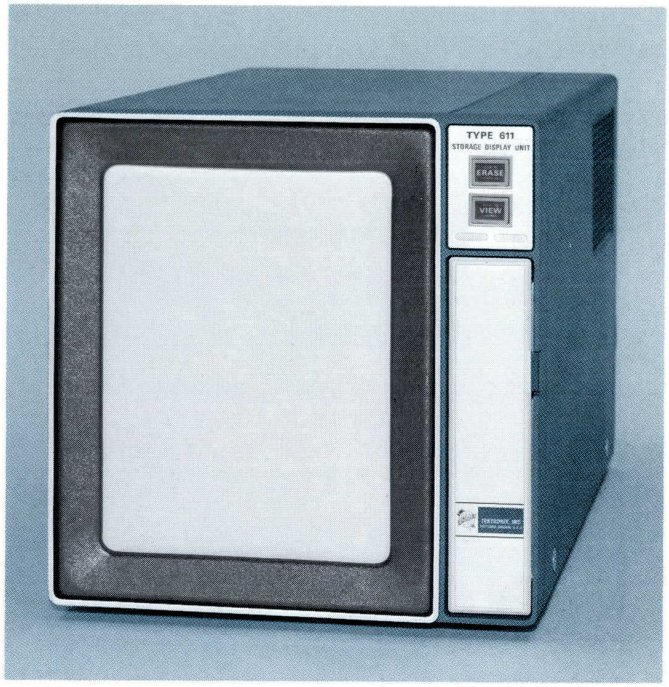
11-Inch Storage Display

611

- ***FLICKER-FREE DISPLAYS***
- ***HIGH RESOLUTION ALPHANUMERIC AND GRAPHICS DISPLAY CAPABILITIES***
- ***WRITE-THROUGH ABILITY***
- ***REMOTE PROGRAMMING OF DISPLAY FUNCTIONS***



The Type 611 Storage Display Unit permits stored displays of combined alphanumeric and graphic information from digital computers and other data transmission systems. The Tektronix-developed bistable Storage CRT used in the Type 611 eliminates the need for costly memory devices for refreshing the information display and provides high information density without flicker or drift and with excellent resolution. A write-through feature provides the operator the ability to visually position the writing beam to any point on the CRT display area without disturbing previously stored information. All solid-state circuit design insures long-term stable performance. The standard instrument provides a vertical format display area with the same aspect ratio as a typewritten page. A horizontal format display is available in a Type 611 Mod 162C.

CHARACTERISTIC SUMMARY

VERTICAL AND HORIZONTAL

CALIBRATED DEFLECTION FACTOR—1-V full screen deflection X and Y axis.

SETTLING TIME—3.5 μs/cm + 5 μs.

Z AXIS

TURN-ON LEVEL—+1 V or greater.

TURN-OFF LEVEL—+0.5 V or less.

INPUT RC—100 kΩ paralleled by 50 pF.

STORAGE CRT

DISPLAY AREA—Vertical—21 cm, Horizontal—16.2 cm. 25% incrementally storable.

RESOLUTION—Equivalent to 400 stored line pairs along the vertical axis; 300 stored line pairs along the horizontal axis.

