

# *VIEWPORT Monitors*

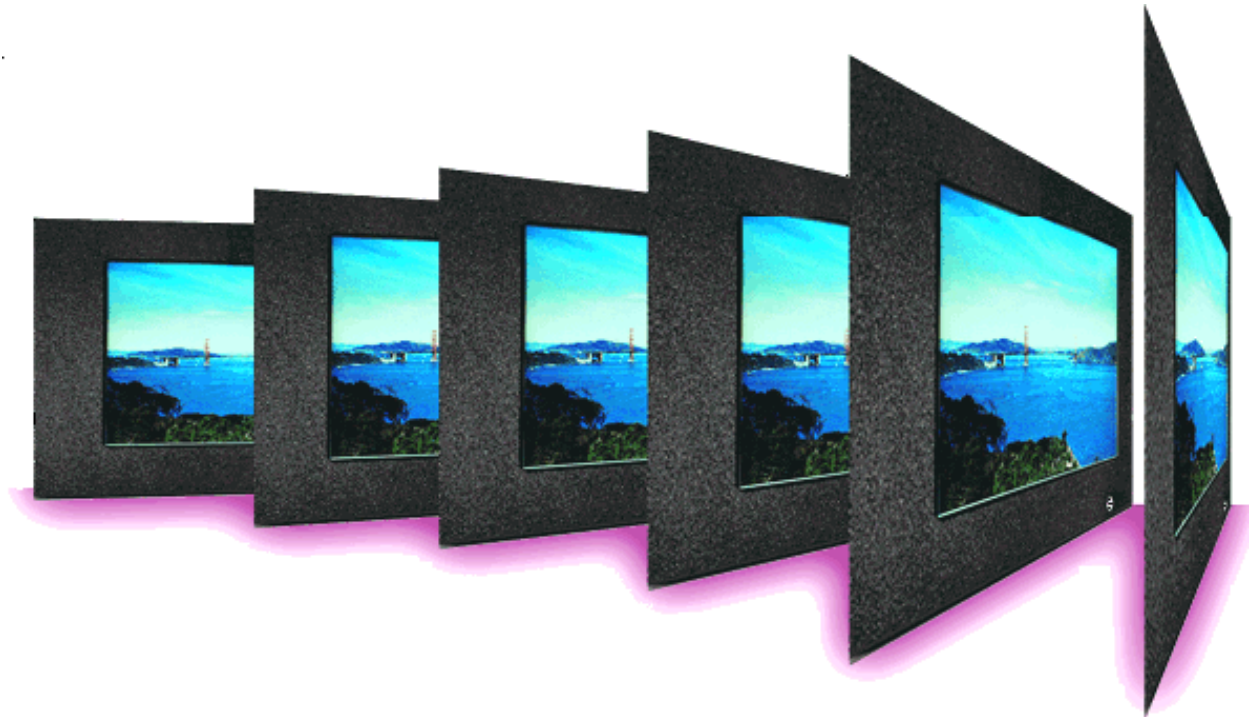
**Active Matrix LCD Video Screens**

**525/625 Video Series Models:**

**v4x4b, v056, v068**

**v056x3, and v068x2**

## **User Manual**





# Contents

	<b>Contents</b>	1
one	<b>Description</b>	
	● overview	2
	● features	2
	● customer support	2
two	<b>Installation</b>	
	● supplied items	3
	● handling	3
	● system requirements	4
	● installation and connections	4
three	<b>Operation</b>	5
four	<b>Maintenance</b>	
	● cleaning	5
	● factory service	6
	● warranty repair	6
	● warranty terms	7

# 1 description

## • overview

The **BOLAND** *VIEWPORTS* are high performance LCD video displays for motion video display. Incorporating Active Matrix Thin Film Transistor drive technology, these display panels are completely self-contained for replacing CRT-type monitors. Active Matrix means no LCD lag or smear on moving video pictures. Operating in NTSC and PAL composite video modes, the monitors are compatible with CRTs,

but may be installed in compact, space-saving places at low power. The display quality is excellent for both natural and graphic video. Their sizes range from 2.5 up to 6.8", come with integral non-glare glass screens\*, and compliment the 8.4" and up *VIEWPORT* family of LCD Video, Computer, and Dual (combination of both) monitors. All offer the size, brightness and clarity necessary for extended daily use.

