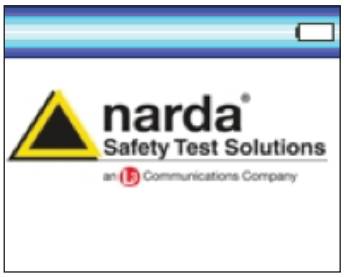
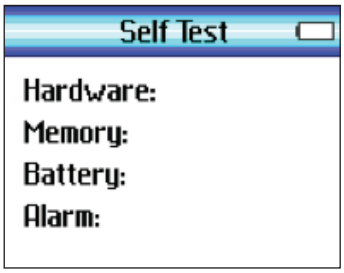
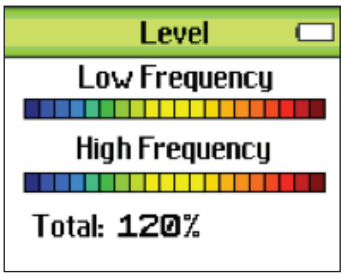
Patent Pending

Nardalert S3
Non-Ionizing Radiation Monitor

- **Field Replaceable Sensor Modules**
- **Color LCD Display**
- **Multi-Color Alarm LED's**
- **USB Interface for Data and Charging**
- **Interchangeable Lanyard or Belt Clips**
- **Comprehensive Software Included**
- **Standard and Optioned Models**
- **Fiber Optic Port for Remote Monitoring**
- **Fail-Safe Design**







Description

The professionals at Narda Safety Test Solutions have designed the next generation of Non-Ionizing Radiation (NIR) Personal and Area monitor – the Nardalert S3. The award winning designs of the Nardalert XT and RadMan monitors have been extended to an entirely new product that builds on years of safety product leadership. Sensor technology has been improved in this series by re-designing not only the sensor itself, but also by packaging it in a field replaceable package that contains all the electronic data necessary to maintain calibrated operation. This new feature allows your S3 to stay in service without costly logistics to keep multiple units calibrated – a major advantage for any NIR Safety Program. Your new Nardalert S3 will always be capable of supporting new standards or guidance's and even different fields or frequencies, allowing future expandability and extending longevity.

LCD Display

Alarm events are always evident with visual LED's combined with vibration and audible notifications. However, to provide the user more accurate information than just simple alarms we've incorporated a top mounted LCD. The LCD simplifies operation, showing key data at start-up such as battery state and sensor information that the operator needs. With RF/microwave sensors attached, the display indicates to the user the bands (<> 1 GHz) that are being detected. Optioned units use the display to provide even more information such as exposure history, logged data, alarm indications and more.

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Nardalert S3 NIR Monitor

Accuracy

Our engineers have designed the new Nardalert S3 to exceed the accurate performance of our earlier models. Our customers know they can trust our designs to provide the same or better performance when they are worn on the human body, as it would perform in a calibration facility. All testing is performed with the sensor in the housing in order to replicate normal day-to-day use and our new shaped-response sensors more closely follow international standards and guidance's. Each sensor is individually calibrated and that information is stored right in the sensor itself.

Housing

We packaged everything in a rugged plastic housing that allows you to use it mounted in a common shirt pocket or secure it with the supplied lanyard or belt-clip mounts. We supply a strong silicon rubber skin that provides additional shock protection as a standard accessory. The Nardalert S3 operates from a single standard Type RCR123A battery. This battery is automatically recharged whenever it is plugged into a computer and we supply a universal charger to accelerate charging from any common AC source or mains plug. Common automobile USB adapters can also be used, so your monitor is always ready to work.

The Nardalert S3 is packaged in a rugged plastic housing and is available with a strong silicon rubber skin for additional shock protection.

Sensors

Initial sensors available cover the most common international exposure limits. We offer sensors to follow the RF/microwave frequency limits promoted by the US FCC, IEEE (C95.1), Canada's Safety Code 6 and ICNIRP. Many users around the world will find that one of these limits meets their local requirements for RF and microwave exposures. Future coverage will include lower frequency ranges and flat frequency response sensor modules to perform alternate tasks using the same Nardalert S3 Mainframe.

