Esterline

Control &
Communication Systems

TX series

Thin and lightweight extreme displays

When conditions become extreme, only extreme technologies can offer operators the reliability and survivability they need. For the demanding environments of the utility vehicle, helicopter, or armored vehicle, Esterline has developed the TX series of extremely rugged displays. TX displays offer an ideal solution for battlefield management, fire control, driver's view enhancement, reconnaissance or local situational awareness inside today's rugged vehicles.

Featuring CODIS Products

A series of thin and lightweight extreme displays

The TX display's low depth and small form factor make it an ideal solution for vehicle cockpits with limited space.

Extreme environments need extreme technologies

Available in sizes from 10" to 17", Esterline's TX displays offer the latest proven technologies, such as low-reflection touch screen, NVIS capability and sunlight readability. Esterline has designed its TX range with an innovative and patented thermal management system which makes the displays fit for the harshest temperature environments. The combination of low-risk, proven display technology with Esterline's innovative display concepts makes the TX series the most trusted mission-critical display for vehicle operations on the market.

A full-option, low-power display

Esterline's TX full-option display series is equipped with the best a rugged display can offer today, including NVIS, high brightness, low-reflection touch screen technology and low power consumption. That is why TX is the most versatile and trusted companion for mission-critical decision-making inside rugged vehicles.

Low-reflection touch screen

Esterline's TX display series features low-reflection Analog Resistive touch screen technology, which has high touch accuracy and is very resistant to dust and water. Esterline perfected this technology in order to prevent optical reflection. The TX display's touch screen technology allows interaction with finger tips, gloves or stylus.

Night vision

Esterline's TX display series is NVIS compliant offering operators night vision images without any color shift effects. The TX displays have been designed in accordance with the MIL-STD-3009 standard.

Sunlight readability

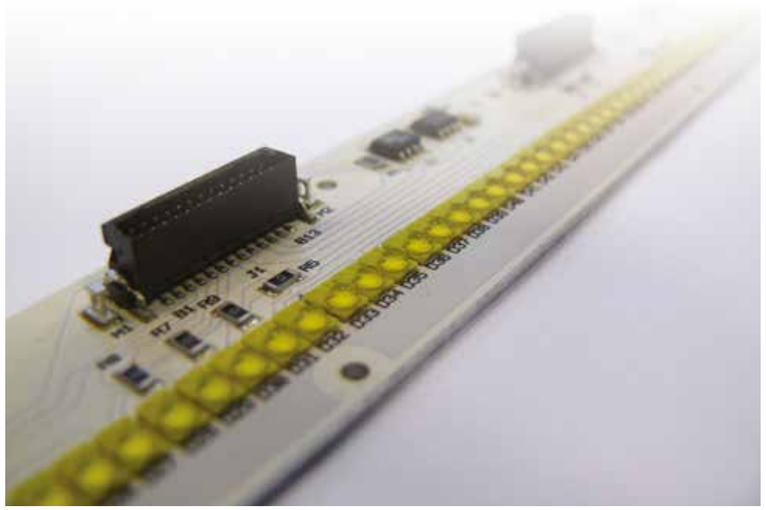
The TX display series features high-bright LED backlight technology, providing operators with exceptional image performance in high ambient light conditions (> 100,000 Lux).

TX series performance summary:

- 10", 15", 15" wide-screen and 17" LCD displays
- Designed to withstand harsh vehicle environments
- Operates over the full temperature range from -46°C up to +71°C
- Quick start-up in cold conditions thanks to intelligent LCD heater system
- Low weight and minimum depth
- Full option display, including high brightness, NVIS and low-reflection touch screen
- Innovative thermal management system
- Fully sealed, fanless design
- Minimum power consumption

Innovative technology for extreme environments

With its continuous and focused R&D efforts, Esterline is always breaking new ground in the field of rugged display technology. Esterline combines its proven and low-risk rugged components with the latest advancements in display technology, such as LED backlight technology and Esterline's unique thermal management system, to provide the most trusted display in harsh vehicle conditions.