## • features

- Dual A/B Input (v4x4b)
- Blue-Only Setup Switches
- Protected Screens
- High Contrast
- Light Weight, Compact, Rugged
- Plug / Pin-compatible to CRT displays
- Transportable
- Low Power, Instant On

## • customer support

Boland provides a full range of support from sales through installation and use of our products. We are here to help. Our office hours are extended, in the Pacific time zone. To reach us:

**BOLAND COMMUNICATIONS**  
 (949) 465-9911, or  
 (800) 918-9090,  
 (949) 465-9944 [fax]  
 or: techsupport@bolandcom.com

## 2 installation

### • supplied items

Supplied with your LCD Monitor is a 100-240 VAC universal desk-top 12 volt

regulated power supply and cord, and this instruction manual.

### • handling

**A *VIEWPORT* display is rugged. As a precaution though, please consider the following general characteristics of LCDs. These are not defects or malfunctions:**

Please handle the panel with care. Since the panel is made of glass, sharp blows to the screen, failure after dropping onto a hard surface, etc., are not covered by the warranty.

High voltages are present inside the cabinet for the fluorescent lighting. There are no fuses or other user-serviceable parts inside. Do not remove any screws or disassemble the cabinet to stay safe and to retain the warranty.

Use only factory-specified power supplies for powering the panel.

A wet, condensing atmosphere (dew or fog) should be avoided. If you require routine operation in these conditions, please consult the factory (optional accessories are available).

Note the normal operating and storage temperatures in the specification. Do not place the unit in the sun, as the black cabinet absorbs much heat. Extreme temperatures, just as uncomfortable for people, will cause degraded performance or permanent

LCD damage. Extended temperature models are available. Please also take care to avoid electrostatic discharges.

When a panel is not installed, place it in its packing material or place it *face down* on a smooth table.

After several thousand hours of operation, the special internal fluorescent lamps will eventually taper in their brightness. Please consult the factory for replacement.

Over long periods of time, some changes in luminance uniformity or small dots may become visible, depending on image content.

Avoid fixed video patterns for extended periods of time. Some image retention may occur. If possible, use an interesting screen saver or black.

Please handle cables and connectors with care. Please replace worn cables with standard, locally-available parts (see power supply substitution caution).

Some models come with a non-glare acrylic (hard) plastic screen cover, rather than the heavier glass, and is therefore somewhat more sensitive to scratching. Please clean this screen with a *soft* cloth *slightly dampened* with water or, if necessary, Windex® or 409® household cleaners.

## • system requirements

Video Series monitors operate on AC or DC power and display a composite video signal with a BNC connection.

A monitor will display a composite 525 NTSC or 625 PAL standard video signal at a nominal 1.0 Vpp into 75 ohms (internally terminated, where

source video is 2.0 Vpp unterminated) and are for use as connected to all normal baseband video systems.

When a termination switch is available, it should be in the ON position, except when looping or "T"-ing to another piece of equipment. (The terminations are automatic on the v4x4b).

## • physical mounting

When mounting the panel on a flat surface, allow clearance for any connectors on the rear. In the corners on the backside of most cabinets are 10-32 threaded inserts for accepting mounting screws. You may use any length 10-32 screws to accommodate mounting surface depth requirements, but the screw may not penetrate the panel cabinet by more than 7/16" (0.4375") *maximum*, or the electronics inside the cabinet will be damaged. You may wish to use large (fender) flat

washers for use under the screw heads.

The LCD monitor cabinets dissipates only a few watts (see *specifications*), so no special cooling or ventilation is required. The mounting location may often be enclosed. But avoid any mounting situations or other nearby heat or environmental heat sources that may cause the panel's operating location to exceed 115°F/45°C to 140°F/60°C, depending on model (see *specifications*).

## • connections

*VIEWPORT* LCD monitors connect like CRT-type monitors. The two connections are video and power:

Insert the barrel plug from the desk-top power supply into the 2.5 mm (+) jack on the back of the monitor. The AC side of the power supply will accept 100 to 240 VAC, 50/60 Hz, using the interchangeable IEC-320 wall cords.

5.6 and 6.8" *VIEWPORTS* have a single BNC connector for one input video source per screen. With the single BNC connector, you may loop the video by using a BNC Tee and setting the 75? button to Off.

The Quad, with its loop-through inputs, has two BNCs connected together L-R internally for each each input of each screen. Your source video may be

connected to either BNC; the other BNC may connect to another video device's input. If no other video device is connected, an automatic 75 $\Omega$  termination is switched on.



