

KIO RTLS Regular Cell

Technical Specifications

KIO RTLS Regular Cell configuration ensures positioning accuracy of 30 cm in 2D/3D and is suitable for a range of precise positioning applications.

Operational distance	40 m line-of-sight (LoS)
Distance measurement error	± 15 cm for all distances
Positioning accuracy	≤ 30 cm
Ranging rate	max 10 Hz – μUSB powered tag and anchor 1 Hz – battery powered tag
Operational frequency range	3.1 - 4.8 GHz, 900 MHz signal bandwidth
RF transmission	Signal level -41.3 dBm/MHz LDC max 5% of RF channel utilization time Onboard omnidirectional antenna
Ranging scheme	Time-of-Flight multilateration, automatic anchor selection
Certification	FCC Certification – parts 15.503, 15.509, 15.209, 15.109 CE Certification – EN 302 065-1, EN 301 489-1, EN 301 489-33
Communication standard	IEEE 802.15.4-2011-UWB
Communication data rates	850 kbps, half-duplex
Host interface	μUSB 2.0 12 Mbit/s
Power source	5 V DC, μUSB ≤ 500mA for the standard cabled connection An internal 750 mAh rechargeable LiPo battery is available on request, charging over μUSB

Power consumption	120 mW, 32.4 mA
Tag battery lifetime	~14 days at 1 Hz update rate
Device dimensions	85x55x15 mm – μ USB powered tag and anchor 85x55x18 mm – battery-powered tag
Device weight	36g – μ USB powered tag and anchor 54g – battery-powered tag
Operating temperature range	-20...+55 °C – μ USB powered tag and anchor 0...+55 °C – battery powered tag
Optional features	3.3 V UART interface, mating connector Phoenix FMC 1.5/4-STF-3.81 Accelerometer and Gyroscope
Maximum number of tags	Single cell setup: 4 Hz update rate – 10 tags 1 Hz update rate – 40 tags Multi-cell setup ¹ : 1 Hz update rate – 10 tags
Data collection	Available from both the tags and the anchors If the installation includes more than four anchors and anchor-only data collection, data should be collected from every 4 th anchor
System scale-up	Each anchor covers 100-150m ² , depending on the shape of the room and obstacles. Expanding the tracking area requires a new 4-anchor set Each tag always needs to be connected with at least one A, B, C and D anchor

¹ When the setup includes more than one 4-anchor cell, some anchors are shared between two or more cells, limiting the RF channel utilization time