



CUSTOM HOME

COMMERCIAL

HEALTHCARE



[www.totalprotectiondesign.com](http://www.totalprotectiondesign.com)

dealer support: 888-281-7856



# Educating The End User - Eliminate Lock Ups, Glitches And Failures

It is in the customer’s best interest to protect their investment in electronic and electrical equipment by understanding equipment reliability and surge protection. This topic is avoided because fully understanding the technologies available and explaining the solutions they provide on a systems level have been difficult until now. TPD provides you with surge protection products for all your data, audio, video, phone, electrical and grounding needs. TPD also offers design diagrams for easy explanation of how to protect everything. Total Protection Design is what end users need to reduce their exposure to electronic damage and lockups due to transient surges.

## What is an electrical transient or surge?

A transient or surge is an impulse of undesirable electrical energy in the electrical or data system. These events degrade and destroy electronic components. Even small transients (less than 50 volts) can lock up electronics, cause reprogramming issues, and cause glitches/malfunctions to the system.

## Where do transients come from?

Approximately 20% of electrical transients at the breaker panel come from outside the house. Around 80% of electrical transients at the breaker panel come from within the home when equipment is cycled on and off (such as air conditioners, dish washers, motors, vacuum cleaners etc.), and almost all are less than 1000 volts.

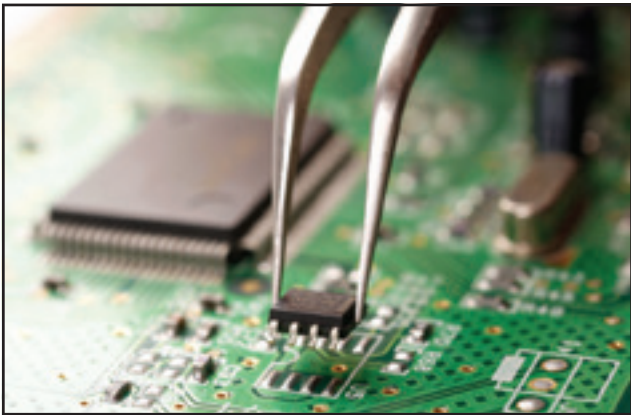
## How do transients get into the system?

A majority of transients are generated by equipment inside the home where it migrates to other equipment through your home’s wiring. These degrading type transients cause lock ups and glitches and permanent damage over time. Lightning can be much more destructive and enters the home by coupling onto miles of power, phone and cable utility lines. Other times lightning will couple onto copper lines (outdoor speakers, security cameras, satellite lines etc.) around the home when strikes occur at or within 1/4 mile of the home.

## How do I safeguard my electrical and data systems?

Protect and extend the life of equipment by protecting against destructive transients in the system with placement of TPD units at the most strategic locations. This means protecting all electrical breaker panels, protecting incoming phone and cable lines, and protecting all other copper wires entering or leaving the home.

The picture to the right is a close up of a computer circuit board. The wire pathways inside the integrated circuits being placed on this board are 10 times smaller than a human hair. A mere 50 volt surge at this level can cause permanent damage and lockups inside this integrated circuit. Over time these wire pathways will blister and fail without adequate surge protection and power filtering. Damage at this level does not show itself immediately but causes glitches and hang ups later on. Information to a computer is like Morris Code in that the computer uses a series of 1’s and 0’s to read information. Surges degrade circuit board wire traces causing certain pathways inside to generate errors where the computer does not understand the code. The computer sees this as a mistake causing it to lock up. In today’s world we have computer chips in nearly everything we use!



# TTLP - Breaker Panel Power Filter & Surge Suppressor

*Install on all breaker panels to protect equipment and filter internal and external surges.*

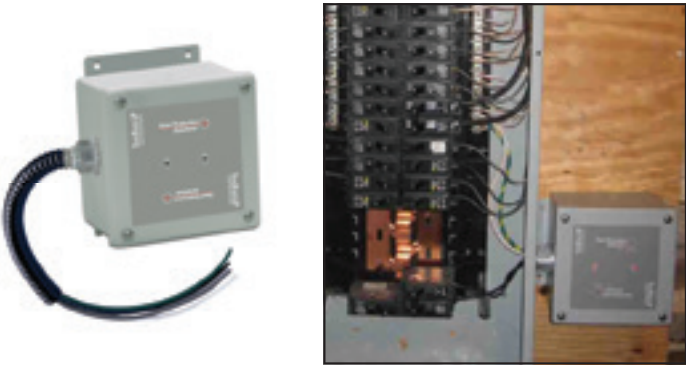
Industrial Grade Power Filter absorbs, dissipates and removes harmful transient voltages and noise traveling on AC power circuits at the breaker panel reducing lockups, glitches, reprogramming issues & damage.

Model #	Description
TK-TTLP-1S240-FL	120/240 Split Phase, 3W+G
TK-TTLP-3Y208-FL	120/208 Three Phase, 4W+G
TK-TTLP-3Y480-FL	277/480 Three Phase, 4W+G

**Option:** Add "-M" suffix for dry relay contacts & audible alarm with mute button

Model #	Description
TK-TTLP-1S240-FL-M	120/240 Split Phase, 3W+G
TK-TTLP-3Y208-FL-M	120/208 Three Phase, 4W+G
TK-TTLP-3Y480-FL-M	277/480 Three Phase, 4W+G

See datasheets for additional voltages.



# DM - Individual Circuit Power Filter & Surge Suppressor

*Protect Dimming Modules - Landscape Lighting - Pumps - Fountains - Outdoor Circuits*

Model #	Description
TPD-DM24-15A	24 volt AC and DC, 15 amp
TPD-DM24-20A	24 volt AC and DC, 20 amp
TPD-DM120-15A	120 volt AC and DC, 15 amp
TPD-DM120-20A	120 volt AC and DC, 20 amp
TPD-DM120-30A	120 volt AC and DC, 30 amp

TPD-DM250-15A	250 volt AC and DC, 15 amp
TPD-DM250-20A	250 volt AC and DC, 20 amp
TPD-DM250-30A	250 volt AC and DC, 30 amp

Above units are 2 wire plus ground.  
See datasheets for additional voltages.



