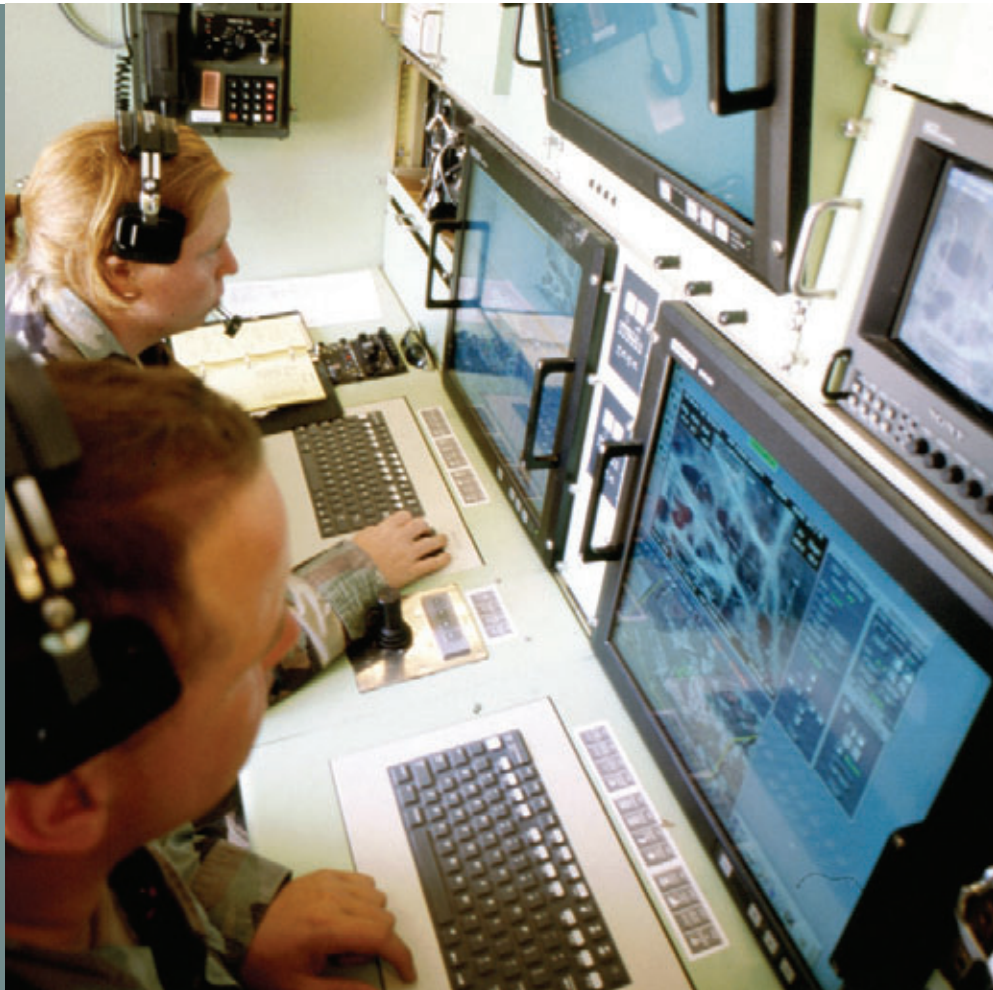


TL family

A series of thin and lightweight displays



A series of thin and lightweight displays

Barco's family of thin and lightweight displays offers significant benefits with respect to dimensions, ruggedization and intelligence. The TL display series combines unmatched thinness with exceptionally low weight to provide a unique, rugged display solution, especially for applications where space and weight are critical.

Barco's innovative TL series features first-class AMLCD technology, providing excellent performance in terms of brightness, contrast and viewing angle. Several options and bezel configurations are available to address virtually any mounting need in any application. Additionally, the TL displays combine this high level of performance and versatility with a very competitive price/performance value.

20" TL-351 (console mount)



A different view on rugged display technology

Thin

The thin footprint of the TL series allows easy integration into systems and platforms where space is limited. Barco's TL-248 smallest outline version is even **less than 1U deep**.

Light

The TL displays have an exceptionally low weight in combination with a high level of ruggedization. This allows for major savings in applications where weight is critical (e.g. airborne). Barco's TL-248 smallest outline version is even **only 6.5 kg (14.33 lbs)**.

Best price/performance value

The TL series provides the best price/performance value on the market, allowing integrators to develop very competitive visualization solutions for their customers at a cost which is fully in line with their program requirements.



