VTERM-G55

**Ethernet-Enabled Graphic Terminal
with Object-Based Programming**

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Rev. 3.1

VTERM-G55

FEATURES

- 320x240 pixels, lighted transflective FSTN grayscale LCD display measuring 96 mm (3.8") diagonal. Optional TFT color display available.

- Handheld or panel-mount enclosure, or available as a module for tighter integration.

- 24- or 40-key steel-dome membrane keypad; optional lighted keypad.

- 4 or 5 programmable LEDs on keypad, plus shift and power LEDs.

- 10Base-T Ethernet option; supports TCP/IP, UDP/IP and other protocols

- Power-over-Ethernet (802.3af) option.

- Two serial ports (2nd optional). EIA-232, -422, -485 on either.

- NEMA-4 or -12 depending on configuration. NEMA 4 sealing for hose-down, icing and salt spray

- -20 to 60 °C operating temperature; consumes 210 mA @ 12 VDC.

- Powerful *Qlarity* object-based programming for easy application development.

- Windows® programming, simulation and debugging environment.

- Programmable speaker, optional audio (.wav) decoder, optional real-time clock.

- Manufacturer ID code protects your development investment.

- CE Certified. Tough ABS/polycarbonate case available in blue, gray or black with black molded rubber boot.

- Make the G55 your product with a custom key legend and company logo.

C€ Certified

HARDWARE

DISPLAY: The VTERM-G55 features a QVGA, 320x240 pixel, LCD transflective FSTN, grayscale (16 shades) display or optional active-matrix TFT (256 colors) display.

Both displays use a light emitting diode (LED) backlight. The LED provides excellent readability under most lighting conditions and can operate in either portrait or landscape mode. The FSTN contrast is software-controlled and compensated for temperature. The transflective display provides excellent sunlight or high ambient light readability. The backlight provides white lighting for high contrast and easy readability. Brightness of the backlight and FSTN contrast are controlled by software.

KEYPAD: User input occurs through a rugged 24-key or 40-key membrane keypad with steel domes. The top row of keys are commonly used as soft keys to navigate through a set of changing menus at the bottom of the display. The standard keypad comes with four or five LEDs under the soft keys that can be used as status or alarm indicators. Power and shift LEDs are included on both keypad configurations. The power button puts the terminal into a sleep mode.

The 40-key keypad allows for function / soft keys, eight-way directional control and numeric entry in the unshifted mode and alphanumeric data entry in the shifted mode. Keys can perform alternate functions when the shift key is enabled.

The standard keypad legends are shown in the image above.

HOUSING: The VTERM-G55 handheld is made of an ABS polycarbonate plastic with an overmolded rubber boot for comfort and shock protection. The case meets NEMA-12 standards and can optionally be configured to meet NEMA-4 specifications for hose-down, icing and salt spray. See Figure 3 for dimensions.

The panel-mount version meets or exceeds NEMA-12 specifications and is designed to be mounted in a hole cut in your panel (Figure 2). No screw holes are required; mounting hardware is included with the unit.
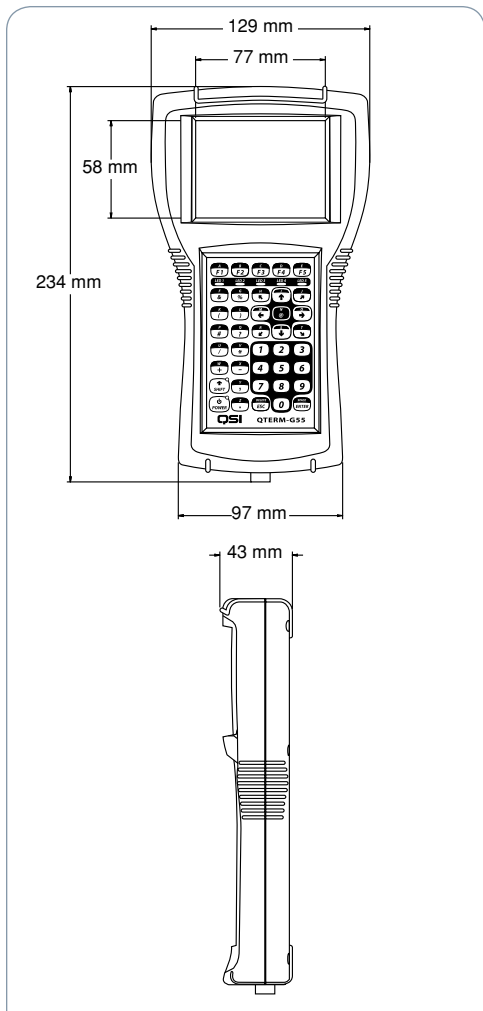
129 mm
77 mm
58 mm
234 mm
97 mm
43 mm

