



HYDROSTEEL[®] 7000

Fixed, Continuous Hydrogen Flux Monitor



Hydrosteel 7000 is a fixed, totally non-intrusive device for the continuous monitoring of hydrogen flux at high criticality sites within petrochemical, gas production and petrochemical refining operations. Hydrosteel 7000 provides minimal downtime, optimal effectiveness of corrosion prevention methods and evaluation of corrosivity arising from the use of opportunity crudes.

Features:

- Monitors hydrogen flux at high criticality sites
- Totally non-intrusive device
- Logs flux and steel temperature at 10 minute intervals
- Measurements stored internally
- Communicates to a data control system or data logger via two 4-20mA outputs
- Data download to a PC via RS-232 for analysis
- Operates in harsh environments; dust storms, rain, wind, humidity, VOCs and hydrogen
- Operates in varying ambient temperatures
-20 °C to 55 °C, -4 °F to 131 °F
- Simple use - no need for human interference
- Full commissioning service and convenient service exchange system available

Advanced Gas Sensing Technologies
www.ionscience.com

Designed to function in the harshest of environments, Hydrosteel 7000 is operational in dust storms, heavy wind and rainfall and ambient temperatures varying between -20 °C to 55 °C, -4 °F to 131 °F. The instrument is also suitable for use in environments containing ambient variable levels of volatile organic compounds (VOCs), hydrogen and humidity.

The need for a fixed hydrogen flux monitor emerged from findings that corrosion is often highly episodic and continuous monitoring is required at most high criticality sites, especially at times of high flux incidents which often occur during process upsets when inspection staff are not available.

Hydrogen flux measurements relates directly to active sour and HF corrosion and any acid corrosion (e.g. sulfidic-naphthenic acid) at higher temperatures, and is designed for fixed monitoring. Typical locations for monitoring include:

- Sour gas lines
- Amin treatment plants
- HF alkylation units
- Delsufurisation units
- Distillation outlets and heat exchangers
- Distillation and cracking unit overheads

Applications include:

- Corrosion control
- Feedstock blending
- HIC damage reduction and control
- Sour, HF acid and high temperature corrosion monitoring
- Risk based inspection of prospective hydrogen damage



TECHNICAL SPECIFICATION

MEASUREMENT PRINCIPLE

Continuous hydrogen collection and analysis

STANDARD COMPONENTS

Hydrosteel 7000 analyser: includes all sensing, pneumatic, electrical and diagnostic circuits. Solid impact resistant GRP IP66 rated enclosure with support holes for racking, gland connectors for power input, thermocouple input, 2 x 4-20 mA output. Flux and ambient gas and thermocouple inputs.

Non-intrusive probes: Hydrostell AT-F for use on steel from -40 °C to 500 °C, includes magnetic and banding attachment means for attachment to steel >4" diameter.

Conduit: Incorporates ambient and flux sample and K-type thermocouple, up to 20 ft or 6 m.

Software: Enabling downloading of internally stored data via RS-232 in a safe area or with a permit in hazardous areas.

CERTIFICATIONS

Ingress protection rating IP66

II 2G EEx ia IIC T4 Baseefa 04ATEX0205

-20 °C ≤ T ambient ≤ +60 °C

US Equivalent

NEC 505 Class 1, Zone 1, Gas Group B, T4

NEC 500 Class 1, Division 1, Gas Group B, T4

ACCURACY

Logged and output data:

± 10% logged reading ± resolution

RESPONSE

< 3 minutes

RESOLUTION

1 pl/cm²/s (AT-S probe)

(note 1 pl = 10⁻¹² Litres at s.t.p)

DYNAMIC RANGE

AT-F probe: 0 to 2000 pl/cm²/s

DATA LOGGING

Via analog outputs or internally

CALIBRATION

At factory. Checked with CalCheck Hydrogen

OPERATION

24 V (accepts 15 - 26 V) d.c.

TEMPERATURE

Analyser: -20 °C to 55 °C (-4 °F to 131 °F)

Probe: steel surface up to 500 °C

DIMENSIONS

Analyser (excluding ports): 4" x 7" x 10", or 10 x 16 x 26 cm

AT-F probe: 6" or 15 cm diameter

WEIGHT

Analyser: less than 5.75 lb or 2.6 kg

Conduit and collector: less than 5.75 lb or 2.6 kg



ION SCIENCE is ISO9001:2000 certified
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