

# Application GUIDES

**Surge Protection for EVERY Application**





DITEK is the gold standard in quality surge protection and UPS solutions for the commercial and industrial market. We provide total surge solutions for Video Surveillance and Networking, Fire, Intrusion, Access Control, AC Power and Data/Signaling applications. A pioneer in the industry, for over 30 years we've designed and manufactured reliable, durable products in the USA, all backed by a comprehensive warranty. By utilizing lean manufacturing methodologies, we have the ability to maintain a higher level of detail-oriented focus, helping to streamline manufacturing processes and reduce cost. We continually strive to meet customer requirements while maintaining the effectiveness of our quality management system. Our primary objective is that our customers never experience the escalation of problems that come with an equipment malfunction due to a surge, spike or loss of power.

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## Things You Should Know

### What are power surges and spikes?

Surges and spikes are temporary and instantaneous events that increase "normal" electrical line voltage, and can cause serious damage to sensitive equipment.

Conventional fuses and breakers do not guard against surges.

### What causes surges and spikes?

**Lightning** - a direct hit is usually catastrophic.

**Proximity Strikes** - lightning strikes several miles away causing large voltage spikes along transmission lines.

**Brownouts / Blackouts** - under-voltage or sag that's immediately followed by an unusually high voltage transient. If your lights flicker or dim, it's usually an indication that a brownout occurred.

**Utility Grid Switching** - utility companies switching transmission lines from one supply system to another.

**Inductive Loads** - the switching on and off of electric motors inside or outside a facility (for example air conditioners or heavy machinery).

### The effects of surges and spikes are the three D's:

**Degradation** - gradual deterioration of internal circuitry from repeated power surges.

**Destruction** - resulting in expensive equipment replacement costs.

**Downtime** - the most costly effect - can result in lost productivity or lost customers.

### The payback for investing in quality surge protection is:

- Reduced downtime
- Extended equipment life
- Increased Customer Satisfaction

### What equipment should be protected against power surges?

Surges can be present on any metallic conductor, including utility power lines, telephone lines, computer data lines, and CCTV/CATV cable feeds. Therefore surge protection should be installed on all circuits within a system.

## Visit our Web Portal

Choose your product category and our interactive Product Selector will assist you in selecting the right surge protection devices for your specific application [www.diteksurgeprotection.com](http://www.diteksurgeprotection.com)

