



BKtel

Smart Metering Modem Solutions

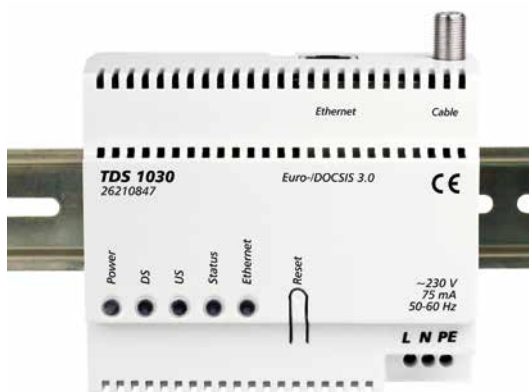
Solutions for CATV networks



DOCSIS/EuroDOCSIS 3.0 cable modem

> DOCSIS/EuroDOCSIS 3.0 cable modem TDS 1030

The TDS 1030 3.0 cable modem from BKtel offers the ideal solution for data connection to electronic meters. With a built-in power supply unit, easy top-hat rail mounting and compact design, it is ideally suited to installation in a meter cabinet. The TDS 1030 is particularly well suited for use in conjunction with smart metering gateways that comply with BSI*, which is the future standard for Germany.

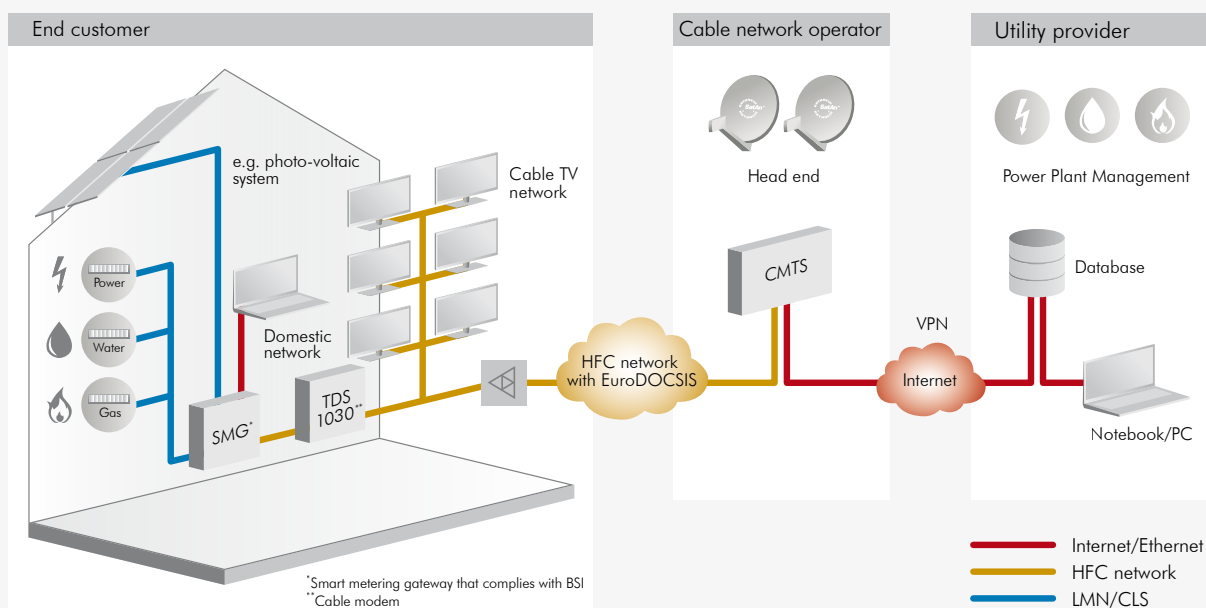


Features

- DOCSIS/EuroDOCSIS 3.0 cable modem for top-hat rail mounting
- For creation of a communications infrastructure for smart metering
- Ideal for use in combination with smart metering gateways that comply with BSI
- Integrated support for GRE tunnel
- Existing DOCSIS/EuroDOCSIS 3.0-CMTS can be used without modification
- Built-in power supply unit with very long working life
- Ethernet interface
- Automatic switchover to DOCSIS/EuroDOCSIS
- Compact design, only six HP wide
- Easy top-hat rail mounting
- Suitable also for other industrial applications
- Other variants and functions available on request

* BSI: Federal Office for Security in Information Technology (in Germany)

The TDS 1030 cable modem in operation with a smart metering gateway that complies with BSI