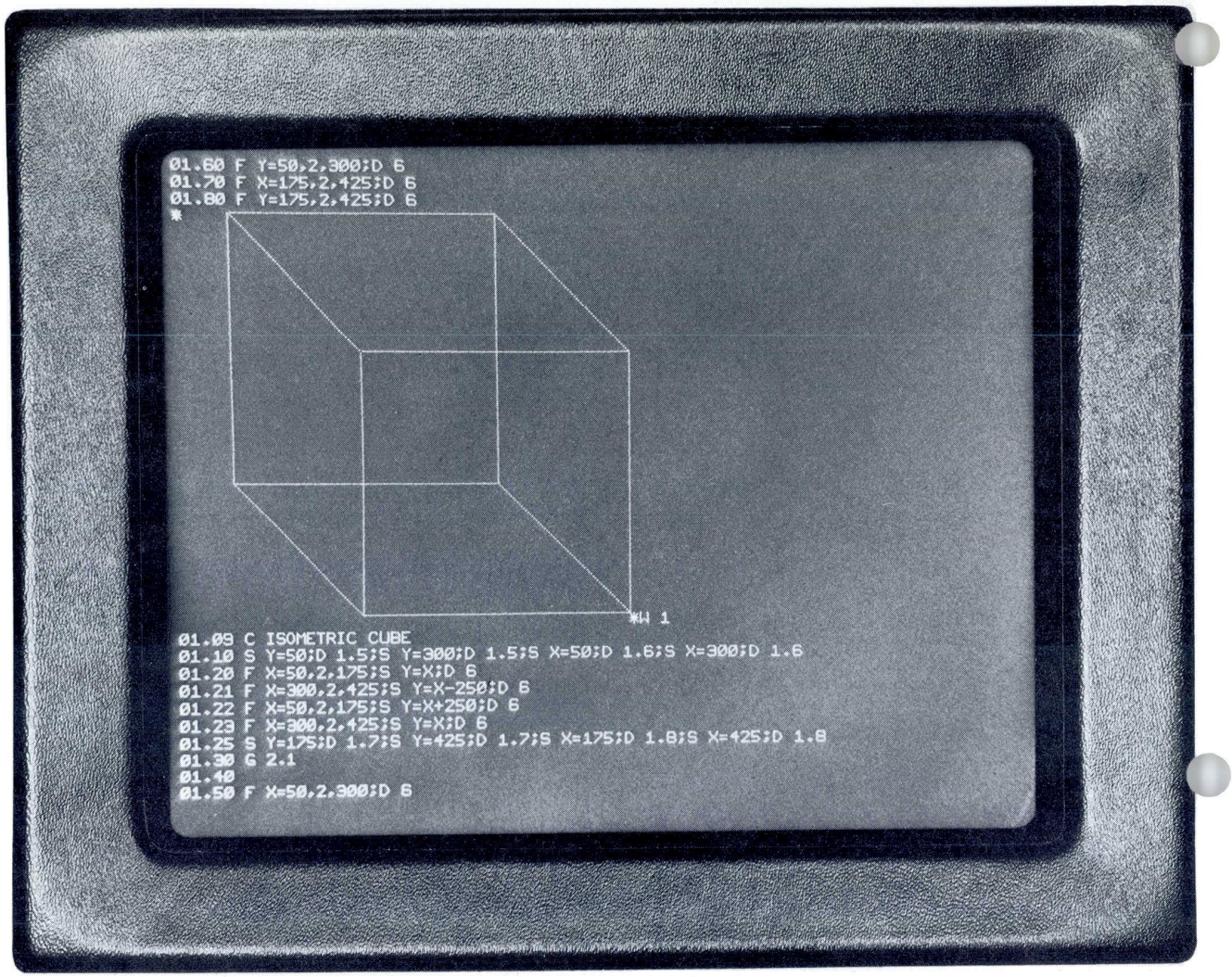
ERASE TIME—0.5 seconds.

DOT WRITING TIME—5 μs.

OTHER

REMOTE CONTROL OF ERASE, NON-STORE, VIEW AND WRITE-THROUGH

POWER REQUIREMENTS—90 to 136 or 180 to 272 VAC, 48 to 66 Hz, 250 watts.



The Type 611 Storage Display Unit is ideally suited for information display applications. Up to 4000 alphanumeric characters may be stored and legibly displayed. The above photo, and the photo on the next page were taken from a Type 611 used as the readout device of a remote computer terminal.

OPERATING FUNCTIONS

The Erase, Non-Store, Write-Through and View operating functions are remotely programmable through contacts at the remote program connector on the rear panel. An Erase Interval signal is also provided at this connector. X, Y, Z inputs are provided through rear BNC connectors or the remote program connector (optional). Manual control of Erase and View is provided on the front panel. Remote programming of the Type 611 is achieved by grounding the appropriate contacts at the rear program connector. The remote switching device must be capable of switching +10 V to approx ground (+0.5 V to −10 V) and handle up to 5 mA of current.

A "ready-to-write" mode is established by erasing the CRT. When the new information has been written, the instrument will be in the "view" mode for approximately one minute and will then automatically switch to the "hold" mode. This holds information stored on the CRT at a low brightness to improve CRT life. Pressing the VIEW switch while in the "hold" mode returns instrument to the "view" mode for approximately 1 minute.

A special "write-through" feature is provided and is programmed through the rear-panel program connector. When the program contact is closed the CRT beam is unblanked if Z axis is activated, and "viewed" without destroying previously stored information, and without storing new information. A combination of reduced beam current and beam movement to form a circular small diameter Lissajous pattern prevents storage.

The Intensity, Focus, Operating Level, Power Switch and Test Spiral controls are located behind a front-panel access door. Pushing the Test Spiral switch causes the instrument to comp an erase cycle and store a single-shot test pattern presenta Pulling TEST SPIRAL switch provides a "non-store" mode with repetitive test pattern for focusing and other tests.

