



**Check Radioactivity
In Your Area With**

MINI**TRACE**



***Dosimeters, Dose Rate Meters and
Contamination Meters for Alpha,
Beta, Gamma and X-Ray Detection***



**Made in
Germany**

MiniTRACE is designed to improve the safety of workers in the control areas of nuclear power plants, reprocessing plants, research centers and hospitals. It can likewise offer strong safety benefits to public bodies like the police, fire brigades or the military.

Four alarm thresholds are pre-programmed. These thresholds can also be changed by user via IR communication. For precise measurement in very low radiation environment, a "mean value mode" can be started. In standard mode, the instrument offers very fast response to radiation variations. Different instrument versions are available to meet individual customer needs. The new type CSDF offers flexible use for various applications.

MiniTRACE is supplied with two batteries for a long battery lifetime (up to 2.000 hours). A large 6-digit screen displays the results.

Features

- Fast response time (1 sec.)
- Integration time adapted to change of measured value
- Additional "mean value mode" for precise measurement of low radiation levels
- Long battery lifetime (up to 2000 hours)
- Four alarm threshold settings, visual and audible alarm output
- Audible pulse output
- Infrared interface
- Calibrated according to international standards

Applications

- Radiation control areas f. ex. in nuclear power plants or reprocessing plants
- Research centers
- Hospitals
- Police, fire brigades, army
- Schools, universities, educational purposes
- Industrial X-ray applications
- Building- or raw materials, scrap, minerals
- Search for depleted and enriched uranium, radioactive material, fission products
- Food control

| | MiniTRACE type | S10 | S100 | C10 | CSDF |
|---------------------------|--|-----|------|-----|------|
| Type of radiation | α detection | | | X | X |
| | β detection | | | X | X |
| | γ detection | X | X | X | X |
| | X-Rays | X | X | X | X |
| Unit of Measure | cps | | | X | X |
| | nSv/h | X | X | | X |
| | Bq | | | | X |
| | Bq/cm ² | | | | X |
| | Bq/L | | | | X |
| Appli-cations | Dose rate | X | X | | X |
| | Surface contamination | | | X | X |
| | Food contamination | | | | X |
| Optional functions | Storage, dose function | X | X | | |
| | Wireless data transmission (SkyLINK/ShortLINK) | X | X | | |
| | GPS | X | X | | |



■ **MiniTRACE Gamma S10S - Gamma dose rate meter (high sensitivity)**



MiniTRACE S10S measures the dose rate. It detects gamma and X-rays radiation with a short response time, with the help of its sensitive energy compensated Geiger-Mueller detector. It has a storage function in order to provide information on the dose.

MiniTRACE S10S displays values from 10 nSv/h to 10 mSv/h, with a sensitivity of 5.500 counts per μSv.

MiniTRACE S10S is also available in radio (S10R) version.

(*) Optional radio version

| | |
|------------------------|-----|
| Alpha detection | ☆☆☆ |
| Beta detection | ☆☆☆ |
| Gamma detection | ★★★ |
| X-Ray detection | ★★☆ |
| Dose rate | ★★★ |
| Surface contamination | ☆☆☆ |
| Food contamination | ☆☆☆ |
| Low range measurement | ★★★ |
| High range measurement | ★★☆ |

■ MiniTRACE Gamma S100S - Gamma dose rate meter (high range)



MiniTRACE S100S has almost the same characteristics as MiniTRACE S10. It also has a storage function in order to provide information on the dose.

However, **MiniTRACE S100S** displays values in higher range, from 1 μ Sv/h to 100 mSv/h, with a sensitivity of 2.500 counts per μ Sv. It has an autoscale from 10 nSv/h to 100 mSv/h.

MiniTRACE S100S is also available in radio (S100R) version.

(*) Optional radio version

| | |
|------------------------|-----|
| Alpha detection | ☆☆☆ |
| Beta detection | ☆☆☆ |
| Gamma detection | ★★★ |
| X-Ray detection | ☆☆☆ |
| Dose rate | ★★★ |
| Surface contamination | ☆☆☆ |
| Food contamination | ☆☆☆ |
| Low range measurement | ★★★ |
| High range measurement | ★★★ |

■ MiniTRACE Beta C10 - Alpha, Beta and Gamma contamination meter



MiniTRACE C10 measures the contamination of objects. It is equipped with a 15,55 cm² Geiger-Mueller pancake detector, and a 0,8 mm stainless steel grid. It is possible to identify spots with alpha, beta or gamma contamination. It is also ideally suited for X-Ray measurements.

