



**Diamond
Controls®**

Leak Detection & Trace Heating Systems

DATASHEET

WATER LEAK DETECTION



TT7000-HUV

**Sensing Cable for Strong Mineral
Acids**

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Product Overview

nVent RAYCHEM TraceTek TT7000-HUV sensor cable detects leaks and spills of sulfuric and nitric acid at any point along the cable length. When used in conjunction with TraceTek monitoring instruments, the cable senses the presence of acid, triggers an alarm and pinpoints the location of the acid contact.

Insensitive to water and dirt and sunlight

TT7000-HUV is designed for demanding indoor or outdoor environments. TT7000-HUV is a small diameter, flexible cable consisting of four wires wrapped around a central core. Two of the wires are acid sensitive electrodes that are jacketed with a protective coating material that provides a water-resistant barrier. An outer layer rope-braid of synthetic fiber provides further protection from UV radiation. TT7000-HUV cable can be exposed to sunlight, rain, snow, fog, condensation, dust, blowing dirt and other contaminants without causing a false alarm. When acid contacts the TT7000-HUV cable, the acid is absorbed by the outer rope layer, then dissolves the protective coating on the acid sensitive cable electrodes— resulting in the leak detection signal.

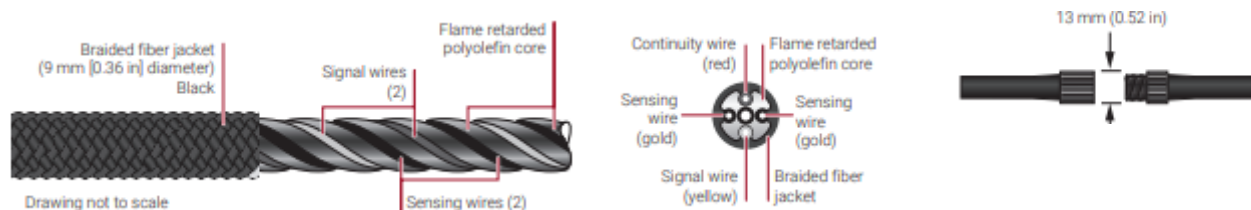
Distributed sensing

TT7000-HUV sensor cable provides distributed leak detection and location along the entire run of cable. Cable can be installed around localized sources of acid leakage (e.g. valves, pumps and tanks) as well as along pipelines carrying acid.

Design flexibility

Individual circuit lengths up to 1000 m can be monitored from a single sensor interface module (SIM). Multiple SIMs can be easily networked to provide extended coverage in chemical complexes or along pipelines. Alarm and control panels with capacity for up to 250 SIMs are standard. Or the SIM units can be directly connected to the facility alarm and control systems using Modbus® protocol.

Use TT7000-HUV sensor cable only with nVent Raychem TRACETEK TTC-1, TTSIM-1 or internal sensor interface card in TTDM-128.





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Ordering Information

TT7000-HUV modular sensing cable with factory-installed connectors

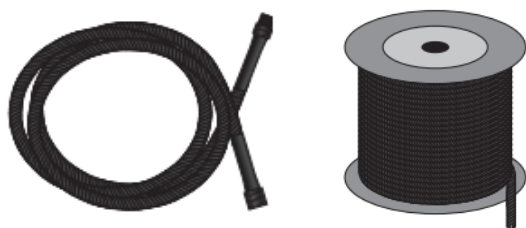
Catalogue Number	Part Number	Description
TT7000-HUV-1M-MC	P000000820	1 m (3 ft) acid sensing cable
TT7000-HUV-3M-MC	P000000819	3 m (10 ft) acid sensing cable
TT7000-HUV-7.5M-MC	P000000818	7.5 m (25 ft) acid sensing cable
TT7000-HUV-15M-MC	P000000817	15 m (50 ft) acid sensing cable
TT7000-HUV-30M-MC	P000000816	30 m (100 ft) acid sensing cable
TT7000-HUV-50M-MC	P000000815	50 m (167 ft) acid sensing cable
TT7000-HUV-100M-MC	P000000814	100 m (333 ft) acid sensing cable

TT7000-HUV bulk sensing cable (connector kits required)

Catalogue Number	Part Number	Description
TT7000-HUV-SC	P000000813	Bulk sensing cable on reel Minimum length 75 m (250 ft) Maximum length 300 m (1000 ft)

Connector kits (not shown)

Catalogue Number	Part Number	Description
TT7000-HUV-CK-MC-M/F	P000001187	Components for five mated pairs of connectors. Use only with TT7000-HUV-SC.





Product Characteristics

Cable core diameter	5 mm (0.20 in) nominal
Cable diameter with rope braid	9 mm (0.36 in) nominal
Braided fiber jacket	Color – all black
Connector diameter	13 mm (0.52 in) nominal
Signal wires	2 x 26 AWG with fluoropolymer insulation
Sensor wires	2 x 28 AWG wire with acid selective coating
Core	Flame retarded polyolefin
Cable weight	5.3 kg/100 m nominal (3.5 lb/100 ft nominal)

Technical Information

Breaking strength	>100 kg (220 lb)
Cut-through force	>100 kg (220 lb) with 1.3 mm (0.05 in) radius blade
Maximum/minimum exposure temperature	100°C/-40°C (212°F/-40°F)
Non-resettable	Must be replaced after exposure to acid
Water resistance	Sensing cable has been designed to be permanently resistant to water in normal use. No sensing cable degradation observed after 48 hours of immersion in water at 95°C (203°F). No sensing cable degradation observed after 30 days in water at 21°C (70°F), or 10 days in 3% salt water at 21°C (70°F).

Acid Response Time

Acid type and concentration (wt. %)	Typical response time at 20°C (68°F)	Typical response time at -5°C (23°F)
98% sulfuric acid	3 minutes	17 minutes
90% sulfuric acid	1 hour	10.5 hours
85% sulfuric acid	No reaction within 24 hours	
69% nitric acid	5 minutes	48 minutes
60% nitric acid	45 minutes	12.5 hours
55% nitric acid	22 hours	No reaction within 24 hours

Note: Contact factory for other acids and dilutions. The response times listed are for reference only and not meant to be guaranteed response times. Customers should test their

particular fluid to determine whether the sensing cable response time meets their need for the specific application.

Approvals and Certifications

TraceTek TT7000 sensing cables are approved for installation in ordinary and hazardous locations when used in conjunction with approved TraceTek monitoring equipment and zener safety barriers when appropriate.

All TraceTek sensing cables are designated as “simple apparatus” and included in the approval certification for TraceTek monitoring instruments.

Consult the specific data sheets and approval certificates for the TraceTek TT-TS12, TTDM-128, TTSIM-1, TTSIM-1A, TTSIM-2, TTC-1 and TT-FLASHER-BE for application limitations and specific area approvals and certifications.



Important: All information, including illustrations, is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their application.