

ST-U150-210

SensorTec Multi sensor
system

Product description

SensorTec multi sensor ST-U150-210 system provides maximum range performance with Un-cooled Thermal Imager , high resolution colour zooms TV camera with low light capability and laser rangefinder placed on a gyro stabilized movable platform. High resolution uncooled thermal camera enables clear sight picture in all weather conditions regardless of day or night use. System is also equipped with external video processing unit that is the “brain” of the system and allows you options like video tracking, image stabilization... This makes operators search for the target easier as it enables use of wide field of view when actual targeting takes place.

System configuration

- Uncooled Thermal camera
- Day / Night camera
- light external video processing unit (VPU-ST Light)
- Pan-tilt
- Power supply unit with 10m connection cable

Vibration test: IEC 60068-2-64

Shock test: IEC 60068-2-27

Icing test: NEMA 250

Salt fog test: IEC 60068-2-52

General features

- Simultaneous preview of day/ night camera and thermal
- Continuous zoom on both payloads
- Radar connectivity (Slew to Cue)
- Radar tracking possibility
- Target acquisition and tracking (auto or remote triggering)
- Rigid system design
- CE marked
- Control and picture streaming via TCP/IP
- Electronic image stabilization on both payloads
- Temperature range of the whole system: -32 to +60°C
- Maximum humidity of the whole system: 95%
- IP rating of the whole system: IP67

Un-Cooled MWIR Thermal Camera

ST-U Series are equipped with a highly reliable, long-wave, un-cooled Vanadium Oxide (VOx) detector which offers good long-range detection in all weather conditions. There is no maintenance required since there is no cooling device. The cameras offer a continuous zoom. This offers excellent situational awareness while also giving the possibility to zoom in at suspect activities, and have a closer look, once they are detected. The ST-U Series can be integrated into existing networks or used portably.



Technical Specification

Detector	Un-Cooled LWIR VOx microbolometer
Resolution	640x 512
Frame rate	25 Hz
Detector pitch	12 μ
Spectral range	8 to 14 μ m
NETD	\leq 50 mK
Focal length	30-150mm
Field of View	14.6°- 3.0°(H)
Continuous Optical Zoom	Yes, up to 5x
Continuous Digital Zoom	Yes, up to 8x
Focus	Automatic or Manual (remote)
Image stabilization	Yes
Image processing	Tuneable Dgital Detail Enhancement Brightness Contrast Digital Noise Reduction Non uniformity correction White Hot / Black Hot Colour Palette OSD
Video outputs	Analog, RTSP H.264 Ethernet stream
Control interface	Serial, Ethernet
Consumption	15 W typical, < 60 W maximum with heaters / lens defrost
Operating voltage	18-48 Vdc
Operating temperature range	-32°C to +60°C
IP rating	IP67, built according to MIL-810
Dimensions	596x 222 x 216mm
Wight	14 Kg

DRI

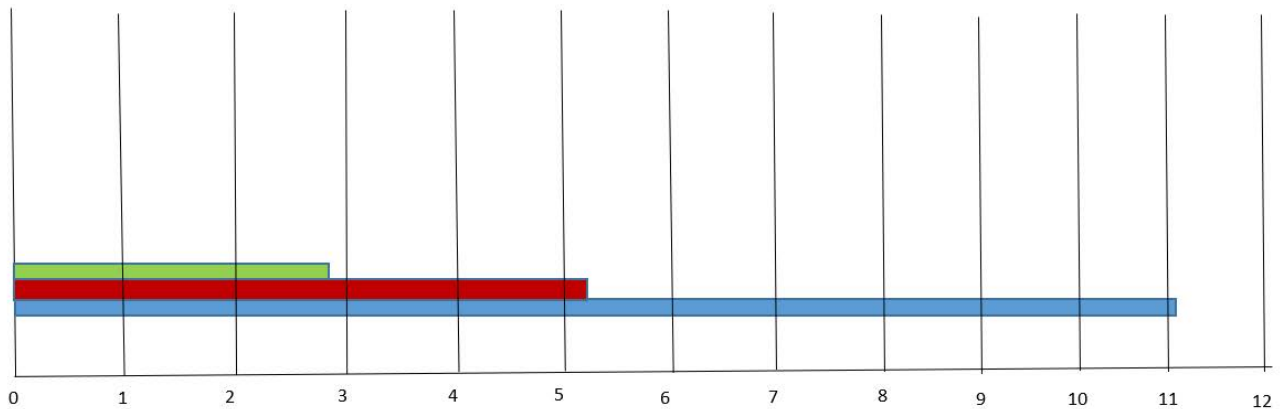
DRI – NATO (VEHICLE) TARGET (2.3m x 2.3m), STANAG 4347 METHOD