MiniTRACE C10 displays values from 0 to 9.990 cps.

| | |
|------------------------|-----|
| Alpha detection | ★★☆ |
| Beta detection | ★★★ |
| Gamma detection | ★★★ |
| X-Ray detection | ★★★ |
| Dose rate | ☆☆☆ |
| Area contamination | ★★★ |
| Food contamination | ☆☆☆ |
| Low range measurement | ★★★ |
| High range measurement | ★★☆ |

■ MiniTRACE CSDF - Multipurpose contamination, survey and doserate meter, food and wipe test



MiniTRACE CSDF is a unique multipurpose meter for contamination, survey, dose rate, X-Rays, food and wipe test measurements. It is equipped with a 15,55 cm² Geiger-Mueller pancake detector and a 0,8 mm stainless steel grid. In addition to the verification of contamination, it is ideally suited to measure the environmental dose rate equivalent (H*(10)).

MiniTRACE CSDF displays values in cps, μ Sv/h, Bq, Bq/cm² and Bq/L. For the Bq and Bq/cm² modes, the user can select different nuclides with built in nuclide specific calibration lecture (Cs137, Am241, I131, Sr90, U238, C14, Cl36, Co60).

| | |
|------------------------|-----|
| Alpha detection | ★★☆ |
| Beta detection | ★★★ |
| Gamma detection | ★★★ |
| X-Ray detection | ★★★ |
| Dose rate | ★★★ |
| Surface contamination | ★★★ |
| Food contamination | ★★★ |
| Low range measurement | ★★★ |
| High range measurement | ★★☆ |

The Bq/cm² mode is calibrated according to ISO 7503-1.

MiniTRACE CSDF offers a special mode for food measurement within two steps. At first, it measures the background. Then, it measures the activity level found in the liquid or smashed food.



■ **MiniTRACE accessories**



01 PELICASE
Ideal for a flying trip, this case keeps safe the detector from shock.



02 PROTECTION HOLSTER
Carry and protect your MiniTRACE with this belt holster



03 TRANSPARENT PLASTIC PROTECTION
A plastic bag easy to wear around your neck, easy to decontaminate and splash resistant



04 RUBBER BOOT
An ergonomic envelope for MiniTRACE protection



05 WALL SUPPORT
The solution for permanent radiation level surveillance with MiniTRACE gamma, with lock system



06 TRANSPORTATION BOX
A box required for air freight transportation of your MiniTRACE Beta types



07 COMMUNICATION KIT
An infrared interface with tripod to set parameters or read out measurement data via MiniTRACE software



08 DATAEXPERT
The powerful software that connects your MiniTRACE radio via ShortLINK / SkyLINK receiver in a network solution



09 WIPE TEST KIT
The surface contamination kit for MiniTRACE CSDF



10 FOOD MEASUREMENT KIT
A kit with support for MiniTRACE CSDF and beaker for liquid or smashed food



11 EMERGENCY KIT
A robust case that offers place for food measurement and wipe test kits



12 TEST SOURCE
A U238 source with 25 Bq for checking by yourself the function of your MiniTRACE Beta C10 and CSDF



■ SkyLINK / ShortLINK – Teledosimetry with MiniTRACE S10R/S100R

SkyLINK is a sophisticated and powerful solution for wireless automatic data transmission covering distances up to 100 km (**ShortLINK** up to 5 km).

SkyLINK consists of compact and reliable low power transmitters (transmission power: 10 Milliwatts) which in combination with **MiniTRACE S100R or S10R** (radio version) allows transmission of measurement and GPS data in real time to a central station.

MiniTRACE radio devices can also be embedded into stationary and mobile radiation monitoring networks based on **SkyLINK**.

SkyLINK is an all in one proprietary turn-key system. It works independently from public radio networks like cellular phone (GSM/GPRS) or satellite services. Hence, **SkyLINK** is highly suitable for mission critical applications.



ShortLINK-Receiver with "in-" or "out-door" antenna



External alarm box for ShortLINK radio transmission system



Parameters are transmitted from the MiniTRACE radio to a central server system

Prominent users of such a mobile monitoring system are the US Environmental Protection Agency (EPA) and the Russian Ministry for Emergency Situations (MES).

