



- Integrated 4G modem
- Good price-quality ratio
- Configurable through SMS
- Ultra low power consumption
- MODBUS and SDI12 serial interface available

# Description

The NanoSUM acquisition and communication system was designed by SIAP+MICROS as a compact and cost-effective acquisition/communication system to be associated with sensors or systems, with serial output. Depending on the type of application it can be housed in different enclosures, with or without an integrated battery power system. In all cases both the frequency of data acquisition and the frequency of data sending with FTP protocol can be programmed on the device. NanoSUM can also be equipped with a built-in GPS receiver for the purpose of georeferencing the data or for synchronizing the internal clock. The system is designed to have very low power consumption and can also be used in systems without an external power supply. Product Peculiarities: The NanoSUM acquisition and communication system, is designed to interface with systems and sensors with RS232, RS485, RS422 and SDI-12 serial outputs. Its basic functionalities are data acquisition and transfer via the public telephone network (xG). The device can be programmed both for recording data exchanged on the serial ports, as well as commands for interfacing with intelligent-type systems and sensors can be implemented, subject to the availability of the relevant documentation or the use of standard protocols (MODBUS and SDI-12). The device is capable of powering (ON/OFF) external equipment at a voltage of 5 or 12 Vdc. NanoSUM is equipped with two digital inputs to which a sensor with pulse output can be connected (Ex: rain gauge). The device is also equipped with two digital outputs for enabling external power sources.

## Main features

- **Acquisition and communication system in a single device**
- **Ultra low power absorption <0.4 mA (shutdown mode)**
- **Ease of maintenance due to tasks running in parallel**
- **Low power management system in active and shutdown mode**
- **Available with IP68 box**

## Technical Specifications

### Hardware Features

Processor Dual Core: ARM Cortex A7 1.3 GHz;  
ARM Cortex M4 32 Mhz

RAM 32 Mb

Flash 4 Mb

μSD card (optional) Data back-up storage

Watchdog timer Present

Protocols FTP (up to 20 different sites), IPV4, IPV6, IPV4/  
IPV6

### Communication interfaces

Acquisition • Modbus: RS-485, RS-232 e RS-422  
• SDI-12

Configuration μUSB

### Frequency bands for data transmission

2G B2 (1900), B3 (1800), B5 (850), B8 (900)

4G cat M1/NB1 B1 (2100), B2 (1900), B3 (1800), B4 (AWS 1700), B5 (850), B8 (900), B12 (700), B13 (700), B18 (800), B19 (800), B20 (800), B26 (850), B28 (700)

### Diagnostic Parameters

Battery voltage  
Solar panel voltage  
Signal quality (RSSI)  
Internal temperature  
Internal humidity

### Power Supply

Battery-powered 12 Vdc

With photovoltaic panel 28 Vdc

With lithium battery 6-30 Vdc (LiON input)

Battery charger Input power: Max 60 W  
Input current: Max 3.2 A  
Functions: MPPT, temperature compensated of the end-charge voltage

### Consumptions

Quiescent mode (hourly acquisition) < 0.4 mA

Active mode (10 min acquisition) < 5 mA

### Operating Conditions

Temperature -40°C ÷ +80°C

Humidity 0% ÷ 100%

### Ordering codes

NanoSUM, 2G/4G communication, integrated antenna and GPS PEM-e016c-NANO

NanoSUM IP68, 2G/4G communication, integrated antenna and GPS, lithium battery up to 19,000 mA PEM-e016d-NANO-IP68