Application GUIDES

Surge Protection for EVERY Application

DITEK®

DITEKCORP.com

DITEK provides the industry's most comprehensive line of surge protective devices for power, video surveillance, networking and communicaitons in industrial, commercial, institutional and residential applications. DITEK's system-specific product designs cover the full spectrum of application requirements, delivering optimum protection and performance. Building on its core platform of varistor-based products for high energy dissipation applications, the company then introduced diode-based technologies to address the low impedance and fast-clamping performance characteristics necessary to protect high-speed video and data signals. DITEK's new multi-stage devices utilize multiple technologies and include filtering, power conditioning and over-current protection. These next-generation products provide a comprehensive solution at a nominal cost.

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Surge Protection for:

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 (such as 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 from 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

Our New Product Selector will assist you in selecting the right surge protection devices for your specific application

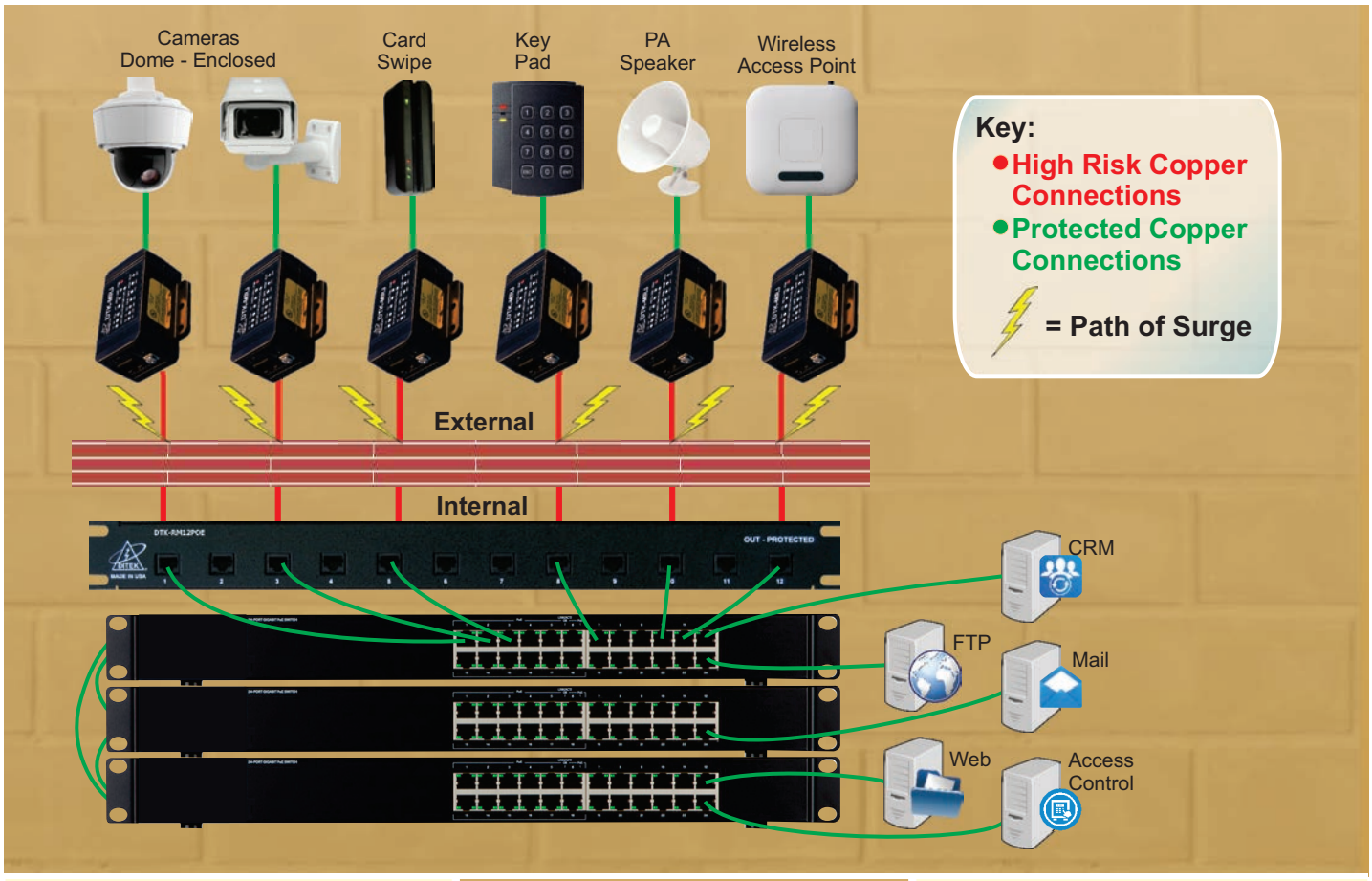
24/7 technical support staff at 888.472.6100.

DITEKCORP.com

Network Surge Protection Basics

IP/PoE Networks

- To keep surges from entering your building and your network, you must provide a layer of protection. This head-end protection point is the only way to reduce the risk associated with metallic conductors connecting external devices to internal network components.
- It is also recommended to protect each externally mounted device from surges that are introduced on the same metallic conductors.
- Failure to install surge protective devices (SPD's) places <u>all internal network connected equipment at risk</u>: Internal Server Farms, Workstations, Phones, Printers....



