





COMPANY

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Company Introduction

Application Space

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Metro
and Train
Transportation

Defence

Bus
Transportation

Industrial

Public
Safety

- Ruggedness
- Reliability
- Extended Temperature
- High Availability
- Scalability





Company Introduction

Our Global Footprint – Presence in Asia and Europe



Production



R &D - Engineering



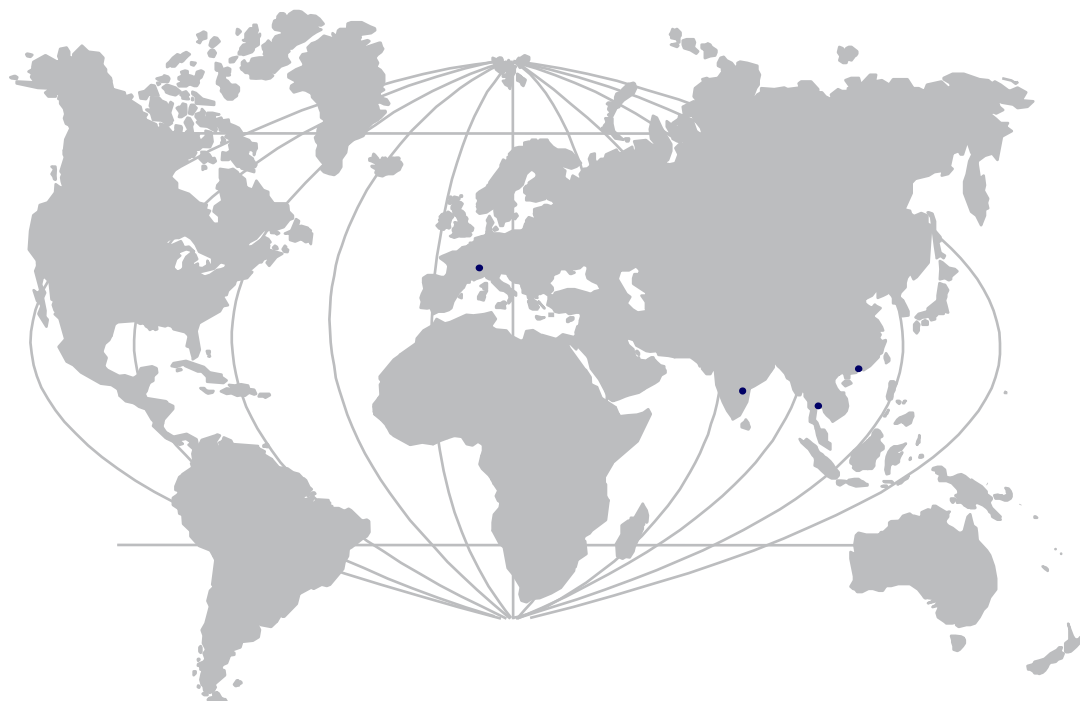
Sales



Logistics



Administration



Lyon -France



Bangalore



Bangkok



Hong Kong (HQ)





Company Introduction

DragonTech Activities

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- Architectural design and consultation
- Expert product and project sales
- Custom system design service
- Production services
- Certification
- Pre- and post-sales support
- Technology migration
- Training





Transportation

Our Systems and Solutions

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System Architechting and Project Management

Road Transportation

In-vehicle Computing
Security and Surveillance
Passenger WiFi
HMI

Rail and Rolling Stock

Networking, Ethernet & TCN
Diagnostics & Data Aquisition
Security and Surveillance
Passenger WiFi
Wireless Communication
HMI
Intelligent Security Systems