Model Selection Guide

STANDARD / GUIDANCE	Nardalert S3 and Sensor System	Sensor Alone*
ACGIH	2271/111	2271/11
ARPANSA - RP3	2271/131	2271/31
Brazil - ANATEL 303	2271/131	2271/31
Canada Safety Code 6 (2015)	2271/122	2271/22
FCC	2271/101	2271/01
E.U. EMF Directive	2271/131	2271/31
IEEE C95.1	2271/111	2271/11
Japan RCR-38	2271/101	2271/01

*Requires Nardalert S3 Mainframe P/N 2270/01 to form operable set

Standard and Optioned Models

The Nardalert S3 can be supplied in one of two different capabilities. Standard units provide all of the basic performance necessary for normal operations. Alarm levels are factory set at 50% and 200% of Reference levels and basic screens provide all the information the user needs. Advanced users and applications should consider the additional capabilities of the NS3 Option Key. By entering a software code through the user software you can expand the operation of your Nardalert to store, display and download exposure data, alter alarm modes and levels, display historical data on the Nardalert S3's display and re-configure the interface for fiber optic connections.

Nardalert S3 Mainframe shown with interchangeable sensor.

Software

The Nardalert S3 software (NS3-TS) is supplied standard with every unit. Readings can be downloaded and displayed numerically (Figure 1) or graphically (Figure 2) by simply installing the software and plugging in the supplied USB cable.

Users can download stored data into a database that is stored in the software for future recall. The six major software controls are:

1. ***File*** – Allows file manipulation. Storing, sorting and exporting.
2. ***Database*** – Database management of files stored on computer (Figures 1 and 2)
3. ***Device Memory*** – Data management of readings stored on Nardalert (Figure 3)
4. ***Measurement*** – Displays real-time measurements on computer (Figure 4)
5. ***Configuration*** – Configures Nardalert S3 for use. Set alarm thresholds, logging rate, backlight time, etc.
6. ***Extras*** – sets unit up for regional preferences, installs options, general settings

This software closely mimics the NBM-TS software that our customers have used for the last few years. Keeping a common interface allows new users to quickly get up to full speed and explore all of the unit's functions.

