

ELECTRO-MECHANICAL CONTROLS

COMMANDER & GUNNER HANDSTATIONS

« COMMANDER HANDSTATION (CHS)



« GUNNER HANDSTATION (GHS)



FEATURES

Precision motion control

Robust assembly

Controls consistently meet all operator requirements

Proven manufacturing, testing and support capabilities

Engineering development capabilities allow for design flexibility

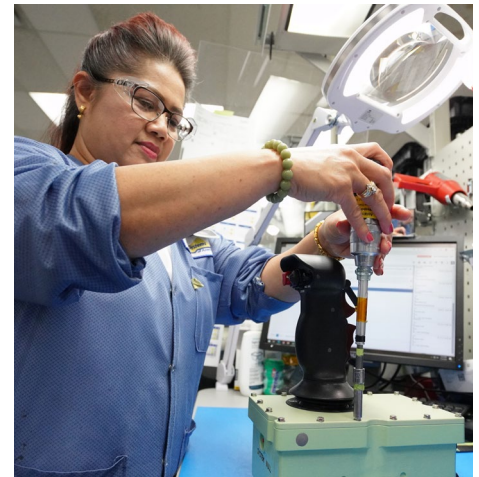


Elbit America currently manufactures and overhauls Commanders, Gunners and Stabilized Commanders Weapon Station Controls for the Bradley Fighting Vehicle, Abrams Main Battle Tank and Stryker MGS Armored Fighting Vehicle. Our Team has significant experience in the design, assembly and test of Hydraulic and Electro-Mechanical Controls for the rigorous demands of military applications, successfully addressing such challenges as: integration, high reliability, severe endurance requirements and harsh environmental conditions.

The Commander Handstation Handstation consists of a single right hand grip assembly. All electronics are internal to this assembly. It contains the connectors through which all electrical interfaces to the M2A3/M3A3 system are made. The overall electronics communications architecture of the M2A3/M3A3 system is based on the MIL-STD-1553B Data Bus. The CHS will function as a remote terminal (RT) per MIL-STD-1553B.

COMMANDER'S HANDSTATION DESCRIPTION

The Commander's Handstation (CHS) is a multifunctional two axes hand controller used to command the rate of movement of the Line Of Sight (LOS) in the Improved Bradley Acquisition System (IBAS), the (LOS) in the Commander Independent Viewer (CIV), or the weapon the line of fire (LOF) in the Bradley M2A3/M3A3 vehicle.



ELECTRO-MECHANICAL CONTROLS

COMMANDER HANDSTATIONS SPECS

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TECHNICAL SPECIFICATIONS

POWER MIL-STD-1275	50 Watt Max	28V Steady State
VOLTAGE INPUT	28VDC	Max: 33.0 VDC, Min: 20.0 VDC
VOLTAGE RIPPLE	+/- 2.0 p-p	

TEMPERATURE

HIGH	Storage	160°F (71°C)
	Operation	Continuously at 160°F (71°C) for 6 Hours
LOW	Storage	-60°F (-51°C)
	Operation	Demonstrate full performance at -51°F (-46°C)
COOLING	Conduction (Cooling to the mounting flange)	
MMBF/MTBF	73,780 Hours / 5,902 Hours (Minimum)	

SIGNAL INTERFACE

J1	38999/24WD19PA	Power, Cable Disconnect, & RT Address Lines
J2	12465065-1	MIL-STD-1553B
J3	12465065-2	MIL-STD-1553B
J4	38999/24WD19PN	Interconnect/Discrete

RESOLUTION

HORIZONTAL DEFLECTION	0 - 3.1 lbs. / 0 - 1.4 kg.
VERTICAL DEFLECTION	0 - 3.1 lbs. / 0 - 1.4 kg.
AZIMUTH DEFLECTION	0° - 57.5°
PITCH DEFLECTION	0° - 42.5°

MECHANICAL

WEIGHT	< 15 lbs. Max / 6.8 kg. Max
ENVELOPE (L X W X H)	8 in x 5 in x 11 in / .20 m x .13 m x .28 m
CONNECTORS	MIL-C-38999 Series III
SWITCHES	MIL-S-8805D Compliant

ELECTRO-MAGNETIC INTERFERENCE/COMPATIBILITY (EMI/EMC)

EMI/EMC (MIL-E-6051)		
MIL-STD-461D	Radiated Susceptibility	RS103
	Conducted Susceptibility	CS101, CS114, CS115
	Radiated Emission	RE102
	Conducted Emission	CE102

ENVIRONMENTAL (MIL-STD-810E)

IMMERSION	3.3 ft / 1 m - 2 Hours
HUMIDITY	85% - 95% (86°F to 140°F (30° to 60°C))
SALT FOG	Compliant
DUST (MIL-PRF-8805/3)	Compliant
ESD MIL-STD-1686	Compliant
VIBRATION	Method 514 Procedure I

