

KOLLMORGEN

MK46 MOD 1 OPTICAL SIGHT SYSTEM

DESCRIPTION

In the early part of the 1990's Kollmorgen won the US Navy's competition for what is now called the MK46 MOD 1 Optical Sight System (OSS). The system was developed and completed its full MIL-SPEC environmental qualification testing in early 1993 and was designated the MK46 MOD 0.

The qualification testing included a MIL-S-901 Grade A Shock Test. The MK46 MOD 0 is installed on all USN Arleigh Burke class destroyers as well as the USS Yorktown Cruiser. The modular design allows the system to be configured or upgraded to provide for special missions and to maintain the system as current state-of-the-art. In 1997 the USN and Kollmorgen began a series of upgrades to provide the operators with more capability including a new Eyesafe Laser Rangefinder, a new 3-5 micron Thermal Imaging Camera, a color television camera, and utilization of the standard UYQ-70 Console. Other improvements include an upgraded azimuth motor, new automatic tracker, and the addition to automatic modes of operation. The MK46 MOD 0 and now the MK46 MOD 1 are "operational" and have proven their utility to the United States Navy.



*Dedicated
to providing
innovative,
cost effective
solutions
since 1916.*

KOLLMORGEN
Electro-Optical

FEATURES

- Daylight Imaging: Hi-RES 3-chip color camera
- Thermal Imaging: 3-5 μ FPA (8-12 μ m optional)
- Eyesafe Laser Rangefinder: 1.5 μ m (Class 1)
- Stabilized Director: 2 axis (Elevation/Azimuth)
- Automatic Video Tracking: Correlation/Centroid/Edge
- Integrated Control and Display: UYQ-70 Standard Console, Hi-Res Color monitor, Graphics Overlays, Controls, VME Bus, Integrated Support Electronics, Split Screen Capability
- MK160 Mod 4 Fully Interfaced
- MK86 Fully Interfaced
- Built-in-Test

Benefits

- Operationally Proven
- Modular Construction
- Easily maintained and upgraded
- Stand alone system or integrated with Gun Control System
- Full logistics, training and documentation support
- Multi-mission Sensor System

SPECIFICATIONS

ABOVE DECK SENSOR UNIT

- Line of Sight
 - Elevation: -20° to $+80^{\circ}$
 - Azimuth: 360° continuous
 - Position Accuracy: <1 milliradian (RMS)
 - Stabilization Accuracy: $30\mu\text{rad}$ (RMS) EL/ $15\mu\text{rad}$ (RMS) AZ
 - Acceleration: $60^{\circ}/\text{sec}^2$ EL/ $60^{\circ}/\text{sec}^2$ AZ
 - Velocity (slew rate): $45^{\circ}/\text{sec}$ EL $90^{\circ}/\text{sec}$ AZ
- Slip Ring
 - Power Rings: 14, Signal Rings: 80, Video Rings: 2 (20 MHz)
- Payload: 320 lbs/145kg (160 lbs on each end of elevation axis)
- Pedestal Weight: 485 lbs/220kg

DAYLIGHT IMAGING SENSOR (DIS)

- Fields of View: SNFOV: $0.6^{\circ}\text{V} \times 0.8^{\circ}\text{H}$
NFOV: $1.5^{\circ}\text{V} \times 2.0^{\circ}\text{H}$
WFOV: $3.75^{\circ}\text{V} \times 5.0^{\circ}\text{H}$
- Focus Range: 10 meters to ∞
- Sensor: High resolution 3-chip color camera (650 TVL)

EYESAFE LASER RANGEFINDER (ELRF)

- Wavelength: $1.57\mu\text{m}$
- Eyesafe: Class 1 (ANSI Z 136.1-1993)
- Type: OPO Shifted Nd YAG
- PRF: 1 Hz (1.7 Hz Burst)
- Range: 40M (min) 40Km (max)

THERMAL IMAGING SENSOR (TIS)

- Spectral Response: $3-5\mu\text{m}$
- Fields of View: $1.2^{\circ}\text{V} \times 0.9^{\circ}\text{H}$ (NFOV)
 $2.8^{\circ}\text{V} \times 3.7^{\circ}\text{H}$ (WFOV)
- NETD: 0.1°C
- Detector Type: Focal Plane Array
- Detector Elements: $3-5\mu$ FPA (640 x 512)
- Cooler
 - Type: integral closed cycle linear
 - Temperature: 90°K
 - Demonstrated MTTF: 3,500 hours

CONSOLE

- Display
 - CRT Color, 19" (483 mm) diagonal, 1024 x 1024 TV line (PH) resolution
 - Flat panel (option)
 - Image Processing
 - Graphics: Split screen video display, Power state indicators, Mode indicators, LOS and FOV data, General indicators, Auto track symbology and test indicators
- Controls
 - Hand grip: Line of sight (AZ/EL with 2-axis linear transducer), Auto video tracker, Mark switch and Laser range fire
 - Function Keys/Switches



KOLLMORGEN Electro-Optical

347 King Street
Northampton, MA 01060
Tel: 413.586.2330 • Fax: 413.586.1324
sales@eo.kollmorgen.com