



GTS 3920-X1

Global Time Server



The reliable time coordinating system synchronizes all computer systems clocks via LAN and serial interface

Always the exact time ...

Even though computer systems are equipped with their own Soft/Hardware clock, in the course of a day this internal time may deviate considerably from the actual time.

In a computer center with several systems it gets more and more important that all computer systems clocks are correct and, most of all, synchronized. In companies

or offices attendance recording, for example, should tally for all employees - especially if there are different booking systems at different places.

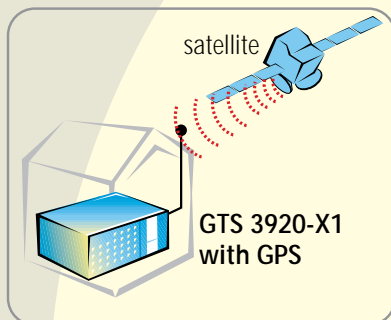
The Global Time Server GTS 3920 is a totally reliable time source that regularly provides the correct time for all connected computer systems. GTS 3920 operation is possible all over the world. Depending

on customers' demands the changeover from summertime to wintertime is automatically done or GTS 3920 permanently supplies time protocols based on UTC (Universal Time Coordinated).

The service 'Global Time Server' can also be integrated into the Automatic Operator ATOP 3925-X1'.

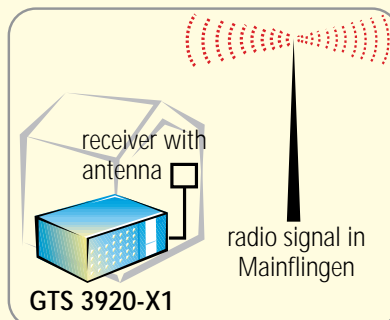
The following time sources are available for GTS 3920-X1

The choice of the primary time source depends on the location and its local conditions.



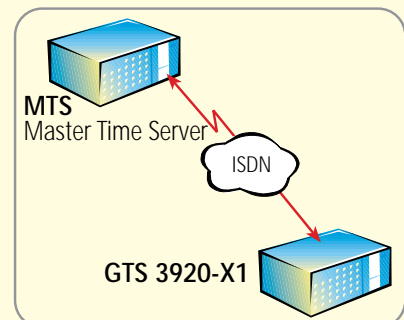
Global Positioning System GPS
(primary time source)

The installation of the GPS upgrade kit into the GTS 3920 allows the worldwide reception of the clock signal. The GPS satellite system orbits permanently the earth and, thus is independent of regional-restricted, terrestrial radio clock transmitter. Only 3 visible satellites are sufficient for the GPS receiver to determine the correct local time. For this a relatively small antenna with a diameter of 10cm has to be installed in the open.



DCF 77 signal
(primary time source, optional)

The integrated radio clock upgrade kit of the GTS 3920 enables the reception of time telegrams from the European transmitter DCF 77, as long as the permanent reception of radio signals is ensured. Usually this is the case in a radius of approx. 1200 km of the transmitting station in Mainflingen near Frankfurt. In rare cases, the reception of signals may be affected by e.g. shielding or reflective buildings, nearby antennas.



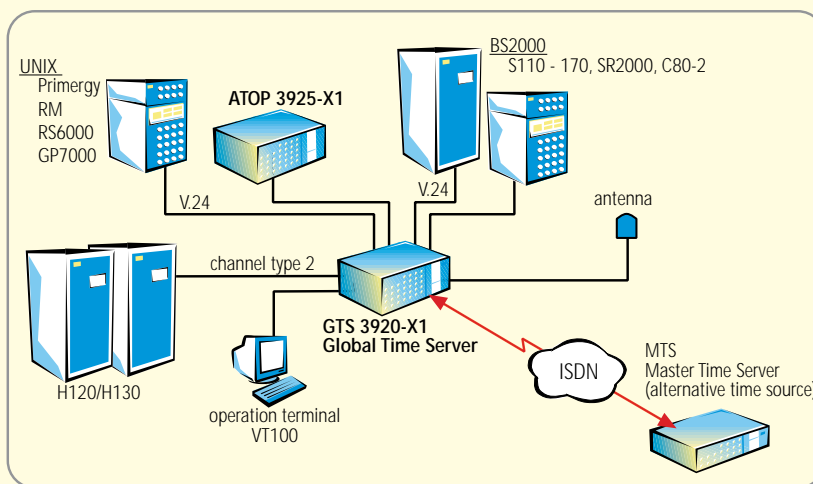
Master Time Server
(secondary time source)

But where do you get your time information from if the existing primary time source has a longer dropout period or the installation of an antenna is not possible at all? In this case TSP offers a service called 'Master Time Server'. A GTS 3920 installed at TSP acts as the Master Time Server (secondary time source) transmitting time information to distinguished GTS 3920 systems all over the world via ISDN.