The MES system is mounted on a measurement vehicle. It is used for the purpose of organization of a temporary monitoring task in the zone of an event and to eliminate extraordinary situations in the radius of 5 km from the place of mobile system location.

All parameters monitored are immediately transmitted to the laptop or also to a central server system for further evaluation and analysis.

The system can handle more than 100 **MiniTRACE radio**, with fast 1 sec. local alarm function, and an alarm unit to be located inside the measurement vehicle.

The complete online monitoring system is delivered in sturdy weathertight suitcases which can be operated outside or from a measurement vehicle.

Ask also for our autonomous GammaTRACER probes!

Those compact and lightweight smart measurement stations can also be embedded in a SkyLINK/ShortLINK network. They are easy to install and work for several years without maintenance powered by one and the same battery set.

■ **Technical data**

MINITRACE

| Properties | MiniTRACE S10S | MiniTRACE S100S |
|--|---|--|
| Display unit: | µSv/h, H*(10) | mSv/h, H*(10) |
| Display range: | 10 nSv/h to 10 mSv/h | 1 µSv/h to 100 mSv/h autoscale: 10 nSv/h to 100 mSv/h |
| Measurement range: | 500 nSv/h to 10 mSv/h accord. IEC 60846 | 10 µSv/h to 100 mSv/h autoscale: 1 µSv/h to 100 mSv/h |
| Energy range (incl. angular response): | 42 keV to 1.8 MeV ± 40 % 42 keV to 2.8 MeV ± 60 % | 48 keV to 2 MeV ± 40 % 2 MeV to 3 MeV ± 60 % |
| Measurement range dose | 1 µSv to 1 Sv | |
| Storage of values | 650 dose rate values | |
| Sensitivity | 5500 pulses per uSv | 2500 pulses per uSv |
| Buttons | 1: (On/Off, IR, Illumination); 2: (mean value) | 1: (On/Off, IR, Illumination); 2: (-) |
| Alarm thresholds (pre-set): | 0.2, 0.5, 1 and 2 mSv/h | 2, 5, 10 and 20 mSv/h |
| Alarm: | Visual and acoustic | |
| Reaction time: | < 2 Sec. | |
| Display: | 6 digit display plus 5 digit alphanumeric display for alarm and status reports | |
| Illumination: | Activated by pressing right button | |
| Alarm: | Visual and acoustic | |
| Acoustic registration of impulses: | Can be activated by buttons or user software | |
| Battery life: | Typ. 2.000 hours | |
| Energy supply: | 2 batteries (type: LR6, AA, MN 1500), protected against reverse polarity | |
| Temperature range: | -20°C to +50°C (-4°F to 122°F) | |
| Compatibility: | In accordance with IEC 60846, IEC 61000 | |
| Mechanical shock: | In accordance with IEC 60068-2-27 (at a distance of 1.5 m on hardwood, deviation max. ± 10%) | |
| Weight: | 175 g incl. batteries | |
| Dimensions | 82 mm X 24 mm x 139 mm | |
| Protection class: | IP 44, with plastic protective cover IP 68 | |
| Accessories (optional): | User software for programming alarm thresholds by infrared communication Infrared reader | |

Radio version (S10R and S100R)

| | |
|-------------------------|---|
| Transmission cycle time | User adjustable |
| Weight; dimensions | 195 g incl. batteries; 82 mm X 24 mm x 139 mm (total length incl. antenna 195 mm) |



MiniTRACE^β

| Properties | MiniTRACE C10 |
|------------------------------------|---|
| Display unit: | Counts per second (cps) |
| Display and measurement range: | 0.0 – 9990.0 cps (mean value mode: 0.00 – 9990.00 cps) |
| Alarm thresholds: | 4 (preset) |
| Buttons: | 1 (On/Off, IR); 2: (mean value, count up-mode) |
| Gamma sensitivity (Cs-137) | 4.3 Counts/sec./μSv/h |
| Detector: | Geiger-Mueller-Pancake, max. diameter: 53.6 mm; active diameter 44.5 mm, active counter tube surface 15.55 cm ² , window: 2.0 mg/cm ² |
| Sensitivity (4n): | Co-60: 0.15 Counts/sec./Bq; C-14: 0.071 Counts /sec./Bq Sr-90: 0.6 Counts /sec./Bq. Am-241:0.13 Counts /sec./Bq |
| Grid: | 0.8 mm thick stainless steel, easily removable, 80 % transparent |
| Distance grid /detector surface | 3.6 mm |
| Measurement intervals: | Automatic adjustment from 1 to 60 seconds Adjustable in Count up mode by buttons |
| Display: | 6 digit display plus 5 digit alphanumeric display for alarm and status reports |
| Alarm: | Visual and acoustic |
| Acoustic registration of impulses: | Can be activated by user software |
| Reference source: | Co-60 meeting DIN ISO 8769 (DKD certified) |
| User calibration: | Possible using infrared interface |
| Battery life: | Typ. 2000 hours |
| Energy supply: | 2 batteries (type: LR6, AA, MN 1500), protected against changes to polarity. |
| Operational temperature range: | -10°C to +40°C (14°F to 104°F) |
| Weight; Dimensions | 315 g incl. batteries; 82 mm x 24 mm x 139 mm |
| Compatibility: | IEC 60325, IEC 60846 (partially), IEC 61000 |
| Accessories (optional): | User software for programming additional alarm thresholds by infrared communication. Infrared reader |