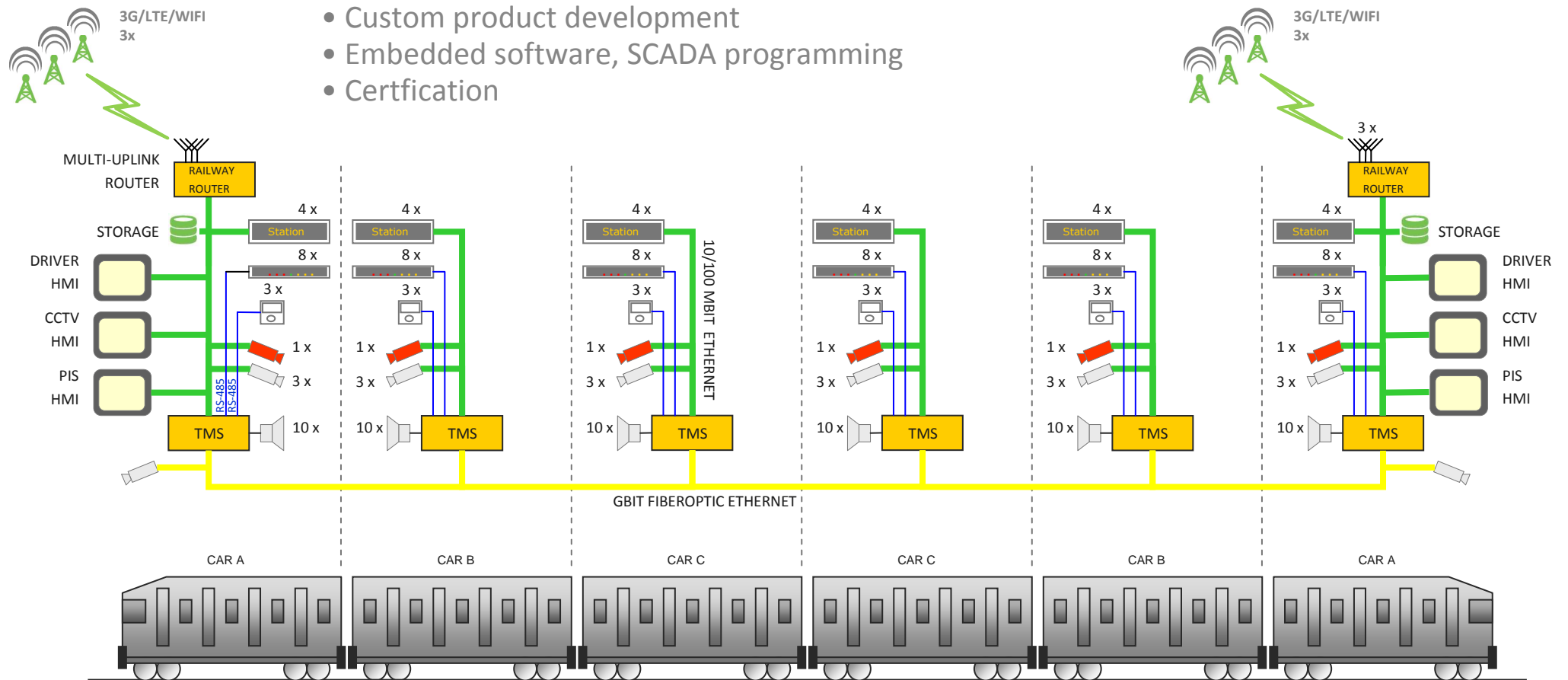


Railway and Rolling Stock

Project Engineering

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- Architechural design
- Systems engineering
- Custom product development
- Embedded software, SCADA programming
- Certification





Railway and Rolling Stock

Product Overview

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Passenger WiFi & Wireless Communication

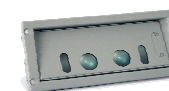
Computing, Control, Diagnostics
Data Acquisition

Displays and HMI

Networking, Ethernet, MVB, TCN

Passenger Counting

Intelligent Security



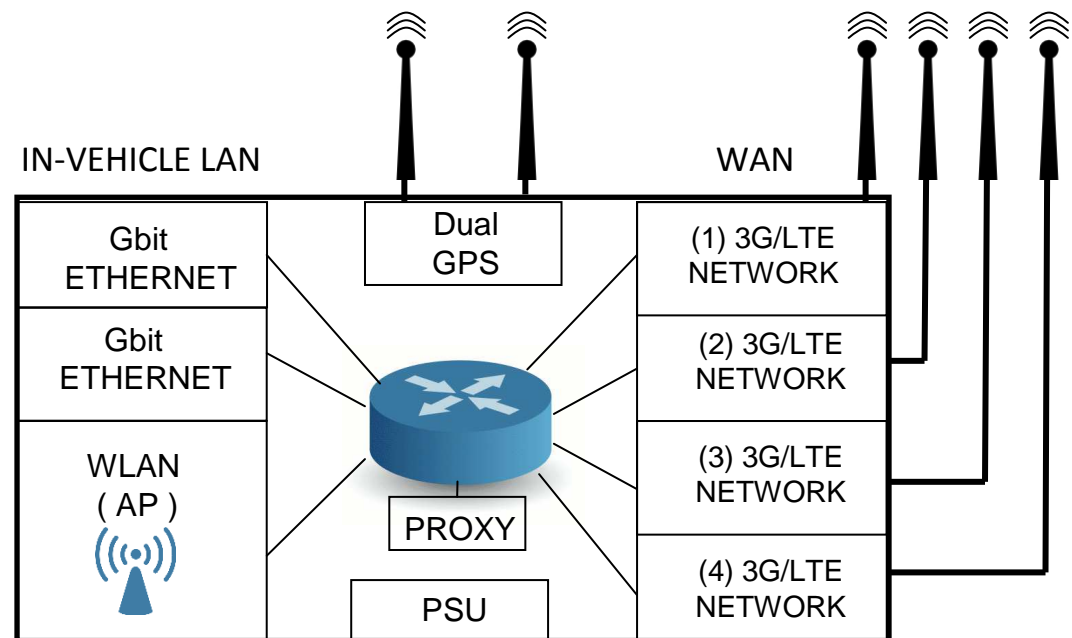


RIDE-IT-R Railway Router

System Overview

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- 3 or 4 3G/LTE/CDMA2000 EV-DO network uplinks supported
- Dual redundant GPS receivers
- Router maintains all available connection active and in parallel use
- Active VPN open on all connections ensures “0-Delay” handover and routing of traffic
- Network qualification criteria
 - Cell type
 - Signal strength
 - Data throughput
 - Latency
- All available networks used dynamically in parallel with active dynamic load balancing ensuring maximal available bandwidth for WiFi clients
- Optional 2GB compressing CACHE-PROXY

