

NTP-based time server

DTS 4128S.timeserver V2

The DTS 4128S.timeserver V2 is a high-precision time reference for all NTP clients or SINEC/SIMATIC clients in medium-sized networks (LAN Ethernet/IP/UDP). It can either be synchronized with the GNSS 4500 time signal receiver or another NTP time server in the LAN or Internet. The DTS 4128S.timeserver V2 can synchronize all servers, clients and PLCs, as well as slave clocks with NTP clockwork. Other third-party devices, e.g. master clocks, can be synchronized via DCF power

loops. The high system security and accuracy is achieved by master-slave operation of two DTS 4128S.timeservers V2 connected via fibre optic (redundant operation). In the event of a fault, the system automatically switches from one device to the other. Alarms are signaled by alarm relay, SNMP messages or e-mail. The timeserver is compatible with SIMATIC via Ethernet.

DTS 4128S.timeserver V2 – the innovative, precise time reference for networked, multifunctional systems

Time precision

Best accuracy can be achieved by synchronizing the DTS 4128S.timeserver V2 via a connected GPS receiver, and thanks to an intelligent time management. The internal time is adjusted to the time reference 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 4128S.timeserver V2 can reply more than 1,500 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).

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. MOBANMS).

Effective fault indication

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



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).



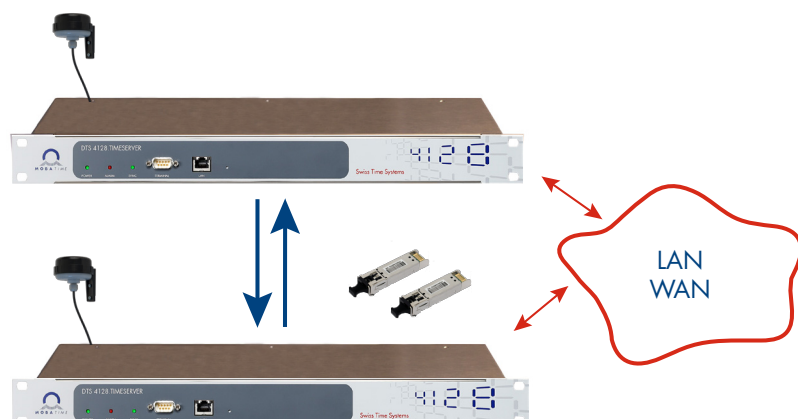
DTS 4128S.timeserver V2 back view: DC power supply input, DCF input, DCF output, DC power supply output, alarm relay contact and DTS fiber-optic connection.

DTS 4128S.timeserver V2 – safety and reliability as the top priority

Redundant operation

To avoid time deviation between two DTS 4128S.timeservers V2, 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.

