



HIRSCHMANN

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Product Bulletin

PB00008HE

Hirschmann GREYHOUND Switch

Gigabit Ethernet switch with extended range of software features, designed for use in harsh industrial environments with a need for cost-effective, entry-level devices.



As network needs change, the switches offer flexibility through field exchangeable port modules. They also feature a rugged design to handle demanding industrial applications, including power generation and distribution operations, like substations.

- **Flexibility** – the switches are designed with the future in mind through customizable and interchangeable media modules to keep pace with evolving network needs.
- **Designed for industrial environments** – built to withstand high temperatures, high vibration and electrostatic discharge often found in industrial automation and power utility settings.
- **Reliability** – achieve improved network availability through new management features, including redundancy protocols, diagnostic features and comprehensive security mechanisms.

For engineers, integrators and machine builders in need of an entry-level solution, Hirschmann introduces its new GREYHOUND family of Gigabit Ethernet switches. GREYHOUND is offered in several customizable variations, depending on the customer's copper, fiber or Gigabit port needs.

GREYHOUND is ideal for industrial businesses under pricing pressure, but that require ruggedized products to withstand extreme environmental conditions. The switches also enable customers to react quickly to changing network requirements, through flexible design and installation options, including varying port styles, more ports overall, no port location restrictions, interchangeable modules and enhanced software features.

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

Applications

For applications that face harsh environmental conditions and are under extreme pressure to keep both costs down and customer pricing low, the GREYHOUND switch is an ideal low-entry product. The ruggedized GREYHOUND switches have been specially designed to handle demanding electrical power generation and distribution applications, including new installations and retrofits of existing substations, where ambient temperatures can be extremely high. The devices also perform well in transportation and industrial automation applications. For example, with railroad optical networks, passenger and information systems in train stations, conveyor systems, as well as traffic surveillance on highways, bridges and in tunnels.

Your Benefits

The GREYHOUND switches offer a unique combination of price, ports and software features – compared to other Ethernet switches on the market. For all-around network protection and uptime, GREYHOUND offers enhanced features through Hirschmann's operating system, HiOS. The software feature range includes network management, diagnostics and filter functions, as well as comprehensive security mechanisms. Unlike standard products or even configurable products from the factory, GREYHOUND is not limited by design. Network administrators can react to changing needs in their application and adjust the product as many times as needed, all while in the field. The installation is fast, easy and flexible.



The new GREYHOUND Switch offers different configuration options.

GREYHOUND Switch

The GREYHOUND Gigabit Ethernet switches are offered in two basic versions. The configuration options include:

- 16 Fast Ethernet TX ports
- Eight Fast Ethernet TX ports, plus eight Fast Ethernet small form-factor pluggable (SFP) ports
- It is also possible to add four Gigabit Ethernet Combo ports

The basic units offer a media module slot that allows customers to add or change ports in the field, as their network design requirements change in the future. The modules can be ordered in versions from all-copper to all-fiber, depending on the individual need.

Benefits at a Glance



- Features Fast Ethernet TX, Fast Ethernet SFP and Gigabit Ethernet port options
- Copper and fiber versions are available, including ST, SC, SFP, multimode or single mode
- Ports can be mounted on the front or rear of the device
- Broad immunity to electrostatic discharges, plus high resistance to vibration
- Operates at a temperature range from -40 °C to +70 °C
- Range of new software features available through HiOS
- Meets IEC 61850-3 and IEEE 1613 for substations and NEMA TS2 and EN50121-4 for transportation industry (other certifications and approvals*)
- Works seamlessly with the Hirschmann Rail Switch Power (RSP) family of switches, including RSP, RSP-Lite, RSP-Expandable and RSP-Smart

* Certifications also include safety of industrial control equipment (cUL60950-1); for ships (Germanischer Lloyd); and Hazardous Locations (ISA-12.12.-01 Class 1 Div. 2 Group A, B, C, D).






