



## &gt; PROTECTION OF POWER SUPPLY LINES

## &gt; ATSUB SERIES

## &gt; ATSUB-R

Single-pole protection for power supply lines



- > **AT-8221 ATSUB-R 15:** peak current 15 kA.  $U_n$  230 V
- > **AT-8241 ATSUB-R 40:** peak current 40 kA.  $U_n$  230 V
- > **AT-8261 ATSUB-R 65:** peak current 65 kA.  $U_n$  230 V
- > **AT-8204 ATSUB-R N:** for neutral-ground protection
- > **AT-8299 ATSUB-R 15-120:** peak current 15 kA.  $U_n$  120 V
- > **AT-8208 ATSUB-R 40-120:** peak current 40 kA.  $U_n$  120 V
- > **AT-8209 ATSUB-R 65-120:** peak current 65 kA.  $U_n$  120 V
- > **AT-8065 ATSUB-R 15-300:** peak current 15 kA.  $U_n$  300 V
- > **AT-8066 ATSUB-R 40-300:** peak current 40 kA.  $U_n$  300 V
- > **AT-8067 ATSUB-R 65-300:** peak current 65 kA.  $U_n$  300 V
- > **AT-8225 ATSUB-R 15-400:** peak current 15 kA.  $U_n$  400 V
- > **AT-8245 ATSUB-R 40-400:** peak current 40 kA.  $U_n$  400 V
- > **AT-8265 ATSUB-R 65-400:** peak current 65 kA.  $U_n$  400 V

Effective protection against transient overvoltages for electrical supply lines with or without neutral, using metal oxide varistors and gas discharge tubes. Protects three-phase TT, TNS, TNC and IT type lines. Medium protection according to the cascade protection recommended in the Spanish Low Voltage Regulations (REBT ITC23).

## &gt; NOMENCLATURE

ATSUB-R **65** - **400**

Max. discharge voltage in kA      Line - ground nominal voltage

Tested and certified as a type **1, 2 and 3** protector according to the standard UNE-EN 61643-11 and GUÍA-BT-23 from the REBT. Suitable for **categories I, II, III and IV equipment** according to the REBT.

- > Can be coordinated with other protectors such as ATSHOCK, ATSHIELD and ATCOVER series.
- > Made up of zinc oxide varistors and gas discharge tubes able to withstand very high currents.
- > It is possible to join the modules using rivets in order to obtain blocks of 2, 3 or 4 elements.
- > Short response time.
- > Does not produce deflagration.
- > Single-pole protection.
- > They do not cause any interruption to the power supply.
- > Small size modular protection.
- > Thermodynamic control device with mechanical warning and remote alarm. When the warning light is yellow, the protector is in good condition. If not, replace.

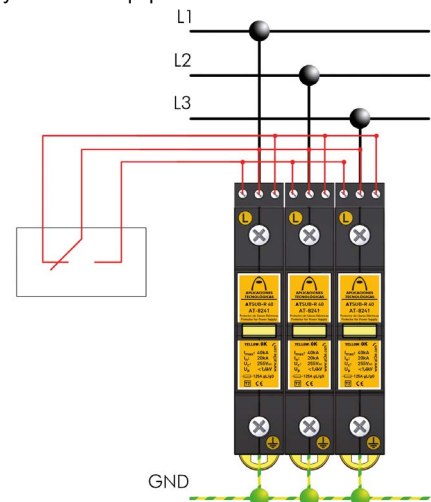
ATSUB series protectors have been tested in **official, independent laboratories**, obtaining their characteristics according to relevant standards (listed in the table). It is possible to select a protector for the alternating voltage suitable for each particular case. For example, the technical datasheets of the optimal protectors for american voltages are also included (line voltage 230 V and line - neutral voltage 120 V), voltages greater than 230 V (line voltage 520 V and line - neutral voltage 300 V), and wind generators (line voltage 690 V and line - ground voltage 400 V).

## &gt; INSTALLATION

They are installed **in parallel** with the low voltage line, with connections to the phases that are to be protected and to ground. As an example, 3 ATSUB-R connections in a TNC type three-phase power supply line are shown.

Installation should be carried out **without power running through the line**. When ATSUB protectors are installed as medium protection, they must be separated from the coarse and/or tight protectors by at least 10 metres of cable or, if this is not possible, by an ATLINK decoupling inductor, in order to achieve **correct coordination between them**.

