 fuse links

Table 5. TECHNICAL DATA

Parameters		smartARS 2 pro	
Rated thermal current I_{th} with fuse links		A	250(NH1), 400(NH2)
Rated thermal current I_{th} with solid links		A	600
Rated voltage U_n		V	690
Utilization category		-	AC-22B AC-23B
Rated switching voltage U_e		V	690 400
Rated switching current I_e		A	250(NH1), 400(NH2)
Rated short circuit making current	$U_e=690$ V	kA	100
	$U_e=500$ V		120
Rated short circuit withstand current	$U_e=690$ V	kA	100
	$U_e=500$ V		120
Rated insulation voltage U_i		V	1000
Rated impulse withstand voltage U_{imp}		kV	12
Rated frequency		Hz	50-60
Mechanical durability	Number of cycles		1000
Electrical durability			200
IP degree of protection		IP	30
Fuse links size		-	1, 2

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smartARS 2-6-M pro

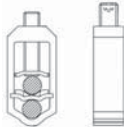





smartARS 2-1-M pro

Table 6. VERSIONS

Version		Weight	Article No.
for installation on 185 mm busbar system, ONE POLE SWITCHING - each phase independently			
smartARS 2-1-V pro	cable terminals: V-terminals: V-clamps 240 mm ²	5,8 kg	63-001340-001
smartARS 2-1-M pro	cable terminals: screw terminals: pressed nuts M12	5,7 kg	63-001340-003
smartARS 2-1-2V pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	6,4 kg	63-001340-005
for installation on 185 mm busbar system, THREE POLE SWITCHING - all phases simultaneously			
smartARS 2-6-V pro	cable terminals: V-terminals : V-clamps 240 mm ²	5,8 kg	63-001341-001
smartARS 2-6-M pro	cable terminals: screw terminals: pressed nuts M12	5,7 kg	63-001341-003
smartARS 2-6-2V pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	6,4 kg	63-001341-005
smartARS 2 pro version equipped with modules for fast installation using PPN technology			
for installation on 185 mm busbar system, fast installation modules equipped with screws, ONE POLE SWITCHING - each phase independently			
smartARS 2-1-V SM pro	cable terminals: V-terminals: V-clamps 240 mm ²	6,2 kg	63-001340-201
smartARS 2-1-M SM pro	cable terminals: screw terminals: pressed nuts M12	6,1 kg	63-001340-203
smartARS 2-1-2V SM pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	6,8 kg	63-001340-205
for installation on 185 mm busbar system, fast installation modules equipped with screws, THREE POLE SWITCHING - all phases simultaneously			
smartARS 2-6-V SM pro	cable terminals: V-terminals: V-clamps 240 mm ²	6,2 kg	63-001341-201
smartARS 2-6-M SM pro	cable terminals: screw terminals: pressed nuts M12	6,1 kg	63-001341-203
smartARS 2-6-2V SM pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	6,8 kg	63-001341-205
for installation on 185 mm busbar system, fast installation modules equipped with hooked clamps, ONE POLE SWITCHING - each phase independently			
smartARS 2-1-V SMH pro	cable terminals: V-terminals: V-clamps 240 mm ²	6,4 kg	63-001340-401
smartARS 2-1-M SMH pro	cable terminals: screw terminals: pressed nuts M12	6,3 kg	63-001340-403
smartARS 2-1-2V SMH pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	7,0 kg	63-001340-405
for installation on 185 mm busbar system, fast installation modules equipped with hooked clamps, THREE POLE SWITCHING - all phases simultaneously			
smartARS 2-6-V SMH pro	cable terminals: V-terminals: V-clamps 240 mm ²	6,4 kg	63-001341-401
smartARS 2-6-M SMH pro	cable terminals: screw terminals: pressed nuts M12	6,3 kg	63-001341-403
smartARS 2-6-2V SMH pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	7,0 kg	63-001341-405