GRE tunnel

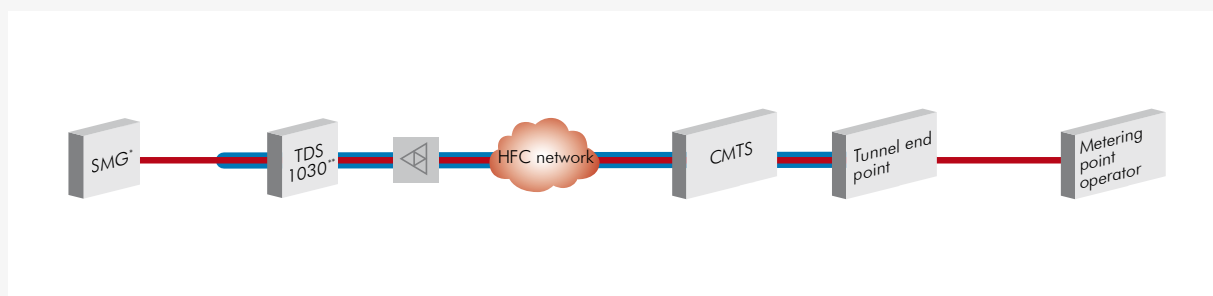
> GRE tunnel

The GRE (Generic Routing Encapsulation) tunnel provides additional benefits for easier integration and transmission of services via the DOCSIS/EuroDOCSIS cable modem TDS 1030 and the existing network structure. There is no need for time-consuming routing and configuration of L2VPN. The DOCSIS/EuroDOCSIS cable modem is compatible with existing GRE tunnel end points (e.g. Alcatel ALU7750, Linux GRE, etc.).

Features

- Automatic-dynamic creation of the GRE tunnel at the tunnel end point
- The tunnel is configured via vendor-specific TLV codes in the cable modem configuration file
- Cable modem and virtual CPE-IP in IPv4 or IPv6
- The GRE tunnel enables the transparent transmission of LAN:
 - IPv4 (also via IPv6)
 - IPv6
 - Dual stack
- VLAN pass-through

Smart Meter Gateway



*Smart metering gateway that complies with BS1
**Cable modem

— Traffic (IPv6 and IPv4)
— GRE tunnel (IPv6 and IPv4)

Technical data

> Technical data

Type	TDS 1030
Order no.	26210847
Receiver (downstream)	
Number of downstream channels	8
Modulation	64/256 QAM
Symbol rate DOCSIS [MSym/s]	5,057 (64 QAM)/5,361 (256 QAM)
Symbol rate EuroDOCSIS [MSym/s]	6,952 (64 QAM)/6,952 (256 QAM)
Frequency range [MHz]	108 to 1002
Channel bandwidth DOCSIS/EuroDOCSIS [MHz]	6/8
Input level range [dBmV]	-15 ... 15
Input impedance [Ω]	75
Transmitter (upstream)	
Number of upstream channels	4
Modulation [TDMA]	QPSK, 8 QAM, 16 QAM, 32 QAM, 64 QAM
Modulation [S-CDMA]	QPSK, 8 QAM, 16 QAM, 32 QAM, 64 QAM, 128 QAM
Symbol rate [kSym/s]	160, 320, 640, 1280, 2560
Frequency range [MHz]	5 to 65
Channel bandwidth [kHz]	1600, 3200, 6400 (200, 400, 800 for DOCSIS 2.0)
Maximum output level (1 channel) [dBmV]	61 (TDMA: QPSK), 58 (TDMA: 8 QAM), 58 (TDMA: 16 QAM), 57 (TDMA: > 32 QAM), 56 (S-CDMA)
Output impedance [Ω]	75
Network properties	
Application protocol	UDP, IP, ARP, ICMP, IGMP V2, DHCP, TFTP, SNMP, HTTP, GRE
Management	SNMP, MIB-II, Ethernet-like MIB, bridge MIB, cable device MIB, baseline privacy interface MIB, RF interface MIB
Connections	
To the CATV network	F socket
To the service PC	RJ 45-10/100/1000 Mbps (auto MDI/MDIX)
Power supply	
Supply voltage	Screw terminals (L, N, PE)
Nominal input voltage [V AC]	230
Power consumption [W]	4.8
General	
Dimensions (W x H x D) [mm]	107 x 90 x 55
Operating temperature range [°C]	-5 to +40
Protection class	IP 20
Casing material	PC and ABS
Flammability class	V0 in accordance with UL 94 standard

All data listed are typical values unless indicated otherwise.

Smart Metering Modem Solutions

Smart Metering Modems The Appropriate Solution from BKtel

The European Union and many other countries throughout the world have committed themselves to the objective that within a few years 80 % of all households should be equipped with smart meters, i.e. intelligent metering systems. Especially for electricity meters, these will make the actual consumption values and load profiles transparent, thus making a contribution to energy efficiency. Other categories such as gas, water or district heating can be added to the infrastructure that is created.

CATV networks as communications platforms

Smart metering demands a reliable and secure communications platform that will allow the metered data to be transmitted without interference, without delay and with protection against unauthorised access. In contrast to other technologies such as radio, CATV networks offer an ideal transmission medium for this:

- High security against interference; the main cables are glass fibre, the local cables to the meter are screened
- Facility for encrypted data transmission, irrespective of the application
- Short latency times
- Use of widely available existing infrastructures

Advantages for the house and real estate management industry
These key factors can be used to advantage especially in the housebuilding industry and in multi-dwelling units, which often are fitted throughout with cable TV connections:

- Effects of scale thanks to multiple use of the same infrastructure (e.g. cable modems)
- Additional value creation by integration of other services into the transmission platform (meters for other categories, heating readings, smart home etc.)
- Cable network operators will gain new private customers by expanding into business activities with the housing industry and energy industry

BKtel, with its many years of experience in HFC technology, supplies tailor-made cable modems for smart metering applications. Seamless integration into the complete metering and communications system is an important consideration here. Give us a call – we will be happy to advise you on the creation of individual solutions.





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