STERNA

Gyroscope based target acquisition system

SAFRAN

TARGET COORDINATES. ANYTIME. ANYWHERE.

4.4 km TLE CAT I (CE90) system

Safran Vectronix STERNA provides True North capabilities, 24/7, in virtually all terrain and weather conditions. STERNA operates independently and does not require the operator to carry any support resources to directly determine True North. STERNA can operate in a GPS denied environment and will not be disturbed if used next to a heavy armoured vehicle. It will also operate in a hardened concrete environment, indoors and in dense populated urban terrain.

Lock'n load mechanism

· No adjustment needed
· Payload automatic recognition feature
· Plug'n play

Indication of azimuth accuracy

After each north-finding using the gyroscope, STERNA will display the figure of merit of its accuracy at CI (Confidence Intervall).

Interface

· Interface for BMS, FMS, FCC observer data terminal or external device
· Possibility to power the device from an external battery

72 Hours extended mission capability

STERNA operational mode supports missions lasting for up to 72 hours with its internal batteries. Its low power consumption permits the operator to reduce the number of spare batteries to carry for a mission.

Excellent accuracy

Based on known or surveyed reference points, the system achieves consistently an accuracy of better than 1 mil[1] at any latitude. If reference points are not usable, the STERNA will use its internal gyroscope to determine the True north. The accuracy is 0.7 mil up to 45° Lat N/S (1σ), 1.1 mil up to 65° Lat N/S (1σ), 1.8 mil up to 75° Lat N/S (1σ).
Positioning with reference points and orientation with gyro high accuracy mode gives TLE CE90 CAT I.[2]

1) Depend of reference points accuracy
2) TLE CE90 CAT I – Target Location Error Circular Error 90% Category 1 (≤6 m error on target)

Increase the safety and efficiency of your calls for fire

The STERNA built-in capability will help the operator optimizing his safety zone and decrease the risks of collateral damage. Target coordinate mitigation to improve accuracy belongs to the past, since STERNA provides CAT I coordinates.

Modularity for multi-mission requirements

Whether you need target acquisition capability during the day or at night, STERNA can help you complete your mission with the highest flexibility. STERNA is a modular system, that allows you to choose the payload depending on your mission.

Ultralight, man-portable system <3 kg (<7 lbs)[3]

STERNAs low weight makes it easy to carry and deploy. Physical set up in less than 30 s, quick to orient precisely, the system enables the operator to obtain the target coordinates in a very short time.

3) STERNA + PLRF25C configuration

Non magnetic northfinding

Thanks to its integrated gyroscope, STERNA provide True North capability 24/7, anytime, anywhere.

Safety Package

- Continuous monitoring of correct leveling and orientation
- "Dangerous Distance" function to protect the operator and avoid danger close situations
- Multiple warnings and error messages for accurate system status
- Built-in test at every start-up or anytime at user's request
- A built-in Service Indicator provides a service message to assure continuous operation at optimal capabilities

STERNA + PLRF25C
Provide TLE CE90 CAT I up to 1.5 km (Technical data). The lightest configuration for the STERNA system (<3kg/7 lbs). All you need for calling for fire during day time.

Typical application:
Joint Terminal Attack Controller
Forward Air Controller
Mortar Fire Controller
Forward Observer
Joint Fires Observer

STERNA + MOSKITO
Provide TLE CE90 CAT II up to 10 km (Technical data). Call for fire during day or night OPS with this lightweight configuration (< 4 kg/9 lbs).

Typical application:
Mortar Fire Controller
Forward Observer
Joint Fires Observer

STERNA + MOSKITO TI
Provide TLE CE90 CAT I up to 4.4 km (Technical Data). The extreme lightweight configuration, compact three channel (direct view, uncooled thermal image and low light) multi-functional system.

Typical application:
Joint Terminal Attack Controller
Forward Air Controller
Mortar Fire Controller
Forward Observer
Joint Fires Observer

STERNA + VECTOR Family
Provide TLE CE90 CAT II up to 11.4 km (Technical data). The performance upgrade for all missions with the well-proven VECTOR. Brilliant optics and long range join a non-magnetic high precision azimuth.

Typical application:
Mortar Fire Controller
Forward Observer
Joint Fires Observer

STERNA + JIM LR Family
Provide TLE CE90 CAT II up to 10 km (Technical data). The extreme lightweight all-rounder. The compact multi-functional thermal imager JIM LR is a congenial partner to the STERNA TNF.

Typical application:
Mortar Fire Controller
Forward Observer
Joint Fires Observer

STERNA

TECHNICAL DATA

TARGET LOCATION ERROR CE90[1]		STERNA + MOSKITO TI	STERNA + PLRF 25C[8]	STERNA + MOSKITO	STERNA + VECTOR Fam	STERNA + JIM LR Fam
Using internal gyroscope[2]	≤45° Lat N/S	4.4km/6.0m (CAT I)	1.5km/3.9m (CAT I)	10.0km/13.5m (CAT II)	11.4km/15.0m (CAT II)	10.0km/13.5m (CAT II)
	≤65° Lat N/S	2.9km/6.0m (CAT I)	1.5km/4.2m (CAT I)	7.3km/14.9m (CAT II)	7.3km/14.9m (CAT II)	7.3km/14.9m (CAT II)
	≤75° Lat N/S	1.7km/5.9m (CAT I)	1.5km/5.4m (CAT I)	4.5km/15.0m (CAT II)	4.5km/15.0m (CAT II)	4.5km/15.0m (CAT II)
Using reference point and azimuth[3]	≤80° Lat N/S	n/a	1.5km/3.9m (CAT I)	10.0km/13.5m (CAT II)	11.4km/15.0m (CAT II)	10.0km/13.5m (CAT II)
Using survey method Free Station[4]	≤80° Lat N/S	n/a	1.5km /4.7m (CAT I)	8.0km /15.1m (CAT II)	8.0km /15.1m (CAT II)	8.0km /15.1m (CAT II)

