



Personal safety

Warning devices for safety
in electromagnetic fields



RadMan 2 and Nardalert S3 – warn and monitor

The RadMan 2 and Nardalert S3 Personal Monitors are warning devices for the protection of people that work in areas where higher levels of electromagnetic radiation are present. Broadcast, telecommunications, and radar antennas are examples of strong, high frequency radiation sources. Often, the transmitting equipment cannot be switched off completely, and even if it can, a check must still be made to ensure that it has indeed been deactivated. A Personal Monitor ensures safety in such situations. The device is carried on the person and warns the user in good time before the permitted limit levels are exceeded. The patented shaping feature enables these Personal Monitors to indicate directly in “% of limit value” (as specified in ICNIRP, FCC or Safety Code 6). There is no need to convert values or change settings.

Personal monitors

The advantage of these small test and warning devices from Narda is that they can be worn directly on the person without affecting their accuracy. The RF absorber reduces the signal reflections caused by the body that would otherwise affect the result displayed on the monitor. These Personal Monitors are not just designed for specialists who constantly work in dangerous areas. They are also ideal for those who only occasionally find themselves in such areas, but whose safety is just as important, for example people who

- ▶ install equipment
- ▶ are responsible for day-to-day operation
- ▶ qualify equipment
- ▶ visit installations
- ▶ perform maintenance work (painters, cleaners, etc.).

Optimized for field use

The warning devices are designed for everyday use and use very little power. The battery operating time is up to 800 hours. The weather-proof design can cope with any outdoor conditions. They even give reliable results under extreme temperature conditions. Both RadMan 2 and Nardalert can be recharged from the USB socket on a PC or from a phone charger.

Applications

- Telecommunications
- Broadcasting
- Industry
- Military
- Air traffic control



Personal Monitors – Simply switch on and go

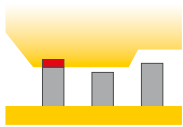
RadMan 2 and Nardalert S3 are ready to go: Simply switch them on and the devices will give reliable warnings when the limit values are exceeded. They are very easy to use. You don't need any specialist knowledge to use the controls. The basic functions cannot be altered in any way without special software and data cables. The devices are therefore suitable for all user groups. A self-test including a battery charge status check and general function test is performed automatically when you switch the devices on.

Alarm behavior

A loud alarm sounds and the LEDs light up when 50% of the limit value is reached. If alarm threshold 2 is reached or exceeded, an insistent warning sounds and the LEDs flash more rapidly. These alarms are augmented by vibration of the device. When this happens, you should leave the area immediately. Where appropriate, measures should be taken to switch off the field source so that the planned work can be carried out. Alternatively, you can approach the source from a different direction.

Shaping for standard-compliant evaluation

Different services radiate at widely differing frequencies. Filters in the Nardalert S3 and RadMan 2 ensure that all services are evaluated according to the standard, e.g. directly compliant with ICNIRP, FCC or Safety Code 6 regardless of their frequencies, which is a patented function unique to these devices.



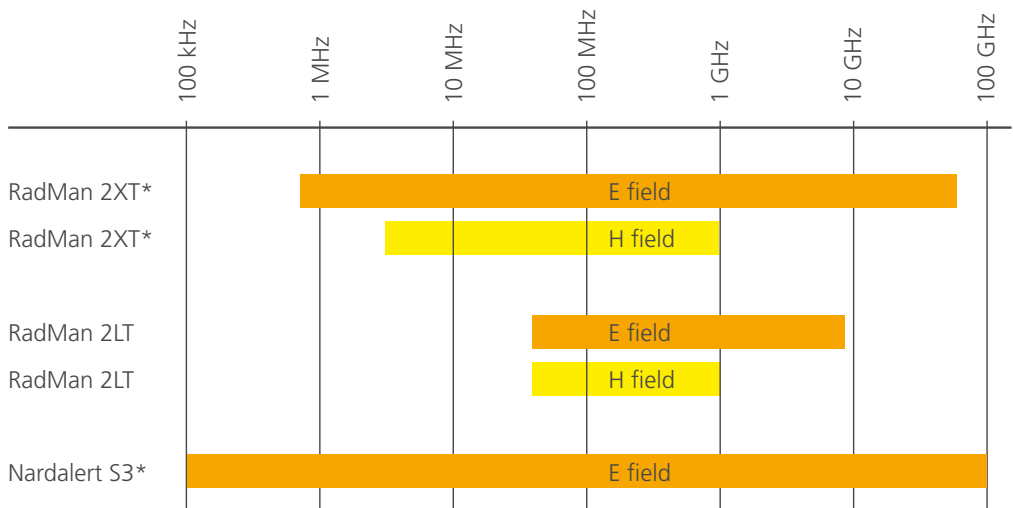
Shaping ensures automatic standard-compliant evaluation over the entire frequency range up to 60 / 100 GHz

This shaping is applied over the entire frequency ranges of these Personal Monitors. If you are carrying a Narda warning device, you can be sure of being alerted to excessive exposure to radiation.

