

Selection Guide

ト

TraceTek Products



1. How to use this guide	Introduction	1
	System description	1
	Directions for using the guide	1
2. Preselection checklist of	Directions for using this section	3
key parameters for double containment nine	Clearance	3
uouble containment pipe	Access points (pull points)	3
	Pull rope	3
	Sealed containment space	3
3. System selection	Directions for using this section	4
	Question 1: Sensor selection	4
	Question 2: Leak detection system selection	4
	Matrix 1: Sensing cable and alarm module selection	4
	Matrix 2: Alarm module selection	5
4. Sample configurations	Directions for using this section	6
and bills of materials	Locating system	6
	Zone system	7
	Nonlocating single-channel system	8
	Nonlocating multiple-channel system	9
5. Product selection and	Directions for using this section	10
ordering information	Locating alarm modules	10
	Zone alarm modules	11
	Nonlocating single-channel alarm modules	11
	Nonlocating multiple-channel alarm modules	12
	Aqueous sensing cables	12
	Fuel hydrocarbon sensing cables	13
	Solvent hydrocarbon sensing cables	13
	Components	14
	Installation tools	16

1. How to use this guide

Introduction	The purpose of this guide is to assist engineers designing TraceTek leak detection systems through the process of configuring an optimal system. For additional design information, please refer to the Design Guide for Double Containment Pipes and Tanks (H54433).
System description	A TraceTek leak detection system has three basic parts: • Module • Sensing cable • Components
	This guide will help you select the right product for each of these parts, as well as the tools necessary for a complete installation.
Directions for the guide	The guide has four main sections: • Preselection checklist (Section 2) • System selection (Section 3) • System configurations (Section 4) • Product selection and ordering information (Section 5)
	Section 2 is applicable if you are selecting product for a double containment pipe system. It helps you verify that your pipe system design and installation complies with the guidelines for installing leak detection cables.
	Section 3 helps you decide on the backbone of your system: the module and sensing cable.
	Section 4 shows you examples of how your system will look and what products it should have.
	Section 5 provides the product and ordering information you need to produce a detailed bill of materials for your complete system.

2. Preselection checklist of key parameters for double containment pipe



• Containment pipe fabricated to be liquidtight and sealed from the environment

3. System selection

Directions for using this section	This section will enable you to select the two most important components of your system: the module and the sensing cable.			
	First answer Questions 1 and 2 below. Next, pick the cell in Matrix 1 that represents your two answers. This cell shows the sensing cable you need and one or more possible modules.			
	If Matrix 1 lists two modules for your system, use Matrix 2 to compare information on both modules, then decide which module to order for your application.			
Question 1: Sensor selection	What fluid do you want to detect?			
	A. Aqueous fluids (water, acids, bases, industrial waste, leachate, etc.)B. Solvents (TCE, trichloroethane, toluene, etc.)C. Fuels or oils (gasoline, diesel, jet fuel, heating oil, motor oil, hydraulic fluid, etc.)D. Other			
Question 2: Leak detection system	What type of leak detection system do you want?			
selection				
	A. Locating (locates the precise distance to the leak in feet or meters)			
	B. Zone (monitors up to 50 five-toot zone sensors)			
	C. Nonlocating single-channel (alarms and identifies channel(a) where lock accure)			

Matrix 1: Sensing ca module sel	ble and alarm ection				
		Answer to quest	ion 2		
		A Locating	B Zone	C Nonlocating single channel	D Nonlocating multiple channel
Answer to question	1				
A. Aqueous	Sensing cable Alarm module	TT3000 TTB/TTE	TT3000 TTB-IZA/TTE-Z	TT3000 TTA/TTC	TT3000 TTG
B. Solvents	Sensing cable Alarm module	TT501 TTB/TTE	TT501 TTB-IZA/TTE-Z	TT501 TTA/TTC	TT501 TTG
C. Fuels or oils	Sensing cable Alarm module	TT5000 TTB/TTE	TT5000 TTB-IZA/TTE-Z	TT5000 TTA/TTC	TT5000 TTG
D. Other		Call Raychem	Call Raychem	Call Raychem	Call Raychem