Tabela 7. smartARS 2 pro TERMINAL CLAMPS

Description	smartARS 2-x-V pro		smartARS 2-x-2V pro	
Clamp	V- clamp 35-300SW-B		V- clamp HS 2/35-240-C	
Picture of clamp	Cross-section of conductors		Cross-section of conductors	
	V-clamp for direct fixing of conductor with bare end with crossection of			
	35 - 185 mm ²	35 - 240 mm ²	35 - 185 mm ²	35 - 240 mm ²
	35 - 240 mm ²	35 - 300 mm ²	35 - 240 mm ²	35 - 300 mm ²
Tightening torque	30 Nm		40 Nm	

Description	smartARS 2-x-2V pro				smartARS 2-x-M pro		
Clamp	V- clamp 2/35-300SW-B				M-screw M12*		
Picture of clamp	Cross-section of conductors				Cross-section of conductors	Lug terminal	
		V-clamp for direct fixing of conductor with bare end with crosssection of					
	35 - 185 mm ²		35 - 240 mm ²				
	35 - 240 mm ²		35 - 300 mm ²				
Tightening torque	30 Nm				56 Nm		

For stranded conductors using cable ferrules is recommended

*) Bars of maximum width of 40 mm and maximum thickness of 8 mm can be fixed to M type screw terminals when protective barrier between phases is installed. Apator takes responsibility for technical quality of V-terminals manufactured only by the company. Minimum tightening torque (M8 screw) for screws fixing fuse switch disconnecter to busbar system – 32 Nm, recommended tightening torque for screws and nuts with property class 8.8 – 56 Nm

smartARS 3 pro (630 A, 690 V)

Table 8. TECHNICAL DATA

Parameters		smartARS 3 pro		
Rated thermal current I_{th} with fuse links	A	630		
Rated thermal current I_{th} with solid links	A	750		
Rated voltage U_n	V	690		
Utilization category	-	AC-23B	AC-22B	AC-21B
Rated switching voltage U_e	V	400	500	690
Rated switching current I_e	A	630		
Rated short circuit making current	690 V	80		
	500 V	120		
Rated short circuit withstand current	kA	100		
Rated insulation voltage U_i	V	1000		
Rated impulse withstand voltage U_{imp}	kV	12		
Rated frequency	Hz	50-60		
Mechanical durability	Number of cycles	1000		
Electrical durability		200		
IP degree of protection	IP	30		
Fuse links size	-	3		

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smartARS 3-1-M pro smartARS 3-6-M pro

Table 9. VERSIONS

Version		Weight	Article No.
for installation on 185 mm busbar system, ONE POLE SWITCHING - each phase independently			
smartARS 3-1-V pro	cable terminals: V-terminals: V-clamps 240 mm ²	6,6 kg	63-001340-002
smartARS 3-1-M pro	cable terminals: screw terminals: pressed nuts M12	6,5 kg	63-001340-004
smartARS 3-1-2V pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	7,2 kg	63-001340-006
for installation on 185 mm busbar system, THREE POLE SWITCHING - all phases simultaneously			
smartARS 3-6-V pro	cable terminals: V-terminals: V-clamps 240 mm ²	6,6 kg	63-001341-002
smartARS 3-6-M pro	cable terminals: screw terminals: pressed nuts M12	6,5 kg	63-001341-004
smartARS 3-6-2V pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	7,2 kg	63-001341-006
smartARS 2 pro version equipped with modules for fast installation using PPN technology			
for installation on 185 mm busbar system, fast installation modules equipped with screws, ONE POLE SWITCHING - each phase independently			
smartARS 3-1-V SM pro	cable terminals: V-terminals: V-clamps 240 mm ²	7,0 kg	63-001340-202
smartARS 3-1-M SM pro	cable terminals: screw terminals: pressed nuts M12	6,9 kg	63-001340-204
smartARS 3-1-2V SM pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	7,6 kg	63-001340-206
for installation on 185 mm busbar system, fast installation modules equipped with screws, THREE POLE SWITCHING - all phases simultaneously			
smartARS 3-6-V SM pro	cable terminals: V-terminals: V-clamps 240 mm ²	7,0 kg	63-001341-202
smartARS 3-6-M SM pro	cable terminals: screw terminals: pressed nuts M12	6,9 kg	63-001341-204
smartARS 3-6-2V SM pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	7,6 kg	63-001341-206
for installation on 185 mm busbar system, fast installation modules equipped with hooked clamps, ONE POLE SWITCHING - each phase independently			
smartARS 3-1-V SMH pro	cable terminals: V-terminals: V-clamps 240 mm ²	7,2 kg	63-001340-402
smartARS 3-1-M SMH pro	cable terminals: screw terminals: pressed nuts M12	7,1 kg	63-001340-404
smartARS 3-1-2V SMH pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	7,8 kg	63-001340-406
for installation on 185 mm busbar system, fast installation modules equipped with hooked clamps, THREE POLE SWITCHING - all phases simultaneously			
smartARS 3-6-V SMH pro	cable terminals: V-terminals: V-clamps 240 mm ²	7,2 kg	63-001341-402
smartARS 3-6-M SMH pro	cable terminals: screw terminals: pressed nuts M12	7,1 kg	63-001341-404
smartARS 3-6-2V SMH pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	7,8 kg	63-001341-406