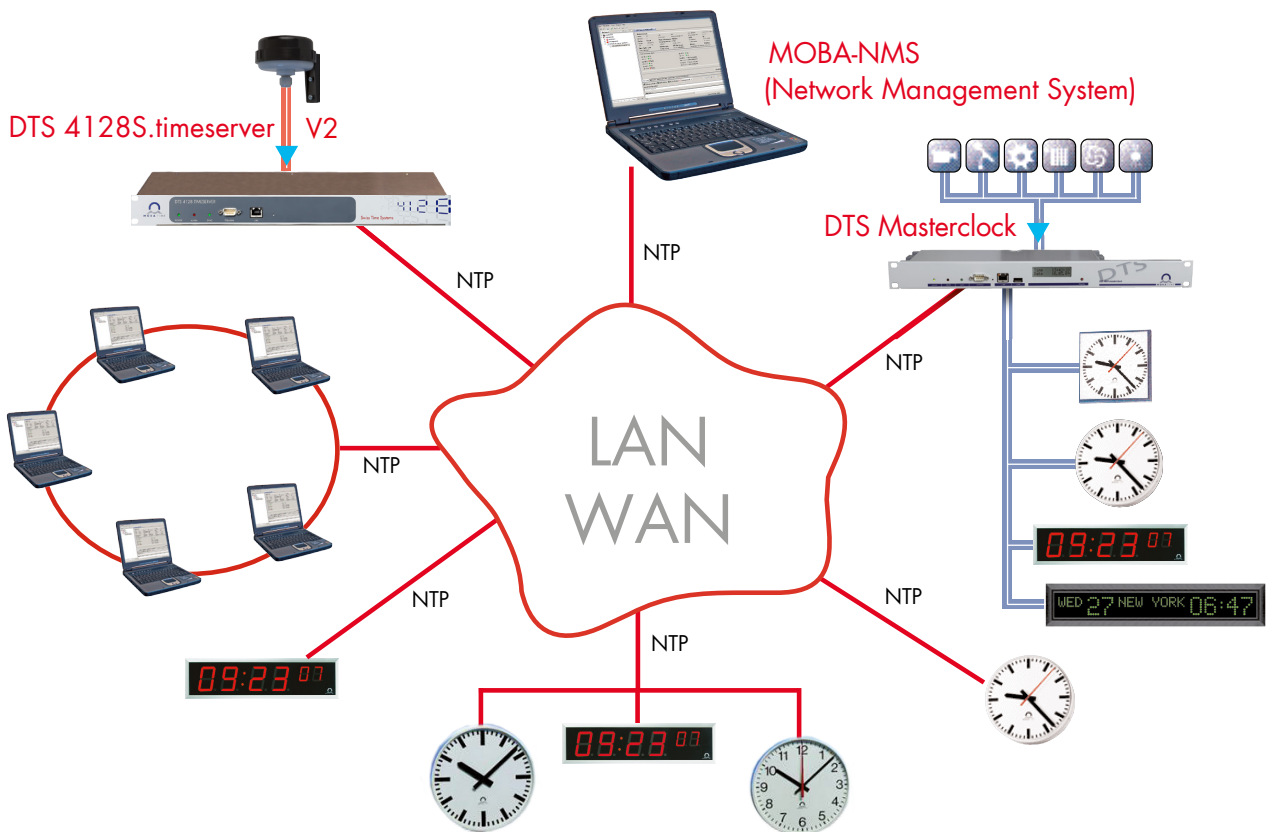


DTS 4128S.timeserver V2 – the time source for LAN-based clock and time distribution systems

The DTS 4128S.timeserver V2 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 MOBA-Line Interface), which for its part can control master clocks and slave clocks with MOBALine and DCF input. Even workstations/server, printers, 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 4128S.timeserver V2 as a time reference.
- Simple and convenient operation, configuration, programming, administration and monitoring via LAN using SNMP (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/Plants and to IT security services

DTS 4128S.timeserver V2 – technical details

Technical Data		
Time signal outputs	NTP / SNTP, NTP multicast DCF-time signal output (opto coupler passive)	
DTS links (redundancy)	Max. length of the fiberglass cable, e.g. multimode fiber Ø 50 µm	max. 550 m
Network services	NTP client NTP server, max. no. of NTP and SNTP client requests: SINEC telegram resp. compatible with SIMATIC via Ethernet SNMP V1, V2c, V3 (get, put, notification, trap) with MD5 authentication and DES for encryption E-mail logins via SMTP DATE, TIME, FTP (for update)	typical > 1,500 requests/ sec
Network interface	1 x 10BaseT / 100BaseTX (IEEE 802.3) Data transmission rate: auto-negotiation / manual Connection: RJ45 (only shielded cable permitted)	
SINEC	SINEC telegram resp. compatible with SIMATIC via Ethernet	
SMTP	E-mail logins via SMTP	
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	
Order reference DTS 4128S.timeserver V2		B023 0020 4732-V2
Accessories		
Siemens GNS interface	Antenna signal matching between different products. Dual interface for connecting a master clock with a GPS antenna from different manufacturers.	B600 0013 1239
Signal Multi Plus	Signal converter, various inputs, current or voltage controlled. 4 galvanically isolated outputs for current and voltage interface.	B600 0013 3286
Signal Multi Plus FO	Optional: optical input and output	B600 0013 3287
miniGBIC module	SX LC 1000Mbps, 3.3V for fibre optical cable (GigaBit Interface Converter) LC duplex	B023 0070 1290
optical cable	LC/LC 50/125µm patch cable Fibre Channel duplex 1m	B023 0070 1289