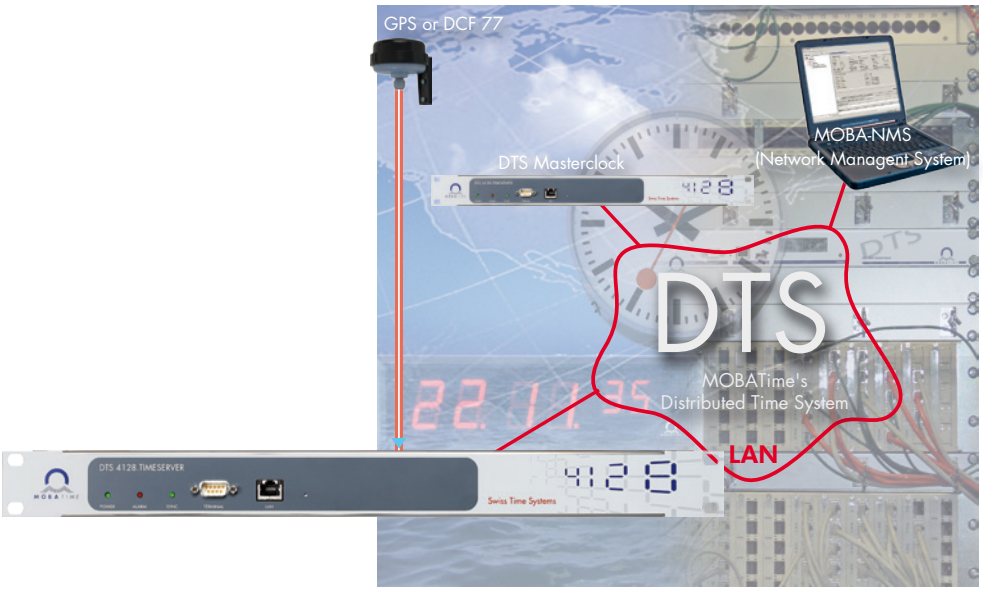


NTP-based time server

DTS 4128.timeserver

The DTS 4128.timeserver is a highly precise time reference for all NTP clients in medium size networks (LAN Ethernet/IP/UDP).
It can either be synchronized with a time signal receiver (DCF 4500 or GPS 4500) or with another NTP time server in the LAN or internet. The DTS 4128.timeserver can additionally synchronize all slave clocks with an NTP movement, either direct by NTP input or by means of NMI (Network MOBALine Interface). Other devices, e.g. master clocks, can be controlled via DCF current loop.
The high degree of system accuracy and reliability is achieved by the master-slave operation of two DTS 4128.timeservers connected via fiber-optic cable (redundant operation). In the case of disturbance, an automatic switch over from one device to the other takes place. Alarms are signaled by alarm relay, SNMP messages or e-mail.

DTS 4128.timeserver - the innovative, precise time reference for networked, multifunctional systems

Time precision

Best accuracy can be achieved by synchronizing the DTS 4128.timeserver via a connected GPS receiver, and thanks to an intelligent time management. The internal time is adjusted to the time reference (e.g. GPS) in one step or slowly shifted (in adjustable micro steps) to avoid any time leaps (e.g. after a longer loss of the time source). To achieve utmost accuracy, the quartz drift and aging is continuously compensated.

Top performance-even for medium size networks

The high performance DTS 4128.timeserver can reply more than 100 NTP and SNTP requests per second. It can also work as an NTP time reference for a sub-network, being synchronized by a superior NTP-server (client and server at the same time).

Effective fault indication

Alarms are conveyed by alarm relay, by e-mail or via SNMP messages.

Safe, convenient operation

After the first configuration or IP configuration, by means of a terminal software via the serial interface, operation over LAN via Telnet, SSH or SNMP protocols is possible. SSH and SNMP (MD5 authentication and DES for encryption) enable a secured connection. Special software is required for operation by SNMP protocol (e.g. MOBA-NMS).

The front view shows the LEDs for power supply, alarm, synchronization, and network data traffic, as well as the LAN plug, and the PC connecting plug (RS232 sub-D 9-pole male).

