

DATASHEET

Taoglas EDGE™ EM15 System on Module

Compact Multi Sensor with Wi-Fi
Connectivity SoM



**Fully integrated, pre-certified,
technology stack of hardware,
firmware and cloud platform.
Cut time-to-market by up to 80%.**

The **Taoglas EDGE™ EM15** is a compact multi-sensor SoM with cellular, Wi-Fi 802.11b/g/n, Bluetooth with ultralow power consumption in a small form factor. It features a dual-core processor, optimized firmware/OS RTOS, validated applications libraries (Real Time Performance) and comes with an advanced on-board analytics engine. The Taoglas EDGE EM15 offers the ultimate degree of flexibility and scalability while saving costs and time-to-market for OEMs and enterprises. Developed by industry experts and with proven commercial solutions across healthcare, industrial, transportation, agriculture and smart city applications, you can be up and running with the Taoglas EDGE EM15 pre-certified SoM in minutes.

The IoT design process can literally become as simple as activating a SIM card. The solution is supported by **Taoglas Insights™** - a cloud management platform - which provides a scalable end-to-end solution for easy control and management of connected devices.

Typical Applications



Micro
mobility



UAV



Consumer
Devices



Smart
Medical



Precision
Agriculture



Key features

- Small Form Factor
- Ultra low power consumption
- Highly secure architecture
- Cost-effective end-to-end System-on-Module with cellular 4G, GNSS, Wi-Fi, Bluetooth and on-board environment and movement sensors
- Plug-and-play with fast-time-to value for a variety of IoT applications
- Device, data, SIM and sensor management via **Taoglas Insights™** platform
- Secure provisioning and certificate management
- Over The Air (OTA) firmware updates and device diagnostics
- Deployment lifecycle control
- Easy 3rd party machine vision AI/sensor interfacing
- Pre-certified

4G Cat 1
3G
2G
NB-IoT
LTE CatM
Wi-Fi



GPS
GLONASS
Galileo
BeiDou



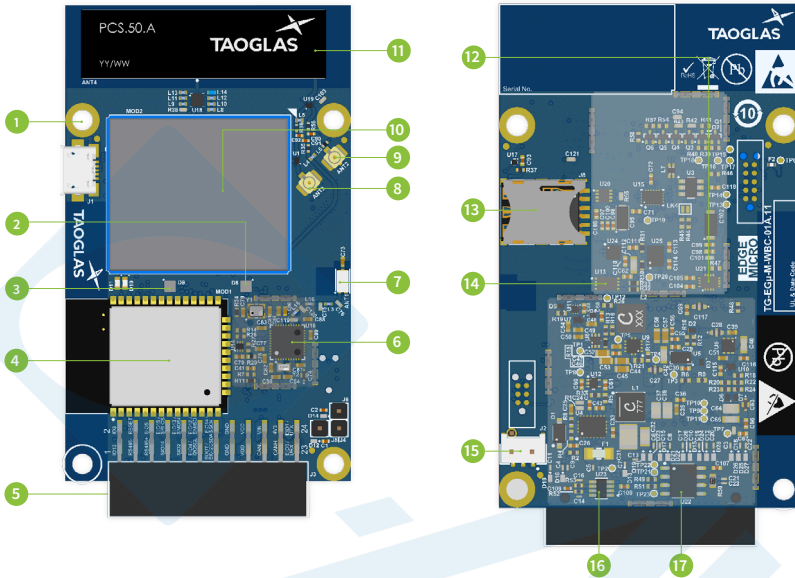
BLE5
BLE4.2



Key Benefits

- Can help you build your IoT prototype in minutes
- OEM boards can be customized and purchased separately for new product introductions
- Reduce the cost and complexity of introducing IoT strategies into enterprises avoiding lengthy design, development, integration, testing, data services and customization spend with fast time-to-value
- Provides real-time sensor and positioning data and can enable real-time intelligence from the EDGE instantly

