

Put the **Best Face** on Your

Outdoor Applications

with OPTREX Flat Panel Displays



Optrex is an industry leader for supplying outdoor readable and reliable TFT displays. Super high brightness (1,500 nits luminance), transfective properties, anti-reflective surfaces, extended temperature ranges and other technological attributes make Optrex your best solution for outdoor applications.

Super High Bright LCDs

With TFTs at up to 1500 nits luminance, Optrex displays provide legibility and image clarity in high ambient light environments – even direct sunlight. WideViewing technology permits display readability at angles up to 170 degrees, while Optrex’s Natural Color Matrix (NCM) renders vivid color, crisp text and smooth video.

Reverse Scan

Optrex’s Reverse Scan feature further complements outdoor use applications by allowing the display’s scan to be set for best image quality when a mounted display is intended to be viewed from above or below.

Anti-reflective Surfaces

Anti-reflective (AR) coating reduces surface reflectivity to approximately 0.3% with no decrease in luminance or contrast and no increase in power. Optrex’s AR technology is ideally suited to preserving screen readability in high-ambient-light environments. AR coating is more reliable since it is integrated at the factory.

Transflective

Optrex’ Transflective displays offer both Reflective and Transmissive modes resulting in high light reflectance, for a “bright display”, even in direct sunlight and in varying lighting environments.

The Right Displays for Your Outdoor Applications

- Outdoor Kiosk/Point-of-Sale
 - Industrial Equipment
 - Marine/GPS
 - Gas Pumps
 - Rugged PC
 - Gaming
- and more...



Technology Offering At-a-Glance

High Luminance



High Luminance Normal Luminance

- High ambient-light legibility
- Anti-glare or Anti-reflective surface
- AR coating is more reliable since it is intergrated at factory
- Wide temperature range

15.0" XGA 1500 Cd/m²
800 Cd/m²

12.1" SVGA 1500 Cd/m²
1000 Cd/m²

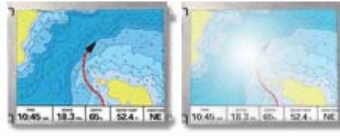
12.1" XGA 1000 Cd/m²

10.4" XGA 1000 Cd/m²

10.4" VGA 1500 Cd/m²

6.5" VGA 600 Cd/m²
750 Cd/m²

Anti-Reflective (AR)



Anti-reflective Anti-glare

- Surface reflectivity reduced to approximately 0.3%
- High image clarity
- AR coating is more reliable since it is intergrated at factory
- Wide temperature range

14.0" WXGA

12.1" WXGA

12.1" XGA / SVGA

10.4" SVGA/VGA

9.0" WVGA

8.4" XGA/VGA

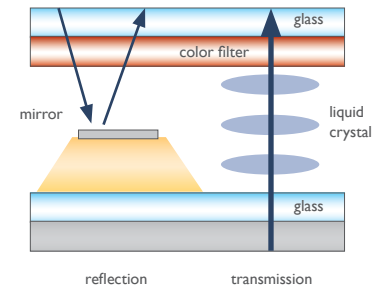
6.5" VGA

Transflective



Transflective

Conventional
200 nits



reflection transmission

- An inner mirror design
- Achieved 20% reflectivity

8.8" HVGA

8.4" VGA

3.5" QVGA

3.0" WQVGA

Addressing Outdoor Application Requirements

| Applications | Display Demands | Optrex Technology |
|---|---|---|
| <ul style="list-style-type: none"> • Marine (GPS, Fish finder) • ATM • Gas Pump • Point-of-Sale • Kiosk • Rugged PC • Gaming and Voting Machines • Industrial Equipment | <ul style="list-style-type: none"> • Direct Sunlight Readable • True Color • Image Clarity • Extreme Operating Temperatures • Ruggedized • Wide Viewing Angles • Field Serviceable | <ul style="list-style-type: none"> • High Luminance (Brightness) - Outdoor legibility and image clarity with luminance up to 1500 nits • Natural Color Matrix - NCM delivers true color fidelity using a hardware-based color transform algorithm to render vivid color, crisp text and artifact-free video that are true to the source data • Anti-reflective Surface Treatment - For greatly reduced surface reflectivity • Ultra Wide Viewing - Up to 170° viewing angle and high brightness • Reverse Scan - Ability to select either a normal or reverse scan to obtain the best intended image, depending on whether the mounted display will typically be viewed from above or below • Replaceable Backlights - Backlights are field replaceable • Redundant Backlights - Display functions with only one tube allowing for emergency down time (important feature for touch screen applications) • Transflective - High brightness in direct sunlight |

