

NATIONAL RADIO ASTRONOMY OBSERVATORY  
Green Bank, West Virginia

300-FOOT CONTROL COMPUTER MEMO NO. 23

TIME-KEEPING

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TIME-KEEPINGDDP116

A sidereal oscillator is used at the telescope for time-keeping. An interrupt is generated every 10 ms and has the highest priority.

TIMERH is the variable (30-bit) in the computer code for incrementing each time an interrupt (10 ms) is generated. This variable is initialized at start-up (IPL) of computer. At the same time, the site sidereal clock is read and stored as REFLST.

A clock task scheduled every 50 ms updates the variable LST using TIMERH as elapsed time and REFLST.

H316

TIMERH is a 30-bit variable in the computer code for time-keeping. CCXMTFG3 is set when H316 is reloaded or restarted. This causes a request to be sent to the DDP116 for time which in turn sends the current LST to the H316. TIMERH is stored on receipt as REFTIMER and LST is stored as REFLST. A task is queued every 100 ms which computes elapsed time from TIMERH and REFTIMER and adds this difference to REFLST to compute the current LST for the H316. TIMERH is updated every 10 ms by the standard timing interrupt.

A restart of the DDP116 also causes LST to be sent from the DDP116 to the H316 which causes the H316 to reinitialize all time variables used in the calculations each 100 ms. This prevents TIMERH from overflowing after about 8 days which would result in erroneous times in the H316.

EST is calculated and stored in each computer every second. EST to greater accuracy has not been necessary.

The DATE is presently read from a calendar in the control room with digital input words (32). Most of these input words contain information about the manual control panel (which disappears) and will not be necessary with the new control system. The date will be read from new clock to be installed.