They are recommended for installations where large overvoltages can occur after the main switchboard and when these lines are not connected to very sensitive equipment.



**Connection to earth is a must.** Earthing in the whole installation must be bonded either directly or by a spark gap and resistance should be lower than 10  $\Omega$ . If the indications on this datasheet are not fulfilled during use or installation of the protectors, the protection provided by this device could be compromised.



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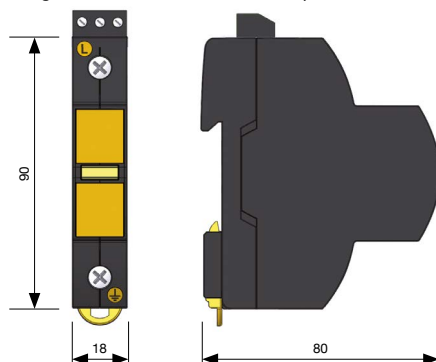
## &gt; ATSUB SERIES

## &gt; TECHNICAL DATASHEET

Reference:		ATSUB-R 15 AT-8221	ATSUB-R 40 AT-8241	ATSUB-R 65 AT-8261	ATSUB-R N AT-8204
Protection categories according to the REBT:		I, II, III, IV			I, II, III, IV
Type of tests according to EN 61643-11:		Type 2 + 3	Type 2	Type 1 + 2	Type 2
Nominal voltage:	U <sub>n</sub>	230 V <sub>AC</sub>			-
Maximum continuous operating voltage:	U <sub>c</sub>	275 V <sub>AC</sub>			-
Nominal frequency:		50 - 60 Hz			
Nominal discharge current (8/20 μs wave):	I <sub>n</sub>	5 kA	20 kA	30 kA	20 kA
Maximum current (8/20 μs wave):	I <sub>max</sub>	15 kA	40 kA	65 kA	40 kA
Protection level for 8/20 μs wave to I <sub>n</sub> :	U <sub>p</sub> (I <sub>n</sub> )	1200 V	1400 V	1600 V	1400 V
Protection level per wave 1.2/50 μs:	U <sub>p</sub>	700 V	700 V	900 V	700 V
Protection level for 5 kA; 8/20 μs wave:		900 V	1000 V	1100 V	1000 V
Impulse current (10/350 μs):	I <sub>imp</sub>	-		15 kA	-
Combined wave voltage:	U <sub>o.c.</sub>	6 kV	-		
Response time:	t <sub>r</sub>	< 25 ns			
Backup fuses <sup>(1)</sup> :		125 A gL/gG			
Maximum short-circuit current:		25 kA (for maximum fuse)			
Working temperature:	ϑ	-40 °C to +70 °C			
Protector location:		Indoor			
Type of connection:		Parallel (one port)			
Dimensions:		18 x 90 x 80 mm (1 module DIN 43880)			
Fixing:		DIN Rail			
Enclosure material:		Polyamide			
Enclosure protection:		IP20			
Insulation resistance:		> 10 <sup>14</sup> Ω			
Self-extinguishing enclosure:		V-0 Type according to UNE-EN 60707 (UL94)			
Connections L/N/G:		Min/Max multi-stranded section: 4 / 35 mm <sup>2</sup> Min/Max single-stranded section: 1 / 35 mm <sup>2</sup>			
Voltage-free contact for the remote control					
Connection:		Max. single-stranded/multi-stranded section: 1.5 mm <sup>2</sup>			
Contact output:		Switch			
Operating voltage:		250 V 250 V (maximum operating voltage of the alarm power supply)			
Maximum current:		2 A (Maximum current of the alarm power supply)			
Certificated tests according to: UNE-EN 61643-11 Complies with requirements of: UL 1449 Relevant standards: UNE 21186, NF C 17-102, IEC 62305					

(1) Required in cases where there is higher nominal current installed upstream from the protector

