



LOC Product Line
Indoor / Outdoor Location System
SmartLOC-3D



SmartLOC-3D is a high performance indoor and outdoor location system. It works over distances up to 500m outdoor and, depending on environment, on short distances when indoor. It is ideally suited to improve safety and security of people, workers, valuable assets and to protect access to sensitive areas.

The system is based on a number of anchors installed indoor or outdoor to cover the relevant area

The SmartLOC-3D system is based upon UltraWideBand radio technology (UWB), customized to accurately measure distances and angles, and can be used in license-free bands complying with regional regulations on the usage of UWB technology (frequencies above some GHz).

The system objective is:

- Identify with high accuracy (approx. 1 cm error for outdoor applications and < 30 cm for indoor applications) the position of people and assets inside buildings or outdoor areas equipped with SmartLOC-3D infrastructure.
- Transmit the computed position in real-time to the Supervisor application or Control Center located at a distance to provide a continuous update of the situation (situational awareness)
- Allow transmission of voice and data while ranging.

The SmartLOC-3D system is composed of a fixed component (anchor) and one or more targets, like our WearLOC-1, weared by people or installed on moving assets.

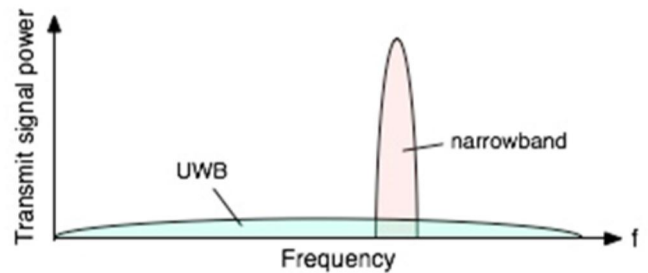
The transmitters infrastructure (anchors) installed must be at least two.

Installing three or more anchors it is possible to obtain a 3D positioning of targets and improved accuracy.

The SmartLOC-3D system accurately measures distances between the target and the anchors using UltraWideBand Technology (UWB) operating from 4.5 GHz to 6.5 GHz.

The main advantages of the UWB technology can be summarized as follows:

- high accuracy in distance measurements (<1 cm) and angle (approx. 0.07°) when outdoor
- High immunity to jamming and radar interference
- Causes no interference to existing systems due to very low power density (typ. -41 dBm/MHz)
- Bandwidth equal or larger than 500MHz up to 1GHz
- Allows refresh rates up to 10 measures/sec.
- Can transfer data along with distance measurements up to 6.8MBit/s
- Very low power, targets are battery operated
- No moving parts
- 3D positioning of targets



SPECIFICATIONS — SmartLOC-3D Anchor Unit

Main Control Unit	STM32™ Cortex®-L4
Power supply	POE operated
Timing sensor	High accuracy GNSS timing reference when outdoor. Internal indoor referece by wire/wireless
Location sensor	UltraWideBand network with minimum two anchors for SmartLOC 3D infrastructure coverage
Operational RF Interface	4.5 -- 6.5 GHz UWB
RF Bandwidth	500MHz up to 1GHz
Supported protocol	ProEsys proprietary protocol
Max TX Power	-41dbm/MHz, -21dBm/MHz allowed under LAES
Operating range	Up to 500mt outdoor LOS
Accuracy outdoor	1cm / 0.07° - 2 sigma
Environmental resistance/Operating temperature	IP67 / -30 to + 70 °C
Dimensions/Weight	250 x 250 x 75mm / 1 Kg

Specifications subject to change without notice



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