



# AT82R Series - ATSUB-R 20/40/60/N

ATSUB-R

## Single-pole protection for power supply lines

### AT82R SERIES - ATSUB-R 20/40/60/N

ATSUB-R 60 - 400

Max. discharge  
current in kA

Voltage  
line - ground



Efficient protection against transient overvoltages for electrical supply lines with or without neutral, using a metal oxide varistors. Medium protection according to coordinated stages protection recommended in Regulation of Low Voltages (RBT2002 ITC23).

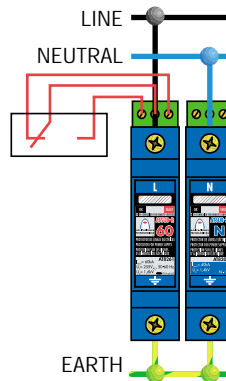
Tested and certified as **Class I** and **II** according to regulations IEC61643-1, EN61643-11. Suitable for **Categories I, II, III** and **IV** equipment according to RBT2002.

- Coordinable with other SPDs such as ATSHOCK, ATSHIELD and ATCOVER series.
- Made up of zinc oxide varistors able to withstand very high currents.
- Short response time.
- Don't produce deflagration.
- Single-pole protection.
- Their activation causes no interruption in power supply.
- Small sized modular protection.
- Thermodynamic control device and light alarm for each phase.
- Suitable connectors for any type of connection.

AT82R Series SPDs have been tested in **official and independent laboratories**, obtaining their characteristics according to relevant standards (shown in the table).

There exists the possibility of selecting a protector for the working voltage in each particular case. In the technical datasheet, we have included as common examples the optimal SPDs for **wind generators** (Line-to-Line voltage of 690V and Line-to-Ground voltage of 400V).

Minimum protection for TT systems. It is recommended to also install a ATSUB-R protector between each line and neutral, specially in TN-C and TN-S systems.



#### INSTALLATION

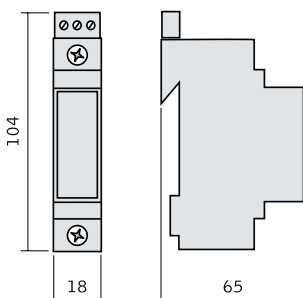
They are installed **in parallel** to the Low Voltage line, with connections to the line to be protected to either the neutral and/or ground.

The **power should be disconnected** during the installation of the SPD.

When ATSUB are installed as middle protection, they must be separated by at least 10 meter cable or, if this is not possible, by a decoupling inductor ATLINK, in order to achieve a **correct coordination** between them.

Their installation is recommended in places where important overvoltages can occur and when lines are connected to very sensitive equipment that cannot withstand big overvoltages.

**Earth connection** is a must. Earthing in all the installation must be bonded either directly or by a spark gap and resistance should be lower than 10Ω. If the indications of this datasheet are not fulfilled during the use or installation of the SPDs, the protection assured by this device could be endangered.



**AT8221 ATSUB-R 20:** max discharge current of 20kA  
**AT8241 ATSUB-R 40:** max discharge current of 40kA  
**AT8261 ATSUB-R 60:** max discharge current of 60kA  
**AT8204 ATSUB-R N:** for neutral to ground protection

Reference	ATSUB-R 20 ATSUB-R 40 ATSUB-R 60 ATSUB-R N			
	AT8221	AT8241	AT8261	AT8204
Protection categories according to RBT2002:	I, II, III, IV		II, III, IV	I, II, III, IV
Nominal voltage: $U_n$	220V <sub>AC</sub> (L-G)			-
Maximum continuous operating voltage: $U_c$	255V <sub>AC</sub> (L-G)			-
Nominal frequency:	50/60Hz			
Nominal discharge current (wave 8/20μs): $I_n$	10kA	20kA	30kA	20kA
Maximum discharge current (8/20μs wave): $I_{max}$	20kA	40kA	60kA	40kA
Protection level at $I_n$ (8/20μs): $U_p(I_n)$	1200V	1400V	1600V	1400V
Protection level (1,2/50μs): $U_p$	700V	700V	900V	700V
Protection level for 5kA 8/20μs:	900V	1000V	1100V	1000V
Response time: $t_r$	< 25ns			
Capacity: $C$	4,5pF			
Backup fuse <sup>(1)</sup> :	125A gL/gG	125A gL/gG	160A gL/gG	-
Maximum short-circuit current:	25kA /50Hz (for maximum fuse)			
Working temperature: $\vartheta$	-55°C to +85°C			
SPD location:	Indoor			
Type of connection:	Parallel (one door)			
Mounting method:	Fixed			
Dimensions:	18 x 104 x 65mm (1 mod. DIN43880)			
Fixing:	DIN rail			
Enclosure material:	Polycarbonate			
Enclosure protection:	IP20			
Insulation resistance:	> 10 <sup>14</sup> Ω			
Autoextinguish enclosure:	V-0 type according to UNE-EN 60707 (UL94)			
Connections L/N/G:	Max/Min section multi-stranded: 16 / 45mm <sup>2</sup> (5/1 AWG) Max/Min section single-stranded: 4 / 45mm <sup>2</sup> (11/1 AWG)			
<b>Open, voltage-free contact for the remote control</b>				
Connection:	Maximum section single-stranded / multi-stranded: 1,5mm <sup>2</sup>			
Contact output:	Normally open			
Working voltage:	250V <sub>AC</sub> (Maximum working voltage of the alarm supply)			
Maximum current:	2A (Maximum current of the alarm supply)			

