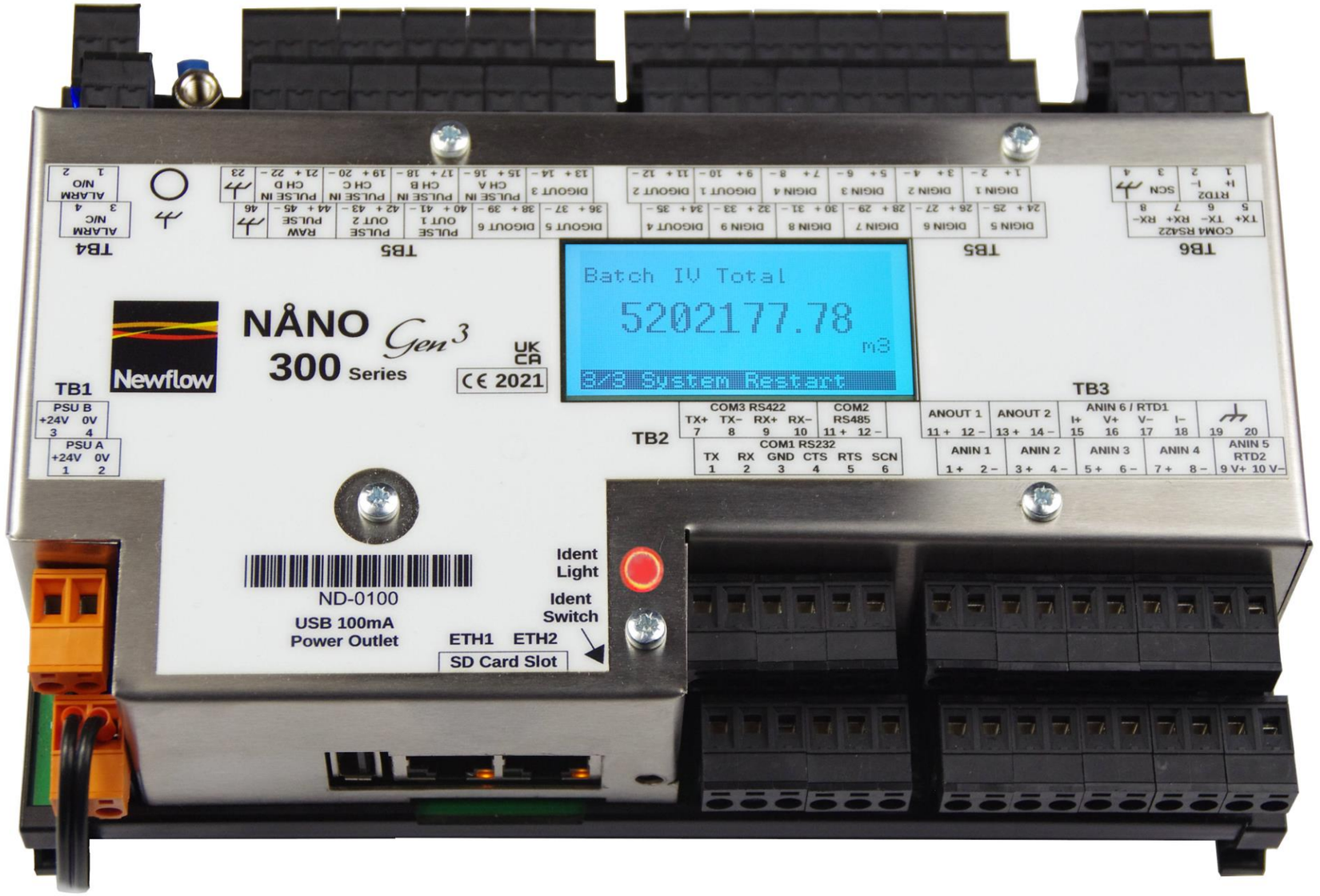
NÅNO™ 300 – Overview

NÅNO™ 300 Flow Computer

NÅNO™ with Lid Display



NÅNO Features

- Reliable, Predictable and Repeatable
- Rock Solid measurement and software stability
- Unique Software Science employed to ensure predicable operation
- Integrated web server allows both local and remote operation and configuration
- MID, OIML, INMETRO, RoHS-3 & ISO9001 compliant
- Designed to ease the auditing process
- Ideal for both control room and field mounted applications

