CompoTEK

LANGYANG Technologies

Universal Smart Metering Solution based on Embedded AI chip

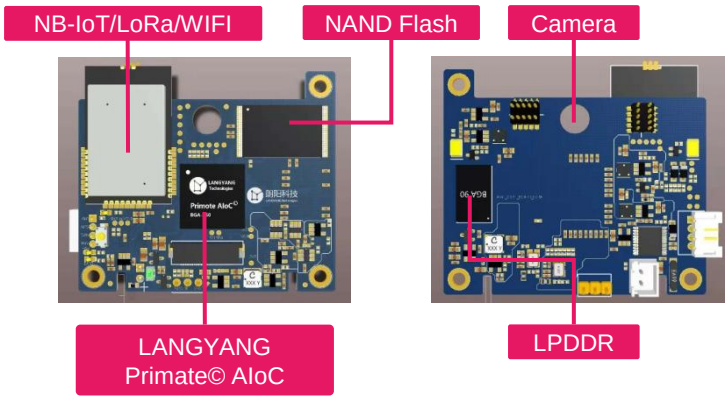
Computer vision solution for any kind of meters

Overview

The LY-SM01 embedded computer vision module is making the edge intelligence possible for a wide range of applications.

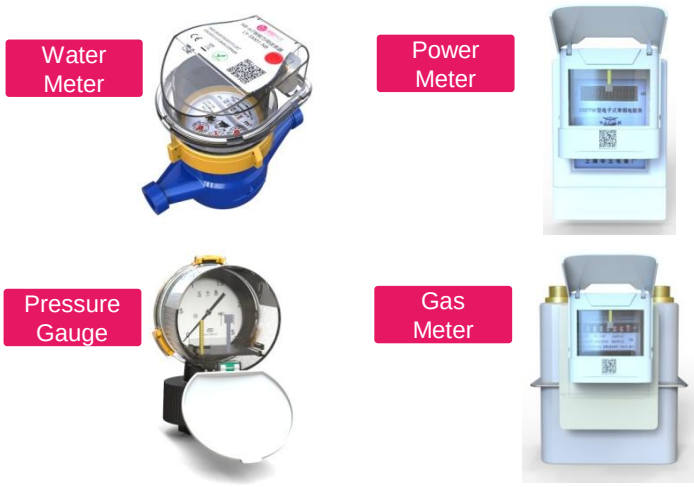
Targeting smart metering applications, the LY-SM01 enables the digitalization of existing analog meters without replacement of meters or supply stops of water/gas/power.

PCB Diagram



LY-SM01 Module

Digitization: Transitioning from analog to digital



Plug&Play without any replacement

KEY FEATURES

Multiple wireless protocols

- NB-IoT/eMTC/LoRaWAN/WIFI
- Pre-certified for global operation
- Cellular Band 1/3/5/8/20/28
- 23dBm output power
- eDRX and PSM power saving modes
- LoRaWAN: CN470, EU868, US915
- WIFI/Bluetooth: 2.4GHz

Edge Intelligence

- Deep learning neural network
- Image processing algorithm
- OpenCV supported
- Embedded implementation

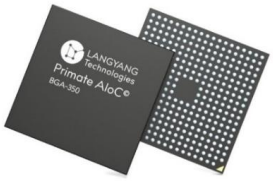
IoT Clould Platform

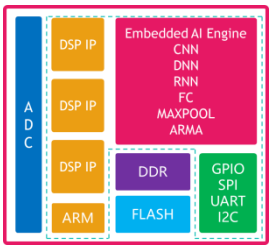
- Management of devices
- Dashboard monitoring
- Big data analysis

APPLICATIONS

- Smart City
- Smart Industry
- Resource Management

Embedded AI Chip: LANGYANG Primate© AIoC



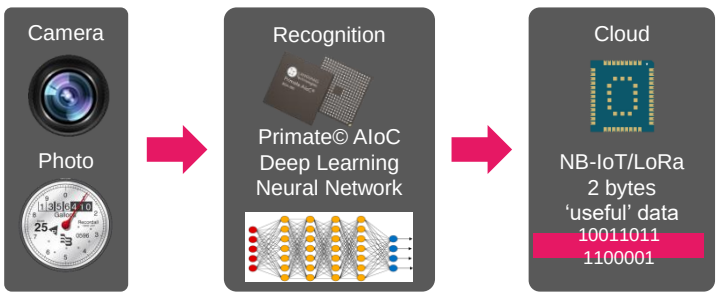


Highly integrated · Low-cost · Embedded AI

Through the high integration of ARM, DSP and AI engine in a 10x10 mm package, the chip solves the complex image recognization challenges as well as satisfies ultra-low power requirements for battery-based applications.

By integrating the embedded AI chip with a tiny camera and common interface to various wireless communications modules, e.g. NB-IoT, eMTC, LoRa or WIFI, The LY-SM01 offers the most compact vision solution on the market.

Working Principle



The LY-SM01 module recognizes locally the number/pointer position on the meter offline, then transmits the numerical result via NB-IoT/LoRa to the cloud, which dramatically reduces the power consumption and data throughput instead of uploading photos.

KEY DATA

NB-IoT/eMTC/LoRa modem	
NB-IoT /eMTC	Common interface via UART
LoRaWAN	CN470, EU868, US915, KR923
Power saving	eDRX and PSM

Application Processor	
ARM core	ARM9 300Mhz
DSP core	3x, 600Mhz
AI Engine	CNN, FC, Acti.
Flash	8/128MB
DDR	LPDDR 8/128MB

Power consumption	
Stand-by	6uA@PSM mode
Runtime	200mA
Per run (Recognition + transmission)	~2mAh
Once per day	7 years@3600mAh

Operating and size	
Supply voltage	3.6V@500mA
Temperature	-20°C-75°C
Size	61.5*53.5mm

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