Architecture



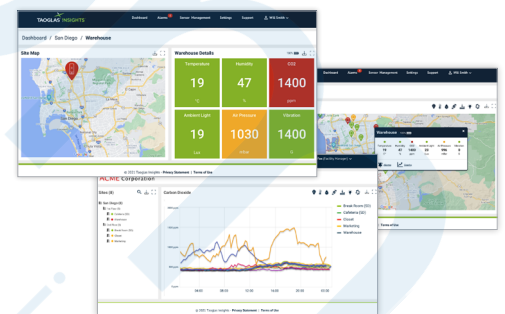
1. USB Charging
2. STATUS RGB LED 1
3. STATUS RGB LED 2
4. Wi-Fi / BLE 4.2 Module
5. 24-Pins Extension Connector
6. BLE 5 IC (Optional)
7. BLE WLA.01 Antenna
8. External Cellular Antenna
9. External GNSS Antenna
10. Cellular / GNSS Module
11. PSC.50A Antenna
12. Accelerometer (Gyro - Optional)
13. 4FFF SIM Card Holder (eSIM - Optional)
14. Security IC
15. JST Battery Connector
16. CAN IC
17. RS-485 IC

Hardware Specifications		
System	Processor	ESP32 - Xtensa® dual-core 32-bit LX6 microprocessor, up to 240 MHz
	RAM	520 KB
	Flash	16MB
	Firmware/OS	Free RTOS + Applications Libraries (Real Time Performance) Cloud Mutual authentication
	Security	Hardware root of trust Secure key storage
Radios	Cellular Modems	Optional SKU's (2G, 3G, 4G, NB-IoT, CAT-M) Integrated PCB Antenna Options
	Cellular Antenna	External Antenna via uFL
	GNSS	GPS/GLONASS/Galileo/BeiDou (use external antenna)
	Wi-Fi	802.11b/g/n
	Bluetooth	Standard BLE4.2 and Optional BLE 5.1
	Expansion Options	LoRa / SubGHz
Sensors	Accelerometer	Range: up to ± 16g Accuracy: up to 16384 LSB/g with 16 bit resolution
	Gyroscope	Range: up to 2000°/s Accuracy: up to 262.4 LSB°/s with 16 bit resolution
	Magnetometer	Range: ±1300µT (x, y-axis), ±2500µT (z-axis) Accuracy: ~0.3µT
	Expansion	External Connector
Physical	Dimensions	85.5 x 45mm
	USB	Micr USB B connector (Charging Only)
Power	Voltage	5.5V - 55V (External Power supply)
	Current	2A - 3A
	Power Consumption - Sleep	≈ 60 uA
	Power Consumption - Idle / Stand by	≈ 30 mA
	Power Consumption - Running	up to 3A
	Battery	Various Battery Options/Capacities Available - Rechargeable and Non-Rechargeable, Lithium Polymer or Lithium Ion
Communications Interfaces		RS485, CAN, UART, I2C, SPI, GPIO
Signal Aquisition / Generation	SAR ADC	12 bit ADC's, 6 channels multiplexed on the I/O connector, max sampling rate is 6KHz
	PWM	50KHz max, 16bit
Environment	Operating Temperature	-10C to 60C
	Operating Humidity	85% non-condensing
	Storage Temperature	-10C to 60C
	Storage Humidity	85% non-condensing
Warranty		1 Year
SKU	EM15B	Compact Multi Sensor IoT Connected SOM (US)
SKU	EM15L	Compact Multi Sensor IoT Connected SOM (EMEA)
SKU	EM15N	Compact Multi Sensor IoT Connected SOM (NB-IoT)

Taoglas Insights™ Real-time analytics

Taoglas Insights™ is your cloud-based software platform that allows for flexible, reliable and efficient gathering of data and life cycle management of EDGE devices from one dashboard.

- Device management
- Sensor management
- Security management
- Connectivity management
- Application platform



It enables real-time insights and intelligence that drive optimization, cost savings, compliance and new revenue opportunities for our enterprise customers.

Taoglas Insights™ provides everything to securely connect and manage your sensors, machines and devices remotely, removing complexity and allowing your organization to focus on today's business applications.

For further details visit:
www.taoglas.com/product/em15-compact-multi-sensor-som/