Model v4x4 Quad Color Rackmount Monitor

## 3 Operation

Your *VIEWPORT* Monitor provides for normal operational adjustments. In the figure are shown B C C T, Blue, and Power, for brightness, contrast, color and tint (NTSC only). A/B input select is available on the Quad 4" model.

Set the brightness to just be able to see the blackest portions of the video image, the contrast to bring the whitest areas of an image to just less wash-out. Set color and tint for pleasing flesh tones. With SMPTE bars in Blue mode, set Color to match the bar patches on the sides, set Tint to match the middle patches.



6.8" monitor with new front-side blue-check button allows users to calibrate monitors with SMPTE Color bars.

## 4 Maintenance

A *VIEWPORT* display requires no regular/periodic maintenance.

- **Cleaning**

The aluminum cabinet, finished in black-anodizing or environmentally-friendly powder-coat semi-gloss black.

The front screens are frosted glass. A damp (not dripping) cleaning cloth with a small amount of spray cleaner (such as 409<sup>®</sup>, or Windex<sup>®</sup>) may be used to remove dust or fingerprints. You will not want to have enough moisture wet enough on the outside of the cabinet that would run inside through the cracks.

## • Factory Service

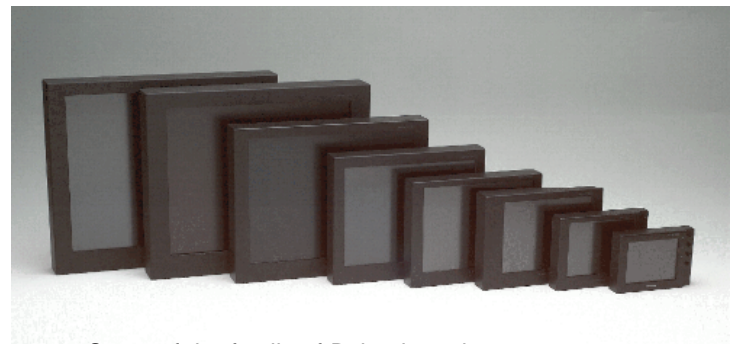
After between about fifteen to fifty thousand hours of service (as long as 10 years, even if used often, depending on the model), it may be possible to notice the screen brightness start to fall off. Or, the fluorescent internal lamps may not come on at all, or stay on properly, especially when the temperature is cold. In these cases, the full brightness may be restored by replacing the special type of internal fluorescent lamps. This requires extreme care in a very clean environment. Please contact **BOLAND COMMUNICATIONS** for factory replacement.



5.6 & 6.8" Video Monitors operate on 9-36 volts DC.

## • Warranty

Broadcast *VIEWPORT* Video Displays are warranted for two years against defects in materials or workmanship (see the *Warranty Agreement* page). Consequential damages are not covered. Units requiring attention will need to be returned to the factory for correction. **Telephone for a tracking/RMA number before shipping.** Units will be returned freight pre-paid. Warranty correction is at best an inconvenience, so every reasonable effort will be made by **BOLAND** to smooth the process.



Some of the family of Boland monitors, for HDTV & SDTV, Digital & Analog, from 4 to 30".

Models d151 NTSC/PAL/XGA Combi (left), and c150 Desktop XGA (right).



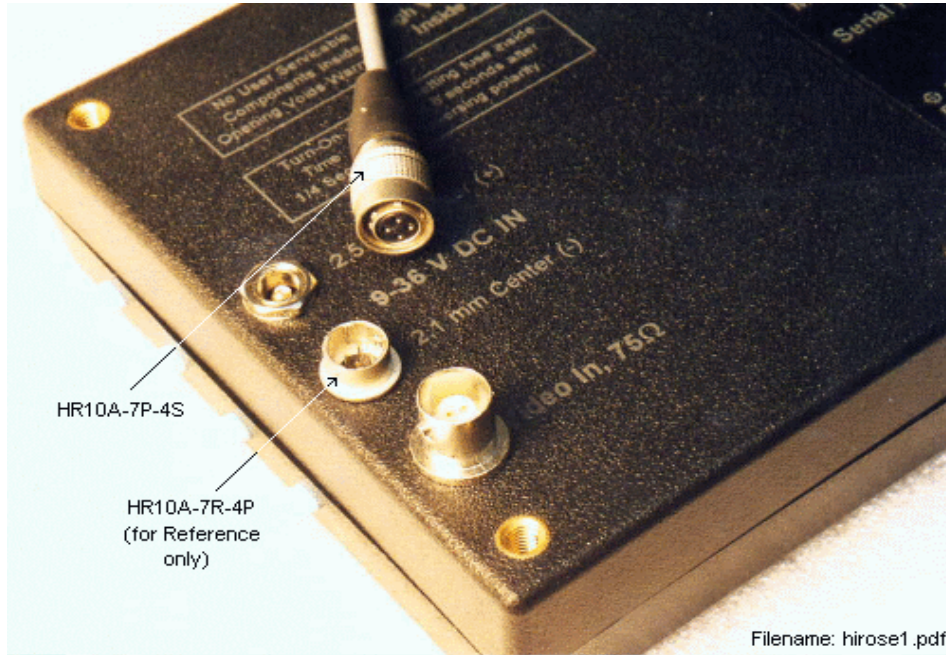
Other models from 4 to 30" sizes include economical desktops. Some models also have both computer and NTSC/PAL inputs.