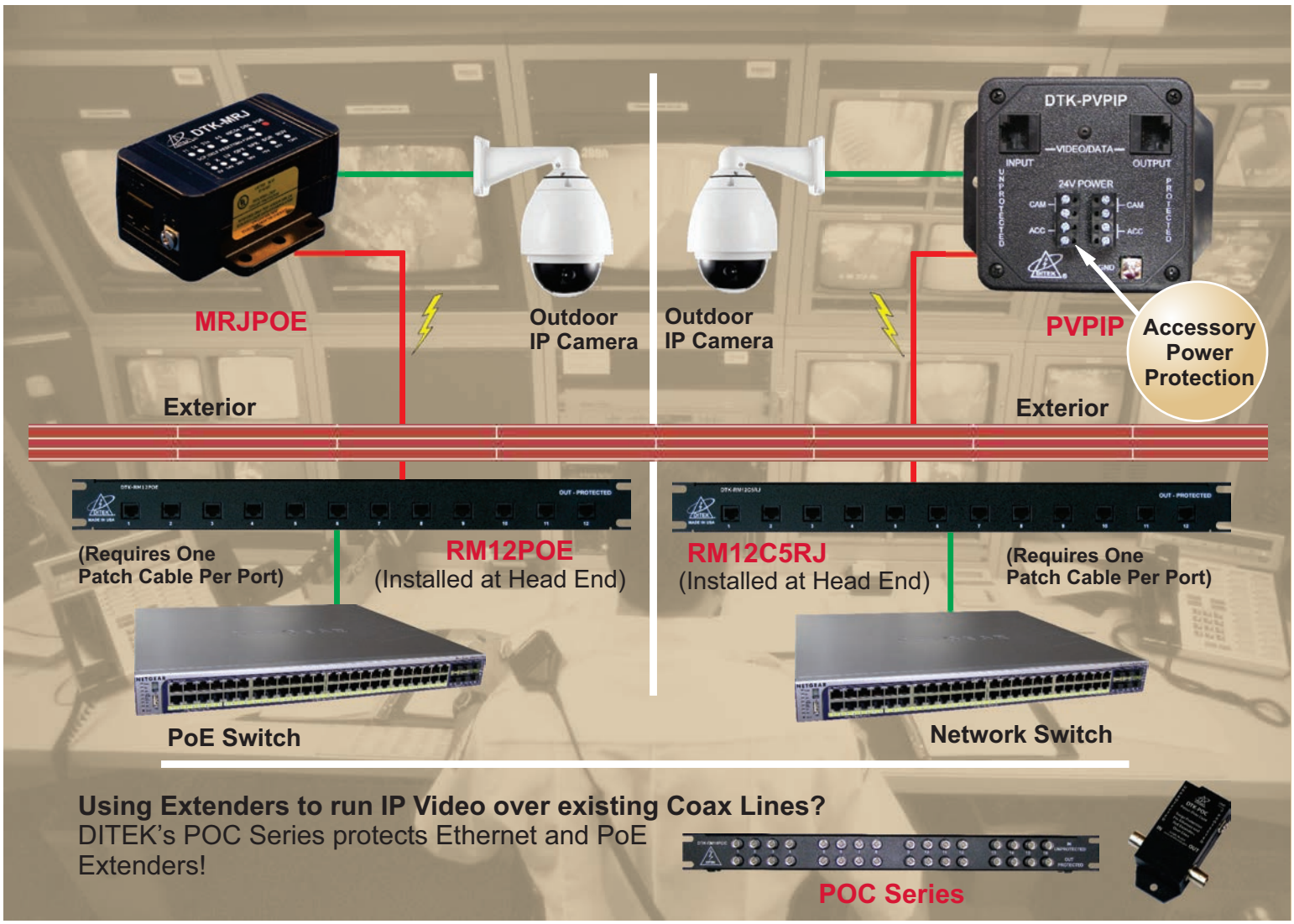
DTK-CAT6A Series*
10 Gigabit Ethernet Surge Protection

DTK-MRJPOE / DTK-RM12POE*
Power over Ethernet Surge Protection

DTK-MRJ45C5E / DTK-RM12C5RJ*
Gigabit Ethernet Surge Protection

*See Page 9 for a complete list of Surge Protection Products for Networking & Communications

IP Video Surge Protection



DTK-MRJPOE

PoE Camera Surge Protection

- Protects 5V Data & 24/48V Power Pairs
- RJ45 In/Out Connections
- PoE Plus Ready, High Wattage

