



## Signal and Surge Protection Solutions

# Surge Protection Capabilities

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For over four decades, PolyPhaser | Transtector power and signal surge solutions have been the preferred choice of major global OEMs and network providers to protect their communications systems and critical electronics from lightning and power anomalies.

PolyPhaser | Transtector offers advanced RF, AC, DC and high-speed data and signal protection engineered to meet key global standards including IEC, IEEE, UL and CE. Our products have proven themselves in numerous critical markets and applications such as telecommunications, first responders, military, rail, medical, oil and gas and alternative energy.

From the tower top to the central office, we have a protection solution to meet your needs. Regardless of your requirements PolyPhaser | Transtector has the ability and experience to design, develop and manufacture custom solutions for all of your business needs and requirements.



PolyPhaser leads the market with its patented RF protection solutions, specifically supporting communications systems. Based on its extensive experience with multi-stage surge protection, PolyPhaser continuously expands its product offering to support the needs of advanced network applications with technologies such as DC Block, DC Pass and Ultra Low PIM.



Transtector Systems specializes in the protection of highly sensitive, low voltage equipment through its patented, non-degrading silicon diode technology and custom filters. Its power quality expertise translates into a diverse product offering including AC, DC, and data signal applications as well as integrated cabinets, power distribution panels and EMP hardened devices.



Smiths Power is a leading supplier of power distribution, conditioning, protection and monitoring solutions for data centers, wireless communications and other critical or high-value electrical systems.

As a family of brands, PDI, Onyx, PolyPhaser, Transtector, DOWIN, LEA and RO Associates unite under one umbrella to Transform, Distribute, Monitor and Protect™ power in global networks and systems. Our companies provide expertise in consulting, design and manufacturing of power transformers and distribution systems, static switching, power monitoring, RF, AC, DC, data signal and EMP protectors as well as power quality engineering services.

Alongside Smiths Connectors and Smiths Microwave, Smiths Power is part of the Smiths Interconnect division of Smiths Group ([www.smiths.com](http://www.smiths.com)), a global leader in applying advanced technologies for markets in threat and contraband detection, energy, medical devices, communications and engineered components. Smiths Group employs around 23,000 people in more than 50 countries.



# Protect Your Investment

## Surge Protection Solutions

Power and Signal reliability play a role in every critical electrical and communication asset. If the application is key to revenue and growth, it must be protected from malfunctioning and downtime.

PolyPhaser | Transtector are established market leaders providing proprietary RF and high-reliability AC, DC and signal surge protection. Technical innovation and a solution driven mindset have guided our comprehensive portfolio of surge protection products.



# Data Line Surge Protection

	PRODUCT	FEATURES AND BENEFITS	OPTIONS/STANDARDS
	<b>TSJ Series</b> Compact data line surge protection for T1, gigabit PoE, GbE, PoE and Ethernet	<ul style="list-style-type: none"> <li>• High surge current silicon avalanche and gas tube surge capacity</li> <li>• Easy installation with ground stud and RJ-45 jacks</li> </ul>	<ul style="list-style-type: none"> <li>• 5, 48 Vdc configurations available</li> <li>• Standards: UL 497B Listed, RoHS compliant</li> </ul>
	<b>TSJ X6 Series</b> Data line protector for T1/E1 and Ethernet applications	<ul style="list-style-type: none"> <li>• Replaceable modules available</li> <li>• Line and load bidirectional protection</li> <li>• Easy installation with external RJ-45 plug-ins with single 1/4-20 grounding stud</li> <li>• High density, small footprint</li> </ul>	<ul style="list-style-type: none"> <li>• 3, 3.3, 5 Vpk configurations available</li> <li>• Silicon and transient blocking technology available</li> <li>• Standards: GR 1089 CORE</li> </ul>
	<b>FSP Series</b> Silicon diode, two pair equipment surge protector	<ul style="list-style-type: none"> <li>• SASD technology</li> <li>• Optimized for RS-422, RS-485 and 4-20 mA loop</li> <li>• Protects up to two low speed data, power or differential pair signal lines</li> </ul>	<ul style="list-style-type: none"> <li>• 12, 24, 52, 280 Vdc configurations available</li> <li>• Standards: GR 1089 CORE</li> </ul>
	<b>DPR Series</b> Surge protection for GbE, PoE, Ethernet rack, wall or DIN rail mount	<ul style="list-style-type: none"> <li>• Line and load bidirectional protection</li> <li>• Unprotected pins bonded to ground</li> <li>• Individual modules in plastic housing with DIN rail snap on feature for mounting and grounding</li> </ul>	<ul style="list-style-type: none"> <li>• Data and PoE Vdc configurations available</li> <li>• 1RU chassis holds up to 16 modules and is adjustable to fit 19" or 23" racks</li> <li>• Wall or DIN rail mount</li> <li>• Standards: GR-1089, NEC 800.100 and 830.100, IEEE 802.3af, ITU703</li> </ul>
	<b>CCTV Series</b> Protection for coaxial based network equipment	<ul style="list-style-type: none"> <li>• SASD technology</li> <li>• Line and load bidirectional protection</li> <li>• BNC connectors for video and screw terminal pan tilt</li> <li>• Wall mount</li> </ul>	<ul style="list-style-type: none"> <li>• Protection modules optimized for the following applications: Triple circuit protector for coax, 24 V ac/dc and RS-232/RS-422/RS-485 or Triple circuit protector for coax, and two pairs RS-232/RS-422/RS-485</li> <li>• Standards: IEEE/ANSI C62.41, UL 497B listed CCTV configured</li> </ul>
	<b>ALPU POE</b> Compact RJ-45 surge protector for point-to-point and point-to-multi-point	<ul style="list-style-type: none"> <li>• SASD technology</li> <li>• Easy installation/RJ-45 connectors</li> <li>• Compact design and 1/4-20 ground stud</li> </ul>	<ul style="list-style-type: none"> <li>• Plastic and aluminum indoor/outdoor enclosures</li> <li>• Various high speed protocol supported</li> <li>• Standards: GR 1089, NEC 800. 100 and 830c100, IEEE 802.3af, CE, RoHS compliant</li> </ul>
	<b>IX Data Series</b> Digital data/DC line protector for RS232, RS422, RS485, T1/E1 and telco trunk line applications	<ul style="list-style-type: none"> <li>• Hybrid cascade design technology</li> <li>• Multi-line surge protection</li> <li>• Outdoor metal enclosure</li> </ul>	<ul style="list-style-type: none"> <li>• 12, 48, 56 and 72 Vac configurations available</li> <li>• 12, 48, 56 and 72 and Ethernet PoE configurations available</li> <li>• Standards: UL 4978</li> </ul>



