

INS-Modem[®]

Clover-Modem[®] is an access point to Wireless Sensor application (WSN), embedding a Clover-Sense[®] module. Thanks to special focus on Low power, Ultra long range, Robustness, Coexistence, Security and Cost optimization, that solution addresses all targets required by wireless sensors application. Ineo-Sense provides to the industrial market a scalable wireless module embedding networks management services for plug-and-play deployments.



Either used as in field configuration modem or pluggable modem for making any system communicate, it is constructed in a brushed aluminum IP54 casing giving protection against dust and low pressure water spray.

This turnkey plug and play modem differs from any other in that it natively supports the 3 ISM bands (433, 868 and 915MHz) and moreover both Clover-Net[®] and LoRaWAN operated communications in a single application, it is capable of achieving significantly longer range than existing RF transceivers. Changing only few parameters allows communicating one to the other RF settings.

Plug & Play

Driven either by hexa frames or ascii commands, interfacing with this modem has never been easier. Moreover, any both-way transmitted frames are stored into the device, either for a delayed data collection or data buffering waiting for the host to be ready to receive it.

Applications

Implemented as a modem on any embedded platform, typical applications for this module include asset tracking, remote monitoring, metering, M2M and many other battery powered internet of things (IoT) edge nodes, all of this without revolutionizing the system with an unprecedented Time-to-Market.

Used as an access point modem, it can be joined to applications to collect, manage and configure Clover devices in field.

Advanced Services

Beyond the Clover-Sense wireless functions, Ineo-Sense includes several additional services in Clover-Sense[®]. These over-layers offer turnkey function providing a better time to market for integrators and improve network performances.

Capable of dynamically switch from Clover-Net[®] to LoRaWAN modulation and protocol, many advanced features with very high added value can be performed like device on-demand parametrization, device zoning, broadcasts with multiple answers, real-time inventory and highly coexistence capabilities thanks to clever RF medium sharing and very flexible communication settings.

High flexibility

Only one USB device is required to address any Clover-Net[®] device. Moreover, it can be used as LoRaWAN modem and transforms any system into a LoRaWAN node, ready to communicate through any LoRaWAN operated network.

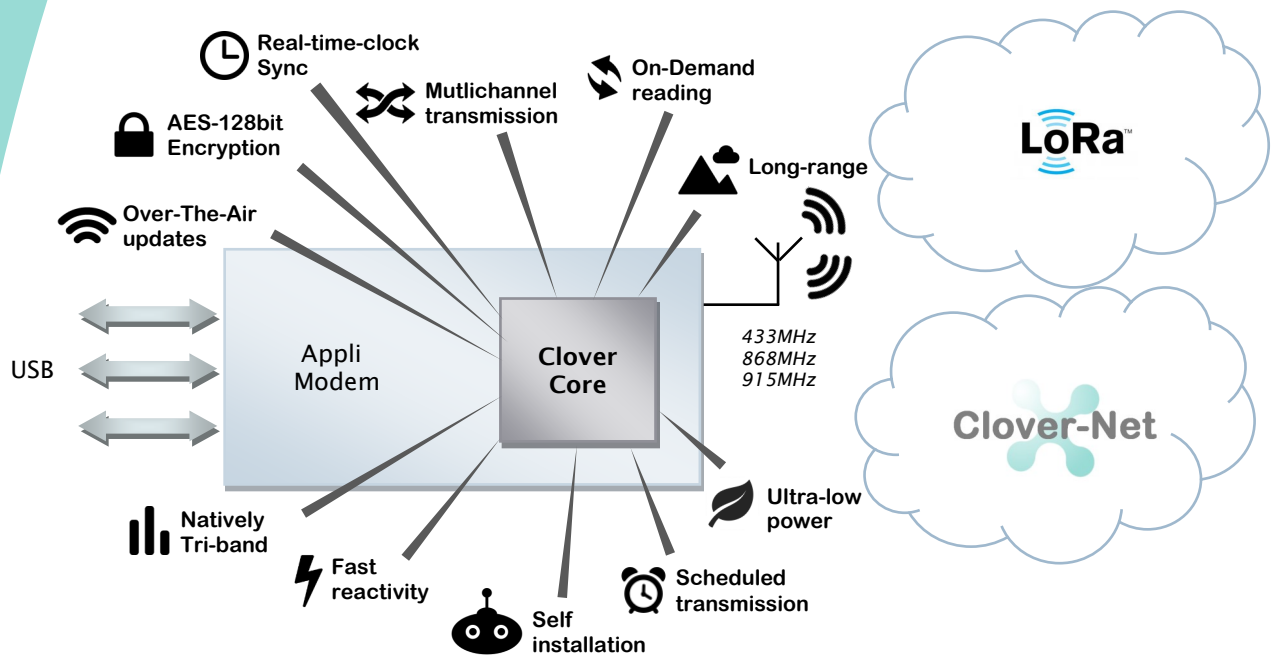


Main added-values

- Profile Network configuration : AES 128 encryption
- Multiprotocol communication (Clover-Net, LoRaWan, ...)
- Automatic alarms and on-demand reading
- Robust against interferences.
- Fast event reactivity, huge coexistence ability.
- Auto response mechanism
- Periodic sending (Request or Message)
- Inventory broadcast
- Serial link firmware update (local) or Over The Air (OTA—remote)

Hardware features

- Multi-band Design 433, 868, 915 Mhz
- Sensitivity up to -136dBm
- Rugged Metallic casing
- Transmission : 30mA @ 13 dbm, Reception : 12mA @ -136dBm
- Serial flash memory available for event datalogging.(128Kbytes)
- Operating temperature :-20° to +70° C (-4° to 158° F)
- USB self-powered



Order references

Order #	Description
INS-MOD-ST-X89-5U1	INS-Modem - USB 868-915 Metallic casing
INS-MOD-ST-X89-5U0	INS-Modem - USB 868-915 Plastic casing

Clover-Net generic features

- Transmission range up to 5,000m line of sight, up 500m indoor.
- Real-time 2-way communications: Scheduled transmission, automatic alarms and on-demand reading.
- Robust against physical and electronic interferences.
- Fast event reactivity, huge coexistence ability.
- Low cost for mass deployment
- Auto RTC propagation
- Native Tri-band compatibility (433, 868 and 915Mhz)
- CE & EN 300-220 & FCC 15-247 compliant
- LoRaWAN compatible
- Uses Multi-channel frequencies and FHSS to avoid collision.
- Dedicated alarm frequency channel.
- Data Encryption by AES 128 with dynamic key mixt
- Includes Full networks services (Broadcast with answer, Repeater, Mesh, ...)