Technical Support Staff: 888-472-6100





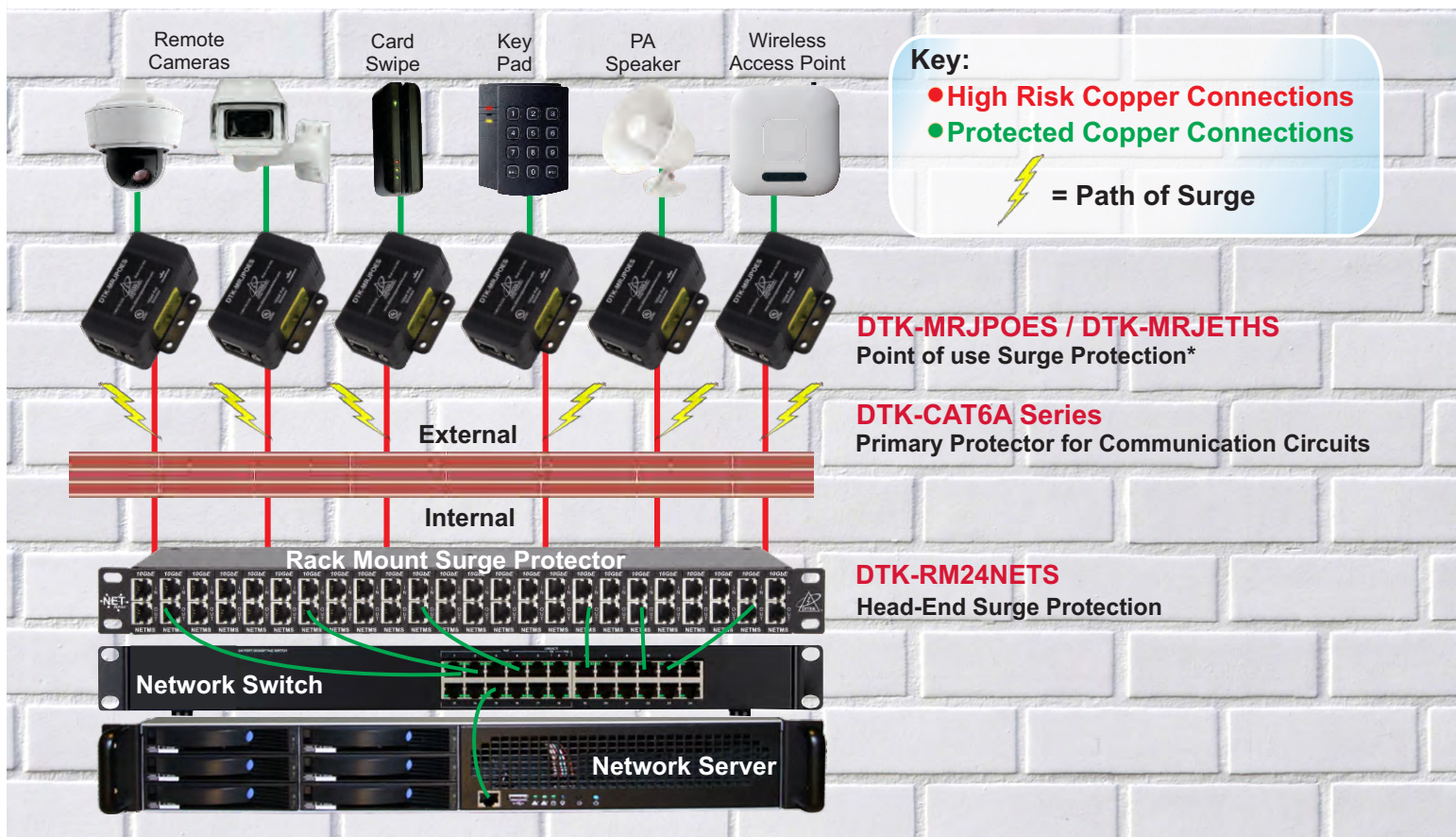
# Network Surge Protection Basics



It is important to consider surge protection as a preventative measure, a fundamental component of any system where an electrical current can be passed. The risk incurred when a surge protector is NOT installed on a system can be substantial. Downtime on a security system for example, could result in missing video surveillance data with a corresponding increased risk for loss, damage, and liability. In a datacenter, downtime could risk the loss of critical customer or operational information. When a fire alarm panel goes down you could be required to vacate the building indefinitely, and implement costly fire watch personnel until the equipment is restored.

Installing surge protection to keep systems up and running is simple and extremely cost-effective – especially when you consider the impact of downtime. It is also recommended to install an Uninterruptible Power Supply (UPS). A UPS provides consistent backup power during inconsistent power quality issues. Not only will it protect your hardware investment, it prevents data loss.

The safety of your customers' devices and systems is in your hands, and they trust you to provide them with what they need. Maintain that confidence over time by making sure they don't suffer a damaging power event that disables or even destroys critical systems – especially if you installed those systems. Surge protection is a small investment that will yield big returns.



## DTK-UPS Series\*

### On-Line Uninterruptible Power Supply

DITEK's uninterruptible power supply combines robust surge protection with on-line double conversion technology, enabling your equipment to survive even the harshest power quality issues.

\*See page 6 for complete list of UPS products



## DTK-RM24NETS

### Rack Mount Network Surge Protector

The new DTK-RM24NETS uses SAD and GDT technologies to provide the industry's strongest surge protection for Ethernet, PoE and PoE extender\* circuits. Data speeds up to 10GbE, Rapid-Replacement Modules..

\*See page 2 for complete list of Networking products





# Network Surge Protection

## Rack and Wall Mount Network Surge Protection

DITEK's "NETS" Series sets a new standard in surge protection for Ethernet, PoE and PoE Extender circuits. Each model supports data speeds up to 10GbE without signal degradation; and carries a robust 20kA per pair surge current rating, the highest in the industry.

- Ideal for installations where multiple cabling feeds require protection before entering network switches
- Rapid-Replacement Modules can be swapped from the front of the device without removing it from the rack



**DTK-RM12NETS / RM16NETS / RM24NETS**



**DTK-WM4NETS**



**DTK-WM8NETS**

## DTK-NETMS: Ethernet & PoE Replacement Module

## DTK-EXTMS: Optional PoE Extender Replacement Module

- DITEK's Rapid-Replacement Modules can be interchanged to protect Ethernet, PoE and PoE Extender circuits within the same rack mount or wall mount housing (above)
- Modules can be swapped from the front of the device without having to remove it from the rack



## DTK-CAT6A Series

## 10 Gigabit Ethernet Surge Protection

- Primary protector for communications circuits
- Compatible with CAT5e, CAT6 & CAT6A cable
- Conforms to TIA data transmission standards
- Protects all four pairs



## DTK-RM16POC

## Surge Protection for Ethernet and PoE Extenders over Coax

- Protects power, video and data on IP Cameras
- Individual and rack mount models available



## DTK-RMAC12

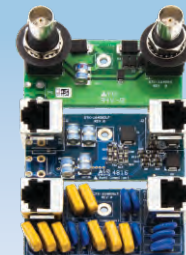
## Rack Mount AC power Surge Protection

- Protects IP Video over Coax converters
- EMI/RFI noise filtering
- LED indicator lights



## Versa-Module Series Surge Protection System

DITEK's Versa-Module Series is designed to protect analog, digital, high speed data and communications circuits. Installing any combination of up to 6 or 12 protection modules in one of our face plates allows you to utilize a single point ground, and simplifies cable management where space is limited.



## DTK-VM Series Surge Protection Modules



## DTK-VM12RM: Rack Mount System

(Shown with shielded RJ45 and BNC interface modules)

