

INSTALLED VEHICLE TRANSIT MONITOR

Model Series ~ VMF-TA VMF-TA ~ VMF-SC ~ VMF-TA-11 VMF-TA-CHEM

FEATURES:

- BETA / GAMMA DETECTORS
- **OPTIONAL** – ADD CHEMICAL DETECTORS – LIST ON LAST PAGE
VMF-TA-CHEM

VMF-TA & VMF-TA-SC ~ (2) TOWERS – (STANDARD)

(1) PLASTIC SCINTILLATION PANEL : 792 in³ VOLUME EACH, SENSITIVE AREA:
528 in² EACH TOWER

STANDARD: (1) PM TUBE FOR EACH DETECTOR PANEL

OPTIONAL PREMIUM (P): DUAL PM TUBES IN EACH DETECTOR PANEL FOR
ENHANCED SENSITIVITY

- OPERATES ON AC; **OPTIONAL:** BATTERY "BACK-UP"
- **VMF-TA** ALARMS AT 7 μ R/h RISE WITHIN 1 SECOND,
PASS THROUGH COUNT
- **VMF-SC** SEES AND CAN ALARM AT 1 μ R/h ABOVE BACKGROUND -
STOP AND COUNT
- **OPTIONAL:** (4 TOWERS) – (2) PAIRS) DOUBLES THE DETECTOR AREA &
VOLUME
- (4) PLASTIC SCINTILLATION PANELS (1) IN EACH TOWER. 792 in³ VOLUME
EACH, SENSITIVE AREA: 528 in² EACH TOWER
- **OPTIONAL:** OVERHEAD DETECTOR; (1) PLASTIC SCINTILLATION PANEL 792
in³ VOLUME, SENSITIVE AREA: 528 in²

VMF-TA-11 ~ (2) TOWERS

- **(11)** (5) PLASTIC SCINTILLATION PANELS EACH TOWER AND (1) OVERHEAD.
- 792 in³ VOLUME EACH, SENSITIVE AREA: 528 in² EACH TOWER AND IN
OVERHEAD DETECTOR PANEL
- **STANDARD:** (1) PM TUBE FOR EACH DETECTOR PANEL
- **OPTIONAL PREMIUM (P):** DUAL PM TUBES IN EACH DETECTOR PANEL FOR
ENHANCED SENSITIVITY

VMF-TA SERIES

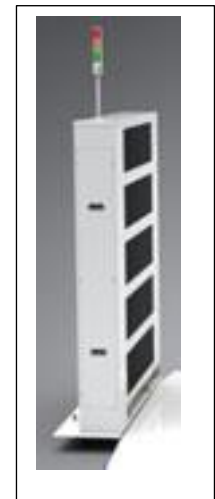
- **OPTIONAL:** WIRELESS REMOTE NOTIFICATION – PHONE, EMAIL, TEXT, ETC.
- REAL TIME DATA DOWNLOAD & ARCHIVE
- VIDEO – REAL TIME DISPLAY & CAPTURE
- AUDIO & VISUAL ALARM INCLUDES STROBE & HORN
- COMPLETELY WEATHER PROOF METAL HOUSING
- DYNAMIC BACKGROUND SUBTRACT; COMPUTER & SOFTWARE
- FAST RATE OF CHANGE DESIGN
- CONTINUOUS OPERATION: "SET AND FORGET"
- **OPTIONAL:** NEUTRON DETECTOR - NEUTRON FLUX EMITTED FROM
A Cf₂₅₂ SOURCE OF 0.01 μ g (APPROX. 20,000 N/S)
- **OPTIONAL:** VEHICLE SPEED SENSOR, LICENSE PLATE CAPTURE,
ANCHORING PEDESTAL STAND
- **IP 67 DETECTOR;** IP 52 ELECTRONICS



VMF-TA



**VMF-TA-O
OVERHEAD DETECTOR
OPTION**



**5- Detector Panel Tower
Each Tower VMF-TA-11**



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Model VMF-TA: Is a Pass-Through system.