# Coaxial RF Surge Protection



**SX Series**  
Radio frequency DC  
blocked filter protector

- High surge current capability, low let-through voltage
- DC shorted filter design, no DC continuity between center pins
- Elongated female connector allows for mounting through a 1/4" bulkhead or grounding bar
- Frequency range between 300 MHz to 10 GHz

- Both male or female surge/protected side connectors
- PIM performance available in select units
- Standards: IEC 61000-4-5, RoHS compliant, CE compliant



**B50 Series**  
DC blocked protector  
for two way radio and  
SCADA applications

- DC blocked gas tube design
- DC shorted filter design, no DC continuity between center pins
- Optimized for low insertion loss, low let-through, high return loss
- Frequency range between 1.5MHz-1GHz

- Both male or female surge/protected side connectors
- Standards: IEC 61000-4-5, RoHS compliant, CE compliant



**Rail Filters (RRF)**  
Weatherized band  
pass filter  
protection for  
railway applications

- Superior in-band RF performance
- Integrated surge protection
- Bi-directional operation
- Insertion loss and return loss at optimum levels to allow signal strength to remain high

- 160, 220 and 450 MHz filter configurations available for wayside and locomotive applications
- Standards: RoHS compliant, IEC 60529 IP67, Bellcore #TA-NWT-000487



**GT Series**  
Gas tube lightning  
protection with  
superior RF  
performance

- DC pass gas tube protection
- High surge current capability, low let-through voltage
- Frequency range between 3-7 GHz

- 30 volt configurations available in Bias-T, DC Pass or Twisted Pair protection options
- Both male or female surge/protected side connectors
- Standards: RoHS compliant, CE 60950



**TSX Series**  
Ultra low PIM RF  
coaxial protection

- Ultra low PIM RF coaxial protection in DC short and DC pass
- High surge current capability, low let-through voltage
- Frequency Range: 698 MHz to 2.7 GHz

- Both male or female surge/protected side connectors
- IEC 61000-4-5



**HF Series**  
High powered public  
safety, TETRA and  
UHF, VHR radio  
application protection

- High surge current capability, low let-through voltage
- DC shorted filter design, no DC continuity between center pins
- VHR, TETRA and UHF, VHF radio application frequency range

- Both male or female surge/protected side connectors
- PIM performance available in select units
- Standards: IEC 61000-4-5, CE compliant



**GXZ Series**  
DC pass for tower  
top amplifiers, GPS  
antennas, active  
antennas and base  
station entry panels

- Hybrid, multistage protection
- Separate RF (DC-Block) and dc paths through the protector
- Optimized for low insertion loss, low let-through, high return loss
- DC Pass surge protector is available in 4 RF bands in the frequency range of dc to 2500MHz

- Both male or female surge side connectors
- Standards: IEC 61000-4-5, IEC 60529 IP67, Bellcore # TA-NWT-00487, CE 60950, RoHS compliant

# AC Surge Protection



PRODUCT	FEATURES AND BENEFITS	OPTIONS/STANDARDS
<b>I2R IEP 120-10</b> Replaceable DIN rail mounted surge protection	<ul style="list-style-type: none"> <li>SASD technology</li> <li>Line and load bidirectional protection</li> <li>Field-serviceable replaceable suppression module</li> <li>Visual and remote status indication</li> </ul>	<ul style="list-style-type: none"> <li>120 Vac configurations available</li> <li>Standards: UL 1449 3rd Edition, IEEE C62.41, RoHS compliant</li> </ul>
<b>I2R Storm</b> Ultra-compact silicon surge protection for Control Panel applications	<ul style="list-style-type: none"> <li>SASD technology</li> <li>Line and load bidirectional protection</li> <li>Visual status indication</li> <li>Remote status circuit</li> <li>DIN rail mount</li> </ul>	<ul style="list-style-type: none"> <li>Standards: UL 1449 3rd Edition, IEC 61643-11, RoHS compliant</li> </ul>
<b>I2R SA Series</b> DIN rail surge protection for high exposed and sensitive electronic power systems	<ul style="list-style-type: none"> <li>Rugged MOV technology</li> <li>Electrically isolated Form-C dry contacts with a three pin removable terminal plug</li> <li>Visual status indicator</li> <li>DIN rail mounted</li> </ul>	<ul style="list-style-type: none"> <li>120, 120-50, 230, 277 and 480 Vac configuration available</li> <li>Single or 3-phase delta options available</li> <li>Standards: RoHS compliant, IEC 61643-1 Class II, IEC</li> </ul>
<b>AC Edge</b> Rack mounted 120 Vac distribution panel with dual inputs, and six circuit breakers with NEMA 5-15 outlets per input	<ul style="list-style-type: none"> <li>Allows customers Standardization of AC power installation and start up</li> <li>Wire from commercial power or UPS breakers</li> <li>Optional integrated surge protection (5 kA SASD per input)</li> <li>Remote alarm circuits: power and breaker</li> </ul>	<ul style="list-style-type: none"> <li>Space saving 2RU, fits either 19" or 23" rack</li> <li>Optional replaceable surge protection</li> <li>Circuit breaker options: 1, 2, 3, 4, 5, 10, 15 Amp</li> <li>Standards: UL 60950 Listed</li> </ul>
<b>APEX IV Series</b> Industrial grade AC panel mounted surge protection	<ul style="list-style-type: none"> <li>Silicon diode technology with robust, high surge current thermally protected MOV</li> <li>Line and load bidirectional protection</li> <li>Field-serviceable replaceable suppression modules</li> <li>Visual and remote status indication</li> </ul>	<ul style="list-style-type: none"> <li>120 V Single wye, 120/240 V Split wye or 120/208 V Wye Three wye configurations available</li> <li>Standards: UL 1449 3rd Edition on selected models, NEMA 4X enclosure</li> </ul>
<b>IMAX Series</b> Mission critical AC panel mounted surge protection	<ul style="list-style-type: none"> <li>Hybrid silicon diode/thermally protected MOV design</li> <li>Line and load bidirectional protection</li> <li>Field-serviceable replaceable suppression modules</li> <li>Visual and remote status monitoring</li> <li>Motorola R-56 approved</li> </ul>	<ul style="list-style-type: none"> <li>120/240 split phase silicon/MOV, 120/208 3-phase wye silicon/MOV, 120/240 split phase MOV, 120/208 3-phase wye MOV configurations available</li> <li>Standards: UL 1449 3rd Edition, ANSI/IEEE C62.45, IEEE C62.412002 C High</li> </ul>
<b>MCP Series</b> Protection for cabinet/ pedestal applications	<ul style="list-style-type: none"> <li>SASD technology with MOV backup</li> <li>Line and load bidirectional protection</li> <li>Visual and remote status indication</li> <li>Hardwired, compact suppression module</li> </ul>	<ul style="list-style-type: none"> <li>120/240 Vac split phase, 120/208 Vac 3-phase wye, 240 Vac single phase configurations available</li> <li>Standards: IEEE C62.41, IEC 61643-1, UL 1449 3rd Edition on selected models</li> </ul>