Figure 1 ▲ *VTERM-G55 handheld dimensions (mm) shown with a 40-key keypad.*

The VTERM-G55 provides control and feedback for a PCB rework station.

The components of the VTERM-G55 are available as a module (display, CPU board, keypad and mounting brackets) for mounting in your housing if these mounting options will not fit your needs.

CONNECTORS: The VTERM-G55 comes standard with one serial connection, two if the terminal is configured with the second serial option. The terminal can optionally support Ethernet or Power-over-Ethernet (802.3 af). The handheld has a durable, round, 12-pin, locking connector on the bottom of the unit for communications and power. The Panel-mount uses the primary DB9f for serial communications and power. A secondary DB9f is used for the second serial port and an 8-pin modular jack (RJ45) for the Ethernet option. Selection of certain communication options may preclude some features.

SPEAKER: A speaker with software-controlled pitch and duration is included on the rear of the unit. Pitch is set by specifying musical tones and durations to simplify creation of distinctive audio sequences.

The VTERM-G55 can optionally be configured with an audio chipset to play voice, music or other .wav files through the speaker. These sounds can be played in response to events such as a key press, a critical setpoint reached, data received or other events.

FLASH MEMORY: The VTERM-G55 includes 2 Mbytes of flash memory and 16 Mbytes of RAM. The flash memory contains the firmware, user application, objects and file space.

Firmware and application upgrades can be downloaded through the serial or Ethernet interfaces and into memory without opening the terminal housing.

POWER SUPPLY: The VTERM-G55 includes a switching power supply with a wide input voltage range (8-32 VDC). A 5 VDC version is available but requires a well-regulated 5 VDC (± 0.25 VDC) supply. Typically, power is supplied through the primary serial port, however, if you have chosen the Power-over-Ethernet (PoE) option, power is supplied through the Ethernet cable and your PoE-compliant hub.

Power-over-Ethernet (PoE) (IEEE 802.3af), also called "Active Ethernet," eliminates the need to provide a separate DC supply to your wired Ethernet terminal. By running a single CAT5 cable providing power lines in addition to data lines, you have greater flexibility in where you locate your terminal, and you significantly reduce installation costs.

BATTERY-BACKED REAL-TIME CLOCK: A battery-backed real-time clock is available as an option. The real-time clock can be used to display the current time on the display, time and date stamp messages or for timed polling and program execution.

SERIAL PORT: The standard VTERM-G55 ships with one EIA-232 serial interface with hardware handshaking. The primary and / or optional secondary serial ports can be configured for EIA-232, EIA-422 or EIA-485.