Data evaluation with user software

RadMan 2 and Nardalert S3 are equipped with internal data storage. This data can be read out and processed using the PC software, e.g.

- ▶ to demonstrate whether the limit values were exceeded or not
- ▶ to determine the average (for subsequent mean determinations)
- ▶ to show the variation over time.



*Frequency range depends on standard used: see data sheet

Nardalert S3 is a handy warning device that is ideal for wearing on your belt or clipped to a harness. Two different types of clip allow it to be attached to textiles or belts with equal ease. The warning lights and the display are on the top of the device so that they can be seen at a glance.

Nardalert S3 uses three different sensor / detector combinations to capture the electric field over the frequency range from 100 kHz to 100 GHz:

- ▶ thermocouples for the higher frequency range
- ▶ dipoles and diodes for the middle frequency range
- ▶ a radial charge transfer sensor and diode for the lower frequency range.

The thermocouple sensors mean that the Nardalert S3 is particularly suited for use as a warning device around radar equipment, as it correctly detects the RMS value of radar impulses. In contrast, the charge transfer sensor measures the range below 100 MHz by evaluating the field that is generated by the body currents.

Nardalert S3 warning types

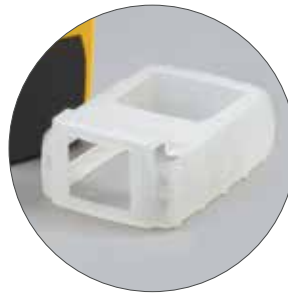
LED and display warning: When 50% and 200% of the limit value (factory setting) is reached, corresponding warning LEDs light up. The exact exposure value can be read off the TFT display on the top of the device. The threshold values can be reprogrammed using the software.

Changing the settings

The settings of the Nardalert S3, such as the measurement interval and the alarm threshold, can only be changed by reprogramming via a data cable. This ensures that no changes can be made by unauthorized persons.

Interchangeable sensors

The overall concept using interchangeable sensors is innovative. As the device itself needs calibration less often than the sensor, it is sufficient and much cheaper to send off just the sensor for calibration. The calibration data are stored in the sensor and taken into account in the result by the device. This guarantees full precision at all times.



The Nardalert S3 casing is made of robust plastic. A silicone cover is also supplied as additional protection.



Nardalert S3 – alarms that are seen, heard, and felt

Battery charge indicator

Level bar changes color with alarm:

- Level (Green)
- Alarm 1 (Yellow)
- Alarm 2 (Red)

Actual measurement:
lower frequency range
upper frequency range

Total result in % of standard

TFT-display

Loop for securing the device

Menu selection keys

ON / OFF and Enter key

Bright alarm LED

Second additional bright alarm LED

Weatherproof casing

Interchangeable sensor

Conspicuous alarm:
visible (LED alarm),
audible (insistent warning signal),
and vibration

5G

- ▶ 100 kHz - 100 GHz
- ▶ 25 hours operating time
- ▶ E field monitoring
- ▶ Thermocouple sensors for perfect RMS measurement even for radar applications
- ▶ Patented frequency response shaping to ICNIRP (Directive 2013/35/EU etc.), FCC, SC 6
- ▶ Data recorder (option)
- ▶ Reliable results at 14 °F to 122 °F (-10 °C to +50 °C)

RadMan 2 – The original, reinvented!

Conspicuous alarm:
visible (large LED alarm), audible
(insistent warning signal), and vibration



RF absorber (shown in green)
built into casing

Isotropic E and H sensors
with automatic function check

Sensor Area

Rigid shell casing
with securing belt

Exposure value in %
of standard

200%
100%
50%
25%
10%
5%

Simple one key operation

ON / OFF indicator

Low battery indicator

"Pulse Mode" display
(RadMan 2XT only)

Weatherproof design (IP65)



Safety strap

5G

- ▶ Up to 8 GHz (LT) or 60 GHz (XT)
- ▶ Automatic sensor test
- ▶ RF Detection Mode (XT) and tone search function
- ▶ 800 hours operating time
- ▶ Low power consumption
- ▶ E and H field monitoring
- ▶ Patented frequency response shaping to ICNIRP (Directive 2013/35/EU etc.), FCC, SC 6
- ▶ Data recorder
- ▶ Reliable results at 14 °F to 131 °F (-10 °C to +55 °C)

RadMan 2LT (8 GHz) / RadMan 2XT (60 GHz) – RadMan 2 is the result of more than 20 years of experience with the best-selling Personal Monitor of all time. The small, handy test and warning device that alerts you to electromagnetic radiation reliably and in good time. The combination of innovation with the tried and tested.