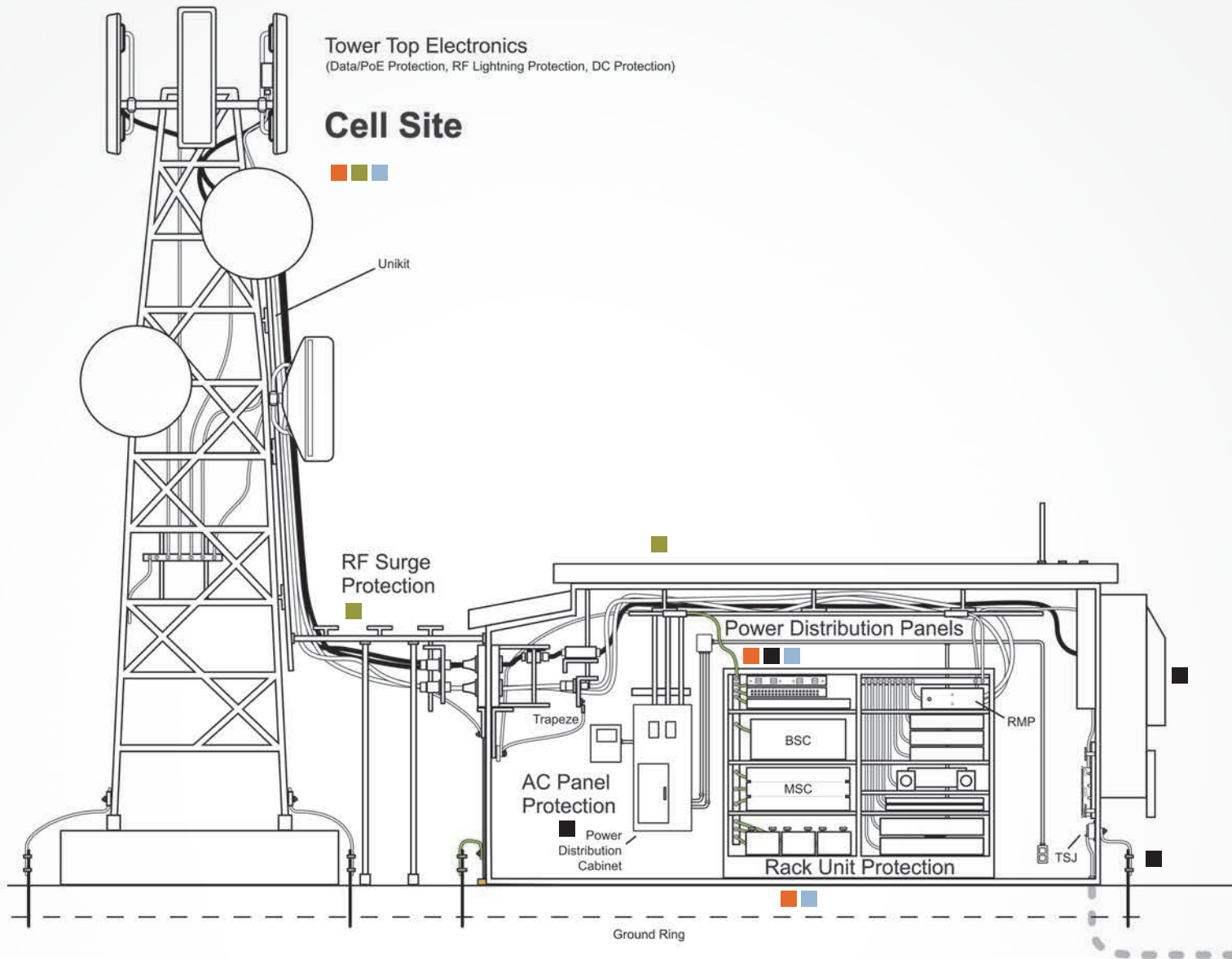


# DC Surge Protection



PRODUCT	FEATURES AND BENEFITS	OPTIONS/STANDARDS
<b>3DC48-20</b> 48 Vdc multi-line surge protector	<ul style="list-style-type: none"> <li>• High surge current capacity MOV technology</li> <li>• Low let-through voltage</li> <li>• All mode protection series device</li> <li>• Wall mount</li> </ul>	<ul style="list-style-type: none"> <li>• Protection modes options: Pos-Neg, Pos-GND or Neg-GND</li> <li>• Standards: RoHS compliant</li> </ul>
<b>DRDC Series</b> Superior surge protection for low frequency data lines	<ul style="list-style-type: none"> <li>• SASD technology</li> <li>• DIN rail mount with replaceable suppression module, no rewiring required</li> <li>• Screw terminals accept 28-12AWG</li> </ul>	<ul style="list-style-type: none"> <li>• 7, 12, 24, 48, 70 Vdc configurations available</li> <li>• Standards: IEEE C 62.41, FM approval Class I Division II, CE, ATEX EU Directive 94/9/EC, UL 497B (except DRDC-70)</li> </ul>
<b>I2R IEP DC Series</b> Silicon surge protection for DIN rail mount applications	<ul style="list-style-type: none"> <li>• Silicon diode surge protection</li> <li>• Replaceable suppression module</li> <li>• Visual and remote (dry contact relay) status indication</li> </ul>	<ul style="list-style-type: none"> <li>• 12, 24, 48 Vdc configurations available</li> <li>• Standards: IEC 61643-1, RoHS compliant</li> </ul>
<b>I2R ICP Series</b> Silicon surge protection for DIN rail mount applications	<ul style="list-style-type: none"> <li>• Silicon diode surge protection</li> <li>• Parallel installation</li> <li>• Replaceable suppression module, no rewiring required</li> <li>• Visual and remote (dry contact relay) status indication</li> </ul>	<ul style="list-style-type: none"> <li>• 12, 24, 48 Vdc configurations available</li> <li>• Standards: IEEE C62.41, UL 497B</li> </ul>