**Certificated tests according to: IEC 61643-1 / NFC 61-0740 / EN 61643-11 / IEC 61312-3**

Complies with requirements of: UL 1449

Relevant standards: UNE21186 / NFC 17102 / UNE21185 / IEC61024-1 / IEC61312-3

(1) Needed in cases where there is no equal or less nominal current installed "upstream" from the protector.



- AT8225 ATSUB-R 20-400:** max discharge current of 20kA for 400 V<sub>AC</sub>
- AT8245 ATSUB-R 40-400:** max discharge current of 40kA for 400 V<sub>AC</sub>
- AT8265 ATSUB-R 60-400:** max discharge current of 60kA for 400 V<sub>AC</sub>
- AT8204 ATSUB-R N:** for neutral to ground protection

Reference	ATSUB-R20-400 ATSUB-R40-400 ATSUB-R60-400 ATSUB-RN			
	AT8225	AT8245	AT8265	AT8204
Protection categories according to RBT2002:	I, II, III, IV		II, III, IV	I, II, III, IV
Nominal voltage: U <sub>n</sub>	400V <sub>AC</sub> (L-G)			-
Maximum working voltage: U <sub>c</sub>	460V <sub>AC</sub> (L-G)			-
Nominal frequency:	50/60Hz			
Nominal discharge current (wave 8/20μs): I <sub>n</sub>	10kA	20kA	30kA	20kA
Maximum discharge current (8/20μs wave): I <sub>max</sub>	20kA	40kA	60kA	40kA
Protection level at I <sub>n</sub> (8/20μs): U <sub>p</sub> (I <sub>n</sub> )	2100V	2300V	2500V	1400V
Protection level (1,2/50μs): U <sub>p</sub>	1800V	1800V	1900V	700V
Protection level for 5kA 8/20μs:	1900V	2000V	2100V	1000V
Response time: t <sub>r</sub>	< 25ns			
Capacity: C	4,5pF			
Backup fuse <sup>(1)</sup> :	125A gL/gG	125A gL/gG	160A gL/gG	-
Maximum short-circuit current:	25kA /50Hz (for maximum fuse)			
Working temperature: ϑ	-55°C to +85°C			
SPD location:	Indoor			
Type of connection:	Parallel (one port)			
Mounting method:	Fixed			
Dimensions:	18 x 104 x 65mm (1 mod. DIN43880)			
Fixing:	DIN rail			
Enclosure material:	Polycarbonate			
Enclosure protection:	IP20			
Insulation resistance:	> 10 <sup>14</sup> Ω			
Autoextinguish enclosure:	V-0 type according to UNE-EN 60707 (UL94)			
Connections L/N/G:	Max/Min section multi-stranded: 16 / 45mm <sup>2</sup> (5/1 AWG) Max/Min section single-stranded: 4 / 45mm <sup>2</sup> (11/1 AWG)			
<b>Open, voltage-free contact for the remote control</b>				
Connection:	Maximum section single-stranded / multi-stranded: 1,5mm <sup>2</sup>			
Contact output:	Normally open			
Working voltage:	250V <sub>AC</sub> (Maximum working voltage of the alarm supply)			
Maximum current:	2A (Maximum current of the alarm supply)			

**Certificated tests according to: IEC 61643-1 / NFC 61-0740 / EN 61643-11 / IEC 61312-3**

Complies with requirements of: UL 1449

Relevant standards: UNE21186 / NFC 17102 / UNE21185 / IEC61024-1 / IEC61312-3

(1) Needed in cases where there is no equal or less nominal current installed "upstream" from the protector.

For other voltages, ask Aplicaciones Tecnológicas, S.A. technical department.