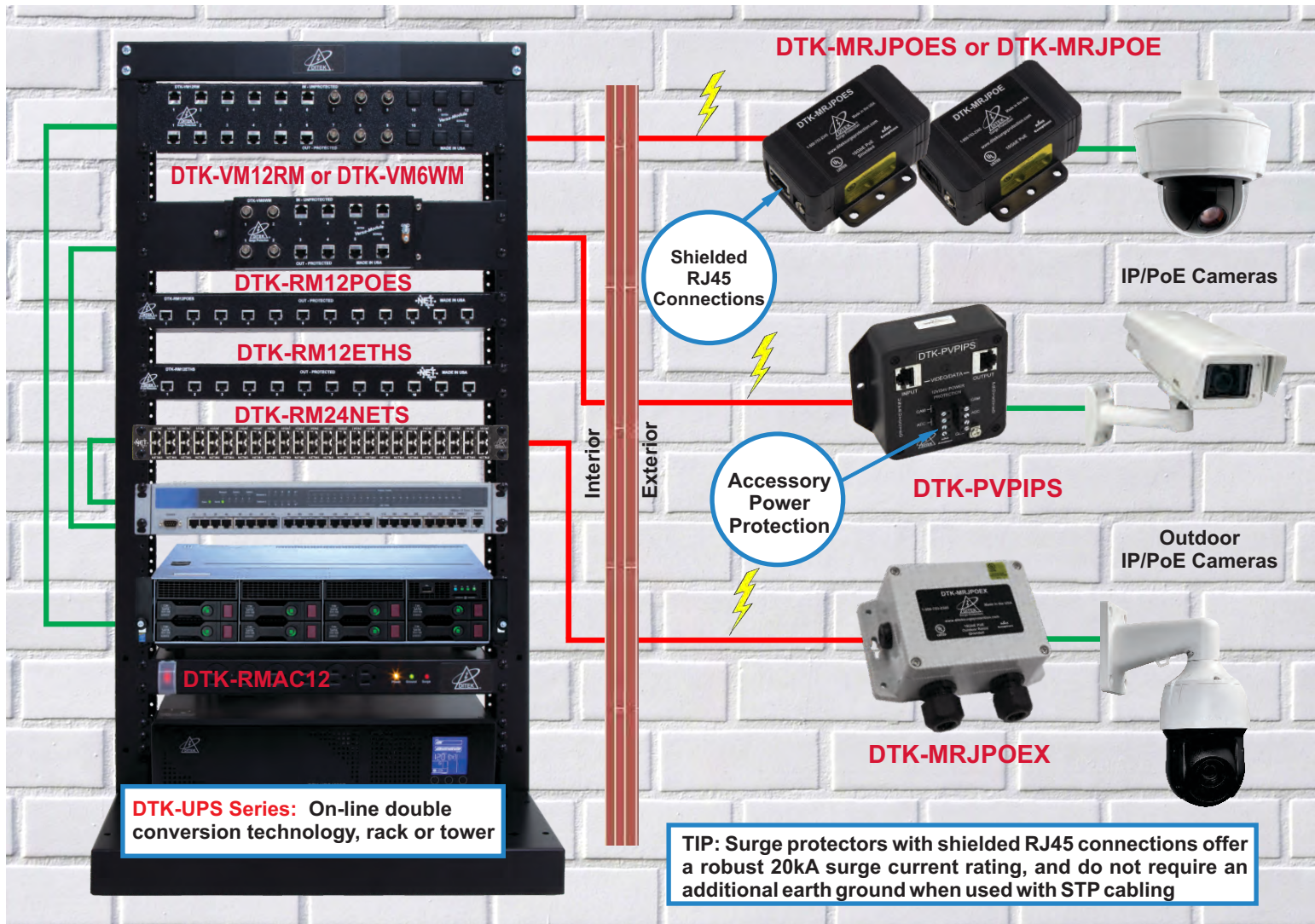


## DTK-VM6WM: Wall Mount System

(Shown with shielded RJ45 and BNC interface modules)



# IP Video Surge Protection



## DTK-MRJPOEX

### 10 GbE PoE Surge Protection for Outdoor Applications

- Uses SAD and GDT technologies
- Ethernet data speeds up to 10GbE
- PoE+, HiPoE ready for high wattage
- NEMA 4X enclosure with liquid-tight cordgrips



## DTK-MRJPOES / DTK-MRJPOE

### PoE Camera Surge Protection

- Uses SAD and GDT technologies
- Ethernet data speeds up to 10 GbE
- PoE+, HiPoE ready for high wattage
- Shielded or unshielded RJ45 connections



## DTK-PVPIPS

### IP/PoE Video Surge Protection

- Protects all four video/power pairs
- Up to 10GbE data speeds - high wattage
- Accessory power protection circuit for heater/blower/defroster
- RJ45 connections with grounding screw



## DTK-MRJEXTS

### Surge Protection for PoE Extenders

- Designed to be installed on the outputs of PoE extender devices
- Uses SAD and GDT technologies
- Ethernet data speed Up to 10GbE







# Fire Alarm Surge Protection



## DTK-2MHLPB / DTK-2MHLFP Series

### Loop Circuit Surge Protectors

- Modular design, 2 pairs per module
- 20kA surge current, 5-130V configurations
- B series shorts to ground
- F series removes load and opens circuit so it can be easily identified



## DTK-DF120S1

### 120V Surge Protector With Rapid-Replacement Modules

- 120V, 20A series configuration
- Audible alarm & health status indicator
- Dry contacts for remote monitoring
- UL1283 EMI/RFI filtering



## DTK-MRJ31XSCPWP / DTK-2MHTPB

### Dialer Surge Protectors

- MRJ31X: single pair, RJ31X connection
- Automatic reset, handles multiple surges
- 2MHTP: 2-Pair, screw terminal connection w/base



## DTK-120HW / DTK-120HWLOK

### AC Power Surge Protector

- 120V, 20A parallel configuration
- Compact NEMA 4X enclosure
- 50,000A max surge current
- Also available in 120/240VAC & 240VAC
- DTK-120HWLOK includes lockout kit





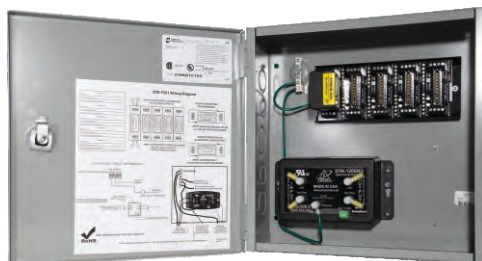
# Total Surge Solutions



## Complete Addressable Fire Panel Protection for AC, Signaling and Notification Circuits

### DTK-TSS1

**120VAC Alarm Panel Protection  
with a 5-Position Hardwired Base**



**Protects AC power, and up to ten  
SLC, IDC, PIV, NAC & dialer circuits  
(2MHLP loop circuit protectors  
sold separately)**

DITEK's Total Surge Solution (TSS) is a family of products that provide total surge protection for addressable and conventional alarm systems. Protect 120V system power and up to ten pairs of SLC, IDC, PIV, NAC and telco circuits. Loop protector test module also available to aid in troubleshooting self-sacrificed surge protection modules.

