



# pro.IQ moisture analyzer packaged solution

## Features

Deliver an accurate moisture measurement with the Panametrics pro.IQ. The new moisture analyzer packaged solution simplifies the selection and installation of your moisture analyzer. Only a few simple steps; install the moisture transmitter, and connect your loop power and sample gas to the inlet fitting and you are ready to measure. Other benefits include:

- IP66 and NEMA 4X package
- The moisture transmitter, sample system and Zener barrier (if hazardous area option selected)
- Features the HygroPro moisture transmitter
- Sample system provides isolation, filtration, pressure and flow indication, and has a clear door for easy viewing of all readings

## Applications

The standard pro.IQ package is designed for moisture measurements in any hydrocarbon gas or inert gas application. It may be used in environments classified as safe or hazardous areas, where the process gas pressure is up to 200 psig (14 bar) in safe area and 400 psig (27 bar) in hazardous area. The system combines the Panametrics HygroPro with 50 years of sample system design experience, to deliver the moisture measurement you have come to trust.

Markets and applications served include:

- Natural gas
- Hydrocarbon gases
- Petrochemical
- Metal heat treatment
- Industrial gas
- Power generation

## Ordering configuration

pro.IQ is comprised of the following items:

- HygroPro moisture transmitter
- Sample system 733-2500 or 733-2501 or 733-2502 or 733-2503 dependent on version selected
- Zener barrier (Hazardous area option only)

### Available versions

- Pro.IQ-H-I: Hazardous area, ¼" tube fittings
- Pro.IQ-H-M: Hazardous area, 6 mm tube fittings
- Pro.IQ-GP-I: General purpose area, ¼" tube fittings
- Pro.IQ-GP-M: General purpose area, 6 mm tube fittings

### Application parameters

#### General purpose configuration

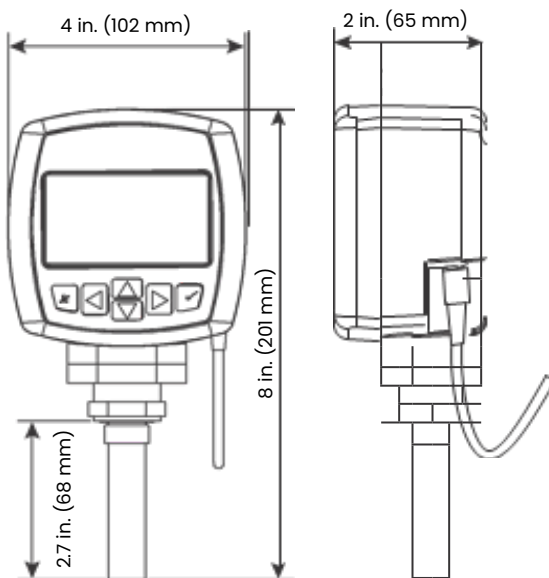
- Sample gas pressure: 0 to 200 psig (14 bar)
- Recommended operating temperature range: 32°F to 122°F (0 to +50°C)

#### Hazardous area configuration

- Sample gas pressure: 0 to 400 psig (27 bar)
- Recommended operating temperature range: 32°F to 140°F (0 to +60°C)

#### Common

- Moisture content: 68°F to -166°F (20°C to -110°C) dew/frost point, non-condensing



HygroPro dimensions

## HygroPro specifications

### Dew point/frost point calibration ranges

- Overall: 68°F to -166°F (20°C to -110°C)
- Standard: 68°F to -112°F (20°C to -80°C)

### Operating temperature

-4°F to 140°F (-20°C to 60°C\*)

\*Refer to pro.IQ specifications for overall system limits

### Storage temperature

158°F (70°C) maximum

### Warm-up time

Meets specified accuracy in three minutes

### Calibrated accuracy @ 77°F (25°C)

- ±3.6°F (±2°C) above -148°F (-100°C)
- ±5.4°F (±3°C) below -148°F (-100°C)

### Repeatability

- ±0.4°F (±0.2°C) above -148°F (-100°C)
- ±0.9°F (±0.5°C) below -148°F (-100°C)

## Electrical

### Power

- Voltage: 12 to 30 VDC (loop-powered, customer supplied)
- Output: 4 to 20 mA analog, RS485 digital
- Output resolution: 0.01 mA/12 bits
- Load: Max R = (PSV x 33.33) - 300  
Example: (24 x 33.33) - 300 = 500 W
- Cable: 1.5 ft (0.5 m), standard includes molded M8 connector with flying leads to connect transmitter to sample system terminal block