Technical Information

| Product Description Basic Units | | |
|---------------------------------------|--|--|
| Type | GRS1020/1120-xx | GRS1030/1130-xx |
| |  |  |
| Description | Modular Managed Industrial Switch, fanless design | |
| Port Type and Quantity | Ports in total up to 24 Basic unit: 16 FE TX ports, or 8 FE TX ports/8 FE SFP slots expandable with one slot for media modules with 8 FE ports | Ports in total up to 28 Basic unit: 4 x FE/GE Combo ports plus 16 FE TX ports, or 8 FE TX ports/8 FE SFP slots expandable with one slot for media modules with 8 FE ports |
| Number of Fiber Ports | 20 fiber ports: 4 GE/FE plus 8 FE basic unit plus 8 FE with media module | |
| Additional Interfaces | | |
| V.24 Interface | 1 x RJ45 socket | |
| USB and SD Interface | 1 x to connect auto-configuration adapter ACA22 (USB) | |
| Power Requirements | | |
| Operating Voltage | 24 to 48 V DC redundant, or 110 to 250 V DC and 110 to 240 V AC optional redundant | |
| Power Consumption | 7.5 to 18 W depending on the variant | |
| Mechanical Construction | | |
| Weight | 3.55 to 3.8 kg depending on the variant | |
| Protection Class | IP30 | |
| Dimensions (W x H x D) | 448 x 44 x 315 mm | |
| Software | | |
| Supported HiOS Software Levels | Layer 2 Standard (L2S) | |
| Software Layer 2 Standard | | |
| Management | V.24 web-interface, Telnet, SSHv2, HTTP, HTTPS, TFTP, SCP, SFTP client, SNMP v1/v2/v3, Traps, LLDP-MED, SSH client | |
| Diagnostics | LED, persistent logging, syslog, signal contact, device status indication, port mirroring N:1, RMON (1, 2, 3, 9), TCPDump, LLDP, SFP management (temperature, optical input and output power), switch dump, configuration check dialog, system information, self tests on cold start, Management Address Conflict Detection, Copper cable test, Port Monitor, duplex mismatch detection, snapshot configuration feature, SFLOW | |
| Configuration | Command line interface (CLI), WEB based management, fully featured MIB support, BOOTP/DHCP client with auto configuration, DHCP option 82, DHCP server per port and pool per VLAN, HiDiscovery, auto-configuration adapter ACA22, Automatic configuration undo (roll-back), text based configuration file, CLI scripting, Telnet | |
| Security | MAC based port security, Port-based access control with 802.1x, 802.1x enhancements with Guest/Unauthenticated VLAN and RADIUS VLAN assignment, Integrated Authentication Server (IAS), Basic wired-speed Ingress ACLs (MAC, IPv4) per port and per VLAN, Automatic Denial-of-Service Prevention, Restricted Management Access (ACLs), Different privilege levels, configurable password policies, configurable number of login attempts, account locking, HTTPS certificate management, CLI/SNMP logging, Security Status Monitor, Audit Trail, Remote Authentication via RADIUS, Local User Management | |
| Redundancy Functions | MRP (Media Redundancy Protocol IEC 62439-2), RSTP 802.1D-2004 (IEC 62439-1), Link Aggregation, Link backup | |
| Industrial Profiles | IEC 61850 protocol (MMS Server, Switch Model) | |
| Filter | QoS (8 classes), CoS queue management, interface trust mode, TOS/DSCP prioritization, port priority (IEEE 802.1D/p), VLAN (IEEE 802.1Q), Voice VLAN, IGMP snooping/querier per VLAN (v1/v2/v3), unknown multicast filtering, independent VLAN learning, static unicast/multicast address entries, fast aging, MVRP (Multiple VLAN Registration Protocol), MMRP (Multiple MAC Registration Protocol), MRP (Multiple Registration Protocol) | |
| Time Synchronization | SNTP server and client, Buffered RTC | |
| Flow Control | Flow control (IEEE 802.3X), egress interface shaping, ingress storm protection, Queue-Shaping/max. Queue Bandwidth | |
| Miscellaneous | Port power down, cable crossing, dual software image support, VLAN unaware mode, access to management restricted by VLAN | |

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

Technical Information

| Product Description Media Modules for GREYHOUND | |
|---|---|
| Type | GRM20-xx |
| |  |
| Port Type and Quantity | up to 8 FE ports, more details in the configurator for ST, SC, RJ45, SFP slots, 4 FE SFP slots/4 FE TX ports (PoE option), 8 FE TX ports (PoE option) |
| Power Consumption | 2 to 9 W depending on the variant |
| Weight | 450 to 650 g depending on the variant |

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



Common Technical Data Basic Units and Media Modules

| 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 | 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) |
| Network Size – Cascadability | |
| Line-/Star Topology | Any |
| Ring Structure | >200 switches MRP |
| 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 |
| Relative 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 – Germanischer Lloyd (pending) |
| Hazardous Locations | ISA-12.12.-01 Class 1 Div. 2 Group A, B, C, D (pending) |
| Transportation | NEMA TS2, EN 50121-4 |
| Accessories | |
| Device Replacement and Logging | ACA22-USB EEC 942 124-001 |