Matrix 2: Alarm module selection

	Answer to question 2				
	A Locating system	B Zone system	C Nonlocating single-channel system	D Nonlocating multiple-channel system	
Module Type					
ТТВ	 Metal enclosure 120/240 Vac Surface mount Maximum sensing cable: 2000 ft or 1000 m* 				
TTE	 Plastic enclosure 24 Vac/Vdc Surface mount or control-panel mount Maximum sensing cable: 2000 ft or 1000 m* 				
TTB-IZA		 Metal enclosure 120/240 Vac Surface mount Up to 50 zones; fixed length: 5 ft/zone 			
TTE-Z		 Plastic enclosure 24 Vac/Vdc Surface mount or control-panel mount Up to 50 zones; fixed length: 5 ft/zone 			
TTA			 Metal enclosure 120/240 Vac; 24 Vdc Surface mount Maximum sensing cable; 200 ft (60 m) 		
ттс			 Plastic enclosure 12 to 24 Vac; 15 to 24 Vdc Control-cabinet mount Maximum sensing cable: 200 ft (60 m) 		
TTG				 Metal enclosure 120/240 Vac One jumper/channel Up to 12 channels Maximum sensing cable: 200 ft (60 m) per channel 	

* For applications requiring more than 1000 meters of cable, tandem circuits and multipair communication cable may be used. For more information, contact Raychem or your TraceTek representative.

TraceTek Product Selection Guide

4. Sample configurations and bills of materials

Directions for using this section

This section provides a sample configuration and bill of materials for each of the four types of TraceTek leak detection systems outlined in Section 3.

Find the drawing for the type of system you selected in Section 3. With the drawing you will find a sample bill of materials listing the products necessary for that system and its installation.

Use the sample bill of materials as a guide. You will have to adjust the lengths, quantities, number, and type of fittings to meet your application's specific needs.

Locating system



Catalog Number	Description	Qty
TTB-FA	Locating alarm module	1
TT-JC-250	Jumper cable—bulk	1
TT-JC-CK-MC-F	Metal connector kit	1
TT-PFT-3/4-MC	Pressure feedthrough fitting	1
TT3000-SC	TT3000 cable	1250'
TT-MBC-MC	Modular branch connector	1
TT3000-CK-MC-M/F	Metal connector kit	1
TT-CT-SCT-3000	Crimp tool	1
TT-MET-MC	Modular end termination	2
TT-Kellem Grip	Kellem Grip	1
TT-PR	Pull rope, 500-ft. reel	3
TT-PTB	Portable test box	1
TT-Ultratorch	Ultratorch 200	1

Zone system



Typical bill of materials: Three-zone sump (monitoring watery waste sumps on 50-foot centers with the panel located 10 feet from the first junction box)

Catalog number	Description	Qty
TTB-IZA	Zone alarm module	1
TT-MLC-MC	Modular leader cable	1
TT-OZC-MC	Zone connector	3
TT3000-ZONE-MC	Zone sensing cable	3
TT-MJC-15M/50FT-MC	Modular jumper cable	2
TT-MET-MC	Modular end termination	1

4. Sample configurations and bills of materials

Nonlocating single-channel system



Typical bill of materials: Single-channel underground fuel tank sensor located 100 feet from the alarm module

Catalog number	Description	Qty
TTA-1-UL	Alarm module	1
TT-MJC-100-MC	Modular jumper cable	1
TT-TAK	Tank access kit	1
TT-MJC-5-MC	Modular jumper cable	1
TT5000-3M/10FT-10-MC	Modular sensing cable	1
TT-MET-MC	Modular end termination	1

Nonlocating multiple-channel system



Typical bill of materials: Three-channel fuel monitoring system (independently monitors two indoor tanks and a pump)

Catalog number	Description	Qty
TTG-4	Alarm module	1
TT5000-MSC-10-MC	Modular sensing cable	1
TT5000-MSC-25-MC	Modular sensing cable	2
TT-MJC-30M/100FT-MC	Modular jumper cable	3
TT-MET-MC	Modular end termination	3
TT-HDC-1/2-NA-50	Hold-down clips (not shown)	1

Directions for using this section

This section presents detailed technical and ordering information for the parts you have selected. It covers each type of module, sensing cable, component, and installation tool.

Find the information on the type of module you have selected. Study the information and verify that the module is correct for your application. Take note of the catalog number.

Catalog number

Repeat this procedure for the sensing cable and components. Then review the installation tools to determine what tools your installation requires. You may use the typical bill of materials from section 4 for guidance.