Detection	11.15 Km
Recognition	5.28 Km
Identification	2.74 Km

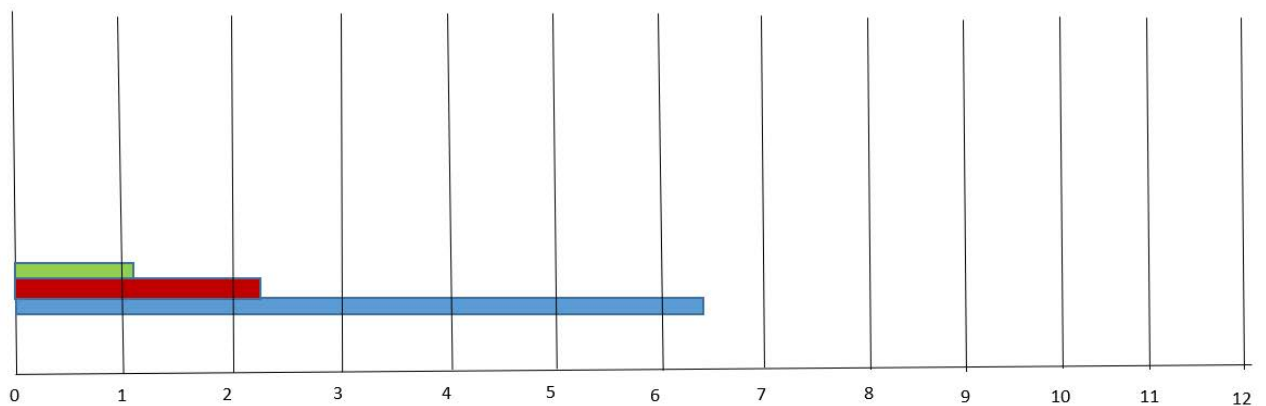
DRI - HUMAN TARGET (1.8m x 0.5m), STANAG 4347 METHOD

Detection	6.35 Km
Recognition	2.28 Km
Identification	1.17 Km

Detection, Recognition, Identification of a Vehicle



Detection, Recognition, Identification of human



 Identification

 Recognition

 Detection

Day / Night Camera

The Day/Night Camera is an integrated unit, based on a highly sensitive CMOS megapixel camera module. It is ideal for day/night surveillance of military camp, homeland security (border protection), and critical infrastructure protection (CIP) applications. It is designed to deliver high- performance images, even under the harshest conditions, in temperatures ranging from -32°C to + 60°C with IP67 protection, built according to MIL-810 standards.