ORIENTATION ACCURACY (1σ)						
Using internal gyroscope[2]	≤45° Lat N/S	0.7mil	0.7mil	0.7mil	0.7mil	0.7mil
	≤65° Lat N/S	1.1mil	1.1mil	1.1mil	1.1mil	1.1mil
	≤75° Lat N/S	1.8mil	1.8mil	1.8mil	1.8mil	1.8mil
Using reference point and azimuth[3]	≤80° Lat N/S	n/a	0.7mil	0.7mil	0.7mil	0.7mil
Using survey method Free Station[4]	≤80° Lat N/S	n/a	1.0mil	1.0mil	1.0mil	1.0mil

ANGLE MEASUREMENT (WITH PAYLOAD)					
Sensor range, horizontal	6,400mil	6,400mil	6,400mil	6,400mil	6,400mil
Sensor range, vertical	+750 to -750mil	+700 to -700mil	+700 to -700mil	+700 to -700mil	+700 to -700mil
Accuracy, horizontal angle (1σ)	0.1mil	0.1mil	0.1mil	0.1mil	0.1mil
Accuracy, vertical angle (1σ)	3mil	3mil	3mil	3mil	4mil

SETTING UP/ORIENTATION TIME						
Setup time		~30sec	~30sec	~30sec	~30sec	~30sec
Fine leveling		Not required	Not required	Not required	Not required	Not required
Rough leveling		±5°	±5°	±5°	±5°	±5°
Orientation Time with Gyroscope[5]	High Acc Mode	<205sec	<205sec	<205sec	<205sec	<205sec
	Standard Mode	<120sec	<120sec	<120sec	<120sec	<120sec
	Fast Mode	<96sec	<96sec	<96sec	<96sec	<96sec

NIGHT VISION					
Night Vision Technology	Uncooled Thermal Imaging and LowLight CMOS	None	Night Intensifier	Image Intensifier (V21Nite)	Cooled Thermal Imaging

DATA INTERFACE					
External Fisher connetor	RS232 USB 2.0 on the go Ethernet	RS232 (+RS422/RS485)[6] USB[6]	RS232 (+RS422/RS485)[6] USB[6]	RS232 (+RS422/RS485)[6] USB[6]	RS232 (+RS422/RS485)[6] USB[6]
Wireless	Bluetooth, 2.1/4.0	None	None	None	None
GPS protocol (via External Fisher connetor)	PLGR/DAGR in-/output NMEA in-/output MOSKITO TI GPS module	PLGR/DAGR in-/output NMEA in-/output	PLGR/DAGR in-/output NMEA in-/output MOSKITO GPS module	PLGR/DAGR in-/output NMEA in-/output	PLGR/DAGR in-/output NMEA in-/output JIM GPS module

POWER SUPPLY					
Batteries, rechargeable or non-rechargeable[7]	4×CR123A MOSKITO TI: 4×CR123A	4×CR123A PLRF25C: 1×CR123A	4×CR123A MOSKITO: 2×CR123A	4×CR123A VECTOR: 1×2CR5	4×CR123A JIM LR: BT-70651 (EU) or BB-2847 (USA)
STERNA Battery capacity (20 °C)	50 orientations, 500 measurements	50 orientations, 500 measurements	50 orientations, 500 measurements	50 orientations, 500 measurements	50 orientations, 500 measurements

ENVIRONMENTAL SPECIFICATION ACCORDING TO MIL-STD-810G/STANAG 4370 (AECTP 200)					
Operating temperature[9]	-32°C to +55°C -26°F to +131°F C1 to A1	-32°C to +63°C -26°F to +145°F C1 to A1	-32°C to +52°C -26°F to +126°F C1 to A1	V21/V23: -32°C to +63°C -26°F to +145°F C1 to A1 V21N: -32°C to +52°C -26°F to +126°F C1 to A1	-32°C to +55°C -26°F to +131°F C1 to A1
Storing temperature[9]	-40°C to +71°C -40°F to +160°F C1 to A1	-40°C to +71°C -40°F to +160°F C1 to A1	-40°C to +65°C -40°F to +149°F C1 to A2	V21/V23: -40°C to +71°C -40°F to +160°F C1 to A1 V21N: -40°C to +65°C -40°F to +149°F C1 to A1	-40°C to +71°C -40°F to +160°F C1 to A1

PHYSICAL DATA					
Dimensions (L×W×H) (without tripod)	184×198×350mm	160×170×320mm	160×185×330mm	205×178×345mm	312×235×400mm
Weight (incl. Batteries + small tripod)	< 3.8kg	< 3.0kg	< 4.0kg	< 4.5kg (V21/V23) < 4.8kg (V21N)	< 6.1kg

1) Positioning above reference point, maximum range / actual TLE for CAT I or CAT II
2) Using Gyro High Accuracy Mode
3) Depend on reference point accuracy
4) Depend on reference point accuracy, geometry and range between reference points and own position
5) Excluding setup time
6) Available as option on request
7) CR123A and 2CR5 are not rechargeable, BT-70651, BB2847 and SMBUS Li-On are rechargeable. Furthermore, STERNA and MOSKITO TI / JIM LR can also be powered using a selection of external batteries, with the corresponding cables
8) CAT II for ranges exceeding 1.5km
9) System level STERNA with payload

TESTED TO MIL-STD-810

SWISS QUALITY

Certified Management System SQS ISO 9001 / ISO 14001

VISIONEO

POWERED BY TRUST

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