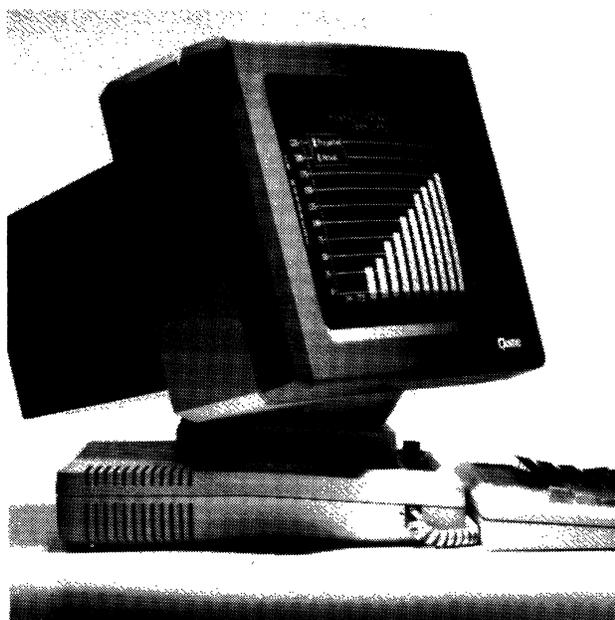


## Qume QVT Display Terminals



*Carrying a price tag of \$395, the Qume QVT 101 was the first smart editing terminal to break the \$400 price barrier.*

### MANAGEMENT SUMMARY

**UPDATE:** Since the last version of this report was published, Qume has added a number of new terminals to its QVT product line. These include the QVT 101, the first sub-\$400 smart terminal on the market; the QVT 211GX, QVT 311GX, and QVT 511GX graphics terminals; and the QVT 201 and QVT 202 Digital Equipment Corporation VT100- and VT220-compatible terminals.

Qume, traditionally, has been a leader in the daisywheel printer market. In late 1982, the company entered the general-purpose ASCII terminal market with the introduction of the QVT product line. The company's goal is to become one of the top five independent display terminal vendors, joining the ranks of the current leaders (Wyse Technology, TeleVideo Systems, Applied Digital Data Systems, Lear Siegler, and Esprit Systems). Qume's strategy, at this point, seems to be to establish itself as the price leader in the ASCII terminal market.

In early 1985, Qume shook the ASCII terminal market with the introduction of the \$395 QVT 101. The QVT 101 became the first smart terminal to break the \$400 price barrier. The price war in the terminal market, which had raged off and on since ADDS' introduction of the \$650 Viewpoint in 1981, was on again. Almost immediately, Lear Siegler and Wyse countered with new models at the below-\$400 mark, while Esprit Systems cut the price of its low-end model from \$495 to \$395. Many vendors felt that Qume's move would lead to a shakeout in the market, which has been troubled recently by the overall slump in the computer industry. Others felt that Qume was trying to

Qume's QVT series is a family of general-purpose, ASCII display terminals ranging from low-priced, smart editing terminals to monochrome and color graphics units. Nine models currently make up the family, providing the user with a variety of emulation capabilities, including several models that conform to the ANSI X3.64 standard for command code compatibility. Ergonomic features on the QVT terminals include a tilt/swivel display and a low-profile, detached keyboard.

**MODELS:** QVT 101, QVT 103, QVT 108, QVT 109, QVT 201, QVT 202, QVT 211GX, QVT 311GX, and QVT 511GX.

**DISPLAY:** All models feature a 14-inch display as standard, except for the QVT 108, which contains a 12-inch display as standard; a 14-inch display is optional. Green phosphor characters are standard, with amber available as an option. A 24-line by 80-character display arrangement is standard on the QVT 101, QVT 108, QVT 109, and QVT 211GX; the QVT 103, QVT 201, and QVT 202 feature a selectable 24-line by 80- or 132-character format. The QVT 311GX and QVT 511GX feature 34-line by 80-character and 30-line by 80-character formats, respectively.