<b>DC Defender</b> 48 Vdc silicon surge protection for indoor/outdoor tower top antennae applications	<ul style="list-style-type: none"> <li>• Series fused, SASD surge protection</li> <li>• NEMA 3R enclosure</li> <li>• 3 mode DC power protection</li> <li>• 10 AWG wire for 15A circuits</li> </ul>	<ul style="list-style-type: none"> <li>• Panel and pole mount configurations</li> <li>• Standards: CE 60950, NEMA 3R, RoHS compliant</li> </ul>
<b>DRI Series</b> Two pair   four wire protection approved for hazardous locations	<ul style="list-style-type: none"> <li>• SASD technology</li> <li>• Line and load bidirectional protection</li> <li>• Plug-in, suppressor modules, DIN rail mount</li> <li>• Visual and remote (dry contact relay) status indication</li> </ul>	<ul style="list-style-type: none"> <li>• 24,120 Vdc configurations available</li> <li>• FM approval Class 1 Division II</li> <li>• CE</li> <li>• ATEX EU Directive 94/9/EC</li> </ul>
<b>DCOD Series</b> Silicon surge protection for indoor/outdoor tower top antennae applications	<ul style="list-style-type: none"> <li>• SASD technology</li> <li>• Series 25A two port protection</li> <li>• Surge and protected wiring terminals</li> <li>• Remote status monitor relay contacts</li> </ul>	<ul style="list-style-type: none"> <li>• 24, 48 Vdc configurations available</li> <li>• 2.5kA and 5kA 8/20us surge withstand configurations available</li> <li>• Standards: IEC 61643-11 compliant, CE 6095, NEMA 3R</li> </ul>
<b>IX DC Series</b> Configurable wire pair outdoor protection	<ul style="list-style-type: none"> <li>• Hybrid technology</li> <li>• Series two port protection</li> <li>• Surge and protected wiring terminals</li> </ul>	<ul style="list-style-type: none"> <li>• 12, 24, 48 Vdc configurations available</li> <li>• 1, 2, 3 and 4 wire pair configurations available</li> <li>• Standards: UL497B, CE 60950</li> </ul>