Tabela 10. smartARS 3 pro TERMINAL CLAMPS

Description	smartARS 3-x-V pro		smartARS 3-x-2V pro	
Clamp	V- clamp 35-300SW-B		V- clamp HS 2/35-240-C	
Picture of clamp	Cross-section of conductors		Cross-section of conductors	
	V-clamp for direct fixing of conductor with bare end with crosssection of			
	35 - 185 mm ²	35 - 240 mm ²	35 - 185 mm ²	35 - 240 mm ²
	35 - 240 mm ²	35 - 300 mm ²	35 - 240 mm ²	35 - 300 mm ²
Tightening torque	30 Nm		40 Nm	

Description	smartARS 3-x-2V pro			smartARS 3-x-M pro			
Clamp	V- clamp 2/35-300SW-B			M-screw M12*			
Picture of clamp	Cross-section of conductors				Cross-section of conductors	Lug terminal	
		V-clamp for direct fixing of conductor with bare end with crosssection of					
	35 - 185 mm ²		35 - 240 mm ²				
	35 - 240 mm ²		35 - 300 mm ²				
Tightening torque	30 Nm			56 Nm			

For stranded conductors using cable ferrules is recommended

*) Bars of maximum width of 40 mm and maximum thickness of 8 mm can be fixed to M type screw terminals when protective barrier between phases is installed. Apator takes responsibility for technical quality of V-terminals manufactured only by the company. Minimum tightening torque (M12 screw) for screws fixing fuse switch disconnecter to busbar system – 32 Nm, recommended tightening torque for screws and nuts with property class 8.8 – 56 Nm

FUSE SWITCH DISCONNECTOR smartARS pro WITH LATERAL BUSBAR TERMINALS

(separation, coupling of busbar systems)

Table 11. TECHNICAL DATA

Parameters			smartARS 2 pro	smartARS 3 pro
Rated thermal current I _{th} with fuse links		A	400	630
Rated voltage U _n		V	690	690
Utilization category	690 V	-	AC-22B	AC-21B
	500 V			AC-22B
	400 V		AC-23B	-
Rated switching current I _e		A	400	630
Rated short circuit making current	600 V	kA	100	80
	500 V		120	120
	400 V			
Rated short circuit withstand current	600 V	kA	100	80
	500 V		120	120
	400 V			
Rated insulation voltage U _i		V	1000	1000
Rated impulse withstand voltage U _{imp}		kV	12	12
Rated frequency		Hz	50-60	50-60
Mechanical durability	Number of cycles		1000	1000
Electrical durability			200	200
IP degree of protection		IP	30	30
Fuse links size		-	1,2	3

