SIP-3

Encapsulation & Protocol conversion

The **SIP-3** offers
two facilities:
serial to IP encapsulation
& **104-101 Gateway**

The **SIP-3** with basic **encapsulation** function makes it possible to create a point-to-point connection between two serial devices over TCP/IP networks.

The **SIP-3** with **104-101 Gateway** function allows conversion between 60870-5-104 protocol (control center side) and 60870-5-101 protocol (RTU side).

The SIP-3 has **different configurations regarding the number of interfaces**. In terms of number of **serial ports**, it can be equipped with a single port or three ports. As regards the **network interface**, it can have one or two Ethernet ports, which can operate as part of a two-port Ethernet switch or as two independent interfaces.

Optionally, the SIP-3 may be equipped with a **wireless WAN interface**, with the possibility of 2G, 3G and 4G transmission.

The SIP-3 can be supplied with a chassis suitable for mounting in **DIN rail** or **wall mount.**

Making the Smart Grid Real

Main Applications

- ✓ Serial to IP encapsulation on wired interface.
- ✓ Serial to IP encapsulation on GPRS network.
- ✓ Cellular IP router for access to an IEC 60870-5-104 RTU.
- ✓ Gateway via WAN or Ethernet interface for access to an IEC 60870-5-101 RTU.

Equipment Interfaces

- ✓ One or two 10/100Base-Tx (RJ-45) ports or one 10/100Base-Tx (RJ-45) port and one 10/100Base-Fx multimode (MT-RJ or LC) port.
- ✓ 1 asynchronous serial port (COM) with female DB9 standard connector (DCE) configurable for RS-232 or RS-485 (2-wire or 4-wire) interface.
- ✓ 2 additional asynchronous serial ports (COM) with female DB9 standard connector (DCE) configurable for RS-232 interface.
- ✓ 1 optional 2G, 3G or 4G cellular interface with up to two external slots for Mini Sim (2FF) cards.
- ✓ 1 service serial port (DCE) with female DB9 standard connector.

104-101 Gateway characteristics

- ✓ Coexistence of connections from multiple 104 control centers in the same 101 RTU.
- ✓ Selection of the operation parameters of the APCI layer, according to IEC 60870-5-104 standard.
- ✓ Explicit filtering of the control centers (CC) allowed for the management of the RTU.
- ✓ Selection of 101 profile operation parameters, according to IEC 60870-5-3 standard.
- ✓ Operation of the IEC 60870-5-2 protocol in balanced mode.
- ✓ Selection of the operation mode of the 101 interface with the RTU.
- ✓ Selection of the direction of communication of the 101 interface with the RTU.
- ✓ Optional simple digital object, which reflects the status changes of the 101 link. For a 104 control center this digital object will belong to the database of the RTU connected to the 104-101 Gateway.
- ✓ Programmable automatic time synchronization of the RTU by the SIP-3.
- ✓ Optional ASDU queue per RTU.

Management System

Local and remote access via **console** (115200 bit/s) or built-in **web server** (HTTP/HTTPS), **Telnet** and **SSH**.

Additional Services

SNMP v1, v2c and v3 agent. **DHCP** server and client.
NTP/SNTP server and client. TACACS+ client.
FTP/FTPs server. **NAT** rules. DNS client.

Technical Information

WAN interface with GSM/GPRS (2G)
- Quad band: 850/900/1800/1900MHz.

WAN interface with UMTS/HSPA (3G) - modem PHS8
- UMTS/HSPA+: 900/2100MHz.
  HSPA+ data up to 14.4 Mbit/s (downlink) and 5.76 Mbit/s (uplink).
- GSM/GPRS/EDGE: 900/1800MHz.

WAN interface with UMTS/HSPA (3G) - modem HE910
- UMTS/HSPA+: 850/900/2100MHz.
  HSPA+ data up to 7.2 Mbit/s (downlink) and 5.76 Mbit/s (uplink).
- GSM/GPRS/EDGE: 850/900/1800/1900MHz.

WAN interface with LTE (4G)
- LTE: 800/900/1800/2100/2600MHz.
  LTE data up to 150 Mbit/s (downlink) and 50 Mbit/s (uplink). Cat.4.
- UMTS/HSPA+: 900/2100MHz.
  HSPA+ data up to 42 Mbit/s (downlink) and 5.76 Mbit/s (uplink).
- GSM/GPRS/EDGE: 900/1800MHz.

Encapsulation protocols
- ✓ IEC 60870-5 101/102/103. DLMS, GESTEL, MODBUS, DNP 3.0, SAP20, PROCOME, Pid1, Twc

Asynchronous data port characteristics (DCE)
- ✓ Data bits: 5, 6, 7 or 8
- ✓ Stop bits: 1 or 2
- ✓ Parity: odd, even or none
- ✓ Speed: from 600 bit/s to 115200 bit/s
- ✓ Flow control: none, hardware or software
- ✓ Interface: V.24/V.28 ITU-T (EIA RS-232C) or RS-485 (2w or 4w)

Mounting
DIN rail (EN 50022, BS 5548, DIN 46277-3) or wall mount.
DIN-rail model dimensions: Height: 127.5 mm;
Width: 36.5 mm; Depth: 147 mm
Wall-mount model dimensions: Height: 138.5 mm;
Width: 164 mm; Depth: 36.5 mm
Weight: 549 g

Power supply
Isolated DC (10.5 - 72 Vdc) or Universal (36-360 Vdc, 88-265 Vac)
Maximum power consumption at 48 Vdc: 4.3 W
Maximum power consumption at 230 Vac: 9.8 W

Temperature range	From -25° C to +70°C
Material	Grey (RAL 7024) zinc-plating iron
EMI immunity & environment compliance	IEC 61850-3
	IEC 61000-6-5

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