MiniTRACE^{CSDF}

| Properties | MiniTRACE CSDF |
|---|---|
| Display unit: | μSv/h, cps, Bq, Bq/cm ² , Bq/L |
| Display and measurement range: | Dose rate: 0.00 μSv/h to 5,000 μSv/h; Pulses: 0.0 to 10,000 cps Activity (depends on the radionuclide): 0 to max. 100,000 Bq Surface activity (depends on the radionuclide): 0 to approx. 5,000 Bq/cm ² ; Food: 500 to 100,000 Bq/L (related to Cs-137, 30 % statistical uncertainty for 1 Sigma, at 0.1 μSv/h background radiation) |
| Gamma sensitivity (Cs-137) | 4.3 Counts/sec./μSv/h |
| Energy response for dose rate measurements [μSv/h]: | 24 keV to 1,253 keV +/- 40%, lid has to be closed |
| Detector: | Geiger-Mueller-Pancake, max. diameter: 53.6 mm; active diameter 44.5 mm, active counter tube surface 15.55 cm ² , window: 2.0 mg/cm ² |
| Efficiency [cps/Bq/cm ²]: | Co-60: 0.41 cps/Bq/cm ² ; C-14: 1.65 cps/Bq/cm ² ; Sr-90+: 10.65 cps/Bq/cm ² ; Am-241:4.19 cps/Bq/cm ² ; Cl-36: 9.57 cps/Bq/cm ² ; Cs-137: 11.15 cps/Bq/cm ² U-238: 4.19 cps/Bq/cm ² ; I-131: 9.71 cps/Bq/cm ² |
| Grid: | 0.8 mm thick stainless steel, easily removable, 80 % transparent |
| Distance grid / detector surface | 3.6 mm |
| Measurement intervals: | Automatic adjustment from 1 to 60 sec.; Adjustable in Count up mode by buttons |
| Display: | 6 digit display plus 5 digit alphanumeric display for alarm and status reports |
| Illumination: | Activated by pressing right button |
| Alarm thresholds: | One alarm threshold can be set via software for μSv/h, cps, Bq and Bq/cm ² |
| Alarm: | Visual and acoustic (beep frequency increases with the level of the alarm threshold) |
| Acoustic registration of impulses: | Can be activated by buttons and MiniTRACE Software |
| Reference source: | Co-60 meeting DIN ISO 8769 (DKD certified); Cs-137: Source number: CDC 7915 |
| User calibration: | Possible using infrared interface |
| Battery life: | Typ. 2000 hours |
| Energy supply: | 2 batteries (type: LR6, AA, MN 1500), protected against changes to polarity |
| Temperature range: | -10°C to +40°C (14°F to 104°F) |
| Weight; Dimensions | 320 g incl. batteries; 82 mm x 24 mm x 139 mm |
| Compatibility: | IEC 60325, IEC 60846 (partially), IEC 61000 |
| Accessories (optional): | User software for change of settings by infrared communication, infrared reader Accessories for Food and Wipe tests |

Reference List – MiniTRACE users

Worldwide more than 10.000 units in operation:

Azerbaijan

- Resident Representative of the U.N., Baku, via IAEA, Vienna

Belgium

- Test S.A. Belgique, educational institute, Crisnée

Bulgaria

- UNDP in the Republic of Bulgaria, Sofia, via IAEA, Vienna,

China

- Hong Yang He Nuclear Power Plant
- Ling Ao Nuclear Power Plant
- Ning De NPP Nuclear Power Plant
- Wenjindu Entry-Exit Inspection and Quarantine, Hainan Entry-Exit Inspection and Quarantine
- Yangjiang Nuclear Power Plant
- Zhengjiang Environmental Protection Bureau