# PHONE - Phone Line Surge Suppressor

*Protect Phone Systems - Incoming Data Lines*

Model #	Description
TPD-PHONE-1	1 pair
TPD-PHONE-2	2 pair
TPD-PHONE-RJ	4 pair RJ45
TPD-PHONE-5	5 pair

Data rate up to 16Mbps max.  
Use TPD-SAT2 for satellite radio.



Cable & Satellite Surge Protection

Protect incoming and outgoing cable and satellite lines to all buildings.

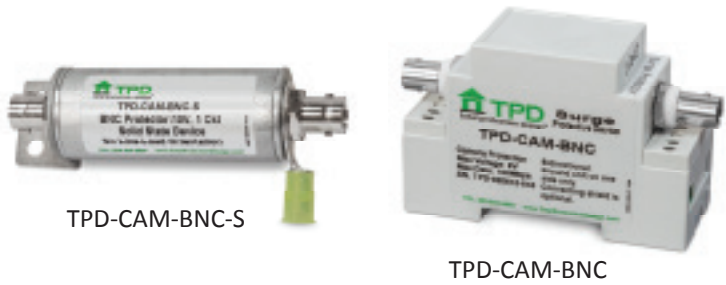
Model #	Description
TPD-CABLE	5MHz to 1.0GHz, (95VRMS, 135V Peak)
TPD-SAT2	5MHz to 3.0GHz, (35VRMS, 50V Peak)
F Connectors; 2 Way Communication Compatible	
Use TPD-SAT2 for satellite radio.	



BNC Camera Surge Protection

Protect DVR & Camera systems

Model #	Description
TPD-CAM-BNC	9V, 500MHz, 100Mbps
TPD-CAM-BNC-S	9V, 500MHz, 100Mbps, Slim Line
BNC Connectors	



DB9 - RS232 Surge Protection w/ DB9 Connection

Protect Pool Controls & Home Automation Systems

Model #	Description
TPD-DB9	All Pins Protected, 26VDC MAX, 10Mbps Max
DB9 Connector	



AmpPro - Speaker & Amplifier Surge Protection

Protect Amplifiers by covering outdoor speaker lines.

Model #	Description
TPD-AmpPro	4 Wire Terminal, 2 Channel, 100V MAX
Terminal Connection	



CAT5E & CAT6 - Ethernet Surge Protection

Protect Ethernet Network, IP Cameras and Distributed Video lines.

Model #	Description
TPD-CAT5E	7.5V Max, 100Mbps Max
TPD-CAT5E-POE	56V Max, 100Mbps Max
Two Female RJ45 Connectors	

Model #	Description
TPD-CAT6	7.5V Max, 1Gbps Max
TPD-CAT6-POE	56V Max, 1Gbps Max
One Male & One Female RJ45 Connectors	



SLP - Home Automation Protection

Protect incoming and outgoing communication and data lines to all buildings.



SLP AVAILABLE CONFIGURATIONS

Available Voltages: 10, 15, 24, 48, 120 & 190V AC and DC

# of Wires: 2, 4, 6, 8, \*8-RJ & 10 (\*RJ45 Connection)

Model #	Description
TPD-10SLP2	10V, 2 Wire
TPD-10SLP4	10V, 4 Wire
TPD-10SLP6	10V, 6 Wire
TPD-10SLP8	10V, 8 Wire
TPD-10SLP8-RJ	10V, 8 Wire RJ45
TPD-10SLP10	10V, 10 Wire

Max Data Rate: 10Mbps

Max Amperage: 400mA

10V Home Automation & Distributed Audio

Model #	Description
TPD-24SLP2	24V, 2 Wire
TPD-24SLP4	24V, 4 Wire
TPD-24SLP6	24V, 6 Wire
TPD-24SLP8	24V, 8 Wire
TPD-24SLP8-RJ	24V, 8 Wire RJ45
TPD-24SLP10	24V, 10 Wire

24V Pool, Pump, Thermostats & HVAC Controls

24V Home Automation & Distributed Audio

Model #	Description
TPD-48SLP2	48V, 2 Wire
TPD-48SLP4	48V, 4 Wire
TPD-48SLP6	48V, 6 Wire
TPD-48SLP8	48V, 8 Wire
TPD-48SLP8-RJ	48V, 8 Wire RJ45
TPD-48SLP10	48V, 10 Wire

TPD - xx SLP yy

xx OPERATING VOLTAGE 10, 15, 24, 48, 120, 190  
THE MAXIMUM OPERATING VOLTAGE IS LISTED ABOVE. USE THE LOWEST VOTAGE POSSIBLE WITHOUT GOING UNDER THE SYSTEM OPERATING VOLTAGE.

TPD - xx SLP yy

yy NUMBER OF WIRES 2, 4, 6, 8, 10  
THE NUMBER OR WIRES THAT NEED PROTECTED. EACH UNIT COMES WITH HARD GROUND CONNECTION TO GROUND EACH UNIT. DO NOT CONNECT FLOATING GROUNDS (OR SHIELD WIRES) WITHOUT FIRST READING INSTALLATION MANUEL.

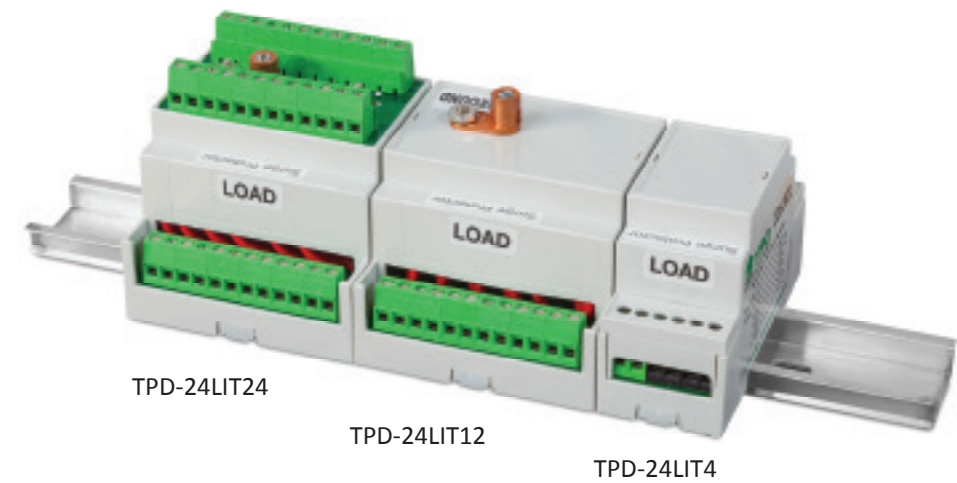
Model #	Description
TPD-190SLP2	190V, 2 Wire
TPD-190SLP4	190V, 4 Wire
TPD-190SLP6	190V, 6 Wire
TPD-190SLP8	190V, 8 Wire
TPD-190SLP8-RJ	190V, 8 Wire RJ45
TPD-190SLP10	190V, 10 Wire

190V Phone Line Extensions



LIT - Lighting System Surge Protection

Protect programmable links and dimming buses lines going to and from processor.



