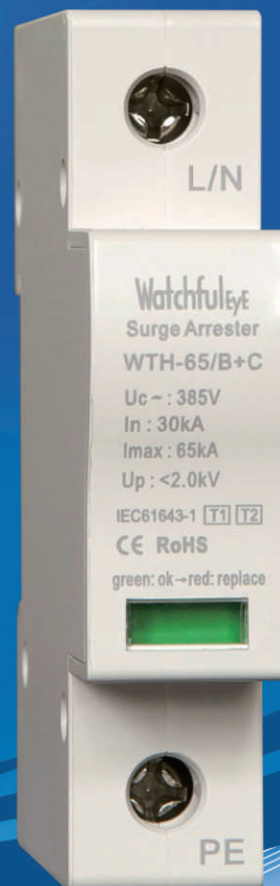


WatchfulEye

Watchful Eye Solutions, Inc.

**WTH-50, WTH-65/... Class I+II Series
Lightning & Surge Protection** ...





WTH-50 Series



WTH-65 Series



WTH-65/G+/1P-255

WTH-65/G+/1P-255 (N-PE Only)

Technical Data

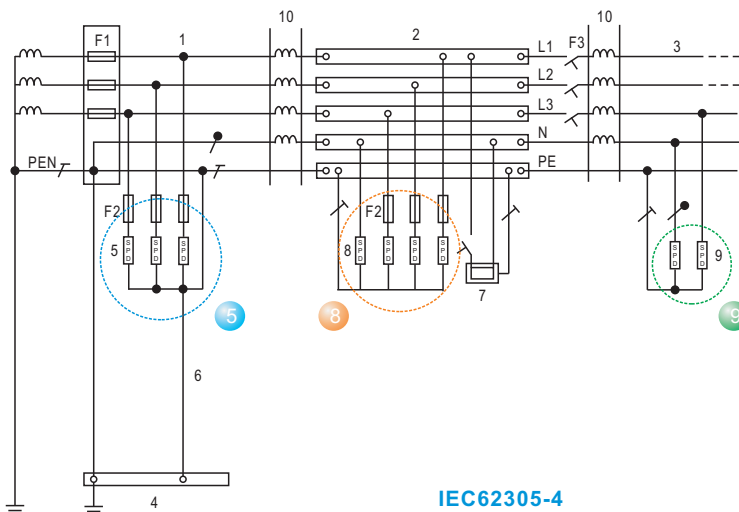
Uc	255VAC
In	40kA
I _{max}	65kA
I _{imp}	7.5kA
Up	1.1kV
Ures	0.5kV

Technical Data

	WTH-50	WTH-65
Requirement Class to IEC61643-1		Class I+II
IEEE Category Rating		C, B & A
Protection Modes		L-N, L-PE, N-PE
Nominal Discharge Current (I _n @8/20μs)	25kA	30kA
Max. Discharge Current (I _{max} @8/20μs)	50kA	65kA
Pulsed Current (I _{imp} @10/350μs)	5kA	7.5kA
Follow Current (I _f)		NO
Short Circuit Current Ratings (SCCR)		20kA rms
Response Time (t _A)		< 25ns
Leakage Current (at 75%U1mA)		<20μA
Thermal Protection		YES
Back-up Fuse (if mains > 100A)		100A gL
Temperature Range		-40° to 176°F (-40° to 80°C)
Relative Humidity		0% to 95% noncondensing
Maximum Operating Altitude		10,000 feet (3000m)
Terminal Cross Section		35mm ² (solid) / 25mm ² (stranded)
Stripping Length Contacts		0.6inches (15mm)
Terminal Screw Torque		Max. 3.5Nm
Protection Rating (IP Code)		IP 20
Surge Life at 3kA (8/20μs)		>5000 events
Din Rail EN60715		35mm top-hat rail
Housing Material		Thermoplastic; extinguishing degree UL 94 V-0

Surge Protective Device for Low Voltage Power Supply System

- Different types for your choosing according to different voltages (110V, 120/208V, 220/380V, 277/480V, 347/600V)
- In accordance with: IEC 61643-1 - Class I+II and UL1449 Type 4 Location
- Location of use: main sub-distribution boards, branch sub-distribution boards
- One piece & Compact design
- Internal thermal disconnect devices help ensure safe or at end-of-life
- Combinations: 1P, 1P+NPE, 2P, 3P, 3P+NPE, 4P
- Remote Contact: optional



Key

1. Origin of the installation
 2. Distribution board
 3. Distribution outlet
 4. Main earthing terminal or bar
 5. Surge protective device, class I or II tested
 6. Earthing connection (earthing conductor) of the surge protective device
 7. Fixed equipment to be protected
 8. Surge protective device, class II tested
 9. Surge protective device, class II or class III tested
 10. Decoupling element or line length
- F1, F2, F3 overcurrent protective disconnectors
NOTE Refer to IEC 61643-12 for further information.

IEC62305-4

Installation example of test class I, class II and class III SPDs

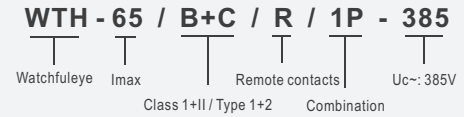
Technical Data

Type:	Uc (MCOV)	Up	Ures
WTH-50/B+C/...75 Series	75VAC	1.1kV	0.6kV
WTH-50/B+C/...115 Series	115VAC	1.3kV	0.7kV
WTH-50/B+C/...150 Series	150VAC	1.4kV	0.8kV
WTH-50/B+C/...275 Series	275VAC	1.6kV	1.0kV
WTH-50/B+C/...320 Series	320VAC	1.8kV	1.1kV
WTH-50/B+C/...385 Series	385VAC	1.9kV	1.2kV
WTH-50/B+C/...420 Series	420VAC	2.0kV	1.4kV
WTH-50/B+C/...550 Series	550VAC	2.5kV	1.8kV
WTH-50/B+C/...690 Series	690VAC	2.8kV	2.1kV