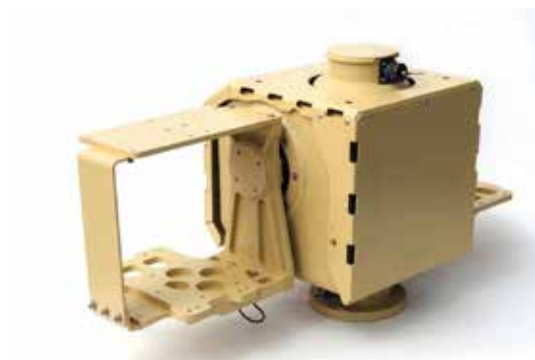


Technical Specification

Sensor	1/1.9 CMOSsensor
Pixels (H x V)	1920 (H) x 1080 (V)
Sensitivity	Colour 0.001 lux @ (F1.5, 25fps); B&w 0.0001 Lux @(F1.5, 25 fps);
Focal length	7-210mm
Field of view	59°-2.25°
Continuous Optical Zoom	Yes, up to30x
Continuous Digital Zoom	Yes, up to 16x
Focus	Automatic or Manual (remote)
Image stabiliZation	Yes
Optical filters	Colour:IR Cut filter / B&W :Defog Filter - NIR only
Image processing	Auto/Manual White Balance Auto Manual Gain Control True Wde Dynamic Range Dgital Fog Removal /Auto Contrast Dynamic Noise Reduction
Video outputs	HD-SDI or analog, optional RTSP H.264 Ethernet stream
Control interface	Serial, Ethernet
Consumption	15 W typical, < 60 W maximum with heaters / lens defrost
Operating voltage	18 - 48Vdc
Operating temperature	-32°C to +60°C
IP rating	IP67, built according to MIL-810
Dimensions	488x 166 x 172 mm
Weight	7.5 Kg

Pan-Tilt

Simple and efficient is what describes pan-tilt unit. In fully marinated body lies a single powerful motion control driver. It is capable of handling payloads up to 35Kg in full range of motion. Its compact design and low weight make it perfect for integration where space is limited. Multiple slip-ring options make it compatible with most payloads from high frequency antenna applications to Gigabit electro-optical head connections.



Technical Specification

Load capacity / Torque	35Kg/ 60 Nm
Wight	17 Kg (without arms)
Dimensions (H x Wx L)	323x 220x 336mm
Materials	Auminium
Operating temperature	-32°C to +60°C
Pan axis range / angle	n x 360°
Pan axis speed	0.001°/s -60°/s
Tilt axis range angle	±90°(limited by application between ±35°and ±45°/s)
Tilt axis speed	0.001°/s -60°/s
Accuracy	0.02°
Backlash	None
Brake	Self-Locking
Operating voltage	24 - 48 VDC
Maximum power	160 W
Communication to the unit	Eth10/100 Base-T,RS-232, RS-485,422(optional)
Control protocol	DC-PT standard protocol
Protection / IP rating	IP67, built according to MIL-810

ALL PICTURES SHOWN ARE FOR ILLUSTRATION PURPOSE ONLY. ACTUAL PRODUCT MAY VARY DUE TO PRODUCT ENHANCEMENT

External video processing unit (ST-VPU Light)



Video processing unit (VPU-ST Light) is light version of hardware processing unit that is the “brains” of the multi sensor system. It combines all the payloads and Pan-Tilt unit into a single unit for the external observer and enable a single Ethernet connection to the whole unit including access to video streams and control of the entire system. VPU-ST enables dedicated advanced protocol that includes video as well as status and control. It has a powerful built in processor, H.264 encoding....

- Power control and communication with each device
- Built in test for each device (BIT)
- Integrated Ethernet switch
- Communication interfaces: Ethernet (UDP), Serial
- H.264 Video encoding for all video payloads
- ONVIF Connectivity (control and video)
- Pelco D control
- Two separated output video streams
- Control and video interface through Ethernet and serial (control only)
- * Video processing:
 - Basic version of video stabilization
 - On Screen Display (OSD)
- Connectivity: four military standard connectors; 3 x input / 1 output
- Power: 18 – 48 Vdc; 30 W max.
- Environmental: IP 67, build with accordance to MIL-810
- Operating temperature range: -32to 60°C
- Dimensions: 261 x 185 x 73 mm
- Weight: 3000 g

Optional Subsystems

(need to be ordered separately)

(1) Laser rangefinder (ST-LRF)



LRF represents the ultimate long-distance laser rangefinder. It is light weight and features ranging capability up to 32 Km. With reduced measurement ranges LRF meets high continuous measurement rates up to 40 measurements per second in single mode and up to 200 Hz in burst mode.

