

L.V. Power System

Surge Protection Devices

Featuring UL-Certified New Products



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SINCE 1974

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Introduction

From the need to automatize as well as remotely, precisely control and monitor an electrical power system, the use of a large amount of electronic equipment is resulted. However, a high-voltage surge induced by lightning discharge current, as well as a surge caused by a line fault or the operation of a switch, may easily damage expensive equipment or even threaten the safety of personnel. With a view to averting the aforementioned surge-related dangers, a carefully-designed low-voltage power system and its appropriate placement, combined with installation of a correct surge protection device, are necessary means for preventing serious harm.

Designed for this purpose, WII low-voltage power system surge protection devices (SPD) are here presented in two series. The first series of SPDs consists of quick plug-in modular models, with a choice of optional monitor - one offering sound and light alarms and the other featuring a remote alarm. The second series of SPDs comprises unibody models capable of discharging large currents.

A recently launched series of WII quick plug-in modular models is a UL-certified line and boasts of improved capability and structural design, suitable for the needs of special markets.

Each of the UL-certified SPDs is equipped with a varistor and is enclosed in a self-extinguishing case, both of which are likewise UL-approved. In addition, the unibody SPD models are cast in self-extinguishing resin. All of these attributes greatly enhance the safety of the products.

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Surge Protection Devices

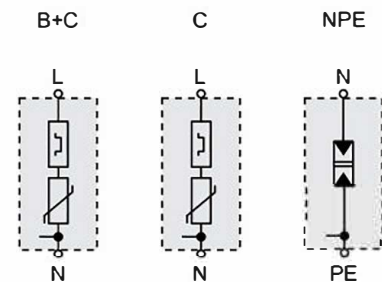
I. Modular Surge Protection Devices

◆ **Models** WSP- 1 / 2 + 3

① Type of Protection (B+C, C) ② Number of Modules (1~4) ③ NPE and/or Modular Monitor (FS or AS)

◆ Features and Uses

WSP-	B+C	C	NPE
Application	for buildings with an overhead power source or with a lightning protection device	for any subpanel, or for buildings with an underground power source or those without a lightning protection device	between two different earth systems
Protective Elements	nonlinear zinc oxide varistor and thermal stripper	nonlinear zinc oxide varistor and dynamic thermal stripper	spark gap
Structure	quick plug-in design with base		
Fault Indication	fault indicator window		
DIN Rail	35mm		



overheating protective device
 varistor
 spark gap

◆ Technical Specifications

WSP-	Uc V(AC)	B+C/1			C/1				NPE	
		150	280	385	150	280	385	550		
Maximum Continuous Voltage		150	280	385	150	280	385	550	255	
Category	VDE 0675 IEC 61643-1	B+C Class I+II			C Class II				--	
Lightning Protection Zone (LPZ)	-	0→1			1→2				--	
Peak Current (10/350) μ S	limp (KA)	8	7.5	7.5	-				--	
Rated Discharge Current (8/20) μ S	In (KA)	30			20				25	
Maximum Discharge Current (8/20) μ S	Imax (KA)	50*			40				50	
n-Module (n×Imax) KA	-	n X 50			n X 40				--	
Protection Level, Up (KV)	at 1 KA	< 0.45	< 0.8	< 1.0	< 0.5	< 0.9	< 1.2	< 1.7	< 1.5	
	at 5 KA	< 0.5	< 0.9	< 1.2	< 0.65	< 1.1	< 1.5	< 2.1		
	at In	< 0.6	< 1.1	< 1.5	< 0.7	< 1.4	< 1.8	< 2.5		
Response Time	tA (ns)	< 25			< 25				< 100	
Operating Temperature	T (°C)	-40~+80								
IP	-	20								
Current at Uc	If (mA)	≤ 1								--

Note: For special requirements please contact us.

* Imax of WSP-B+C/1 up to 65 kA upon request.



Surge Protection Devices

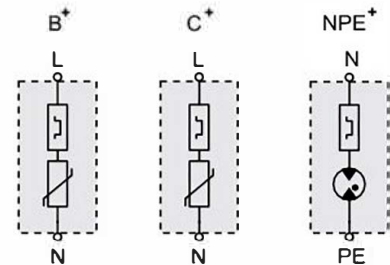
II. UL-Certified Modular Surge Protection Devices