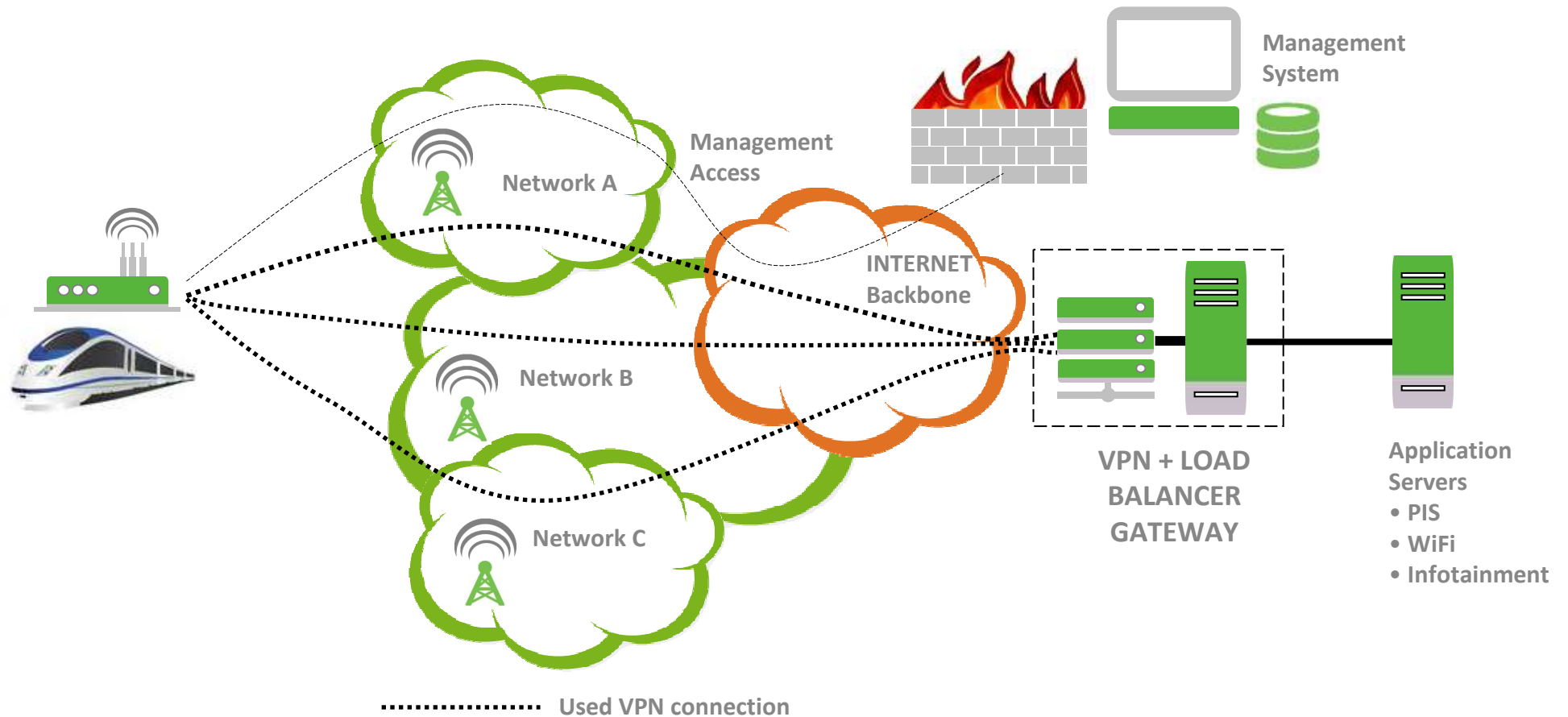




Routing Overview

Load Balanced Multi-Link Connection

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RIDE-IT-R Railway Router

System Description

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- Purpose-built for Railway Applications
- Embedded x86 Linux Computer
- Dragontech Advanced Routing Firmware
- Optional 2GB compressing RAM Web-CACHE
- WWAN
 - Up to 4x 3G/LTE/CDMA2000 Uplinks
 - 802.11 b/g/n WiFi
- LAN
 - 2x 10/100Mbit Ethernet Ports
 - 802.11 b/g/n WiFi Access Point (Opt.)
- Dual GPS receivers
- 24VDc Nominal Power Input
- 1500VDc Isolation
- M12 Ethernet Connectors
- -40 to +55°C (+70°C) Operating
- Conformally coated electronics (EN50155)



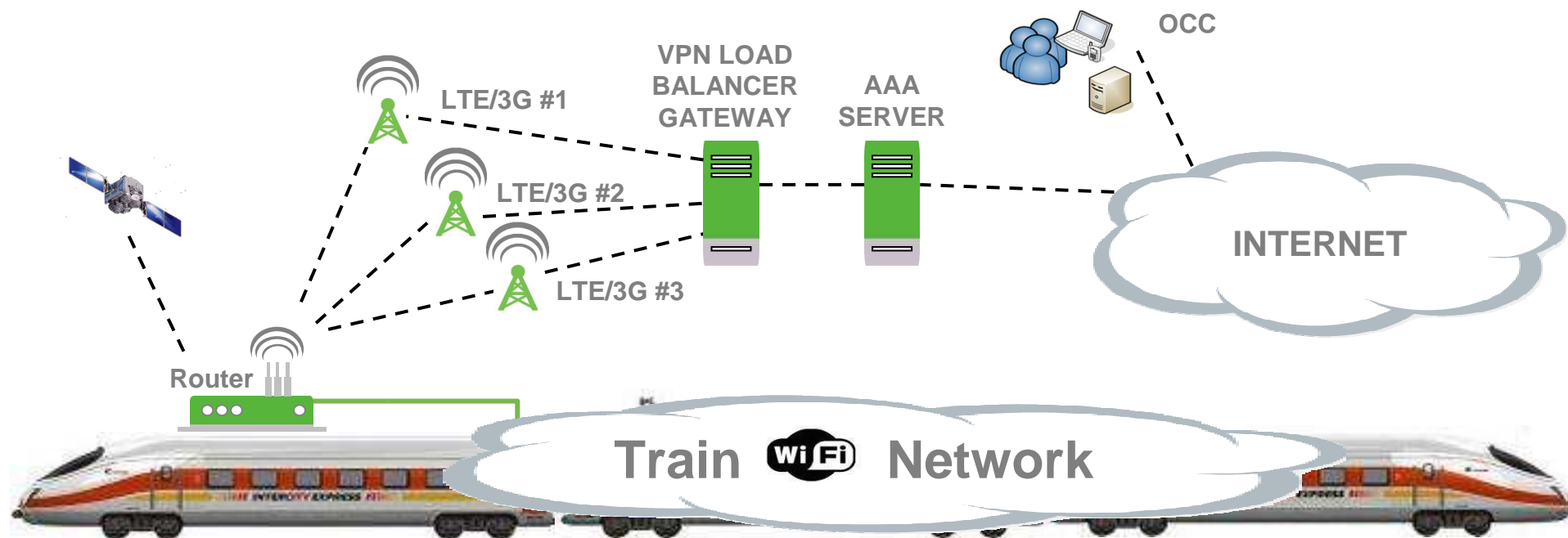
- Full Railway Compliance
 - EN50155
 - EN50121
 - EN55011
 - EN61373
 - IEC 61000-X-X
 - EN60950



Passenger WiFi

On-Board Multi-Uplink Broadband Router

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Railway and Rolling Stock

Computing, Control, Diagnostics and Data Acquisition



Durion 1300 GSM-R and MVB Gateway

- High Rel 1.3GHz ATOM Z510 processor
- Solid State Storage and Onboard Soldered 1GB RAM
- Support for Linux and WES – open SW architecture
- 2x Serial (RS232/485), USB, 10/100Mbit ETH
- Dual MVB (Duagon D144L)
- Optional GSM-R modem (Selex RGM 100)
- 24VDc Nominal Power supply (9-36VDc)
- EN50155, EN50121, EN61373 Qualified, conformal coating
- 25 to +55°C Operating (+70°C max)

