Nano ULTRA

NanoULTRA™ Datasheet

Wireless monitoring and control of field assets

Ultra-Low Power M2M and Industrial IOT Remote Terminal Unit

Featuring mobile connectivity, SD card, instrument grade I/Os and CDLSmartHub™ integration for online management

CDLSmartHub

Technology Summary

Managing a network of field assets has never been easier. With the flexibility of 16 Inputs & Outputs, ultra-low power consumption, on board intelligence for real time local monitoring, integrated SD card, communication via mobile phone networks, and high resolution data transferred seamlessly and securely from multiple assets to the CDLSmartHub™.

From the CDLSmartHub™ you can configure and manage assets, set alarms and audit trails, integrate and export data, view trends, visualisations and analytics.

Key features

- Ultra-low power usage for long life on batteries
- Massive range of I/Os including (4) 16 bit Analogue inputs, (4) digital in, (4) digital out.
- Serial, I^2C and SPI interfaces
- Analogue gain ranges (5), configurable over the air
- Firmware Over The Air (FOTA)
- Integrated SD card storage
- Mobile phone network communications
- Optional on board back up battery with power failure alert on line
- Alarms by SMS or email on all parameters
- Compact and Robust
- Highly configurable for OEM applications (With CANbus and GPS)
- CDLSmartHub™ offering multi language, auto time zone, instant visibility on line, dashboards etc

Application Examples

- Single and multi site installations, nationally and internationally
- Remote asset monitoring and control solutions
- Embedded solutions for original equipment manufacturers [OEM]
- Energy & Carbon management systems
- Voltage & Power optimisation
- Water Quality instrumentation
- Process monitoring and control
- Corrosion monitoring
- Clean Renewable & Hybrid power
- Portable Generators
- UPS & emergency power systems
- Smart building controls
- Lubrication monitoring
- Smart grid transformer monitoring

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Wireless monitoring and control of field assets

Physical
Case: Anodised Aluminium.
H* = 109 mm
(Antennae length 78 mm)
W* = 29 mm
D = 95 mm
**Excluding detachable mounting brackets*

Power Supply/consumption

Option	Source	Consumption*
A	9-30 V dc	2ma @ 12V
B	3.6V dc	150 µA

*When not transmitting

Indicative Battery Life

Option	Source	Lifetime
A	12V dc 9AHr	> 18months*
B	2 x D Cells 3.6V dc	> 4 years*

*Writing to SD card 1/sec; reporting to CDLSmartHub 1/Hour

I/Os
Analogue inputs
4 x 16 bit resolution with 5 selectable (via CDLSmartHub) gain ranges 0 to 2.5,5,10,20,33 Vdc. Bi Polar and Differential inputs available
Digital inputs
4 x Optically Isolated
Digital outputs
4 x Optically Isolated

On-Board Data Storage
Integral SD Card Writer
Class 4, 4-32GB

Sampling rate set via CDLSmartHub™ at rates up to 1 sample per second.
Can provide storage for up to 5 Years @1 sample per second (channel selection dependent).
Logs data in a standard CSV file format

FRAM size
32KB

Monitoring & Diagnostic LEDs and Button
GSM active/server handshake
SD card status
General status
Force report and SD card eject button (dual function)

Connectors
Connections via two, 24 and 18 pin Molex microfit connectors.

Modem
2G, or 3G, Quad-Band GSM (850/900/1800/1900 MHz)
GPRS class 12 support.
Supplied with un-steered fully roaming SIM, enabled for regions: Emea, Apac, Latam.

Antenna and connector
SMA male bulkhead connector for GSM Whip antenna
High Gain antenna and cable for remote antenna installation available

FOTA
Modem and microprocessor fully FOTA enabled (Firmware-Over-The-Air).

Communication Protocols
RS232 and RS485
I2C and SPI
Modbus
ASCII
Various Proprietary & Other standards [See OEM options below]

Environmental
Operational Temperature range
-20 to +75 ^{o}C

WEEE regulations apply

Approvals
CE

OEM Options
CANbus (Compatible With ISO11898-2 Standard)
Integrated GPS capability

Configuration And Management via CDLSmartHub
Plug and play - Log in to the CDLSmartHub™ is fully automatic as soon as the NanoULTRA is powered up.

Data is uploaded and a new configuration file is automatically downloaded to the NanoULTRA.

Geo-position is automatically enabled from GSM mast; exact position upload via QR code and smart phone.

Battery and GSM signal strength and quality reported

Download Settings (which can be updated at any time)
High and low alarm levels on all channels
Alarm by SMS or email
Alarm recipient list
Sampling rates
Reporting rates
SD card logging rates
Analogue input gain ranges
Name locations
User and admin details

Standard Options When Ordering
Rubber bumper strips
Mounting brackets
Integral rechargeable Battery back-up (will provide power for 20+ reporting cycles)

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