Model VMF-TA-SC: Achieves greater sensitivity by Stop And Count approach.

NOTE: **Pass-Through** and **Stop and Count** functions are available for all models.

Chemical detectors can be added to all models

DESCRIPTION:

The **Model VMF-TA Series** are high sensitivity Gamma Monitoring systems for determining possible radiation contamination in containers or vehicles on a non-pause basis. plastic scintillation panels have higher sensitivity than cylindrical shaped scintillation crystals due to the larger surface area.

These systems can be installed at entrance and/or exit gates, at weight stations or check points, or anywhere that cars, trucks, rail cars or pedestrians will pass by; preferably at reduced speeds for more accurate readings.

Background is continually updated and subtracted thus giving net vehicle reading.

NOTE: Volume is not the key factor for sensitivity, it is the surface area of the detector. This is why TA uses scintillation panels instead of cylindrical detectors. The detection sensitivity is not in volume but the surface area.

OPTIONAL: CHEMICAL DETECTORS FOR AIRBORNE CHEMICALS – SEE LIST ON THE LAST PAGE

Model VMF-TA Series:

- Each plastic scintillation panel has 792 in³ volume and a sensitive area of 528 in² in each detector. Total detector sensitivity area of (2) towers and with optional (1) overhead 5808 in².
- A PM tube is matched with each scintillation panel.
- Operates from 110/220 AC power main. **OPTIONAL:** Battery back-up.
- Rate of change electronics with audio and visual alarms.
- Background is continually updated and subtracted thus giving net contamination reading.
- Operation for rugged outdoor use as well as indoors with bi-lateral direction entry.
- Since the operation of this instrument is based on rate of change in radiation, it will reliably pick up contamination as it passes near the monitor.
- Indoor/Outdoor Camera - Video capture of truck type, driver, and optional license plate capture.
- Free-standing strobe & horn alarm.
- **Detector Range:** 1 µR/hr to 1 mR/hr.

VMF-TA SERIES DETECTOR SYSTEMS:

- **VMF-TA, VMF-SC,** includes the electronic control/alarm console plus (1) vertical plastic scintillator detector panel in each tower. Detectors have 792 in³ volume in each and a sensitive area of 528 in² each detector tower. Each detector panel has (1) Photomultiplier (PM) tube. (Standard)
- **VMF-TA-11** includes (11) horizontal scintillation panels (5 in each of (2) towers and one overhead; the electronic control/alarm console. (1) Photomultiplier (PM) tube per detector.
- **OPTIONAL PREMIUM (P):** Dual PM tubes for each detector panel for enhanced sensitivity.
- **VMF-TA-CHEM** for airborne chemicals, see list on last page.

**5- Detector Panel Tower
Each Tower VMF-TA-11**



OPTIONAL NEUTRON DETECTOR:

Neutron flux emitted from a Cf-252 source of 0.01 µG (approximately 20 000 n/s) for a duration of 5 seconds, at 2 m distance. Neutron dose rate corresponding to irradiation conditions approximately 0.05 µSv/h. Detection of nuclear material and special / fissile nuclear materials.



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SPECIFICATIONS:

DETECTORS - PLASTIC SCINTILLATORS:

VMF-TA & VMF-SC: 2 towers each unit. 1 detector in each tower (Standard)
12" W x 1.5" D x 45" H
Sensitive Volume: 792 in³ per detector.
Sensitive Area: 528 in² per detector.
(1) Photomultiplier (PM) tube per detector.

OPTIONAL:

VMF-TA-4: 4 towers each unit. 1 detector in each tower
12" W x 1.5" D x 45" H
Sensitive Volume: 792 in³ per detector.
Sensitive Area: 528 in² per detector.
(1) Photomultiplier (PM) tube per detector.