TL-248
(smallest outline)

Versatile

Barco's TL series is truly the most versatile display solution around, in terms of size, ruggedness and mountability.

Barco's full family of thin and lightweight displays, available in 19", 20" and 24", has been designed and qualified for application in the most hostile environments. Three levels of ruggedization allow integrators to choose the TL display that meets their specific program requirements. All displays come as a fully enclosed, drip-proof unit. The two highest levels of ruggedization include a front bonded optical stack and integrated heaters for sub-zero operations.

With its amazing dimensions and full range of mounting possibilities, Barco's TL display is fully tailored to integrator needs and ready for integration into practically any mounting configuration, in any application and on any platform.

Accessible

Even in harsh environments, Barco's thin and lightweight displays allow easy interaction with the display content. The optional touch screen technology has been designed for military applications and does not compromise on image quality. The built-in On-Screen Display functionality makes interaction with the display even more user-friendly.

ECDIS compliance

In order to provide a correct interpretation of the navigation data in all circumstances occurring on board of a ship, the TL series is currently including the ECDIS compliance – according IEC61174. This ensures that there is no chance that the navigation chart is misinterpreted due to incorrect colors. As a result, the TL display can now be used to display electronic navigation charts as part of an ECDIS system.

A family of versatility

A full family of thin and lightweight displays

Barco's TL display family offers 19" (SXGA), 20" (UXGA) and 24" (WUXGA) screen sizes.

Mountable anywhere

Barco developed its TL display series with a special eye to easy integration into several mounting configurations, such as racks, consoles, and even portable workstations and standalone configurations with VESA mount. The TL series features a very compact footprint, minimal depth and a broad choice of bezel configurations, all conforming to open industry standards. All these features make Barco's TL the most versatile display solution on the market.

Barco's TL display series is also equipped with an integrated hardware image rotator allowing for optimum use in both portrait and landscape mode. This feature can be controlled via the user-friendly On-Screen Display menu.

One notable example of the TL series' versatility and compactness is the TL-351. In its smallest outline version, this 20" (UXGA) display unit can even be integrated inside a 19" rack, only taking up a depth of 2U.

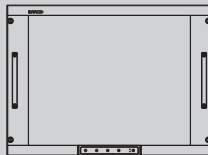
TL-248

Smallest outline (VESA mount)



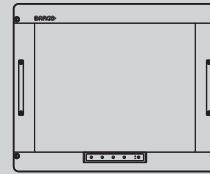
Height: 349 mm
Width: 419 mm
Depth: 43.5 mm (< 1U)
Depth behind bezel: n/a

Rack mount



Height: 354 mm (8U)
Width: 482 mm
Depth: 50 mm
Depth behind bezel: 37.5 mm

Console mount



Height: 399 mm (9U)
Width: 482 mm
Depth: 50 mm
Depth behind bezel: 37.5 mm

TL-351

Smallest outline (VESA mount)



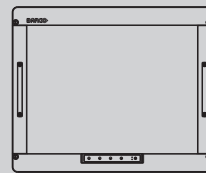
Height: 354 mm
Width: 448 mm
Depth: 60 mm
Depth behind bezel: n/a

Rack mount



Height: 354 mm (8U)
Width: 482 mm
Depth: 62.5 mm
Depth behind bezel: 47.5 mm

Console mount



Height: 399 mm (9U)
Width: 482 mm
Depth: 62.5 mm
Depth behind bezel: 47.5 mm

TL-361

Smallest outline (VESA mount)



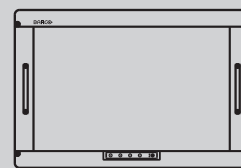
Height: 374 mm
Width: 568 mm
Depth: 69.1 mm
Depth behind bezel: n/a