**KEYBOARD:** All models feature a detachable, typewriter-style keyboard. Function keys are standard on all models.

**COMPETITION:** Wyse Technology, TeleVideo Systems, Applied Digital Data Systems (ADDS), Lear Siegler, Esprit Systems, Digital Equipment Corporation, and several others.

**PRICE:** Purchase prices for the QVT terminals range from \$395 to \$2,995.

### CHARACTERISTICS

**VENDOR:** Qume Corporation (a subsidiary of ITT), 2350 Qume Drive, San Jose, CA 95131. Telephone (408) 942-4000 or (800) 223-2479. In Canada: Qume Canadian Office, 207 Place Frontenac, PTE Claire, Quebec H9R 4Z7. Telephone (514) 695-3837.

**DATE OF ANNOUNCEMENT:** QVT 103 and QVT 108—December 1982; QVT 109 and QVT 311GX—July 1984; QVT 511GX—February 1985; QVT 101—March 1985; QVT 201, QVT 202, and QVT 211GX—May 1985.

**DATE OF FIRST DELIVERY:** QVT 103—January 1984; QVT 108—October 1983; QVT 109 and QVT 311GX—October 1984; QVT 511GX—March 1985; QVT 101—April 1985; QVT 201, QVT 202, and QVT 211GX—May 1985.

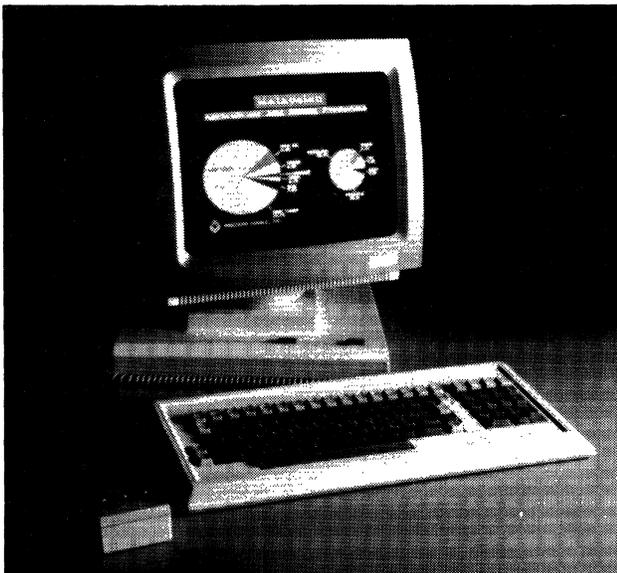
## Qume QVT Display Terminals

▷ achieve its leadership position by “buying” market share, and expressed doubt as to whether Qume could be making any money on the QVT 101. Qume has responded by maintaining that they have found ways to manufacture the terminal cheaply enough to make money on it. Whatever the case, Keith Rapp, general manager of Qume’s Terminals Division, states that the QVT 101 has been the most successful new terminal Qume has introduced, with 8,000 units delivered the month after its introduction.

In addition to the QVT 101, Qume now offers a very wide selection of models within its QVT product line. Recent introductions include the QVT 201 and QVT 202, ANSI X3.64-compliant terminals that offer emulation of the Digital VT100 and VT220 terminals, respectively. These models join the older QVT 103, a Digital VT131/VT100-compatible terminal that also conforms to the ANSI X3.64 standard for command code compatibility. All of these models feature selectable 80/132-column display capability.

Other general-purpose models in the QVT family include the QVT 108 and QVT 109. The QVT 108 offers selectable emulation of a number of the industry’s most popular terminals, including TeleVideo’s Models 925, 920, and 912. The QVT 109 is a high-end model that provides enhanced features, including 19 function keys that provide a total of 38 user-programmable functions. At mid-year, Qume announced the QVT 119, a terminal that provides even more features than the QVT 109, and will eventually replace it. As of this writing, the QVT 119 had not yet been brought to market.

Qume has also made a foray into the graphics terminal market with its three graphics units, the QVT 211GX, QVT and QVT 511GX. All three models combine alpha- numerics with graphics display capability. The ▷



*The QVT 511GX is a raster-scan color graphics terminal. It can display text or graphics in up to eight colors, selectable from a palette of 64.*

▶ **NUMBER DELIVERED TO DATE:** Over 100,000.