WTH-65/B+C/...75 Series	75VAC	1.2kV	0.6kV
WTH-65/B+C/...115 Series	115VAC	1.4kV	0.7kV
WTH-65/B+C/...150 Series	150VAC	1.5kV	0.8kV
WTH-65/B+C/...275 Series	275VAC	1.7kV	1.0kV
WTH-65/B+C/...320 Series	320VAC	1.9kV	1.1kV
WTH-65/B+C/...385 Series	385VAC	2.0kV	1.2kV
WTH-65/B+C/...420 Series	420VAC	2.1kV	1.4kV
WTH-65/B+C/...550 Series	550VAC	2.6kV	1.8kV
WTH-65/B+C/...690 Series	690VAC	2.9kV	2.1kV

Power Supply System	Uc(MCOV), L-PE Mode, Uc>1.15Un
110V, 120/208	150VAC
220/380	275VAC, 320VAC, 385VAC
230/400V	275VAC, 320VAC, 385VAC, 420VAC
240/415V	320VAC, 385VAC, 420VAC
277/480V	320VAC, 385VAC, 420VAC
347/600V	550VAC, 690VAC

How to name our products



Features of Class I + II :

Have high capability of Class I lightning and surge protection, and capability of Class II (equivalent to the parameters of WTH-40) fine protection with low residual voltage as well, applying to Class I and Class II lightning and surge protection in multiple areas. If you are not sure which module to choose for protecting your area, Class I + II is the best solution.

Un: Normal operating voltage rating

Uc (MCOV - UL): Max. continuous operating voltage

Up: Voltage protection level (at In)

Ures: Residual voltage at 6kV 1.2/50µs & 3kA 8/20µs

Frequency: 50Hz to 60Hz

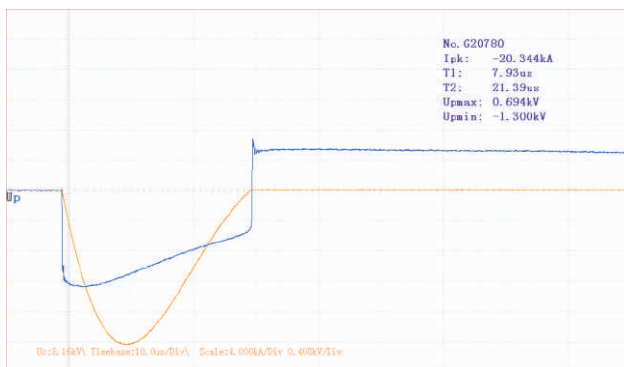
Note: Uc>1.15Un

The relationship between two parameters Uc and Up of a SPD is proportional. If Uc is small, the value of Up is also small; SPDs with smaller Up can provide better surge protection.

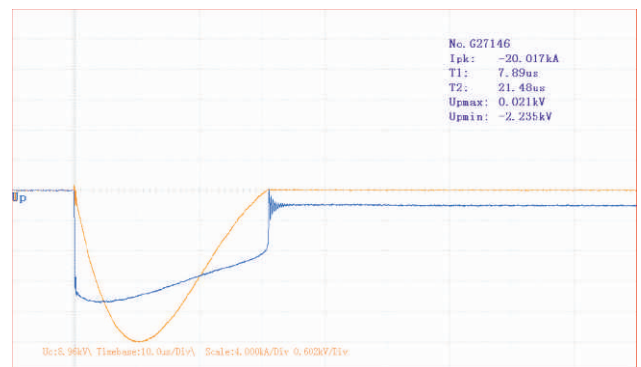
Whether to choose smaller Uc depends on the voltage stability of the grid. If you choose SPDs with smaller Uc for the grid with instable voltage, the SPDs will frequently work while the grid voltage fluctuates, resulting in shortening SPD's product life.

If you choose larger Uc, and the value of Up is accordingly large, the surge protective efficiency will not be so fine.

If you are unsure of the voltage stability of the grid, it is suggested to calculate Uc using the following formula: $\sqrt{2}Un < Uc < \sqrt{3}Un$



The impulse current and residual voltage curve in Ures=-20kA (WTH-65/B+C/1P-275(L-PE))



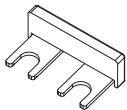
The impulse current and residual voltage curve in Ures=-20kA (WTH-65/B+C/1P-690(L-PE))

Application

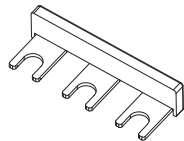
- Customized and designed by professional and experienced engineers according to your systems
- Different specifications for your choices (plastic shell and metal shell box; single-phase, three-phase power supply system)
- Suitable for 110V, 120/208V, 220/380V, 277/480V, 347/600V AC voltage systems
- Able to assemble fuses, circuit breakers, lightning counter and monitoring, etc. in accordance with the requirements of your surge protection systems
- Realize remote intelligent monitoring through wireless, wired network or cloud service



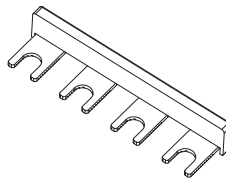
Bus Bar



WTH-2P/65
(1P+NPE, 2P Mode)

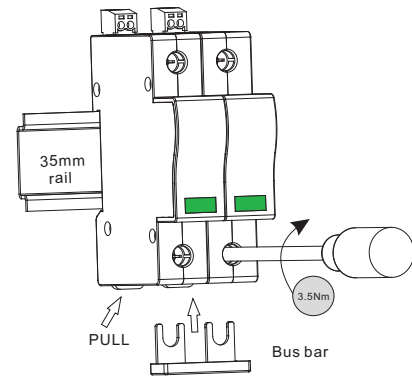


WTH-3P/65
(2P+NPE, 3P Mode)