ETHERNET / POWER-OVER-ETHERNET: An Ethernet 10Base-T port with RJ45 connector (panel-mount) is available as an option. TCP/IP, UDP/IP, Modbus™ and other communications are supported. For handhelds, Ethernet is connected to the unit through the 12-pin connector.
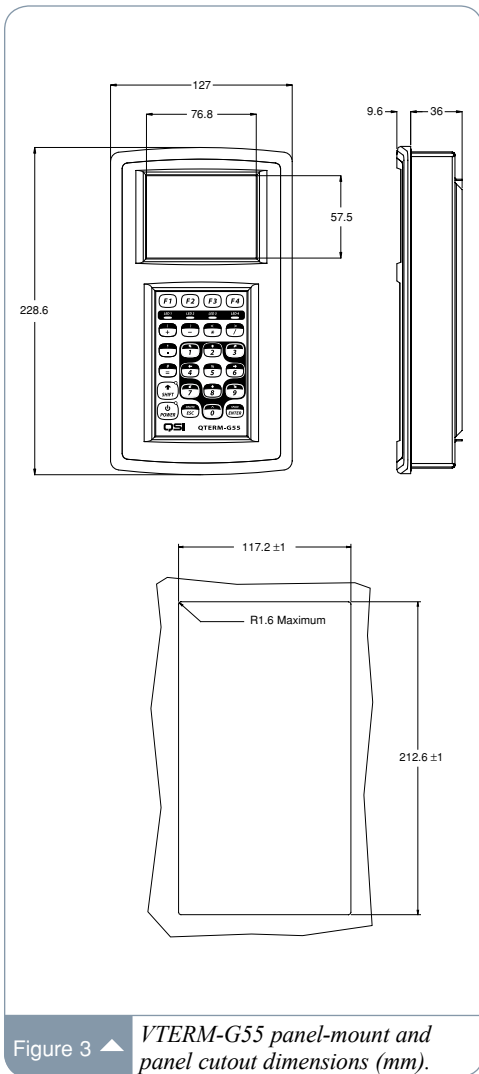
VTERM-G55

Figure 3 ▲ *VTERM-G55 panel-mount and panel cutout dimensions (mm).*

A pick and place machine is controlled by a panel-mount VTERM-G55

SOFTWARE AND SETUP

OBJECT-BASED PROGRAMMING LANGUAGE: Software for the VTERM-G55 is based on QSI's scripted graphic terminal programming language called *Qlarity*™ (pronounced "Clarity"). *Qlarity* uses objects to display information on the screen, accept user input and communicate with other devices.

PROGRAMMING TOOLS: *Qlarity Foundry*™ is a PC-based software tool that aids in screen design, application development, compilation and loading programs into the VTERM-G55. *Qlarity Foundry* is powerful enough for the elementary user yet flexible enough for the technical user. Intelligent applications can be created by modifying object properties and without writing a single line of code.

For more information about *Qlarity*™ and *Qlarity Foundry* refer to the appropriate section of this catalog or visit us on the web at *www.qlarity.com.*

MANUFACTURER ID: A unique MID code can be factory programmed into your VTERM-G55 (for a nominal one-time setup fee). Your *Qlarity* application can query this MID code to determine if the terminal was purchased by you. If the MID code does not match, your application can halt, preventing your software from being used on QSI terminals purchased by others, and protecting your development investment.

INTERFACES

EIA-232: With proper cables and grounding, the VTERM-G55 can communicate up to 15 meters at its top speed of 115,200.

EIA-422: Using the EIA-422 interface, the VTERM-G55 can operate at distances up to 1000 meters.

EIA-485: Multiple terminals can be connected to each other in a multidrop chain to reduce cabling costs.

ETHERNET: Standard 10Base-T interface with TCP/IP and UDP/IP support.

POWER-OVER-ETHERNET: Power-over-Ethernet (PoE) (IEEE 802.3af) supports 10Base-T Ethernet communications and power over a single CAT5 cable.

The components of the VTERM-G55 (module) were integrated into the panel of this packaging machine.

DISPLAY		Grayscale transflective FSTN
		Color TFT (256 colors) optional
	Pixels:	320x240
		76.8x57.6 mm "live area" - FSTN
		72.5x54.4 mm "live area" - TFT
	Dot Pitch:	0.24 mm - FSTN
		0.227 - TFT
	Contrast:	Software-controllable
		Temperature-compensated
	Lighting:	White LED backlight
		Brightness is software-controllable

KEYPAD

# of keys: 24- or 40-key key
Construction: Steel snap domes in membrane
Options: Lighted keypad with electroluminescent lighting

INTERFACE

EIA-232 serial port with hardware or software handshaking
Baud rates: 1200, 2400, 4800, 9600, 14,400, 19,200, 38,400, 57,600 and 115,200
Data formats: 8n1, 8e1, 8o1, 8n2, 7e1, 7o1, 7n2, 7e2 and 7o2
Connector: 12-pin round (Hirose HR30-8R-12SC) - Handheld
DB9f (primary and secondary) - Panel-mount
8-pin modular (RJ45) with Ethernet or Power-over-Ethernet - Panel mount
Options: Configurable primary and secondary serial ports: EIA-232, EIA-422 or EIA-485
Ethernet 10Base-T option
Power-over-Ethernet option

