

WatchfulEye

Watchful Eye Solutions, Inc.

WTH-40/C/... Class II Series Lightning & Surge Protection





WTH-40/C/...2P Series



WTH-40/C/...3P Series



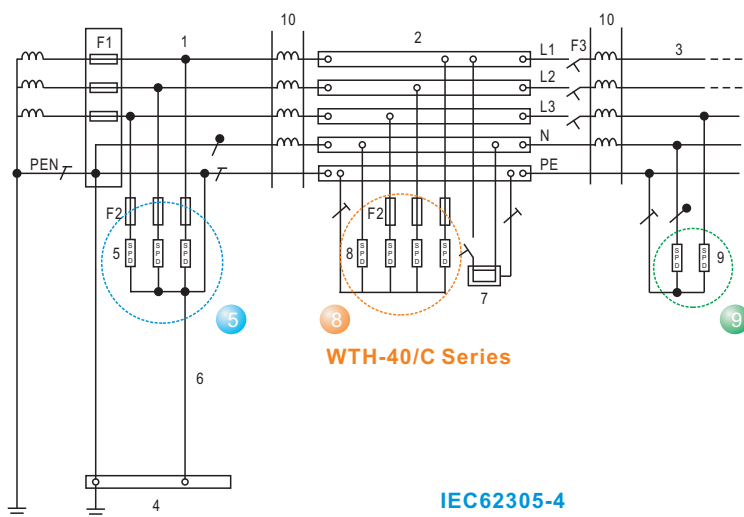
WTH-40/C/...4P Series

Technical Data

Requirement Class to IEC61643-1	Class II
IEEE Category Rating	B & A
Protection Modes	L-PE, N-PE
Nominal Discharge Current (In @8/20μs)	20kA
Max. Discharge Current (Imax @8/20μs)	40kA
Follow Current (If)	NO
Short Circuit Current Ratings (SCCR)	20kA rms
Response Time (tA)	< 25ns
Leakage Current (at 75%U1mA)	<20μA
Thermal Protection	YES
Back-up Fuse (if mains > 80A)	80A 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 II and UL1449 Type 4 Location
- Location of use: branch sub-distribution boards
- The convenient plug-in module, and separate base 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



WTH-40/C Series

IEC62305-4

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

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.



WTH-40/C/...1P+NPE Series



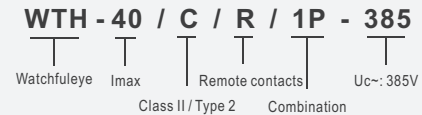
WTH-40/C/...3P+NPE Series

Technical Data

Type:	Uc (MCOV)	Up	Ures
WTH-40/C/...75 Series	75VAC	1.0kV	0.6kV
WTH-40/C/...115 Series	115VAC	1.2kV	0.7kV
WTH-40/C/...150 Series	150VAC	1.3kV	0.8kV
WTH-40/C/...275 Series	275VAC	1.5kV	1.0kV
WTH-40/C/...320 Series	320VAC	1.7kV	1.1kV
WTH-40/C/...385 Series	385VAC	1.8kV	1.2kV
WTH-40/C/...420 Series	420VAC	1.9kV	1.4kV
WTH-40/C/...550 Series	550VAC	2.4kV	1.8kV
WTH-40/C/...690 Series	690VAC	2.7kV	2.1kV
WTH-40/C/...880 Series	880VAC	3.2kV	2.5kV

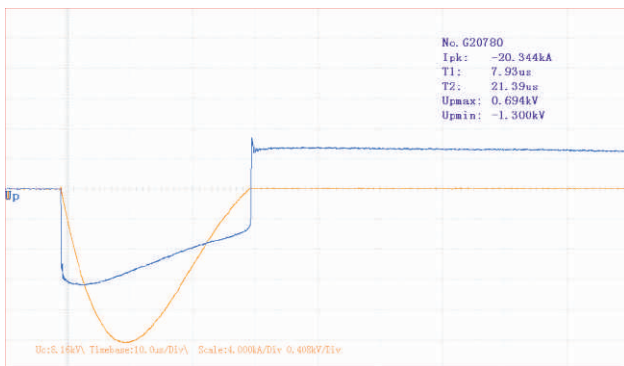
Power Supply System	Uc(MCOV), L-PE Mode, Uc>1.15Un
110V, 120/208	150VAC
220/380	275VAC, 320VAC, 385VAC
230/400V	275VAC, 320VAC, 385VAC, 420VAC
240/415V	320VAC, 385VAC, 420VAC
277/480V	320VAC, 385VAC, 420VAC
347/600V	550VAC, 690VAC

How to name our products

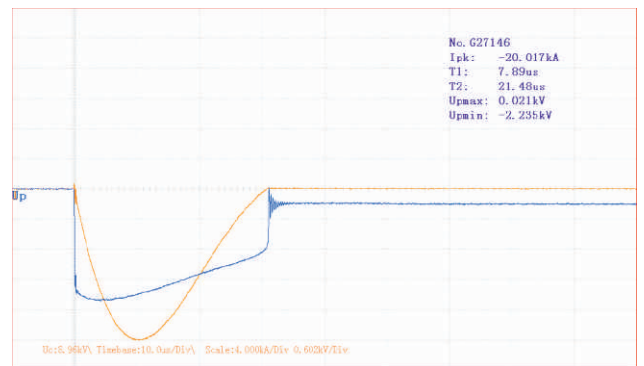


Un: Normal operating voltage rating
Uc (MCOV - UL): Max. continuous operating voltage
Up: Voltage protection level (at In)
Ures: Residual voltage at 6kV 1.2/50µs & 3kA 8/20µs
Frequency: 50Hz to 60Hz

