QN-100

NIR Moisture Sensor

Real-time, non-contact near-infrared moisture measurement for industrial process applications.

PRODUCT OVERVIEW

The QN-100 is a rugged, industrial-grade near-infrared (NIR) moisture sensor designed for continuous, real-time measurement of moisture content in bulk solids, powders, and granular materials. It requires no physical contact with the product and provides a stable, accurate output under demanding process conditions.

Key Features

- Non-contact NIR measurement
- Real-time continuous output
- Integrated HMI touchscreen display
- Up to 3 simultaneous measurement channels
- 3 × 4–20 mA analogue outputs
- Multiple fieldbus protocols supported
- Rugged IP-rated enclosure
- Auto-balance optical setup routine

Typical Applications

- Food & beverage ingredient processing
- Animal feed & pet food production
- Cereals, grains & milling
- Powder & granule drying processes
- Chemical & pharmaceutical manufacturing
- Building materials & aggregates
- Plastics & recycled materials

PERFORMANCE SPECIFICATIONS

Measurement Parameter	Moisture (primary); Oil, Coat Weight, Protein
Measurement Range	0 to 30 % Low Moisture, 30 to 90% High Moisture
Accuracy	±0.05 % moisture (at calibration point, typical)
Resolution	Up to 3 decimal places
Response Time	Configurable (damping filter 1–10 s typical)
Calibration Method	Two-point laboratory reference calibration
Calibration Storage	Up to 256 product calibrations stored
Measurement Update Rate	40mS

OPTICAL / NIR SPECIFICATIONS

Technology	Near-infrared (NIR)
Light Source	Tungsten halogen lamp
Lamp Life	> 20,000 hours, underrun
Filter Wheel	Rotating filter wheel, motor driven
Detector Type	Pbs photodetector
Auto-Balance	Motorised aperture + AGC
Measurement Mode	Diffuse reflectance
Standoff Distance	250 - 400 mm from window face

PHYSICAL SPECIFICATIONS

Dimensions (Sensor)	301 x 160 x186 (mm)
Dimensions (HMI)	270 x 189 x 186 (mm)
Weight (Sensor)	5 Kg
Weight (HMI)	4 Kg
Enclosure (Sensor)	IP65
Enclosure (HMI)	IP54
Housing Material	Anodised aluminium
Window Material	Borosilicate glass
Mounting	Pole Clamp Mount
HMI Display	7″ colour TFT touchscreen
Cable Entry	M16 cable glands
Finish	RAL 7035 light grey

ELECTRICAL SPECIFICATIONS

Supply Voltage	230 VAC or 24 VDC
Power Consumption	< 30 W (sensor + HMI combined)
Inrush Current	< 2 A at power-on
Analogue Outputs	3 × 4–20 mA (isolated)
AO Load (max)	500 Ω per channel
AO Resolution	16-bit DAC
AO Accuracy	±0.1 % full scale
Digital Outputs	3 × NPN/PNP, 24 V DC
Digital Inputs	4 × 24 V DC
Protection	Reverse polarity, overvoltage protected
Cable Entry	Screened cable, ≤0.5 mm² recommended

ENVIRONMENTAL SPECIFICATIONS

Operating Temp.	0 to +60 °C
Storage Temp.	-20 to +70 °C
Operating Humidity	10 to 90 % RH, non-condensing
Ingress Protection	IP65 (sensor) / IP54 (HMI)
Vibration	IEC 60068-2-6 (to be confirmed)
Shock	IEC 60068-2-27 (to be confirmed)
EMC Emissions	EN 61000-6-4
EMC Immunity	EN 61000-6-2
Certifications	CE marked
RoHS	Compliant

COMMUNICATIONS & FIELDBUS

HMI Interface	Integrated colour touchscreen; USB or Ethernet TCP service port
Fieldbus Options	Profinet, Profibus DP, EtherNet/IP, Modbus TCP, EtherCAT (specify at order)
Ethernet	10/100 BaseT, RJ45 connector
IP Configuration	Static IP or DHCP (configurable via HMI)
Station Name	User-configurable via HMI
Data Endianness	Big-endian or Little-endian (configurable)
Process Data	Up to 3 measurement values available on fieldbus
PC Software	Compatible with Absorption Systems QN-Series PC software

Specifications subject to change without notice. All placeholder values marked [...] must be confirmed before publication. DS-QN100-001 | Rev 1.0 | June 2026