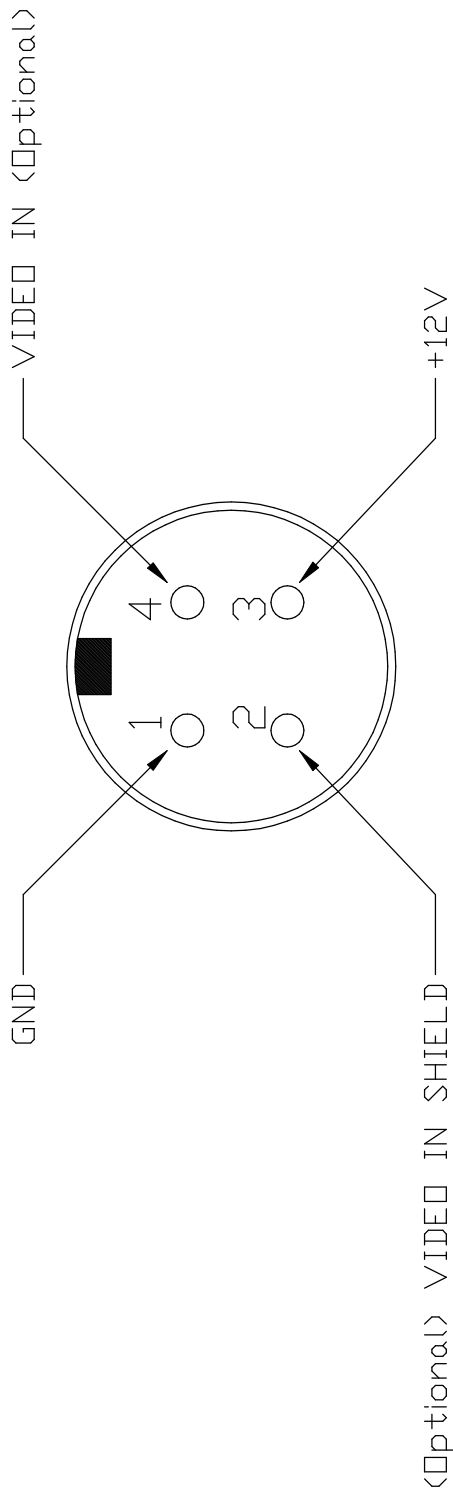
## **BOLAND COMMUNICATIONS WARRANTY AGREEMENT**

All products, including hardware, software, firmware, and documentation are subject to the terms below. Opening the monitor cabinet in any manner for any purpose voids the warranty.