... for all computer systems

Connection of the computer systems via serial interface/channel type 2

The point-to-point connection of the computer systems with V.24 or SS97 interfaces are executed via OC4 interfaces. OC4 is an opto-coupled 4-wire technology for inhouse data transmission covering distances of up to 2000 m without any difficulties. An available 4-wire inhouse network with existing distributor structure (e.g. plugs, trunks) is integrated easily into the OC4 concept. A special cable converting the OC4 interface into a V.24 or SS97 interface enables the connection to the computer system.

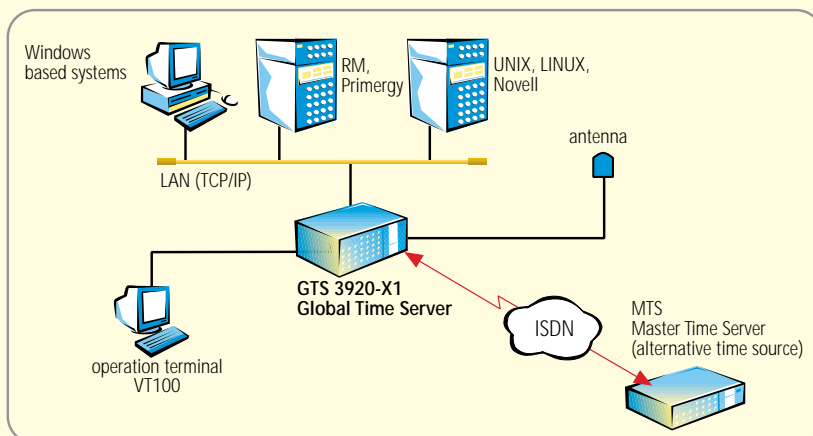


Connection of the computer systems onto the GTS 3920-X1 via serial interface

Provided that a driver software is installed in the computer system the time information from the GTS3920 system can be received. This software handles the time protocols Software/Hardware clock of the specified computer system. The operating system BS2000 already includes an appropriate time-synchronizing software. For UNIX computer systems (Primergy/RM) TSP supplies driver programs.

Connection of the computer systems via LAN

For the computer systems not only point-to-point connection but also connection via LAN is executed. The time supply via LAN is easily carried out by GTS 3920 because the GTS 3920 software compensates network run-times within the LAN. The LAN time information is transmitted through the NTP protocol (Network Time Protocol).



Synchronisation of the computer systems via TCP/IP LAN

For time synchronisation a NTP-Client-Software installed on the computer system is necessary. The software receives the time information sent by GTS 3920 through the NTP protocol and synchronizes the Software/Hardware clock of the specified computer system. Certified software is provided for all common operating systems by the manufacturer. For more comfort there is a great amount of shareware and freeware.

Technical Data

Time sources

- GPS upgrade kit
- Master Time Server, connection via ISDN/S0 module
- Radio clock upgrade kit for reception of the DCF-77 signal

Interfaces to the computer systems

- OC4 (connection of up to 24 computer systems possible)
 - V.24: UNIX based systems, RM, Primergy, S110 - S170, C80-2, SR2000;
 - SS97: C50 - C80, H100
- LAN connection
UTP 10 Mbit/s, (BNC 50 Ω), for LAN with TCP/IP protocol,
all computer systems with NTP Client software
- ATOP 3925, ATOP 3925-X1
- Channel type 2 (upon request)
 - H120, H130, C40

Configuration/Diagnostics interface

V.24a (VT100-Terminal or higher, 97801 terminal or higher, PC with terminal emulation),
incl. cable

Dimensions

Height	132 mm
Width	435 mm
Length	310mm

Power connection

- 230 V AC, 100 VA, 47 ...63 Hz



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