**SERVICED BY:** Qume.

### MODELS

Qume’s QVT Series of display terminals currently consists of the following nine models:

- **QVT 101**—a smart editing terminal that offers selectable emulation of the ADDS Viewpoint, Hazeltine 1500, Lear Siegler ADM 3A/5, and TeleVideo 910. A replacement for the QVT 102, the QVT 101 was the first terminal to break the \$400 price barrier.
- **QVT 103**—a smart editing terminal that is compatible with the ANSI X3.64 command set and emulates the Digital VT100 and VT131.
- **QVT 108**—a smart editing terminal that offers emulation of the TeleVideo 925, 920, and 912.
- **QVT 109**—a smart editing terminal that offers menu-selectable emulation of the ADDS Viewpoint A2.
- **QVT 201**—an ANSI X3.64 editing terminal that offers Digital VT100 compatibility and VT220 software compatibility.
- **QVT 202**—an ANSI X3.64 editing terminal that offers true Digital VT220 compatibility.
- **QVT 211GX**—a Tektronix 4010/4014-compatible monochrome graphics terminal.
- **QVT 311GX**—a Tektronix 4010/4014- and Digital VT125-compatible monochrome graphics terminal that conforms to the ANSI X3.64 standard.
- **QVT 511GX**—an 8-color raster-scan graphics terminal that conforms to the ANSI X3.64 standard and can be used in Tektronix 4010/4100/4110 series environments and includes a Digital VT52 emulation mode.

### TRANSMISSION SPECIFICATIONS

Transmission for all QVT models (except the QVT 201, QVT 202, and QVT 511GX) is performed asynchronously, in half- or full-duplex mode, at 16 selectable speeds from 50 to 19,200 bits per second. The QVT 201 and QVT 202 transmit asynchronously, in half- or full-duplex modes, at 17 selectable speeds from 50 to 38.4K bps. The QVT 511GX transmits asynchronously, in full-duplex mode only, at speeds from 110 to 38.4K bps. All models use the X-on/X-off and/or DTR communications protocols. Parity is odd, even, mark, space, or none. All models include an RS-232-C interface as standard; a 20 ma current loop or RS-422 interface is optional. A bidirectional RS-232-C auxiliary port is also standard on all models.

### DEVICE CONTROL

All QVT Series models feature both conversational and block-mode transmission. Operating parameters are selected via a menu-style set-up mode, which is stored in non-volatile memory. The QVT 103 and QVT 108 each includes two pages of display memory as standard; all other models features a single page of memory. (An additional two pages of memory is optionally available for the QVT 103.) Editing features on all models include character insert/delete, line insert/delete, and erase to end of line/page. Tabulation is standard on all models. ▶

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➤ QVT 211GX is the low-end member of the family, offering monochrome Tektronix 4010/4014-compatible graphics capabilities. The QVT 311GX is also a monochrome terminal, and it provides ANSI X3.64 standard compliance, as well as Tektronix 4010/4014 and Digital VT125 graphics compatibility. At the high-end of the Qume graphics product line is the QVT 511GX, which provides the ability to display images in color (8 colors selectable from a palette of 64). In addition to conformity with ANSI X3.64, the QVT 511GX is compatible with the Tektronix 4105 color graphics terminal, is plug-compatible with the Tektronix 4695 color graphics copier, and also provides a Digital VT52 emulation mode.

All QVT models feature an ergonomic design. The display monitor provides tilt/swivel capability, and the keyboard is detached, has a low-profile design, and has an adjustable tilt mechanism. All models except the QVT 108 feature a 14-inch display screen as standard. Green phosphor characters are standard on all models except the graphics QVT 311GX (white snow phosphor) and QVT 511GX (color display); amber phosphor characters can be selected as an option. A screen-saver feature and a switching power supply are additional standard features, while foreign character sets can be ordered. Qume provides the QVT terminals with a one-year warranty.