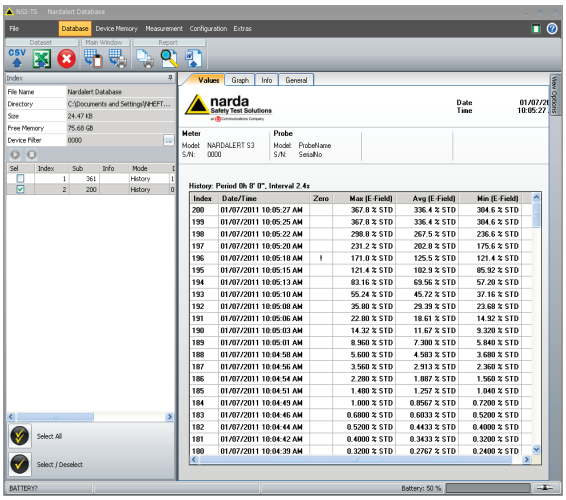

Figure1

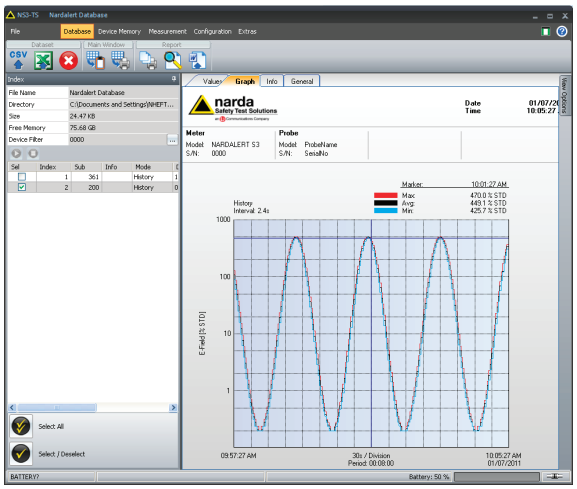

Figure 2

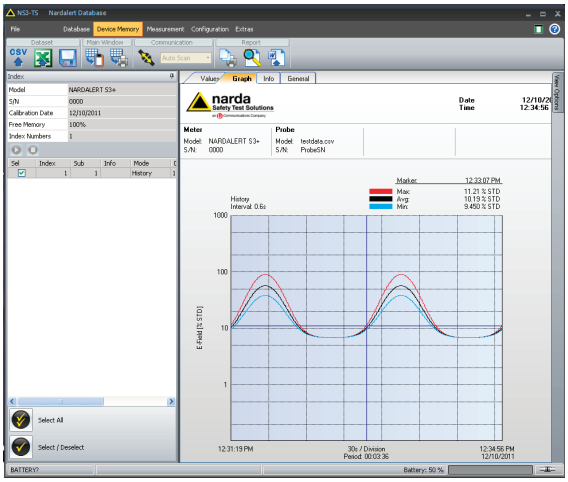

Figure 3

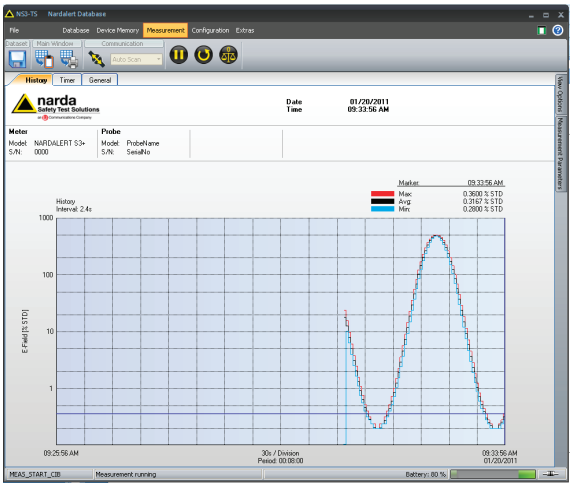

Figure 4

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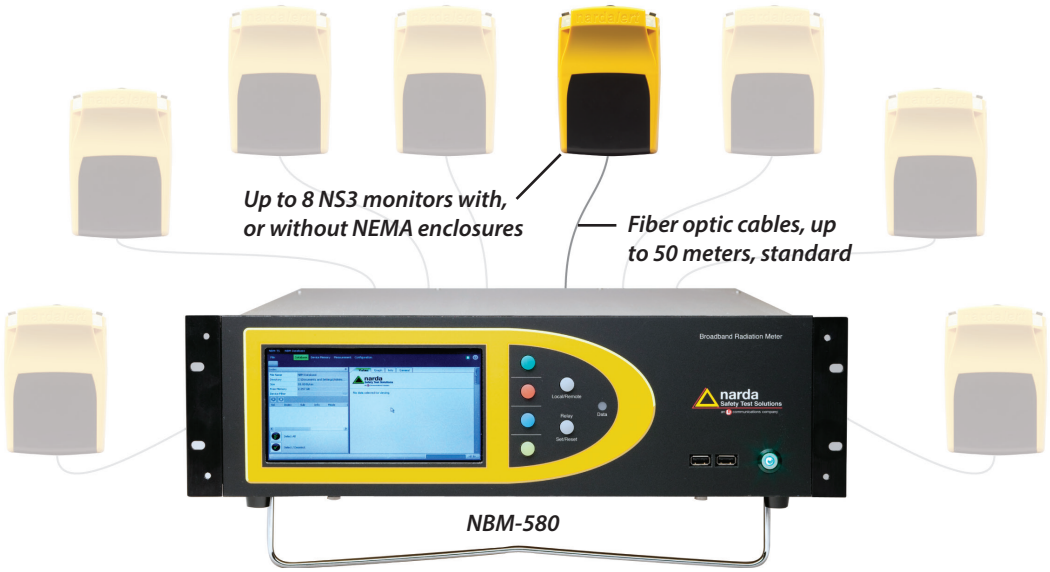
Nardalert S3 NIR Monitor



Fixed Area Monitoring Applications

Nardalert monitors can be continuously powered through their USB interface while field levels are read through the fiber optic interface. Optional NEMA 4X enclosures and solar panels are also available for outdoor installations, as well as longer (> 50m) cable solutions. The NBM-580 provides powerful alarm interface capabilities when employing multiple sensors for a stand-alone monitoring system.

