QN-100

NIR MOISTURE SENSOR

Datasheet

AS-MK-SPEC-001

Document ref.	AS-MK-SPEC-001	**Revision**	1.3
Date of issue	26 August 2026	**Status**	Active
Document owner	Marketing	**Classification**	Public / Customer-facing

PRODUCT OVERVIEW

Features

- Non-contact NIR measurement
- Real-time continuous output
- Integrated HMI touchscreen display
- Up to 3 simultaneous measurement channels
- 1 × 4–20 mA analogue output per measurement
- 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

Description	QN-100
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	40 ms

OPTICAL / NIR SPECIFICATIONS

Description	QN-100
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

Description	QN-100
Dimensions (Sensor)	301 × 160 × 186 mm
Dimensions (HMI)	270 × 189 × 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

Description	QN-100
Supply Voltage	230 VAC or 24 VDC
Power Consumption	< 30 W (sensor + HMI combined)
Inrush Current	< 2 A at power-on
Analogue Outputs	1 × 4–20 mA per measurement (isolated); extra analogue modules available
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 mm^2 recommended

ENVIRONMENTAL SPECIFICATIONS

Description	QN-100
Operating Temperature	0 to +60 °C
Storage Temperature	-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

Description	QN-100
HMI Interface	Integrated colour touchscreen; USB or Ethernet TCP service port
Fieldbus Options	Profinet, Profibus DP, EtherNet/IP, Modbus TCP, EtherCAT (optional accessories)
Ethernet	10/100 Base-T, RJ45
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

REVISION HISTORY

Rev	Date	Description	Author
1.0	3 August 2026	Initial release.	Marketing
1.1	11 August 2026	Synced from SPEC-001 consistency check: added Electrical Cable Entry; confirmed preferred Physical/Environmental values.	Marketing
1.2	11 August 2026	Document reference reinstated as AS-MK-SPEC-001 (file renamed from temporary AS-MK-SPEC-002).	Marketing
1.3	26 August 2026	Analogue outputs: one 4-20 mA per measurement as standard; extra analogue modules available. Fieldbus listed as optional accessories.	Marketing