> PROTECTION OF POWER SUPPLY LINES

> ATSUB SERIES

> ATSUB

Single-pole protection for power supply lines

> **AT-8220 ATSUB 15**: peak current 15 kA. U_n 230 V
> **AT-8240 ATSUB 40**: peak current 40 kA. U_n 230 V
> **AT-8260 ATSUB 65**: peak current 65 kA. U_n 230 V
> **AT-8201 ATSUB N**: for neutral-ground protection
> **AT-8230 ATSUB 15-120**: peak current 15 kA. U_n 120 V
> **AT-8250 ATSUB 40-120**: peak current 40 kA. U_n 120 V
> **AT-8270 ATSUB 65-120**: peak current 65 kA. U_n 120 V
> **AT-8062 ATSUB 15-300**: peak current 15 kA. U_n 300 V
> **AT-8063 ATSUB 40-300**: peak current 40 kA. U_n 300 V
> **AT-8064 ATSUB 65-300**: peak current 65 kA. U_n 300 V
> **AT-8224 ATSUB 15-400**: peak current 15 kA. U_n 400 V
> **AT-8244 ATSUB 40-400**: peak current 40 kA. U_n 400 V
> **AT-8264 ATSUB 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).

> NOMENCLATURE

ATSUB 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 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 and mechanical warning. 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 of 230 V and line – neutral voltage of 120 V), voltages greater than 230 V (line voltage 520 V and line – neutral voltage 300 V), and wind generator voltages (line voltage 690 V and line – ground voltage 400 V).

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 Ω. 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.

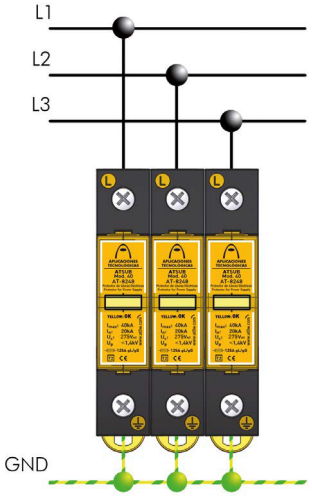
> INSTALLATION

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 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 but which do not supply sensitive equipment.



> PROTECTION OF POWER SUPPLY LINES

> ATSUB SERIES

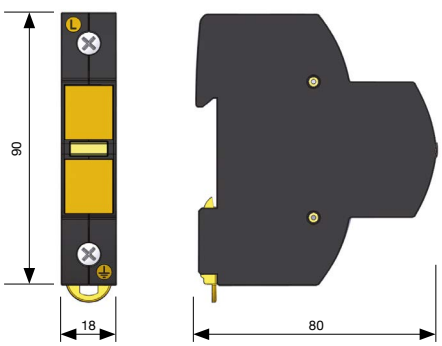
> TECHNICAL DATASHEET

Reference:		ATSUB 15 **AT-8220**	ATSUB 40 **AT-8240**	ATSUB 65 **AT-8260**	ATSUB N **AT-8201**
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_n	230 V_{AC}			-
Maximum continuous operating voltage:	U_c	275 V_{AC}			-
Nominal frequency:		50 - 60 Hz			
Nominal discharge current (8/20 µs wave):	I_n	5 kA	20 kA	30 kA	20 kA
Maximum current (8/20 µs wave):	I_{max}	15 kA	40 kA	65 kA	40 kA
Protection level, 8/20 µs wave at I_n:	$U_p(I_n)$	1200 V	1400 V	1600 V	1400 V
Protection level for 1.2/50 µs wave:	U_p	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_{imp}	-		15 kA	-
Combined wave voltage:	$U_{o.c.}$	6 kV	-		
Response time:	t_r	< 25 ns			
Backup fuses(1):		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^{14} 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^2 Min/Max single-stranded section: 1 / 35 mm^2			

Certificated tests according to: IEC 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

> DIMENSIONS (MM)



> PROTECTION OF POWER SUPPLY LINES

> ATSUB SERIES

> TECHNICAL DATASHEET

Reference:		ATSUB 15-120 **AT-8230**	ATSUB 40-120 **AT-8250**	ATSUB 65-120 **AT-8270**	ATSUB N **AT-8201**
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_n	120 V_{AC}			-
Maximum continuous operating voltage:	U_c	150 V_{AC}			-
Nominal frequency:		50 - 60 Hz			
Nominal discharge current (8/20 µs wave):	I_n	5 kA	20 kA	30 kA	20 kA
Maximum current (8/20 µs wave):	I_{max}	15 kA	40 kA	65 kA	40 kA
Protection level, 8/20 µs wave at I_n:	$U_p(I_n)$	1200 V	1400 V	1600 V	1400 V
Protection level for 1.2/50 µs wave:	U_p	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_{imp}	-		15 kA	-
Combined wave voltage:	$U_{o.c.}$	6 kV	-		
Response time:	t_r	< 25 ns			
Backup fuses(1):		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^{14} 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^2 Min/Max single-stranded section: 1 / 35 mm^2			

Certificated tests according to: IEC 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 Tecnologicas, S.A. Technical Department.

> PROTECTION OF POWER SUPPLY LINES

> ATSUB SERIES

> TECHNICAL DATASHEET

Reference:		ATSUB 15-300 **AT-8062**	ATSUB 40-300 **AT-8063**	ATSUB 65-300 **AT-8064**	ATSUB N **AT-8201**
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_n	300 V_{AC}			-
Maximum continuous operating voltage:	U_c	320 V_{AC}			-
Nominal frequency:		50 - 60 Hz			
Nominal discharge current (8/20 µs wave):	I_n	5 kA	20 kA	30 kA	20 kA
Maximum current (8/20 µs wave):	I_{max}	15 kA	40 kA	65 kA	40 kA
Protection level, 8/20 µs wave at I_n:	$U_p(I_n)$	1400 V	1500 V	1800 V	2100 V
Protection level for 1.2/50 µs wave:	U_p	900 V	900 V	1100 V	1800 V
Protection level 5 kA; 8/20 µs wave:		1100 V	1200 V	1300 V	1900 V
Impulse current (10/350 µs wave):	I_{imp}	-		15 kA	-
Combined wave voltage:	$U_{o.c.}$	6 kV	-		
Response time:	t_r	< 25 ns			
Backup fuses(1):		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^{14} 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^2 Min/Max single-stranded section: 1 / 35 mm^2			

Certificated tests according to: IEC 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 Tecnologicas, S.A. Technical Department.

> PROTECTION OF POWER SUPPLY LINES

> ATSUB SERIES

> TECHNICAL DATASHEET

Reference:		ATSUB 15-400 **AT-8224**	ATSUB 40-400 **AT-8244**	ATSUB 65-400 **AT-8264**	ATSUB N **AT-8201**
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_n	400 V_{AC}			-
Maximum continuous operating voltage:	U_c	460 V_{AC}			-
Nominal frequency:		50 - 60 Hz			
Nominal discharge current (8/20 µs wave):	I_n	5 kA	20 kA	30 kA	20 kA
Maximum current (8/20 µs wave):	I_{max}	15 kA	40 kA	65 kA	40 kA
Protection level, 8/20 µs wave at I_n:	$U_p(I_n)$	2100 V	2300 V	2500 V	2100 V
Protection level for 1.2/50 µs wave:	U_p	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_{imp}	-		15 kA	-
Combined wave voltage:	$U_{o.c.}$	6 kV	-		
Response time:	t_r	< 25 ns			
Backup fuses(1):		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^{14} 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^2 Min/Max single-stranded section: 1 / 35 mm^2			

Certificated tests according to: IEC 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 Tecnologicas, S.A. Technical Department.