WTH-4P/65
(3P+NPE, 4P Mode)

- Single modules can be combined with a bus bar in multiple combination methods

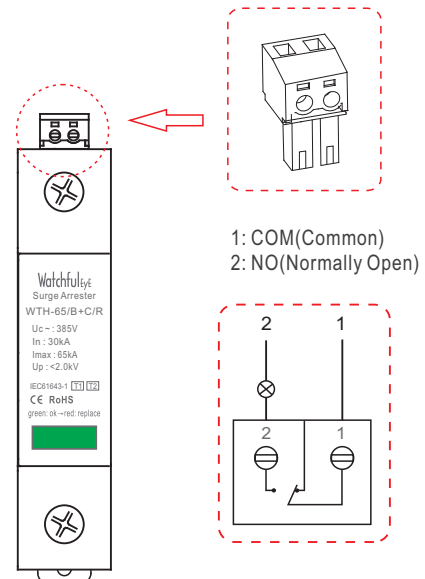


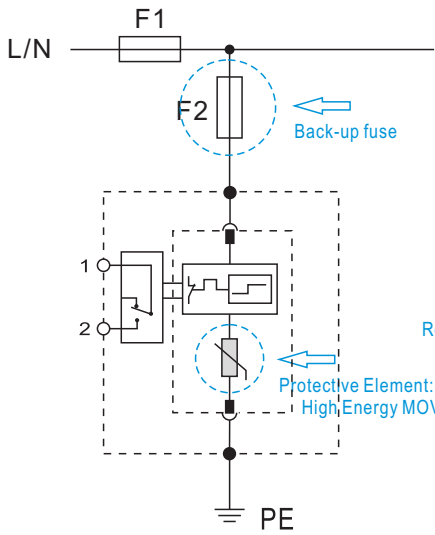
Remote Contacts

Type: WTH-65/B+C/ **R** /1P-385

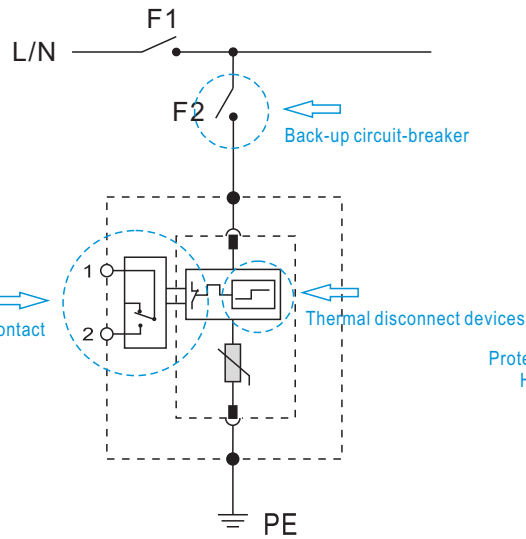
Remote contacts

Remote Contacts	
Contact Ratings	AC:125V/1A
Terminal Cross Section	Max. 1.5mm ²
Stripping Length Contacts	0.25inches (6-7mm)
Remote Terminal Torque	0.25Nm

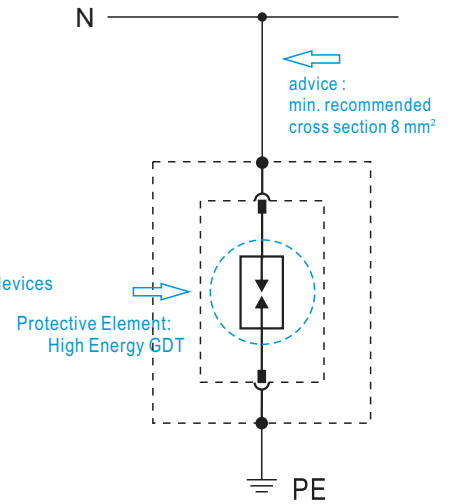




WTH-50, WTH-65 Series



WTH50, WTH-65 Series



WTH-65/G+/1P-255

Selection of back-up fuse

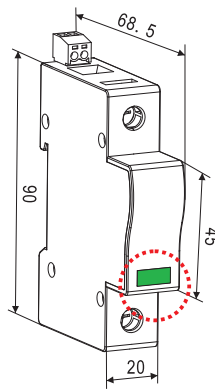
$F1 > 100\text{AgL} \Rightarrow F2 = 100\text{AgL}$
 $F1 \leq 100\text{AgL} \Rightarrow \text{No Fuse}$

Selection of back-up circuit-breaker

$F1 > 50\text{A} \Rightarrow F2 = 50\text{A}$
 $F1 \leq 50\text{A} \Rightarrow \text{No CB}$

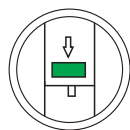
N-PE Only

Dimensions

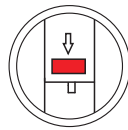


One-piece compact design with minimized volume but maximized capability of Class I+II lightning and surge protection

Fault Indication

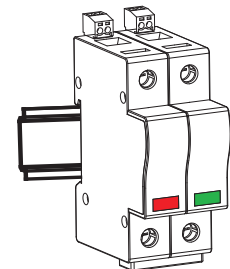


green : OK



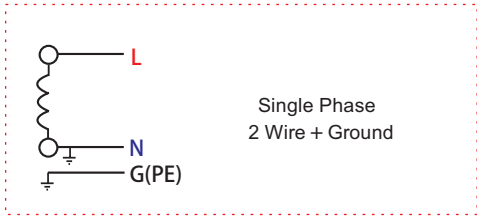
red : fault (replace)