Rack mount



Height: 399 mm (9U)
Width: 609.5 mm
Depth: 69.1 mm
Depth behind bezel: 56.6 mm

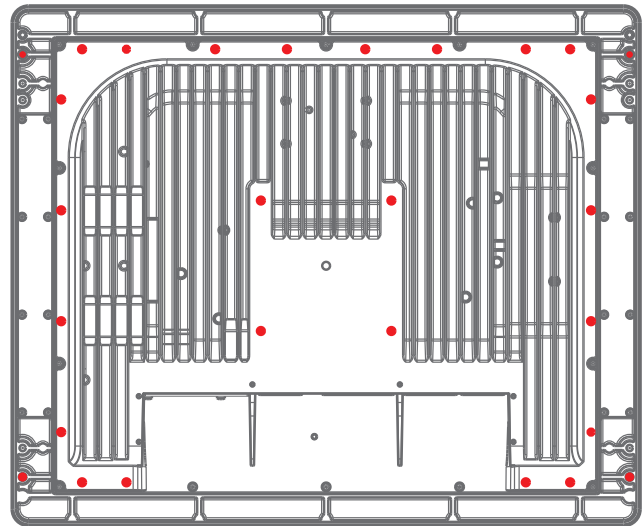
Console mount



Height: 418 mm
Width: 624 mm
Depth: 69.1 mm
Depth behind bezel: 56.6 mm

Ruggedness in line with your specifications

Barco's TL displays have been designed and qualified for application in the most hostile environments. Next to the standard ruggedization level, Barco offers its TL displays with two extra ruggedization levels, which are suited for specific naval combat, army and airborne applications. Both extra ruggedization levels include Barco's unique bonded optical stack, providing the best possible optical performance in combination with a totally risk-free solution for condensation and other environmental conditions.



The several fixation points (marked in red) allow the TL displays to be mounted in practically any mounting configuration, in any application and on any platform.



19" TL-248 (smallest outline)



20" TL-351 (rack mount)



24" TL-361 (console mount)

Compatibility with legacy displays

The optional MIL-CON Box and AC Box offer the possibility to connect your TL display with legacy display systems. Both options can be easily integrated onto the back of the display.





By courtesy of Agusta Westland



Copyright U.S. Navy Michael Sandberg



Proven Barco technology

The TL display family features proven, proprietary Barco technology which has made Barco's rugged displays so successful over the past decade in many naval, landbased and airborne programs worldwide.

Automatic Phase Adjust (APA)

The APA technology, which is especially effective for high-resolution displays like the TL-361, helps to avoid image artifacts like pixel noise. The APA function automatically locks the LCD sampling clock to the (drifting) graphics generator pixel frequency. Drift can be caused by temperature changes, electromagnetic interference and other environmental factors.

Low latency

TL displays are configured to have the lowest possible impact on system latency. Barco therefore reduces the internal image processing delay to a minimum.

Extended dimming ratio

For many products, Barco uses in-house manufactured circuitry to provide advanced dimming solutions.

Optional LCD Flicker Compensation

The TL displays can be equipped with Barco's unique patented LCD Flicker Compensation (LFC) solution, which allows operators to view acoustic sonar images or dense scrolling data without distracting flicker effects.

Optional touch screen

Barco's TL displays optionally come with high-performance touch screen functionality. The display uses NextWindow optical touch technology, which has high touch accuracy and is very resistant to dust or water. The touch screen allows fluent drag and drop actions and can be operated with any available stylus device. The touch screen technology has no impact whatsoever on the TL display's optical performance.

Technical specifications

Electro-optical	TL-248	TL-351	TL-361
Panel size	19"	20.1"	24"
Resolution	1280x1024 (SXGA)	1600x1200 (UXGA)	1920x1200 (WUXGA)
Brightness	Typical 200 cd/m ² (58 ftl)	Typical 200 cd/m ² (58 ftl)	Typical 300 cd/m ² (87.5 ftl)
Contrast ratio (in dark environment)	500:1	500:1	500:1

For detailed technical specifications, please contact Barco.

Environmental specifications	Standard	Ruggedization Level I	Ruggedization Level II
Vibration	SHIPS MIL-STD-167-1 Type 1	SHIPS MIL-STD-167-1 Type 1	
	AIRBORNE 2g MIL-E-5400T Fig.2, curve IIa (sheet 2 of 3)	AIRBORNE 2g MIL-E-5400T Fig.2, curve IIa (sheet 2 of 3)	AIRBORNE 5g MIL-E-5400T Fig.2, curve IIIa (sheet 2 of 3)
Shock	MIL-STD-810 30g - 12.5ms half sine	MIL-STD-901D Lightweight Grade A	MIL-STD-810 40g - 16ms Half sine - X,Y,Z axis
Operational temperature (continuous) MIL-STD-810F	Low temp: 0°C High temp: +50°C	Low temp: -25°C High temp: +55°C	Low temp: -40°C High temp: +55°C
Storage temperature MIL-STD-810F	Low temp: -40°C High temp: +70°C	Low temp: -40°C High temp: +70°C	Low temp: -40°C High temp: +70°C
Relative humidity MIL-STD-810F	max. 95% @ 40°C	max. 95% @ 40°C	max. 95% @ 40°C
IP IEC529	IP65 on console level	IP65 on unit level with optional military interface box	IP65 on unit level with optional military interface box
Drip-proof MIL-STD-810F	meth. 506.4 proc III	meth. 506.4 proc III	meth. 506.4 proc III
Operating ALTITUDE Low pressure MIL-STD-810F	20000ft (425 mbar)	20000ft (425 mbar)	40000ft (187 mbar)
Operating RAPID DECOMPRESSION MIL-STD-810F			8000 ft (752mbar) to 40000 ft (187 mbar)
EMI/EMC	MIL-STD-461 E - Navy applications	MIL-STD-461 E - Navy applications	MIL-STD-461 E - Navy fixed & airforce applications
FCC	FCC-A	FCC-A	FCC-A