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ELECTRO-MECHANICAL CONTROLS

COMMANDER HANDSTATIONS SPECS

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SPECIAL FEATURES

NUCLEAR HARDENING	Yes - USANCA
BLOCK DIAGRAMS	See diagram below
BUILT IN TEST (BIT)	Yes
START UP BIT (SBIT)	Communication Elevation and azimuth null output Verify supply voltages and voltage reference Verify discrete input and output response Electronically Erasable Programmable Read Only Memory (EEPROM): Compute and verify the EEPROM checksum Random Access Memory (RAM): write, read back and compare a memory test pattern Central Processing Unit (CPU): execute and verify basic arithmetic functions; verify timing, interrupt and chip select functions
VIBRATION	Method 514 Procedure I
ESD (MIL-STD-1686)	Compliant
FUNCTIONAL SHOCK	< 10.0 g's
DMS	Yes; Conducted every Qtr
(OBSCOLESCENCE)	



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GUNNER HANDSTATIONS



GUNNER'S HANDSTATION DESCRIPTION

The Gunner's Handstation (GHS) is a multifunctional two axes hand controller used to command the rate of movement of the Line Of Sight (LOS) in the Improved Bradley Acquisition System (IBAS), the (LOS) in the Gunner Independent Viewer (CIV), or the weapon line of fire (LOF) in the Bradley M2A3/M3A3 vehicle.

The Gunner Handstation consists of a left and right hand grip mounted on a yoke assembly. The yoke assembly contains the connectors through which all electrical interfaces to the M2A3/M3A3 system are made. The overall electronics communications architecture of the M2A3/M3A3 system is based on the MIL-STD-1553B Data Bus. The GHS will function as a remote terminal (RT) per MIL-STD-1553B.

The GHS contains momentary switches, 2-position and multiple-position toggle switches for the selection of different functions to be performed.

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TECHNICAL SPECIFICATIONS

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VOLTAGE INPUT	28VDC	Max: 33.0 VDC, Min: 20.0 VDC
VOLTAGE RIPPLE	+/- 2.0 p-p	

TEMPERATURE

HIGH	Storage	160°F (71°C)
	Operation	Continuously at 160°F (71°C) for 6 Hours
LOW	Storage	-60°F (-51°C)
	Operation	Demonstrate full performance at -51°F (-46°C)
COOLING	Conduction (Cooling to the mounting flange)	
MMBF/MTBF	73,780 Hours / 5,902 Hours (Minimum)	

SIGNAL INTERFACE

J1	38999/24WD19PA	Power, Cable Disconnect, & RT Address Lines
J2	12465065-1	MIL-STD-1553B
J3	12465065-2	MIL-STD-1553B
J4	38999/24WD19PN	Interconnect/Discrete

RESOLUTION

HORIZONTAL DEFLECTION	0 - 3.1 lbs. / 0 - 1.4 kg.
VERTICAL DEFLECTION	0 - 3.1 lbs. / 0 - 1.4 kg.
AZIMUTH DEFLECTION	0° - 57.5°
PITCH DEFLECTION	0° - 42.5°

MECHANICAL

WEIGHT	< 20 lbs. Max / 9.1 kg. Max
ENVELOPE (L X W X H)	9.71 in X 10.43 in X 9.01 in / .25 m x .26 m x .023 m
CONNECTORS	MIL-C-38999 Series III
SWITCHES	MIL-S-8805D Compliant

ELECTRO-MAGNETIC INTERFERENCE/COMPATIBILITY (EMI/EMC)

EMI/EMC (MIL-E-6051)		
MIL-STD-461D	Radiated Susceptibility	RS103
	Conducted Susceptibility	CS101, CS114, CS115
	Radiated Emission	RE102
	Conducted Emission	CE102

ENVIRONMENTAL (MIL-STD-810E)

IMMERSION	3.3 ft / 1 m - 2 Hours
HUMIDITY	85% - 95% (86°F to 140°F (30° to 60°C))
SALT FOG	Compliant
DUST (MIL-PRF-8805/3)	Compliant
ESD MIL-STD-1686	Compliant
VIBRATION	Method 514 Procedure I

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VIBRATION	Method 514 Procedure I
ESD (MIL-STD-1686	Compliant
FUNCTIONAL SHOCK	< 10.0 g's
DMS (OBSELESCENCE)	Yes; Conducted every Qtr



SCWS GRIP



M1A1
COMMANDER'S HANDLE



M1A2
COMMANDER'S HANDLE



TCSH GRIP



M1 GUNNER'S CONTROL

ESA MANUFACTURES TACTICAL
AND SIMULATOR CONTROLS FOR
M1 ABRAMS, STRYKER, LAV AND M60