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Applications

The NÅNO 300 supports:

- Liquid Flow Computer
- Unified Prover (SVP and Ball Proving)
- Master Meter (Vol/Vol, Mass/Mass, Mass/Inferred Vol)
- Differential Pressure Gas Flow Computer
- Gas Turbine Flow Computer
- LACT App with Measurement, Controller & Driver Interface
- LNG Bunkering
- Plus a range of other applications

Configuration

NÅNO 300 applications can be configured online using a web browser so no Windows installation is needed, but offline tools are also available.

Example web browser screenshot shown below:

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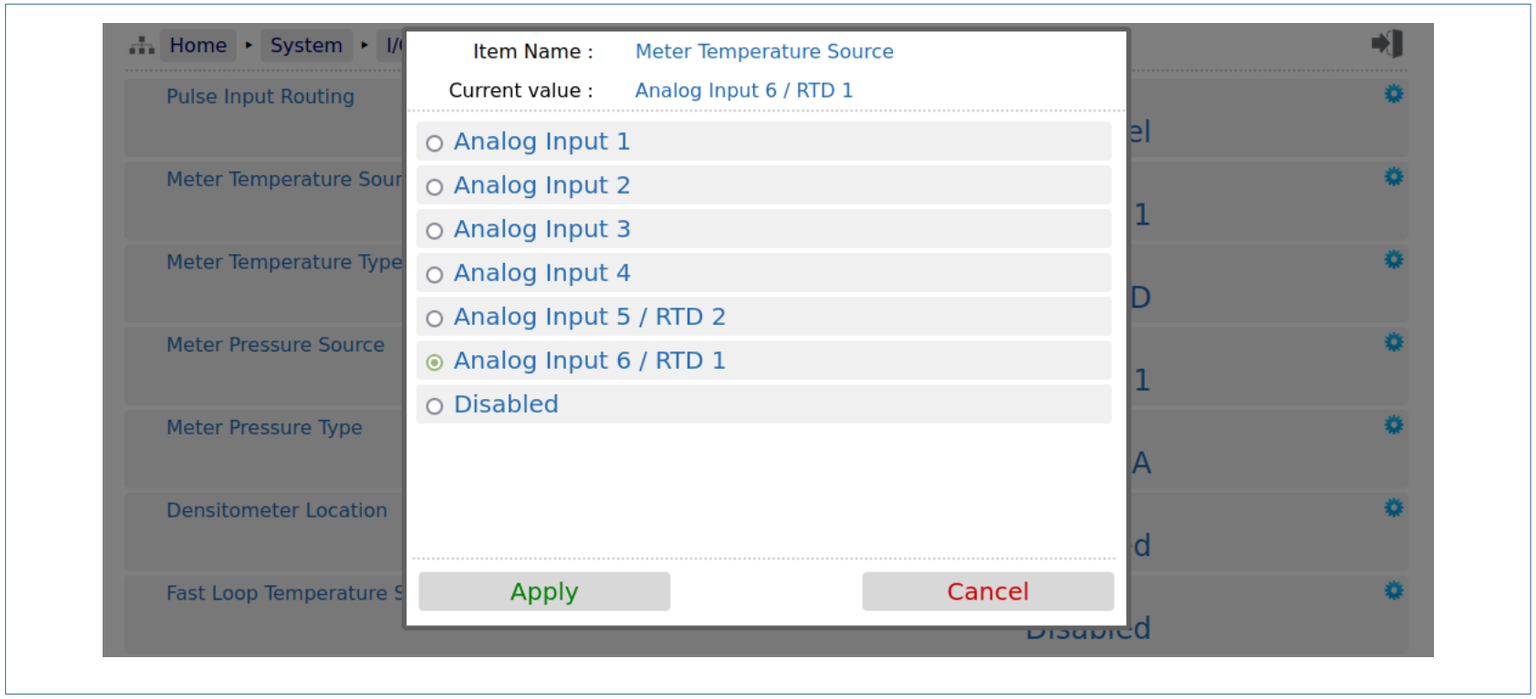

Where NÅNOs are deployed?