Locating alarm modules



Description

Locating alarm module for all TraceTek sensing cables Metal enclosure, NEMA Type 1* (IP20)	TTB-xA
Display:	
F = 1 - 2000 feet	
M = 1 - 1000 meters	
Supply voltage: 120/240 Vac	
Standard relays: SPD1	
Approvals: UL, FM, and CSA	
Optional accessories	
Current transmitter (4–20 mA)	TIB-CIR-x
Calibration:	
F = feet	
M = meters	
Continuity relay	TIB-REL
Semiflush mounting flange	TTB-FLG
External audible alarm	TTE-XAL
MIL zener barrier kit (optional when intrinsically safe	I I-Zener-Barrier-Kit
sensor circuits are required; includes two MTL-765	
zener safety barriers in one housing)	
Locating alarm module for all TraceTek sensing cables	TTE-xx-R
Plastic enclosure, NEMA Type 12 (IP65)	
Display:	
F = 1 - 2000 feet	
M = 1-1000 meters	
Supply voltage: 24 Vac or Vdc	
Enclosure style:	
B = semiflush control panel mount	
S = surface mount	
Standard relays: DPDT and SPDT	
Approvals: BASEEFA	
Optional accessories	
Current transmitter (4–20 mA)	TTE-CTR-xR
Calibration:	
F = feet	
M = meters	
External audible alarm	TTE-XAL
MTL zener barrier kit (optional when intrinsically safe	TT-Zener-Barrier-Kit
sensor circuits are required; includes two MTL-765	
zener safety barriers in one housing)	
Custom leak detection panel engineered to house multiple	TT-I DP-1
TTE modules. Contact factory for quote	

* For other NEMA-rated enclosures or customer-engineered panels, consult factory.

Zone alarm Description Catalog number modules Zone alarm module for all TraceTek sensing cables. TTB-IZA Metal enclosure, NEMA Type 1* (IP20) Display: 1-50 zones (for use with TT-ZONE sensors only) aychem TraceTek 0 Supply voltage: 120/240 Vac Standard relays: SPDT Approvals: UL, FM, and CSA Optional accessories Current transmitter zone system (4-20 mA) TTB-CTR-IZ Continuity relay TTB-REL Semiflush mounting flange TTB-FLG External audible alarm TTE-XAL MTL zener barrier kit (optional when intrinsically safe TT-Zener-Barrier-Kit sensor circuits are required; includes two MTL-765 zener safety barriers in one housing) Zone alarm module for all TraceTek sensing cables TTE-Zx-R

Plastic enclosure, NEMA Type 12 (IP65)

Supply voltage: 24 Vac or Vdc

External audible alarm

B = semiflush panel mount S = surface mount Standard relays: DPDT and SPDT

Enclosure style: -

Approvals: BASEEFA Optional accessories

Display: 1-50 zones (for use with TT-ZONE sensors only)

Current transmitter zone system (4-20 mA)

MTL zener barrier kit (optional when intrinsically safe

sensor circuits are required; includes two MTL-765

		zener safety barriers in one housing)	
Nonlocating single-channel		Description	Catalog number
alarm modules	TraceTek	Nonlocating single-channel alarm module Metal enclosure, NEMA Type 1 (IP20) Supply voltage: 120/240 Vac Standard relay: SPDT Approvals: UL and CSA	TTA-1-UL
		Nonlocating single-channel alarm module with extra relay contacts Plastic enclosure NEMA Type 1 (IP20) Supply voltage: 12–24 Vac/15–24 Vdc Standard relay: DPDT and SPDT Approvals: UL, CSA, and BASEEFA Optional accessories: External audible alarm Mounting system for DIN rail	TTC-1 TTE-XAL TT-DIN-RAIL
		Custom leak detection panel, engineered to house	TT-LDP-2

* For other NEMA-rated enclosures or customer-engineered panels, consult factory.

multiple TTC modules (contact factory for quote)