Outdoor Use TFT Display Line-up

High Luminance (Brightness)

| Size | Part # | Display Format | Contrast | Cd/m ² | Interface | Viewing Angle | Operating Temp. | Special Features |
|---------|-----------------------|----------------|----------|-------------------|-----------|---------------------|-----------------|------------------|
| 6.5" | T-51750GD065J-LW-ANN | 640 x 480 | 300:1 | 750 | CMOS | (h v): ±55 -30/60 | -25 to 75°C | |
| | T-51952D065J-FW-A-ABN | 640 x 480 | 700:1 | 600 | CMOS | (h v): ±70 -60/50 | -20 to 70°C | |
| | T-51952D065J-FW-A-ACN | 640 x 480 | 700:1 | 600 | CMOS | (h v): ±70 -60/50 | -20 to 70°C | |
| 10.4" | T-55334D104J-FW-A-AAN | 640 x 480 | 700:1 | 1500 | CMOS | (h v): ±70 -65/65 | -20 to 70°C | |
| | T-55468D104J-FW-A-AAN | 1024 x 768 | 600:1 | 1000 | LVDS | (h v): ±80 -65/65 | -20 to 70°C | |
| 12.1" X | T-55105D121J-FW-A-AAN | 1024 x 768 | 600:1 | 1000 | LVDS | (h v): ±65 -75/45 | -20 to 70°C | |
| | T-55105D121J-FW-A-ABN | 1024 x 768 | 700:1 | 1000 | LVDS | (h v): ±60 -75/45 | -20 to 70°C | |
| | T-55105D121J-FW-A-ACN | 1024 x 768 | 450:1 | 900 | LVDS | (h v): ±85 -70/80 | -20 to 70°C | |
| 12.1" S | T-52017D121J-FW-A-AAN | 800 x 600 | 650:1 | 1000 | LVDS | (h v): ±65 -75/45 | -20 to 70°C | |
| | T-52017D121J-FW-A-ABN | 800 x 600 | 700:1 | 1000 | LVDS | (h v): ±60 -75/45 | -20 to 70°C | |
| | T-55196D121J-FW-A-AAN | 800 x 600 | 650:1 | 1500 | LVDS | (h v): ±65 -75/45 | -20 to 70°C | |
| | T-55196D121J-FW-A-ABN | 800 x 600 | 700:1 | 1500 | LVDS | (h v): ±60 -75/45 | -20 to 70°C | |
| 15" | T-51863D150J-FW-A-AFN | 1024 x 768 | 600:1 | 800 | LVDS | (h v): ±75 -60/50 | -20 to 70°C | |
| | T-55335D150J-FW-A-AAN | 1024 x 768 | 650:1 | 1500 | LVDS | (h v): ±75 -60/50 | -20 to 70°C | |