◆ **Models** WSP- 1 / 2 + 3

1. Type of Protection (B⁺, C⁺) 2. Number of Modules (1~4) 3. NPE⁺ and/or Modular Monitor (Built-In-FS Base)

◆ **Features and Uses**

WSP-	B ⁺	C ⁺	NPE ⁺
Application	for buildings with an overhead power source or with a lightning protection device	for any subpanel, or for buildings with an underground power source or those without a lightning protection device	between two different earth systems
Protective Elements	nonlinear zinc oxide varistor and thermal stripper	nonlinear zinc oxide varistor and dynamic thermal stripper	gas (discharge) tube
Structure	quick plug-in design with base		
Fault Indication	fault indicator window		
DIN Rail	35mm		



overheating protective device varistor gas (discharge) tube

◆ **Technical Specifications**

WSP-		B ⁺ /1			C ⁺ /1			NPE ⁺
Maximum Continuous Voltage	U _c V(AC)	150	280	320	150	280	320	255
Category	VDE 0675 IEC 61643-1	B Class I			C Class II			--
Lightning Protection Zone (LPZ)	--	0→1			1→2			--
Peak Current (10/350) μS	I _{imp} (KA)	8	7.5	7.5	--			--
Standard	UL 1449 / CSA							
Rated Discharge Current (8/20) μS	I _n (KA)	30			20			30
Maximum Discharge Current (8/20) μS	I _{max} (KA)	65			40			65
n-Module (n × I_{max}) KA		n × 65			n × 40			--
Protection Level, Up (KV)	--	--			--			≤1.5
	at I _n	≤1.2	≤1.6	≤1.8	≤1.0	≤1.5	≤1.6	--
Response Time	t _A (ns)	< 25			< 25			< 100
Operating Temperature	γ (°C)	-40~+85						
IP	--	20						
Current at U_c	I _f (mA)	≤1						

III. Modular Monitors

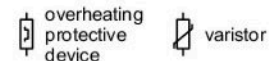
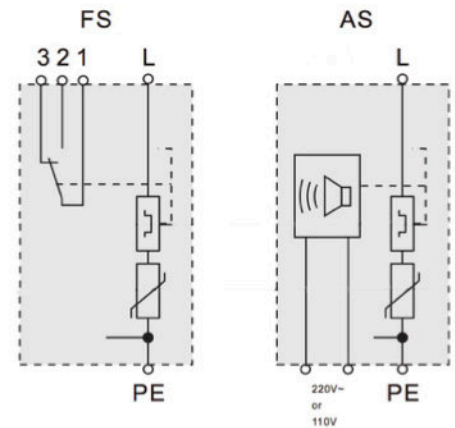
◆ FS Monitor

The FS monitor is designed for use with a B+C or C modular surge protection device. When any one of the modules of a remotely installed SPD needs to be replaced due to damage from overcurrent or other causes, the situation is made known by the window indicator on the SPD, but operating personnel may not be immediately aware of it due to the remote location of the device. In this instance, the FS monitor provides a solution by sending a signal to the control center. The signal is propelled by a mechanical interlocking action and then transmitted via the NC (Normal Close) or NO (Normal Open) contact of the monitor. Personnel at the control center will notice the signal immediately or during periodic inspection. Please refer to Fig. (III) on Page 5 for a combination of FS monitor with an appropriate modular SPD.



◆ AS Monitor

The AS monitor is designed for use with a B+C or C modular surge protection device. When any one of the modules of a SPD needs to be replaced due to damage from overcurrent or other causes, the situation is made known by the window indicator on the SPD. However, if the SPD is installed in a location inconvenient for monitoring its window indicator (e.g. in an apartment, a farm, an office building, or a bank), the AS monitor offers a solution in this situation by creating an alarm through its mechanical interlocking action. The alarm comes in the form of a high frequency sound, combined with a blinking LED light. The sound alarm will continue for 24 hours unless stopped (by the pressing of the designated button); if it is not stopped, the alarm will automatically continue for another 24 hours and will repeat this cycle until the fault is resolved. Please refer to Fig. (III) on Page 5 for a combination of an AS monitor with an appropriate modular SPD.



◆ Specifications

FS			AS		
Rated Voltage of Contactor	U (AC)	≤ 250 V	Operating Voltage	UN (AC)	110 V or 220 V/ 50 or 60 Hz
Rated Current of Contactor	I (AC)	6 A	Maximum Continuous Operating Voltage	UC (AC)	250 V
Symbol of Contactor	NC	1-3	Rated Current	I _L (AC)	40 mA
	NO	1-2			
Size of Wires	≤ 2.5 mm ²				
DIN Rail	35mm				



