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A **BELDEN** BRAND

Product Bulletin

PB00054HE

GREYHOUND 1040 Switch

Deliver on the high bandwidth and power needs of your network with a full Gigabit Ethernet switch that adapts to the changing demands of industrial environments.



Hirschmann's GREYHOUND 1040 switches meet evolving network needs by enabling you to change or add devices, without taking your network offline. This level of uptime and reliability is especially critical in applications, like physical security and video surveillance, and in the substation and transportation industries.

- **Offers high-performance capabilities** – deliver fast and reliable uplink speeds at a cost-effective price with the industry's first 2.5 Gigabit Ethernet (GE) fiber port option.
- **Flexible for the future** – keep pace with demands on your network by easily adding more ports or changing port types through the device's media modules.
- **Maximizes uptime** – maintain high levels of network availability through redundant power supplies you can change out in the field while under operation.

The GREYHOUND 1040 switches' flexible and modular design makes this a future-proof networking device that can evolve alongside your network's bandwidth and power needs. With a focus on maximum network availability under harsh industrial conditions, these switches feature power supplies that can be changed out in the field. Plus, two media modules enable you to adjust the device's port count and type – even giving you the ability to use the GREYHOUND 1040 as a backbone switch.

Applications

For industries that require switches with a high port count, varying port types, redundant power supply, and support for powerful devices, the GREYHOUND 1040 switches offer the flexibility to meet the demands of these environments.

These ruggedized switches have been specially designed to handle the increasing bandwidth and Power over Ethernet (PoE) needs in transportation and physical security applications. For example, when more cameras and wireless access points are connected to the network, they need power.

In the transportation industry, the GREYHOUND 1040 switches are ideal for passenger and information systems in train stations and traffic surveillance on highways, bridges and in tunnels. They also can handle demanding electrical power applications, including new or retrofitted substations.

Your Benefits

To help balance network speed and cost, the GREYHOUND 1040 switches are the first to offer a unique, new 2.5 GE fiber option, which is expected to be a future IEEE standard. This enables you to manage more bandwidth through a single port, or by combining several 2.5 GE ports, without incurring the expense of a 10 Gigabit device.

GREYHOUND 1040 switches also help you react quickly to changing network requirements, for instance if your network topology or port type needs change. These adjustments can take place in the field on a live network, without disrupting communication.

**A new product to
serve your needs.
Be certain.**



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The GREYHOUND 1040 switches include 12 fixed ports and also feature two media module slots that enable you to add 8 additional ports each, for a maximum of 28 ports per device.

The switch's two power supplies, available in high- or low-voltage options, can be changed in the field for maximum uptime. You can keep your systems up and running by quickly swapping out one power supply, while the network is powered by the redundant supply. More and more applications need power, and the GREYHOUND 1040 switches support up to 16 PoE and PoE+ ports.

For all-around network protection and uptime, GREYHOUND 1040 switches offer enhanced Layer 2 and Layer 3 features through Hirschmann's operating system, HiOS. The software includes comprehensive security, diagnostic and redundancy features. The device's precise synchronization also enables applications to comply with stringent real-time requirements.



Benefits at a Glance

- High port count, with up to 28 GE ports total
- Easily upgradeable due to 2 or 4 dual-speed SFP ports supporting 1 or 2.5 GE
- Choose from copper and fiber media modules – easy to swap in the field
- Ports can be mounted on the front or rear of the device
- Two hot-swappable power supplies (low and high voltages available)
- Operates at an extended temperature range from -40 °C to +70 °C
- Resists vibration and immune to electrostatic discharges
- Range of new software features available through HiOS, including Layer 3 capability and extensive security functions
- Works seamlessly with the Hirschmann Rail Switch Power (RSP) family of switches, including RSPE, RSP, RSPL, and RSPS
- Certified for applications requiring specific standards, certifications and approvals, including:
 - Safety of Industrial Control Equipment: EN60950-1, EN 61131-2 and UL60950
 - Transportation: NEMA TS2, EN 50121-4 and EN 50155
 - Substations: IEC 61850-3 and IEEE 1613
 - Marine: GL/DNV (Germanischer Lloyd/Det Norske Veritas) (pending)
 - Hazardous Locations: ISA-12.12.-01 Class 1 Div. 2 (pending)