DTK-RM12POE

12 Channel PoE Protection (PoE Plus Ready)

DTK-RM12C5RJ

12 Channel IP Video Network Protection

- RJ45 In/Out
- Gigabit Ethernet
- 1U

DTK-PVPIP

IP/PoE Video Surge Protection

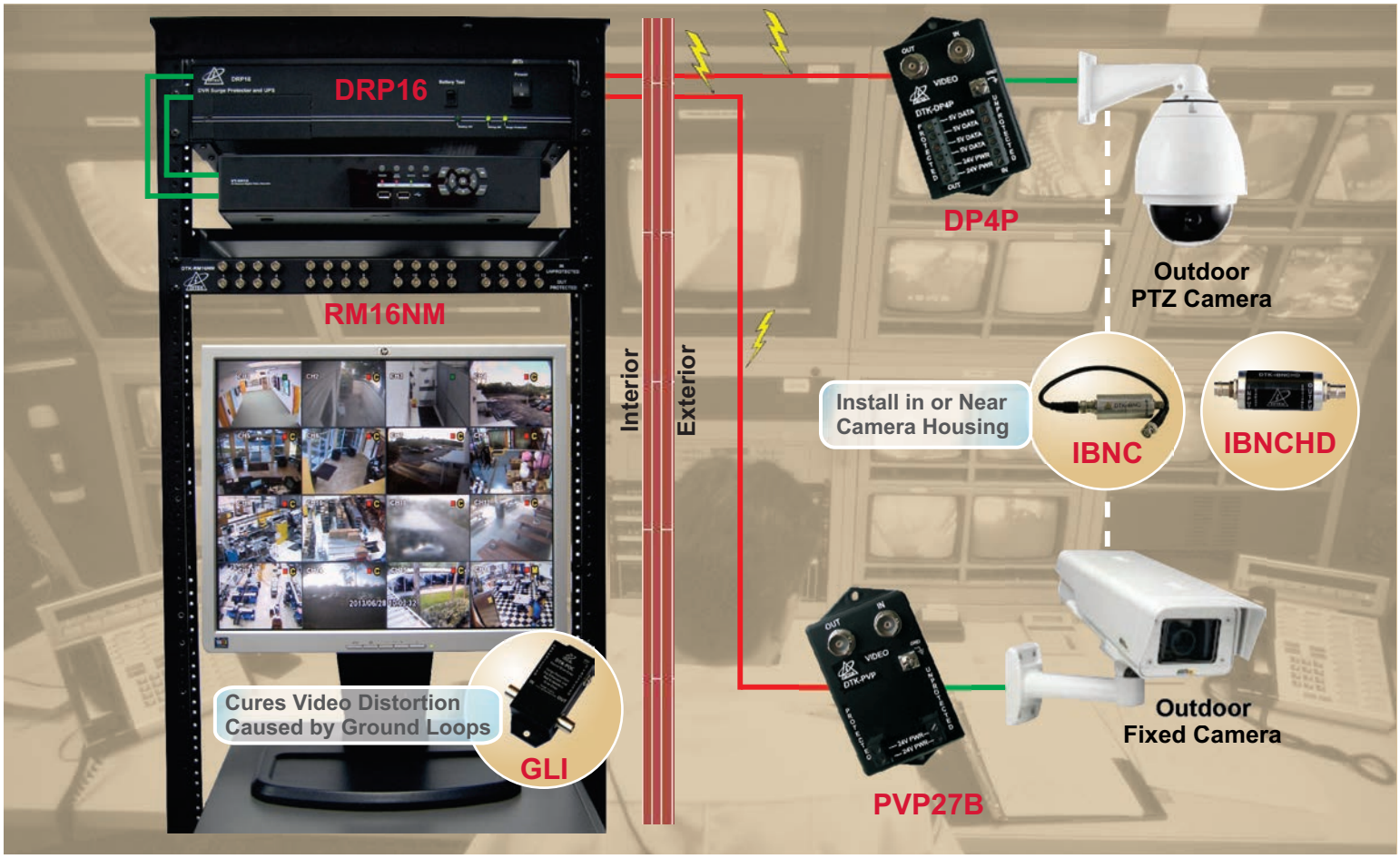
- Protects All Four Video/Power Pairs
- Gigabit Ethernet Data Rate
- Accessory Power Protection Circuit for heater/blower/defroster
- High Wattage

DTK-WM6FP / DTK-RM12FP

Modular Solution for Hybrid Systems

- Mix & match up to 6 or 12 ports per face plate, using any combination of RJ45 & BNC interface modules.

HD Analog Video Surge Protection



More and more security camera manufacturers are launching new High Definition Analog Solutions. These solutions include HD-CVI, AHD, HD-SDI* and HD-TVI. They deliver 720P/1080P high definition images, and transmit the video over traditional coaxial cable. DITEK's Analog Surge Protection Solutions protect HD Video from voltage surges introduced onto the coaxial cable.

*For an HD-SDI solution use DTK-iBNCHD.

DTK-DRP16

16 Channel DVR Surge Protection & UPS

- Protects Power & Data
- Analog Video
- Up to 20 minutes DVR backup power

DTK-DP4P

PTZ Camera Surge Protection

- Protects Power, Analog Video & Four Data Wires
- BNC In/Out Connections
- Also Available in UTP Configuration

DTK-RM16NM

16 Channel Video Line Protection

- BNC Coax In/Out
- Analog Video
- 1U

DTK-PVP27B

Fixed Camera Surge Protection

- Protects Power & Analog Video
- BNC In/Out Connections
- Also Available in UTP Configuration

Fire Alarm Surge Protection

DTK-2MHLPB / DTK-2MHLPF 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-120SRD

AC Power Surge Protector With Dry Contacts for Remote Monitoring

- 120V, 20A Series Configuration
- UL1283 EMI/RFI Filtering
- 54,000A Max Surge Current

DTK-MRJ31XSCPWP / DTK-2MHTP

Dialer Surge Protectors

- MRJ31X: Single Pair, RJ31X Connection
- Automatic Reset, handles multiple surges
- 2MHTP: 2-Pair, Screw Terminal Connection w/Base