Transflective

| Size | Part # | Display Format | Contrast | Cd/m ² | Interface | Viewing Angle | Operating Temp. | Additional Features |
|------|-------------------------|----------------|----------|-------------------|-----------|---------------------|-----------------|---------------------|
| 3.0" | T-55149GD030J-MLW-AJN | 240 x 400 | 105:1 | 400 | CMOS | (h v): ±70 -58/70 | -20 to 70°C | |
| 3.5" | T-51963GD035J-MLW-AFN | 240 x 320 | 70:1 | 160 | CMOS | (h v): ±40 ±40 | -20 to 70°C | |
| | T-51963GD035J-MLW-AGN | 240 x 320 | 70:1 | 130 | CMOS | (h v): ±40 ±40 | -20 to 70°C | |
| | T-51963GD035J-MLW-AHN | 320 x 240 | 70:1 | 160 | CMOS | (h v): ±40 ±40 | -20 to 70°C | |
| 8.4" | T-55151FD084J-MFW-A-AAN | 640 x 480 | 200:1 | 200 | CMOS | (h v): ±80 -70/50 | -20 to 70°C | |
| 8.8" | T-51965GD088H-FW-AEN | 640 x 240 | 185:1 | 250 | CMOS | (h v): ±50 ±45 | -40 to 80°C | |

Legend: Natural Color Matrix Ultra Wide Viewing High Luminance Anti-reflective Coating Transflective Wide Format LED backlight

Outdoor Use TFT Display Line-up

Anti-reflective (AR) Surface Treatment

| Size | Part # | Display Format | Contrast | Cd/m ² | Interface | Viewing Angle | Operating Temp. | Special Features |
|-------|-------------------------|----------------|----------|-------------------|-----------|---------------------|-----------------|------------------|
| 6.5" | T-51750GD065J-FW-AFN | 640 x 480 | 300:1 | 400 | CMOS | (h v): ±55 -30/60 | -25 to 70°C | |
| | T-51750GD065J-LW-ANN | 640 x 480 | 300:1 | 750 | CMOS | (h v): ±55 -30/60 | -25 to 70°C | |
| | T-51952D065J-FW-A-ACN | 640 x 480 | 700:1 | 600 | CMOS | (h v): ±70 -60/50 | -20 to 70°C | NCM |
| 8.4" | T-51638D084J-FW-A-AC | 640 x 480 | 500:1 | 480 | CMOS | (h v): ±65 -60/50 | -20 to 70°C | |
| | T-55151FD084J-MFW-A-AAN | 640 x 480 | 200:1 | 200 | CMOS | (h v): ±80 -70/50 | -20 to 70°C | NCM |
| 9.0" | T-55311D090J-FW-A-AAN | 800 x 480 | 600:1 | 600 | LVDS | (h v): ±75 -60/80 | -20 to 70°C | NCM |
| 10.4" | T-51944D104J-FW-A-ABN | 800 x 600 | 600:1 | 400 | LVDS | (h v): ±70 -60/50 | -20 to 70°C | NCM |
| | T-51513D104JU-FW-A-AHN | 640 x 840 | 600:1 | 430 | CMOS | (h v): ±65 -45/65 | -20 to 70°C | NCM |
| 12.1" | T-55312D121J-FW-A-AAN | 1280 x 800 | 500:1 | 400 | LVDS | (h v): ±60 -75/45 | -20 to 70°C | NCM |
| | T-55105D121J-FW-A-ABN | 1024 x 768 | 700:1 | 1000 | LVDS | (h v): ±65 -75/45 | -20 to 70°C | NCM |
| | T-51756121J-FW-A-ADN | 1024 x 768 | 550:1 | 320 | LVDS | (h v): ±85 ±85 | -20 to 70°C | NCM |
| | T-52017D121J-FW-A-ABN | 800 x 600 | 500:1 | 1000 | LVDS | (h v): ±65 -75/45 | -20 to 70°C | NCM |
| | T-51866D121J-FW-A-ABN | 800 x 600 | 600:1 | 400 | LVDS | (h v): ±65 -75/45 | -20 to 70°C | NCM |
| | T-51512D121J-FW-A-AGN | 800 x 600 | 500:1 | 400 | CMOS | (h v): ±65 -75/45 | -20 to 70°C | NCM |
| | T-55196D121J-FW-A-ABN | 800 x 600 | 700:1 | 1500 | LVDS | (h v): ±60 -75/45 | -20 to 70°C | NCM |

Legend: Natural Color Matrix Ultra Wide Viewing High Luminance Anti-reflective Coating Transflective Wide Format Touch Screen

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