replace

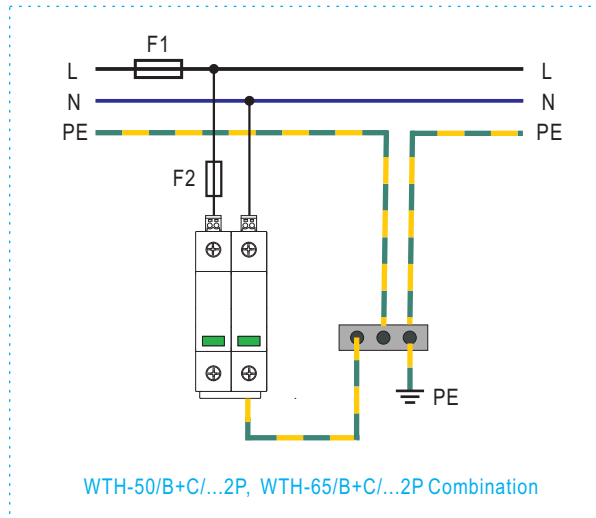


Lightning and Surge Protection for 2 Wire + Ground System

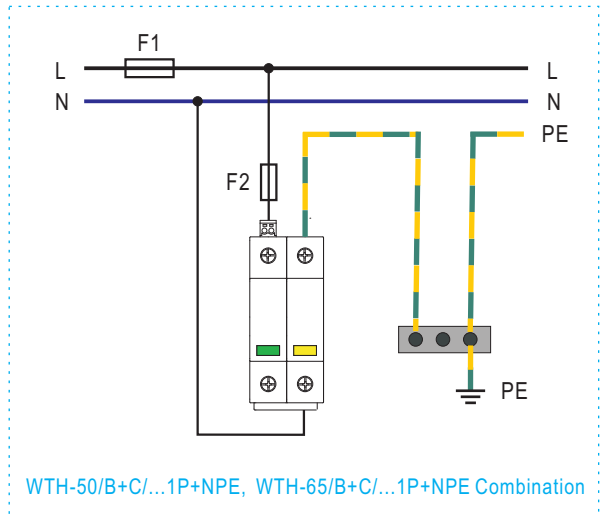
1



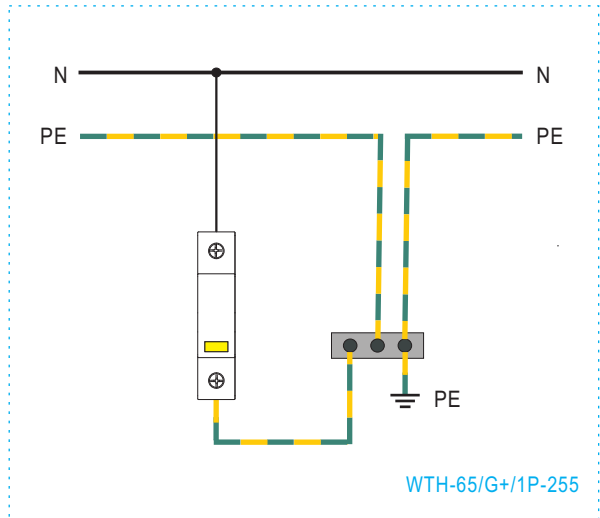
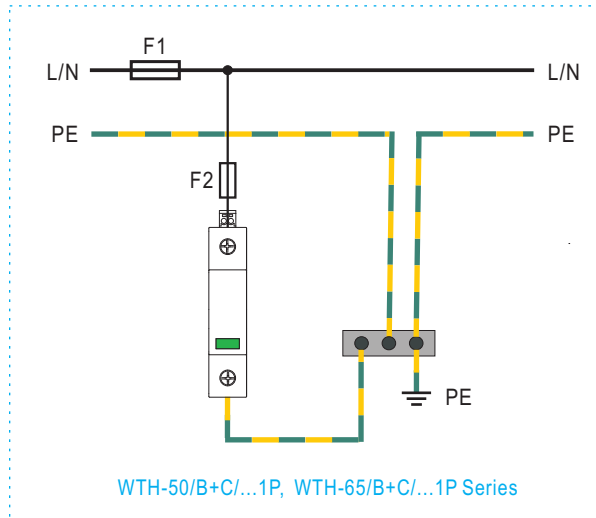
A



