

# Digital Clock DEC10

Air Traffic Control services and modern Air Traffic Management facilities, as well as emergency services, require precise clock referencing in order to be able to synchronize their activities and operations. This can be as simple as a UTC Time Clock display for the controller's reference to more sophisticated time reference equipment synchronisation.

The SITTI DEC10 Digital Electronic Clock System provides suitable global time and date synchronisation for ATC/ATM and other services. Designed with high reliability, precision and configuration flexibility, DEC10 is the solution for all air traffic control systems ranging from small towers to larger ACC centres.



Many installation options are available, such as the possibility of inserting DEC10 modules into existing SITTI service drawers, or the use of an independent 1 unit high drawer configurable with two modules acting in main/standby mode. This allows Customers to easily add DEC10 devices to existing ATM installations in stand-alone or redundant configuration. Transition from stand-alone to redundant installation is as easy as inserting the new module into the drawer. Reliability options such as duplicated independent power supplies are available.

## Ease of Installation

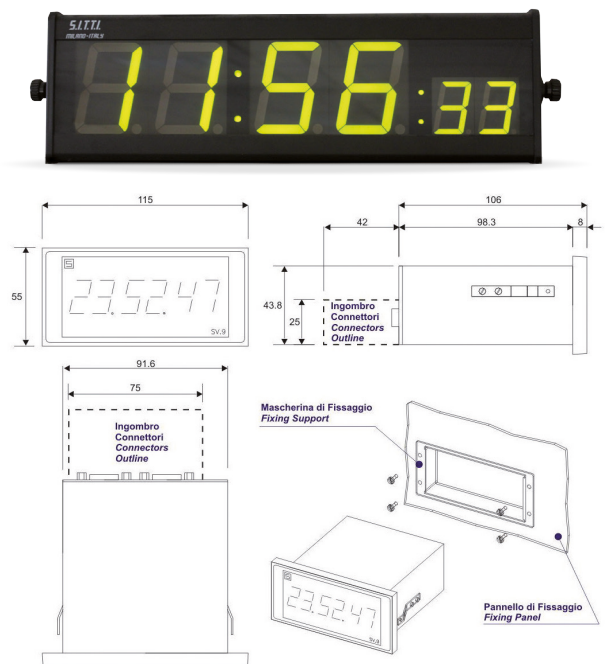
Given the flexibility in time reference protocols, the DEC10 Systems can be easily integrated into third party ATM and communications networks. System setting is performed via a dedicated serial line on the front panel or through a LAN web browser. When installed in conjunction with a SITTI MULTIFONO® Voice Communication System (VCS) where Controller Working Positions are IP based, then these latter are automatically synchronised using standard NTP protocol.

SITTI also offer Display Slave Units (DSU), i.e. console and wall mounted time displays, compatible with the DEC10 System outputs for time reference synchronisation. Differing options and sizes are available ranging from displays typically used in ACC centre consoles through to both digital and analogue clock displays. All DSU devices are equipped with a high precision internal clock allowing automated free running mode in the absence of the main GPS synchronisation signal.

DSU equipment may be connected via LAN to operate on NTP/SNTP protocol or via RS422 (proprietary protocol).

The main features provided by DEC10 devices are:

- Reception of timing signalling from the GPS (Global Positioning System) satellite network (Intelligent multi-satellite management)
- Reception and management of GLONASS signalling (option)
- Distribution of date and time information (local or UTC) in digital form to all Controller Working Positions (CWP)
- Processing of both local and UTC time (Universal Time Coordinated)
- Automatic time management of daylight saving offsets
- Provision of timing information to any other computer or external equipment
- Synchronization Pulse Reference to remote units
- NTP/SNTP synchronization protocols
- Stand-alone or main/standby configuration
- High precision free running mode in case GPS signal is not available
- Analogue output signal
- Two independent RS232 serial line interfaces
- External time stamping pulses (trigger-in facility)
- Interface for IRIG-B synchronization
- Detection of alarms and alerting by local visual and audible indication and remote configurable dry contacts (normally open or closed)
- LAN connection with power over Ethernet





## DEC10 Technical Information

### Master Unit

Power: 230 VAC - 110 VAC - 24-28 VDC

Physical Dimensions: 19" width, 3U or 1U height

Stand alone or main/standby configuration

GPS synchronisation

GLONASS synchronisation (option)

High precision free running mode when GPS signal is not available

Daylight saving time management

Time max error (self working mode): max  $\pm 0.1$  sec/day (STRATUM 3 Overall Stability  $\pm 4.6$  ppm)

Time max error (with GPS): synchronous with UTC with same accuracy as GPS receiver (STRATUM 1)

Synchronisation output pulse

Synchronisation input pulse

Double independent serial line RS232 output signals

IRIG-B synchronisation interface

Reference clock output

3 duplicated LAN interfaces (Ethernet 100 BaseT IEEE 802.3)

NTP/SNTP protocols

Temperature: 0 - 50 Celsius

Vocal time stamp option

### Display Slave Units

Wall mounting display unit

- Brightness adjustment
- Seven segments solid state indicator
- Power from mains (220/110 VAC)
- Width 600 mm - Height 170 mm - Depth 103 mm

Console mounting display unit

- Brightness adjustment
- Seven segments solid state indicator
- Designed to fit into controller working position desks (CWP)