Technical Information


Product Description Basic Units		
Type	GRS1042-xx	GRS1142-xx
		
Description	Modular Managed Industrial Switch, fanless design, Layer 2 or Layer 3	
Port Type and Quantity	Ports in total up to 28 Basic unit 12 fixed ports: 2 x GE/2.5GE SFP slot plus 10 x FE/GE TX ports expandable with two media module slots; 8 FE/GE ports per module	Ports in total up to 28; ports on rear Basic unit 12 fixed ports: 4 x GE/2.5GE SFP slot plus 2 x FE/GE SFP plus 6 x FE/GE TX expandable with two media module slots; 8 FE/GE ports per module
Number of Fiber Ports	Up to 22 fiber ports: 18 GE/FE plus 4 x 2.5 GE/GE	
Additional Interfaces		
V.24 Interface	1 x RJ45 socket	
Out-of-Band Management	1 x 10/100 RJ45; Management port	
SD	1 x to connect auto-configuration adapter ACA31 (SD)	
USB	1 x to connect auto-configuration adapter ACA22 (USB)	
Power Requirements		
Operating Voltage Input 1&2	24 to 48 V DC, or 60 to 250 V DC and 110 to 240 V AC, or 48 to 54 V DC (PoE/PoE+)	
Power Consumption	Basic unit with one power supply 32 W (110 Btu (IT)/h)	
Mechanical Construction		
Weight	3600 g	
Protection Class	IP30	
Dimensions (WxHxD)	444 x 44 x 354 mm	
Software		
Supported HiOS Software Levels	Layer 2 Advanced (L2A) or Layer 3 Advanced (L3A)	
Software Layer 2 Advanced		
Management	V.24 web-interface, Telnet, SSHv2, HTTP, HTTPS, TFTP, SCP, SFTP client, SNMP v1/v2/v3, Traps, LLDP, LLDP-MED, SSH client, Out-of-Band Management	
Diagnostics	Management Address Conflict Detection, MAC Notification, Signal Contact, Device Status Indication, TCPDump, LEDs, Syslog, Persistent Logging on ACA, Port Monitoring with Auto-Disable, Link Flap Detection, Overload Detection, Duplex Mismatch Detection, Link Speed and Duplex Monitoring, RMON (1, 2, 3, 9), Port Mirroring N:1, SFLOW, System Information, Self-Tests on Cold Start, Copper Cable Test, SFP Management, Configuration Check Dialog, Switch Dump, Snapshot Configuration Feature	
Configuration	Automatic Configuration Undo (roll-back), Configuration Fingerprint, Text-based Configuration File (XML), BOOTP/DHCP Client with Auto-Configuration, DHCP Server: per Port, DHCP Server: Pools per VLAN, AutoConfiguration Adapter ACA31 (SD card), AutoConfiguration Adapter ACA22 (USB), HiDiscovery, DHCP Relay with Option 82, Command Line Interface (CLI), CLI Scripting, Full-featured MIB Support, Web-based Management	
Security	MAC-based Port Security, Port-based Access Control with 802.1X, Guest/unauthenticated VLAN, Integrated Authentication Server (IAS), RADIUS VLAN Assignment, RADIUS Policy Assignment, Multi-Client Authentication per Port, MAC Authentication Bypass, DHCP Snooping, IP Source Guard, Dynamic ARP Inspection, Denial-of-Service Prevention, Ingress MAC-based ACL, Egress MAC-based ACL, Ingress IPv4-based ACL, Egress IPv4-based ACL, Time-based ACL, VLAN-based ACL, Ingress VLAN-based ACL, Egress VLAN-based ACL, ACL Flow-based Limiting, Access to Management restricted by VLAN, Device Security Indication, Audit Trail, CLI Logging, HTTPS Certificate Management, Restricted Management Access, Configurable Password Policy, Configurable Number of Login Attempts, SNMP Logging, Multiple Privilege Levels, Local User Management, Remote Authentication via RADIUS, User Account Locking	
Redundancy Functions	MRP (Media Redundancy Protocol IEC 62439-2), Link Aggregation with LACP, MRP over Link Aggregation, Sub Ring Manager, RSTP 802.1D-2004 (IEC 62439-1), RSTP Guards, HIPER-Ring (client), HIPER-Ring over Link Aggregation, Link Backup, Network coupling (RRC)	
Industrial Profiles	EtherNet/IP, IEC 61850 (MMS Server, Switch Model), ModbusTCP, PROFINET IO	
Switching	Independent VLAN Learning, Fast Aging, Static Unicast/Multicast Address Entries, QoS (8 classes)/Port Prioritization (802.1D/p), TOS/DSCP Prioritization, Interface Trust Mode, CoS Queue Management, IP Ingress DiffServ Classification and Policing, IP Egress DiffServ Classification and Policing, Queue-Shaping/Max. Queue Bandwidth, Flow Control (802.3X), Egress Interface Shaping, Ingress Storm Protection, Jumbo Frames, VLAN (802.1Q), Protocol-based VLAN, VLAN Unaware Mode, Voice VLAN, MAC-based VLAN, IP subnet-based VLAN, IGMP Snooping/Querier per VLAN (v1/v2/v3), Unknown Multicast Filtering, Multiple VLAN Registration Protocol (MVRP), Multiple MAC Registration Protocol (MMRP), Multiple Registration Protocol (MRP)	
Time Synchronization	PTPv2 Transparent Clock two-step, PTPv2 Boundary Clock, Buffered Real Time Clock, SNTP Client and Server	
Miscellaneous	PoE (802.3AF)*, PoE+ (802.3AT)*, PoE+ Manual Power Management*, PoE Fast Startup*, Manual Cable Crossing, Port Power Down; * = with PoE module and power supply	
Software Layer 3 Advanced in Addition		
Layer 3	Full wire speed IPv4 routing with lowest latency, IP/UDP Helper, Port- and VLAN based Router Interfaces, Loopback Interface, ICMP Filter, Net-directed Broadcasts, OSPFv2, RIP v1/v2, VRRP, VRRP Tracking, HiVRRP (VRRP enhancements), ICMP Router Discovery (IRDP), Equal Cost Multiple Path (ECMP), Static Unicast Routing, Proxy ARP, Static Route Tracking, DVMRP, IGMP v1/v2/v3, IGMP Proxy (Multicast Routing), PIM-DM (RFC3973), PIM-SM/SSM (RFC4601)	