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 In=-20kA (WTH-40/C/3P+NPE-275(L-N))



The impulse current and residual voltage curve in In=-20kA (WTH-40/C/3P+NPE-690(L-N))



WTH-40/C/...1P Series



WTH-65/G/1P-255

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

Technical Data

Uc	255VAC
In	25kA
I _{max}	65kA
Up	1.0kV
Ures	0.3kV

Application

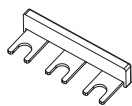
- Customized and designed by professional and experienced engineers according to your systems
- Different specifications for your choices (plastic shell and metal shell box; single-phase, three-phase power supply system)
- Suitable for 110V, 120/208V, 220/380V, 277/480V, 347/600V AC voltage systems
- 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



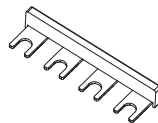
Bus Bar



WTH-2P/40
(1P+NPE, 2P Mode)



WTH-3P/40
(2P+NPE, 3P Mode)



WTH-4P/40
(3P+NPE, 4P Mode)

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

Type: WTH-40/C/ R /3P-385

Remote contacts

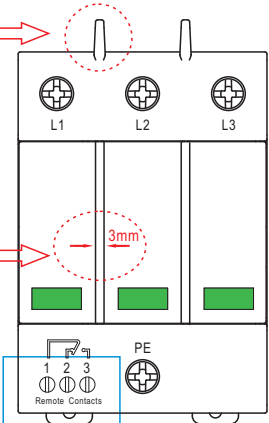
Remote Contacts	
Contact Ratings	AC:125V/1A
Terminal Cross Section	Max. 1.5mm ²
Stripping Length Contacts	0.25inches (6-7mm)
Remote Terminal Torque	0.25Nm

Two details strengthening the protection

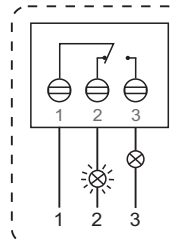
The isolated barrier between two modules

- Increase creepage distance
- Make the connection more secured
- Increase the capacity of insulation isolation
- More important for the application with UC higher than 550V

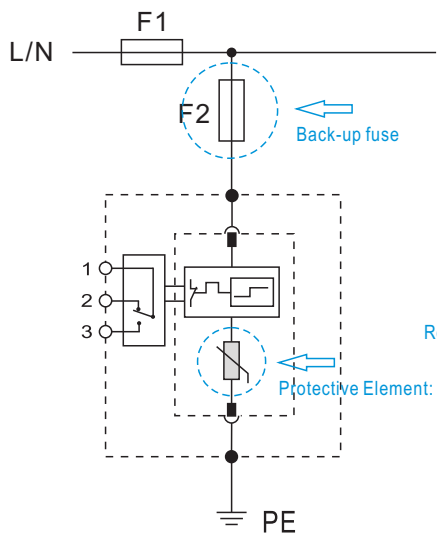
3mm-wide gap between two modules



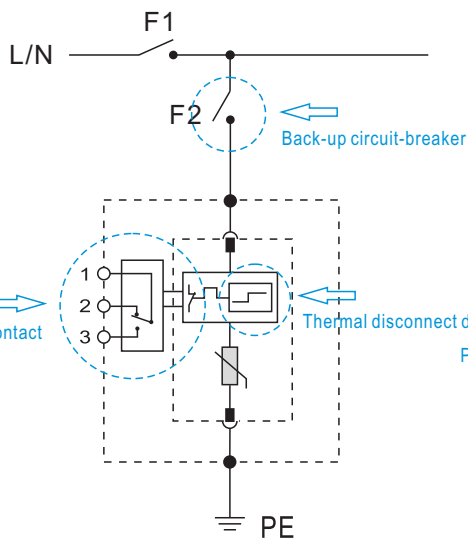
Remote Contacts



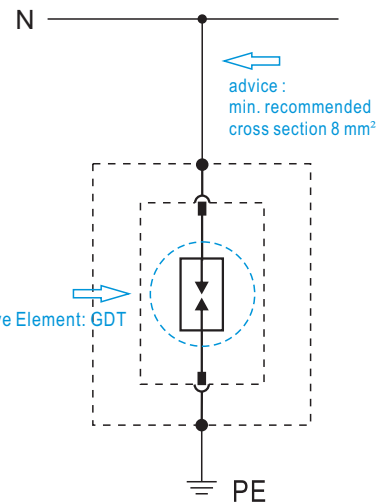
- 1: COM(Common)
- 2: NC(Normally Close)
- 3: NO(Normally Open)