### COMPETITIVE POSITION

Qume has been a leader in the printer market for the last several years, and is aiming to become a leader in the general-purpose ASCII display terminal market. The company has the backing of parent ITT Corporation, which should be a major plus. Qume offers a broad product line, and with the introduction of the QVT 101 has indicated that it would like to become the low-cost leader in the market. In the current state of the ASCII terminal market, the low-end products now look so much alike from one vendor to another that cost has become the major deciding factor for many buyers.

Within the past year, Wyse Technology has risen to become the number one independent supplier of ASCII terminals, supplanting TeleVideo Systems. TeleVideo, like many other terminal vendors, has been plagued by financial problems due to the current overall slowness in the computer industry. The traditional leaders in this market, Applied Digital Data Systems (ADDS), Lear Siegler, and Esprit Systems, have all lost market share to relative newcomers like Wyse, Qume, and TeleVideo, and their problems have been compounded by the computer industry slump. Several vendors are now or have been experiencing financial woes. Is a shakeout in the offing? Are some smaller terminal vendors becoming targets for takeover by larger firms? Stay tuned.

We should also mention here the entrance of IBM, as a viable contender, into this market. IBM's previous ASCII terminal, the 3101, was never really a factor in the ASCII arena, due to its high price tag and its limited range of functions. However, the company's recent introduction of ➤

➤ Visual attributes available on all models include blink, blank, underline, normal video, half intensity (not available on the QVT 103), and reverse video. Double-high and double-wide characters, and horizontal split-screen capability, are available for the QVT 103 only. Fields can be designated as protected or unprotected on all models; a security field is available on the QVT 103.

Full cursor controls (up, down, left, right, home) and cursor addressability are standard on all QVT models. The QVT 103, QVT 201, QVT 202, QVT 311GX, and QVT 511GX feature the ANSI X3.64 command set, making the terminals compatible with the DEC VT100 series; the QVT 202 is also compatible with the new VT220.

A self-test capability is built-in on all QVT models. Also standard on all models is a switching power supply and screen saver time-out. A time-of-day clock is standard on the QVT 108.

The QVT 211GX, QVT 311GX, and QVT 511GX combine alphanumeric with full graphics capabilities. The QVT 211GX is Tektronix 4010/4014-compatible, providing Tektronix PLOT 10 software support. In native graphics mode, the QVT 211GX provides vector generation; the user specifies the endpoints, and the terminal creates the line. Arcs, circles, boxes, and fill can be generated with single commands. Image size and location, variable display windows, relocatable origin, and area fill can be programmed by the user. In Tektronix emulation mode, the QVT 211GX features vector variation (dot, dash, and lines), incremental plot, and write through plot. The QVT 311GX provides Tektronix 4010/4014 and PLOT 10 compatibility, plus Digital VT125 emulation and ReGIS software support. Two graphics memory planes make it possible to generate four shades of gray. Six-character attributes, six-line types, and area fill are available. Solid and dashed lines can be created, and vectors, panels, polygons, and text can be displayed.

The QVT 511GX can display graphics and text, simultaneously, in up to eight colors, selectable from a palette of 64. The QVT 511GX is compatible with the Tektronix 4105 color graphics terminal, and supports all of its software, including PLOT 10 packages. It can also be used in Tektronix 4010, 4100, and 4110 series environments, and is plug-compatible with the Tektronix 4695 color graphics copier (at the QVT 511GX's auxiliary port). A mouse, for graphics crosshair cursor control, is standard on the QVT 511GX (it is optional for the QVT 311GX). A full window, through virtual resolution, is accessible from the host. All other features are the same as those found on the QVT 311GX.

### COMPONENTS

**CRT DISPLAY UNIT:** The QVT 108 features a 12-inch (diagonally measured) tilt/swivel display screen as standard; a 14-inch tilt/swivel display is optionally available. All other models contain a 14-inch tilt/swivel display screen as standard. The QVT 101, QVT 108, QVT 109, and QVT 211GX feature a display capacity of 1,920 characters, arranged in 24 lines of 80 characters each. A 25th status/set-up line is also available. The QVT 103, QVT 201, and QVT 202 feature a display capacity of 3,168 characters, with selectable screen arrangements of 24 lines by 80 or 132 characters. A 25th status/set-up line is also available. The QVT 311GX includes a display capacity of 2,560 characters, with a screen arrangement of 32 lines by 80 characters; a 33rd and 34th line are available for status/set-up/user-programmable lines. The QVT 511GX features a display capacity of 2,400 lines, arranged in 30 lines of 80 characters each. Except for the QVT 311GX and QVT 511GX, characters are displayed in green phosphor, with amber phosphor characters available as an option. On the QVT 311GX, ➤