Connectors

- Dual D-9 Connectors (MVB)
- SMA for Optional GSM-R
- D-Coded M-12 for Ethernet
- MIL-series connectors for Power and I/O



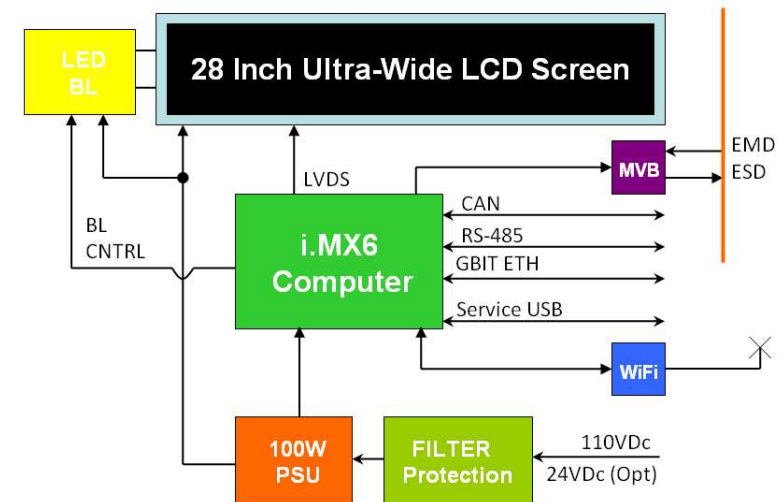
Railway and Rolling Stock

LCD Dynamic Route Map System (DRMS)

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DG-DRM28 – 28" 16:3 LCD Display with LED backlight

- 28" Ultra-Wide active matrix color TFT
- Resolution 1920 x 357
- Display area 698.4 (H) x 129.86(V)
- Brightness >1000nit, contrast 3000:1
- 1GHz i.MX6 processor with Linux OS and control Firmware
- Intelligent monitoring and control system, thermal protection
- Autonomous operation, display and content management
- 10/100/1000 Mbit Ethernet, 802.11n WiFi
- Optional MVB (ESD and EMD), CAN-bus, RS-485
- 110VDc nominal (24VDC Optional), 35W power consumption
- -25 to +55°C operating temperature IP54 on front side
- EN50155 Qualified





Railway and Rolling Stock

LCD Dynamic Route Map System (DRMS)

13

DG-DRM48 – 48" 16:3 LCD Display with LED backlight

- 48,4" Ultra-Wide active matrix color TFT
- Resolution 1920 x 358
- Display area 1209.6 (H) x 225.5(V)
- Brightness >1600nit, contrast 8000:1
- 1GHz i.MX6 processor with Linux OS and control Firmware
- Intelligent monitoring and control system, thermal protection
- Autonomous operation, display and content management
- 10/100/1000 Mbit Ethernet, 802.11n WiFi
- Optional MVB (ESD and EMD), CAN-bus, Isolated RS-485
- 110VDC nominal (24VDC Optional), 85W power consumption
- -25 to +55°C operating temperature IP54 on front side
- EN50155 Qualified



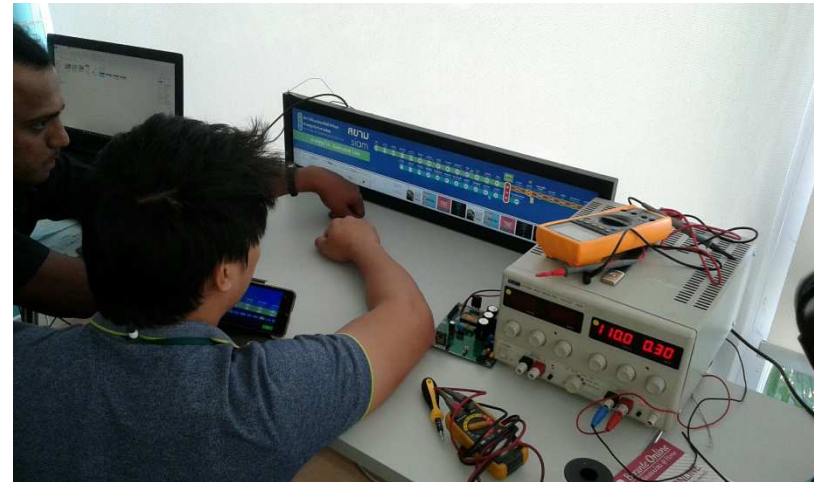


Dynamic Route Map Systems

Software Solution Engineering

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- Linux Based Firmware Engine
- Display content control, animations development using QT toolchain
- Standard development platform
- Ready to use interface functions
- Functions for backlight control, LCD power ON-OFF, temperature monitoring and system status
- Tested interfaces to onboard signalling systems
- Integration, SW development services available for projects





Railway and Rolling Stock

LED Matrix PIS Display Systems

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DynaDOT 10-13 – 58 x 18 LED Matrix Display

- Active Area 232 x 72 mm, resolution 58 x 18 dots, 4mm pitch
- Brightness >2.000cd/m2, $\pm 30^\circ$ view angle, LED Color Yellow (590nm)
- 10/100 Mbit Ethernet, Internal switch for daisy chaining
- 110VDc nominal (77 to 137.5VDc) , 15W consumption
- -25 to +55°C operating temperature EN50155-T3, IP54
- EN50155, EN50121, EN61373 Qualified



DynaDOT 10-14 – 132 x 48 LED Matrix Display

- Active Area 192 x 528 mm, resolution 48 x 132 dots, 4mm pitch
- Brightness >2.000cd/m2, $\pm 60^\circ$ view angle, LED Color Yellow (590nm)
- 10/100 Mbit Ethernet, Internal switch for daisy chaining
- 110VDc nominal (77 to 137.5VDc) , 65W consumption
- -25 to +55°C operating temperature EN50155-T3, IP54
- EN50155, EN50121, EN61373 Qualified