B

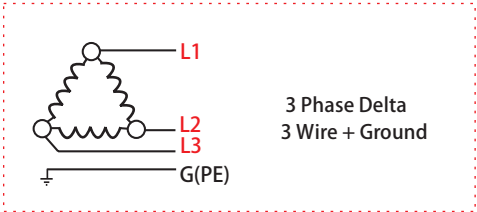


C

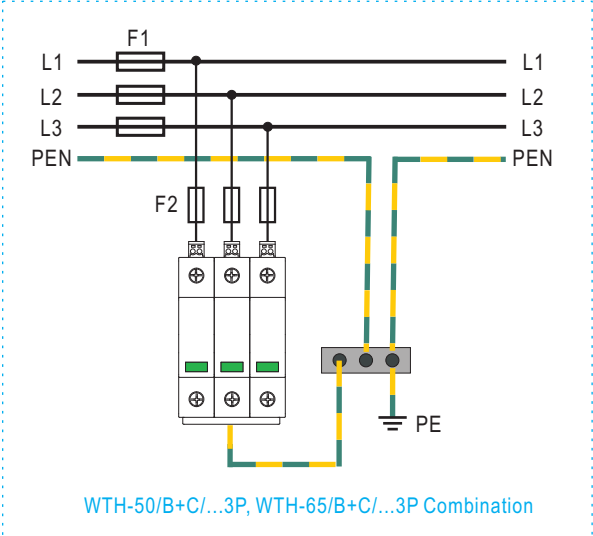


Lightning and Surge Protection for 3 Wire + Ground System

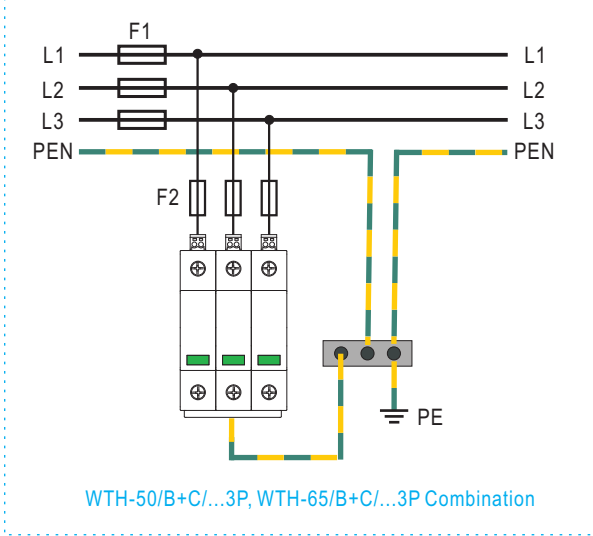
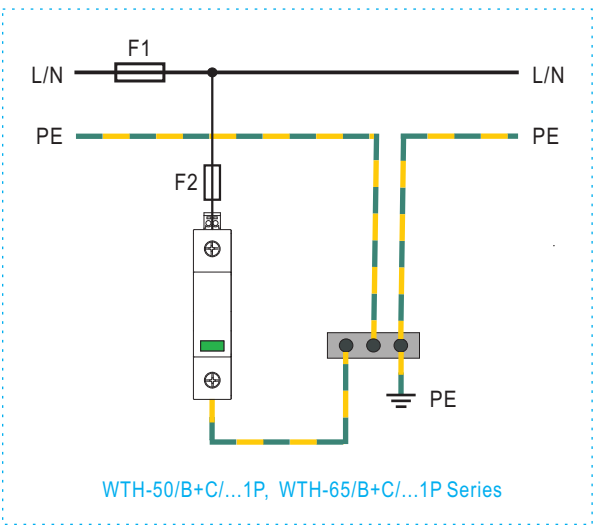
2



D

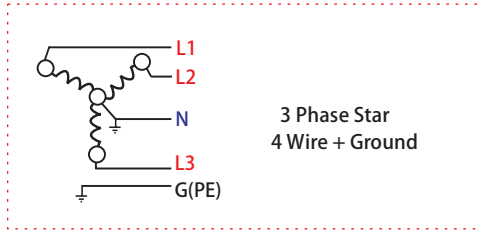


E

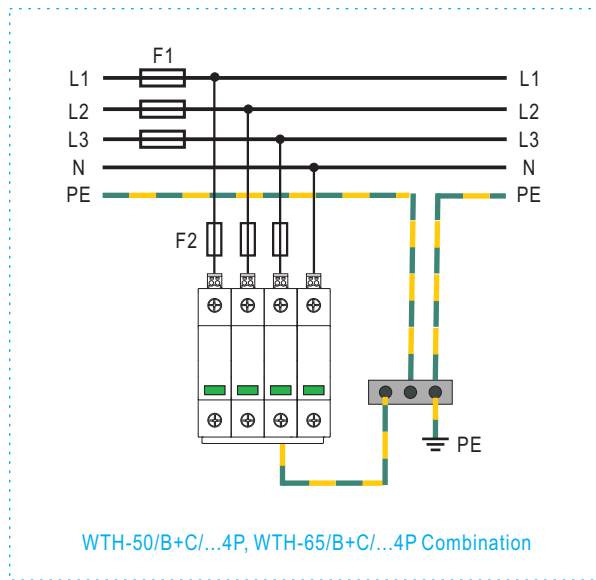


Lightning and Surge Protection for 4 Wire + Ground System

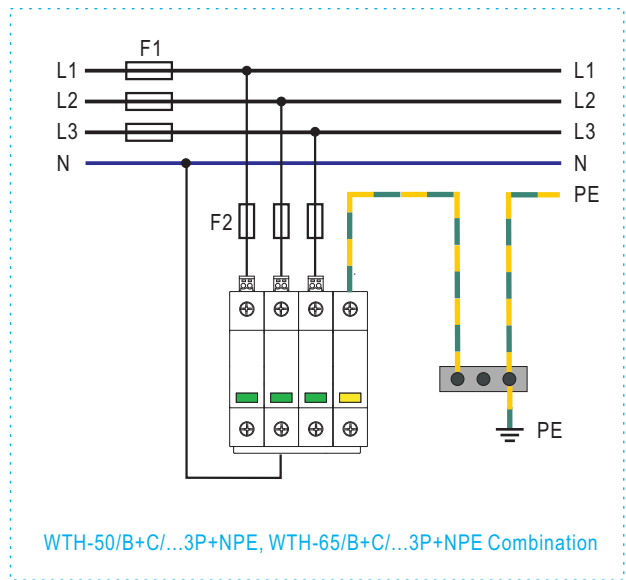
3



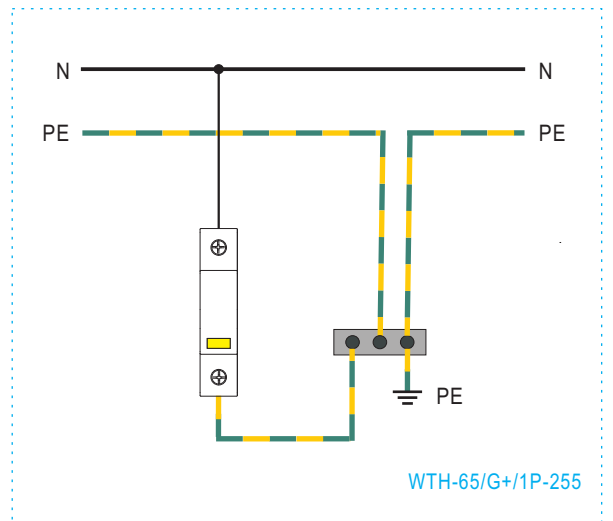
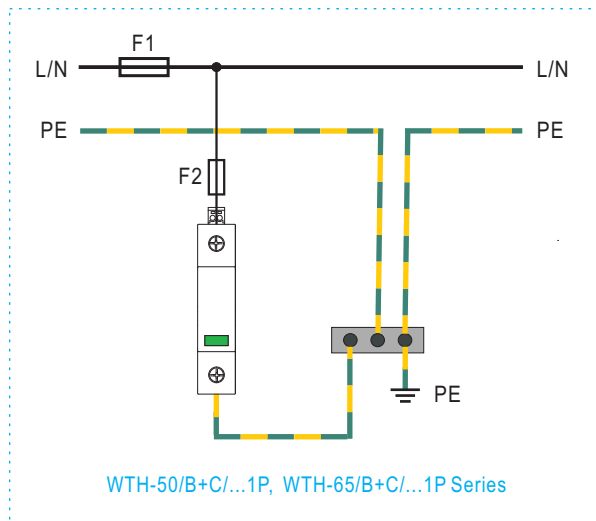
F



