The computer terminal designed for rugged military environments
Alphanumericics and graphics in a low-cost, ruggedized computer display terminal.

Converting Sea Data To Graphics

The RE-401 is designed to convert raw alphanumeric data into X-Y plots to display either in automatic or manual mode. It may be used to provide a hard copy of any chart, graph, or matrix of data, or display information in an analog form. The RE-401 is designed to operate with a standard IBM-compatible computer, and is compatible with any computer system which has a video output. The RE-401 is available in three basic models: small, medium, and large.

Tracking

By superimposing a "refreshed" symbol representing an aircraft on a "screen" (the optional writeable chalkboard display), the RE-401 can graphically display the location and altitude of an aircraft. In addition, these symbols can be shifted from one screen to another, and can be moved to follow the trajectory of an aircraft. The RE-401 can be used to display information relating to weather conditions, weather fronts, and radar data. It is compatible with any computer system which has a video output.

Topography

Topography can be studied in detail with the window feature. By using the crosshair cursor to trace a specific area of a large map, the area may be enlarged to any scale desired.

The right-to-left, two-page format presents the information in a logical and easy-to-read manner, with each section of the document divided into segments that correspond to the headings and subheadings. The text is formatted with headings and subheadings for easy navigation, and is presented in a clear, concise manner.

DESIGNED ESPECIALLY FOR RUGGED ENVIRONMENTS

The RE-401 is designed to operate in the harshest of environments, including extreme temperatures, humidity, and vibration. The RE-401 is built to withstand the rigors of military and industrial applications.

THE COST, NO MORE THAN ALPHANUMERICICS ALONE

The RE-401 is priced at $500, which is significantly lower than other alphanumericics systems. This makes it an attractive option for military and industrial applications, where cost is a critical factor.
RE4012: the top of a very tough line.

Single-unit construction, modular functional assemblies, and no-stress CRT mount simplify RE4012 maintenance and assure operator safety. Automatic origin shifting, discrete connectors on the circuit cards, ceramic IC's and heavy-duty components throughout maximize CRT life and overall reliability. "Whisper" fans assure quiet operation.

The RE4012 has its tough outer shell, but under the surface it's still a sophisticated terminal with versatile interfacing available to readily adapt it to most computer systems. And wherever duty takes it, maintenance and service are nearby. Tektronix has field offices throughout all major U.S. and world-wide markets, with computer display terminal specialists standing by to help.

Tektronix has long been a respected supplier to commercial and government projects. Talk with your Tektronix sales representative: the RE4012 is available now, and its applications can open new horizons in rugged environments.

**PRODUCT DATA**

**OPERATIONAL CHARACTERISTICS:**

**Alphanumeric Mode:**
Display Medium: Direct View Storage CRT.
Display Size: 11-inch diagonal, approx. 7.9x6.0 in.; 20x15.2 cm.
Character Generator: 7x9 dot matrix (ROM).
Approx. 1,000 characters/sec. Approx. 0.087x0.106 in.; .22x.27 cm
Full ASCII, 94 printing characters (upper and lower case).

**Format:**
74 characters per line.
35 lines per display.
2,590 characters per display.
Cursor:
Pulsating 7x9 dot matrix.

**Alphanumeric Speed:**
Approx. 10,000 WPM (Avg. 6 characters per word).

**Graphic Display Mode:**
Vector Drawing Time:
2.6 ms for standard terminal. With fast-graph option, variable depending on vector length.

**Graphic Matrix:**
1024X x 1024Y addressable points, 1024X x 780Y viewable points: 100 per in., 39.4 per cm.

**Graphics Input Mode:**
Thumb-wheel controlled cross-hair cursor 4 through 1023X, 0 through 780Y.

**Length error:**
<1%.

**Usable Storage Time:**
Approx. 15 minutes in view status and 1 hour in hold status without permanent damage to the storage target.