MEMORY 2 Mbytes flash and 16 Mbytes RAM memory

SPEAKER Software programmable pitch and duration
Audio decoder for .wav file audio support is available as an option

PHYSICAL

Handheld and panel-mount configurations
Housing: ABS polycarbonate with overmolded rubber boot - Handheld
ABS polycarbonate with rubber overmolded - Panel-mount
UL HB flame rating
Size: 129x234x43 mm - Handheld
127x228.6x95.6 mm - Panel-mount
Mass: 520 g - Handheld
To be determined - Panel-mount
Processor: ARM720T 77 Mhz
Colors: Blue, black and gray

ENVIRONMENTAL

Sealing: Panel-mount - NEMA-12. Handheld - NEMA-12 (NEMA-4 optional).
IP-65 pending (both)

Temperature: Operating -20 to 60 °C
(-10 to 50 °C Prototype legend)
Storage -40 to 85 °C
Humidity: 0 to 95%, non-condensing
Vibration: 5 to 2000 Hz, 4 g RMS
Shock: 20 g, 3 ms, any axis
Drop: 1 m onto concrete - Handheld

POWER 8 to 32 VDC or 5 VDC – 210 mA @ 12 VDC (standard terminal), Power-over-Ethernet (IEEE 802.3af)

SOFTWARE *Qlarity*™ – Object-based programming language
Qlarity Foundry™ – Windows® design environment

CUSTOMIZING Prototype and Custom legends are available as an option

ORDER WORKSHEET 1

Company _____ City / State / Zip _____ / _____ / _____

Address _____ Telephone _____ Fax _____

_____ Email _____

Who do we call with questions (name & phone)? _____

Check ONE box in each of the following groups, then fill in the customizing information you are requesting. A unique part number will be assigned when your worksheet is received.

UNIT TYPE

❑   Handheld - NEMA-12
❑* Handheld - NEMA-4
❑   Panel Mount - NEMA-12
❑**Module

DISPLAY

❑   320x240 Grayscale FSTN
❑* 320x240 Color TFT

PRIMARY SERIAL PORT

❑   EIA-232
❑* EIA-422
❑* EIA-485

SECONDARY SERIAL PORT

❑   None
❑* EIA-232
❑* EIA-422
❑* EIA-485

ETHERNET

❑   None
❑* 10Base-T Ethernet
❑* Power-over-Ethernet (IEEE 802.3af)

KEYPAD

❑   24-key Keypad Not Lighted
❑* 24-key Lighted Keypad
❑   40-key Keypad Not Lighted
❑* 40-key Lighted Keypad

AUDIO

❑   Standard Audio
❑* Audio (.wav) Decoder

CASE COLOR

❑   Blue
❑   Black
❑   Gray

REGULATOR

❑   8 to 32 VDC
❑* 5 VDC (requires 5 ± 0.25 VDC supply)

REAL-TIME CLOCK

❑   No Real-Time Clock
❑* Real-Time Clock

MANUFACTURER'S ID

❑   No MID Code
❑* Custom MID Code

CUSTOMIZING

❑   Standard Legend
❑* Prototype Legend
❑* Custom Legend

Legend customization is described in detail in the "Legend Customization" section at the front of this catalog. Refer to "Custom Art Submissions" in the "How to Order" section for custom logo art and special font submission requirements.

STANDARD   Standard legend. No customization.

PROTOTYPE   Fill out all of the keys you want customized. Specify custom typefaces, colors (Pantone PMS†) and logo text or submit your own custom logo. Default text is Black Helvetica Bold typeface.

CUSTOM   Fill out all of the keys you want customized. Specify custom typefaces, colors (Pantone PMS) and logo text or submit your own custom logo. Custom embossing is available at extra cost. Default text is Black Helvetica Bold typeface.

