With Hirschmann™ RSP Switches, Which Support the New IEC-Standard Redundancy Protocols (PRP, HSR), Networks Can Now be Built for the First Time With Genuinely Uninterrupted Data Communication.

- Switchover times of 0 ms guarantee high productivity for your machines and systems
- Extensive security functions guarantee all-round protection against network-borne attacks and operator errors
- Precise synchronization enables applications to comply with stringent real-time requirements

The new RSP switches from Hirschmann™, with robust hardware and a powerful operating system, are able to withstand extremely harsh environmental conditions. For the first time, the integration of new redundancy protocols allows uninterrupted data communication. These new techniques, PRP (Parallel Redundancy Protocol) and HSR (High-availability Seamless Redundancy), are based on the international IEC62439 standard and therefore guarantee future security and interoperability. Precision time synchronization in accordance with IEEE 1588v2, synchronizes sensors, drives and measuring equipment. Gigabit Ethernet provides for a fast connection to the backbone, while connections to terminal equipment use 100 BASE-TX – either alone or in combination with 100 BASE-FX.

Applications
The RSP switches from Hirschmann™ are optimized for the type of data communication used in the electricity supply industry, because using Ethernet to link the field-level transformer stations of a power supply grid calls for special network equipment which – such as the RSP switches from Hirschmann™ – can guarantee uninterrupted communication in the systems under even the harshest conditions. This is the only way of ensuring that end customers receive an uninterrupted power supply.

The RSP switches from Hirschmann™ can also be used in many other areas. They offer optimum solutions wherever uninterrupted data communication is of the essence, for example in mechanical engineering, production or security applications.

Benefits
The RSP switches from Hirschmann™ are the first to allow uninterrupted data communication, thus ensuring continuous access to machines and systems, greatly increasing their productivity and hence also their profitability. The switches feature comprehensive security functions to provide all-round protection against network attacks. Since they also support precise synchronization, they can be used to safely network even applications that are subject to stringent real-time requirements.
Hirschmann™ RSP Switches

RSP switches from Hirschmann™ offer eleven ports, three of which can be equipped with SFP transceivers that support Fast (100 BASE-FX) or – optionally – Gigabit-Ethernet (100/1000 BASE-FX). The remaining ports can be used either for 100 BASE-TX or as a combination of four SFP transceivers and four TX ports. These switches are also remarkable for their extensive management and redundancy methods, as well as enhanced security mechanisms. In addition is a version available that supports precise synchronization compliant with IEEE 1588v2, plus PRP (Parallel Redundancy Protocol) and HSR (High-availability Seamless Redundancy).

The Advantages at a Glance

- Extensive range of redundancy methods: PRP, HSR, PRP/HSR Red Box, MRP, Fast MRP, RSTP
- Precise synchronization compliant with IEEE 1588v2
- Enhanced security mechanisms: authentication, radius, role based access, port security, SSHv2, HTTPS and SFTP, plus others currently in preparation.
- Fast device replacement, comprehensive logging and storage of all configuration data, plus operating software updates via SD card
- High level of vibration resistance
- Broad immunity to electrostatic discharges and magnetic fields
- Temperature range from -40°C to +70°C
- Power supply 24/36/48 V DC or 60/120/250 V DC and 110/230 V AC
- Strong and compact metal housing

0 ms switchover time – the RSP switches from Hirschmann™ support the redundancy protocols PRP and HSR.
## Technical Information

### Product Description

<table>
<thead>
<tr>
<th>Type</th>
<th>RSP20-xx</th>
<th>RSP30-xx</th>
<th>RSP25-xx</th>
<th>RSP35-xx</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Managed, Industrial Switch DIN Rail, fanless design</td>
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<td></td>
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</tbody>
</table>

#### Port Type and Quantity

- **RSP20-xx**: Ports in total: 11, 3x FE SFP slots, 4x FE SFP/4x10/100 TX ports, or 8x 10/100 TX ports
- **RSP30-xx**: Ports in total: 11, 3x FE/GE SFP slots, 4x FE SFP/4x10/100 TX ports, or 8x 10/100 TX ports
- **RSP25-xx**: Ports in total: 11, 3x FE SFP slots, 4x FE SFP/4x10/100 TX ports, or 8x 10/100 TX ports
- **RSP35-xx**: Ports in total: 11, 3x FE/GE SFP slots, 4x FE SFP/4x10/100 TX ports, or 8x 10/100 TX ports