G

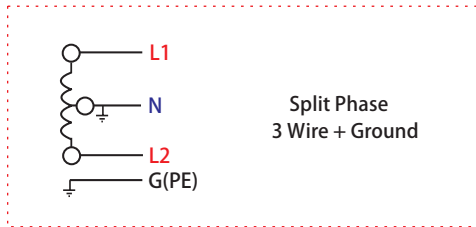


H

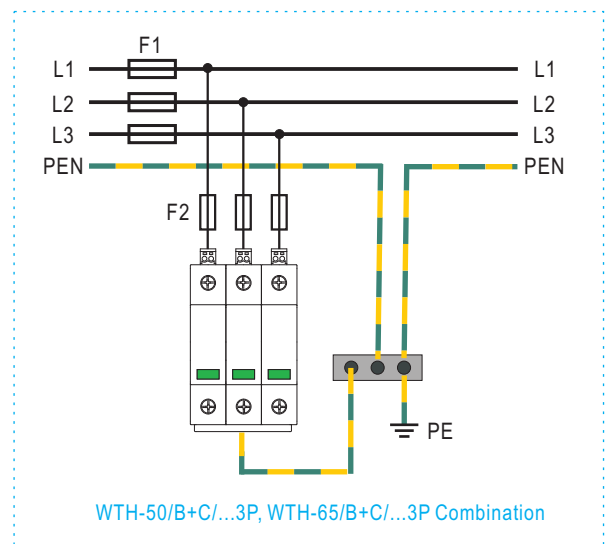
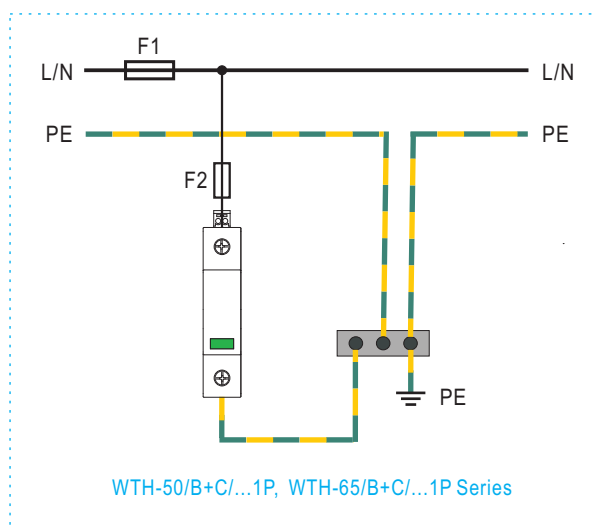


Lightning and Surge Protection for 3 Wire + Ground System

4



I



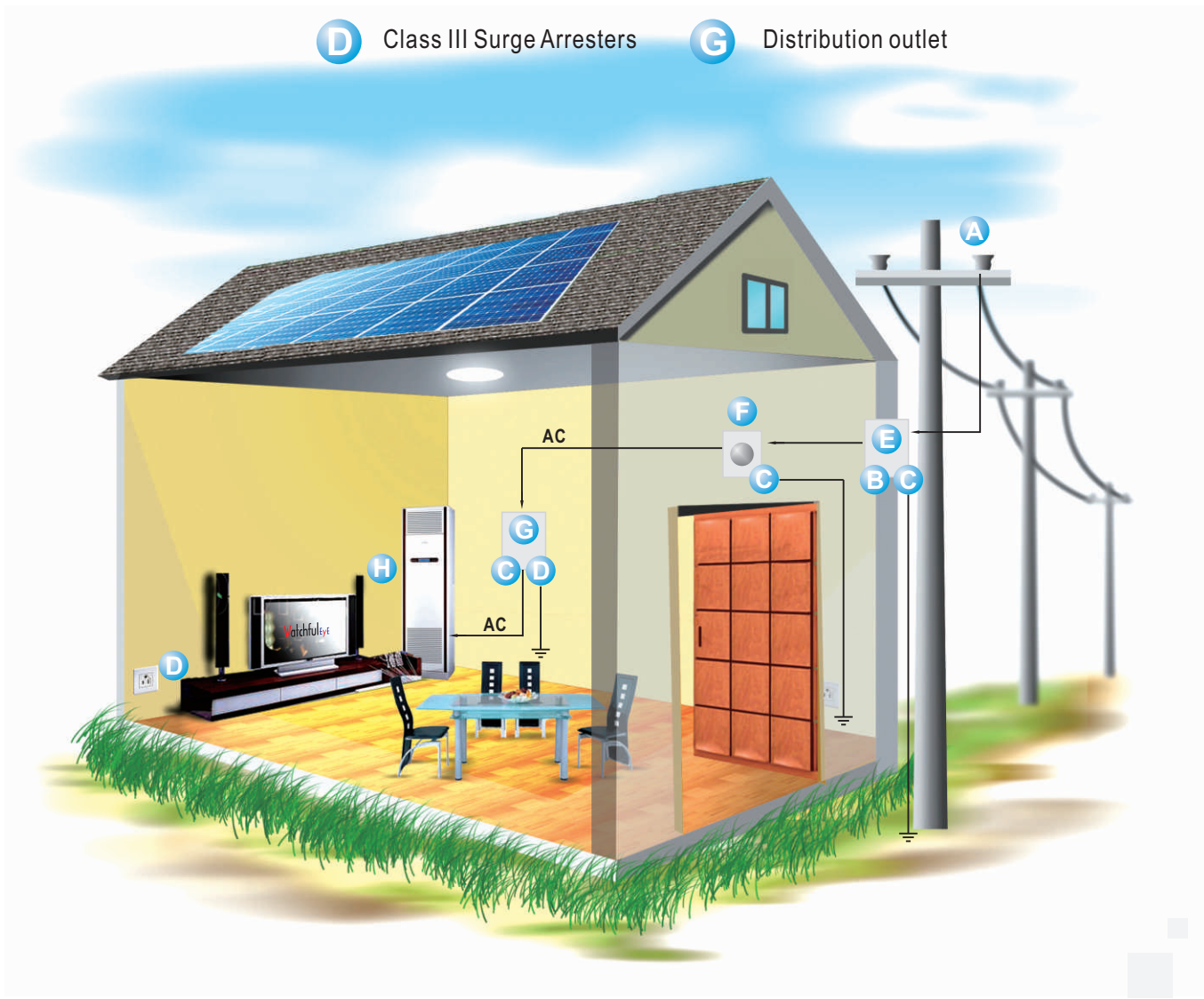
Watchful Eye offers complete and reliable technical solutions for AC power supply systems, protecting the electrical facilities throughout buildings against lightning and surge, providing a guarantee for the security of your systems and avoid unnecessary losses.