Max Data Rate: 500kbps  
Max Amperage: 5A  
# of Wires: 4, 12, & 24  
Voltages: 24 & 36V AC & DC

Model #	Description
TPD-24LIT24	24V, 24 wire
TPD-24LIT12	24V, 12 wire
TPD-24LIT4	24V, 4 wire

Model #	Description
TPD-36LIT24	36V, 24 wire
TPD-36LIT12	36V, 12 wire
TPD-36LIT4	36V, 4 wire

Programmable links & Dimming Buses

TPD-24LIT24... 24 volt, 24 wire  
TPD-24LIT12... 24 volt, 12 wire  
TPD-24LIT4... 24 volt, 4 wire

Drive Way Probes

TPD-24LIT4 ... 24 volt, 4 wire

Additional Units - Gate Surge Protection

Protect gate panels and remote panels from lightning.

Model #	Description
TK-RK080S-1S240-L	120/240 Split Phase, 3W+G 10 Year

Tech Notes  
10 Year Warranty Including Lighting



Grounding Block & Din Rail

Model #	Description
TPD-GRD-7	Copper Ground Bar
TPD-DIN-12	Aluminum Din Rail 11 to 12 inch



TPD-DIN-12



TPD-GRD-7

VDIAL - Over/Under Voltage Protection Shut Off With Time Delay

Protect and reset any electronic load from an over or under voltage event!

Model #	Description
TPD-VDIAL	One Plug, Wall Mount Voltage Dial

Smart Outlet Eliminate Lockups

Automatic Shutoff With Reset:  
3 to 5 Minutes After Power Returns

Upper Voltage Limit: 140V  
Low Voltage Limit: 105V to 90V  
Max Load: 20 Amp

COMMENTS

"We were continually losing equipment due to over and under voltage events before we started using the TPD-VDIAL. We are now installing the TPD-VDIAL on all electronic equipment in all homes we work on in this development."



Low Voltage Dial Setting  
105V to 90V

On/Off Switch

GLSF - Ground Loop Surge Filter

Protect electronics from ground loop potentials that damage and destroy equipment.

Model #	Description
TPD-GLSF-HW	Ground Loop Surge Filter, Hard Wired
TPD-GLSF-P	Ground Loop Surge Filter, Plug In

Tech Notes  
Stops damaging transients from traveling up ground wires and damaging electronics systems.

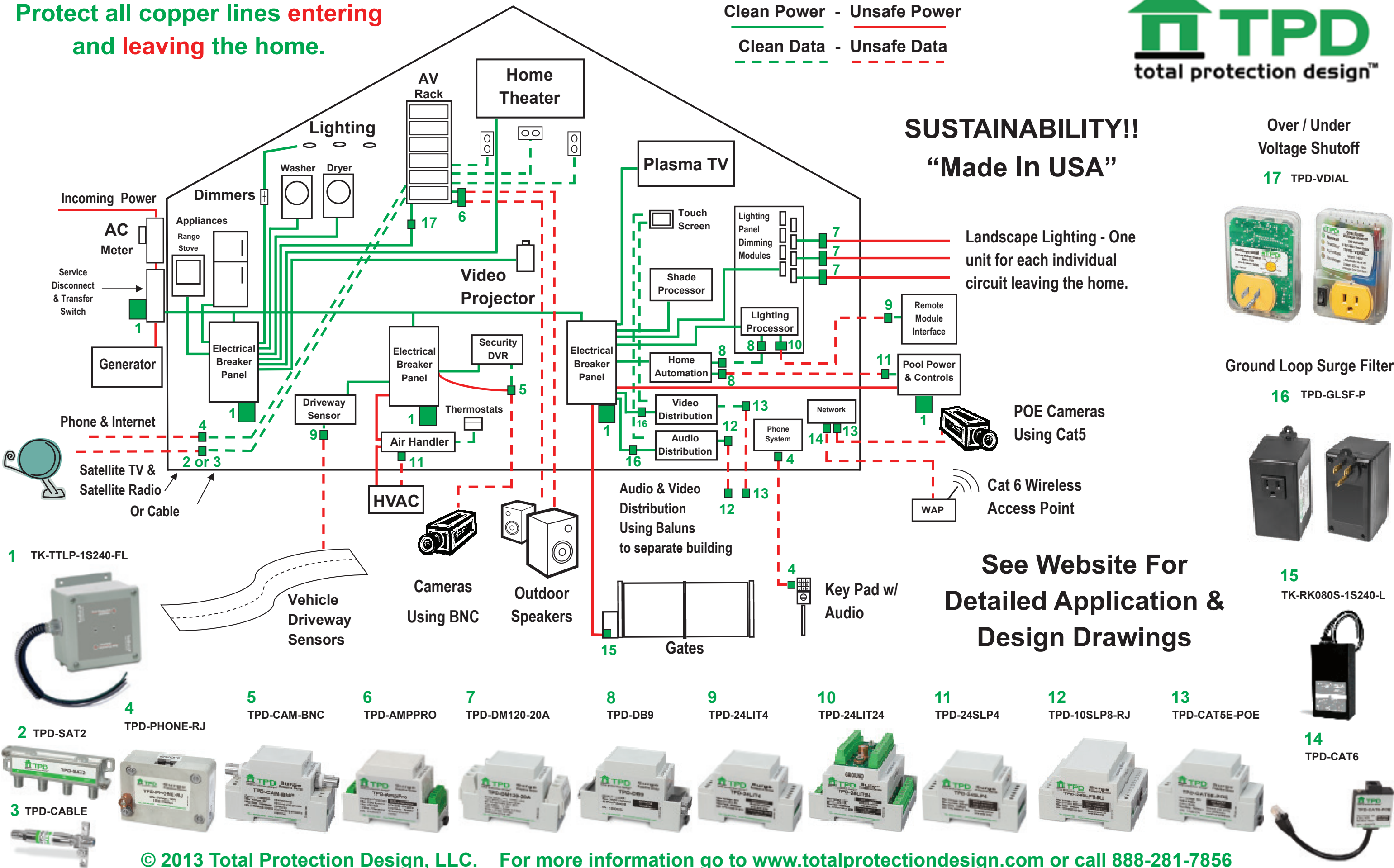
"We figured out that the pool house had its own utility ground. After a few failures it was obvious that we were experiencing the damage because of the ground system. After installing the TPD Ground Loop Surge Filter all issues in the pool house rack went away."