WTH-40/C/...1P Series



WTH-40/C/...1P Series



WTH-65/G/1P-255

Selection of back-up fuse

$F1 > 80A_{gL} \Rightarrow F2 = 80A_{gL}$

$F1 \leq 80A_{gL} \Rightarrow \cancel{F2}$

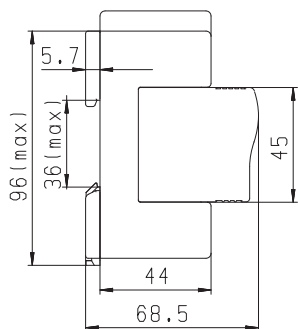
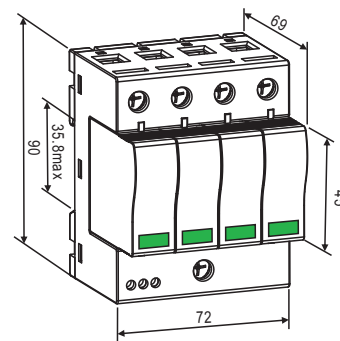
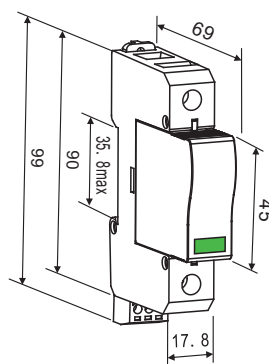
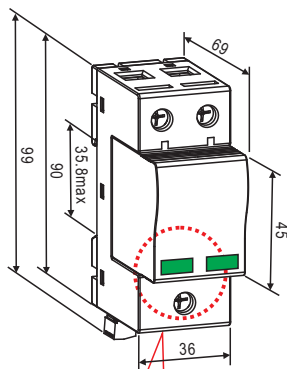
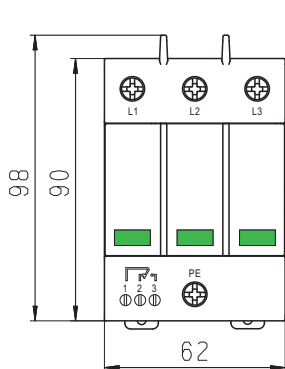
Selection of back-up circuit-breaker

$F1 > 40A \Rightarrow F2 = 40A$

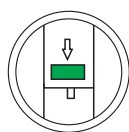
$F1 \leq 40A \Rightarrow \cancel{F2}$

N-PE Only

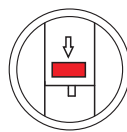
Dimensions



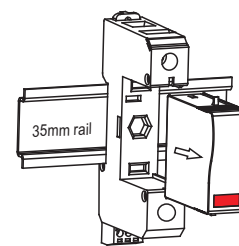
Fault Indication



green : OK



red : fault (replace)