TTE-CTR-IZR

TT-Zener-Barrier-Kit

TTE-XAL

Nonlocating		Description	Catalog number
muitipie-channei alarm module	TraceTek	Nonlocating multiple-channel alarm module Metal enclosure, NEMA Type 12/13 (IP65) Alarm channels: 4 = 4 channels 12 = 12 channels Standard relay: SPDT master relay Approvals: UL Supply voltage: 120/240 Vac	TTG-x
Aqueous sensing cables		Description	Catalog number
		TT3000 series locating sensing cable with metal connectors for locating conductive fluid Cable length: 0.3 meter/1foot 1.5 meters/5 feet 3 meters/10 feet 4.5 meters/15 feet 7.5 meters/25 feet 15 meters/50 feet 30 meters/100 feet 60 meters/200 feet	TT3000-xM/xFT-MC
		TT3000 series bulk sensing cable for locating conductive fluid Cable length: xxx feet Connectors not included (use with TT3000-CK-MC-M or F connector kits) Reel size: Maximum 1000 feet Minimum order 250 feet	TT3000-SC-xxx
		TT3000 series zone sensing cable for detecting conductive fluid Cable length: 5 feet Metal connector and heat-shrink end termination	TT3000-ZONE-MC

 * For other NEMA-rated enclosures or customer engineered panels, consult factory.

Fuel hydrocarbon sensing cables	Description	Catalog number
	TT5000 series locating sensing cable for locating fuels,	TT5000-xM/xFT-MC
	with metal connectors	
	Cable length:	
	0.3 meter/1foot	
	1.5 meters/5 feet	
	3 meters/10 feet	
	4.5 meters/15 feet	
	7.5 meters/25 feet	
	15 meters/50 feet 30 meters/100 feet	
	TT5000 series bulk sensing cable for locating fuels Cable length: xxx feet	TT5000-SC-xxx
	Connectors not included (use with TT5000-CK-MC-M or -F connector kits)	
	Reel size: Maximum 425 feet	
	Minimum order 100 feet	
	TT5000 series zone sensing cable for detecting fuels	TT5000-ZONE-MC
	Cable length: 5 feet	
Solvent hydrocarbon sensing cables	Description	Catalog number
	TT501 series locating sensing cable for locating solvents, with metal connectors	TT501-MSC-xx-MC
	1 foot	
	5 foot	
	10 feet	
	10 leel	
	50 feet	
	TT501 series zone sensing cable for detecting solvents Cable length: 5 feet	TT501-ZONE-MC

* For other NEMA-rated enclosures or customer engineered panels, consult factory.

Components	Description	Catalog number
¢	Modular leader cable	TT-MLC-MC
(Cable length: 12 feet	
	Metal connector at one end	
	Jumper cable	TT-JC-xxx
	Bulk reel	
	Cable length: xxx feet	
	1000 feet minimum, 2000 feet maximum Connectors not included (use with TT-JC-0	m CK-MC-M or -F)
(Jumper cable	TT-JC-250
	Bulk reel	
	Cable length: 250 feet per reel	
	Connectors not included (use with TT-JC-0	CK-MC-M or -F)
	Modular jumper cable with metal connectors Cable length:	TT-MJC-xM/xFT-MC
	1.5 meters/5 feet	
	3.0 meters/10 feet	
	7.5 meters/25 feet	
	15 meters/50 feet	
	30 meters/100 feet	
	Metal connectors preinstalled	
	Modular end termination Metal connector	TT-MET-MC
¢	Modular branch connector (connects a branch	circuit TT-MBC-MC
E	Metal connectors	
	Weighted length Simulates 15 feet of sensing cable Metal connectors	TT-WL-4.5 M/15 FT-MC
li	Zone connector (connects one zone to the	TT-OZC-MC
	sensing circuit)	
•	Metal connectors preinstalled on all legs	
>	Field-wired zone connector (connects one zon	e TT-OZC-L
u	to the sensing circuit)	
<i>,</i>	Lead wire connections with metal connector	or .
	for center leg only (use with TT-JSK-HS18 TT-JC bulk jumper wire)	and
	Splice kit	TT-JSK-HS18
	()) Contains 20 crimps and 5 heat-shrinkable	tubes
	For use with 18-AWG jumper wire only (no	t appropriate
	for splicing sensing cables)	
	ier opnonig concert	

