

CESA

Synchronized time and information system

Description of the Synchronized High Accuracy Time System

Synchronized Time System is a reliable and accurate method to bring and display synchronous time data to different display modules installed in different locations in the corporation.

Accurate source for time signal

The system uses the accurate time signal available from GPS satellites.

GPS

Global Positioning System (GPS) is a satellite navigation system. In addition to navigation information it provides synchronized time that deviates less than one microsecond from UTC (Coordinated Universal Time).

GPS Time

GPS time is composed of measurements from atomic clocks on GPS satellites as well as on the master stations. GPS time is constant and does not have leap seconds inserted. GPS receivers supply UTC time by adding broadcast time correction factors to the broadcast GPS time.

Time Signal

The time signal is transferred from antenna to a receiver via RS422 serial line. In addition to a precise time signal the receiver gets the normally used navigational data (position and velocity information). The receiver is connected to a computer through RS232 serial connection.



Antenna

The type of antenna is chosen according to the installation location and visibility of satellites.

Computer System

The computer gets the position and time information through the serial line. This data is decoded to time information using ntpd (Network Time Protocol Daemon) which synchronizes the PC clock with this time. Time information is then transferred to the display units and any appliances (for example the other computers are able to synchronize their time with the CESA server).

RS485 Channel

RS485 serial connection is used for synchronizing the clocks and sending data to information row.

Wall Mounted Time Display Module

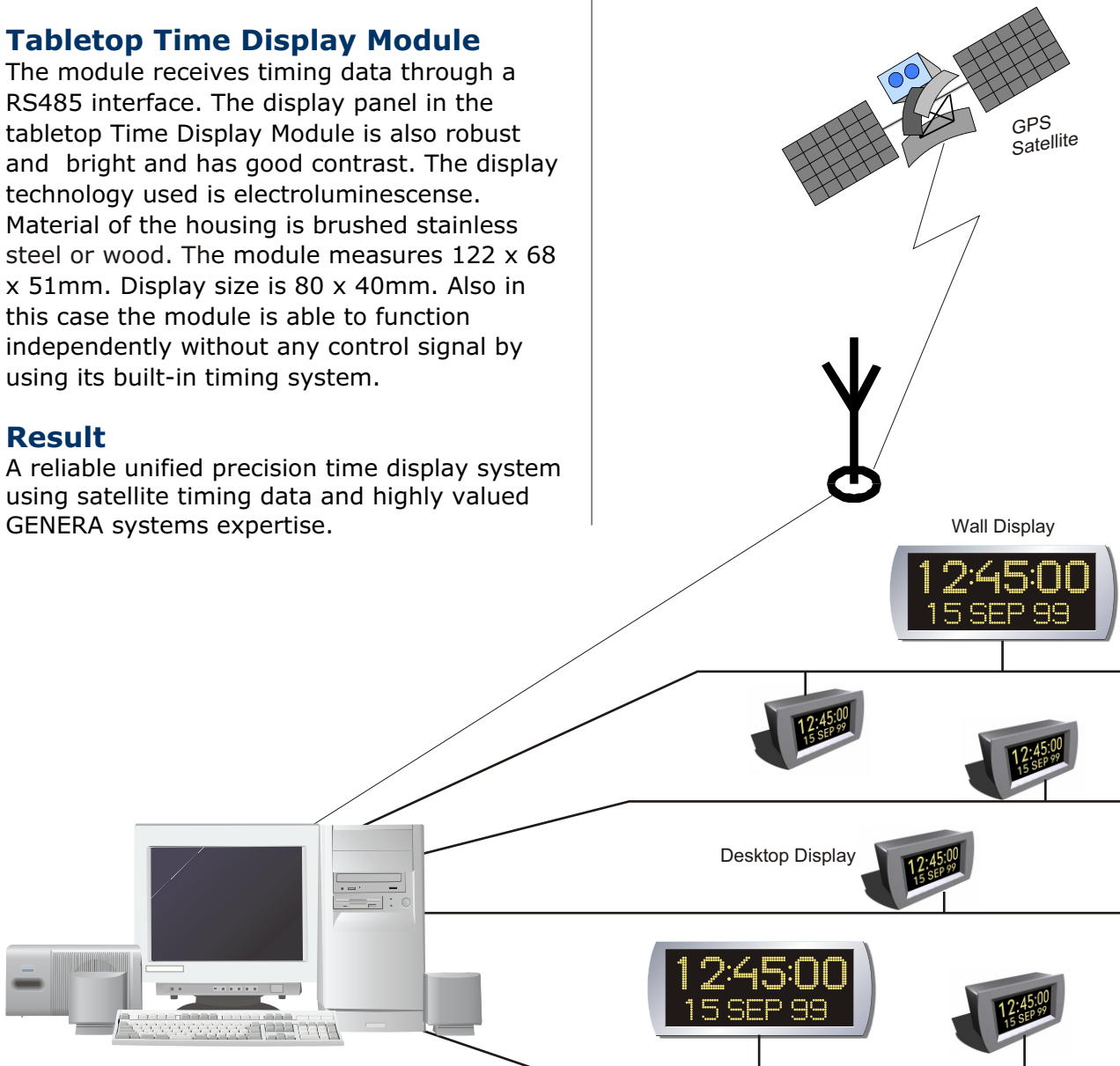
The module receives timing data through an RS485 interface. The display panel in the wall mounted Time Display Module is very reliable and has good contrast properties because of the applied LED technology. Material of the housing is brushed stainless steel or wood. The module measures 478 x 200 x 45mm. Display size is 400 x 165mm. Naturally, the module is able to function independently without any control signal by using its built-in circuitry and timing crystal.

Tabletop Time Display Module

The module receives timing data through a RS485 interface. The display panel in the tabletop Time Display Module is also robust and bright and has good contrast. The display technology used is electroluminescence. Material of the housing is brushed stainless steel or wood. The module measures 122 x 68 x 51mm. Display size is 80 x 40mm. Also in this case the module is able to function independently without any control signal by using its built-in timing system.

Result

A reliable unified precision time display system using satellite timing data and highly valued GENERA systems expertise.



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