DTK-120HW

AC Power Surge Protector

- 120V, 20A Parallel Configuration
- Compact Design
- 18,000A Max Surge Current

Total Surge Solutions

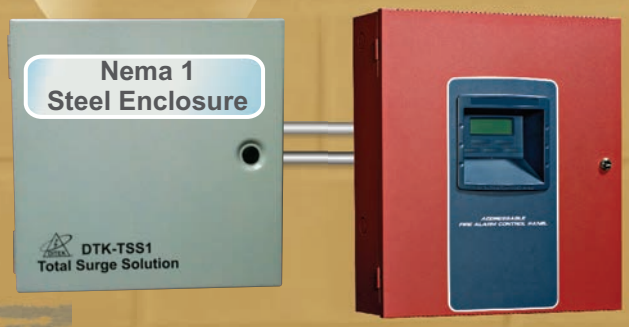
Complete Addressable Fire Panel Protection for AC, Signaling and Notification Circuits

DTK-TSS1
120VAC Alarm Panel Protection with a 5-Position Hardwired Base

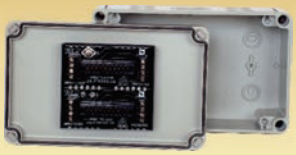
Protects AC Power, and up to Ten SLC, IDC, PIV, NAC & Dialer Circuits (2MHLP Loop circuit protectors sold separately)

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

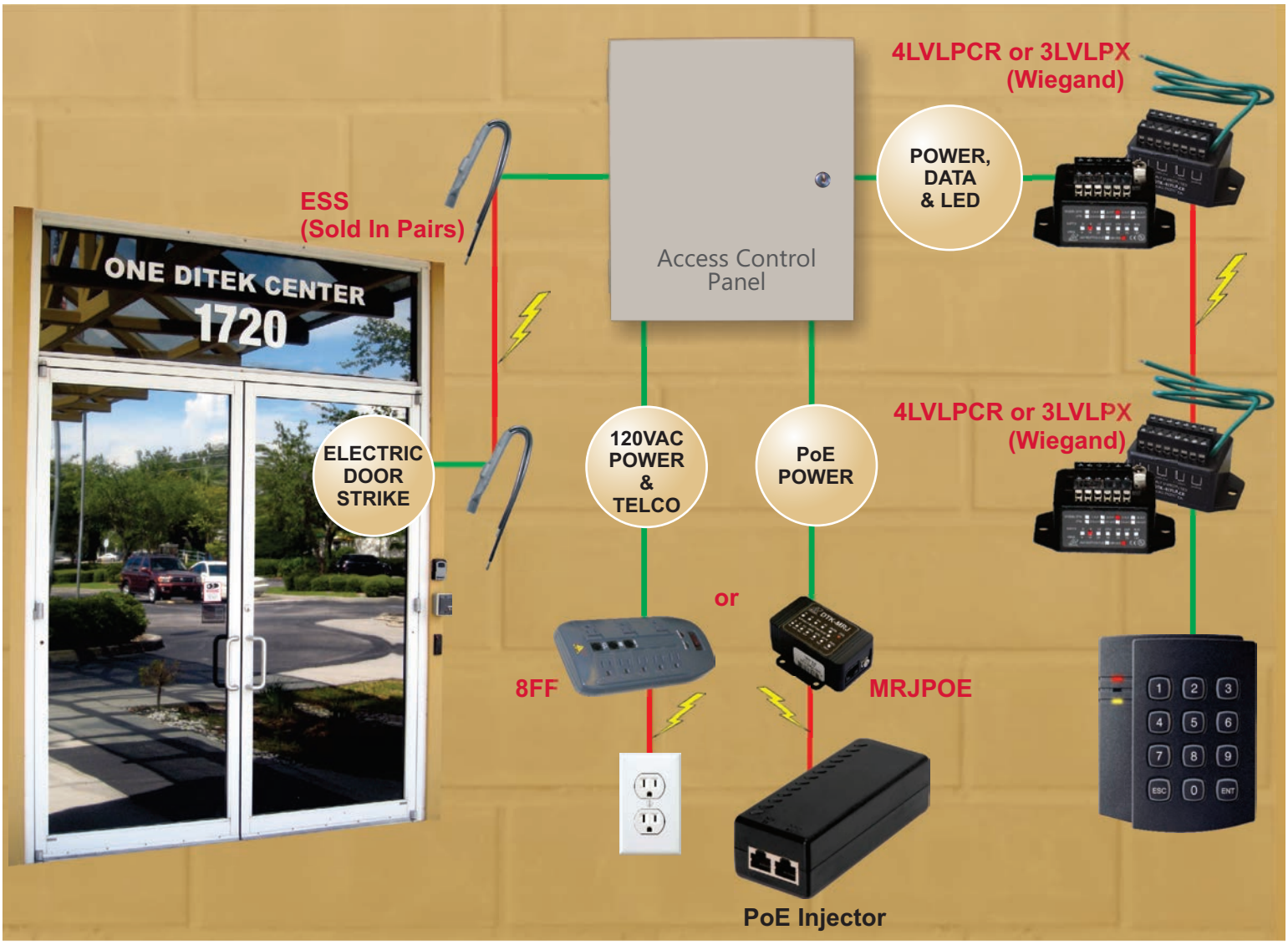


DTK-TSS3
2-Position Base for SLC Loop Surge Protection modules
- Protects up to four pairs of building-to-building notification runs
- NEMA 4X enclosure for harsh environments

DTK-TSS2 / DTK-TSS2NM
120V Alarm Panel Surge Protection
- TSS2: Protects 120V system power and up to four pairs of loop circuits
- TSS2NM: Protects 120V system power with space for monitor module
- NEMA 4X enclosure for harsh environments

DTK-TSS4
120VAC Power Surge Protection
- Protects 120V system power
- NEMA 4X enclosure for harsh environments

