

## OUR TECHNOLOGY

All Metronor products have three main components:

- A set of light sources, typically very robust and reliable Light Emitting Diodes (LEDs)
- One or more solid-state digital cameras, capturing images of the LEDs
- A computer, automatically controlling and optimizing the LED/cameras interaction

If the shape and size of the LED pattern are known, then a single image of the LED pattern is enough to calculate where the LED pattern is, both in terms of position as well as orientation, relative to the camera. The LEDs are typically mounted into a structure such as a hand-held probe, a carbon-fiber pad, or a metal structure to form a stable pattern.

Some unique aspects of Metronor technology:

Completely solid state without moving parts – rugged, reliable, stable/accurate over time.

Redundancy – designed to acquire more data than needed (always at least 5 LEDs even where 3 is the minimum requirement) in order to continuously verify measurement accuracy.

Modular – easily upgraded, flexible investment, excellent supportability

Remote, stationary sensor – no forces acting through camera/tripod, so no need to anchor or weigh down to try to eliminate effects of probe movement like on measurement arms.

## ABOUT METRONOR

Metronor is an ISO 9001 certified high-technology company headquartered just outside Oslo, Norway. Based on in-house innovation and research, Metronor has since 1989 developed a range of electro-optical portable coordinate measuring systems in three business areas.

**Military:** Products and solutions for boresight systems, helmet tracker alignment, helmet tracking, and for lightweight position and orientation tracking for sensors and weapons.

**Industrial:** Portable measurement systems with applications for robotic production lines for the automotive industry, parts production and inspection for the aerospace industry, energy companies e.g. windmill blade production, turbine production, as well as large-scale casting companies.

**Medical:** Proven solutions within the micron-level accuracy range for pre-calibration of couches and gantries, in-line alignment solutions for patients, and closed-loop feedback solutions for real-time compensation of misalignments during treatment.

Metronor Norway (HQ)

Phone: +47 66 98 38 00

Fax: +47 66 98 38 01

email: [info@metronor.com](mailto:info@metronor.com)

[www.metronor.com](http://www.metronor.com)

Precision Measurements  
& Navigation  
Military Applications



## BORESIGHT & HARMONIZATION SYSTEMS

Harmolign is Metronor's range of platform-specific turn-key solutions for quick and accurate boresight/harmonization of applicable weapons stations, sights, sensors, navigation units on airborne, land and naval platforms. The systems are fully MIL-STD and intended for use in operational environments. Entering service in 2006, Harmolign is currently in use on multiple platforms with over 20 armed forces around the globe.

Solutions for boresighting not requiring complete MIL-STD can also be delivered for use in a less demanding environment. Typically, this can be for production alignment of weapons stations, sights and sensors.



## HELMET TRACKER ALIGNMENT SYSTEM

Electro-Optical Helmet Tracker Systems (HTS) need precise position and orientation data for the tracking cameras' positions to function properly. Metronor has extensive experience in developing, supplying and supporting alignment systems for electro-optical Helmet Tracker Systems on aircraft.



## HELMET TRACKING SYSTEMS

In the case of land-systems our technology is used to track helmet movement within a vehicle, enabling multiple displays mounted on helmets to be simultaneously tracked and updated relative to the helmets' position and orientation. This solution enables "see-through-armor" and augmented reality information to be displayed onto helmet mounted sights.



## LIGHTWEIGHT TRACKING APPLICATIONS

Our flexible 6 DOF technology may be applied for any directional tracking or spatial orientation correction purposes related to weapons and sensor installations, tailored to the customers' needs and requirements.