SYS-0041-10 – 1U Train PIS Server

- Intel Core i7 620UE at 1.06 GHz , 8GB RAM, 100GB High-REL HDD (+85°C)
- GPS, 3G modem, 2x Serial ports (RS-232/485), 2x 10/100Mbit ETH, 6x USB
- +24VDC (35W) Power, -25 to +55°C , T1 - EN51055

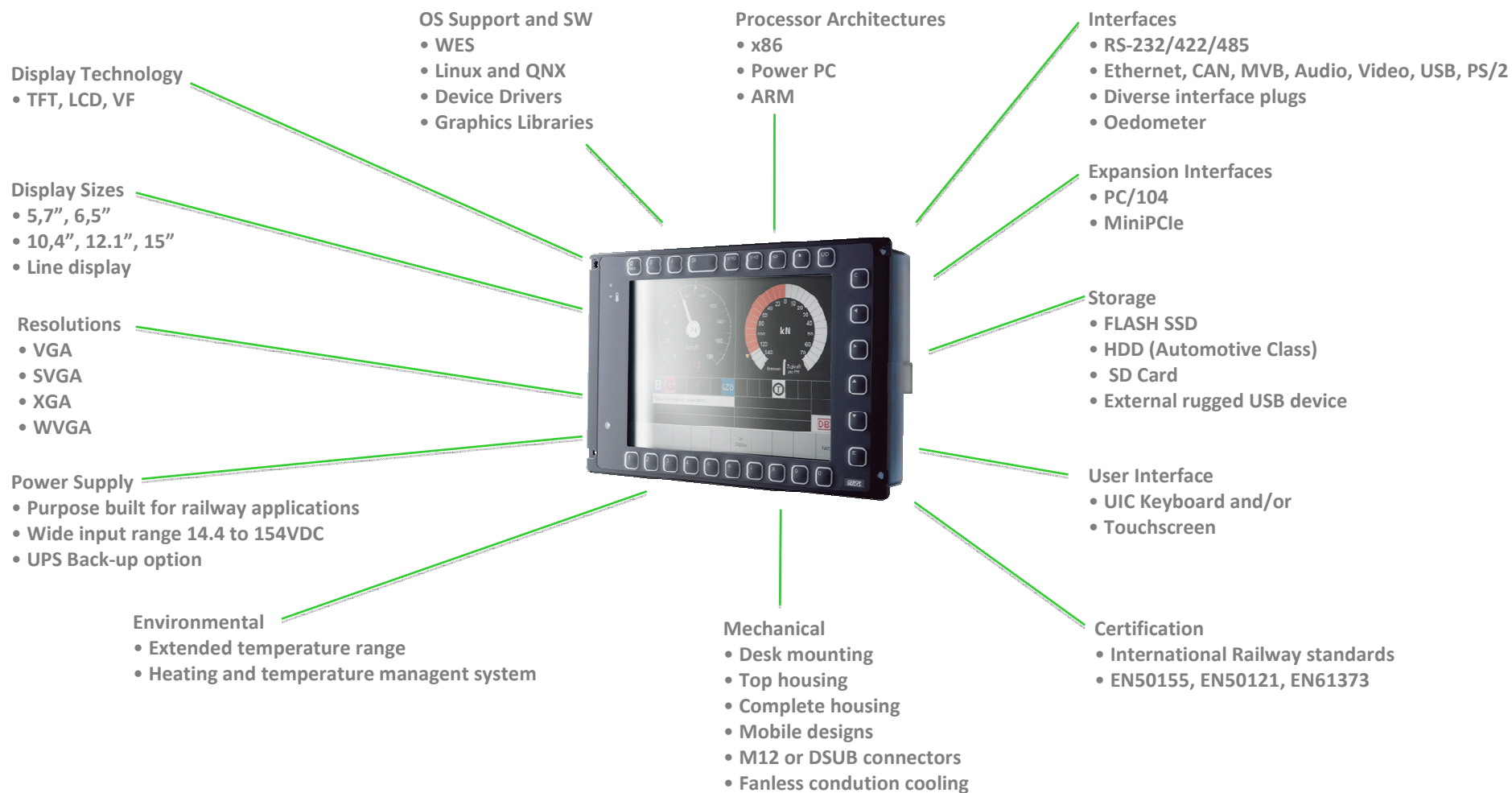




Railway and Rolling Stock

Intelligent All-in-One HMI - Overview

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Railway and Rolling Stock

Intelligent All-in-One HMI - 5,7 and 8,4"

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DG-HMI-10-10 – Wireless HMI

Intel ATOM 1.1 GHz, RAM 512 MB soldered on board
2 GB soldered SSD, Removable microSDHC
5,7" backlit transmissive VGA color TFT with touchscreen
50 channel GPS, 802.11 a/b/g/, 3G Modem (Optional)
Maintenance USB, USB 2.0, Isolated RS-232 and RS-485
5 DOUT, 10 DIN, odometer input – all isolated
Full Audio I/O, Microphone, Headset, Speakers
2 x Gigabit Ethernet ports
10.5 to 36 VDC Isolated power supply
-20 to +55°C operating temperature
EN50155, EN50121, EN61373 Qualified



DG-BC2400 – Power PC Railway HMI

400MHz PowerPC MPC5200B, onboard FLASH 128MB, RAM 32MB
5,7" backlit LCD type VGA color TFT with brightness control
27 LED backlit pushbuttons
Ethernet, Serial, USB ports
24 VDC (+/-40%) Power supply (optional 110VDC)
-40 to +70°C operating temperature
EN50155, EN50121, EN61373 Qualified



DG-BC2200 – Railway HMI

1GHz Vortex Processor, RAM 256GB
Primary (1GB Flash) and Secondary CF slots
8,4" LED backlit LCD VGA (SVGA or XGA) color TFT
Resistive Touchscreen
32 LED backlit UIC612 pushbuttons
Ethernet, Serial (RS232 and 2x RS485), USB ports
Internal PC/104 Expansion slot
24 -110VDC (+/-40%) Power supply
-40 to +70°C operating temperature
EN50155, EN50121, EN61373 Qualified