OPTIONAL PREMIUM (P): Dual PM tubes for each detector panel for enhanced sensitivity.

Model VMF-TA-11 is a high sensitivity Gamma Monitoring system for determining possible radiation contamination. The pass through and stop-and-count functions are between two towers, each with 5 plastic scintillation panels, and under the overhead detector. Measurement process is a stop-and-count between the towers for higher sensitivity.

- **VMF-TA-11** includes the electronic control/alarm feature with (11) horizontal plastic scintillation panels, (5) in each of two towers and one overhead detector.

OPTIONAL VMF-TA-4-11: (4) towers and one overhead detector in each pair of towers. includes the electronic control/alarm feature. (11) plastic scintillation panels, (5) detectors in each tower, (1) Photomultiplier (PM) tube per detector.

VM-F-TA-11 2 towers each unit
(5) plastic scintillation panels in each tower
(1) plastic scintillation panel in overhead detector
12" W x 1.5" D x 45" H
Sensitive Volume: 792 in³ per detector.
Sensitive Area: 528 in² per detector.
Total sensitivity area of two towers and (1) overhead is 5808 in².
(1) Photomultiplier (PM) tube per detector.

OPTIONAL PREMIUM (P): Dual PM tubes for each detector panel for enhanced sensitivity.

OPTIONAL: VMF-TA-O: (OVERHEAD Detector) for all models:

(1) plastic scintillation panel in overhead detector
12" W x 1.5" D x 45" H
Sensitive Volume: 792 in³ per detector.
Sensitive Area: 528 in² per detector.
(1) Photomultiplier (PM) tube per detector.



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ELECTRONICS VMF-TA SERIES:

Power Requirements:	110/220 Volts AC, 50/60 Hz. OPTIONAL: Battery Back UP
Power Connection:	Conduit or cable 6 ft. cable furnished. Three Prong grounded connector.
High Level Alarm:	Flashing red light and intermittent 2900 Hz tone. (90 dB)
Alarm Set:	VMF-TA-Series internal factory set at .007 mR/hr (0.2 µSv/hr) rise per second. May be reset by user. <u>PASS THROUGH COUNT</u> VMF-TA-SC internal factory set at 10% above ambient background. May be reset by user. <u>STOP AND COUNT</u>
Scanning Speed:	3 mph – 7 mph (5 -7 km/h)
Housing:	Weather-tight NEMA rated steel housing; water, moisture, & dust tight IP65.
Cable:	100 ft Standard (User Specified Length)

DISPLAY

Alarm Indicators:	Ready - OK- High Alarm –Fail – Battery Power in Use – Audio/Visual Alarm.
Count Time:	1 to 20 seconds (VMF-TA-SC <u>Stop and Count</u> system only).
Energy Range:	Gamma: 80 KeV to 6 MeV. Beta: above 1 MeV, includes P ³² , Sr ⁹⁰ , & N ¹⁶ .
Communications:	Built-in serial port and Ethernet Node.
Dimensions:	Control Box / Computer: 16" x 20" x 10" (41 x 51 x 25 cm) typical. Plus Alarm Beacon.

WEIGHT & DIMENSIONS:

Detector Towers:	VMF-TA, VMF-SC	54" H x 15.5" W x 7" D. (137 x 39 x 18 cm)
Weight:		120 lbs. (54.5 kg)
Detector Towers:	VMF-TA-11:	78" H x 10" W x 64" D. (198 x 163 x 26 cm)
Weight:		TBD Based on customer requesting shielding

VMF-TA SERIES OPTIONS:

Remote Alarm:	RAL-3W flasher, siren.
Check Source:	Cs-137 source; license exempt.
Video Capture:	of ' PASS THROUGH ' triggered by alarm.
Check Source:	RAU-BGX, uranium source; license exempt.
Additional Relay:	5A SPDT to operate other circuits.
Remote Alarm:	RAL-3W flasher, siren.
Power:	220 V, 50-60 Hz., Battery Back-up.
Video:	License plate capture Vehicle Speed Record
Shielding:	Provision made for adding shielding plates is available



Sample Display Readout



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Alternate Detector Types: NaI(Tl) Scintillators or BGO crystal.