1. **Boland Communications** (Boland) warrants the *VIEWPORT* LCD Monitors and their accessories are provided to be free from defects under normal use. Parts are covered for a period of **two (2) years** and Labor is covered for **one (1) year** from the date of delivery to you. The Pro Series of monitors carries a separate term of **one (1) year** Parts and Labor warranty.
2. In the event of a repair under this warranty, Boland's sole obligation is to replace or repair, at Boland's option, any Product free of charge. Any replaced parts shall become Boland's property.
3. Warranty claims must be made during the warranty period and within seven (7) days of the observation of the defect, accompanied by any necessary evidence satisfactory to Boland. Prior to returning any Product to Boland, you **must** obtain a Return Authorization (RA) Tracking Number and receive shipping instructions from Boland. Shipments without an RA are subject to refusal at Boland dock. All Products returned to Boland contain glass and shall be adequately packed (200 lb. corrugated carton and 2" foam on all six sides of product, minimum) and shipped with freight and insurance sender-prepaid or the warranty coverage **will be void** and are subject to return unrepared. Boland will return all repaired units in double carton and cushion packaging via pre-paid UPS Ground, Insured. Customer may provide own shipping number or arrange upgrade for faster return.
4. Except as stated above, there is NO OTHER WARRANTY, REPRESENTATION, OR CONDITION REGARDING BOLAND'S PRODUCTS, SERVICES OR PERFORMANCE, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
5. Boland is not responsible for any delays beyond its control, and where possible will advise of any such delays. Boland's entire liability for damages to you or any other party for any cause whatsoever, whether in contract or in tort, including negligence, shall not exceed the price you paid for the unit of Product that is the subject matter of the dispute. In no event will Boland be liable for any damages caused by your failure to perform your obligations, or for any loss of data, profits, savings, or any other consequential and incidental damages, even if Boland has been advised of the possibility of damages, or for any claims by you based on any third-party claim.



**Boland Opt 14- Locking 4-pin connector for Video and Power.**  
(It is wired in parallel with BNC and Barrel Jacks. See Boland wiring diagram 1773c2.)



REAR VIEW FEMALE

FEMALE CONNECTOR MOUNTS ON CORD. PART NUMBER IS HIROSE HR10A-7P-4S.



**BOILAND COMMUNICATIONS**

Title

PINOUT, 10mm Hirose, LCD Monitors

Size

A Document Number

1773

REV

C2

Date

MAY 20, 1998

By

KTD

Sheet

1 of 1

## 4" Video Monitors NTSC/PAL

**Model:** v4x4

**Description:** Color LCD Video Displays, Automatic NTSC/PAL, AutoTermination Looping A/B Inputs, Blue-Gun, AC/DC, Protected Screens



Quad 4" LCD Monitors

### Specifications:

Display Technology:	Active Matrix TFT Drive System COG LCD
Television Standards:	525 NTSC and 625 PAL (autoselect)
Active Area:	4.05" / 103 mm diagonal; 3.23 x 2.43" / 82 x 62 mm HxV
Dot Pitch:	0.171 w x 0.264 v mm (112,320 RGB Pixels)
Pixel Arrangement:	480 H x 234 V RGB Delta Configuration
Resolution:	240 TVL H, 164 TVL V [Kell]
Brightness:	250 cd/m <sup>2</sup> typical (0°)
Contrast Ratio:	150:1 (0°)
Color Temperature:	7900° K
Viewing Angle:	H: ±45°, V: +30/-10° (typ, @Contrast ≥10:1)
Response Time: (t <sub>r</sub> /t <sub>f</sub> )	25 / 30 ms
User Controls: (rotary)	Bright, Contrast, Color, Tint, A/B Input, Blue-Gun, Power
Light Source:	Cold Cathode Fluorescent Lamp
Lamp Life:	20,000+ Operating Hours
Video Input Signal:	1.0 ± 0.3 V <sub>pp</sub> (sync > 0.2 V <sub>pp</sub> )
Power:	12 Vdc, ±5%, <20 watts
Power Supply:	120/240 Vac 50/60 Hz to 12 Vdc (supplied), Approved
Connectors: Video:	75 Ω loop-through Auto-termination BNC Female (16)
Power:	5.5/2.5 mm Barrel, Center Positive
Tally:	D-Sub 9 pin Female (contact closure activation)
Screen Surface:	Non-glare Glass (Strong, Washable)
Outside Dimensions:	19.00 x 5.23 x 2.88" / 48.3 x 13.3 x 7.3 cm (hwd) (including BNCs and tilt frame) (4 monitors across in 3 rackunits high)
Weight:	4.4 lbs / 2.0 kg
Operating:	0 to 60° C, 0- 95% RH (non-condensing)
Storage:	-25 to +80° C (non-condensing)
Cabinet Color:	Black (standard)
Cabinet Material:	Anodized (surface hardened) Aluminum

(Specification is subject to change without notice) 7.5.02

## **5.6" Broadcast Video Monitor NTSC/PAL**

**Model:** v056

**Description:** Color LCD Video Display,  
NTSC/PAL, 9-36 volts,  
Blue-Gun, Scan-Reverse,  
Looping Video,  
Protected Screen

### **Specifications:**

Active Area (Diagonal):