## DATA LINE PROTECTION



TSJ



ALPU PoE



TSJ-X6

## RF PROTECTION



TSXDC-DFM



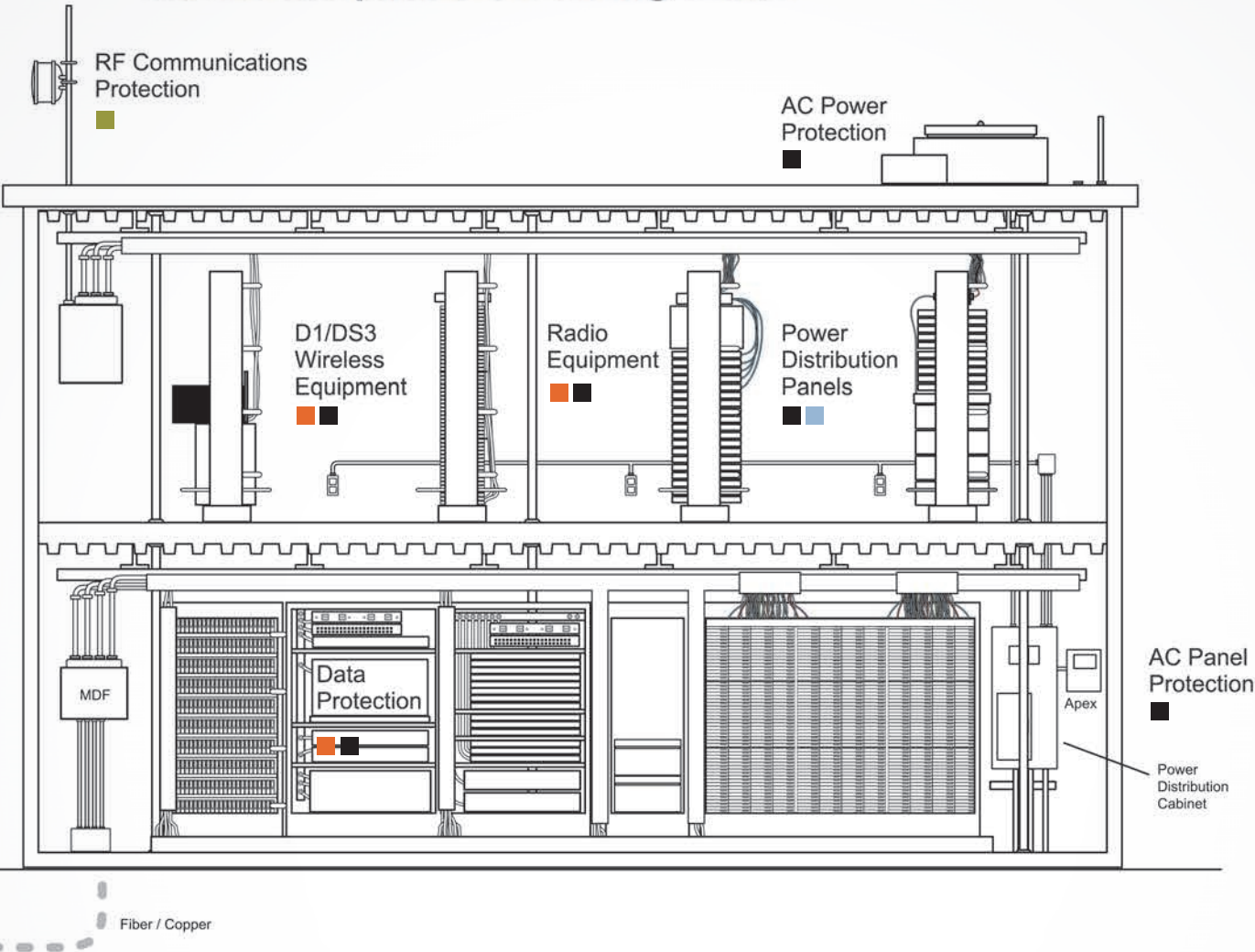
DGXZ+06NFNF-A



GT-NFF



# Mobile Telephone Switching Office



## AC PROTECTION



I2R Storm Series



AC Edge Series



IMAX Series

## DC PROTECTION



3DC48-20



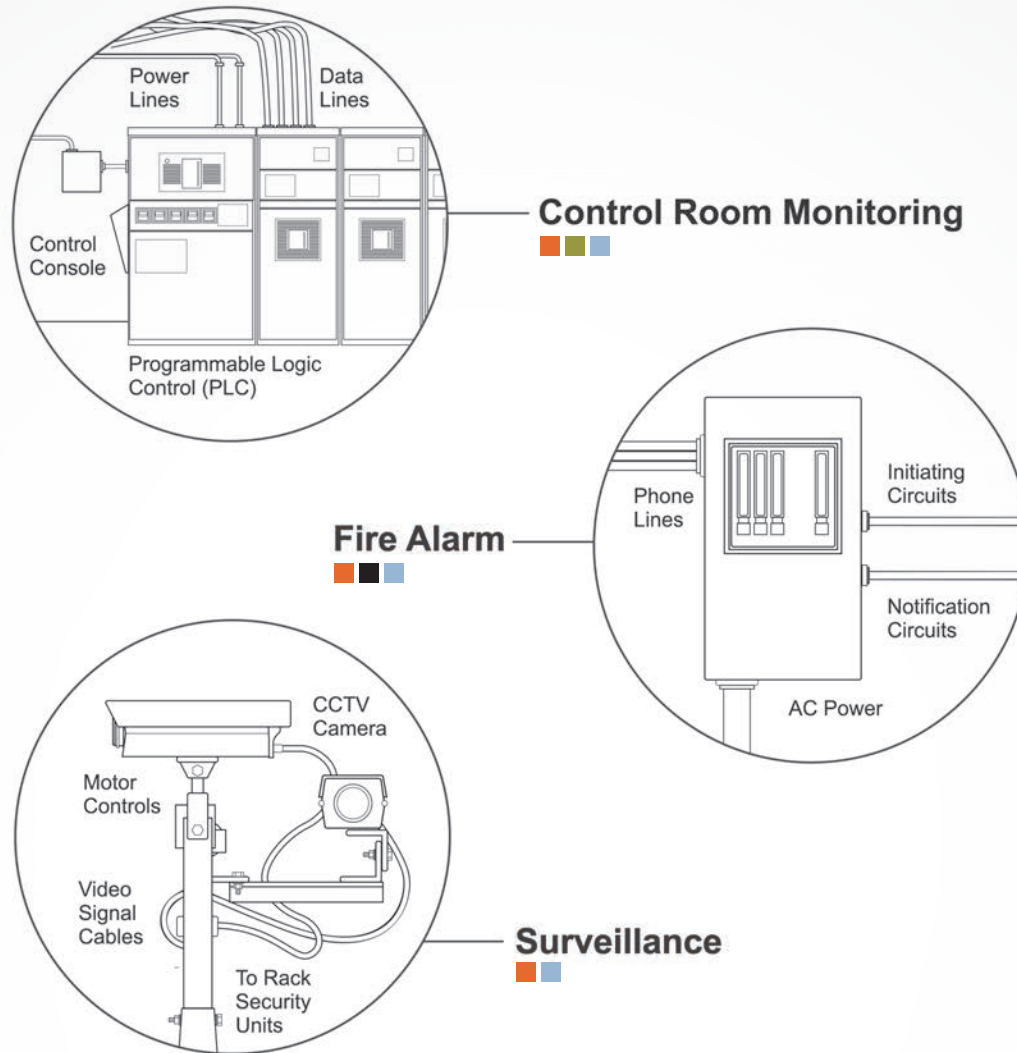
DC Defender



DCOD



# Security Solutions



## DATA LINE PROTECTION



ALPU PoE



FSP4002



CCTV-PTZ



TSJ PoE 56