Complete protection, simple installation, high quality and field replaceable modules make the TSS a perfect fit for all major alarm systems.



### DTK-TSS1

**120V Alarm Panel Surge Protection  
with 5-Position Base - Steel Enclosure**

- Protects 120V system power and up to ten pairs of SLC, IDC or NAC circuits
- Additional space to expand low voltage
- Dry contacts for remote monitoring



### DTK-TSS3

**2-Position Base for SLC Loop  
Surge Protection modules**

- Protects up to four pairs of building-to-building notification runs
- NEMA 4X enclosure for harsh environments



### DTK-TSS2 / DTK-TSS2NM

**120V Alarm Panel Surge Protection**

- **TSS2:** Protects 120V system power and up to four pairs of loop circuits - NEMA 4X enclosure
- **TSS2NM:** Protects 120V system power with space for monitor module - NEMA 4X enclosure



### DTK-TSS4D

**120VAC Power Surge Protection**

- Protects 120V system power
- Dry contacts for remote monitoring
- NEMA 4X enclosure for harsh environments





# Uninterruptible Power Supplies



## On-Line Uninterruptible Power Supplies - Tower/Rack Mount

DITEK's DTK-UPS Series combines robust surge protection with on-line double conversion Uninterruptible Power Supply technology to enable your equipment to survive even the harshest power quality issues. From surges and spikes to brownouts and complete power loss, the DTK-UPS Series will keep your equipment up and running when it matters most. DITEK's industry proven UPS products provide cost-effective and reliable performance for network servers, video surveillance systems, back office computers and similar mission critical equipment.

**DTK-UPS1000RE: 1kVA Uninterruptible Power Supply**

**DTK-UPS1500RE: 1.5kVA Uninterruptible Power Supply**

**DTK-UPS2000RE: 2kVA Uninterruptible Power Supply**

**DTK-UPS3000RE: 3kVA Uninterruptible Power Supply**

- Online double conversion technology provides superior equipment protection
- Intuitive LCD display, and software provided for remote monitoring
- Invisible transitioning between AC and battery, with auto shutdown when battery is depleted
- Rack/tower models available in 1kVA, 1.5kVA, 2kVA and 3kVA (mounting rails included with 2kVA and 3kVA models)
- USB and Ethernet interfaces available on all models - SNMP Card included with all "E" models

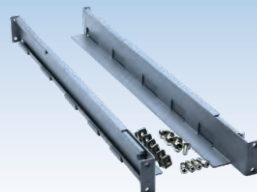
## DTK-UETH1 SNMP Web Card

- Allows you to monitor and manage multiple UPS's in a networked environment
- Included with all "E" models



## DTK-URK1 Rack Mounting Rails

- Secures UPS to 19" rack chassis
- Included with all 2kVA & 3kVA models



**DTK-UPS600: 600VA Uninterruptible Power Supply**

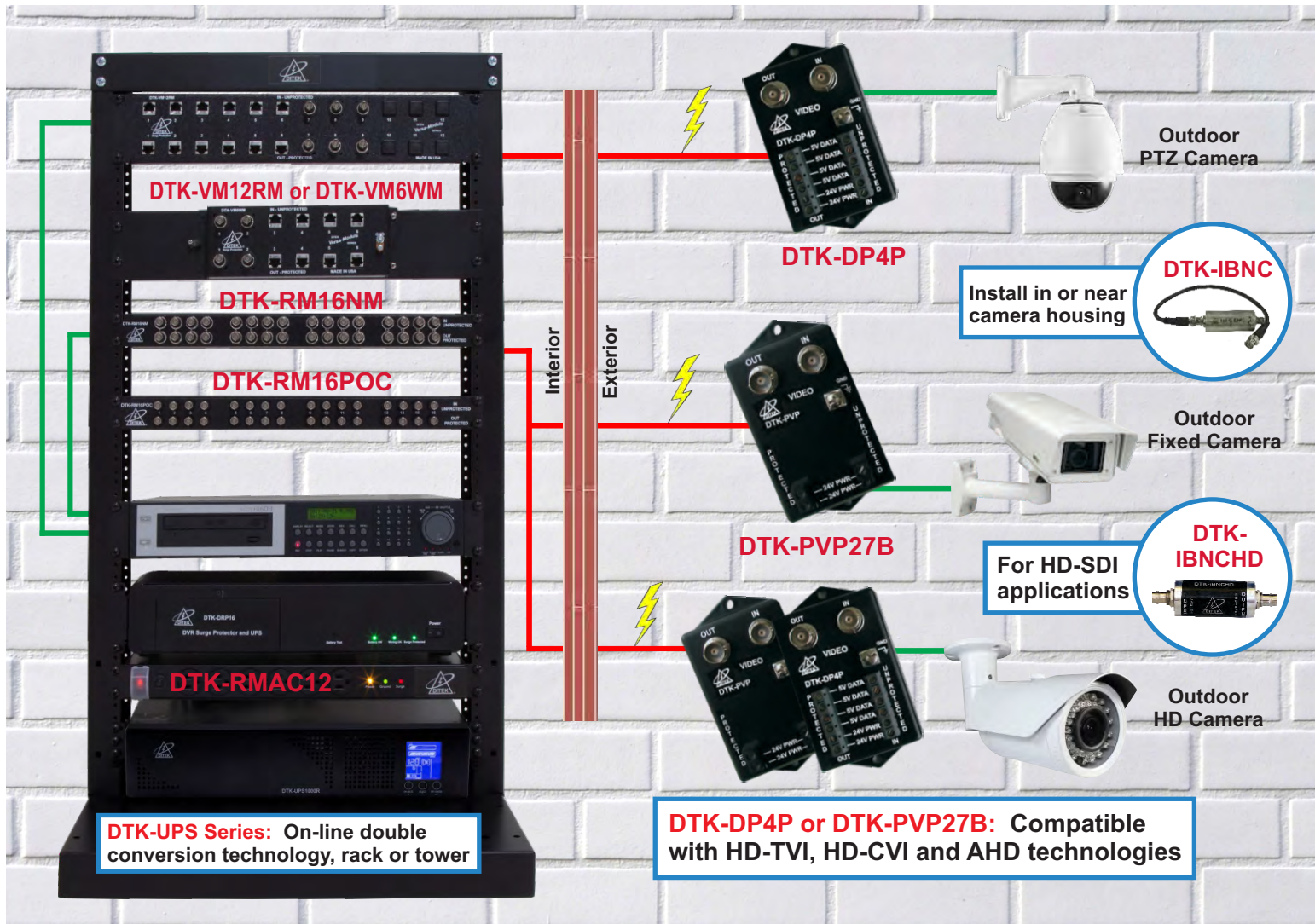
**DTK-UPS800: 800VA Uninterruptible Power Supply**