LED backlights

Esterline's TX display series features an innovative LED backlight system, providing extended brightness for sunlight readability and extremely low dimming for night conditions. Additionally, the TX display's LED backlights offer a long lifetime and reduced power consumption. The performance of Esterline's LED backlight technology has proven to be successful in the most extreme army conditions.

Thermal management system

The TX display is equipped with a unique thermal management system that significantly improves the LCD performance.

In order to keep the TX operating over the full temperature range up to 71°C, the TX display has a thermal insulation system that isolates all internal heat sources from the liquid crystal display. Combined with an excellent light output/power ratio, the TX series makes a unique display that is truly fit for extreme environments.

Technical specifications TX series

Electro-optical	TX-126	TX-138	TX-338	TX-243
Panel size	10" diagonal	15" diagonal	15" diagonal wide screen	17" diagonal
Resolution	1024x768 (XGA)	1024x768 (XGA)	1920x1200 (WUXGA)	1280x1024 (SXGA)
Electro-optical general specifications				
Panel specifications	16.7M colors, 256 gray scales			
Brightness	Max. >686 cd/m² (200 fL) typical, Min: <0.0343 cd/m² (0.01 fL)			
Dimming ratio	Typ. >2000:1			
Contrast ratio	900:1	500:1	350:1	800:1
Viewing angle Hor. @ CR=10	±55°	±70°	±70°	±80°
Viewing angle Vert. @ CR=10	±65°	±70°	±55°	±80°
Inputs				
Standard	DVI, USB, RS232/422 (selectable)			
Optional	RGB, video (CVBS, s-video, component)			
Connectors	MIL-D-38999/3			
Power				
Power supply	28 VDC MIL-STD-1275B			
Max. Power consumption				
@ 200 fL	45W	65W	50W	70W
with heating	140W	150W	140W	150W
Environmental				
Low operating temp.	-46°C/-51°F MIL-STD-810F			
High operating temp.	+63°C/+145°F MIL-STD-810F up to +71°C/+160°F (limited in time)			
Low storage temp.	-46°C/-51°F MIL-STD-810F			
High storage temp.	+75°C/+167°F MIL-STD-810F			
Humidity	Operating & storage: 95% @ 40°C/+104°F MIL-STD-810F			
Vibration	5g sine vibration MIL E5400T			
	Random vibration (all terrain vehicles) MIL-STD-810F			
	Random vibration (heavy tracked vehicles) AECTP400			
Shock	40 g 23 ms half sine MIL-STD-810F			
EMI/EMC	Ground-Army MIL-STD-461F			
Ingress protection	IP65			
Altitude (operating)	Up to 40,000 ft MIL-STD-810F			
Altitude (storage)	Up to 50,000 ft MIL-STD-810F			
NVIS-B	MIL-STD-3009 class B compliant			
Sand & dust, salt fog	Compliant at unit level MIL-STD-810F			
Controls & indicators				
Bezel controls	Up to 16 programmable function keys, dimmable backlight and key status indicators			
Touch Screen	Low-reflection AR touch screen, USB/serial Control			

For detailed technical specifications, please contact Esterline.

Standard TX configurations

To meet changing imaging requirements and tight time constraints, Esterline introduced a line of standard TX configurations based on a wide variety of TX display options, such as display size, inputs/outputs, and HMI characteristics. These pre-engineered display models, standard available with bezel mount and black housing, have a lead time of only twelve weeks. To place an order or get more detailed ordering information, contact your local sales representative.

Display	Configuration	Size	Resolution	Pixels	Bezel keys	Touch screen	Control	DVI	Analog inputs	USB hub
TX-126	Base	10"	XGA	1024 x 768						
TX-126	Full option	10"	XGA	1024 x 768						
TX-138	Base	15"	XGA	1024 x 768						
TX-138	Full option	15"	XGA	1024 x 768						
TX-338	Base	15.4"	WUXGA	1920 x 1200						
TX-338	Full option	15.4"	WUXGA	1920 x 1200						
TX-243	Base	17"	XGA	1024 x 768						
TX-243	Full option	17"	XGA	1024 x 768						

Sigma

In search of continuous improvement

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