Access Control Surge Protection



DTK-ESS

Electric Door Strike Surge Protector

- Protects low voltage mag-lock & control panel
- Compact design fits inside door jam & panel
- Two per package

DTK-4LVLPCR

Card Reader Surge Protector

- Protects 4 pairs of power/data & LED connections

DTK-3LVLPX

Wiegand-Type Card Reader Protector

- Protects 3 pairs of power/data connections

DTK-8FF

8-Outlet Surge Protector

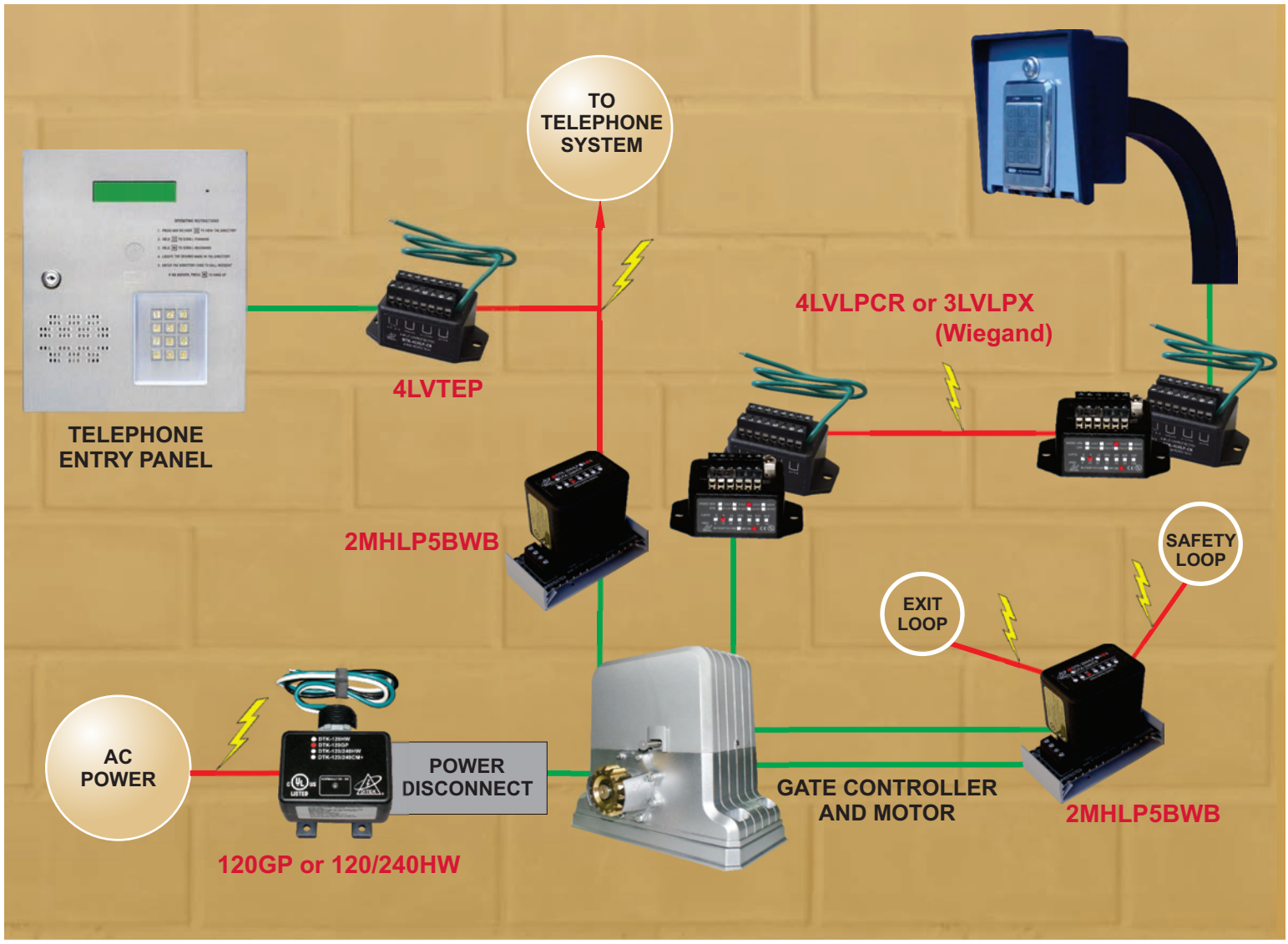
- Accommodates up to 6 transformers
- 1 In / 2 Out telco protection
- Diagnostic LED's for ground presence & unit function

DTK-MRJPOE

Power over Ethernet Surge Protector

- Protects 24/48V power & 5V data pairs
- Single point ground for all protected circuits
- Gigabit Ethernet Data Rate
- High Wattage Applicaitons