Railway and Rolling Stock

Intelligent All-in-One HMI – 10,4”

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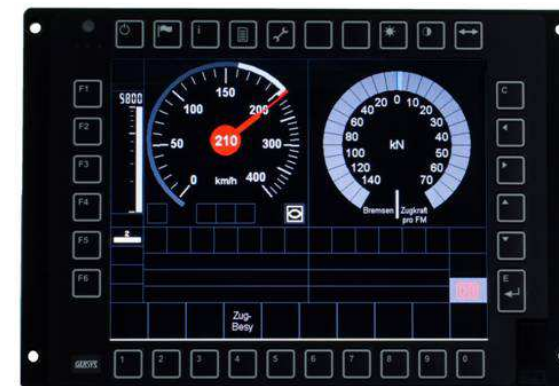
DG-BC3 – Integrated Railway HMI

CPU: ATOM Bay Trail | ARM9 | MPC5200 | x86 Vortex
RAM: 2-8GB | 1GB | 128MB | 256MB
STORAGE: 4GB CFAST | 4GB | 32MB | 2GB CF
CARD SLOT: SD | SD | CF | CF
LED backlit VGA TFT (Opt. SVGA or XGA), Touchscreen
UIC612 LED backlit short-keys
Ethernet, RS232, RS422/485, USB, PC/104, MiniPCle
24 -110VDC (+-40%) Power supply
-25 to +70°C operating, -40C with optional heater
EN50155, EN50121, EN61373 Qualified
OPTIONS: ADIO, WiFi, CAN, MVB, AUDIO, front USB



DG-BC4 – Integrated Railway HMI

1GHz VIA Eden Processor, RAM 512GB
Storage >= 2GB CFlash
10,4” LED backlit LCD VGA color TFT
25 LED backlit short-keys
Ethernet, RS232 and RS422/485), USB, PS/2
Internal PC/104 Expansion slot
24 -110VDC (+-40%) Power supply
-25 to +60°C operating temperature
EN50155, EN50121, EN61373 Qualified
OPTIONS: GSM-R, WiFi GPS, CAN, MVB, AUDIO, HDD, UPS



DG-BC7 – Integrated Railway HMI

CPU: ATOM Bay Trail | AMD GX | x86 Vortex
RAM: 2-8GB | 2-8GB | 256MB
STORAGE: 4GB CFAST | 4GB CFAST | 2GB CF
CARD SLOT: SD | SD | CF
LED backlit VGA TFT (Opt. SVGA or XGA), Touchscreen
UIC612 LED backlit short-keys
Ethernet, RS232, RS422/485, USB, PC/104, MiniPCle
24 -110VDC (+-40%) Power supply
-40 to +70°C operating, -40C with optional heater
EN50155, EN50121, EN61373 Qualified
OPTIONS: ADIO, WiFi, CAN, MVB, AUDIO, front USB



Railway and Rolling Stock

Intelligent All-in-One HMI – 12,1" and 15"



DG-BC5 – Railway Touchscreen HMI

CPU: ATOM Bay Trail | ARM CORTEX A9 800MHz
RAM: 2-8GB | 1GB
STORAGE: 4GB CFAST | 4GB Onboard Flash
CARD SLOT: SD | SD
LED backlit 12.1" SVGA TFT (Opt. XGA)
Resistive CFG Touchscreen
Ethernet, RS232, RS422/485, USB, PC/104, MiniPCIe
24 -110VDC (+-40%) Power supply
-25 to +70°C operating, -40°C with optional heater
EN50155, EN50121, EN61373 Qualified
OPTIONS: ADIO, WiFi, CAN, MVB, AUDIO, front USB
Capacitive touchscreen, MIC and Speaker



DG-BC6 – Railway Touchscreen HMI

CPU: ATOM Bay Trail | ARM CORTEX A9 800MHz
RAM: 2-8GB | 1GB
STORAGE: 4GB CFAST | 4GB Onboard Flash
CARD SLOT: SD | SD
LED backlit 15" XGA TFT
Resistive CFG Touchscreen
Ethernet, RS232, RS422/485, USB, PC/104, MiniPCIe
24 -110VDC (+-40%) Power supply
-25 to +70°C operating, -40°C with optional heater
EN50155, EN50121, EN61373 Qualified
OPTIONS: ADIO, WiFi, CAN, MVB, AUDIO, front USB
Capacitive touchscreen, MIC and Speaker



Railway and Rolling Stock

Ethernet Networking – Standard Switches and AP

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DG-SW3080 and DG-SW1080

- 8x 10/100Mbit Ethernet ports
- Managed (3080) and Unmanaged version (1080)
- Supports redundancy modes
- SNMP reporting and management
- 12 - 48VDC supply voltage, 5W consumption
- 40 to +70°C operating temperature
- IP40 protection class
- EN50155, EN50121 Qualified



DG-SWP141

- 5x 10/100Mbit Ethernet ports
- 4x POE ports, 1x standard Ethernet port
- 30W output power per POE port
- M12 connectors for Ethernet and Power
- 50 - 57VDC supply, 3W consumption unloaded
- 40 to +70°C operating temperature
- IP40 protection class
- EN50155, EN50121 Qualified



DG-AP6620

- Dual RF 802.11 abgn WiFi up to 300 Mbps link speed
- WEP/WPA/WPA-PSK/WPA2/WPA2-PSK /802.1X
- 2x Gbit Ethernet with redundant mode
- X-Roaming with < 60 ms handover
- Multiple-SSID to 4 SSID and MAC filter
- 4x SMA antenna connectors
- Support dual AP/Dual Client /Bridge /AP-Client Mode
- Wireless connecting status monitoring, fault relay
- 1KV isolation for PoE P.D. port
- 12-48VDC supply, 11W power consumption,
- Warning by Syslog, Email, SNMP Trap, and Relay output
- IP40 protection class
- EN50155, EN50121 Qualified