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the the 3161 and 3163 terminals, with their enhanced functionality and price tags of \$695 and \$1,095, respectively, may signal the advent of IBM as a serious contender in this market. Many vendors simply cannot afford to lose any more of their market share to a newcomer, particularly one as powerful as IBM.

### ADVANTAGES AND RESTRICTIONS

As with Wyse Technology, and TeleVideo before that, Qume hopes to carve out a share of the highly competitive general-purpose ASCII display terminal market by offering a price/performance edge over its competitors. Since the distinctions between terminals at the low-end of the terminal market have become virtually nonexistent, Qume has chosen to become a price leader with the \$395 QVT 101. Despite the protestations from many of its competitors that profit margins simply cannot be squeezed much further, several have already introduced new models or adjusted prices to the \$400 level.

Other recent Qume introductions put Qume in two other important product areas: Digital VT220 emulation and graphics. The VT220 emulation market is expected to grow to be nearly as large as the market for its predecessor, the VT100; at least one VT220 emulator is becoming virtually mandatory for all ASCII display manufacturers. The market for business graphics terminals is also an active one, and Qume has this area neatly covered with the monochrome QVT 211GX and QVT 311GX, and the color QVT 511GX.

Qume's QVT series places parent ITT Corporation solidly in the display terminal arena. ITT Courier Terminal Systems, another ITT company, is a traditional leader in the other large display terminal market segment, IBM 3270 emulation.

### USER REACTION

In Datapro's 1985 Terminal Users Survey, conducted in conjunction with *Data Communications* magazine, a total of five users of Qume QVT display terminals responded. (This was the first time that Datapro had received responses on Qume terminals.) The users, using QVT 102, QVT 103, and QVT 108 terminals, represented an installed base of 39 units. These users were asked to rate their terminals with regard to seven specific categories. Their ratings are summarized in the following table.

	Excellent	Good	Fair	Poor	WA*
Overall performance	1	4	0	0	3.2
Ease of operation	1	3	1	0	3.0
Display clarity	3	2	0	0	3.6
Keyboard feel & usability	1	4	0	0	3.2
Ergonomics	3	2	0	0	3.6
Hardware reliability	0	4	1	0	2.8
Mfr.'s maintenance service/technical support	2	2	1	0	3.2

\*Weighted Average on a scale of 4.0 for Excellent.

As you can see, the Qume terminals received consistently strong ratings from the users. A separate question asked the respondents whether or not they would recommend the Qume terminals to others; four users said that they would,

characters are displayed in white snow phosphor. The QVT 511GX is a color display, with up to eight colors (selected from a palette of 64) displayable at any one time.

Characters are formed on the QVT 101 by using a 7-by-11 dot matrix in a 9-by-12 cell, with 2-dot descenders. On the QVT 103, characters are formed via a 7-by-9 dot matrix in a 10-by-12 cell. The QVT 108, QVT 109, and QVT 211GX (in text mode) form characters using a 7-by-9 dot matrix in a 9-by-12 cell. The QVT 201 and QVT 202 use a 7-by-9 dot matrix in a 10-by-10 cell for 80 columns, and a 7-by-9 dot matrix in a 9-by-10 cell for 132 columns. In alphanumeric mode, the QVT 311GX forms characters using a 7-by-9 dot matrix in an 8-by-14 cell, while the QVT 511GX utilizes a 5-by-7 dot matrix in a 6-by-12 cell. Screen resolution for the QVT 211GX is 644 by 288 pixels, and the addressable area is 2,500 by 2,000 points in native command mode, and 4,096 by 4,096 points in Tektronix emulation mode. Screen resolution for the QVT 311GX is 640 by 480 pixels. Addressable areas for the operating modes are as follows: VT125 mode—800 by 600 points; Tektronix 4010/4012 mode—1,024 by 1,024 points; Tektronix 4014 mode—4,096 by 4,096 points; native mode—800 by 560 points. Screen resolution for the QVT 511GX is 480 by 360 pixels, while addressability is 4,096 by 4,096 points. The 96-character ASCII set, with 32 control characters, is standard on all models except the QVT 511GX (94-character set). A 15-character line-drawing graphics character set is standard on the QVT 101, QVT 108, QVT 109, and QVT 211GX; a 32-character special graphics set is included on the QVT 103, QVT 201, and QVT 202. Foreign character sets (United Kingdom, Spanish, French, German) are available for all models.