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smartARS 2-1-NR pro

Table 12. VERSIONS WITH LATERAL BUSBAR TERMINALS

Version		Weight	Article No.
Fuse switch disconnectors smartARS 2 pro - 400A			
for installation on 185 mm busbar system, ONE POLE SWITCHING - each phase independently			
smartARS 2-1 NL pro	cable terminals: screw terminals : pressed nuts M12; lateral busbar terminals - left side	5,1 kg	63-002045-001
smartARS 2-1 NR pro	cable terminals: screw terminals : pressed nuts M12; lateral busbar terminals - right side	5,1 kg	63-002045-003
for installation on 185 mm busbar system, THREE POLE SWITCHING - all phases simultaneously			
smartARS 2-6 NL pro	cable terminals: screw terminals : pressed nuts M12; lateral busbar terminals - left side	5,1 kg	63-002046-001
smartARS 2-6 NR pro	cable terminals: screw terminals : pressed nuts M12; lateral busbar terminals - right side	5,1 kg	63-002046-003
smartARS 3 pro - 630 A			
for installation on 185 mm busbar system, ONE POLE SWITCHING - each phase independently			
smartARS 3-1 NL pro	cable terminals: screw terminals : pressed nuts M12; lateral busbar terminals - left side	5,9 kg	63-002045-002
smartARS 3-1 NR pro	cable terminals: screw terminals : pressed nuts M12; lateral busbar terminals - right side	5,9 kg	63-002045-004
for installation on 185 mm busbar system, THREE POLE SWITCHING - all phases simultaneously			
smartARS 3-6 NL pro	cable terminals: screw terminals : pressed nuts M12; lateral busbar terminals - left side	5,9 kg	63-002046-002
smartARS 3-6 NR pro	cable terminals: screw terminals : pressed nuts M12; lateral busbar terminals - right side	5,9 kg	63-002046-004

Table 13. smartARS 2 pro I smartARS 3 pro WITH LATERAL BUSBAR TERMINALS - TERMINAL TYPES

Description	smartARS 2-x-NL pro	smartARS 2-x-NR pro	smartARS 3-x-NL pro	smartARS 3-x-NR pro
Clamp	M12 screw	M12 screw	M12 screw	M12 screw
Picture of clamp				
Lateral busbar terminals	Left side	Right side	Left side	Right side
Tightening torque	56 Nm	56 Nm	56 Nm	56 Nm



FUSE MONITORING MODULE

The fuse switch disconnecter can be equipped with device that allows indication of the current state of the fuse links. Information about fuse link burnout, correct operation or power failure are indicated by diode light signal or can be transferred to any automation protection system, through the relay contacts.

DESCRIPTION OF OPERATION OF THE FUSE MONITORING MODULE

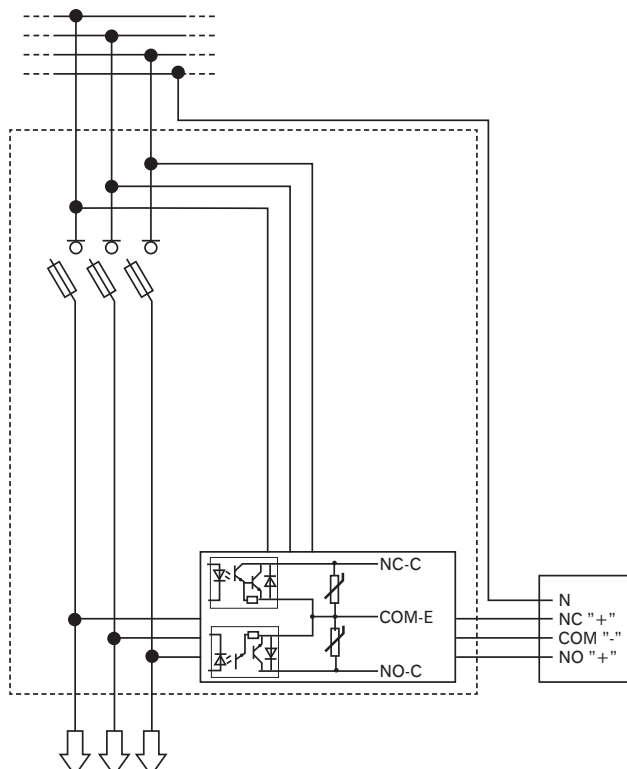
- diode is green - correct operation, fuse link works correctly
- diode is red - failure, fuse link operated
- diode is red; blinking - phase shift (another phase voltage was detected at the fuse link outgoing contact)
- diodes off - module switched off / no power supply