Gate Access Surge Protection



DTK-4LVTEP

Telephone Entry System Surge Protector

- 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 Protector

- Protects 4 pairs of power/data & LED connections

DTK-3LVLPX

Wiegand-Type Card Reader Protector

- Protects 3 pairs of power/data connections

DTK-120GP

Gate Motor Surge Protective Device

- Protects 120V single phase gate motor

DTK-120/240HW

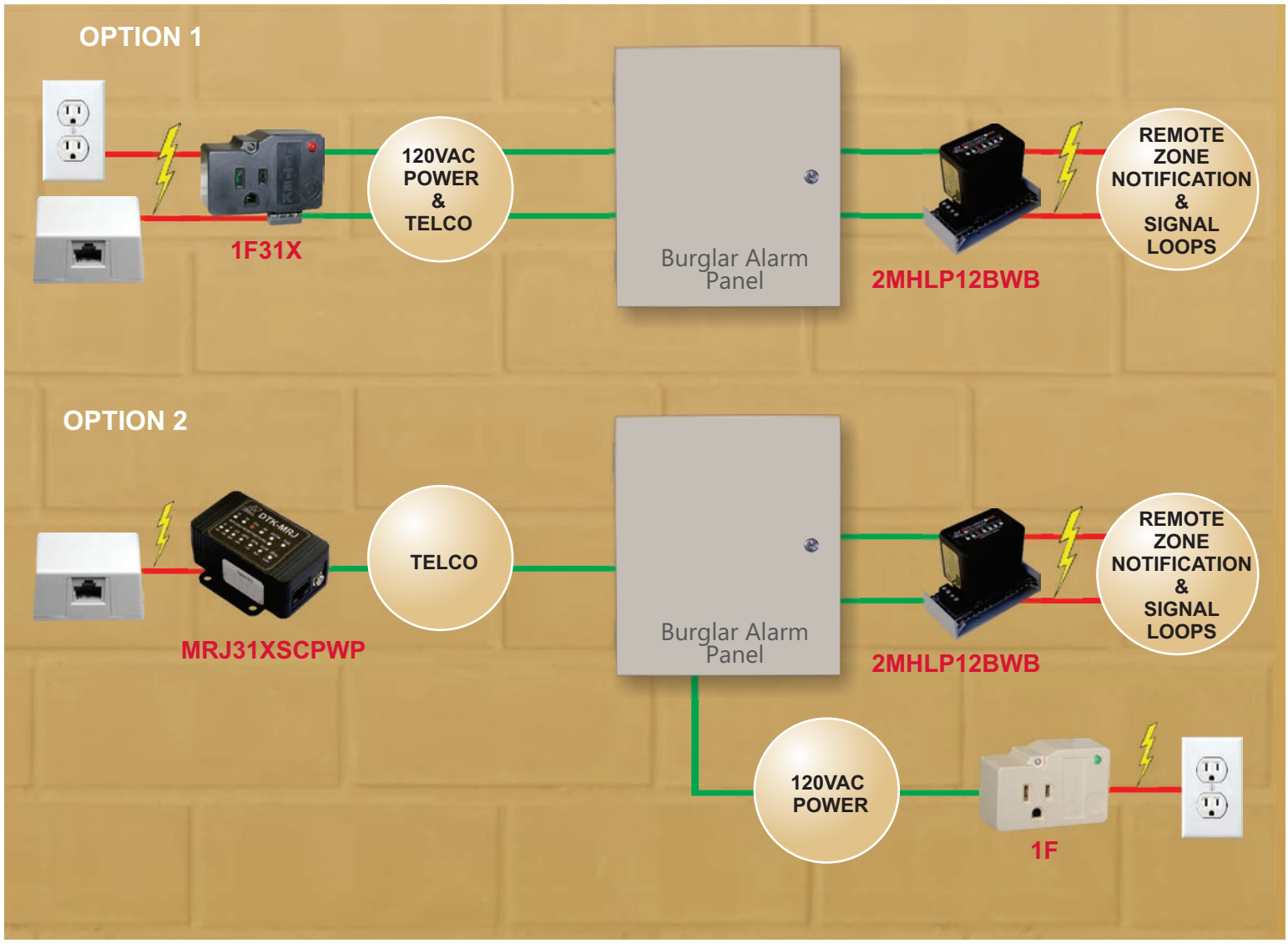
- Protects 120/240V split phase gate motor

DTK-2MHLP5BWB

Loop Circuit Surge Protector

- 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-wire mounting base with single point ground and multiple configurations

DTK-1F31X

Security System Surge Protector

- 1 AC Outlet with Retention Screw
- Hard-wire Dialer Protection, one pair in/out
- DTK-AC31X Protects 24V Power & Dialer (Hard-wire)

DTK-MRJ31XSCPWP

Central Station Dialer Surge Protector

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

DTK-1F

Plug-In AC Power Surge Protector

- 1 AC Outlet with Retention Screw
- Diagnostic indicator confirms power, ground presence and unit function

Networking & Communications Surge Protection

DTK-CAT6A Series

10 Gigabit Ethernet Surge Protection

- Primary Protector for Communications Circuits
- Compatible with CAT5E, CAT6 & CAT6A circuits
- Protects all four pairs
- Conforms to TIA Data Transmission Standards
- 110 Punch down In/Out and 110 In / RJ45 Out configurations

DTK-WM6FP / DTK-RM12FP

Modular Solution for Hybrid Systems

- For RS232, RS485, Analog and Digital (IP/PoE) circuits
- Mix & match up to 6 or 12 ports per face plate, using any combination of RJ45 & BNC interface modules

DTK-MRJPOE / DTK-RM12POE

Power over Ethernet Surge Protection

- Protects 5V Data & 24/48V Power Pairs
- Conforms to EIA/TIA Data Transmission Standards
- PoE Plus Ready for High Wattage applications
- Available in 12-Channel Rackmount

DTK-MRJ45C5E / DTK-RM12C5RJ

Gigabit Ethernet Surge Protection

- Protects Four Data Pairs
- Conforms to EIA/TIA Data Transmission Standards
- External Grounding Screw
- Available in 12-Channel Rackmount

DTK-2MHLP/2MHTP Series

Voice, Data & Signal Surge Protection

- Modular Design
- 2 Pairs per Module
- 20,000 A Surge Current
- 5-130V Configurations

DTK-LVLP Series

Hardwired Terminal Strip Surge Protection

- Protects 1, 2, 4, or 8 Pairs
- Single or Multiple Circuit Pair Protection
- 5V - 130V Configurations

DTK-P Series

66 Block Punchdown Surge Protection

- Protects 1, 2, 4 or 8 Pairs
- Single or Multiple Circuit Pair Protection
- 5V - 130V Configurations
- Consult factory for specific models

DTK-S/SL Series

66 Block Quick-Connect Surge Protection

- Protects One Digital Line Pair
- Available For Digital, Standard and Current-Limited Lines
- 5V - 130V Configurations

TIP!