- United Kingdom
- Germany, France & Switzerland
- USA & Canada
- Malaysia, Singapore & Bangladesh
- Brazil & Mexico
- Plus others supported by System Integrators

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Connectivity

- Dual NICs (Network Interface Cards) provide two independent full-duplex 10/100MHz Ethernet ports that provide the following protocols:
  - Modbus TCP, OPC-UA, XML Comms, MQTT
  - HTTP for web access, FTP for reports & NTP for time synchronization
- Reports download in Text, PDF, TSV & FlowCal TFX
- Four serial ports also provided: 1 x RS232 port, 1 x fully isolated RS485 port and 2 x RS422/485 ports.
- Modbus RTU and other serial protocols supported
- Raw Pulse bus for interconnection of Flow Computers for proving systems with no latency

NÅNO Field I/O

- All field I/O including the RS485 port are optically isolated to eliminate crosstalk and aid robustness
- Six high resolution Analog Inputs, two can be used as RTDs
- Four meter Pulse Inputs support Level A, B or E and can be used for period measurement with nanosecond resolution
- Nine Digital Inputs and Eight Digital Outputs (two of which can be configured as Pulse Outputs)
- Two Analog Outputs
- Alarm “relay” with NO and NC contacts

Field Installation

NÅNO running
the
LACT-Pro App
in Texas

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Control Room Installation

Photograph © Endress+ Hauser Flowtec AG

Approvals

- MID certified by both NMI and NMRO
- OIML R-117 Certified
- INMETRO Approved
- EMC Directive 2014/30/EU
- EU 2015/863 RoHS-3 directive
- Newflow & entire supply chain ISO9001 compliant

Standards Complied With (1/3)

- OIML R117-1: 2007 (E)
- WELMEC 7.2 - Software guide MID 2004/22/EC
- WELMEC 8.8 - Modular evaluation of metering instruments under the MID (directive)
- 2004/22/EC - Measuring Instruments Directive (MID)
- EN 55011:2009+A1 - Industrial, scientific and medical equipment. Radio-frequency disturbance characteristics
- 2004/108/EC - Directive for Electromagnetic Compatibility. (framework)
- IEC EN 61000-6-2 - EMC Class for Heavy Industrial Environments

Standards Complied With (2/3)

- IEC EN 61000-4-2, Electromagnetic compatibility (EMC) - Electrostatic discharge immunity test
- IEC EN 61000-4-3, Electromagnetic compatibility (EMC) - Radiated, radio-frequency, electromagnetic field immunity test
- IEC EN 61000-4-4, Electromagnetic compatibility (EMC) - Electrical fast transient/burst immunity test
- IEC EN 61000-4-5, Electromagnetic compatibility (EMC) - Surge immunity test
- IEC EN 61000-4-6, Electromagnetic compatibility (EMC) - Immunity to conducted disturbances, induced by radio-frequency fields
- IEC EN 61000-4-8, Electromagnetic compatibility (EMC) - Power frequency magnetic field immunity test

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Standards Complied With (3/3)

- IEC EN 61000-4-11, Electromagnetic compatibility (EMC) - Voltage dips, short interruptions and voltage variations immunity tests
- IEC EN 61000-6-3:2007+A1:2011, Generic standards - Emission standard for residential, commercial and light-industrial environments
- Directive 93/68/EEC

NÅNO – Advantages (For End Users)

- Rock solid performance
- High Reliability, not reliant on NAND flash
- Simple Configuration via web browser
- Easy deployment and maintenance
- The same hardware for control room & field
- 25 year operating design life
- Long term product availability
- Widest possible range of Applications
- Low power usage could save 1 Tonne of CO_2 over the product lifetime

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NÅNO – Advantages (For System Integrators)

- The ability to modify existing Applications or create new ones reduces risk as requirements change
- The integrator cannot be blocked by the Flow Computer manufacturer from adding features
- Intellectual Property protection and licensing management built-in maintains 3rd party IP
- Newflow offers a host of ancillary hardware and products to augment the NÅNO Flow Computer
- Compact size with large pluggable connectors eliminates the need for I/O breakout modules
- Very competitive pricing