## RF PROTECTION



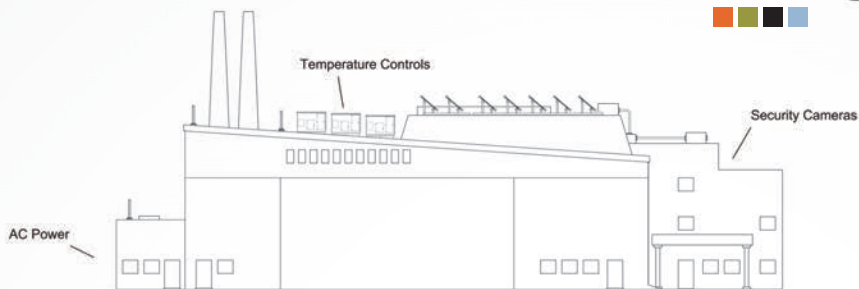
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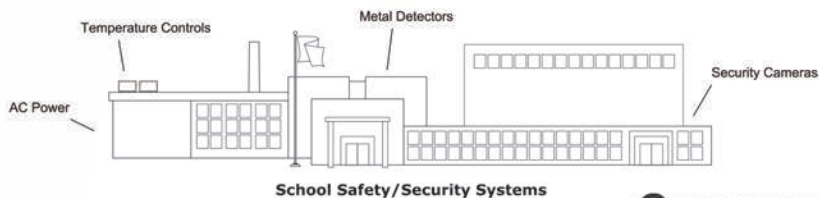
AL-LSXM



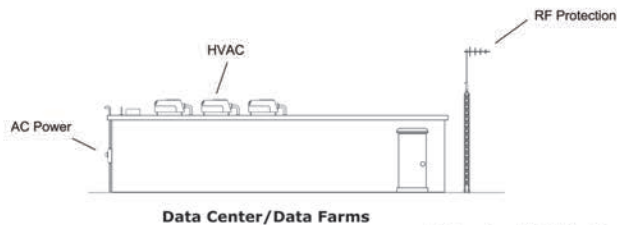
## Banking Facilities



## Commercial Sites



## Government Institutions



## Data/Distribution Sites



### AC PROTECTION



TSX-NFF



APEX IV Series



AC Edge Series

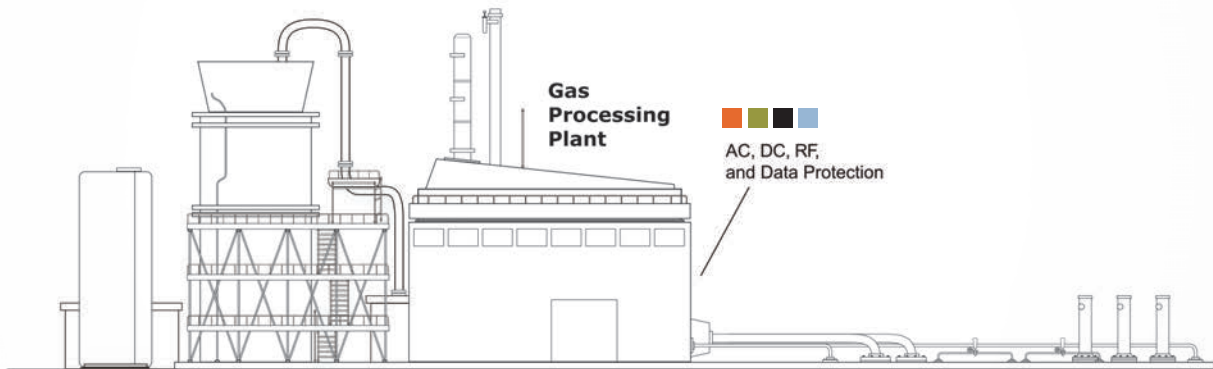
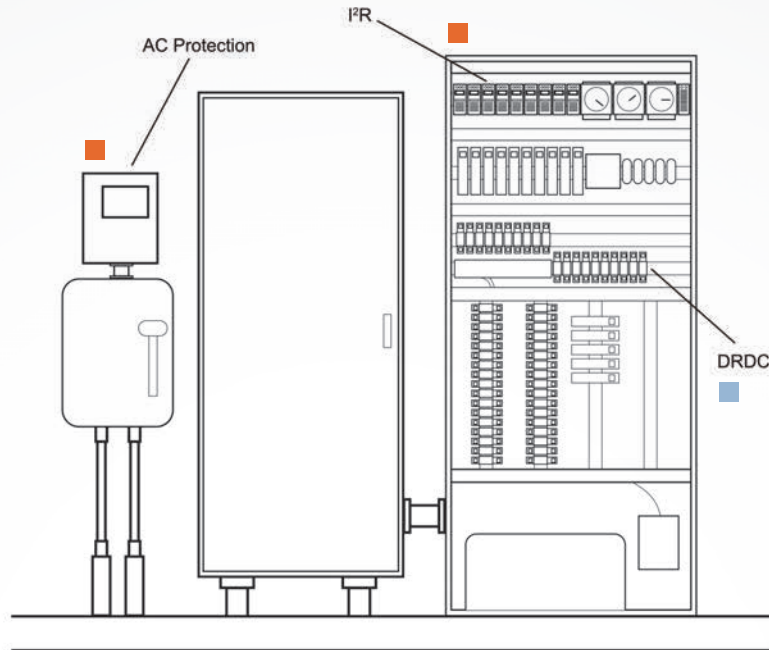