### Additional Interfaces

- **V.24 Interface**: 1 x RJ11 socket
- **SD Card Slot**: 1 x to connect auto-configuration adapter ACA31 (SD-card)

### Gigabit Ethernet Network Size

- **Multimode Fiber (MM)**: 50/125 µm, 0 – 550 m, 7.5 dB link budget; 62.5/125 µm 0 – 275 m, 7.5 dB link budget (with M-SFP-SX/LC)
- **Single Mode Fiber (SM) 9/125 µm**: 0 – 20 km, 11 dB link budget (with M-SFP-LX/LC); 14 – 42 km, 5 – 20 dB link budget (with M-SFP-LX+/LC)
- **Single Mode Fiber (LH) 9/125 µm**: 24 – 72 km, 6 – 22 dB link budget (with M-SFP-LH/LC); 70 – 128 km, 15 – 30 dB link budget (with M-SFP-LH+/LC)

### Fast Ethernet Network Size

- **Twisted Pair**: 0 – 100 m
- **Multimode Fiber (MM)**: 50/125 µm, 0 – 5000 m, 8 dB link budget; 62.5/125 µm, 0 – 4000 m, 11 dB link budget (with M-Fast SFP-MM/LC)
- **Single Mode Fiber (SM) 9/125 µm**: 0 – 25 km, 13 dB link budget (with M-Fast SFP-SM/LC); 25 – 65 km, 10 – 29 dB link budget (with M-Fast SFP-SM+/LC)
- **Single Mode Fiber (LH) 9/125 µm**: 40 – 104 km, 10 – 29 dB link budget (with M-Fast SFP-LH/LC)

### Network Size – Cascadibility

- **Line-/Star Topology**: any
- **Ring Structure**: > 200 Switches
- **Fault Recovery Time**: 0 ms with PRP or HSR

### Power Requirements

- **Operating Voltage**: 24/36/48 V DC redundant, or 60/120/250 V DC and 110/230 V AC

### Software

- **Management**: V.24, Telnet, SSHv2, HTTP, HTTPS, TFTP, SFTP, SNMPv1/v2/v3, Traps
- **Diagnostics**: LED, persistent logging, syslog, signal contact, device status indication, port mirroring N:1, RMON (1,2,3,9), TCPDump, LLDP, copper cable test, SFP management (temperature, optical input and output power), switch dump, configuration check dialog, system information, self tests on cold start, system monitor 1
- **Configuration**: Command line interface (CLI), web based management, full featured MIB support, BOOTP/DHCP client with auto configuration, HIDiscovery, auto-configuration adapter ACA31 (SD card), Automatic configuration undo (roll-back), text based configuration file, CLI scripting
- **Security**: MAC based port security, Authentication (IEEE802.1x), Guest/unauthenticated VLAN, Radius client. Restricted management access. Local user accounts, different privilege levels, management authentication via RADIUS, account locking, configurable password policy, account locking, audit trail, configurable login attempts, HTTPS certificate management, CLI/SNMP logging
- **Redundancy Functions**: MRP, RSTP 802.1w, further protocols in preparation
- **Enhanced Redundancy Functions**: –
- **Filter**: QoS (8 classes), CoS queue management, interface trust mode, TOS/DSCP prioritization, port priority (IEEE802.1p), VLAN (IEEE802.1Q), IGMP snooping/querier per VLAN (v1/v2/v3), unknown multicast filtering, independent VLAN learning, static unicast/multicast address entries, fast aging
- **Time Synchronization**: PTPv2 TC two-step, SNTP server and client, Buffered RTC
- **Flow Control**: flow control (IEEE802.3x), egress interface shaping, ingress storm protection
- **Miscellaneous**: Port power down, cable crossing, dual image support, VLAN unaware mode, access to management restricted by VLAN

### 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)**: 10% to 95%

### Mechanical Construction

- **Dimensions (W x H x D)**: 80 (98) x 164 x 120 mm (ECC)
- **Weight**: 1.2 kg, (1.5 kg ECC)
- **Protection Class**: IP30

### Approvals

- **Safety of Industrial Control Equipment**: IUL SO8 (pending)
- **Substation**: IEEE61850-3, IEEE1613
- **Transportation**: NEMA TS2 (pending), EN50121-4 (pending)
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