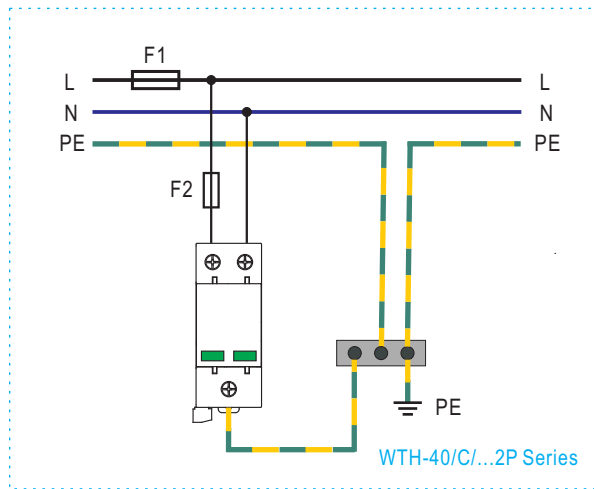
Pull out upward

Lightning and Surge Protection for 2 Wire + Ground System

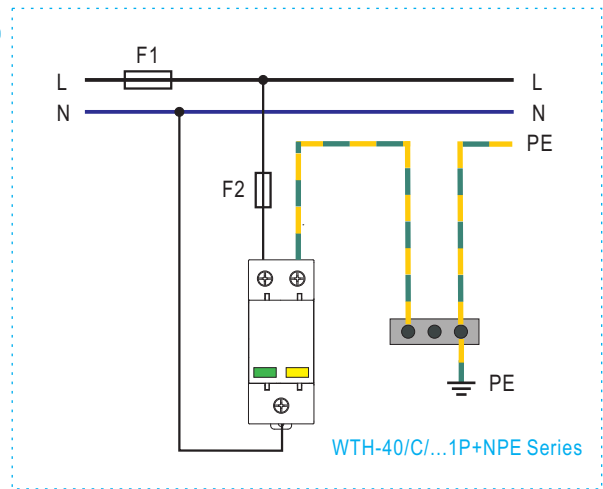
1



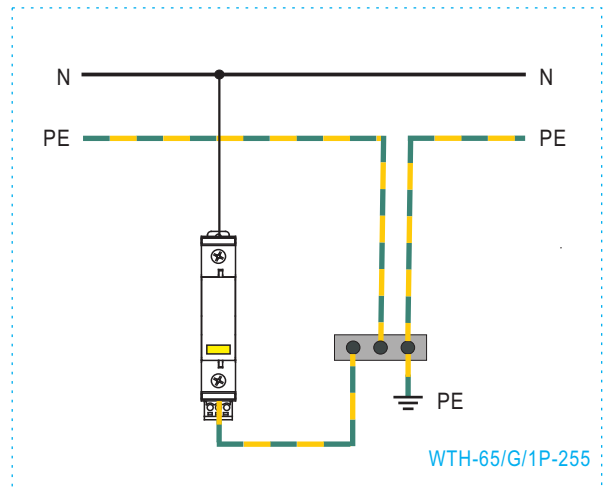
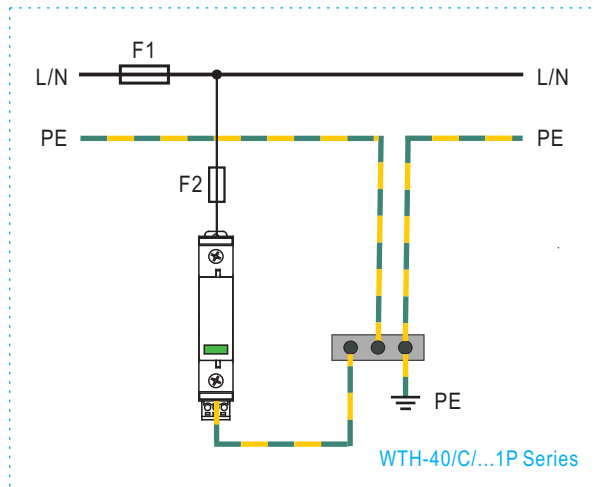
A



B

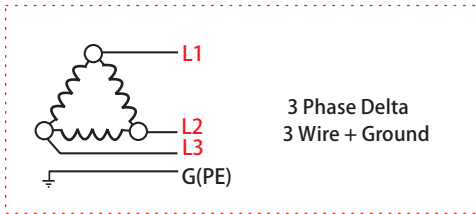


C

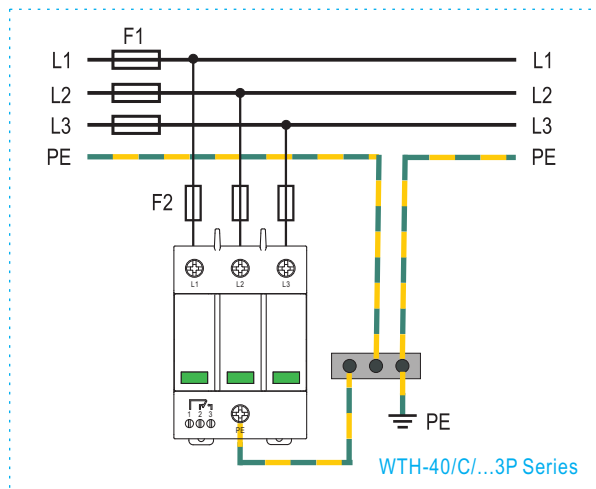


Lightning and Surge Protection for 3 Wire + Ground System

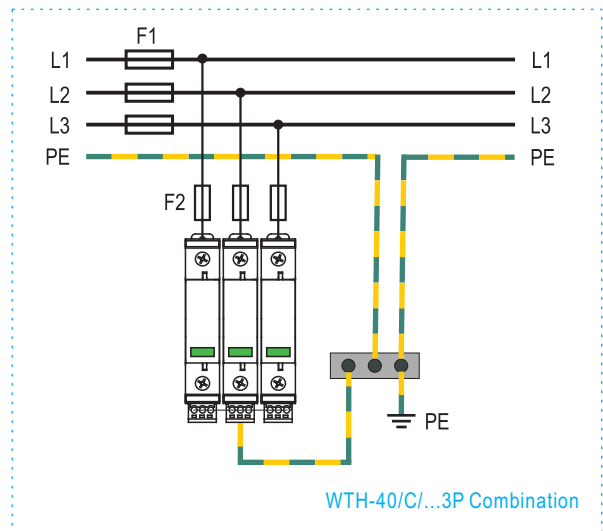
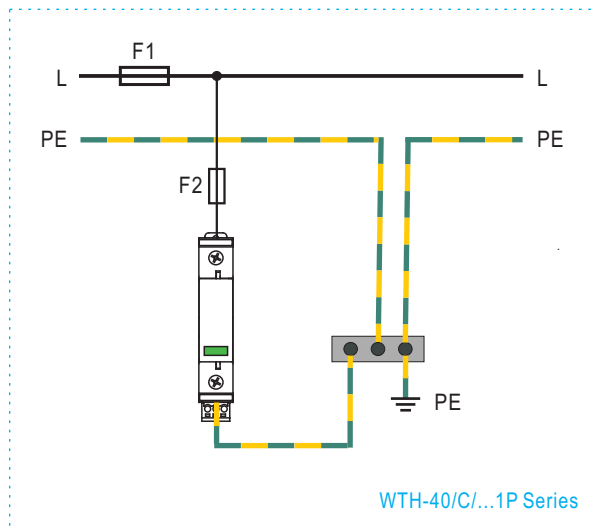
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D