## &gt; DIMENSIONS (MM)





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Reference:		ATSUB-R 15-120 AT-8299	ATSUB-R 40-120 AT-8208	ATSUB-R 65-120 AT-8209	ATSUB-R N AT-8204
Protection categories according to the REBT:		I, II, III, IV		II, III, IV	I, II, III, IV
Type of tests according to EN 61643-11:		Type 2 + 3	Type 2	Type 1 + 2	Type 2
Nominal voltage:	U <sub>n</sub>	120 V <sub>AC</sub>			-
Maximum continuous operating voltage:	U <sub>c</sub>	150 V <sub>AC</sub>			-
Nominal frequency:		50 - 60 Hz			
Nominal discharge current (8/20 μs wave):	I <sub>n</sub>	5 kA	20 kA	30 kA	20 kA
Maximum current (8/20 μs wave):	I <sub>max</sub>	15 kA	40 kA	65 kA	40 kA
Protection level, 8/20 μs wave at I <sub>n</sub> :	U <sub>p</sub> (I <sub>n</sub> )	1200 V	1400 V	1600 V	1400 V
Protection level for 1.2/50 μs wave:	U <sub>p</sub>	700 V	700 V	900 V	700 V
Protection level 5 kA; 8/20 μs wave:		900 V	1000 V	1100 V	1000 V
Impulse current (10/350 μs wave):	I <sub>imp</sub>	-		15 kA	-
Combined wave voltage:	U <sub>o.c.</sub>	6 kV	-		
Response time:	t <sub>r</sub>	< 25 ns			
Backup fuses <sup>(1)</sup> :		125 A gL/gG			
Maximum short-circuit current:		25 kA (for maximum fuse)			
Working temperature:	ϑ	-40 °C to +70 °C			
Protector location:		Indoor			
Type of connection:		Parallel (one port)			
Dimensions:		18 x 90 x 80 mm (1 module DIN 43880)			
Fixing:		DIN Rail			
Enclosure material:		Polyamide			
Enclosure protection:		IP20			
Insulation resistance:		> 10 <sup>14</sup> Ω			
Self-extinguishing enclosure:		V-0 Type according to UNE-EN 60707 (UL94)			
Connections L/N/G:		Min/Max multi-stranded section: 4 / 35 mm <sup>2</sup> Min/Max single-stranded section: 1 / 35 mm <sup>2</sup>			
Voltage-free contact for the remote control					
Connection:		Max. single-stranded/multi-stranded section: 1.5 mm <sup>2</sup>			
Contact output:		Switch			
Operating voltage:		250 V <sub>AC</sub> (Maximum working voltage of the alarm supply)			
Maximum current:		2 A (Maximum current of the alarm power supply)			
Certificated tests according to: UNE-EN 61643-11					
Complies with requirements of: UL 1449					
Relevant standards: UNE 21186, NF C 17-102, IEC 62305					

(1) Required in cases where there is higher nominal current installed upstream from the protector

For other voltages, get in touch with Aplicaciones Tecnológicas, S.A. Technical Department.



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Reference:		ATSUB-R 15-300 AT-8065	ATSUB-R 40-300 AT-8066	ATSUB-R 65-300 AT-8067	ATSUB-R N AT-8204
Protection categories according to the REBT:		I, II, III, IV		II, III, IV	I, II, III, IV
Type of tests according to EN 61643-11:		Type 2 + 3	Type 2	Type 1 + 2	Type 2
Nominal voltage:	U <sub>n</sub>	300 V <sub>AC</sub>			-
Maximum continuous operating voltage:	U <sub>c</sub>	320 V <sub>AC</sub>			-
Nominal frequency:		50 - 60 Hz			
Nominal discharge current (8/20 μs wave):	I <sub>n</sub>	5 kA	20 kA	30 kA	20 kA
Maximum current (8/20 μs wave):	I <sub>max</sub>	15 kA	40 kA	65 kA	40 kA
Protection level, 8/20 μs wave at I <sub>n</sub> :	U <sub>p</sub> (I <sub>n</sub> )	1400 V	1500 V	1800 V	1400 V
Protection level for 1.2/50 μs wave:	U <sub>p</sub>	900 V	900 V	1100 V	700 V
Protection level 5 kA; 8/20 μs wave:		1100 V	1200 V	1300 V	1000 V
Impulse current (10/350 μs wave):	I <sub>imp</sub>	-		15 kA	-
Combined wave voltage:	U <sub>o.c.</sub>	6 kV	-		
Response time:	t <sub>r</sub>	< 25 ns			
Backup fuses <sup>(1)</sup> :		125 A gL/gG			
Maximum short-circuit current:		25 kA (for maximum fuse)			
Working temperature:	ϑ	-40 °C to +70 °C			
Protector location:		Indoor			
Type of connection:		Parallel (one port)			
Dimensions:		18 x 90 x 80 mm (1 module DIN 43880)			
Fixing:		DIN Rail			
Enclosure material:		Polyamide			
Enclosure protection:		IP20			
Insulation resistance:		> 10 <sup>14</sup> Ω			
Self-extinguishing enclosure:		V-0 Type according to UNE-EN 60707 (UL94)			
Connections L/N/G:		Min/Max multi-stranded section: 4 / 35 mm <sup>2</sup> Min/Max single-stranded section: 1 / 35 mm <sup>2</sup>			
Voltage-free contact for the remote control					
Connection:		Max. single-stranded/multi-stranded section: 1.5 mm <sup>2</sup>			
Contact output:		Switch			
Operating voltage:		250 V <sub>AC</sub> (Maximum working voltage of the alarm supply)			
Maximum current:		2 A (Maximum current of the alarm power supply)			
Certificated tests according to: UNE-EN 61643-11					
Complies with requirements of: UL 1449					
Relevant standards: UNE 21186, NF C 17-102, IEC 62305					