Ordering Code

Type:	Ordering code	Type:	Ordering code
WTH-50/B+C/1P-75	US 120 221	WTH-50/B+C/R/1P-75	US 120 231
WTH-50/B+C/1P-115	US 120 222	WTH-50/B+C/R/1P-115	US 120 232
WTH-50/B+C/1P-150	US 120 223	WTH-50/B+C/R/1P-150	US 120 233
WTH-50/B+C/1P-275	US 120 224	WTH-50/B+C/R/1P-275	US 120 234
WTH-50/B+C/1P-320	US 120 225	WTH-50/B+C/R/1P-320	US 120 235
WTH-50/B+C/1P-385	US 120 226	WTH-50/B+C/R/1P-385	US 120 236
WTH-50/B+C/1P-420	US 120 227	WTH-50/B+C/R/1P-420	US 120 237
WTH-50/B+C/1P-550	US 120 228	WTH-50/B+C/R/1P-550	US 120 238
WTH-50/B+C/1P-690	US 120 229	WTH-50/B+C/R/1P-690	US 120 239
WTH-65/B+C/1P-75	US 120 201	WTH-65/B+C/R/1P-75	US 120 211
WTH-65/B+C/1P-115	US 120 202	WTH-65/B+C/R/1P-115	US 120 212
WTH-65/B+C/1P-150	US 120 203	WTH-65/B+C/R/1P-150	US 120 213
WTH-65/B+C/1P-275	US 120 204	WTH-65/B+C/R/1P-275	US 120 214
WTH-65/B+C/1P-320	US 120 205	WTH-65/B+C/R/1P-320	US 120 215
WTH-65/B+C/1P-385	US 120 206	WTH-65/B+C/R/1P-385	US 120 216
WTH-65/B+C/1P-420	US 120 207	WTH-65/B+C/R/1P-420	US 120 217
WTH-65/B+C/1P-550	US 120 208	WTH-65/B+C/R/1P-550	US 120 218
WTH-65/B+C/1P-690	US 120 209	WTH-65/B+C/R/1P-690	US 120 219
WTH-65/G+/1P-255	US 120 200		
WTH-2P/65	US 129 001		
WTH-3P/65	US 129 002		
WTH-4P/65	US 129 003		

Lightning and Surge Protection for AC Power Supply System

- A** Utility Service
- B** Class I Surge Arresters
- E** Origin of the installation
- H** Electric Equipment
- C** Class II Surge Arresters
- F** Distribution board
- D** Class III Surge Arresters
- G** Distribution outlet



IEEE 62.41

- CATEGORY C: outdoor overhead lines, service entrance (most severe)
- CATEGORY B: major feeder, short branch circuits, service panel (indoor)
- CATEGORY A: long branch circuits, receptacles (indoor) (least severe)

UL Listed (<http://www.ul.com/database>)

<http://www.ul.com/database>

UL ONLINE CERTIFICATIONS DIRECTORY

BEGIN A BASIC SEARCH

To begin a search, please enter one or more search criteria in the parameters below.

Company Name (options)

City

US State

US Zip Code

Country

Region

Postal Code (non-US)

UL Category Code (opt)

UL File Number (help)

Keyword

Search results

You may choose to **Refine Your Search**.