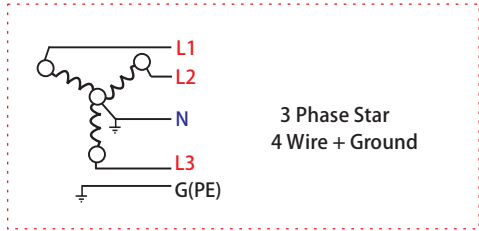


E

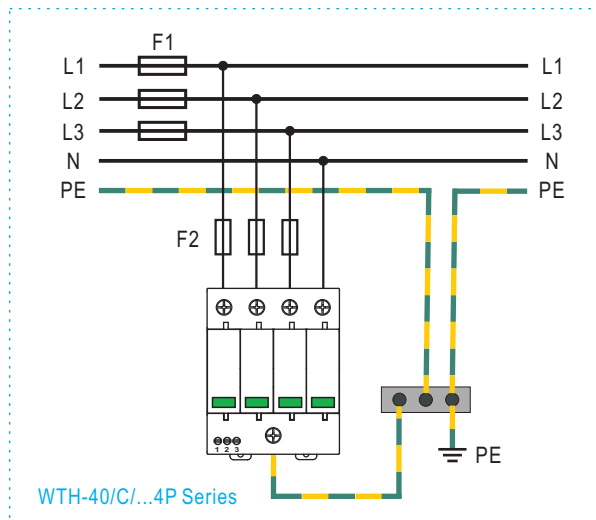


Lightning and Surge Protection for 4 Wire + Ground System

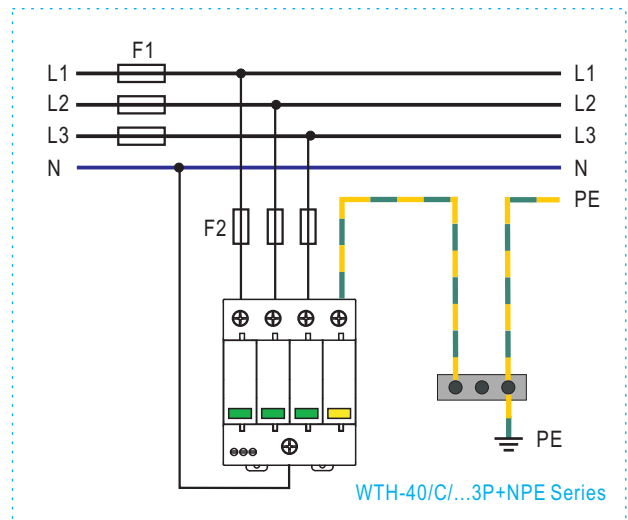
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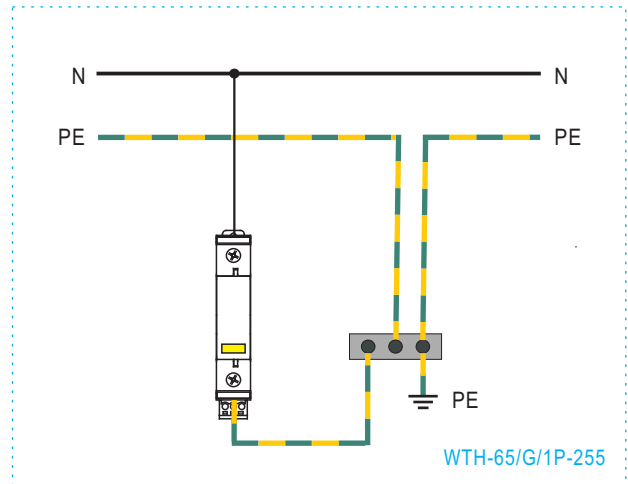
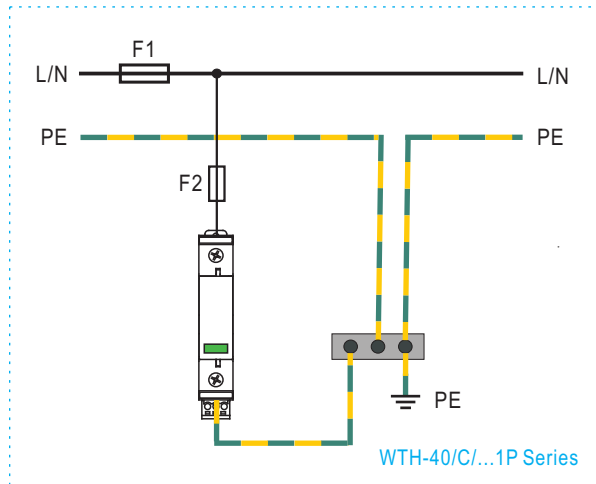
F