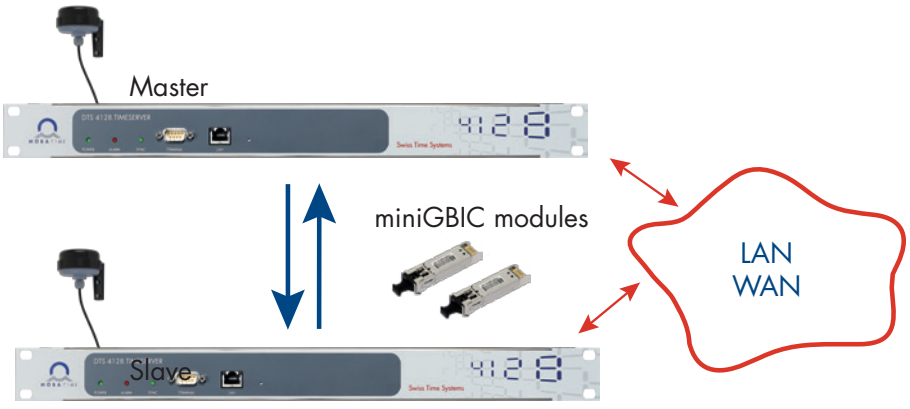
DTS 4128.timeserver back view: DC power supply input, DCF input, DCF output, DC power supply output, alarm relay contact and DTS fiber-optic connection.

DTS 4128.timeserver - greatest priority for accuracy and reliability

Redundant operation

To avoid time deviation between two DTS 4128.timeservers, they can be linked via a fiber-optic connection by using two miniGBIC modules.

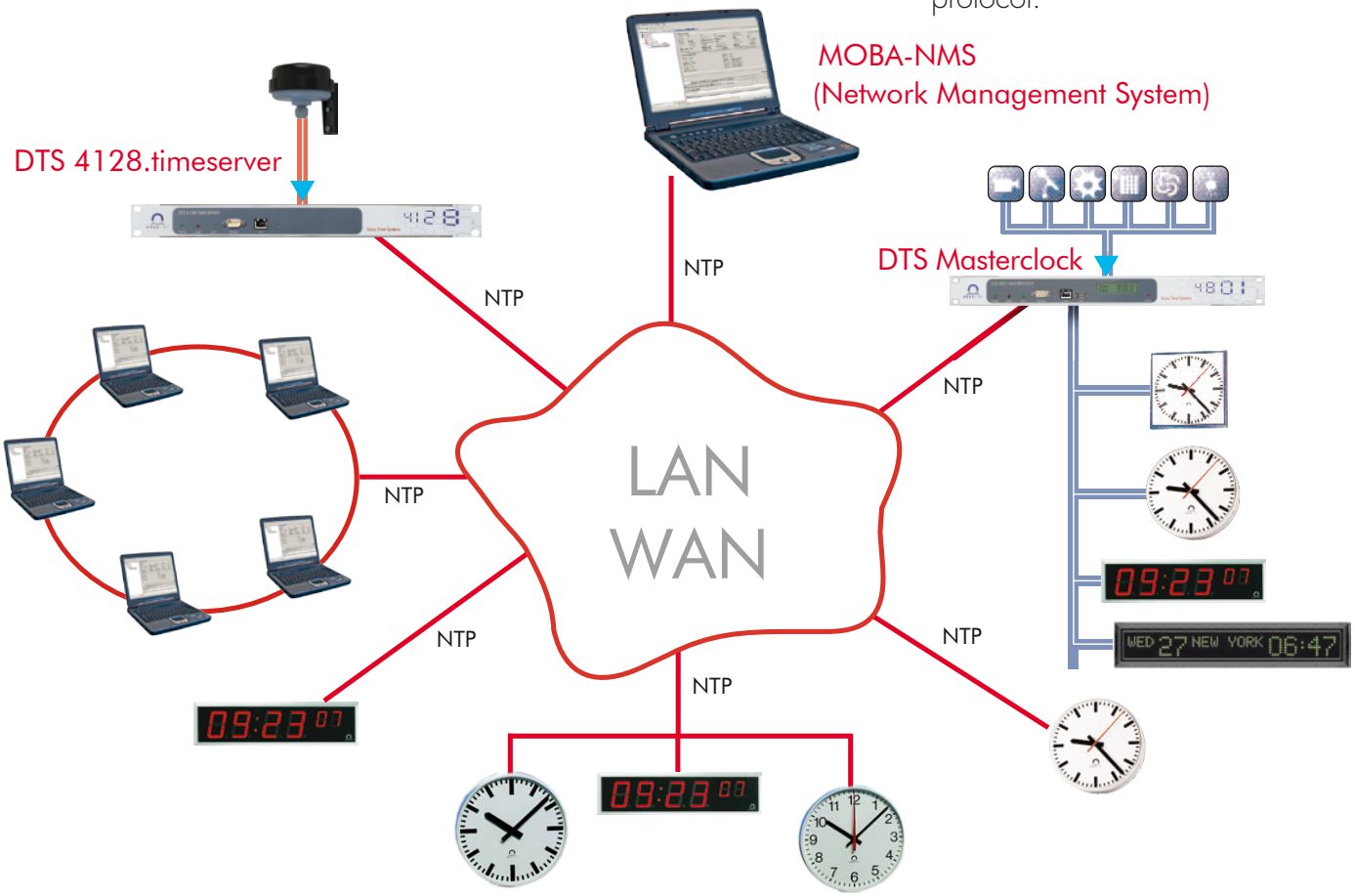
The two time servers automatically negotiate their state as master or slave. The slave is always synchronized by the master. In case of GPS failure, an automatic swap between master and slave state will occur. The parameters for the swap can be configured. The "master" DTS timeserver always has the better NTP stratum level than the slave.