Company Name	Category Name
WATCHFUL EYE SOLUTIONS INC	Surge-protective
WATCHFUL EYE SOLUTIONS INC	Surge-protective

Model number information is not published for all product number, please contact [Customer Service](#) for further assi

UL ONLINE CERTIFICATIONS DIRECTORY

VZCA2.E345944 Surge-protective Devices - Component

[Page Bottom](#)

Surge-protective Devices - Component

[See General Information for Surge-protective Devices - Component](#)

WATCHFUL EYE SOLUTIONS INC

E345944

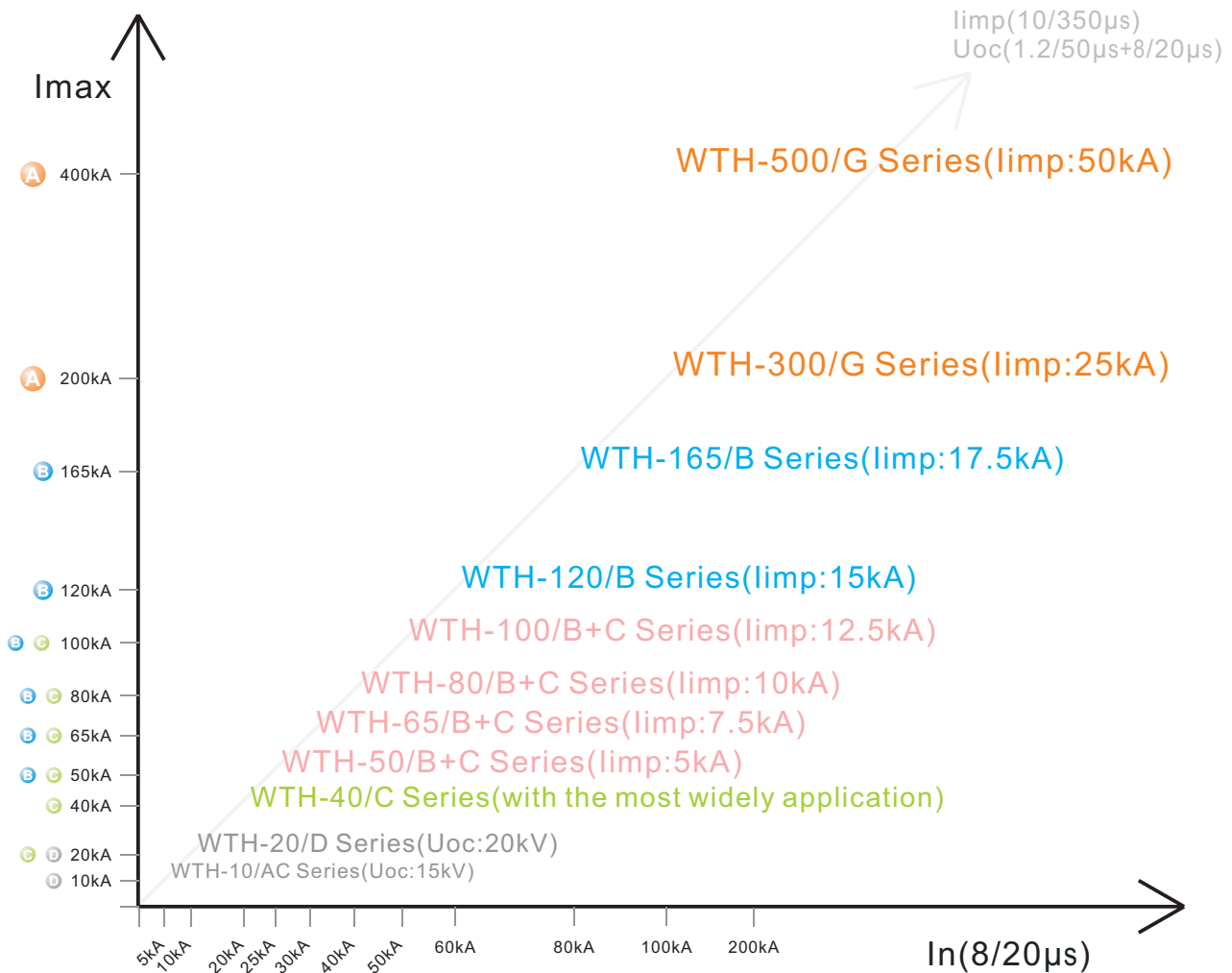
24E Hudson View Dr
Beacon, NY 12508 USA

Effective May 3, 2010

Cat No.	SPD Type	Volts (V)	AC/ DC/ DC PV	PH	AMPS (A)	AMB (°C)	MODE	VPR (Vpk)	MLV (Vpk)	MCOV (V)	Vn (Vdc)	In (kA)	SCCR (kA)	NOTES
WTH-50/ B+ C/ 1P-385	4CA	277	AC	1	n/a	65	Ld-Ld	-	1830	385	n/a	20	n/a	1
WTH-50/ B+ C/ R/ 1P-385	4CA	277	AC	1	n/a	65	Ld-Ld	-	1830	385	n/a	20	n/a	1
WTH-65/ B+ C/ 1P-385	4CA	277	AC	1	n/a	65	Ld-Ld	-	1830	385	n/a	20	n/a	1
WTH-65/ B+ C/ R/ 1P-385	4CA	277	AC	1	n/a	65	Ld-Ld	-	1830	385	n/a	20	n/a	1
Din Rail Moudle, Series WTH-385														
WTH-100/ B+ C/ 1P-385	4CA	277	AC	1	n/a	65	Ld-Ld	-	1620	385	n/a	20	n/a	1

Lightning and Surge Protection for AC Power Supply System

- A Class I Surge Arresters (voltage switching type)
- C Class II Surge Arresters
- B Class I Surge Arresters (voltage limiting type)
- D Class III Surge Arresters



IEC61643-1

- 5 Standard ratings
- 5.1 Preferred values of impulse current for class I tests I_{imp}
- 5.2 Preferred values of nominal discharge current for class II tests I_n
- 5.3 Preferred values of open-circuit voltage for class III tests U_{oc}

Watchfuleye is specialized in a complete range of lightning and surge protective devices, with wide applications in low voltage DC & AC power supply system, data and control system, intelligent monitoring system and new energy industry like solar and wind power system, etc. Our company also offers reliable custom technical solutions in lightning & surge protection for global customers.

Headquartered in New York, watchful Eye has a network of sales to serve our customers world wide. with high quality products and optimal service, Watchful Eye can meet your strict technical standards and unique requirements.

Watchful Eye

The Guardian that Protects Your System against Surge and Lightning

Watchful Eye Solutions, Inc.



www.watchfuleyesolutions.com