G

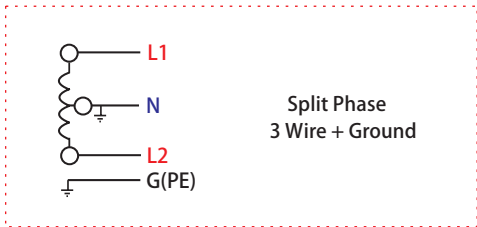


H

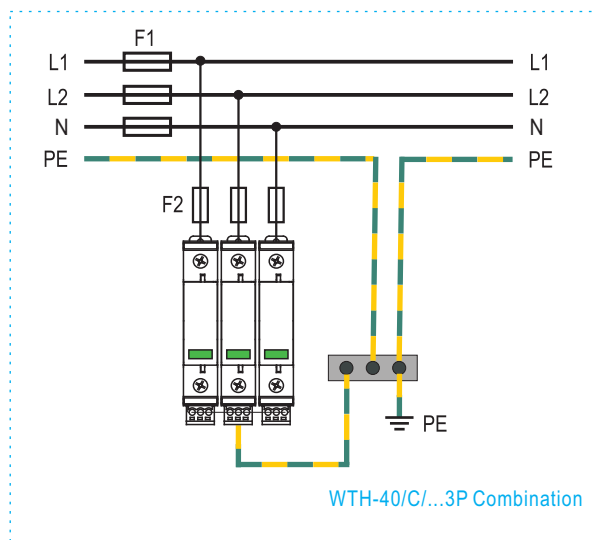
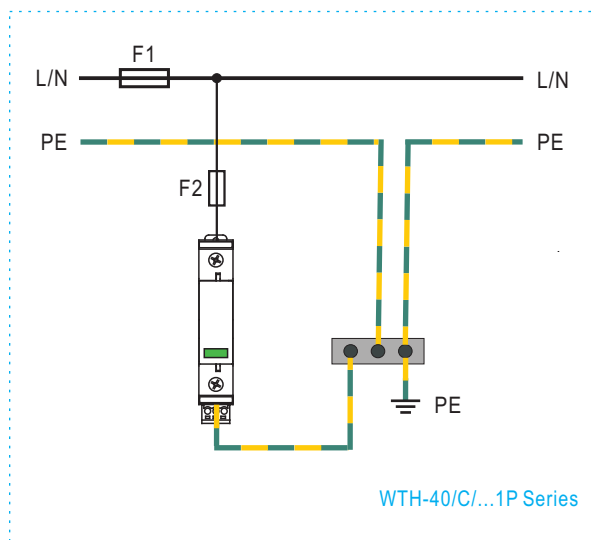


Lightning and Surge Protection for 3 Wire + Ground System

4



I



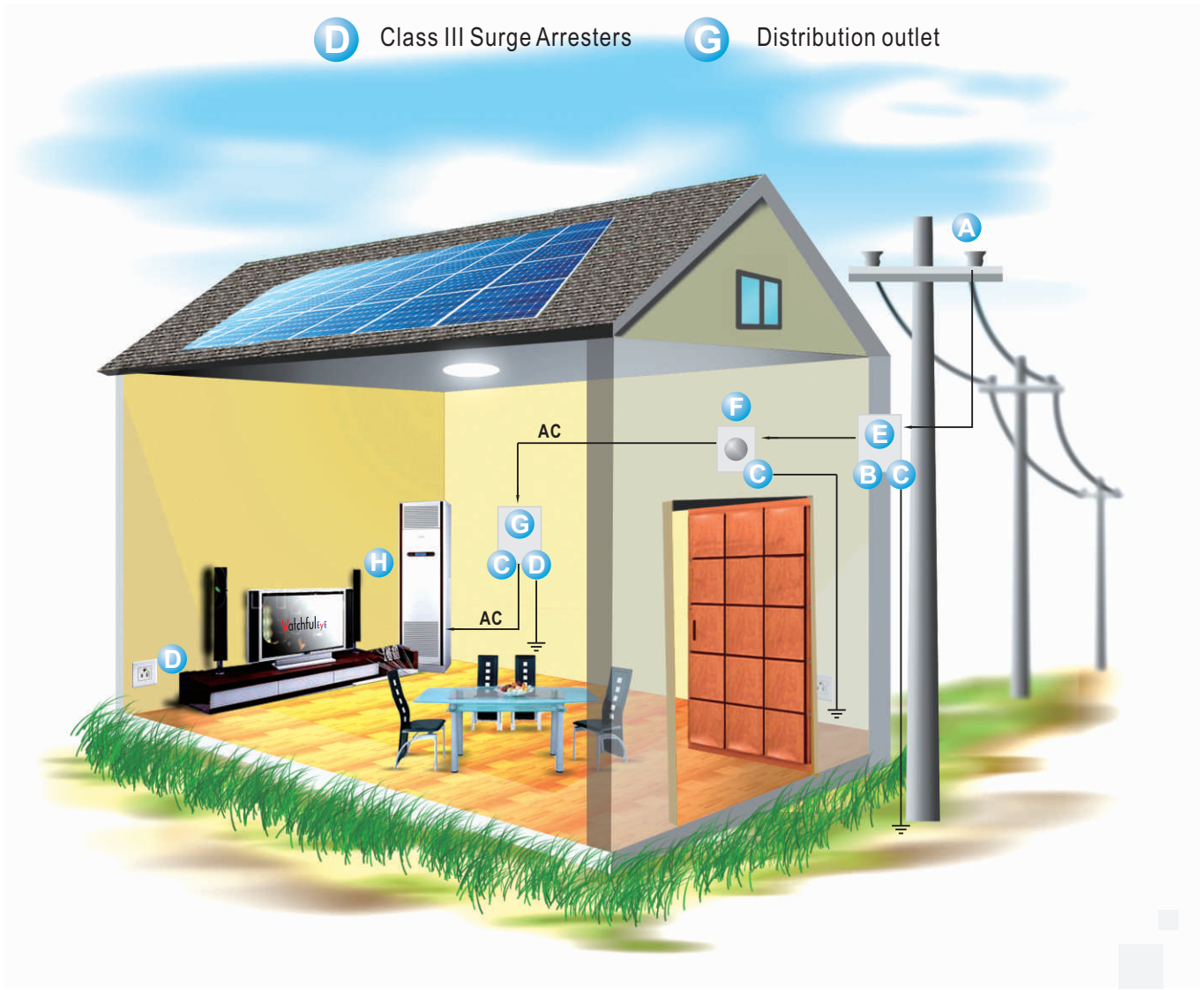
Watchful Eye offers complete and reliable technical solutions for AC power supply systems, protecting the electrical facilities throughout buildings against lightning and surge, providing a guarantee for the security of your systems and avoid unnecessary losses.