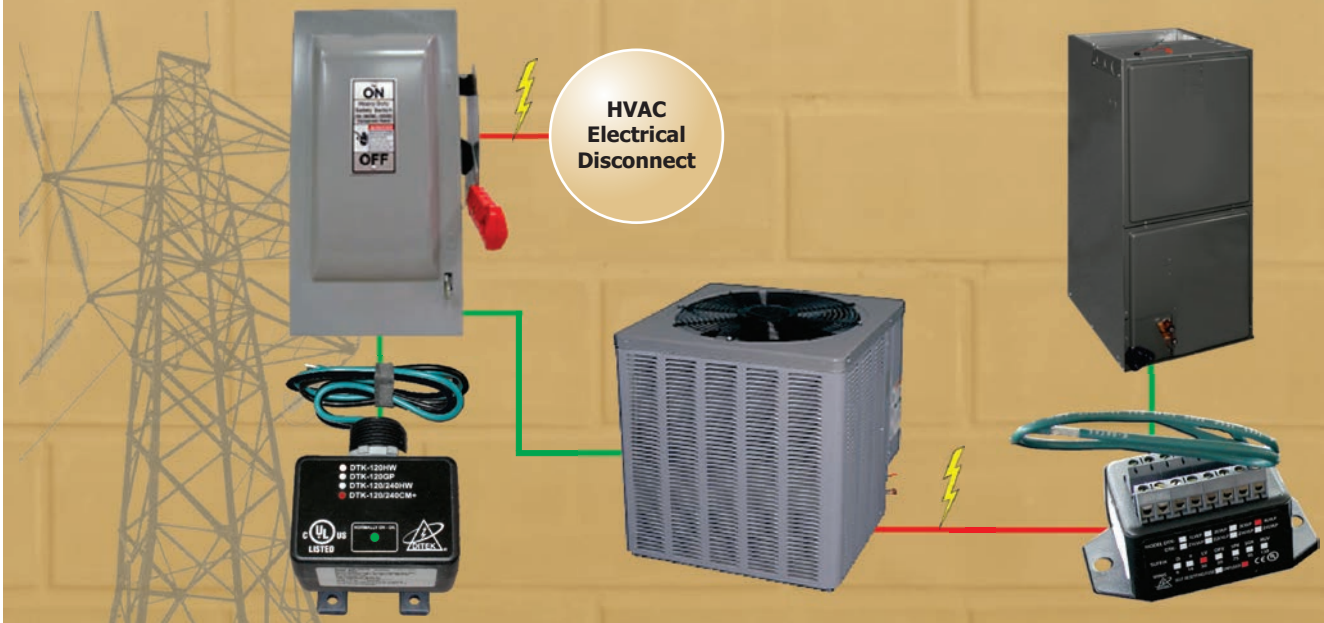
DITEK Communications Model Decoder

Connection Method		Service Voltage Code	
LVLP-	Screw Terminal	D Suffix -	5 Volts
MHLP-	Screw Terminal Base w/Replaceable Module	X Suffix -	12 Volts
		LV Suffix -	24 Volts
P-	Punch Down	OPX Suffix -	48 Volts
S/SL-	66 Block Snap-On	SPK Suffix -	75 Volts
MRJ-	RJ Connector	SGR Suffix -	95 Volts
MT-	Mass Terminating	RUV Suffix -	130 Volts

3 Key Questions to Ask

1. What is the service voltage?
2. How many pairs to protect?
3. What is the connection method?

HVAC System Surge Protection



DTK-120/240CM+
120/240V Single Phase Surge Protective Device - Type 2 SPD
Installed and wired to the load side of the disconnect

DTK-4LVLPLV
4-Pair, 8-Wire 24V Surge Protection
Installed in series with the thermostat control wires at air handler

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. DITEK's HVAC system surge protective devices help prevent equipment loss from these damaging electrical events.

DTK-120/240CM+

120/240V Single Phase Surge Protective Device - Type 2 SPD

- NEMA 4X weatherproof enclosure
- Parallel connection for easy installation
- Diagnostic LED provides positive indication of power, ground presence & surge protection

DTK-4LVLPLV

4-Pair, 8-Wire 24V Surge Protection

- Protects alarm panel NAC, SLC, PIV and IDC loops
- Series connection, parallel function adds no resistance to loop circuits

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 electrical systems surge protection.