❑ Custom Art   ❑ Custom Fonts _____   ❑ Custom Colors _____

*   Extra Cost Option
**   Cost Reduction Option – minimum quantity required
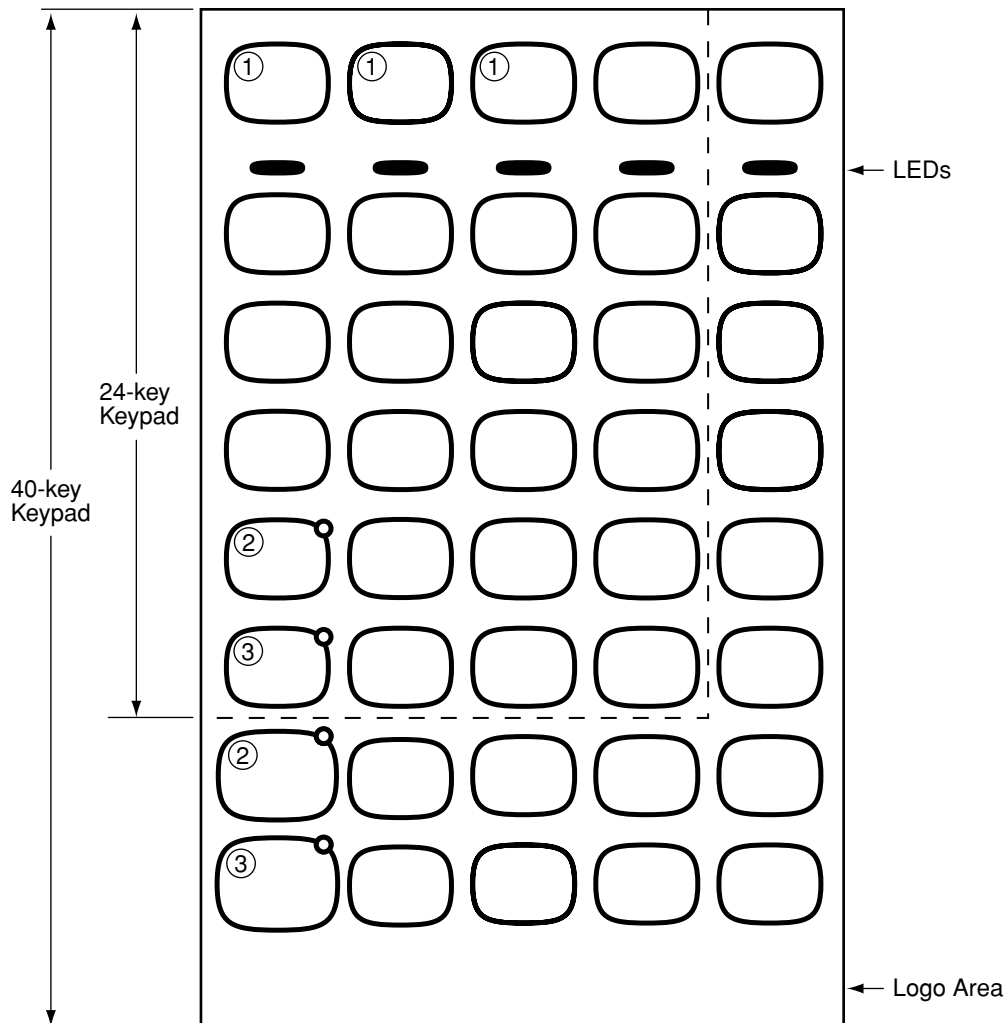†   Approximate color match

ORDER WORKSHEET 2

!!FILL IN APPROPRIATE AREAS FOR CUSTOMIZING!!
- About five letters maximum per LED in the LED label area.
- 40-key units: up to two words, about five letters each on key labels.
- 24-key units: up to two words, about six letters each on key labels.
- Draw a heavy outline around text to indicate shifted keys.
- The power LED is on the lower left key for either keypad.
- The shift LED is in the left column, second key from the bottom for either keypad.

(1)   These keys are required to operate the 24- and 40-key terminal's Power-on Setup facility and should not be removed.
(2)   These keys are the built in Shift Keys for the 24- and 40-key unit as labeled. It should not be removed if the built in Shift Key function is desired.
(3)   These keys are the built in Power Keys for the 24- and 40-key unit as labeled. It should not be removed.

NOTE: Keypad is not to scale.

24- and 40-key