DRDC



3DC48





## DATA LINE PROTECTION



TSJ PoE 56



TSJ 10 100BT

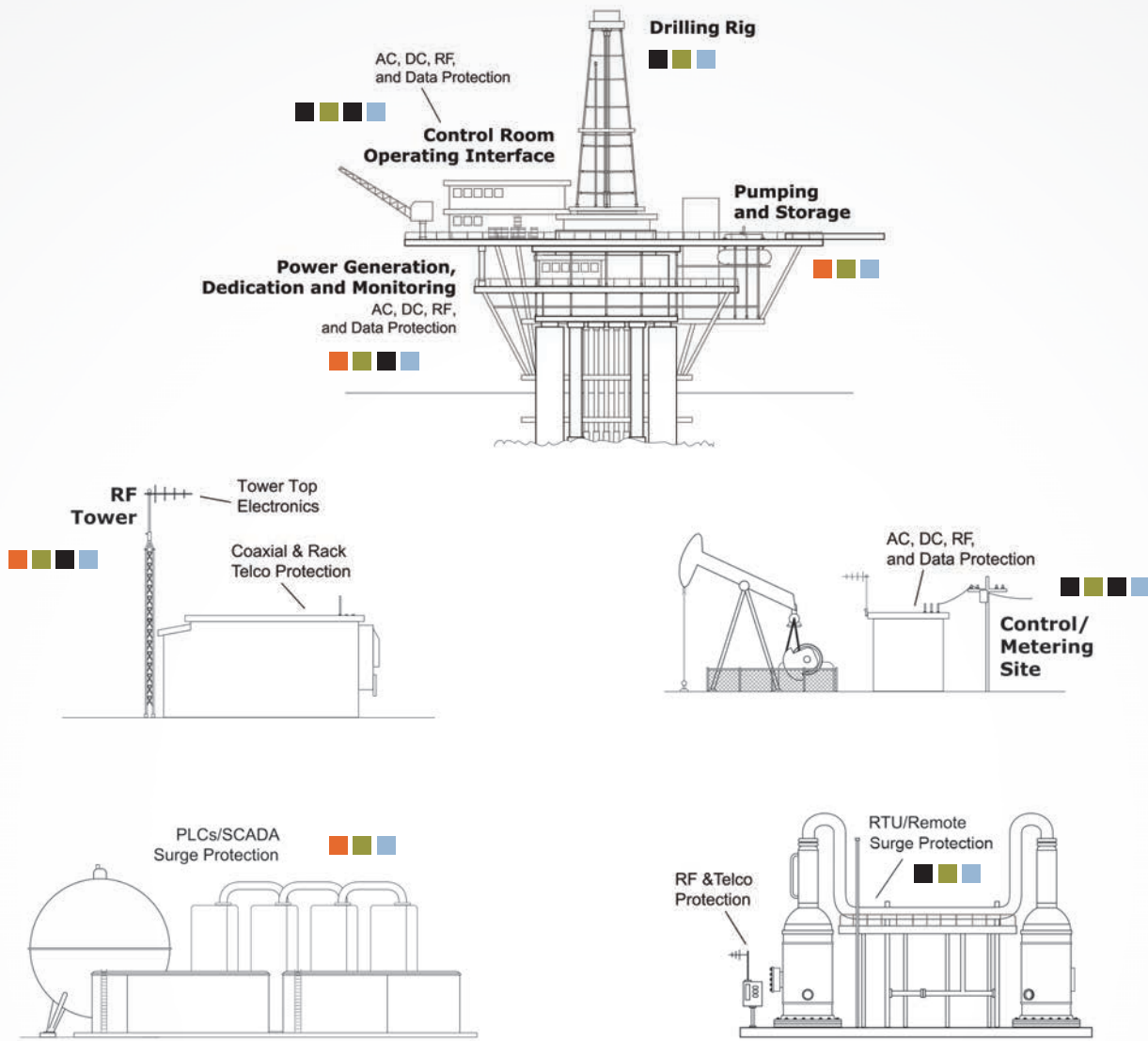
## RF PROTECTION



AL-LSXM-MA



IS-B50LN-C2-I



## AC PROTECTION



AC Edge Series



I2R Storm Series



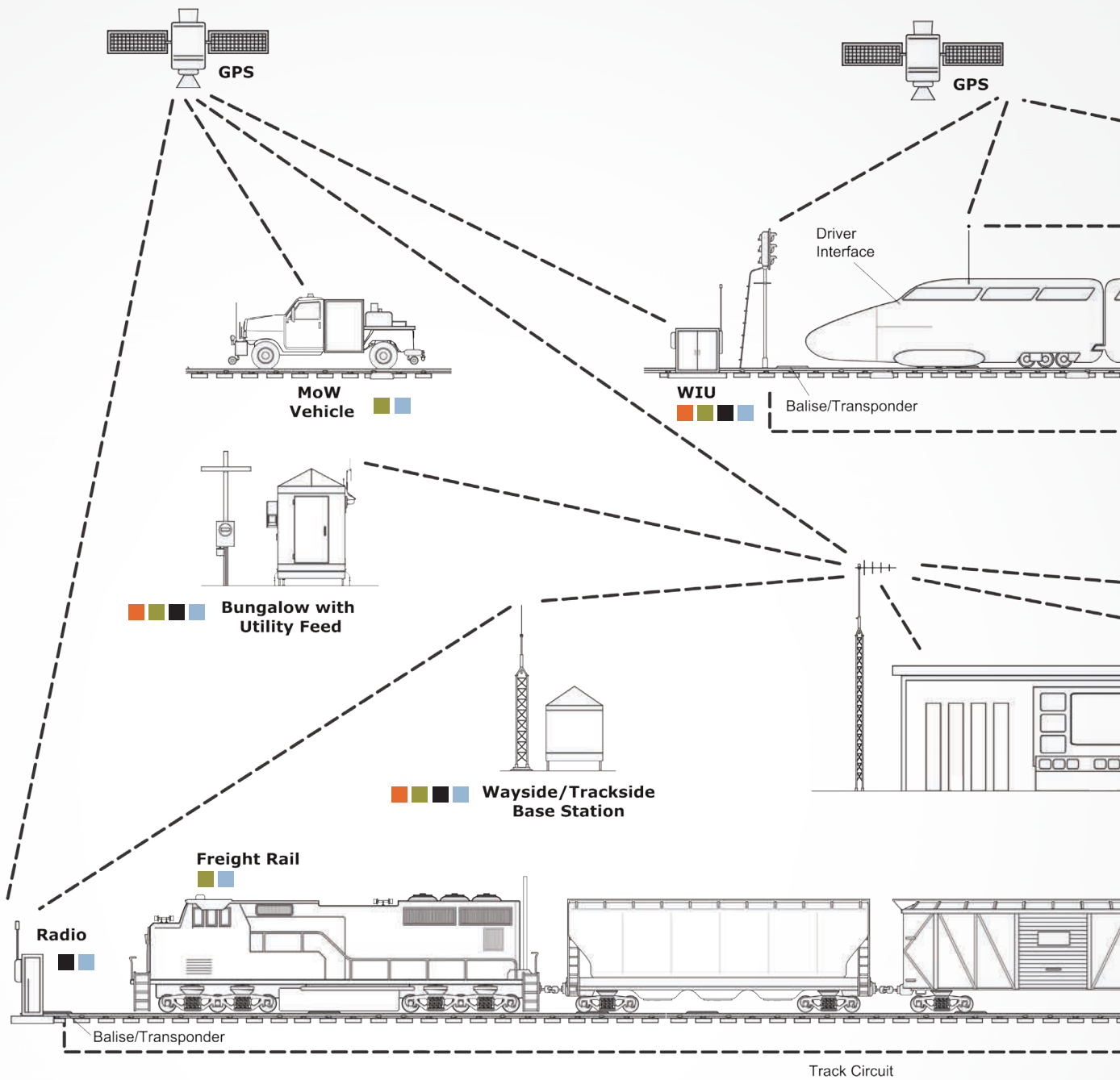
DRDC



DRI Series