"The DVR was communicating with the gate which is over 500 feet from the house. The gate is powered from the guest house power system. We installed the TPD-CAM-BNC in conjunction with the TPD-GLSF at the DVR. We have not had any problems since install."



Protect all copper lines **entering**  
and **leaving** the home.

Clean Power - Unsafe Power  
Clean Data - Unsafe Data



Over / Under  
Voltage Shutoff

17 TPD-VDIAL



Ground Loop Surge Filter

16 TPD-GLSF-P



15  
TK-RK080S-1S240-L



14  
TPD-CAT6



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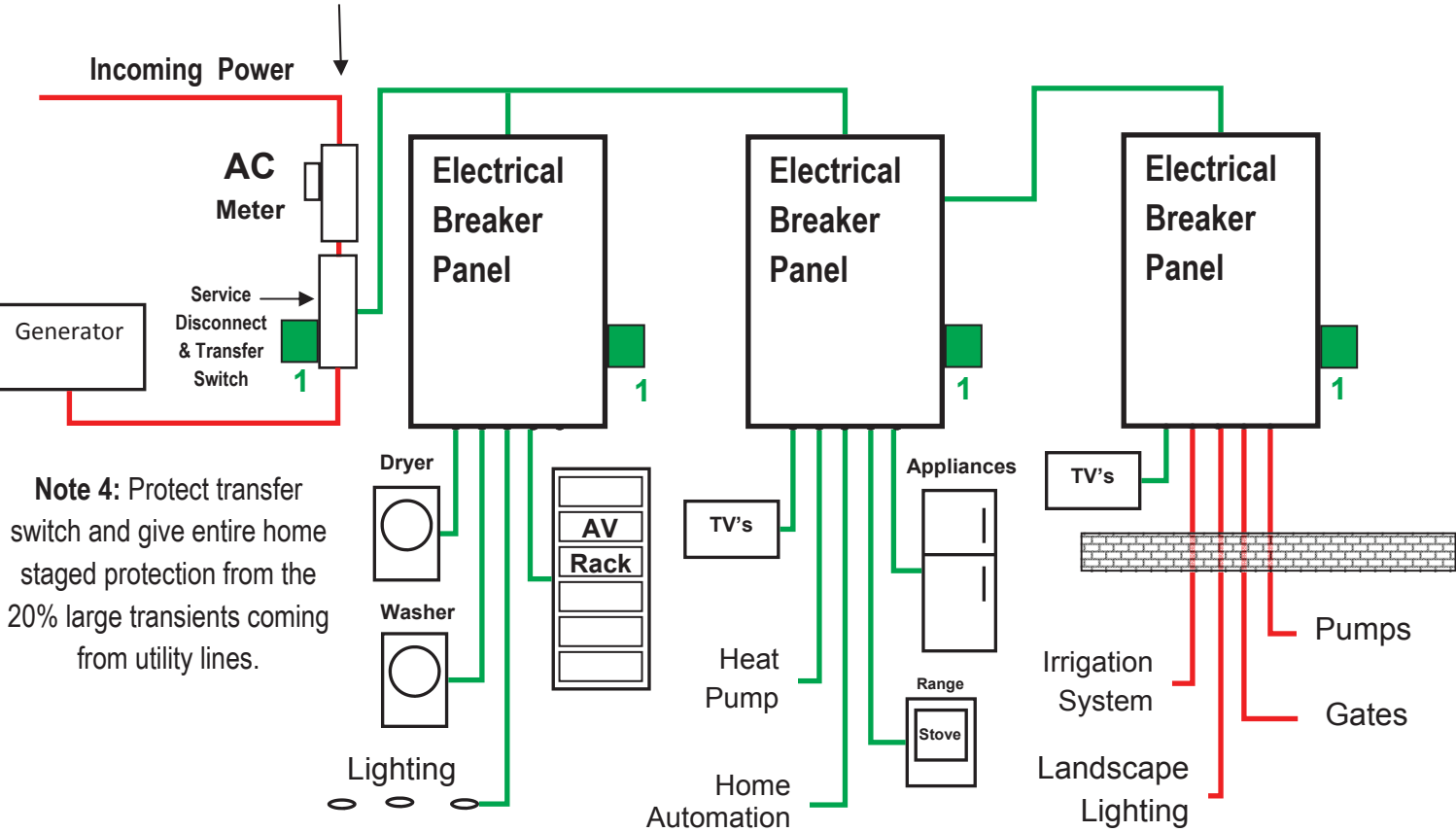
Protect All Breaker Panels

Clean Power - Unsafe Power

Over 80% of damaging surges at the breaker panel are generated by the loads fed by the breaker panel!

Note 1: Only 20% of damaging surges at breaker panels come through the AC meter box!

Note 2: Place a TTLP on every panel to protect & filter all connected loads from the 20% externally entering surges in addition to the 80% internally generated surges created when loads fed by the panel turn on and off!



Note 4: Protect transfer switch and give entire home staged protection from the 20% large transients coming from utility lines.

1 TK-TTLP-1S240-FL



Note 3: Some breaker panels have high exposure due to copper wires feeding outside equipment!