Railway and Rolling Stock

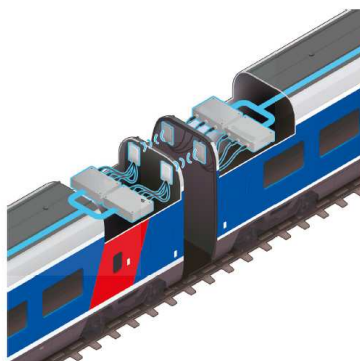
Wireless Ethernet – Fast Handover Redundant Radio AP

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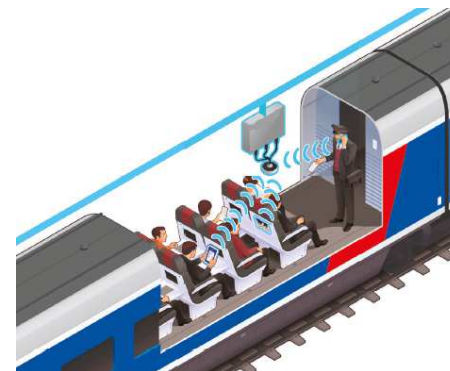
Train to Trackside Connectivity

- Dual redundant onboard networks with two clients at both ends of the train (VRRP)
- 802.11r fast transition protocol <30ms roaming
- Wireless WiFi preauthentication, OKC
- Dual Band 2.4/5GHz 802.11n, limitless channels
- VLAN, tunneling and radius authentication support
- Combine with RIDE-IT-R for 3G/LTE backhaul
- AP Configuration stored on removable service memory
- 24-110VDC isolated dual input power supply
- IP66 ingress protection, M12 connectors, -50 to +70C
- EN50155, EN50121, EN60068 Certified



Smart Redundant Coach Coupling

- Redundant onboard network with 2 WiFi couplers at both ends of the carriage
- Self-forming network, automatic carriage association
- Smart pairing prevents connection with neighboring trains
- Dual WiFi for simultaneous 2.4/5GHz operation
- High-speed throughput with 802.11n
- 24-110VDC isolated dual input power supply
- IP66 ingress protection, M12 connectors, -50 to +70C
- EN50155, EN50121, EN60068 Certified



Passenger AP

- Passenger-Service network separation
- VLAN, QoS/WMM, Tunneling
- Dual WiFi for simultaneous 2.4/5GHz operation
- Supporting up to 100 clients
- High-speed 802.11n
- WPA/WPA2, 802.11i, 802.1x (radius authentication)
- Combine with RIDE-IT-R for 3G/LTE backhaul
- Dual radio architecture enable use of same product for in-car AP and carriage coupler (SRCC)
- 24-110VDC isolated dual input power supply
- IP66 ingress protection, M12 connectors, -50 to +70C
- EN50155, EN50121, EN60068 Certified



Railway and Rolling Stock

Wireless Ethernet – Fast Handover Redundant Radio AP



DG-AP1300 – Railway AP

802.11n MIMO 3x3 rolling stock Access Point
5/2.4GHz dual WiFi radios
High speed air connectivity, up to 2x 300Mbps link speed
Security support: WEP, WPA/WPA-PSK (TKIP/AES), WPA2, WPA
PSK (TKIP/AES), 802.1x authentication
WMM, Qos, VLAN, L2-tunnel, Multi SSID
Turbo-roaming support, less than 30ms handover
AP/Client/Bridge/Repeater and AP-Client modes
802.11s MESH support (SAE security)
Dual Gigabit Ethernet ports (M12), RSTP redundancy
AP Configuration stored on removable service memory
Wireless connection status monitoring
Relay output warning: power fail, WLAN connection fail,
Watchdog, over heating, user defined (SNMP)
Secured management and monitoring with HTTPS
IP66 protection, N-SERIES Antenna connectors
+9VDC to +140VDC redundant PSU with 1500V isolation, POE+



DG-AP1400 – Railway AP

802.11n MIMO 3x3 rolling stock Access Point
Optional LTE modem/GPS
5/2.4GHz single or dual WiFi radio versions
High speed air connectivity, up to 1x or 2x 450Mbps link speed
Security support: WEP, WPA/WPA-PSK (TKIP/AES), WPA2, WPA
PSK (TKIP/AES), 802.1x authentication
WMM, Qos, VLAN, L2-tunnel, Multi SSID, VPN (IPSEC + OpenVPN)
Turbo-roaming support, less than 30ms handover, MIP for LTE
AP/Client/Bridge/Repeater and AP-Client modes
802.11s MESH support (SAE security)
Dual Gigabit Ethernet ports (M12), RSTP redundancy
AP Configuration stored on removable service memory
Wireless connection status monitoring
Relay output warning: power fail, WLAN connection fail,
Watchdog, over heating, user defined (SNMP)
Secured management and monitoring with HTTPS
IP66 protection, QMA-SERIES Antenna connectors
+24VDC to +140VDC redundant PSU with 1500V isolation, POE+



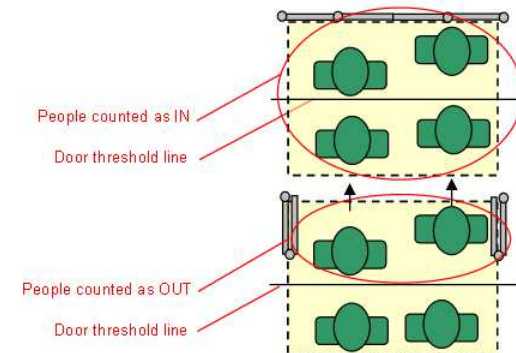
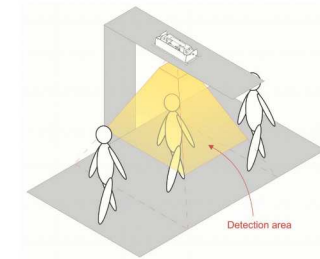
Passenger Counting

DynaPCN Series Products Highlights and Advantages

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- “Off the shelf” solution for passenger counting on metros and trains
- Mechanically adaptable to different ceiling or door structures
- Easy retrofit installation and cabling
- Intelligent standalone device reduces system complexity
- No need to recalibration or maintenance after installation and setup
- High accuracy bidirectional passenger counting with door open-close detection

- Stereoscopic Vision Detection technology
- RS-485 or Ethernet (DynaPCN 10-20) host interface
- High statistical detection accuracy 92-98%
- Robust, sealed, lightweight and reliable
- Compatible with different door widths and installation heights
- Easy interface to door sensor or door open-closed status signal
- Extended temperature operation, IP65 ingress protection
- Certified train standards EN50155, EN50121 etc.