ZEUS™
Industrial Surge Protection

D50 Series

- 50kA/Phase, Type 1 SPD
- Type 2 SPD in Canada
- UL1449 Listed
- Complies with ANSI/IEEE C62.41 and C62.45 Category B and C3 standards
- NEMA 4X enclosure for harsh environments

D50-CM

- 50kA/Phase, 120/240VAC Type 1 SPD
- Type 2 SPD in Canada
- 100kA Short Circuit Current Rating
- UL1449 Recognized
- NEMA 4X enclosure for harsh environments

D100 Series

- 100kA/Phase, Type 1 SPD
- Type 2 SPD in Canada
- UL1449 Listed
- Complies with ANSI/IEEE C62.41 and C62.45 Category B and C3 standards
- NEMA 4X enclosure for harsh environments

DTK-120/240CM+

- 36kA/Phase, 120/240VAC Type 2 SPD
- Automatically resets to protect against multiple surges
- Ul1449 Listed
- Weatherproof Enclosure

D200 Series

- 200kA/Phase, Type 1 SPD
- Type 2 SPD in Canada
- UL1449 Listed
- Complies with ANSI/IEEE C62.41 and C62.45 Category B and C3 standards
- NEMA 4X enclosure for harsh environments
- Audible Alarm with Switch
- Dry Contacts for remote monitoring

DTK-HW Series

- 18,000A Max Surge Current, Type 2 SPD
- Branch Panel/Dedicated Circuit Protection
- Ul1449 Listed
- Models for 120VAC, 120/240VAC and 240VAC

Key Questions to Ask:

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

Surge Protection Kits

Premium Whole House Kits

DTK-WH4PLUS, DTK-WH5PLUS, DTK-WH8PLUS

- Perfect for residential builders and contractors who want to provide an additional, valuable service to their customers
- DITEK's superior performing products protect AC power, phone lines, video feeds and valuable electronics

Smart Whole House Kits

DTK-WH9PLUS

- Perfect for residential builders and contractors who want to provide an additional, valuable service to their customers
- DITEK's superior performing products protect AC power, cell phones, tablets, valuable electronics and home/office equipment

DTK-FPK1

DTK-FPK2

DTK-FPK Series

Fire Alarm System Surge Protection Kits

- Designed for commercial alarm professionals specializing in fire detection systems
- Each kit includes AC power and dialer circuit protection

DTK-APK1

Alarm System Power & Dialer Surge Protection Kit

- Designed for residential intrusion alarm system installers who want to ensure their customers are properly protected
- Each kit includes single outlet AC power & alarm dialer protection

Surge Protection with Load Sensing Technology

DTK-3VWMUSB

3-Outlet Charging Station

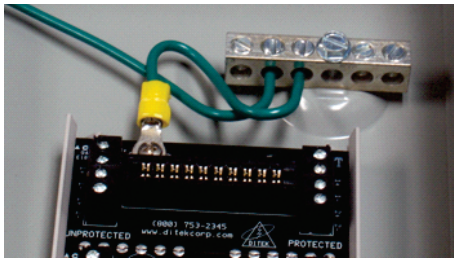
- 120VAC - 15A
- 2 port USB charger
- Illuminated Load-Status Indicator - different colors for each level of load status

DTK-7VS

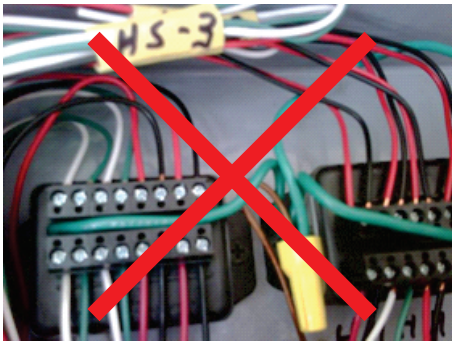
7-Outlet Power Strip

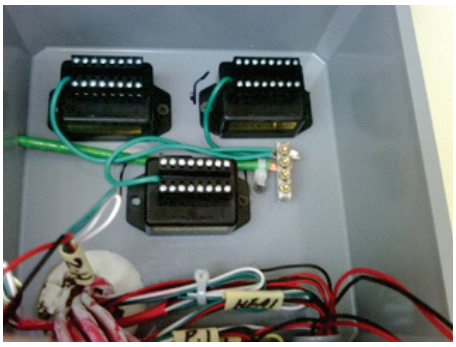
- 120VAC - 15A
- 7 AC outlets with 4 ft power cord
- 2-in-1 power ON/OFF rocker switch
- Illuminated Load-Status Indicator - different colors for each level of load status

Rules for Proper Grounding

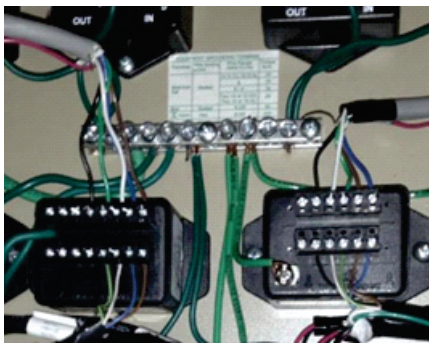


The use of a grounding bar is strongly recommended as a means of terminating SPD ground wires to existing electrical grounding leads. This will ensure a solid mechanical connection of all grounding wires. The use of twist-on wire connectors ("wire nuts") is not recommended for termination of SPD ground 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.ditekcorp.com

24/7 technical support staff at 888.472.6100

DITEK Corporation continues to lead the industry in the design and manufacturing of low-voltage surge protection devices and systems —offering unparalleled protection for commercial, industrial and residential applications, including: CCTV/Surveillance Systems, Fire and Intrusion Alarm, Electrical Power, Access Control, and Voice and Data applications.

At DITEK's ISO 9001 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 24/7 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 Services Group.

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