Protect Lighting Systems

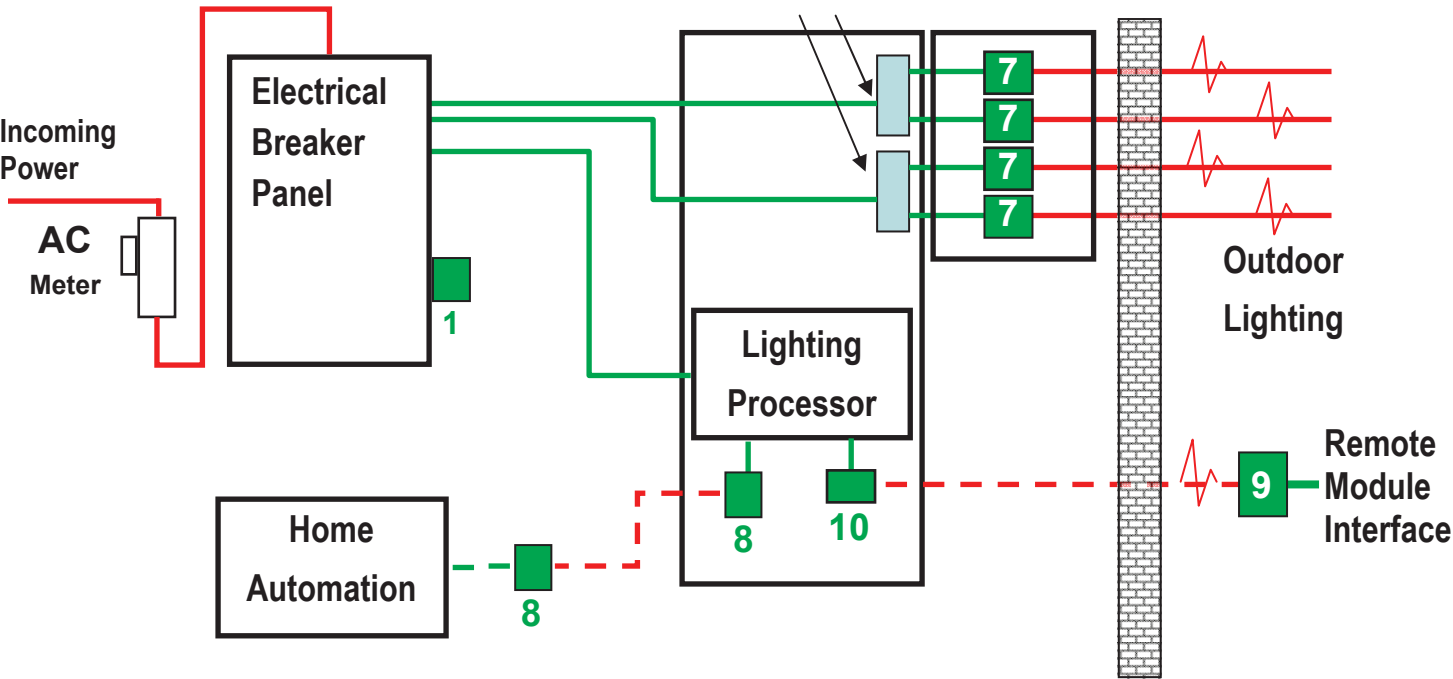
Clean Power - Unsafe Power      Clean Data - Unsafe Data

Protect incoming power and all exposed pathways leaving lighting system.



Protect Dimming Modules Feeding Landscape Lighting

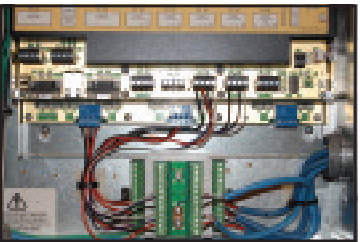
TPD-DM120-20A for each line leaving the home.



Protect Links and Dimming Bus

TPD-24LIT24 for 24 wire protection.  
TPD-24LIT4 for 4 wire protection.  
TPD-DB9 for DB9 connections.