**Line Straightness:**
0.5% deviation from mean.

**Line Voltage Ranges:**
110 V AC 220 V AC
Low 110V ± 10% 220V ± 10%
Medium 115V ± 10% 220V ± 10%
High 120V ± 10% 230V ± 10%
240V ± 10%

**Input power:**
135W typical with standard terminal configuration. Line frequency 48-66 Hz.

**ENVIRONMENTAL CHARACTERISTICS:**

**Temperature:**
Operating: −15° to +55°C
Non-operating: −55° to +75°C
As per Procedure 1, Method 501, 502, Mil-Std-810B

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**Entire CRT assembly unplugs** and is replace-able as a single unit . . . in about a minute.

**Complete keyboard,** including 128-character ASCII, character repeat enabled simply by holding a key down.

**Convenient front panel controls** include fuse diagnostic light, variable brightness control for "write-through" mode, and control for hard copy scan brightness.

**Plug-in maintenance.** Entire terminal logic is contained on four cards for rapid serviceability.

**Integral thumb-wheel controls,** on the key-board, offer true convenience of graphic input, facilitates "menu-picking" and sequential alteration of data base.
Humidity:
To 95%.
Procedure IV, Method 507, as per Mil-Std-810B.

Altitude:
Operating: To 15,000 ft., 4,572 m.
Non-operating: To 50,000 ft., 15,240 m.
As per Procedure IV, Method 506, Mil-Std-810B.

Vibration (non-operating):
5 to 25 Hz—.025 in., 63.5 mm.
25 to 55 Hz—.020 in., 50.8 mm.
18 minutes each axis.
10 minutes dwell at resonance.

Shock (non-operating):
to 30 g’s ½ sine, 11 ms duration, 6 axis, 18 shocks minimum.
As per Procedure 1, Method 416.1, Mil-Std-810B.

Bench Handling:
4-inch (10 cm) drop—all edges.
As per Procedure V, Method 516.1, Mil-Std-810B.

Transportation:
Meets National Safe Transit Committee type of test when packaged as shipped by factory.

Personnel Safety:
Shock test, as per Mil-St.-901C Grade B.

Fungus:
Certified non-nutrient materials.

Salt Atmosphere:
Materials and finishes.
As per Mil-Std-810B Procedure 1, Method 509.

Drip-Proof:
8-minute spray @ 4.33 gal/hr (16.4 liter/hr) with nozzle 3 ft. (.9 m) above surfaces.
Equipment rotated 15° from horizontal in 4 directions.

Dust Atmosphere:
Withstands normal dusty environments with proper filter maintenance.

EMI:
CE-01, CE-03, CS-01, CS-02, CS-06, RE-02 (limited to 1 GHz), (T) RE-04, RS-01, and RS-03 (limited to 1 GHz).

DC Magnetic Field:
20 Oersteds.

Reliability:
Level B, Mil-Std-781.

Weight:
Approx. 80 lbs., 36.4 kg, exclusive of rack tracks.

Shipping Weight:
Approx. 120 lbs., 54.5 kg.

Dimensions:
Height: 15.7 in., 40.00 cm.
Width: 19 in., 48.3 cm.
Length: 29.4 in., 74.6 cm.

Miscellaneous:
Ceramic IC’s.
Metal Can Transistors.
Coated Circuit Cards.
Plug-in Circuit Cards with Discrete Connectors.
Structurally Rugged.
Special CRT Mounting.
Board Retainers.
Large Component Clamps.
Cable Tie-Downs.
Modular Functional Components.

Standard Accessories:
General Purpose Asynchronous—Serial Interface (installed).
Rackmount Adapter Kit, rear support.
Chassis Track (Pr).

Options:
Parallel Interface (NTDS Fast).
Fast Graph.
Display Multiplexer.
360-440 Hz Operation.
No keyboard (read only).
Minibus Extender.

Optional Accessories:
Manuals:
Parallel Interface (NTDS Fast).
RE4012 Maintenance/Operator.
Display Multiplexer.
Fast Graph.
General Purpose Asynchronous—Serial Interface.

Maintenance Aids:
72-pin Card Extender.

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