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



Configurator



GREYHOUND GRS1020/GRS1120/GRS1030/GRS1130 Switch Configurations

GRS1 0 30-16T9 S M M V9 HH S E 2S 04.1

Design

GRS1 = GREYHOUND 19" Rugged Switch

Port Position

0 = Ethernet ports on front and power supply input on rear
1 = Ethernet ports and power supply input on rear (cabling side)

Data Rate

20 = FE-Switch
30 = FE-Switch with GE-Uplink Ports

Number of Fast Ethernet Ports

16T9 = 16 Fast Ethernet TX Ports
8T8F = 8 Fast Ethernet TX Ports and 8 Fast Ethernet SFP Slots

Temperature Range

S = 0 °C to +60 °C
T = -40 °C to +70 °C
E = -40 °C to +70 °C conformal coating

Power Supply 1

C = 24 to 48 V DC
M = 110 to 250 V DC and 110 to 240 V AC

Power Supply 2

C = 24 to 48 V DC
M = 110 to 250 V DC and 110 to 240 V AC
9 = No second power supply

Approvals

| | |
|---|--|
| Z9 = CE; FCC; EU Safety | Y9 = Z9, US Safety |
| X9 = Z9, US Safety, Hazardous Location | V9 = Z9, Substation |
| VY = Z9, US Safety, Substation | VU = Z9, US Safety, Substation, Marine |
| VT = Z9, US Safety, Substation, Transportation | U9 = Z9, Marine |
| UY = Z9, US Safety, Marine | UT = Z9, US Safety, Marine, Transportation |
| UX = Z9, US Safety, Marine, Hazardous. Location | T9 = Z9, Transportation |
| TY = Z9, US Safety, Transportation | |