### Display

- 128 x 64 LED backlit LCD
- Display from one to three parameters and diagnostics

## Mechanical

### Sample connection

- 3/4-16 in (19 mm) straight male thread with o-ring

### Operating pressure

5 mHg to 5,000 psig (345 bar\*)

\*Refer to pro.IQ specifications for overall system limits

### Enclosure

Type 4X/IP67


### Dimensions

- H x W x D: 7.88 x 3.99 x 2.56 in (200 x 101 x 65 mm)
- Weight: 1.2 lb (550 g)

## European compliance

Complies with EMC Directive 2004/108/EC and PED 97/23/EC for DN<25

## Hazardous area certification

- C-US Class I, Division 1, Groups A, B, C and D, Type 4X
-  II 1 G Ex ia IIC T4 (ATEX)
- Ex ia IIC T4 (IEC Ex)

## Moisture sensor

### Sensor type

Thin-film aluminum oxide moisture sensor

### Calibration

Each sensor is individually computer-calibrated against known moisture concentrations, traceable to NIST.

### Calibration interval

Sensor recalibration by Panametrics is recommended every six to twelve months depending on application.

### Flow rate

Gases: Static to 100 m/s linear velocity at 1 atm

## Built-in temperature sensor

### Type

NTC thermistor

### Operating range

-22°F to 158°F (-30°C to 70°C)

### Accuracy

±0.9°F (±0.5°C) overall

### Response time (maximum)

One second in well stirred oil or 10 seconds in still air for a 63% step change in increasing or decreasing temperature

## Built-in pressure sensor

### Type

Solid state/piezoresistive

### Available ranges

- 30 to 300 psig (3 to 21 bar)
- 50 to 500 psig (4 to 35 bar)

### Accuracy

±1% of full scale (FS)

### Pressure rating

Three times the span of the specified range to a maximum of 7500 psig (518 bar\*)