Components (continued)		Description	Catalog number
		Metal connector kit for TT3000 bulk sensing cable Contains five mated pairs. Includes FET-MC, MET-MC, and pin and socket test tools. Requires TT-CT-SCT-3000 crimp tool.	TT3000-CK-MC-M/F
		Metal connector kit for TT3000 bulk sensing cable Contains components for one pin-type connector. Requires TT-CT-SCT-3000 crimp tool.	TT3000-CK-MC-M
		Metal connector kit for TT3000 bulk sensing cable Contains components for one socket-type connector. Requires TT-CT-SCT-3000 crimp tool.	TT3000-CK-MC-F
		Metal connector kit for TT5000 bulk sensing cable Contains five mated pairs. Includes FET-MC, MET-MC, and pin and socket test tools.	TT5000-CK-MC-M/F
		Metal connector kit for TT5000 bulk sensing cable Contains components for one pin-type connector.	TT5000-CK-MC-M
		Metal connector kit for TT5000 bulk sensing cable Contains components for one socket-type connector.	TT5000-CK-MC-F
		Metal connector kit for TT jumper cable Contains components for one pin-type connector.	TT-JC-CK-MC-M
		Metal connector kit for TT jumper cable Contains components for one socket-type connector.	TT-JC-CK-MC-F
		Tool kit for connector kits Contains FET-MC, MET-MC, and pin and socket test tools.	TT-CK-TOOL KIT
	₩ <u>₽</u> ₽₽₽₩	Pressure feedthrough, 3/4-inch NPT brass fitting Metal bulkhead connectors included.	TT-PFT-3/4-MC
	∭]∎≬≖ ∰∭	Pressure feedthrough, 3/4-inch NPT stainless steel Metal bulkhead connectors included.	TT-PFT-3/4-SS/MC
		Tank access kit (allows entry of one or two sensing cables into double-wall tanks). If two sensing cables are required, order additional pressure fitting TT-PFT-3/4-MC. Kit includes: 3.5-inch-O.D. PVC coupling Slip cap with two 3/4-inch NPT holes 3/4-inch plug One pressure feedthrough fitting TT-PFT-3/4-MC	TT-TAK
		Hold-down clips with adhesive backs Bag of 50 clips Clip size: 1/4-inch for use with TT3000 sensors 1/2-inch for use with TT501 or TT5000 sensors	TT-HDC-xx

Installation tools		Description	Catalog number
		Portable test box (for installation and maintenance of TraceTek sensing cables) Plastic connector Plastic-to-metal adapter Alligator clips Supply voltage: 9-volt battery	TT-PTB-1000
		Optional adapter kit (includes all adapters necessary for installing and troubleshooting TT3000, TT5000, TT501 cables) Adapter-Y Metal socket to metal socket adapter Metal pin to metal pin adapter Metal socket end termination	TT-Adapter Kit
		Adapter (for connecting portable test box to metal pin connector or metal socket connector)	TT-Adapter-Y
	L TRATORCH	Ultratorch 200 flameless heating tool (for shrinking tubing over connectors)—alternative to CV5000 heat gun or CV5300 heat gun	TT-Ultratorch
		Cable pulling tool (steel cable—12-inches—with end loop and metal connector) Set of two tools: pin and socket	TT-CPT-MC
		Polypropylene pull rope (1/4-inch hollow braid for pulling sensing cable into double-containment pipe) Reel size: 500 feet	TT-PR
		Crimp tool (for installing all TT3000 CK kits)	TT-CT-SCT-3000
		Green Lee [®] stripping tool (for installing JC, TT3000, and TT5000 bulk cables)	TT-Stripper
		Kellem Grip (for pulling TT3000 and TT5000 bulk cables)	TT-Kellemgrip
		Crimp tool for TT-JSK-HS18	AD-1522-1-Crimping Tool

All information, including illustrations, is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their application. Raychem makes no warranties as to the accuracy or completeness of the information, and disclaims any liability regarding its use. Raychem's only obligations are those in the Raychem Standard Terms and Conditions of Sale for this product, and in no case will Raychem be liable for any incidental, indirect, or consequential damages arising from the sale, resale, use, or misuse of the product. Specifications are subject to change without notice. In addition, Raychem reserves the right to make changes—without notification to Buyer—to materials or processing that do not affect compliance with any applicable specification.

(

í

i

į

i

Raychem Corporation

TraceTek Products Group 300 Constitution Drive Menlo Park, California 94025-1164 Tel (800) 545-6528 Fax (415) 361-3904

Raychem Corporation

2015 Spring Road Suite 700 Oak Brook, IL 60521 Tel (800) 227-0105 Fax (708) 572-1469