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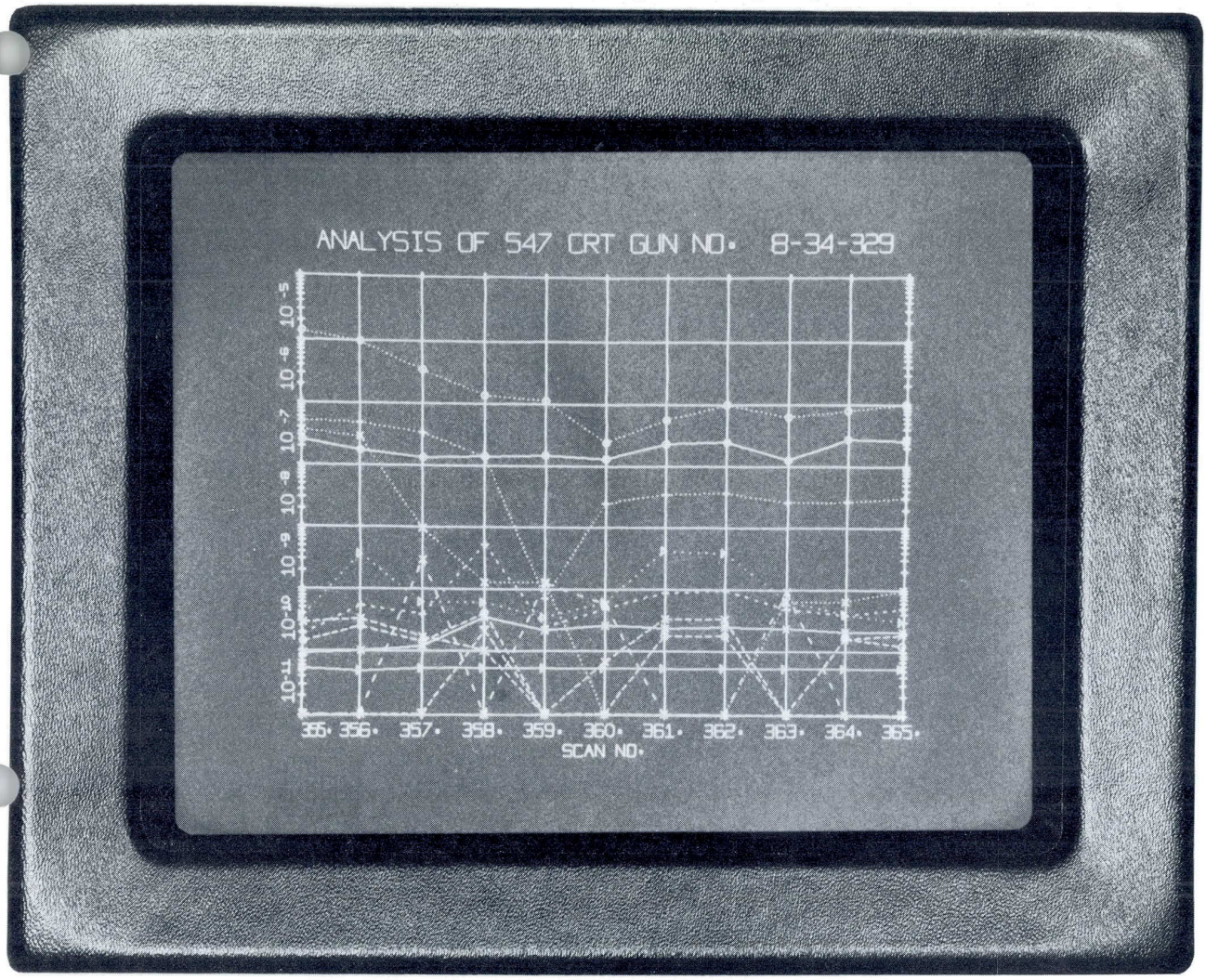


Alphanumeric and graphic display taken from a Type 611 used in a remote computer terminal application.

VERTICAL AND HORIZONTAL AMPLIFIERS

DEFLECTION FACTOR

Vertical—1-V full scale (16.2 cm for square format or 21 cm for rectangular format), accuracy within 2%.

Horizontal—1-V full scale (16.2 cm), accuracy within 2%.

With Attenuation Resistors—Up to 75-V full screen for vertical or horizontal deflection can be obtained by adding attenuation resistors to input circuits.

INITIAL BEAM POSITION

Any one of 9 initial beam positions can be selected by internal switches. Each position is adjustable ±10% of full scale both vertically and horizontally.

SETTLING TIME

μs/cm + 5 μs, to within 1 spot diameter of final position.

POLARITY

Positive input to the vertical and horizontal inputs moves the beam up and to the right.

LINEARITY

The voltage required to produce a 2-cm deflection at any point on the CRT will not vary more than 10%.