NOTE: These are the prominent technical specifications. For complete technical specifications visit: www.hirschmann.com

Technical Information

Product Description Media Modules for GREYHOUND	
Type	GMMxx
	
Port Type and Quantity	Up to 8 FE/GE ports, more details in the configurator for ST, SC, RJ45, SFP slots
Power over Ethernet	Up to 180 W overall, up to 120 W per media module
Power Consumption	5.5 to 10 W (without PoE)
Weight	490 to 650 g
Gigabit ETHERNET Network Size	
Twisted Pair (TP)	0 to 100 m
Multimode Fiber (MM) 50/125 µm	0 to 550 m, 7.5 dB link budget; 62.5/125 µm, 0 to 275 m, 7.5 dB link budget (with M-SFP-SX/LC)
Singlemode Fiber (SM) 9/125 µm	0 to 20 km, 11 dB link budget (with M-SFP-LX/LC); 14 to 42 km, 5 to 20 dB link budget (with M-SFP-LX+/LC)
Singlemode Fiber (LH) 9/125 µm	23 to 80 km, 5 to 22 dB link budget (with M-SFP-LH/LC); 71 to 128 km, 15 to 30 dB link budget (with M-SFP-LH+/LC)
Fast ETHERNET Network Size	
Twisted Pair (TP)	0 to 100 m
Multimode Fiber (MM) 50/125 µm	50/125 µm, 0 to 5000 m, 8 dB link budget; 62.5/125 µm, 0 to 4000 m, 11 dB link budget (with M-Fast SFP-MM/LC)
Singlemode Fiber (SM) 9/125 µm	0 to 25 km, 13 dB link budget (with M-Fast SFP-SM/LC); 25 to 65 km, 10 to 29 dB link budget (with M-Fast SFP-SM+/LC)
Singlemode Fiber (LH) 9/125 µm	47 to 104 km, 10 to 29 dB link budget (with M-Fast SFP-LH/LC)