(1) Required in cases where there is higher nominal current installed upstream from the protector

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Reference:		ATSUB-R 15-400 AT-8225	ATSUB-R 40-400 AT-8245	ATSUB-R 65-400 AT-8265	ATSUB-R N AT-8204
Protection categories according to the REBT:		I, II, III, IV		II, III, IV	I, II, III, IV
Type of tests according to EN 61643-11:		Type 2 + 3	Type 2	Type 1 + 2	Type 2
Nominal voltage:	U <sub>n</sub>	400 V <sub>AC</sub>			-
Maximum continuous operating voltage:	U <sub>c</sub>	460 V <sub>AC</sub>			-
Nominal frequency:		50 - 60 Hz			
Nominal discharge current (8/20 μs wave):	I <sub>n</sub>	5 kA	20 kA	30 kA	20 kA
Maximum current (8/20 μs wave):	I <sub>max</sub>	15 kA	40 kA	65 kA	40 kA
Protection level, 8/20 μs wave at I <sub>n</sub> :	U <sub>p</sub> (I <sub>n</sub> )	2100 V	2300 V	2500 V	2100 V
Protection level for 1.2/50 μs wave:	U <sub>p</sub>	1800 V	1800 V	1900 V	1800 V
Protection level 5 kA; 8/20 μs wave:		1900 V	2000 V	2100 V	1900 V
Impulse current (10/350 μs wave):	I <sub>imp</sub>	-		15 kA	-
Combined wave voltage:	U <sub>o.c.</sub>	6 kV	-		
Response time:	t <sub>r</sub>	< 25 ns			
Backup fuses <sup>(1)</sup> :		125 A gL/gG			
Maximum short-circuit current:		25 kA (for maximum fuse)			
Working temperature:	ϑ	-40 °C to +70 °C			
Protector location:		Indoor			
Type of connection:		Parallel (one port)			
Dimensions:		18 x 90 x 80 mm (1 module DIN 43880)			
Fixing:		DIN Rail			
Enclosure material:		Polyamide			
Enclosure protection:		IP20			
Insulation resistance:		> 10 <sup>14</sup> Ω			
Self-extinguishing enclosure:		V-0 Type according to UNE-EN 60707 (UL94)			
Connections L/N/G:		Min/Max multi-stranded section: 4 / 35 mm <sup>2</sup> Min/Max single-stranded section: 1 / 35 mm <sup>2</sup>			
Voltage-free contact for the remote control					
Connection:		Max. single-stranded/multi-stranded section: 1.5 mm <sup>2</sup>			
Contact output:		Switch			
Operating voltage:		250 V <sub>AC</sub> (Maximum working voltage of the alarm power supply)			
Maximum current:		2 A (Maximum current of the alarm power supply)			
Certificated tests according to: UNE-EN 61643-11 Complies with requirements of: UL 1449 Relevant standards: UNE 21186, NF C 17-102, IEC 62305					

(1) Required in cases where there is higher nominal current installed upstream from the protector

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