Additional Detectors: Plutonium or Neutron or Beta.
Photo cell vehicle sensors(s) to initiate count
Chemical – SEE LIST LAST PAGE

VMF-TA-L/O uses the same detectors as the other VMF-TA Series models, but has simplified electronics with the **LAM-10D** "Alarming Ratemeter", instead of "Rate of Change" electronics.

ELECTRONICS LAM-10D:

- The LAM-10D rate-meter is rugged and easy to use for field application.
- Operated by AC mains or by rechargeable batteries. 0
- Batteries are automatically put in trickle charge mode when LAM-10D is plugged into AC.
 - ❖ LCD DISPLAY: 6 DIGIT RATE-8 DIGIT INTEGRATE
 - ❖ 5 DECADES
 - ❖ VERSATILE APPLICATION
 - ❖ WORKS WITH ALPHA, BETA, GAMMA, NEUTRON DETECTION
 - ❖ WALL MOUNT OR PORTABLE
 - ❖ AC POWER
 - ❖ RECHARGEABLE BATTERIES
 - ❖ SETTABLE ALARM -BEEPER FLASHER
 - ❖ COMPUTER INTERFACE: RS232 STANDARD **OPTIONAL: USB**
 - ❖ **IP65**



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CHEMICAL DETECTORS COMPARISON 2024			
AGENTS AND PRECURSORS	MAJOR DETECTION	DRONECHEM-WDE CHEM-WDE-H (Warfare, Drugs, Explosives)	DRONECHEM-2-IWC CHEM-2-IWC-H (Irritants, Warfare, Chemicals)
WAR GASES			
		YES	YES
	CWA	YES	YES
NERVE GASES			
		YES	YES
POISONS			
		YES	YES
	NOVICHOK	YES	
	SARIN	YES	YES
	SULFUR MUSTARD	YES	YES
	VS VX	YES	
	CYANIDE		YES
IRRITANTS			
		YES	YES
	PEPPER SPRAY	YES	YES
	MACE		YES
	TEAR GAS		YES
EXPLOSIVES			
	EXPLOSIVES	YES	
	LEL EXPLOSIVE LEVEL		YES
DRUGS			
	METHAMPHETAMINE	YES	
	FENTANYL	YES	



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CHEMICAL DETECTORS COMPARISON 2024 (cont'd)			
AGENTS AND PRECURSORS	MAJOR DETECTION	DRONECHEM-WDE CHEM-WDE-H (Warfare, Drugs, Explosives)	DRONECHEM-2-IWC CHEM-2-IWC-H (Irritants, Warfare, Chemicals)
DANGEROUS CHEMICALS			
	METHANE	OPTIONAL - YES	OPTIONAL - YES
	TIC -TOXIC INDUSTRIAL CHEMICALS	YES	YES
	CHLORINE	OPTIONAL – YES	YES
	AMMONIA	OPTIONAL – YES	YES
	SULFUR DIOXIDE	OPTIONAL – YES	YES
	CARBON MONOXIDE	OPTIONAL – YES	YES
	FORMIC ACID	OPTIONAL – YES	YES
	PHOSPHORUS	OPTIONAL - YES	YES
	DIESAL FUMES/PARTICULATES	OPTIONAL - YES	OPTIONAL - YES
	HYDROGEN SULFIDE	OPTIONAL - YES	OPTIONAL - YES
	CARBON DIOXIDE	OPTIONAL - YES	OPTIONAL - YES
	NITROGEN DIOXIDE	OPTIONAL - YES	OPTIONAL - YES
	VOC	OPTIONAL - YES	OPTIONAL - YES



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