Product Family HY104
The HY104 family is a group of devices, which are designed as multilayer switches and multifunction devices especially adjusted to the characteristics of telecontrol communication. The devices are used in next generation energy networks, for remote meter reading, remote monitoring and control with regard to renewable energies as well as smart grids.

- Four Ethernet ports (IEEE 802.3) for LAN connection.
- Up to two SDSL interfaces for data communication over 2-wire copper cable, reaching distances up to 25 km with transmission rates between 192 and 11400 kbps.
- Up to two pluggable optical transmission facilities for communication over fiber optics. Realization as SFP (Small Form-factor Pluggable) to enable easy mounting of different kinds of transceivers, reaching distances up to 180 km at 100 Mbps.
- Up to two serial interface (RS-232 and/or RS-485) for transmission of legacy telecontrol protocols and utility functions.
- Alarm relay for conditional electrical switching.

Power over Ethernet
Power over Ethernet (PoE) is used to supply networked devices with power using the Ethernet cable. This enables saving of installation costs by using only one Ethernet cable for both data and power supply. The individual 230 Volt provision using wall power supplies can be omitted, all devices are powered centrally. This results in further advantages like switching Ethernet powered devices on and off, as well as monitoring wattage and alarming/turning off in the case of error. Devices like IP phones, IP cameras, small distribution switches or access point can be attached comfortably.

HY104 and PoE
All HY104 devices are available as PoE variation. For that purpose all four Ethernet ports are equipped additionally with PoE functionality. The Classification mechanism allows devices (Powered Device, PD) of up to 70 W per port (PoE Class 5, refer to Table below) to be connected.

- Power on and off per port, monitoring of actual power usage as well as readout of error conditions via SNMP remotely by use of the POWER-MIB
- Alarming upon undercut of configurable power usage threshold per port, automated safety shutdown
- LED-indication on front of the device per port (enabled/active) as well as percental usage of the total power available
- Optimization of battery runtime of emergency power systems through separate PoE power jack

<table>
<thead>
<tr>
<th>PoE-Class</th>
<th>Port power</th>
<th>Reference</th>
<th>Extension type</th>
<th>Input voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 3</td>
<td>Up to 15.4 W</td>
<td>IEEE 802.3af (PoE)</td>
<td>PoE-Power up to 36 W</td>
<td>+24…+60 VDC</td>
</tr>
<tr>
<td>4</td>
<td>Up to 30.0 W</td>
<td>IEEE 802.3at (PoE+)</td>
<td>PoE-Power up to 54 W</td>
<td>+24…+60 VDC</td>
</tr>
<tr>
<td>5</td>
<td>Up to 70.0 W</td>
<td>High Power</td>
<td>PoE-Power up to 72 W</td>
<td>+24…+60 VDC</td>
</tr>
<tr>
<td>Legacy</td>
<td>Up to 15.4 W</td>
<td>Proprietary (z.B. Cisco)</td>
<td>PoE-Power up to 108 W</td>
<td>+24…+60 VDC</td>
</tr>
<tr>
<td>Force-On</td>
<td>Up to 30.0 W</td>
<td>Individual</td>
<td>PoE-Power up to 280 W</td>
<td>+54 VDC</td>
</tr>
</tbody>
</table>

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