DATASHEET

Taoglas EDGE™ EC55 System-on-Module

4G/3G/2G NB-IoT, CAT-M, Multi-Sensor SoM

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

The **Taoglas EDGE™ EC55** is a proven System-on-Module (SoM) with environmental and movement sensors, Cellular, Bluetooth and GNSS connectivity which offer 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 EC55 pre-certified SoM in minutes and 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.

Key Features

- Small Form Factor
- Ultra-low power consumption
- Secure architecture
- Cost-effective end-to-end System-on-Module with cellular 4G, GNSS, Bluetooth, NB-IoT possible 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 CAT-M

GPS
GLONASS
Galileo
BeiDou

BLE4.2
BEACONS

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

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Typical Applications

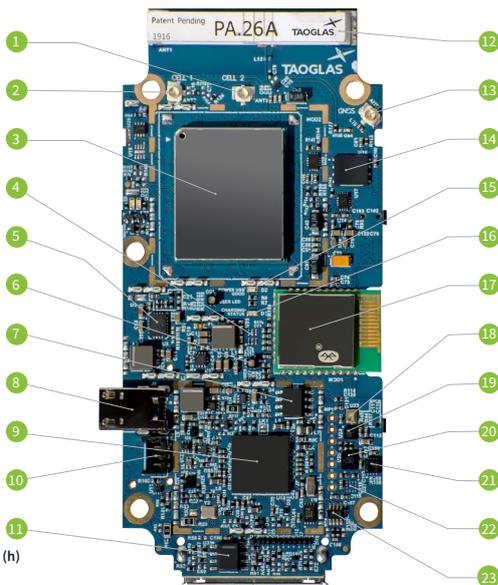Robotics | Autonomous Vehicles | Transportation | UAV | Precision Agriculture | Navigation | Asset Tracking

Hardware Specifications

System	Processor	ARM Cortex M7 (300MHz)
	RAM	384 KB
	Flash	2048 KB
	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 (CAT-1 and CAT-M) Integrated PCB Antenna
	Cellular Antenna	External Antenna via uFL
	GNSS	GPS/GLONASS/Galileo/BeiDou *(Includes internal antenna for both cellular and GNSS)*
	Bluetooth	BLE 4.2
	Expansion Options	LoRa / SubGHz
Sensors	Temperature Sensor	Range: -40 to 125 °C Accuracy: ± 0.3 °C (Standard), ± 0.2 °C (High-End Version)
	Humidity Sensor	Range: 0 to 100 %RH Accuracy: ±3% RH (Standard), ± 1.5% RH (High-End Version)
	Light Sensor	Range: 0.045-188,000 Lux
	Atmospheric Pressure Sensor	Range: 300 … 1100 hPa Accuracy: typ. ± 1 hPa
	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	36-pin expansion connector
	USB	Micro USB B connector
Physical	Dimensions	94 x 50mm
Power	Voltage	4V4 - 14V (External Power supply)
	Current	2A – 3A
	Power Consumption - Sleep	≈ 120uA
	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	-20C to +80C
	Operating Humidity	85% non-condensing
	Storage Temperature	-20C to +80C
	Storage Humidity	85% non-condensing
Warranty		1 Year
Ordering information	**EC55B**	Multi Sensor IoT Connected SOM (CAT-1)
	EC55L	Multi Sensor IoT Connected SOM (CAT-M)

Board size:
50mm (w) x 94mm (h)

1. Cellular diversity external antenna
2. Cellular main ext. antenna
3. Cellular modem
4. Light sensor
5. Battery charger block
6. USER LED
7. Flash memory
8. USB connector
9. Microcontroller
10. Battery connector
11. RS-485 IC
12. Internal cellular & GNSS antenna
13. GNSS external antenna
14. ESIM card
15. Power USB good status
16. Battery charging LED status
17. BLE module
18. Pressure sensor
19. Temperature and humidity sensor
20. Accelerometer
21. Accelerometer & Gyro
22. Magnetometer
23. CAN IC

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.

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