NOMINAL PARAMETERS

- Voltage value for cable test 2,5 kV DC
- Minimum operating voltage 200 V
- Maximum operating voltage 690 V
- U_{imp} impulse withstand voltage with operated fuse link 4 kV
- U_{imp} between phases 4 kV
- U_{imp} between main circuit / relay contacts 3,5 kV
- Temperature range -40...+85°C
- Rated insulation voltage U_i 1000 V

MODULE OUTPUTS:

- Rated current 100 mA
- Maximum switching voltage 50 V DC



Fuse links state (resultant)	NO output	NC output	diode colour
correct operation	„0" (0V)	„1" (24V)	green
failure	„1" (24V)	„0" (0V)	red

The transport outputs can be supplied with a DC voltage of up to 50 V with current limitation to max. 100mA

Minus should be connected directly to the common terminal, outputs should be connected through the load to the plus.

Table 14. VERSIONS WITH ELECTRONIC FUSE MONITORING MODULE

Version		Weight	Article No.
Fuse switch disconnectors smartARS 00 pro - 160A			
for installation on 185 mm busbar system, ONE POLE SWITCHING - each phase independently			
smatARS 00-1-V-X-E pro	cable terminals: V-terminals: V-clamps 25-150SW + hooked clamps	3,1 kg	63-001606-201
Fuse switch disconnectors smartARS 2 pro - 400A			
for installation on 185 mm busbar system, ONE POLE SWITCHING - each phase independently			
smartARS 2-1-V-X pro	cable terminals: V-terminals: V-clamps 240 mm ²	5,9 kg	63-001340-601
smartARS 2-1-M-X pro	cable terminals: screw terminals: pressed nuts M12	5,8 kg	63-001340-603
smartARS 2-1-2V-X pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	6,5 kg	63-001340-605
smatARS 2-1-V-X-E pro	cable terminals: V-terminals + M12 screws for fixing to busbar system	6,0 kg	63-811830-201
for installation on 185 mm busbar system, THREE POLE SWITCHING - all phases simultaneously			
smartARS 2-6-V-X pro	cable terminals: V-terminals: V-clamps 240 mm ²	5,9 kg	63-001341-601
smartARS 2-6-M-X pro	cable terminals: screw terminals: pressed nuts M12	5,8 kg	63-001341-603
smartARS 2-6-2V-X pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	6,5 kg	63-001341-605
smartARS 2 pro version equipped with modules for fast installation using PPN technology			
for installation on 185 mm busbar system, fast installation modules equipped with screws, ONE POLE SWITCHING - each phase independently			
smartARS 2-1-V SM-X pro	cable terminals: V-terminals: V-clamps 240 mm ²	6,3 kg	63-001340-701
smartARS 2-1-M SM-X pro	cable terminals: screw terminals: pressed nuts M12	6,2 kg	63-001340-703
smartARS 2-1-2V SM-X pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	6,9 kg	63-001340-705
for installation on 185 mm busbar system, fast installation modules equipped with screws, THREE POLE SWITCHING - all phases simultaneously			
smartARS 2-6-V SM-X pro	cable terminals: V-terminals: V-clamps 240 mm ²	6,5 kg	63-001341-701
smartARS 2-6-M SM-X pro	cable terminals: screw terminals: pressed nuts M12	6,4 kg	63-001341-703
smartARS 2-6-2V SM-X pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	6,9 kg	63-001341-705
for installation on 185 mm busbar system, fast installation modules equipped with hooked clamps, ONE POLE SWITCHING - each phase independently			
smartARS 2-1-V SMH-X pro	cable terminals: V-terminals: V-clamps 240 mm ²	6,5 kg	63-001340-801
smartARS 2-1-M SMH-X pro	cable terminals: screw terminals: pressed nuts M12	6,4 kg	63-001340-803
smartARS 2-1-2V SMH-X pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	6,9 kg	63-001340-805
for installation on 185 mm busbar system, fast installation modules equipped with hooked clamps, THREE POLE SWITCHING - all phases simultaneously			
smartARS 2-6-V SMH-X pro	cable terminals: V-terminals: V-clamps 240 mm ²	6,5 kg	63-001341-801
smartARS 2-6-M SMH-X pro	cable terminals: screw terminals: pressed nuts M12	6,4 kg	63-001341-803
smartARS 2-6-2V SMH-X pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	6,9 kg	63-001341-805