- Line Interactive UPS with built-in AVR Stabilizer
- Embedded microprocessor guarantees exceptional reliability
- Touch screen LCD to display information circularly
- Auto restart while AC is recovering





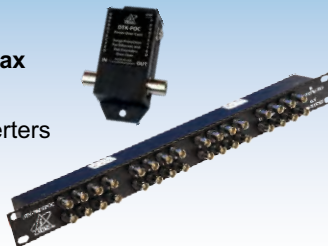
# High Definition Analog Video Surge Protection



## DTK-POC / DTK-RM16POC

### Single & 16 Channel Power over Coax Surge Protectors

- Protects IP Video over Coax Converters and extenders
- BNC Female In/Out connections
- PoE Plus ready for high wattage



## DTK-RM16NM

### 16 Channel Video Line Protection

- BNC Coax In/out
- Analog video
- 1U



## DTK-DP4P

### PTZ Camera Surge Protection

- Protects power, analog video & four data wires
- BNC in/out connections
- Also available in UTP configuration



## DTK-PVP27B

### Fixed Camera Surge Protection

- Protects power & analog video
- BNC in/out connections
- Also available in UTP configuration





# Commercial Grade AC Power Surge Protection



## Hardwired Industrial AC Surge Protection

DITEK's ZEUS Series industrial surge protective devices (SPD's) are designed to provide transient surge protection for electrical systems in the most demanding environments. Each model incorporates the latest in surge protection technology for maximum performance and protection. Available in a wide range of voltage configurations, ZEUS products are an excellent choice for protecting your electrical systems.

### Modular SPD'S

- UL1449 4th Edition Listed, Type 1 SPD
- 300kA or 200kA per phase surge current rating
- Available in all voltage configurations up to 480VAC delta
- Field-Replaceable surge modules
- NEMA 4X weather resistant enclosure
- Surge counter, audible alarm, dry contacts, diagnostic LEDs
- Optional integral disconnect switch



**D200M & D300M Series**

**D200MT & D300MT Series**

### Non-Modular SPD'S

- UL1449 4th Edition Listing, Type 1 SPD
- Installs on main distribution, branch or sub panels
- 50kA, 100kA or 200kA per phase surge current rating
- NEMA 4X enclosure for harsh environments
- D200 Series offers audible alarm with switch, and dry contacts for remote monitoring of surge protection status

### Key Questions to Ask:

- What is the service voltage configuration?
- What is the maximum service current?
- How many wires including ground?



**D50 Series**

**D100 Series**

**D200 Series**

## DTK-DF120S1

120V Smart Surge Protector With Rapid-Replacement Modules

- Protects 120VAC Single Phase Critical Loads
- Audible alarm & health status indicator
- Dry contacts for remote monitoring
- UL1283 EMI/RFI filtering



## DTK-CMXPLUS Series

240VAC - 600VAC Three Phase Surge Protective Devices

- Type 1 SPD, Type 2 in Canada
- 75,000A max surge current rating
- NEMA 4X enclosure for harsh environments
- UL1449 Listed



# DIN Rail AC Surge Protection



## DTK-DR Series

75kA / Ø DIN Rail Surge Protective Devices

- UL1449 4th Edition, Type 1 CA
- 75kA per phase surge current rating
- 20kA nominal discharge current rating
- IP20 enclosure, field replaceable modules
- Form C dry contact and visual status indicator



# HVAC Systems Surge Protection



The average home or business can experience hundreds of potentially damaging power surges and spikes each year, and today's Heating, Ventilating and Air Conditioning equipment is becoming more vulnerable to these unavoidable electrical events. Power outages, surges and voltage transients can damage your heating and cooling system just like any other valuable electronic device. While a single electrical event may show no obvious signs of damage, repeated surges cause gradual deterioration of the systems internal circuitry; resulting in the destruction of expensive HVAC equipment without warning.

Take action today! Make sure your heating and cooling system is protected against surges and spikes. DITEK's HVAC system surge protective devices help prevent equipment loss from these damaging electrical events.