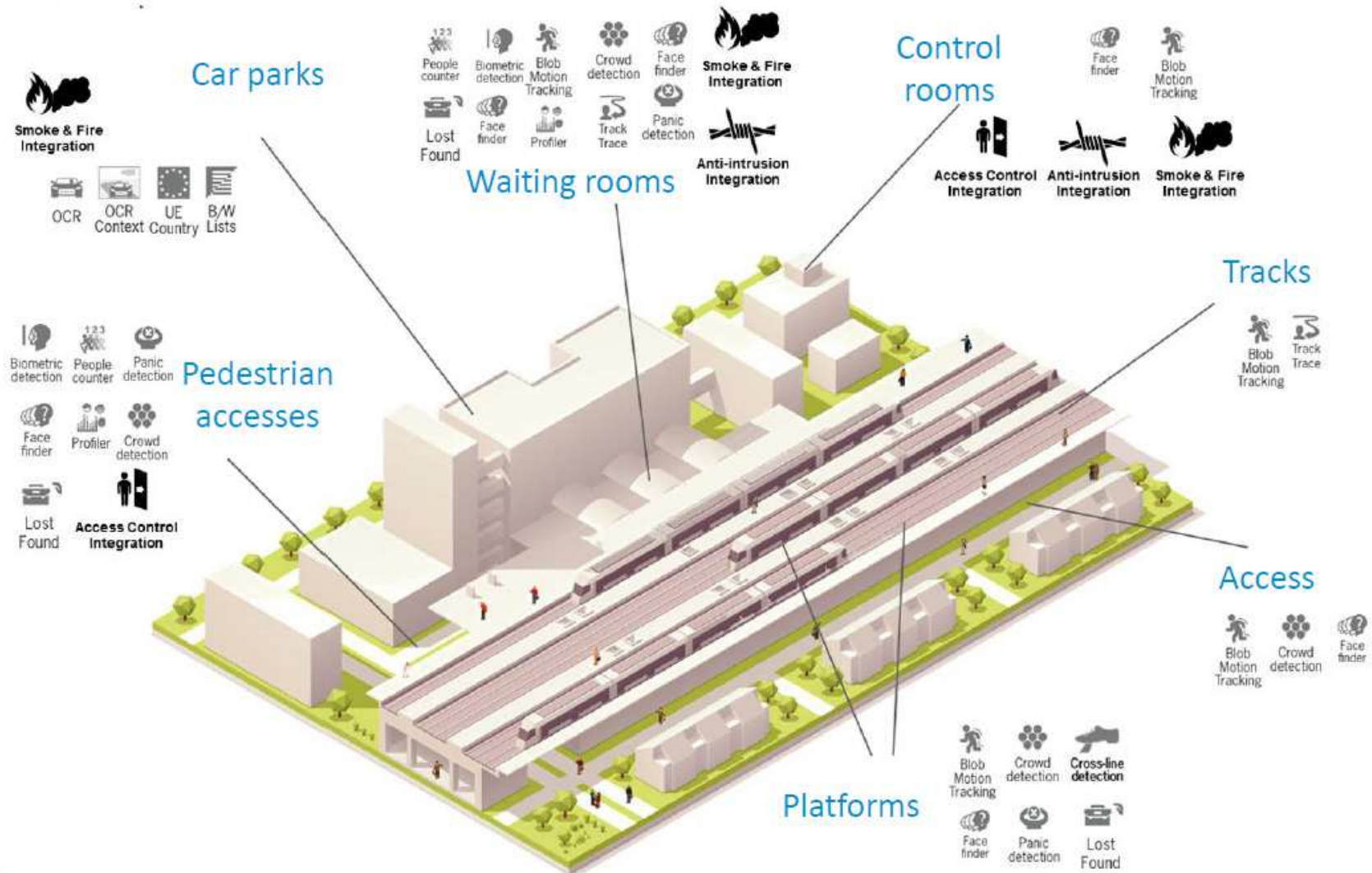




Railway and Rolling Stock

Intelligent Security – Stations

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Railway and Rolling Stock

Intelligent Security – Crowd, Panic, Fire and Yellow Line monitoring

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SecuCAM

Algorithms

- "Yellow-line" violation detection
- Blob Motion Tracking
- Tracking & Trajectory
- Fire and Smoke detection
- Face detection
- Crowd detection
- Panic Detection
- Number - Text Recognition
- Lost and Found Detection
- Traffic Controls
- Origin, Blind, Darkness Alarm

Features

- Full Ethernet IP support included UDP, TCP-IP.
- Internal storage @25 fps streaming MJPEG, H264 up to 48 hours .
- 752 x 480 D1 @ 30fps; 1280x960 1MP @ 20fps;
- 1080x1920 Full HD @30fps; 2592x1944 5MP @7fps;
- Power Supply 9-36 Vdc or POE; 9W
- Temperature range from -20° to +55°;
- Gigabit Ethernet, RS-485, 2x 24V Digital Inputs, 2x relay outputs
- EDC / Xentinel software compliant.
- CMOS colors Sensors high dynamic range and resolution.
- Day & Night operation
- 2GHz high-performance video Processor for real-time video analysis and multiple streaming
- Remote software upgradable.
- Compatible with software libraries Xentinel in Private or Cloud version.
- Platform Linux O.S. special and customized algorithms may be loaded



DragonTech Systems

Contact Information

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