Technical Specification

Eye safety	Laser Class 1
Measurement range	50m-32 000m
measurement range (Standard target):	10 000m -Target size 2.3 x2.3 m, visibility, 15Km, target reflectivity 30%, detection probability>90%
Precision	0.5-1.5 m depending on the distance and target reflectivity
Beam divergence	0.35 mrad
Wave length	1.54 μm
Measurement rates	40 meas. per min
Control interface	Serial, Ethernet
Operating voltage	18 - 48Vdc
Power consumption	3 W on standby, 7 W max on measurement
IP rating	IP67, built according to MIL-810
Operating temperature	-32 to 60°C
Dimensions	172 x 151 x 75 mm with connector
Weight	2 Kg

(2)Attitude and Heading Reference System (ST-AHRS)



Attitude and Heading Reference System (AHRS) is a high performance true geographical headings unit. It provides position, true heading and two Euler angles (pitch, roll). It supports multiple serial and Ethernet communication. It is housed in IP 67 enclosure with a military standard connector.

General features

- True north system - Positioning
- Multiple communication options - Navigation
- IP 67 enclosure - Targeting
- Fast update rate

Specification

Specifications Weight	1.4 kg
Dimensions (H x W x L)	800 x 150 x 110 mm
Materials	Plastic/Aluminium
Protection / IP rating	IP 67
Operating temperature	-40°C to +60°C
Input voltage	12 VDC – 48 VDC
Power consumption	2.1 W
Communication	RS-232, RS-485, RS-422, Ethernet Base 10T
Protocol	NMEA

Specification

Positioning:	Horizontal (RMS (67%))	Vertical (2DRMS (95%))
Autonomous, no SA:*	1.2 m	2.5 m
Materials	0.3 m	0.6 m
Protection / IP rating	0.50 m	1.0 m
Operating temperature	10 mm + 1 ppm	20 mm + 2 ppm

Heading (RMS):	0.30° @ 0.5 m antenna separation 0.15° @ 1.0 m antenna separation 0.08° @ 2.0 m antenna separation 0.04° @ 5.0 m antenna separation
Pitch/Roll (RMS):	1°
Heave (RMS):*	30 m (DGPS), 10 cm (RTK)

*Depends on multipath environment, number of satellites in view, and satellite geometry

(3) Lens Cleaning System (ST-LCS)



Lens Cleaning System (LCS), unlike traditional cleaning systems that use wipers, our state of the art system uses only high pressured distilled water and air to clean camera lenses . the key advantage of this system is that there is no mechanical contact with the lens that could potentially damage it or its anti-reflective coating. this advantage is especially effective on systems that are subjected to salt water, mist or sand since the traditional wiper cleaning process scratches the surface of these highly priced sensitive lenses. with its three-stage procedure, the LCS gently and efficiently removes all of the dirt and any deposits from camera lenses. the initial design of the system is slightly complex, but it becomes increasingly practical and economically viable with the size of the multi-sensor and the number of payloads (cameras, laser range finder, etc.). the entire cleaning process is fully automated and controlled through software for maximum convenience.

the three stages off the cleaning procedure are:

1st stage: Applying distilled water to the lens.

soak the lens with distilled water to dissolve salt and buildup and prepares the lens for the 2nd stage to gently remove dirt and deposits.

2nd stage: Removing dirt and deposits from the lens with mixture of high-pressure air and distilled water.

A high-pressure mixture of air and distilled water is sprayed on the lens, removing all the dirt and deposited on the lens without mechanically touching and damaging the lens.

3rd Stage: Air drying the lens.

High-pressured air removes the distilled water from the lens and makes the camera ready for operation.

Specification

High pressure nozzles	2 or more, depends on the multi sensor system
EM control valves	4 or more, depends on the multi sensor system
High pressure distilled water reservoir	20 litres
High pressure air reservoir	6 litres
Power supply	230 Vac 50Hz
Max. power consumption	1.5 kW (while compressor is running)
Temperature range	0°-60° (can be used in sub-zero temperatures)
Weight	25 kg



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