Video Modes:

User Controls (knobs, switches):

Video Input Signals (nominal):

Video Connector:

Brightness, typical, 0°:

Contrast Ratio, 0°:

Scan:

Window (Display Area):

Protective Screen Cover:

Light Source (standard):

Pixel (RGB Trio) Arrangement:

Pixel (RGB Trio) Pitch:

Viewing Angle, contrast  $\geq 10:1$  :

Response Time, max ( $t_r/t_f$ ):

DC Power:

DC Connector (center +):

AC Connector:

Cabinet (whd, less knobs):

Mounting (threaded inserts):

Weight:

Temperature, Operating:

Temperature, Storage:

Case Color (textured):

Case Material:



5.6" LCD Monitor

5.6" / 142 mm Composite Video  
525 NTSC/625 PAL (autoselect)  
B,C,C,T; On,Blue,ScanRev,75 $\Omega$ Term  
1.0 Vpp (termination switch and tee):  
BNC x 1 (tee for looping)  
300 nts (cd/m<sup>2</sup>)  
150:1  
H and/or V Reverse  
4.46 x 3.33"  
Non-Glare, Washable  
CCFL, 20,000 hr  
960 (320) x 234, Stripe  
0.118 (3) x 0.362 mm  
90°H; 40°V  
15/25 ms  
9-36 VDC, 7. watts  
Barrel, 5.5/2.5 mm  
IEC-320 Male;100-240 vac  
5.7 x 4.3 x 1.1" / 145 x 109 x 27 mm  
10-32 back, ¼-20 bottom  
18 oz / 0.51 kg  
0 ~ +60°C @ 0-95% RH  
-25 ~ +80° C  
Textured Black Semi-Gloss  
Aluminum

(Specification is subject to change without notice) 11.6.03

## **6.8" Broadcast Video Monitor NTSC/PAL**

**Model:** v068

**Description:** Color LCD Video Display,  
NTSC/PAL, 9-36 volts,  
Blue-Gun, Scan-Reverse,  
Looping Video,  
Protected Screen

### **Specifications:**

Active Area (Diagonal):

Video Modes:

User Controls (knobs, switches):

Video Input Signals (nominal):

Video Connector

Audio Input, Speakers:

Brightness, typical, 0°:

Contrast Ratio, 0°:

Scan:

Window (Display Area):

Protective Screen Cover:

Light Source (standard):

Pixel (RGB Trio) Arrangement:

Pixel (RGB Trio) Pitch:

Viewing Angle, contrast  $\geq 10:1$  :

Response Time, max ( $t_r/t_f$ ):

DC Power:

DC Connector (center +):

AC Connector:

Cabinet (whd, less knobs):

Mounting:

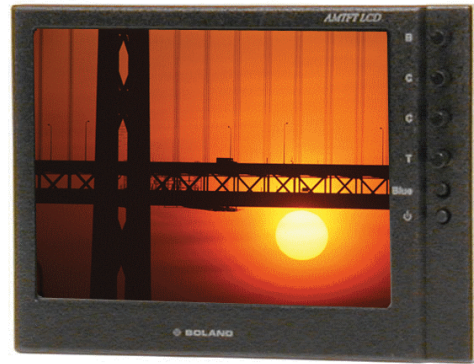
Weight:

Temperature, Operating:

Temperature, Storage:

Case Color (textured):

Case Material:



6.8" LCD Monitor

6.8" Composite Video

NTSC/PAL (autoselect)

B,C,C,T, On,Blue,Scan,Term

1.0 Vpp (termination switch and tee):

BNC x 1 (tee for looping)

N/A

300 nts (cd/m<sup>2</sup>)

150:1

H and/or V Reverse

5.44 x 4.07"

Non-Glare, Washable

CCFL, 20,000 hr

1152 (384) x 234, Stripe

0.120 (3) x 0.442 mm

$\pm 60^\circ$ H;  $-60^\circ$ ,  $+10^\circ$ V

25/30 ms

9-36 VDC, 7.5 watts

Barrel, 5.5/2.5 mm

IEC-320 Male, 100-240v

7.06 x 5.25 x 1.14"