# Rail Transportation Solutions



## DATA LINE PROTECTION



ALPU PoE



TSJ PoE 56



DGXZ+06NFNF-A



VHF50HN



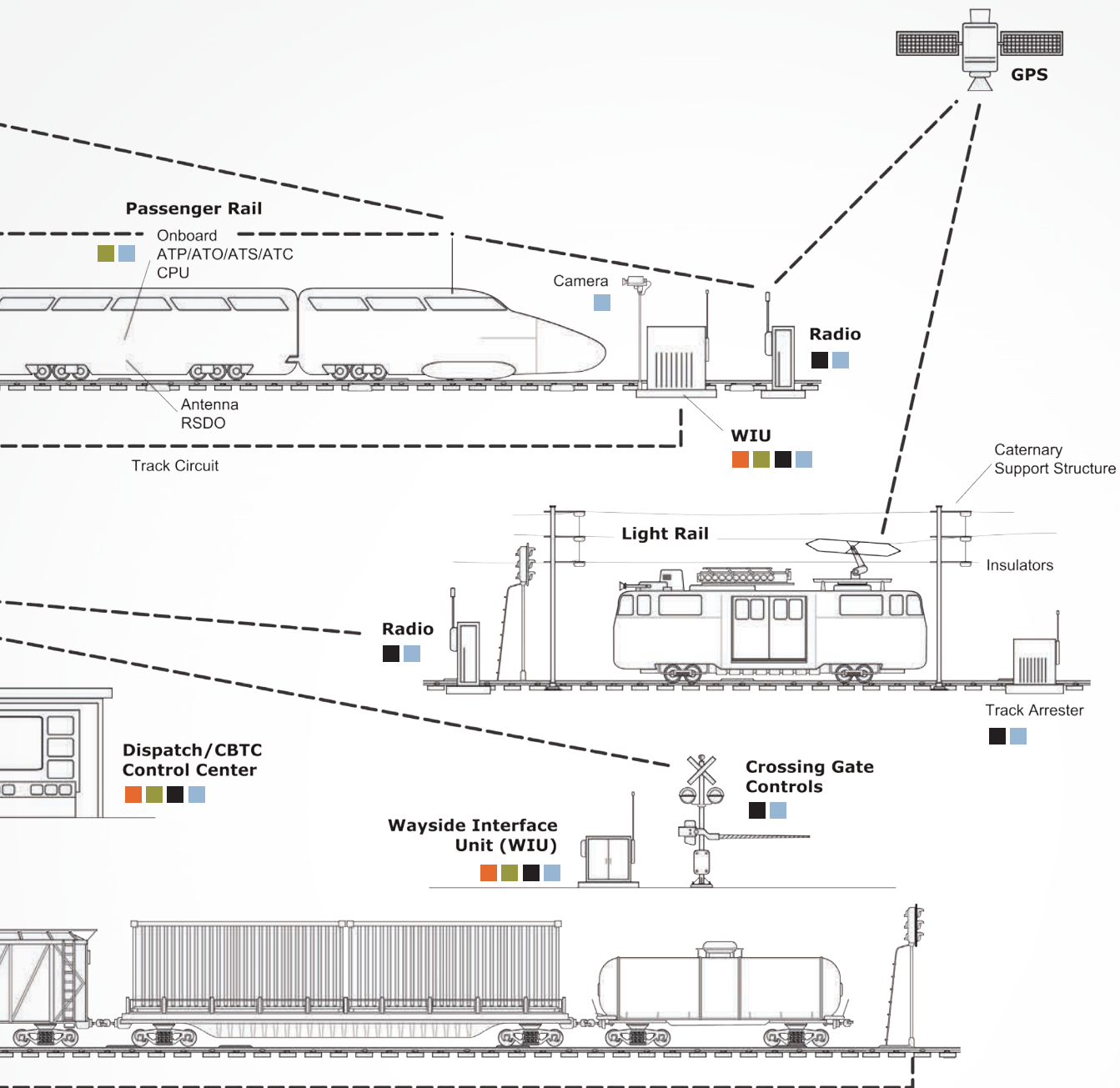
RRF Filter Series



TSX-DFD

## RF PROTECTION





## AC PROTECTION



I2R Storm



I2R SA Series



DRDC



DRI24



I2R IEP



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