Surge Protection Devices

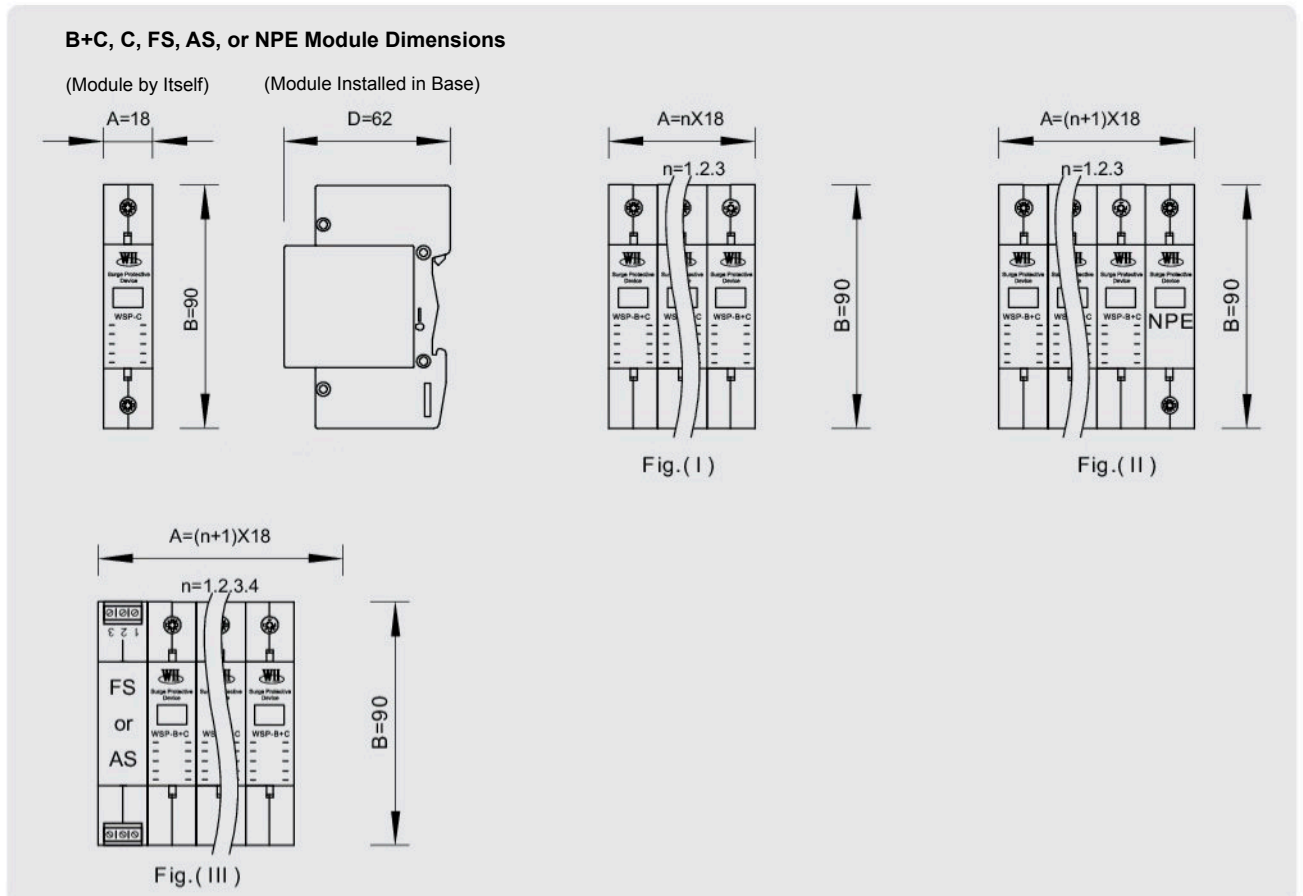
IV. Modular Surge Protection Devices With Monitors

◆ Available Combinations

Product			
WSP-	B+C/n C/n	B+C/n+NPE C/n+NPE	B+C/n+FS(AS) C/n+FS(AS)
n*	1, 2, 3 or 4	1, 2 or 3	1, 2, 3 or 4
Fig.	(I)	(II)	(III)
Dimensions AxBxD (mm)	(18, 36, 54 or 72)X90X62	(36, 54 or 72)X90X62	(36, 54, 72 or 90)X90X62