1 TK-TTLP-1S240-FL



10 TPD-24LIT24    9 TPD-24LIT4    8 TPD-DB9    7 TPD-DM120-20A



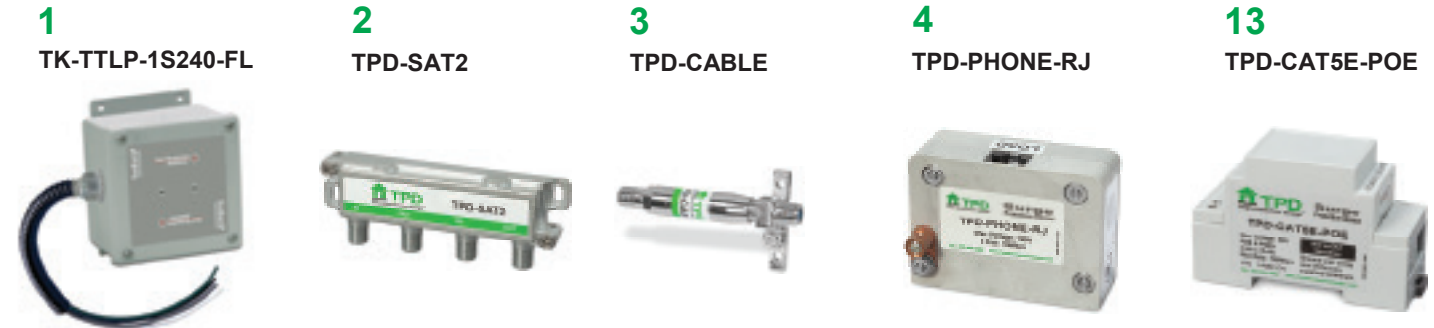
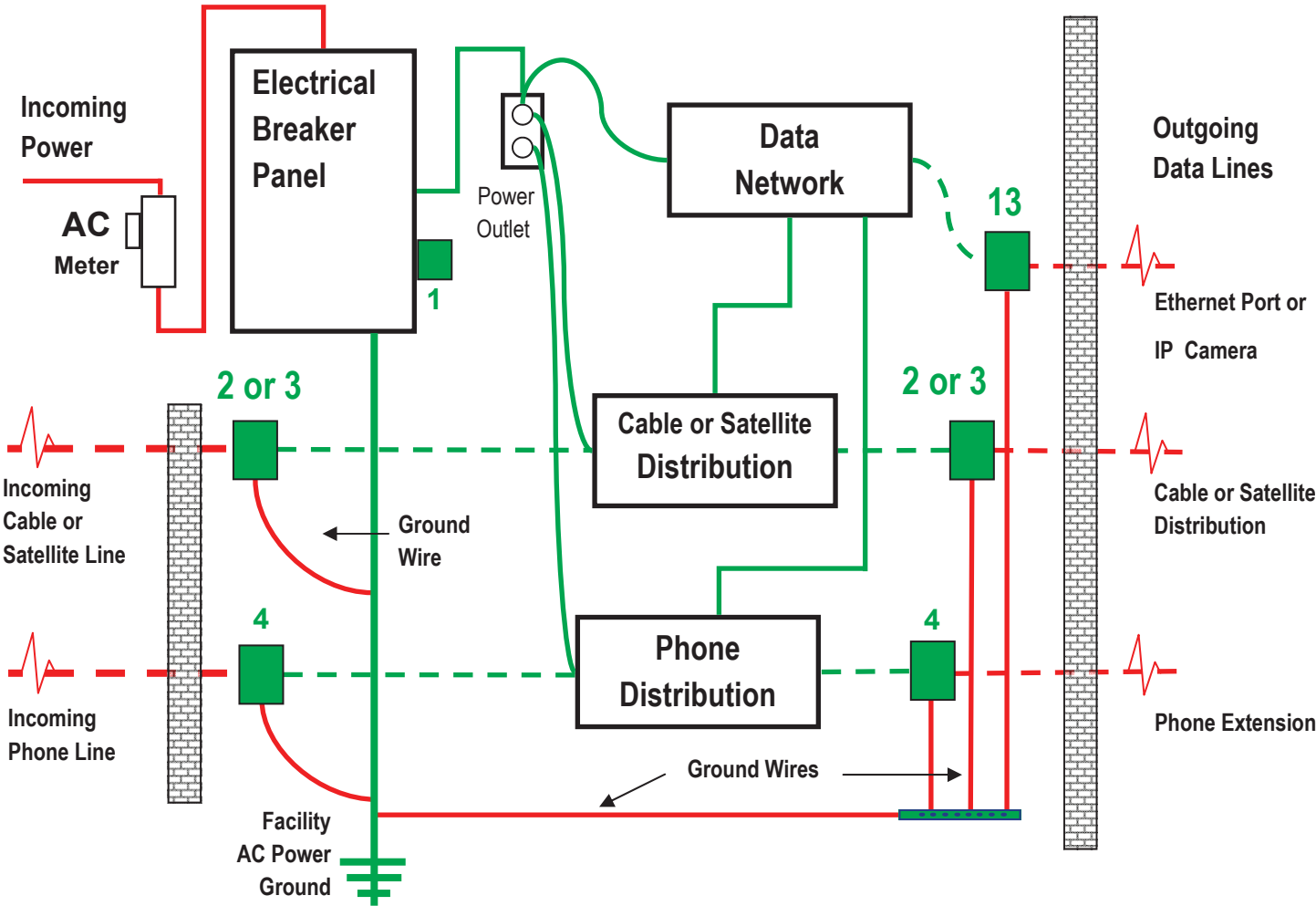
Protect Phone - Cable - Satellite - Ethernet

Clean Power - Unsafe Power      Clean Data - Unsafe Data

Protect all incoming and outgoing phone, cable, satellite and data lines.

Grounding

By properly installing and grounding TPD surge suppressors you can protect against equipment and property damage as well as the potential for electric shock. Proper grounding of TPD surge suppressors also helps in reducing the build-up of static charges on equipment and establishing a zero voltage reference point to ensure optimum performance of sensitive communications equipment.



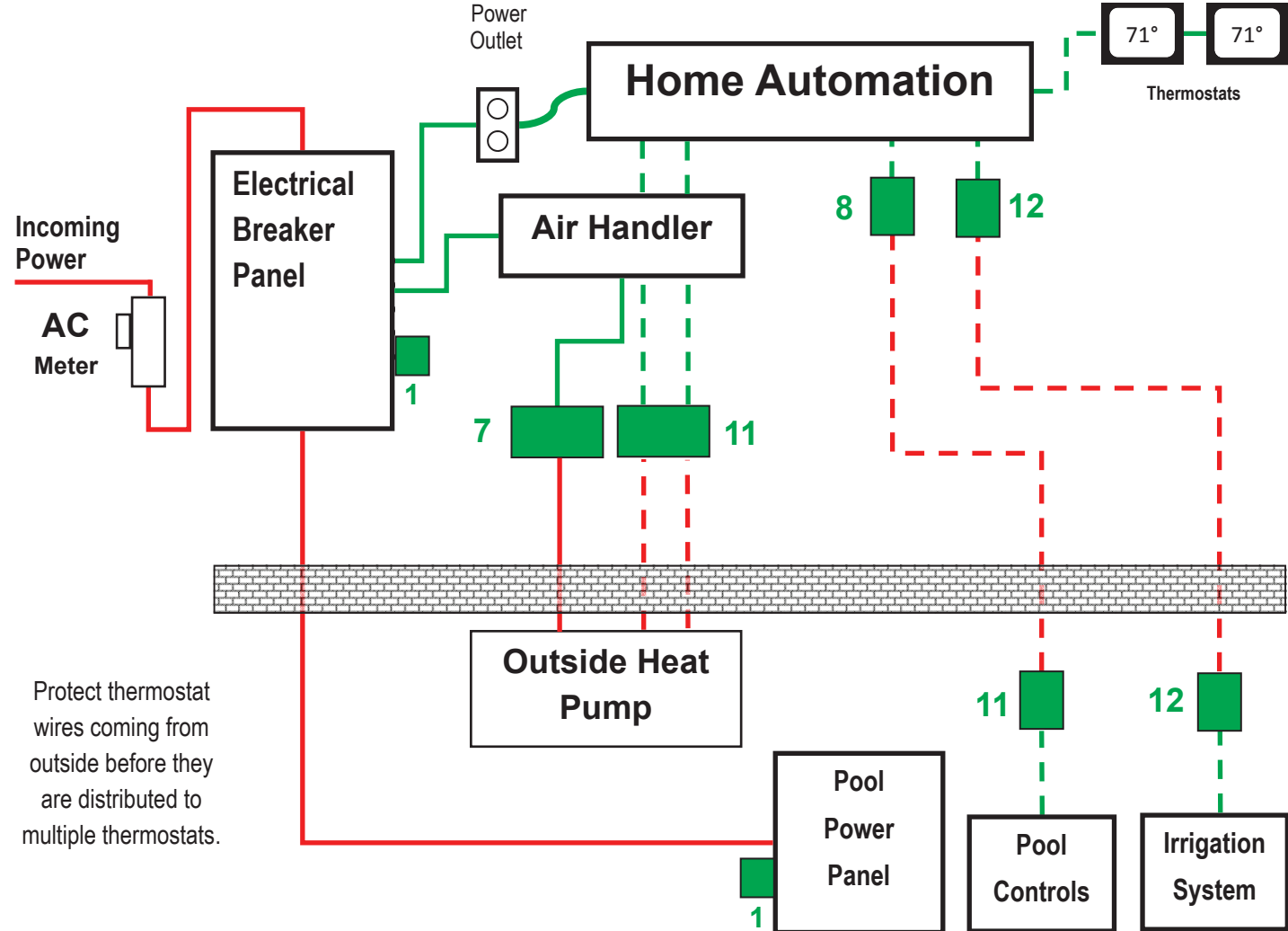
Protect Thermostats - Pool Controls - Irrigation