Croatia

- EKOTEH Ltd. Dosimetry and Radiation Protection, Zagreb, UN Development Programme, IAEA International Atomic Energy Agency, Vienna

Finland

- LAURILAN ROMU TOPPARIT Oy, scrap dealer, Keminmaa
- Walttielectronics Oy, Kuopio

France

- APAVE Parisienne Laboratoire, Saint Ouen
- Calaire Chimie S.A.S., Calais
- C.E.P. Industrie Cergy, Laboratory Division, St. Ouen l'Aumone
- CNRS - Labo LULI, Ecole Polytechnique, Palaiseau
- Electricité de France (EdF), used in all 19 French nuclear power plants
- EPUR Centre Est, Processing and recycling of waste, Macon
- ESTIANE, incineration plant, Villers St. Paul
- Precia Molen Privas, environmental and waste management services, Privas
- SITOMA - SYNDICAT INTERCOMMUNAL DE TRAITEMENT DES ORDURES MENAGERES DE L'ALBIGEOIS (recycling, waste industry), Albi
- Smiths Heimann SAS, Vitry sur Seine
- S.N.B.L., metal recycling, Chelles

Germany

- Bayerisches Rotes Kreuz (BRK) / Bavarian Red Cross, Munich
- Faiveley Transport, Remscheid
- FH München, Radiometrisches Labor/University of Applied Sciences, Radiometric Laboratory, Munich
- Katharinen Hospital, Stuttgart
- Metherma GmbH & Co. KG
- RWE Nukern, Alzenau
- SEA-MED, Dülmen
- TÜV Technical Surveillance, Cologne
- University of Würzburg, Physikalisches Institut
- WISMUT, Chemnitz

India

- Bhaba Atomic Research Centre, Mumbai
- Indian Agricultural Research Institute, Division of Biochemistry, New Delhi, Dr. M. Lodha

Iraq

- Hilla Environmental Center
- Hospital Kurdistan
- Ministry of Environment, Baghdad

Italy

- Elettrotek sas, Catania
- Gammamad Italia Spa, Minerbio-Bologna
- Hera srl, Ravenna
- Protex Spa, Forli

Japan

- Bridgestone Corporation
- Fujitex
- Fujitsu Ltd., Kawasaki
- Fukushima Steel Works
- Japan Atomic Energy Agency
- Speedocheck Ltd.
- Yokohama Port

Kazakhstan

- City of Ust-Keminagorsk, radio version with ShortLINK

Kirgystan

- UNDP in the Kyrgyz Republic, Bishkek, via IAEA, Vienna

Korea

- KINS, Korea Institute of Nuclear Safety

Macedonia

- Public Institute of Health, Skopje, via IAEA, Vienna

Malaysia

- Royal Malaysian Custom (Jabatan Kustam Diraja Malaysia)

Moldova

- National Scientific Practical Center of Applied Preventive Medicine, Chisinau, UN Development Programme, IAEA International Atomic Energy Agency, Vienna

Netherlands (The)

- Elekta
- Panalytical
- Philips Electronics, Eindhoven
- Ziekenhuisgroep Twente (Hospital group) Twente, Almelo and Hengelo

Russia

- MCS, Ministry for Emergencies, Moscow, radio version with ShortLINK
- Balakova - NPP
- Kurskaya - NPP
- Kalinskaya - NPP

Singapore

- Hoya Magnetics Singapore PTE Ltd.

Spain

- CIEMAT, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas, Madrid
- Clinica Universitaria de Navarra
- ECOLGAS S.A., Ciudad Real
- GEOCISA, GEOTECNIA Y CIMENTOS, S.A., Coslada, Madrid
- IBERESPACIO Tecnologia Aeroespacial, Madrid
- SGS Tecnos Espanola de Control S.A., Madrid
- University Hospital University of Navarra, Pamplona

Taiwan

- China Medical University, Taichung

Ukraine

- Chernobyl Nuclear Power Plant, radio version with ShortLINK
- Novarka, Slavutich, radio version

... and many others.

Ask also for our other products!



RCVL - Portal monitor



AlphaGUARD –
Portable radon monitor



BAB A7 – Aerosol
monitor

... and many others.
Contact us for more
information!