Ordering Code

Type:	Ordering code	Type:	Ordering code	Type:	Ordering code
WTH-40/C/1P-75	US 120 081	WTH-40/C/1P+NPE-75	US 120 021	WTH-40/C/2P-75	US 120 001
WTH-40/C/1P-115	US 120 082	WTH-40/C/1P+NPE-115	US 120 022	WTH-40/C/2P-115	US 120 002
WTH-40/C/1P-150	US 120 083	WTH-40/C/1P+NPE-150	US 120 023	WTH-40/C/2P-150	US 120 003
WTH-40/C/1P-275	US 120 084	WTH-40/C/1P+NPE-275	US 120 024	WTH-40/C/2P-275	US 120 004
WTH-40/C/1P-320	US 120 085	WTH-40/C/1P+NPE-320	US 120 025	WTH-40/C/2P-320	US 120 005
WTH-40/C/1P-385	US 120 086	WTH-40/C/1P+NPE-385	US 120 026	WTH-40/C/2P-385	US 120 006
WTH-40/C/1P-420	US 120 087	WTH-40/C/1P+NPE-420	US 120 027	WTH-40/C/2P-420	US 120 007
WTH-40/C/1P-550	US 120 088	WTH-40/C/1P+NPE-550	US 120 028	WTH-40/C/2P-550	US 120 008
WTH-40/C/1P-690	US 120 089	WTH-40/C/1P+NPE-690	US 120 029	WTH-40/C/2P-690	US 120 009
WTH-40/C/3P-75	US 120 341	WTH-40/C/3P+NPE-75	US 120 061	WTH-40/C/4P-75	US 120 041
WTH-40/C/3P-115	US 120 342	WTH-40/C/3P+NPE-115	US 120 062	WTH-40/C/4P-115	US 120 042
WTH-40/C/3P-150	US 120 343	WTH-40/C/3P+NPE-150	US 120 063	WTH-40/C/4P-150	US 120 043
WTH-40/C/3P-275	US 120 344	WTH-40/C/3P+NPE-275	US 120 064	WTH-40/C/4P-275	US 120 044
WTH-40/C/3P-320	US 120 345	WTH-40/C/3P+NPE-320	US 120 065	WTH-40/C/4P-320	US 120 045
WTH-40/C/3P-385	US 120 346	WTH-40/C/3P+NPE-385	US 120 066	WTH-40/C/4P-385	US 120 046
WTH-40/C/3P-420	US 120 347	WTH-40/C/3P+NPE-420	US 120 067	WTH-40/C/4P-420	US 120 047
WTH-40/C/3P-550	US 120 348	WTH-40/C/3P+NPE-550	US 120 068	WTH-40/C/4P-550	US 120 048
WTH-40/C/3P-690	US 120 349	WTH-40/C/3P+NPE-690	US 120 069	WTH-40/C/4P-690	US 120 049
WTH-40/C/3P-880	US 129 056				
WTH-40/C/R/1P-75	US 120 091	WTH-40/C/R/1P+NPE-75	US 120 031	WTH-40/C/R/2P-75	US 120 011
WTH-40/C/R/1P-115	US 120 092	WTH-40/C/R/1P+NPE-115	US 120 032	WTH-40/C/R/2P-115	US 120 012
WTH-40/C/R/1P-150	US 120 093	WTH-40/C/R/1P+NPE-150	US 120 033	WTH-40/C/R/2P-150	US 120 013
WTH-40/C/R/1P-275	US 120 094	WTH-40/C/R/1P+NPE-275	US 120 034	WTH-40/C/R/2P-275	US 120 014
WTH-40/C/R/1P-320	US 120 095	WTH-40/C/R/1P+NPE-320	US 120 035	WTH-40/C/R/2P-320	US 120 015
WTH-40/C/R/1P-385	US 120 096	WTH-40/C/R/1P+NPE-385	US 120 036	WTH-40/C/R/2P-385	US 120 016
WTH-40/C/R/1P-420	US 120 097	WTH-40/C/R/1P+NPE-420	US 120 037	WTH-40/C/R/2P-420	US 120 017
WTH-40/C/R/1P-550	US 120 098	WTH-40/C/R/1P+NPE-550	US 120 038	WTH-40/C/R/2P-550	US 120 018
WTH-40/C/R/1P-690	US 120 099	WTH-40/C/R/1P+NPE-690	US 120 039	WTH-40/C/R/2P-690	US 120 019
WTH-40/C/R/3P-75	US 120 351	WTH-40/C/R/3P+NPE-75	US 120 071	WTH-40/C/R/4P-75	US 120 051
WTH-40/C/R/3P-115	US 120 352	WTH-40/C/R/3P+NPE-115	US 120 072	WTH-40/C/R/4P-115	US 120 052
WTH-40/C/R/3P-150	US 120 353	WTH-40/C/R/3P+NPE-150	US 120 073	WTH-40/C/R/4P-150	US 120 053
WTH-40/C/R/3P-275	US 120 354	WTH-40/C/R/3P+NPE-275	US 120 074	WTH-40/C/R/4P-275	US 120 054
WTH-40/C/R/3P-320	US 120 355	WTH-40/C/R/3P+NPE-320	US 120 075	WTH-40/C/R/4P-320	US 120 055
WTH-40/C/R/3P-385	US 120 356	WTH-40/C/R/3P+NPE-385	US 120 076	WTH-40/C/R/4P-385	US 120 056
WTH-40/C/R/3P-420	US 120 357	WTH-40/C/R/3P+NPE-420	US 120 077	WTH-40/C/R/4P-420	US 120 057
WTH-40/C/R/3P-550	US 120 358	WTH-40/C/R/3P+NPE-550	US 120 078	WTH-40/C/R/4P-550	US 120 058
WTH-40/C/R/3P-690	US 120 359	WTH-40/C/R/3P+NPE-690	US 120 079	WTH-40/C/R/4P-690	US 120 059
WTH-40/C/R/3P-880	US 129 055				
WTH-2P/40	US 129 007	WTH-3P/40	US 129 008	WTH-4P/40	US 129 009
WTH-65/G/1P-255	US 120 000				