Clean Power - Unsafe Power      Clean Data - Unsafe Data

Protect incoming power and all exposed pathways leaving home automation system.

Reduce Liability

Protect home automation systems and reduce liability. Educate customers about protection practices that are recommended by Institute of Electrical and Electronic Engineers, Inc. (IEEE).

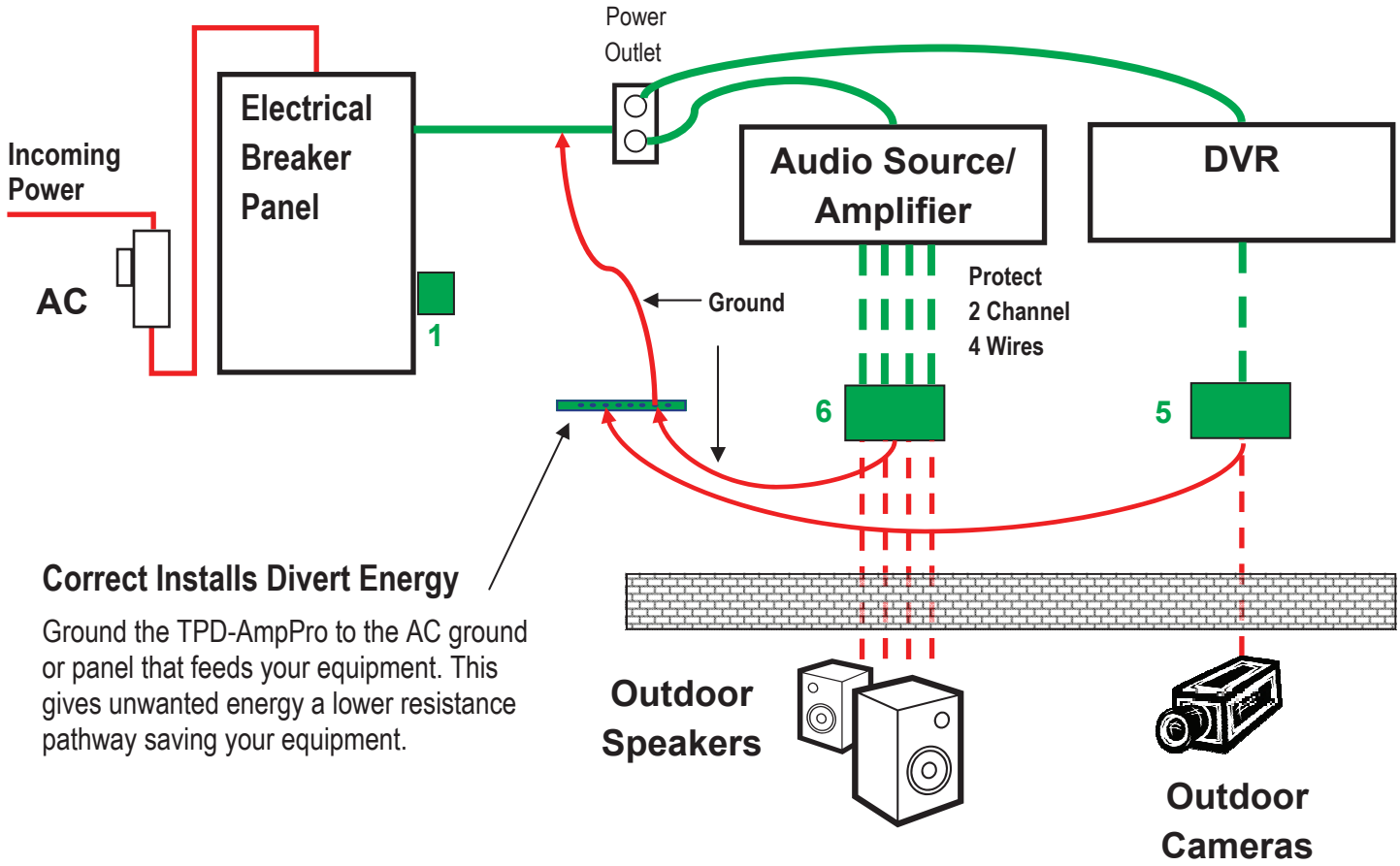


# Protect Amplifiers & Surveillance Systems

Clean Power - Unsafe Power      Clean Data - Unsafe Data

*Protect equipment by diverting unwanted energy towards the breaker panel TTLP surge suppressor & power filter.*

**AC breaker panel filtration is recommended when using data surge protection.** Data protection diverts excess energy from data lines into the power grounding system. By strategically protecting breaker panels with the TTLP, surge events will be equalized and safely contained at the breaker panel.



**Correct Installs Divert Energy**  
Ground the TPD-AmpPro to the AC ground or panel that feeds your equipment. This gives unwanted energy a lower resistance pathway saving your equipment.