## DTK-120/240CM+

### Single Phase Surge Protective Device

- Install and wire to the load side of the disconnect
- 120/240V, Type 1 SPD
- NEMA 4X weatherproof enclosure
- Parallel connection for easy installation



## DTK-4LVLPV

### 4-Pair, 8-Wire 24V Surge Protection

- Install in series with thermostat control wires at air handler
- Series connection, parallel function adds no resistance to loop circuits



# Data and Communications Surge Protection

## DTK-HDMI1 / DTK-HDMI2

### HDMI Surge Protection

- Protects HDMI devices against electrostatic discharge and surge events
- HDCP 2.2. and HDMI 2.0a compliant
- Up to 4K-UHD



## DTK-S/SL Series

### 66 Block Quick-Connect Surge Protection

- Protects One Digital Line Pair
- Quick connect module, no bridge clips
- Field-replaceable modules



## DTK-LVLP Series

### Terminal Strip Surge Protection

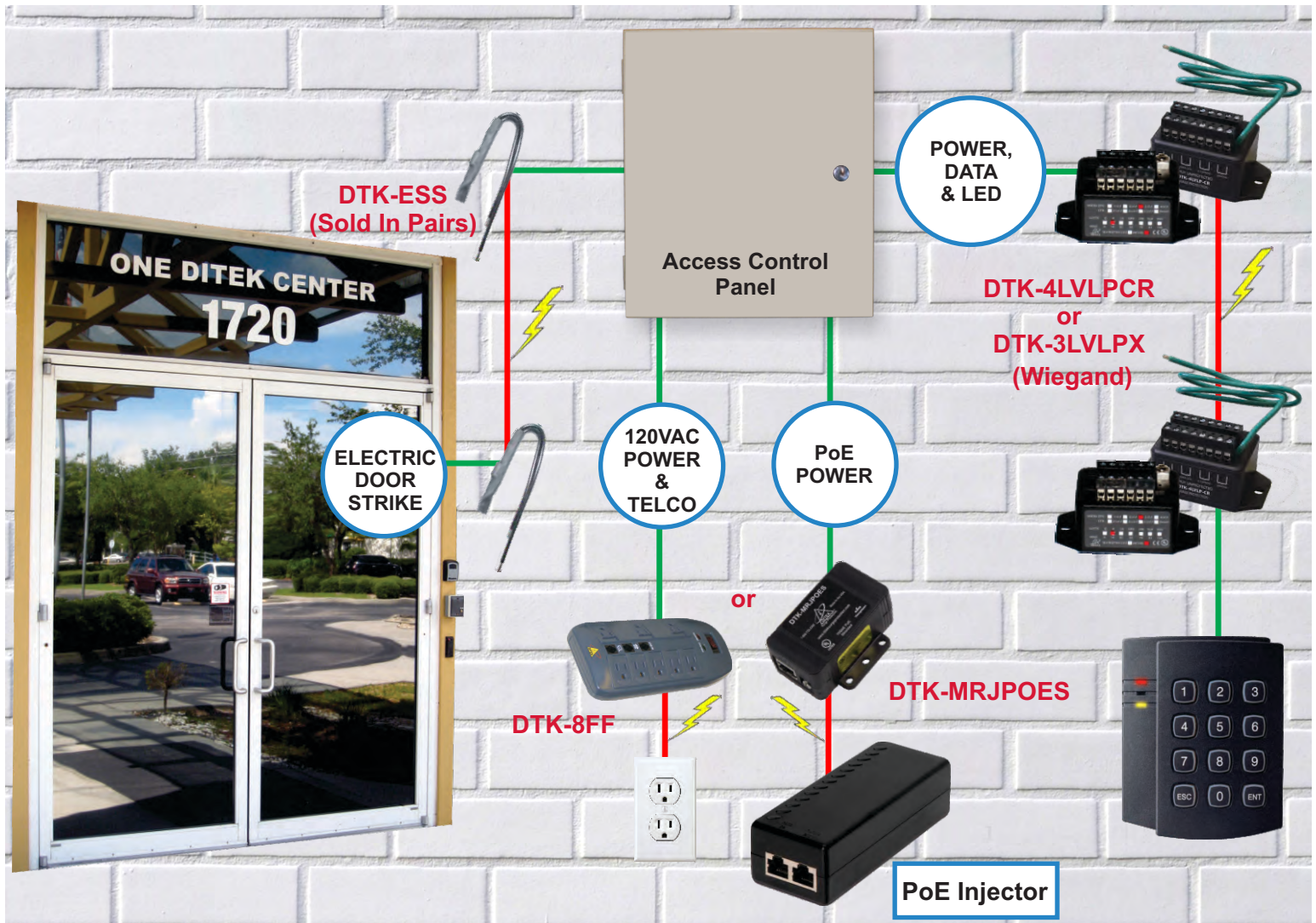
- Protects 1, 2, 4 or 8 pairs per module
- Series connection, parallel function
- Five voltage levels available







# Access Control Surge Protection



## DTK-ESS

### Electric Door Strike Surge Protection

- Protects low voltage mag-lock & control panel
- Compact design fits inside door jam & panel
- Two per package to protect both ends of lock circuit



## DTK-4LVLP

### Card Reader Surge Protection

- Protects 4 pairs of power/data & LED connections

## DTK-3LVLP

### Wiegand-Type Card Reader Surge Protection

- Protects 3 pairs of power/data connections



## DTK-8FF

### 8-Outlet Surge Protection

- Accommodates up to 6 transformers
- 1 In / 2 Out telco protection
- Diagnostic LED's for ground presence & unit function