\*Refer to pro.IQ specifications for overall system limits

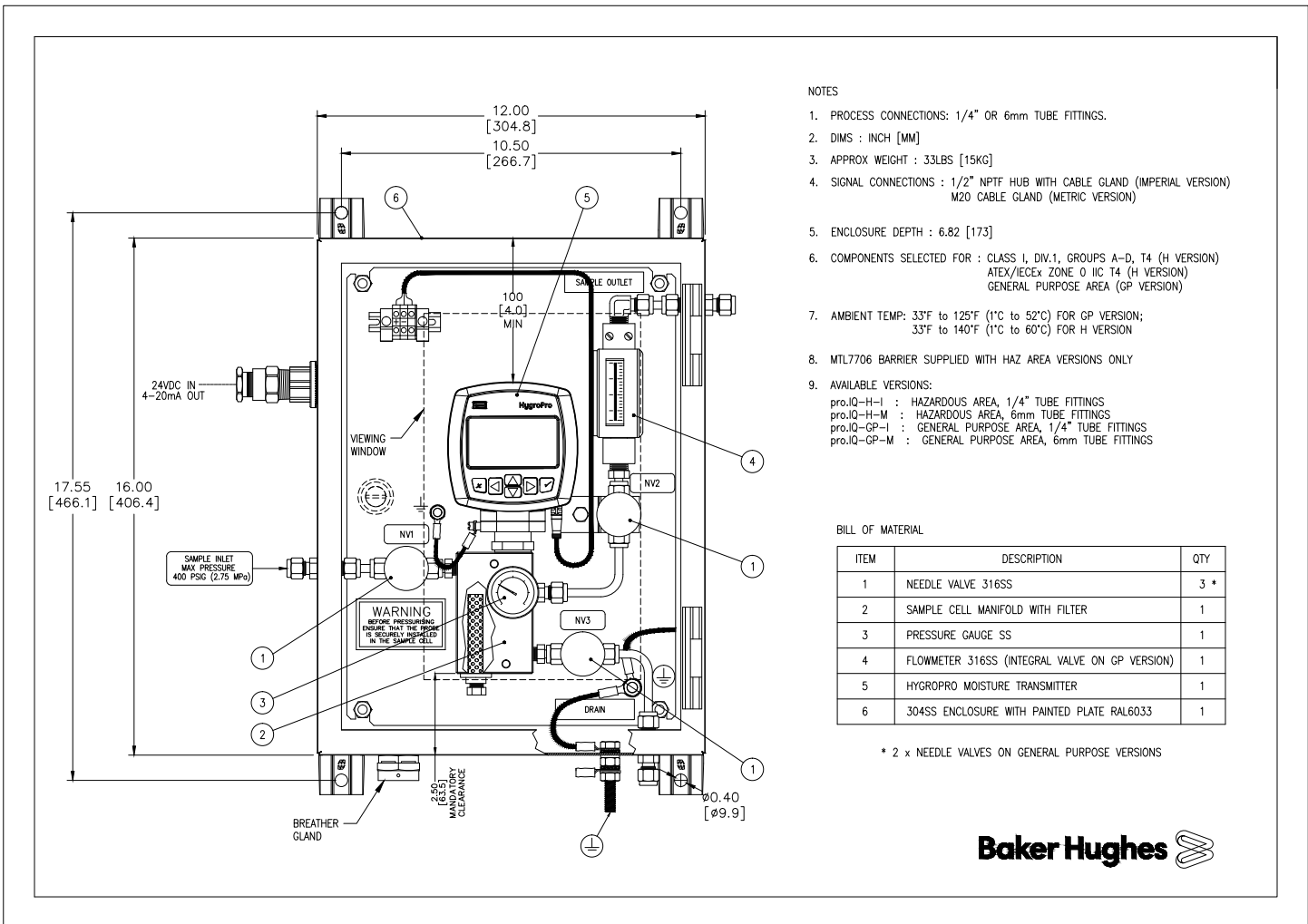
## Start-up procedure

- Insert moisture transmitter into the sample cell and connect earth to ground connection of the transmitter.
- Follow HygroPro manual wiring instructions to connect power, pay special attention to zener barrier installation and wiring if in hazardous area.
- For applications with potential light liquid contaminant, install the fibre filter element (supplied loose) in the filter housing, removing the particulate filter element already installed.
- Start with the inlet valve, the drain valve and the sample outlet valve fully closed.
- For measurement at process pressure, slowly open the inlet valve until fully open; then crack the sample outlet valve to get flow on mid range of the flowmeter scale.
- For measurement at atmospheric pressure, fully open the sample outlet valve; then crack the inlet needle valve to get flow on scale.
- For applications with potential light liquid contaminant crack the drain needle valve to ensure continuous removal of any liquid mists from the sample gas.

\*Use appropriate filter element supplied

## Shut-down procedure

- Slowly close the inlet needle valve.
- Slowly open the drain needle valve until the pressure on the pressure gauge is 0 psig.
- Remove the moisture transmitter.



NOTES

1. PROCESS CONNECTIONS: 1/4" OR 6mm TUBE FITTINGS.
2. DIMS : INCH [MM]
3. APPROX WEIGHT : 33LBS [15KG]
4. SIGNAL CONNECTIONS : 1/2" NPTF HUB WITH CABLE GLAND (IMPERIAL VERSION)  
M20 CABLE GLAND (METRIC VERSION)
5. ENCLOSURE DEPTH : 6.82 [173]
6. COMPONENTS SELECTED FOR : CLASS I, DIV.1, GROUPS A-D, T4 (H VERSION)  
ATEX/IECEX ZONE 0 IIC T4 (H VERSION)  
GENERAL PURPOSE AREA (GP VERSION)
7. AMBIENT TEMP: 33°F to 125°F (1°C to 52°C) FOR GP VERSION;  
33°F to 140°F (1°C to 60°C) FOR H VERSION
8. MTL7706 BARRIER SUPPLIED WITH HAZ AREA VERSIONS ONLY
9. AVAILABLE VERSIONS:  
pro.iQ-H-I : HAZARDOUS AREA, 1/4" TUBE FITTINGS  
pro.iQ-H-M : HAZARDOUS AREA, 6mm TUBE FITTINGS  
pro.iQ-GP-I : GENERAL PURPOSE AREA, 1/4" TUBE FITTINGS  
pro.iQ-GP-M : GENERAL PURPOSE AREA, 6mm TUBE FITTINGS

BILL OF MATERIAL

ITEM	DESCRIPTION	QTY
1	NEEDLE VALVE 316SS	3 *
2	SAMPLE CELL MANIFOLD WITH FILTER	1
3	PRESSURE GAUGE SS	1
4	FLOWMETER 316SS (INTEGRAL VALVE ON GP VERSION)	1
5	HYGROPRO MOISTURE TRANSMITTER	1
6	304SS ENCLOSURE WITH PAINTED PLATE RAL6033	1

\* 2 x NEEDLE VALVES ON GENERAL PURPOSE VERSIONS



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