Customization

HH = Hirschmann Standard

Hardware Configuration

S = Standard

Software Configuration

E = Standard

Software Level

2S = HiOS Layer 2 Standard

Software Version

04.1 = Software Version 04.1
 XX.X = Current Software Release

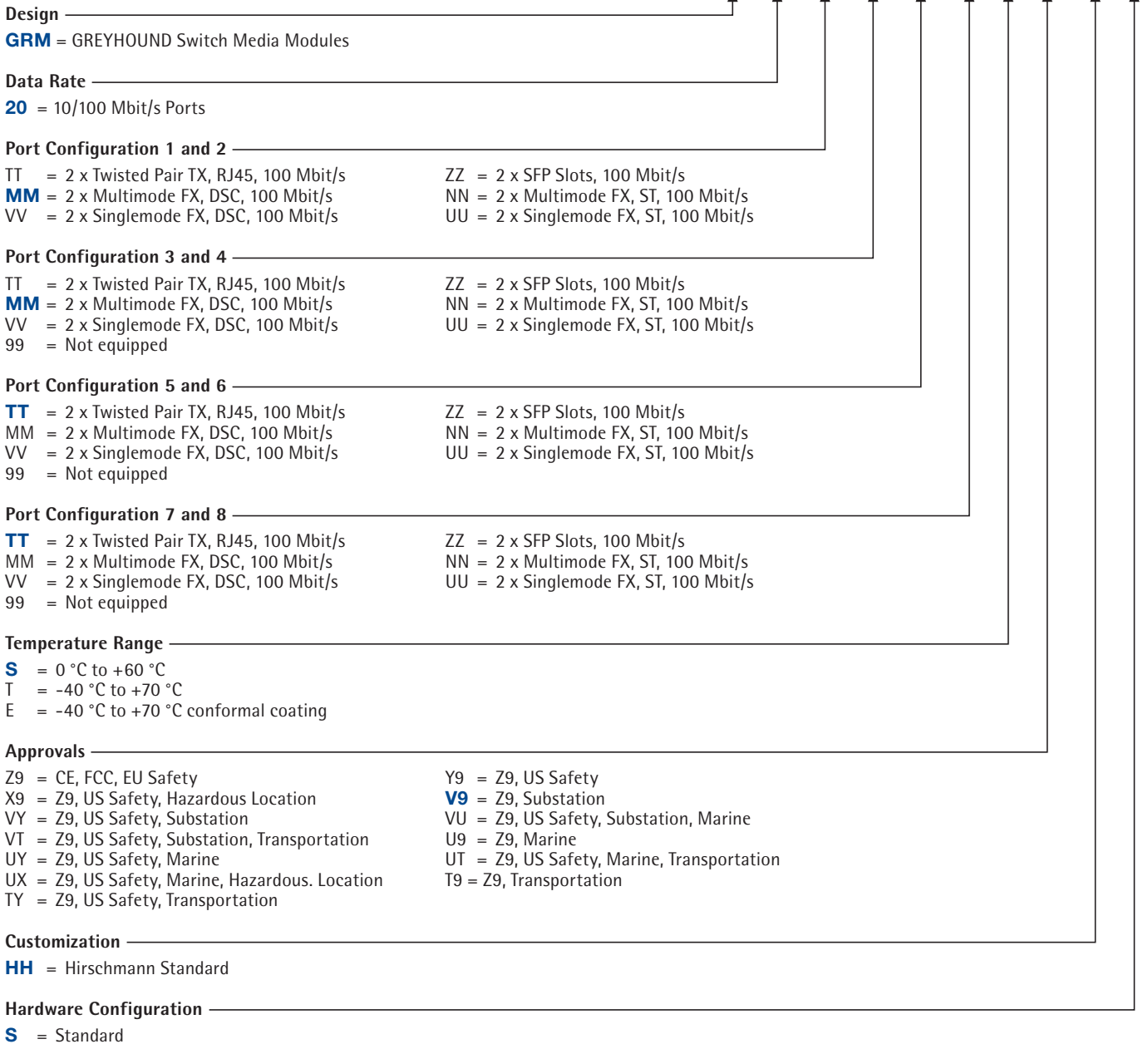


Configurator



GREYHOUND GRM20 Media Modules Configurations

GRM20-MM MM TT TT S V9 HH S





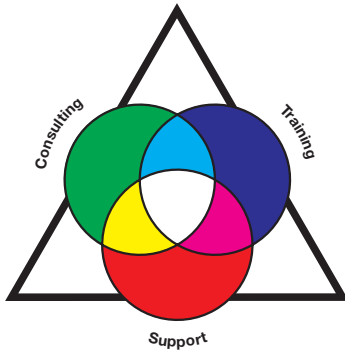
HiOS – Hirschmann Operating System

A new Operating System Generation for Managed Switches

Specially developed to meet requirements in the automation sector, this operating system is available in two Layer 2 versions (Standard and Advanced) and two Layer 3 versions (Standard and Advanced). The GREYHOUND family supports the version Layer 2 Standard. All versions provide numerous management and diagnostic options, plus a variety of redundancy protocols. Comprehensive security mechanisms protect networks against attacks and operating errors, so also contributing to high network availability.

Management protocols include Telnet, SSHv2, HTTP, HTTPS, TFTP, SFTP, and SNMP v1/v2/v3. Redundancy protocols include MRP (Media Redundancy Protocol), RSTP (Rapid Spanning Tree Protocol), Link Aggregation and Link backup. Security mechanisms comprise MAC-based Port Security, Authentication (IEEE 802.1x), Guest/unauthenticated VLAN, Radius Client, Restricted Management Access, Local User Accounts, various Privilege Levels, Management Authentication via Radius, Account Locking, configurable Password Policy and Login Attempts, Audit Trail, CLI/SNMP Logging and HTTPS certified Management. Details can be found in the data sheet.





Belden Competence Center

As the complexity of communication and connectivity solutions has increased, so have the requirements for design, implementation and maintenance of these solutions. For users, acquiring and verifying the latest expert knowledge plays a decisive role in this. As a reliable partner for end-to-end solutions, Belden offers expert consulting, design, technical support, as well as technology and product training courses, from a single source: Belden Competence Center. In addition, we offer you the right qualification for every area of expertise through the world's first certification program for industrial networks. Up-to-date manufacturer's expertise, an international service network and access to external specialists guarantee you the best possible support for products from Belden, GarrettCom, Hirschmann, Lumberg Automation and Tofino Security. Irrespective of the technology you use, you can rely on our full support – from implementation to optimization of every aspect of daily operations.

Always Stay Ahead with Belden

In a highly competitive environment, it is crucial to have reliable partners who are able to add value to your business. When it comes to signal transmissions, Belden is the number one solutions provider. We understand your business and want to know your specific challenges and targets to see how effective signal transmission solutions can push you ahead of the competition. By combining the strengths of our five leading brands, Belden, GarrettCom, Hirschmann, Lumberg Automation and Tofino Security, we are able to offer the solution you need. Today it may be a single cable, a switch or a connector, thus solving a specific issue; tomorrow it can be a complex range of integrated applications, systems and solutions.

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.

For more information, visit us at www.beldensolutions.com and follow us on Twitter [@BeldenInc](https://twitter.com/BeldenInc).