DTS 4128.timeserver - the time source for LAN-based clock and time distribution systems

The DTS 4128.timeserver is a versatile time reference in several respects. On one hand, it relays the external time signals with maximum precision and reliability directly to all NTP unicast (IP based) or multicast devices, such as slave clocks with NTP movement (e.g. NBU 190), digital clocks, and digital information displays with NTP synchronization. On the other hand, it can also synchronize the NMI (Network MOBALine Interface), which for its part can control master clocks and slave clocks with MOBALine and DCF input.

Even PCs/workstations, photocopiers, printers, fax equipment, time recording terminals, access control systems, central fire alarm systems, image and sound recording equipment, and many other "clients in the network" can be directly synchronized by means of the NTP protocol.



DTS Distributed Time System

The DTS concept is specially designed for medium and large networks and offers a range of persuasive features:

- Flexibility through choice of functional components
- The system can be decentralized
- Security and reliability is provided by redundancy, as well as by alternative alarm reports (alarm relay, e-mail or SNMP)
- Maximum precision of the DTS 4128.timeserver as a time reference
- Simple and convenient operation, configuration, programming, administration and monitoring via LAN using MOBA-NMS software
- Network functions for highly precise time distribution to all NTP clients in the LAN/WAN network, as well as to sub-systems, such as slave clocks, or switching and control systems of buildings and to IT security services

DTS 4128.timeserver - Technical details

Technical Data		
Time signal outputs	NTP / SNTP, NTP multicast DCF-time signal output (opto coupler passive)	
DTS Link (Redundancy)	Max. length of the fiberglass cable, e.g. multimode fiber Ø 50 µm: multimode fiber Ø 62.5 µm:	max. 550 m max. 275 m
Network services	NTP client NTP server, max. no. of NTP and SNTP client requests: SNMP V1, V2c, V3 (get, put, notification, trap) with MD5 authentication and DES for encryption E-mail for alarm messages (2 addresses possible) DATE, TIME, FTP (for update)	typical > 100 requests/ sec
Network interface	1 x 10BaseT / 100BaseTX (IEEE 802.3) Data transmission rate: auto-negotiation / manual Connection: RJ45 (only shielded cable permitted)	
IP configuration	DHCP, static IP	
Operation	Serial terminal via RS232 (front side, sub-D 9p male) Via LAN: Telnet, SSH, SNMP, MOBA-NMS	
LED indication	Power supply, synchronization status, LAN status, alarm, DCF-input	
Local time calculation	Automatic, pre-programmed daylight saving time change. Up to 80 pre-defined time zone entries and 20 user-definable entries All outputs can be individually allocated to a time zone (UTC or local time)	
Accuracy	GPS (DCF input) to NTP server: GPS (DCF input) to DCF output: NTP to internal time: Redundant operation: master to slave	typical < ± 100 µs typical < ± 10 µs typical < ± 100 µs typical < ± 1 µs
Time-keeping (internal)	Synchronized with GPS: Hold over (after > 24 h synch. from GPS) at 20°C ± 5°C: Hold over (after > 24 h synch from GPS) at const. temp.: After restart without synchronization (for 24 hours), at 20°C ± 5°C:	± 10 µs to UTC < ± 10 ms/d or < 0.1 ppm < ± 1 ms/d or < 0.01 ppm < ± 250 ms/d or < 2.5 ppm
External time source	External NTP / SNTP server (4 NTP sources possible), and / or DCF 77 time signal receiver (current loop, e.g. DCF 4500), or GPS time signal receiver (current loop, e.g. GPS 4500), or manual time setting (only for test purposes)	
Power supply	DC input: 24 VDC + 20 % / - 10 % / max. 10 W DC output: nominal 24 VDC, max. 400 mA (supply for GPS receiver)	
Dimensions	19" rack, 1 rack unit, W x H x D mm	483 x 44 x 125
Weight		approx. 1.2 kg
Power reserve		none
Ambient temperature	0 to 60°C, 10 - 90 % relative humidity, without condensation	
Accessories		
miniGBIC module patch cable	SX LC 1000Mbps, 3.3V for fibre optical cable (GigaBit Interface Converter) 2xLC/LC50/125µm patch cable Fibre Channel duplex 100 cm	