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Product Description Power Supplies for GREYHOUND	
Type	GPSxx
	
Variant	Switch only, or switch and PoE, or PoE only
Operating Voltage	24 to 48 V DC, or 60 to 250 V DC and 110 to 240 V AC, or 48 to 54 V DC (PoE/PoE+)
Power Consumption	35 to 38 W + up to 180 W PoE
Weight	600 to 750 g

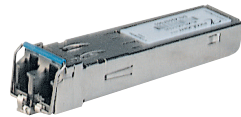
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Common Technical Data	
Type	Basic Units, Media Modules and Power Supplies
Ambient Conditions	
Operating Temperature	0 °C to 60 °C, or -40 °C to +70 °C, IEC 60068-2-2 Dry Heat Test +85 °C 16 Hours, optional conformal coating
Rel. Humidity (non-condensing)	5% to 95%
Approvals Configurable	
Safety of Industrial Control Equipment	EN 60950-1, EN 61131-2, cUL60950-1
Substation	IEC 61850-3, IEEE 1613
Ship	GL/DNV (Germanischer Lloyd/Det Norske Veritas) (pending)
Hazardous Locations	ISA-12.12.-01 Class 1 Div. 2 (pending), ATEX Zone 2 (pending)
Transportation	NEMA TS2, EN 50121-4, EN 50155
Accessories	
Device Replacement and Logging	ACA22-USB EEC 942 124-001, ACA31 942 074-001

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Product Description 2.5 Gigabit Ethernet SFP Basic Unit



Power Consumption	1 W
Weight	40 g
Type	M-SFP-2.5-MM/LC EEC
Order Code	942 162-001
Multimode Fiber (MM) 50/125 µm	0 to 550 m, 850 nm; 4 dB link budget; OM3 fiber (3.5 dB/km, 2000 MHz*km)
Multimode Fiber (MM) 50/125 µm	0 to 400 m, 850 nm; 4 dB link budget; OM2 fiber (3.5 dB/km, 500 MHz*km)
Multimode Fiber (MM) 62.5/125 µm	0 to 170 m, 850 nm; 4 dB link budget; OM1 fiber (3.5 dB/km, 200 MHz*km)
Type	M-SFP-2.5-SM-/LC EEC
Order Code	942 163-001
Singlemode Fiber (SM) 9/125 µm	0 to 5 km, 1310 nm; 8.5 dB link budget; 0.55 dB/km; (GR-253 CORE)
Type	M-SFP-2.5-SM/LC EEC
Order Code	942 164-001
Singlemode Fiber (SM) 9/125 µm	0 to 20 km, 1310 nm; 13 dB link budget; 0.55 dB/km; (GR-253 CORE)
Type	M-SFP-2.5-SM+/LC EEC
Order Code	942 165-001
Singlemode Fiber (SM) 9/125 µm	21 to 45 km, 1310 nm; 12 to 25 dB link budget; 0.55 dB/km; (GR-253 CORE)