10-32 back,  $\frac{1}{4}$ -20 bottom

20 oz / 0.6 kg

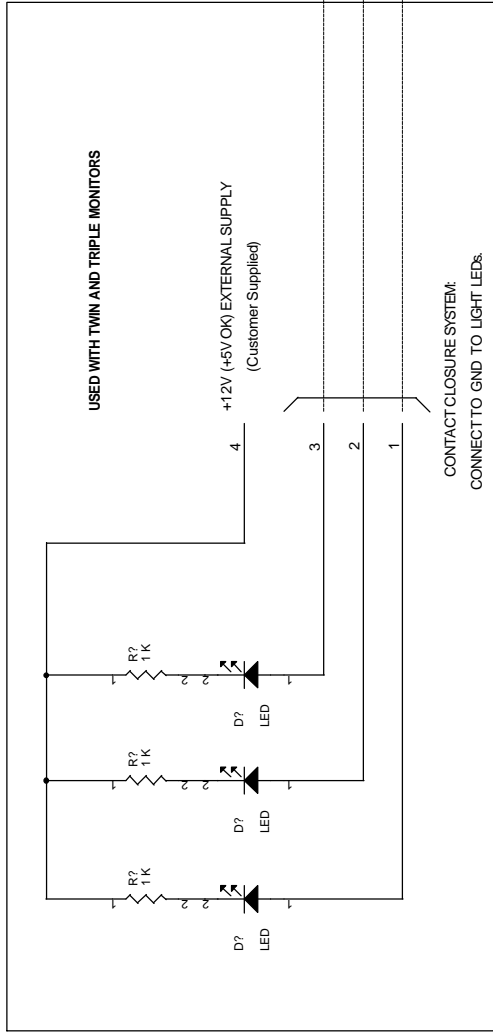
0 ~  $+60^\circ$ C @ 0-95% RH

$-25$  ~  $+80^\circ$  C

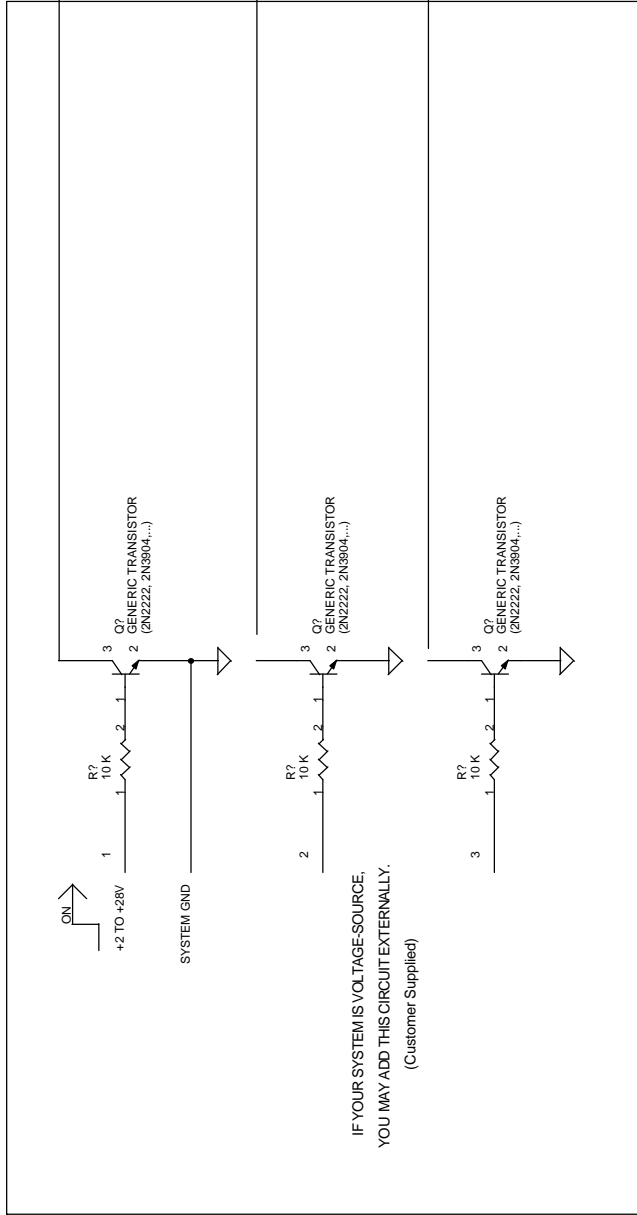
Textured Black Semi-Gloss

Aluminum

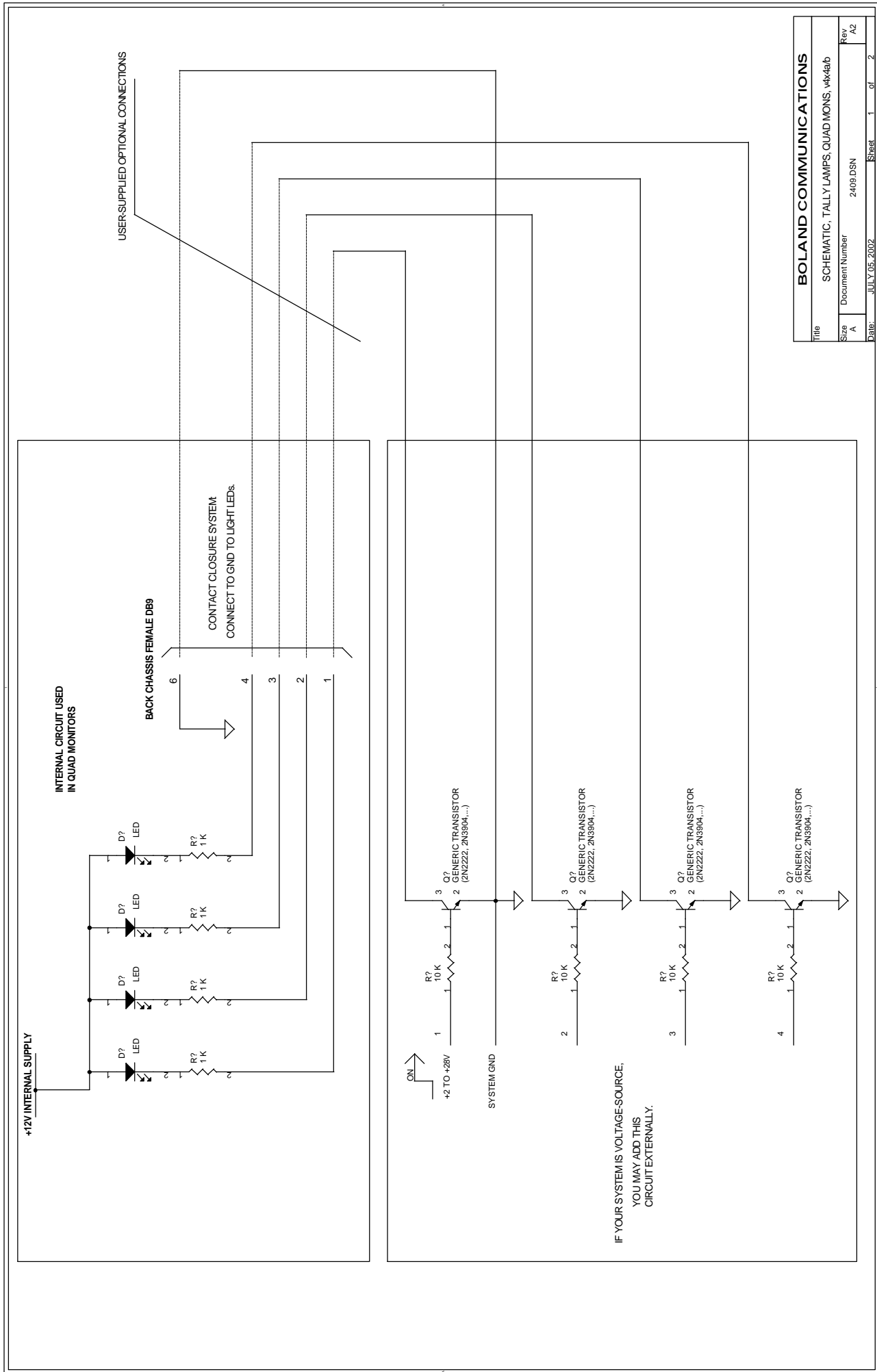
(Specification is subject to change without notice 10.4.03)



USER-SUPPLIED OPTIONAL CONNECTION



<b>BOLAND COMMUNICATIONS</b>	
Title	SCHEMATIC, TALLY LAMPS, TWINS, TRIPLES
Size	Document Number 2409.DSN
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Date	Monday, June 04, 2001
Sheet	2 of 2



<b>BOLAND COMMUNICATIONS</b>	
Title	SCHEMATIC, TALLY LAMPS, QUAD MONS, v4k4ab
Size	Document Number 2409.DSN
Rev	A2
Date	JULY 05, 2002
Sheet	1 of 2