Connections	
Signal inputs	DVI-I, VGA
RS-232 serial port	9 pin sub D
Power	9W4 sub D
Controls & Indicators	
Controls	UP / DOWN / SEL / QUIT / STANDBY In conjunction with OSD
Indicators	Green 'Power' LED, Red 'Fault' LED
OSD	On-Screen Display
Power	
Power supply	TL-248/TL-351: Standard 12V & 28V DC, Optional: 115-220V AC as external module TL-361: Standard 12V & 28V DC, Optional: 115-220V AC as external module, only in combination with standard ruggedization level
Guidelines	MIL-STD-704E
Power consumption	TL-248: 80 W, TL-351: 90 W, TL-361: 100 W
Safety	IEC 950
General data	
Weight	7.9 kg (14.33 lbs) for TL-248 (smallest outline). For other specifications, please contact Barco
Finishing	Black RAL 9005
MTRR	Less than 30 minutes
Additional features	
Scaling modes	No scaling/full screen/keep aspect AutoSet, Automatic Phase Adjust (APA), Automatic Gain Control (AGC)
Options	
	LCD Flicker Compensation (special configuration)
	Low latency
	Touch screen

Standard TL configurations

To meet changing imaging requirements and tight time constraints, Barco introduced a line of standard TL configurations based on a wide variety of TL display options, such as display size, inputs/outputs, and ruggedization level. These pre-engineered display models have a lead time of only four weeks. To place an order or get more detailed ordering information, contact your local sales representative.

Display	Size	Resolution	Pixels	Rack mount	Console mount	1x DVI & 2x analog RGB input	Voltage	Rugged (stand.)	Rugged (level I)
TL-248	19"	SXGA	1280 x 1024		✓	✓	AC power supply	✓	
TL-248	19"	SXGA	1280 x 1024		✓	✓	AC power supply		✓
TL-248	19"	SXGA	1280 x 1024	✓		✓	28V DC		✓
TL-351	20.1"	UXGA	1600 x 1200		✓	✓	28V DC		✓
TL-351	20.1"	UXGA	1600 x 1200		✓	✓	AC power supply	✓	
TL-351	20.1"	UXGA	1600 x 1200	✓		✓	AC power supply		✓
TL-351	20.1"	UXGA	1600 x 1200	✓		✓	AC power supply	✓	
TL-351	20.1"	UXGA	1600 x 1200	✓		✓	AC power supply		✓

About Barco

Barco has been serving the defense community for over 20 years, providing reliable and high-quality rugged displays, deployable workstations, advanced imaging platforms, and Common-Operational-Picture solutions.

A continued, focused investment in research and development has given the company a unique expertise in providing high-performance, state-of-the-art visualization solutions. Its worldwide facilities are fully equipped for in-house design, development, testing and manufacturing. ISO 9001 certification, complete control of the production process, extensive environmental testing programs, worldwide customer support and project-specific customization, confirm Barco's commitment to technologically advanced, cost-competitive solutions.



In search of continuous improvement

M00016-R07-0212-PB

Barco is an ISO 9001 registered company. The information and data given are typical for the equipment described. However any individual item is subject to change without any notice. The latest version of this product sheet can be found on www.barco.com



Barco nv
 Pres. Kennedypark 35, B-8500 Kortrijk
 Europe, Middle-East, Africa: +32 56 26 20 09
 Latin America: +55 11 38421656
 India: +91 120 4020000
 Japan: +81 3 5762 8727
sales.defense@barco.com

Barco Federal Systems
 3059 Premiere Parkway, Suite 100
 Duluth, Georgia, 30097-4905, USA
 Phone: +1 678 475 8000
 Fax: +1 678 475 8100
sales.defense@barcofederal.com