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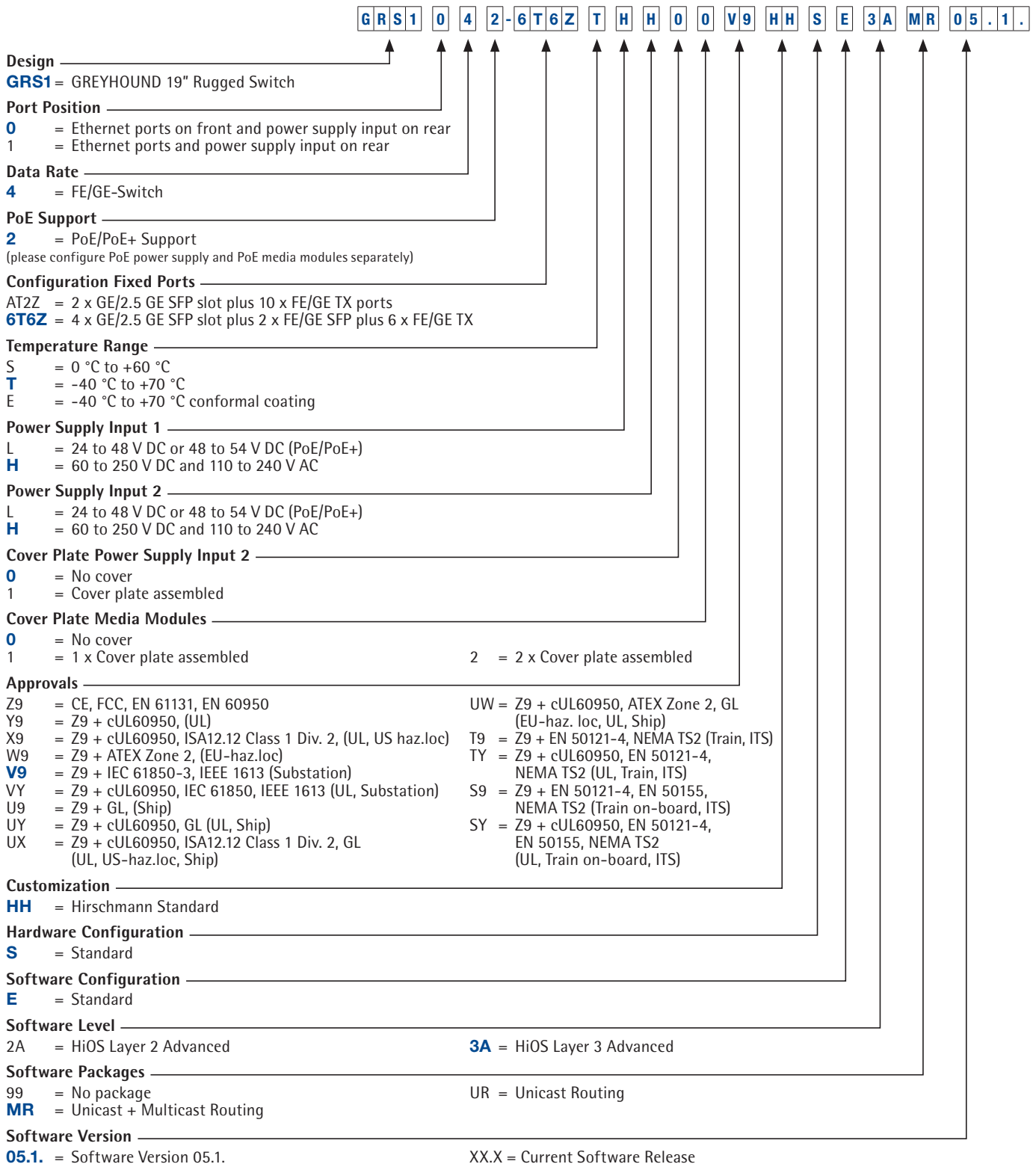
Uptime and reliability is especially critical in applications like physical security and video surveillance.



