

CRYSTAL-23

Naval rugged C2 console for mission-critical applications



► Networked multi-function console with Modified COST services

CRYSTAL-23 is the latest family of multifunction consoles offering an ergonomic rugged working position for the most demanding command and control, fire control or situational awareness applications for surface ships / submarines or on board shelter land base systems. CRYSTAL-23 is ideal for systems with remote / local data computing and graphic processing located in the operator workstation. It provides dedicated graphic and video processing horsepower for user specific visualization operations such as windowing, rendering, and mixing of multiple data and sensors.

CRYSTAL-23 console is fully network capable, so it successfully addresses the needs of modern CIC rooms, where reduced manpower and low cost of ownership are of utmost importance. Networked visualization makes it possible to visualize any real time data anywhere in the CIC room and offers utmost flexibility, survivability and maintainability.

CRYSTAL-23 console is fully MIL-qualified in terms of vibration, shock and EMI/EMC, so it easily withstands the harsh environmental conditions of a typical naval / shelter environment.

ECRIN Systems offers to its customers the capability to modify qualified COTS, personalizing the look, adding corporate logo and branding, modifying front connector and LED panel, adapting rear interface connectors to their real environment.

ECRIN Systems offers you a unique look that will shape your image and promote your sales in all over regions of the world.

> 23" Full HD rugged display

> Ergonomic Trackball, Infra-red optical, IP68

> Compact Backlit Industrial Keyboard

> Fully network capable

> Health monitoring with HUMS functionality

> Front Lexan & MIL-DTL-38999 connector's rear plate easily customizable

> Small footprint

> Less than 45 kg

> Qualified MIL-STD-810/167-1, STANAG 4435/ 1008 ed.9

> 95% HR @ 26°C

> 0°C/+50°C operating; -20°C/+60°C non-operating Temp

> Long Life Management

> High modularity for quick LRU's exchange

> High flexibility to Modified COTS

> ITAR free

Multi-function console specifications

Construction	Three millimeters stainless steel.
Dimensions (W x H x D)	590x570x633mm in use (590x645x633mm in use with shock absorbers) 590x570x501mm table raised.
Weight	Less than 45 kg. Lifting rings for transport.
Color	Sand (RAL color can be adapted according to the customer requirements)
Air conditioning	Cooling: two 92 mm ball bearing low noise fans with monitoring Heating to boot up at low temperature and humidity control.
Power Supply	110-230 VAC auto-range/ 47-440Hz; 170 VDC Power consumption max: 415 Watts
Easy maintenance	Display removed, every LRUs are accessible from the front panel. LRUs are fixed on interface plates for easy maintenance and improved long life.
Specific I/O HUMS	Front & rear panel can be easily customized Health and usage monitoring system based on microcontroller board.



Front view

- A: 23" Full HD (1920*1080) rugged display
- B: Front panel with Lexan for easy customization
- C: Backlit Keyboard
- D: Trackball
- E: Folding table
- F: Removable rear interface connector
- G: Air inlet with filter
- H: Air outlet



Rear view

Computer specifications

Processor	Intel Multi-Core™ Architecture
Chipset / Memory	Intel QM87 / DDR3L 1600MHz, dual Channel - 16Go max
Video	PCIe 16X Intel® HD Graphics 4600, 1x DVI-I + 2x Display Ports, Triple Head support
Network	4x GbE (3x Intel® I210IT + 1x I217LM PHY) - Intel® AMT 9.0 support
Disk	2x 2.5" SATA III HDD/SSD with RAID support 1x type II CFast slot, 1x eSATA
I/O	6x USB 3.0 + 1x USB 2.0 4x COM (2x RS-232 + 2x RS-232/422/485) 8x DI + 8x DO with 1.5 kV isolation
Expansions	2x miniPCIe card slots with 1x mSATA support

MMI specifications

Display	23" LCD, Full HD resolution (1920x1080), Brightness 250 cd/m ² , contrast ratio 800:1.
Keyboard	Compact Backlit Industrial Keyboard - 81-Key with 12 function keys
Trackball	Ergonomical Trackball - Ball size 50mm, left / right switches plus click wheel, Infra-red optical, IP68.



I/O's

Front Panel	Standard configuration : Headset & Speaker, GbE, USB 3.0 (x2), LED (x4), button (Power / test LED), Potentiometer (volume, brightness)
Rear panel	Removable interface connector plate (309 x 117 mm)



Front panel



Interface connector

Environmental specifications

Temperature	Operating: 0~50°C (MIL STD 810E) / Storage: -20~55°C (MIL STD 810E)
Humidity	95% HR @ 26°C (MIL STD 810E)
Rain / Salt Fog	280l / m ² / H (MIL STD 810E; method 506.3) / 5% NaCl (MIL STD 810E; method 509.3)
Shock & Vibration	Shock - Operating: 1/2 sinus, 20G, 6ms, 6 axis X,Y,Z (MIL STD 167-1: 2005) - Option with 4 resilients installed on bottom side: 30G Vibration - Operating 4~55 Hz : 1G (MIL STD-810E)
EMC	STANAG 4435 V2
Power Supply	STANAG 1008 edition 9
CE certification	EMC: 2014/30/UE ; EN 61000-6-2, EN55022, EN 55024 - SAFETY: 2014/35/UE ; EN60950-1 : 2006 2 nd edition A11 : 2009 + A1 : 2010 + A12 : 2011 + A2 : 2014

System monitoring and management

- > Intel® AMT 9.0 for remote management
- > HUMS (Health and Usage Monitoring System)
 - FAN control & monitoring
 - Temperatures (system, CPU)
 - Humidity sensor
 - 3-axis accelerometer sensor for shock and vibration
 - Watchdog & elapsed time counter
 - LED (temperature, fan, hygrometry, system status)

OEM services

- > Branding user's Lexan - Costless, NRE fees only
- > Modified COTS customization :
 - Front panel design
 - Specific I/O on front panel / rear panel
 - Specific H/W configurations
 - Specific S/W functionality
- Call us for more information ...

Options

Computer performance	- Intel® Core™ i7-4700EQ @ 2.4GHz, 4C/8T, HD4600, 6M SmartCache, 47W TDP - Intel® Core™ i5-4400E @ 2.7GHz, 2C/4T, HD4600, 3M cache, 37W TDP
Memory	DDR3L-1600 8GB / 16GB
Disk	SLC SATA III 2.5" Solid State Drive (32 GB ~512 GB) - up to two disk (RAID support)
Display	Multi-touch Touchscreen / LCD Flicker compensation
OS	Microsoft® Windows or Linux, 64-bit

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