## DTK-MRJPOES / DTK-MRJPOE

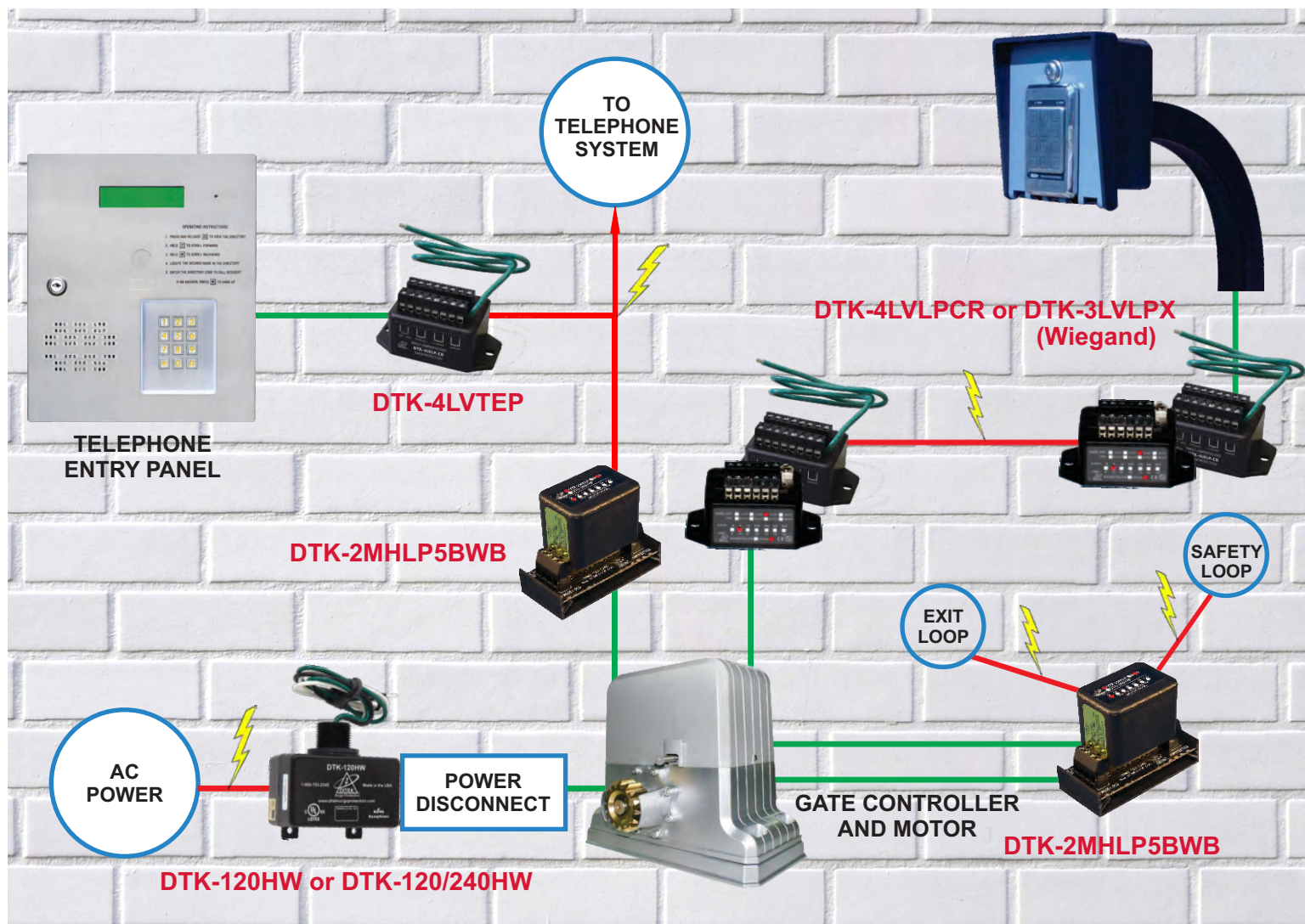
### PoE Surge Protection

- Uses SAD and GDT technologies
- Data speeds up to 10GbE
- PoE+, HiPoE ready for high wattage
- Shielded or unshielded RJ45 connections





# Gate Access Surge Protection



## DTK-4LVTEP

### Telephone Entry System Surge Protection

- Protects power, telco and data/release circuits
- Single point ground for all protected circuits
- Automatic reset protects against repeated surges