MAXIMUM INPUT VOLTAGE

±50 V combined DC and peak AC.

INPUT RC

100 kΩ paralleled by approx 60 pF.

POSITIONAL STABILITY

0.16 mm (or less)/hour with 75-Ω source impedance at 20° C to 30° C. Within 1.6 mm/hour with 75-Ω source impedance at 10° C to 50° C. Reference 25° C.

Z AXIS

INPUT
Turn-on level (unblanked) is +1 V. Turn-off level (blanked) is +0.5 V.

MAXIMUM INPUT VOLTAGE
±50 V combined DC and peak AC.

INPUT RC
100 kΩ paralleled by approx 50 pF.

Rear panel of Type 611 Storage Display Unit.

CRT DISPLAY AND STORAGE

TEKTRONIX CRT
11-inch flat-faced bistable storage tube, phosphor similar to P1.

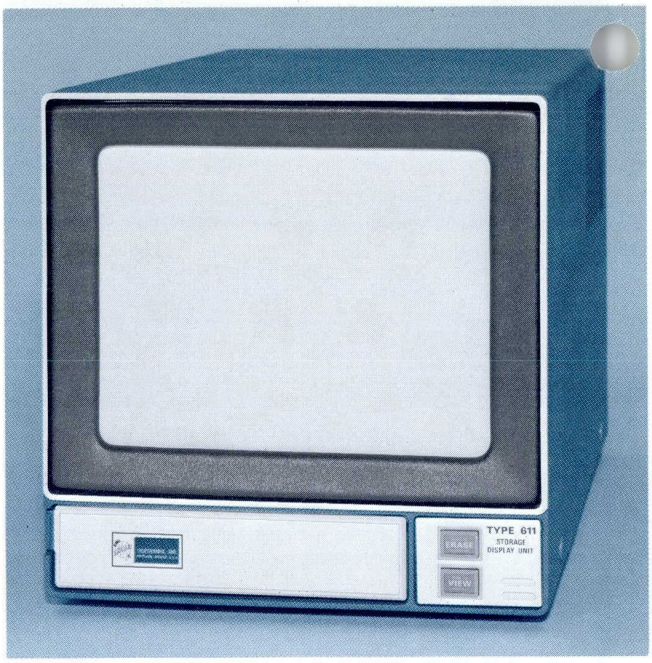
DISPLAY SIZE
Vertically—21 cm (approx $8\frac{5}{32}$ in), Horizontally—16.2 cm (approx $6\frac{7}{16}$ in). Display area is up to 25% incrementally storable.

STORED LUMINANCE
At least 6 foot-lamberts.

CONTRAST RATIO
6:1 or greater.

RESOLUTION
4,000 characters based on a 90 x 70 mil matrix, clearly legible with good spacing. Equivalent to 400 vertical x 300 horizontal stored line pairs. (Resolution is measured using 400 x 300 stored dots since closely spaced line pairs exceed 25% incremental storage.)

VIEWING TIME
Less than 15 min recommended. Viewing time may be extended to one hour; however, erasure of previously stored information becomes more difficult.



Type 611 MOD 162C features a horizontal display format.

ERASE TIME
500 ms or less.

DOT WRITING TIME
5 μs is required to write (store) one bit of information.

OTHER CHARACTERISTICS

ERASE INTERVAL PULSE
A negative-going erase pulse is provided at the rear program connector to inhibit external equipment during an erase cycle. Amplitude is approx 10 V, source impedance approx 2 kΩ.

POWER REQUIREMENTS
90 to 136 VAC or 180 to 272 VAC, 48 to 66 Hz, 250 watts maximum at 115 V and 60 Hz. Rear panel selection provides rapid accommodation for six line-voltage ranges.

DIMENSIONS AND WEIGHTS

Height	$11\frac{7}{8}$ in	30.1 cm
Width	$11\frac{5}{8}$ in	29.5 cm
Depth	$22\frac{3}{8}$ in	56.8 cm
Net weight	51 lb	23.1 kg
Domestic shipping weight	≈62 lb	≈28.1 kg
Export-packed weight	≈72 lb	≈32.6 kg

INCLUDED STANDARD ACCESSORIES
External program connector (131-0570-00); connector cover (200-0821-00); 3 to 2-wire adapter (103-0013-00); two instruction manuals (070-0752-00).

TYPE 611 STORAGE DISPLAY UNIT **$2695**

TYPE 611 MOD 162C **$2695**
Horizontal display format with same accessories as standard instrument.

U.S. Sales Price FOB Beaverton, Oregon
Please refer to Terms and Shipment, General Information page.