* n = number of modules

◆ Installation Drawings





Surge Protection Devices

V. UL-Certified Modular Surge Protection Devices With Monitor (Built-In-FS Base)*

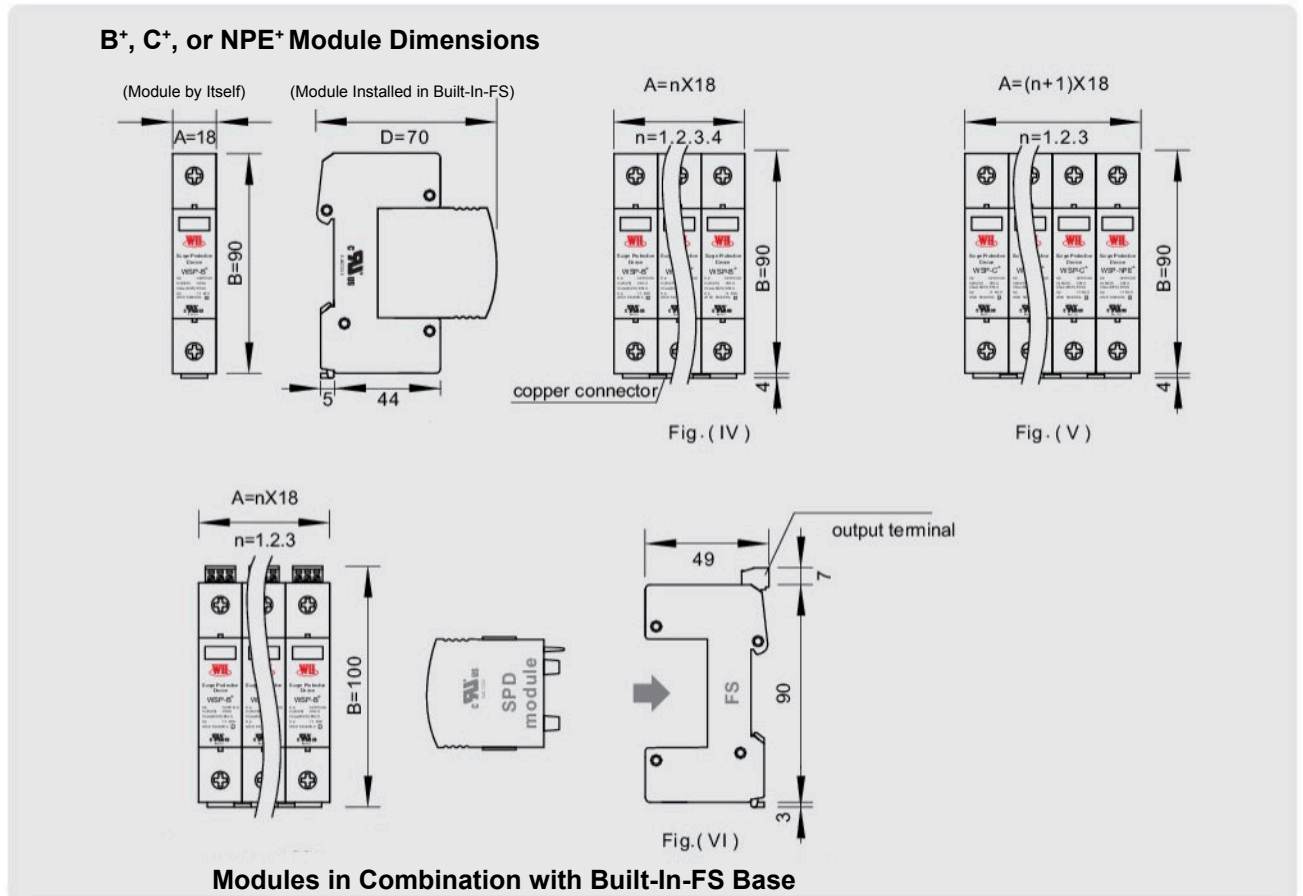
◆ Available Combinations

Product			
WSP-	B*/n C*/n (Optional FS Monitor Available)	B*/n + NPE* C*/n + NPE* (Optional FS Monitor Available)	Built-In-FS Base
n**	1, 2, 3 or 4	1, 2 or 3	
Fig.	(IV)	(V)	(VI)
Dimensions AxBxD (mm)	(18, 36, 54 or 72)X94X70	(36, 54 or 72)X94X70	18X100X49

*For more information on the functions of FS, please refer to Page 4.

** n = number of modules

◆ Installation Drawings



VI. Unibody Surge Protection Devices

◆ Models WSP- 1 2

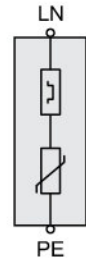
1. Maximum Current Discharged 2. Type of Protection

◆ Features and Uses

WSP-	80B	100B	120B	150B
Application	for buildings with an overhead power source or with a lightning protection device; for an outdoor panel; for a source protection system at a location with high risk of lightning strikes			
Protective Elements	three identical varistors in parallel, each with its fault indicator window			
Structure	Unibody			
DIN Rail	35mm			