## DTK-4LVLPCR

### Card Reader Surge Protection

- Protects 4 pairs of power/data & LED connections

## DTK-3LVLPX

### Wiegand-Type Card Reader Protection

- Protects 3 pairs of power/data connections



## DTK-120HW

### Gate Motor Surge Protective Device

- Protects 120V single phase gate motor

## DTK-120/240HW

- Protects 120/240V split phase gate motor



## DTK-2MHLP5BWB

### Loop Circuit Surge Protection

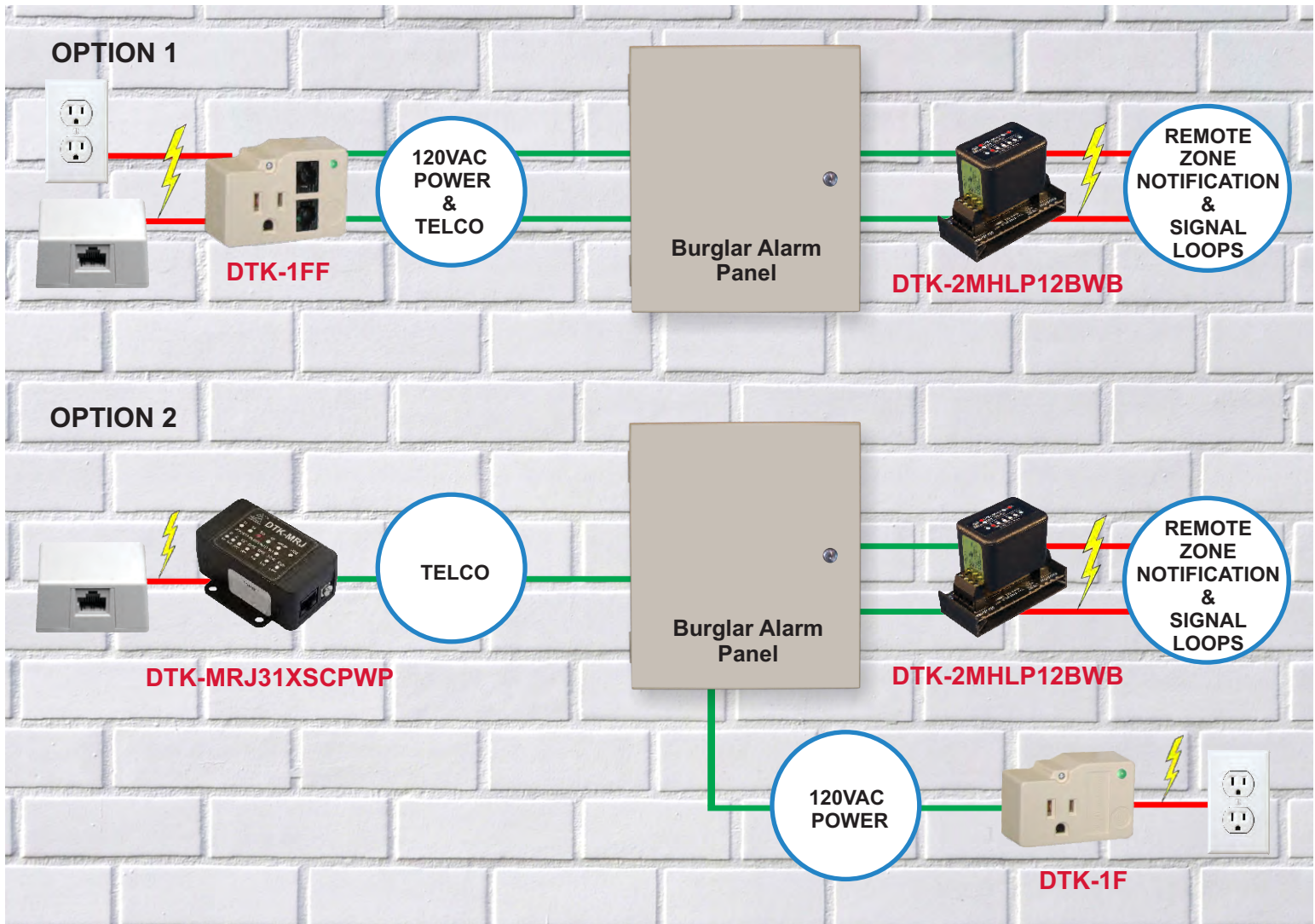
- Protect two 5V pairs per module
- Field replaceable module w/hardwired base
- Available in multi-base configurations
- 20,000 A Surge Current







# Intrusion Surge Protection



## DTK-2MHLP12BWB

### Low Voltage Surge Protector

- Protects two 12V circuit pairs per module
- Convenient field-replaceable modules
- Hard-wired mounting system protects up to ten pairs with a common ground



## DTK-1FF

### Single Outlet Plug-In Surge Protector

- Protects 120VAC power & RJ11 dialer circuit
- Center screw secures to outlet and can also secure a connected transformer
- Diagnostic LED confirms surge protection status



## DTK-MRJ31XSCPWP

### Central Station Dialer Surge Protector

- Modular RJ31X Connection
- Protects one pair
- Automatically Resets to protect against multiple surges



## DTK-1F

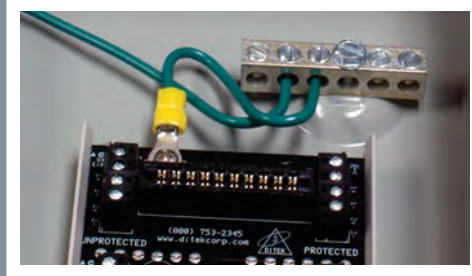
### Single Outlet Plug-In Surge Protector

- Protects 120VAC power
- Center screw secures to outlet and can also secure a connected transformer
- Diagnostic LED confirms surge protection status

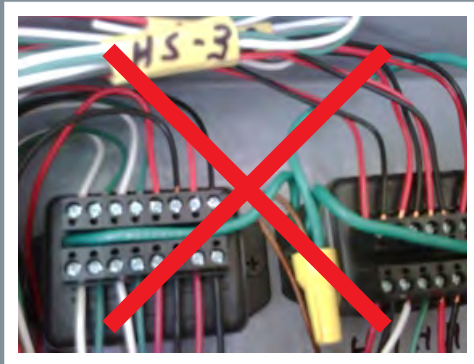




# Rules for Proper Grounding



The use of a grounding bar is strongly recommended as a means of terminating SPD ground wires to existing electrical grounding leads. This will ensure a solid mechanical connection of all grounding wires. The use of twist-on wire connectors (“wire nuts”) is not recommended for termination of SPD ground wires to existing electrical leads. Twist-on wire connectors may become loose and/or corroded over time, can cause increased ground resistance, and can also unnecessarily extend the length of the grounding conductor. This would degrade the performance of the SPD due to the lack of a short, low impedance ground path.



When installing multiple Surge Protective Devices (SPD's) and terminating to a common ground, a dedicated ground wire running from each individual SPD to a common grounding bus bar is strongly recommended. “Daisy-chaining” multiple SPD ground wires together via the SPD grounding terminals, or by using twist-on wire connectors is not recommended as this increases the resistance and extends the length of the ground path.



## Contact Us

For assistance in selecting the right surge protection devices for your specific application, please visit our New Web Portal at [www.diteksurgeprotection.com](http://www.diteksurgeprotection.com)

Technical Support Staff: 888-472-6100





DITEK Surge Protection is your first line of defense for Video Surveillance, Fire, Networking and Communications, Intrusion Detection, Access Control and AC Power Systems. We have led the industry in the design and manufacturing of surge protection solutions for 30 years, providing quality products built to order and delivered on time, with unparalleled factory

support and competitive pricing. At DITEK's ISO 9001:2015 certified manufacturing facility in Largo, FL, a highly-trained and culturally diverse workforce utilizes state-of-the-art equipment and lean manufacturing methodologies. DITEK's Technical Support Team is available to answer application or installation questions by phone or Internet live chat. Live and web-based product training, CEU courses and collateral materials are readily available through DITEK's Marketing Group.

**DITEK Surge Protection**

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