**KEYBOARD:** All models feature a low-profile, detached keyboard with a typewriter-style layout and an adjustable tilt mechanism. All models contain a main alphanumeric array and a 14-key numeric pad. The QVT 101 and QVT 103 keyboards contain 4 function keys, with 12 host- or user-programmable functions. The QVT 108 includes 11 function keys, with 22 user-programmable functions. The QVT 109 includes 19 user-programmable function keys. The QVT 201 includes 17 host- or user-programmable function keys (34 host- or user-programmable functions). The QVT 202 contains 15 host-programmable function keys (30 host-programmable functions). The QVT 211GX contains 12 function keys, 8 of which are user-programmable. The QVT 311GX and QVT 511GX each contain 8 user-programmable function keys. Print, setup, and scroll-lock keys are standard on all models except the QVT 101, which includes a no-scroll key in place of scroll lock. Auto repeat and key click are standard. A palm rest is included on all keyboards.

### PRICING

Qume QVT display terminals are available for purchase only, with volume discounts available. Qume provides a one-year warranty for the QVT terminals.

### EQUIPMENT PRICES

Models	Purchase Price (\$)
QVT 101	395
QVT 103	895
QVT 108	595
QVT 109	595
QVT 201	695
QVT 202	795
QVT 211GX	995
QVT 311GX	1,995
QVT 511GX	2,995

while the fifth user was undecided. When asked what factors most influenced their decision to purchase the QVT terminals, all five users cited the features and/or functionality of the units. □

# Qume QVT Display Terminals

## MANAGEMENT SUMMARY

Qume, traditionally, has been a leader in the daisywheel printer market. In late 1982, the company entered the general purpose ASCII terminal market with the introduction of the QVT product line. The company's goal is to become one of the top five independent display terminal vendors, joining the ranks of the top four (TeleVideo Systems, Applied Digital Data Systems, Lear Siegler, and Esprit Systems). Qume's strategy is much the same as TeleVideo's was a few years back—offer a low-priced terminal that provides the user with a superior price/performance ratio.

The QVT product line consists of three models: the QVT-102, QVT-103, and QVT-108. Common to all three models is the company's ergonomic design. The QVT terminals feature a 12-inch tilt/swivel display (14-inch optional), and a detached keyboard with a low-profile design. These features, along with the accompanying small footprint size, have now become requirements for competing in the high volume terminal business. The QVT terminals also provide a high degree of functionality to the user.

The QVT-102 is the low-end model of the family. Selectable emulations include the ADDS Viewpoint, Hazeltine 1500, Lear Siegler ADM 3A/5, and TeleVideo 910. The terminal operates in both conversational and block modes, and includes full editing features, visual attributes, four function keys, and line drawing graphics. The QVT-108 emulates TeleVideo's 925, 920, and 912 display terminals. The QVT-108 contains all of the operating features of the QVT-102, plus some enhancements including two pages of display memory, and 11 function keys.

The QVT-103 is Qume's ANSI X3.64-compliant model. The QVT-103 features emulation of the DEC VT100 series ▶

Qume's QVT series is a family of low-priced, smart editing terminals. Three models currently make up the family, providing the user with a variety of emulation capabilities, including one model with ANSI X3.64 compatibility. Ergonomic features on the QVT terminals include a tilt/swivel display and a low-profile, detached keyboard.