WSP-120B



overheating protective device
 varistor

◆ Technical Specifications

WSP-		80B	100B	120B	150B	
Maximum Continuous Voltage	Uc V(AC)	270 (430)	270 (430)	270 (430)	270 (430)	
	(U1mA V(DC))	420 (680)	420 (680)	420 (680)	420 (680)	
		460 (750)	460 (750)	460 (750)	460 (750)	
		525 (820)	525 (820)	--	--	
Category	VDE 0675 IEC 61643-1	B Class I				
Lightning Protection Zone (LPZ)	--	0→1				
Rated Discharge Current (8/20) μ S	In (KA)	40	50	60	80	
Maximum Discharge Current (8/20) μ S	Imax (KA)	80	100	120	150	
Protection Level, Up (KV)	Uc	270 V	1.7	1.8	2.0	2.2
		420 V	2.6	2.8	3.0	3.4
		460 V	2.6	3.0	3.5	3.6
		525 V	2.8	3.1	--	--
Response Time	tA (ns)	< 25				
Operating Temperature	v (°C)	-40~+80				
IP	--	20				
Current at Uc	If (mA)	≤1				



Surge Protection Devices

VIII. SPD Test Equipment and UL Certificate

◆ Equipment at CIC's Advanced Electrical Laboratory for the testing of SPD functionality

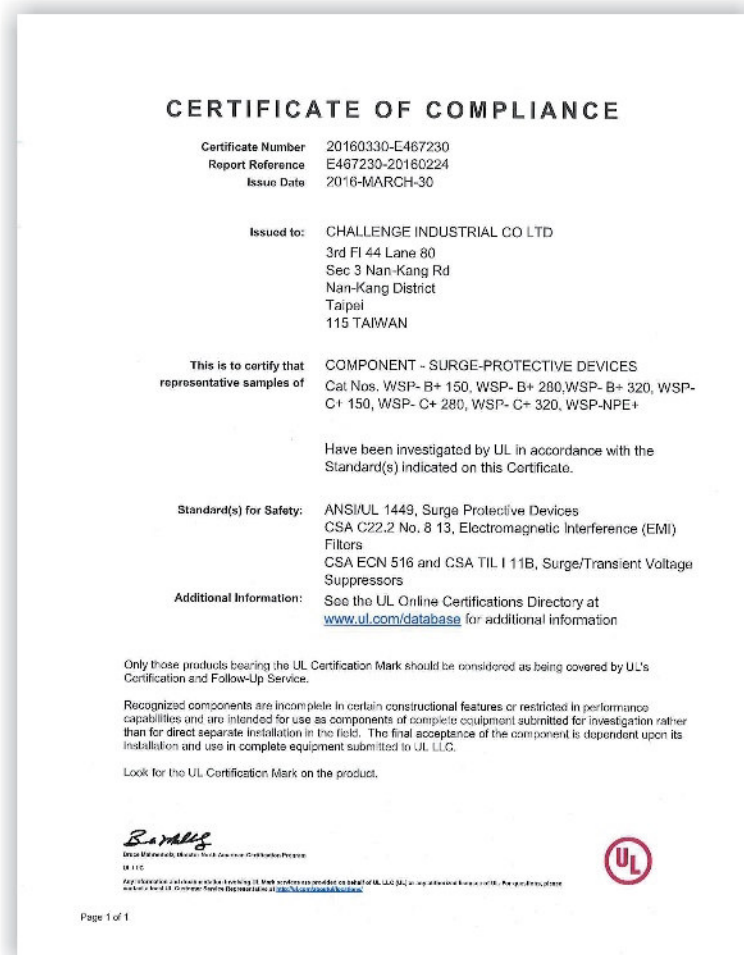


Tester (A) 80/20 μ S 65kA



Tester (B) 1.2/50-8/20 μ S
20kV-10kA
12kV-20kA
12kV-1kA

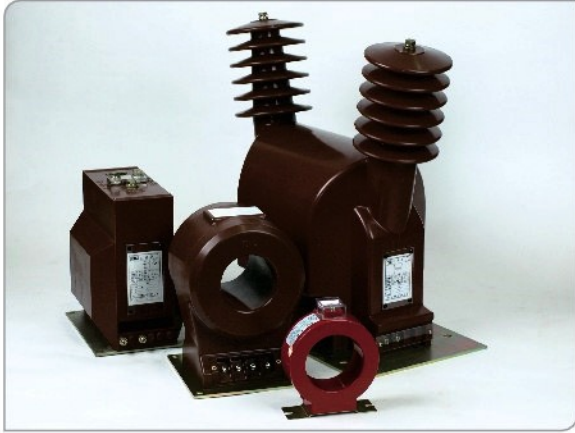
◆ UL Certificate





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