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)

<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
 24E Hudson View Dr
 Beacon, NY 12508 USA

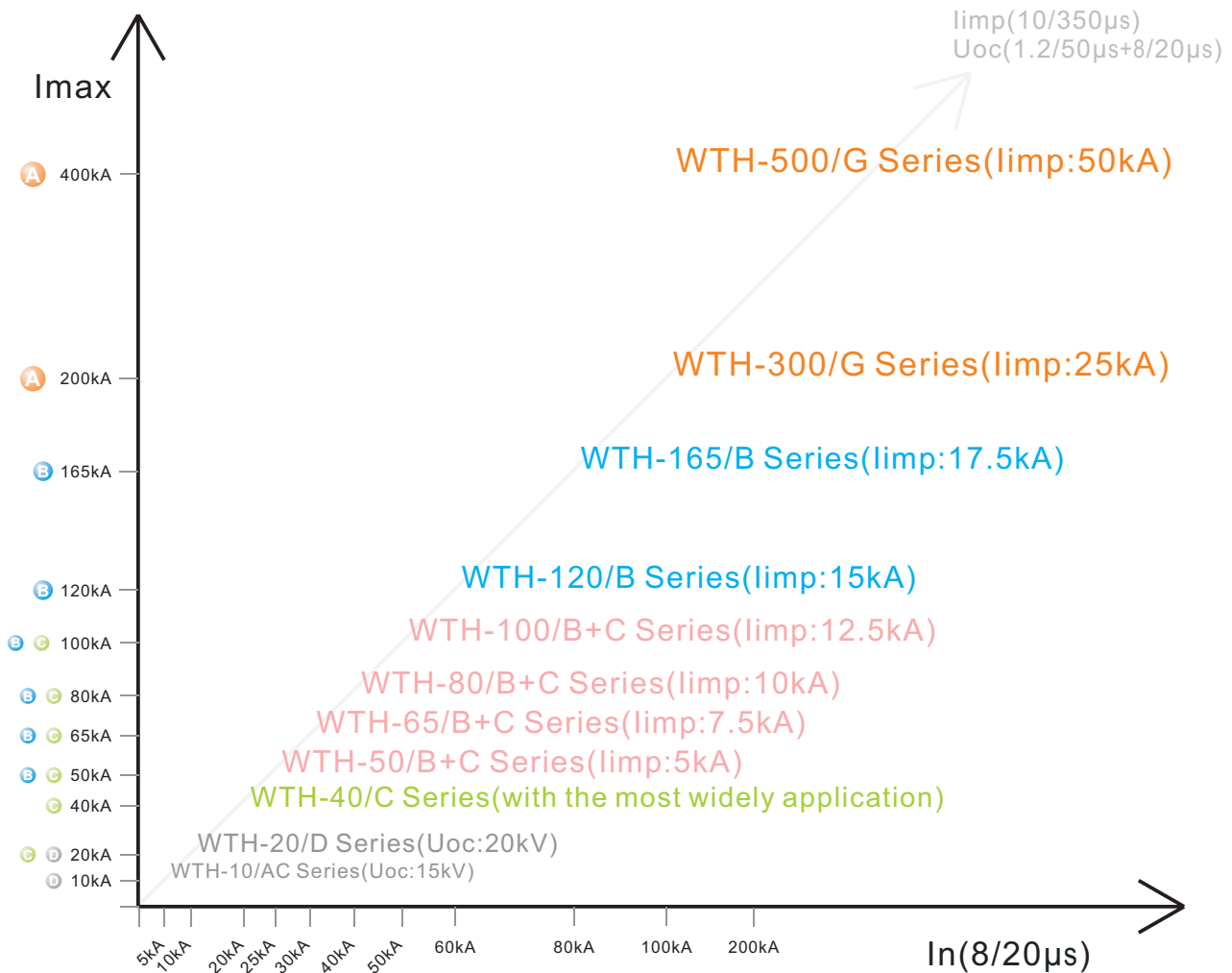
E345944

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 limp
- 5.2 Preferred values of nominal discharge current for class II tests In
- 5.3 Preferred values of open-circuit voltage for class III tests Uoc

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