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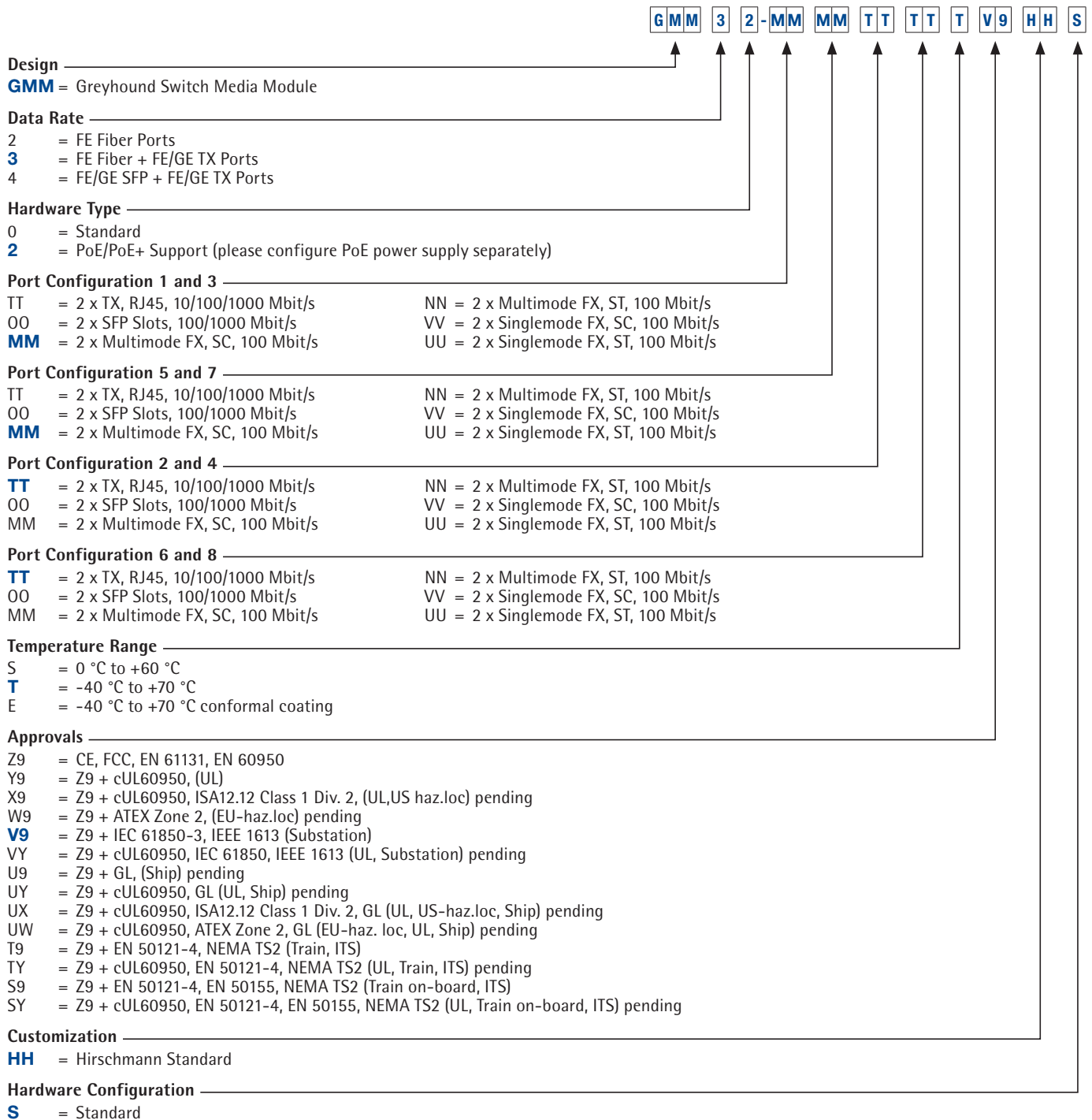
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GREYHOUND GRS1042/GRS1142 Switch Configurations