**MODELS:** QVT-102, QVT-103, and QVT-108.

**DISPLAY:** All models feature a 12-inch display as standard; a 14-inch display is optional. Green phosphor characters are standard, with amber available as an option. A 24-line by 80-character display arrangement is standard for all models; the QVT-103 also features a selectable 24-line by 132-character format.

**KEYBOARD:** All models feature a typewriter-style keyboard. The QVT-102 and QVT-103 contain 4 function keys; the QVT-108 contains 11 function keys.

**COMPETITION:** TeleVideo Systems, Applied Digital Data Systems (ADDS), Lear Siegler, Esprit Systems, and several others.

**PRICE:** Purchase prices for the QVT terminals range from \$695 to \$1,095 in single quantities.

## CHARACTERISTICS

**MANUFACTURER:** Qume Corporation (a subsidiary of ITT), 2350 Qume Drive, San Jose, CA 95131. Telephone (408) 942-4000. In Canada: Qume Canadian Office, 207 ▶



*Qume's QVT display terminals feature an ergonomic design that includes a tilt/swivel display and a low-profile, detached keyboard. The QVT-103 (shown here with the standard 12-inch screen size as well as with the optional 14-inch screen) is an ANSI X3.64-compliant terminal that provides compatibility with the DEC VT100 series of displays. The QVT-103 offers selectable 80- and 132-column display capability.*

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▷ terminals, and includes selectable 80- and 132-column display arrangements. The terminal contains the editing features and visual attributes found on the two other members of the QVT family. Other features found on the QVT-103 include two pages of display memory (third and fourth pages optional), horizontal split screen, smooth scrolling, double high/double wide characters, four function keys, and expanded graphics.

All QVT models feature green phosphor characters; amber phosphor characters are optional. A screen saver feature and a switching power supply are additional standard features, while foreign character sets can be ordered as an option. Qume provides the QVT terminals with a one-year guarantee.

### COMPETITIVE POSITION

Qume ranks with Visual Technology, Wyse Technology, Liberty Electronics, and several other vendors as serious challengers for the fifth spot among ASCII display terminal vendors, challenging the four acknowledged leaders: TeleVideo, ADDS, Lear Siegler, and Esprit Systems (formerly Hazeltine's terminal division). The company hopes to achieve the same type of success in this market that TeleVideo has enjoyed in the past few years. Qume has been a leader in the printer market for the last several years, and has the backing of parent ITT Corporation, which should be a major plus.

### ADVANTAGES AND RESTRICTIONS

As with TeleVideo, Qume hopes to carve out a share of the highly competitive general purpose ASCII display terminal market by offering a price/performance edge over its competitors. The QVT terminals offer a high degree of functionality at a low price. Although this market is a tough one to penetrate, Qume appears to be on the right track with its QVT product line and should be able to succeed. Look for additions to the QVT line in the future, possibly including a color model.

Qume's QVT series places parent ITT Corporation solidly in the display terminal arena. ITT Courier Terminal Systems, another ITT company, is a traditional leader in the other large display terminal market segment, IBM 3270 emulation. □

▶ Place Frontenac, PTE Claire, Quebec, Canada H9R 4Z7. Telephone (514) 695-3837.

DATE OF ANNOUNCEMENT: QVT-102—November 1982; QVT-103 & QVT-108—December 1982.

DATE OF FIRST DELIVERY: QVT-102—January 1983; QVT-103—January 1984; QVT-108—October 1983.

NUMBER DELIVERED TO DATE: Information not available.

SERVICED BY: Qume.

### MODELS

Qume's QVT Series of display terminals consists of three models.

- QVT-102—a smart editing terminal that offers selectable emulation of the ADDS Viewpoint, Hazeltine 1500, Lear Siegler ADM 3A/5, and TeleVideo 910.
- QVT-103—a smart editing terminal that is compatible with the ANSI X3.64 command set and emulates the DEC VT100 and VT131.
- QVT-108—a smart editing terminal that offers emulation of the TeleVideo 925, 920, and 912.