1 TK-TTLP-1S240-FL



5 TPD-CAM-BNC



6 TPD-AMPPRO



Din Rail or Screw Down Mountable

Tabs slide out for screw down mounting.

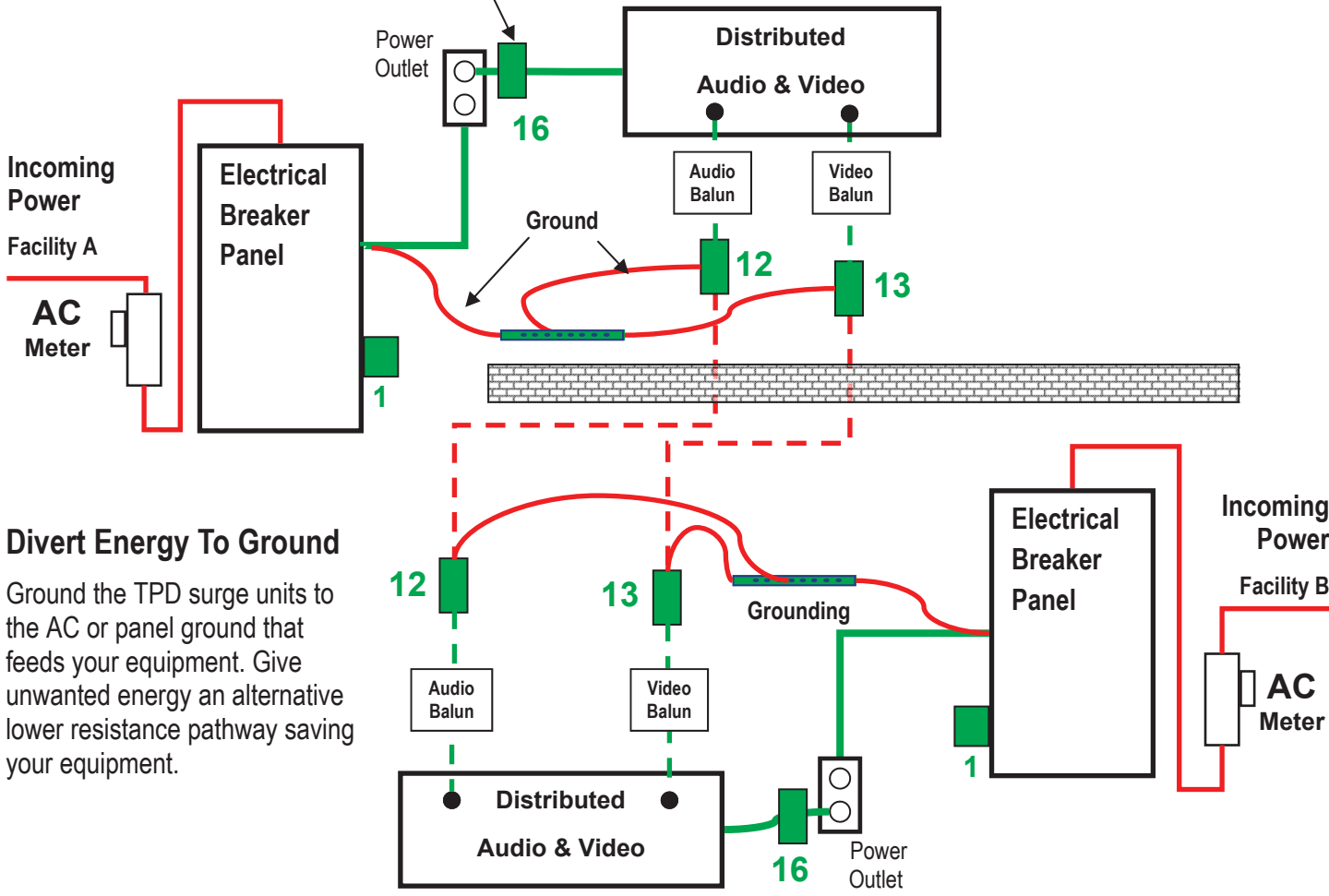


# Protect Distributed Audio & Video Systems

Clean Power - Unsafe Power      Clean Data - Unsafe Data

*Eliminate damaging ground loop energy by installing the high frequency blocking GLSF (Ground Loop Surge Filter).*

Ground Loop Surge Filter Model # TPD-GLSF is recommended when protecting sensitive electronics communicating between two buildings.



**Divert Energy To Ground**  
Ground the TPD surge units to the AC or panel ground that feeds your equipment. Give unwanted energy an alternative lower resistance pathway saving your equipment.

1 TK-TTLP-1S240-FL



12 TPD-10SLP8-RJ



13 TPD-CAT5E-POE



16 TPD-GLSF-P





# We Protect Your Investment in Technology

- Reduce the risk and liability of electrical maintenance and repair costs
- Reduce equipment downtime
- Extend equipment life
- Guard against power surges and lightning damage



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*Numbers in green correspond to the page 8 and 9 selector guide.*

**1 Breaker Panels, Transfer Switch & Pool Power**  
TK-TTLP-1S240-FL

**2 Satellite**  
TPD-SAT2

**3 Cable**  
TPD-CABLE

**4 Phone & Gate Communication**  
TPD-PHONE-RJ

**5 DVR & Outdoor Cameras - BNC**  
TPD-CAM-BNC

**6 Amplifiers & Outdoor Speakers**  
TPD-AmpPro

**7 Landscape Lighting – Dimming Modules**  
TPD-DM120-20A

**8 Pool & Lighting System – DB9 Connections**  
TPD-DB9

**9 Remote Module Interface & Drive Way Sensors**  
TPD-24LIT4

**10 Lighting Processor Programmable Links**  
TPD-24LIT24

**11 Pool Controls Outside Hardwired & HVAC**  
TPD-24SLP4

**12 Home Automation & Distributed Audio**  
TPD-10SLP8-RJ

**13 Outdoor IP Camera & Distributed Video**  
TPD-CAT5E-POE  
TPD-CAT5E

**14 Wireless Access Point**  
TPD-CAT6

**15 Gates**  
TK-RK080S-1S240-L

**16 Ground Loop Surge Filter**  
TPD-GLSF-P

**17 Over/Under Voltage Protection**  
TPD-VDIAL