

552 PRODUCT IMPROVEMENT

Increase capability and flexibility of present 552 Stereo Viewer Marking System by modifying same to include automatic digital comparator features.

DECLASS REVIEW by NIMA/DOD

GENERAL:

Automatic X-Y coordinate measurements of photo points are provided by four (4) shaft position incremental encoders, driven by precision lead screws, one for each axis.

Measurement data or pulses from encoders are fed to up down counters and simultaneously presented on a digital display.

SCREWS:

Precision ground ball lead screws $2\frac{1}{2}$ mm pitch; 5 microns per foot lead error. Maximum thread to thread lead error 0.7 micron at nominal 70°F.

ENCODERS:

Incremental-magnetic pulse type shaft encoders are used to insure maximum reliability and minimum downtime. These encoders are connected to the precision lead screws through flexible couplings to insure zero backlash. Each revolution of the encoder generates 1,000 counts or pulses. Each pulse represents linear X-Y distance of $2\frac{1}{2}$ microns at film plane. Shielded cables carry the pulse signals to the respective counters.

COUNTERS:

The pulses from each encoder are totalized in the appropriate X-Y axis counters and displayed on the nixie tube banks. Solid state counters and power supplies with modular type construction guarantees maximum reliability and serviceability. These transistorized packages will count up and down from zero at rates greater than 10,000 cycles per second. Counters can be reset to zero.

DISPLAYS:

Four (4) banks, one for each format axis, of 6 digit each (nixie lamps), display coordinate measurement data in 1" illuminated numerals.

CONTROL:

ON-OFF power switch and zero reset switch is located at operators control panel. Power 110/120 volt ac 60 cycles.

SYSTEM PERFORMANCE:

Digit bit size = $2\frac{1}{2}$ microns

Maximum speed = 1" per second

DESIGN OBJECTIVE:

The system will be designed to obtain repeatability of $2\frac{1}{2}$ microns
Accuracy $2\frac{1}{2}$ microns plus .0005% of distance travelled.

SPECIFIED ACCURACY:

Accuracy 5 microns plus .01% of distance travelled.