GREYHOUND GMM20, GRM3x, GRM4x Media Module Configurations

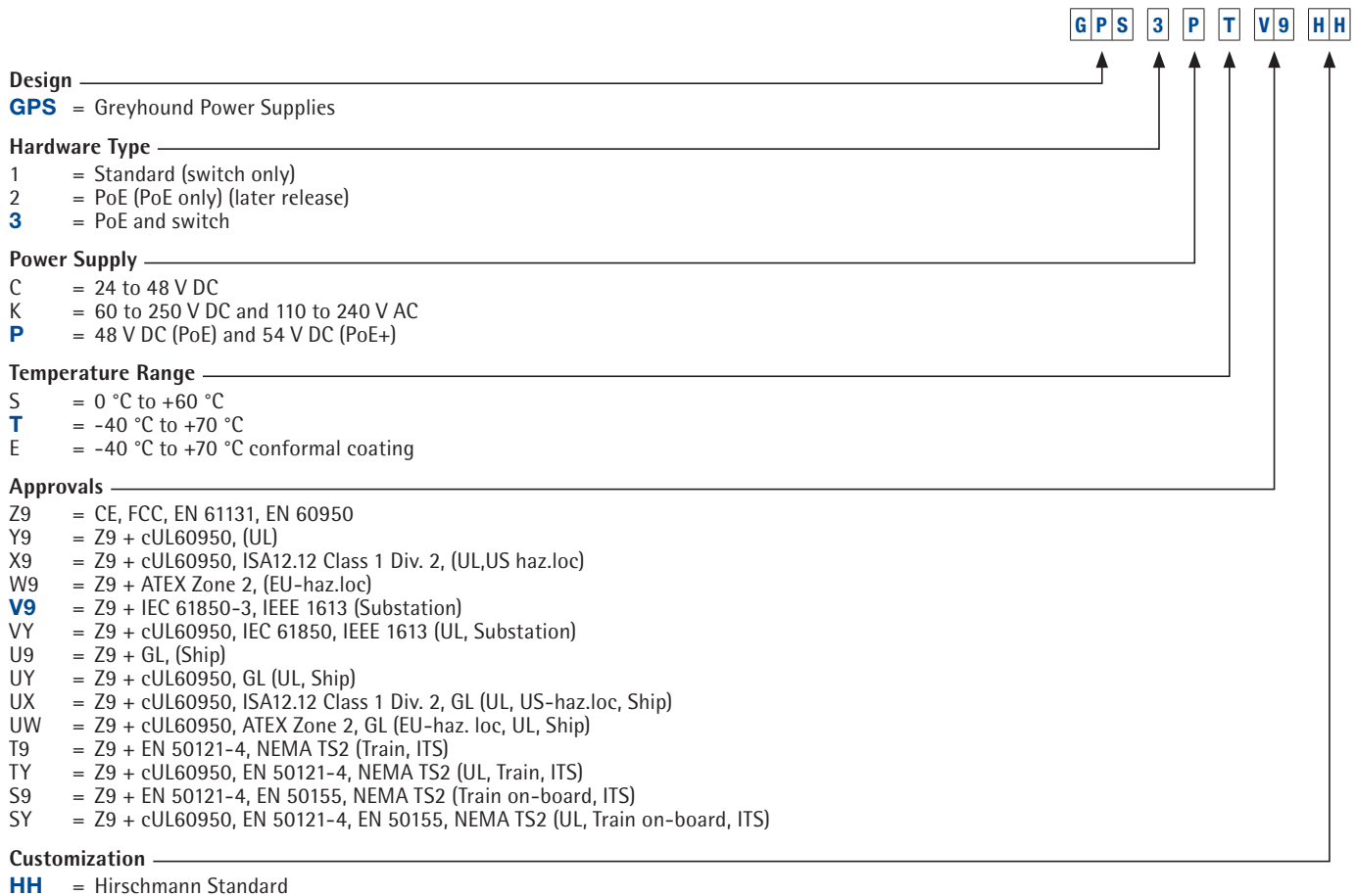




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GREYHOUND GPSx Power Supply Configurations



About Belden

Belden Inc., a global leader in high quality, end-to-end signal transmission solutions, delivers a comprehensive product portfolio designed to meet the mission-critical network infrastructure needs of industrial, enterprise and broadcast markets. With innovative solutions targeted at reliable and secure transmission of rapidly growing amounts of data, audio and video needed for today's applications, Belden is at the center of the global transformation to a connected world. Founded in 1902, the company is headquartered in St. Louis, USA, and has manufacturing capabilities in North and South America, Europe and Asia.

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