Fuse switch disconnectors smartARS 3 pro - 630A			
for installation on 185 mm busbar system, ONE POLE SWITCHING - each phase independently			
smartARS 3-1-V-X pro	cable terminals: V-terminals: V-clamps 240 mm ²	6,7 kg	63-001340-602
smartARS 3-1-M-X pro	cable terminals: screw terminals: pressed nuts M12	6,6 kg	63-001340-604
smartARS 3-1-2V-X pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	7,3 kg	63-001340-606
for installation on 185 mm busbar system, THREE POLE SWITCHING - all phases simultaneously			
smartARS 3-6-V-X pro	cable terminals: V-terminals: V-clamps 240 mm ²	6,7 kg	63-001341-602
smartARS 3-6-M-X pro	cable terminals: screw terminals: pressed nuts M12	6,6 kg	63-001341-604
smartARS 3-6-2V-X pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	7,3 kg	63-001341-606
smartARS 3 pro version equipped with modules for fast installation using PPN technology			
for installation on 185 mm busbar system, fast installation modules equipped with screws, ONE POLE SWITCHING - each phase independently			
smartARS 3-1-V SM-X pro	cable terminals: V-terminals: V-clamps 240 mm ²	7,1 kg	63-001340-702
smartARS 3-1-M SM-X pro	cable terminals: screw terminals: pressed nuts M12	7,0 kg	63-001340-704
smartARS 3-1-2V SM-X pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	7,7 kg	63-001340-706
for installation on 185 mm busbar system, fast installation modules equipped with screws, THREE POLE SWITCHING - all phases simultaneously			
smartARS 3-6-V SM-X pro	cable terminals: V-terminals: V-clamps 240 mm ²	7,1 kg	63-001341-702
smartARS 3-6-M SM-X pro	cable terminals: screw terminals: pressed nuts M12	7,0 kg	63-001341-704
smartARS 3-6-2V SM-X pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	7,7 kg	63-001341-706
for installation on 185 mm busbar system, fast installation modules equipped with hooked clamps, ONE POLE SWITCHING - each phase independently			
smartARS 3-1-V SMH-X pro	cable terminals: V-terminals: V-clamps 240 mm ²	7,3 kg	63-001340-802
smartARS 3-1-M SMH-X pro	cable terminals: screw terminals: pressed nuts M12	7,2 kg	63-001340-804
smartARS 3-1-2V SMH-X pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	7,9 kg	63-001340-806
for installation on 185 mm busbar system, fast installation modules equipped with hooked clamps, THREE POLE SWITCHING - all phases simultaneously			
smartARS 3-6-V SMH-X pro	cable terminals: V-terminals: V-clamps 240 mm ²	7,3 kg	63-001341-802
smartARS 3-6-M SMH-X pro	cable terminals: screw terminals: pressed nuts M12	7,2 kg	63-001341-804
smartARS 3-6-2V SMH-X pro	cable terminals: 2V-terminals: double V-clamps 240 mm ²	7,9 kg	63-001341-806

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