### TRANSMISSION SPECIFICATIONS

Transmission for all QVT models is performed asynchronously, in half- or full-duplex mode, at selectable speeds from 50 to 19,200 bits per second. All models use the X-on/X-off communications protocol; the QVT-102 and QVT-108 also offer the DTR protocol. Parity is odd, even, mark, space, or none. All models include an RS-232-C interface as standard; a 20 ma current loop interface is optional. A bidirectional RS-232-C auxiliary port is also standard on all models. Full modem control capability (asymmetric) is standard on the QVT-103.

### DEVICE CONTROL

All QVT Series models feature both conversational and block mode transmission. The QVT-103 and QVT-108 each include two pages of display memory as standard, while the QVT-102 features a single page of memory. An additional two pages of memory is optionally available for the QVT-103. Editing features on all models include character insert/delete, line insert/delete, and erase to end of line/page. Tabulation is standard on all models.

Visual attributes available on all models include blink, blank, underline, and reverse video. Half intensity is available on the QVT-102 and QVT-108 only. Double-high and double-wide characters are available for the QVT-103 only. Fields can be designated as protected or unprotected on all models; a security field is available on the QVT-103. The QVT-103 also provides horizontal split screen and smooth scrolling capabilities. Step scrolling is available on the QVT-102 and QVT-108.

Full cursor controls (up, down, left, right, home) and cursor addressability are standard on all QVT models. Operating parameters are set through the terminals' Set-up Mode, a menu of parameter choices stored in nonvolatile memory. The QVT-103 features the ANSI X3.64 command set, making the terminal compatible with the DEC VT100 series. The QVT-103 is also compatible with the DEC VT52.

A self-test capability is built-in on all QVT models. Also standard on all models is a switching power supply and screen saver time-out. A time-of-day clock is standard on the QVT-108.

### COMPONENTS

CRT DISPLAY UNIT: All QVT display terminal models feature a 12-inch (diagonally measured) tilt/swivel display screen as standard; a 14-inch tilt/swivel display is optionally available for all models. The QVT-102 and QVT-108 feature a display capacity of 1920 characters, arranged in 24 lines of 80 characters each. A 25th status/set-up line is also available. The QVT-103 features a display capacity of 3168 characters, with selectable screen arrangements of 24 lines by 80 or 132 characters. A 25th status/set-up line is also available. Characters are displayed in green phosphor; amber phosphor characters are available as an option. Characters are formed using a 7-by-9 dot matrix in a 9-by-12 (9-by-11 on the QVT-103) cell. The 128-character ASCII set is displayable on all models. A 15-character line-drawing graphics character set is standard on the QVT-102 and ▶

## Qume QVT Display Terminals

- **QVT-108;** a 32-character special graphics set is included on the QVT-103. Foreign character sets are optionally available for all models.

**KEYBOARD:** All models feature a low-profile, detached keyboard with a typewriter-style layout. The QVT-102 contains 85 keys, including alphanumeric keys, a 14-key numeric pad, and 4 function keys (shiftable to 8 functions). The QVT-103 contains 93 keys, including alphanumeric keys, a 14-key numeric pad, 14 editing keys, and 4 function keys (shiftable to 8 functions). The QVT-108 contains 102 keys, including alphanumeric keys, a 14-key numeric pad, 12 editing keys, and 11 function keys (shiftable to 22 functions). Print, setup, and scroll-lock keys are standard on all models except the QVT-102, which includes a no-scroll key in place of scroll lock. Auto repeat and key click are standard. A palm rest is included on all keyboards.

**PRICING:** Qume QVT display terminals are available for purchase only, with volume discounts available. Qume provides a one-year guarantee for the QVT terminals (six

months guarantee for the distributor, and six months for the end user).

Qume provides a Technical Support Hotline to assist users in answering technical questions about Qume products. Qume/ITT technical support personnel are available to answer questions from 6:00 a.m. to 6:00 p.m. Monday through Friday. The toll-free number for customers in Canada, Mexico, and the United States (except California) is (800) 446-6400. In California, the number is (408) 942-4100.

### TRANSMISSION SPECIFICATIONS

<u>Models</u>	<u>Purchase Price</u>
QVT-102	\$ 695
QVT-103	1,095
QVT-108	895