Wider: RadMan 2XT covers all services including 5G and millimeter waves with its frequency range up to 60 GHz.

More reliable: The built in test now includes the sensor as well as the circuits and battery, for maximum reliability without an external test generator.

Brighter and louder: Never miss an alarm thanks to the very loud sound and very bright 270° angle LED indicator with additional vibration alert.

Simpler: Patented shaping enables the result display in “% of limit value”. No conversions, no settings to make, directly to ICNIRP (Directive 2013/35/EU), FCC or Safety Code 6.

Usable in both near and far field

The otherwise fixed relationship between the electric and magnetic fields does not apply in the near field. Both types of field must therefore be checked. RadMan 2 has E field and H field sensors, so it gives reliable warning regardless of the distance to the field source.

Automatic sensor test

The newly-developed sensor test gives added reliability, checking that the individual sensors work properly every time RadMan 2 is switched on.

RadMan 2XT

The RadMan 2XT has a wider range of functions than the RadMan 2LT. The E field sensors of the RadMan 2XT are suitable for a wide frequency range from about 900 kHz to 60 GHz.

The device can thus also give warning of radar signals and 5G millimeter waves in this range. To ensure reliable detection of pulsed signals (e.g. radar), the integration time can be switched on the device itself from 1 s (Normal Mode) to 30 ms (Pulse Mode). This is indicated on the device.

The data recorder in the RadMan 2XT has a large capacity memory and the save intervals can be adjusted. The additional “RF Detection” mode with tone search function allows precise location of leaks in waveguides and coaxial screw connections. As the tone increases in pitch as the field source is approached, this function can also be used to quickly and simply check that antennas have been switched off.



The RF Detection Mode (RadMan 2XT) can be used to quickly and simply check that an antenna has been switched off

Overview of Narda warning devices for personal safety



| | RadMan 2XT | RadMan 2LT | Nardalert S3 |
|---|--------------------|--------------------|-----------------------------|
| Frequency range | 900 kHz - 60 GHz* | 50 MHz - 8 GHz* | 100 kHz - 100 GHz* |
| Personal safety | • | • | • |
| Meter function | • | • | |
| Leak location | • | • | |
| E field measurement | • | • | • |
| H field measurement | • | • | |
| Isotropic probes | • | • | |
| Thermocouple sensor for high frequency range | | | • |
| Displacement sensor for low frequency range | | | • |
| Diode sensor | • | • | • |
| Patented shaping | • | • | • |
| Alarm: Visible | • | • | • |
| Audible | • | • | • |
| Vibration | • | • | • |
| Variable alarm threshold | | | • |
| RMS signal detection | • | • | • |
| Switchable integration time 1 s / 30 ms (Pulse Mode) | • | | |
| Data memory | 100,000 events | 2,880 events | 62,000 events (option) |
| Result display | 5-200 % in 6 steps | 5-200 % in 6 steps | Numeric / bar graph display |
| 50 / 60 Hz immunity | 10 kV/m | 10 kV/m | 100 kV/m |

*Frequency range depends on standard used: see data sheet



Distributed by:
Air-Met Scientific Pty Ltd

Air-Met Sales/Service
P: 1800 000 744
F: 1800 000 774
E: sales@airmet.com.au

Air-Met Rental
P: 1300 137 067
E: hire@airmet.com.au
W: www.airmet.com.au

Narda Safety Test Solutions GmbH
Sandwiesenstraße 7
72793 Pfullingen, Germany
Phone +49 7121 97 32 0
info@narda-sts.com

Narda Safety Test Solutions
North America Representative Office
435 Moreland Road
Hauppauge, NY11788, USA
Phone +1 631 231 1700
info@narda-sts.com

Narda Safety Test Solutions
S.r.l.
Via Rimini, 22
20142 Milano, Italy
Phone +39 0258188 1
nardait.support@narda-sts.it

Narda Safety Test Solutions GmbH
Beijing Representative Office
Xiyuan Hotel, No. 1 Sanlihe Road, Haidian
100044 Beijing, China
Phone +86 10 6830 5870
support@narda-sts.cn

www.narda-sts.com