Optional Climbers Pouch P/N 2270/92.01

Nardalert S3 Soft Carrying Case

Nardalert S3 Instruction Manual and NS3-TS Software

Nardalert S3 connected to laptop computer

Nardalert S3 NIR Monitor

Specifications (for unit mounted on the human body facing the emitter(s))

MONITOR	2271/101 FCC	2271/111 IEEE	2271/122 SC6	2271/131 E.U. EMF Directive
Frequency Range	100 kHz to 50 GHz	3 MHz to 50 GHz	100 kHz to 50 GHz	100 kHz to 50 GHz
Field Measured	Electric Field, V^2/m^2			
Sensor Design	Radial field, Diode-Dipole and Thermocouple Array			
Alarm Accuracy[a] (Frequency Sensitivity and Polarization Uncertainty)	+4.5 / -3.0 dB (100 kHz to 30 GHz) +2.5 / -6.0 dB (30 to 50 GHz) +2.5 / -6.0 dB (50 to 100 GHz, Typical)			
Monitor Range[b]	5% to 200% of Standard or Guidance			
ELF Immunity	6 kV/m			
Alarm Thresholds	Standard is two alarms. May be programmed through NS3-TS for one alarm			
Alarm 1, Default Setting Range of Adjustment	50% of Standard or Guidance 10% to 100% (in 5% increments) and OFF			
Alarm 2, Default Setting Range of Adjustment	200% of Standard or Guidance 20% to 200% (in 5% increments)			
Alarm Indications	Visual (LCD and LED) with Audible and/or Vibrate			
CW Overload	3000% of Standard or Guidance			
Peak Overload	32 dB above Standard or Guidance			
Battery Type/ Approximate Life	RCR123A, Lithium (Re-chargeable) / 25 hours			
Display Type	TFT Transmissive			
Display Size	1.77 inches, 28 x 35 mm, 128 x 160 pixels			
Backlight	White LED's			
Display Refresh Rate	250 msec.			
Displayed Items on LCD	All units display Model Information, Self Test Results, Calibration Date and real-time readings during operation.			
NS3 Option Key	Allows access to stored data from NS3-TS and/or LCD screen. Additional items made available include Alarm Mode, Alarm Set, Backlight, Data Log, Fiber Optic Interface, and History (P/N 2270/90.01)			
Memory[c]	62,000 events			
Storage Rate	4 per second, 1 per second, 1 per 5 seconds, 1 per 10 seconds, 1 per 20 seconds, 1 per 60 seconds			
Storage Time	Variable - from 4.3 hours (4 per second), to 43 Days (1 per 60 seconds).			
Remote Operation	Via USB or Optical RS-232 Interface			
USB	Serial, Full Duplex, 57600 baud (virtual com port), multi-function plug connector			
Optical Interface	Serial. Full Duplex, 57600 baud, no parity, 1 start bit, 1 stop bit			
Recommended Calibration Intervals	4 Years for Mainframe (P/N 2270/01) and 2 Years for Sensors (2271/X1)			
Temperature Range	Operational: -10°C to +50°C Non-Operational: -30°C to +70°C			
Humidity	5 to 95% relative humidity, no condensation; ≤29 g/m^3 absolute humidity (IEC 60721-3-2 class 7K2)			
Size	117.1 x 82.6 x 31.8 mm (4.61 x 3.25 x 1.25 in.)			
Weight (including battery)	0.5 lbs. (0.23 kg), with sensor			
Accessories Included	AC Charger with Plugs, Charger/Data cable (USB), Carrying Case, Belt Clip, Lanyard Clip, Manual, NS3-TS Software, Calibration Certificate			

NOTES: [a] Accuracy specified as the mean of the radial and vertical orientations (10 to 1600 MHz) and mean of the vertical and horizontal orientations (1600 MHz to 50 GHz).
[b] Percentages related to the highest (Controlled, Occupational) exposures allowed by Standard or Guidance
[c] Memory function only available to "Optioned" units.

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Nardalert S3 NIR Monitor

Ordering Information

Nardalert S3	Part Number
NARDALERT S3 NIR MONITOR INCLUDES:	
Nardalert S3 Mainframe, including battery (2270/01)	
Carrying case, holds monitor, charger and accessories (2400/90.06)	
Power supply 5 VDC, 100 V-240 VAC (70890000)	
Belt Clip, non-conductive (11229310)	
Lanyard Clip, non-conductive (11229312)	
Cable, USB interface for NS3, 1 m (70889004)	
Software, NS3-TS, PC transfer (2270/93.01)	
Operating manual NS3 (43067900)	
Certificate of calibration	
AND YOUR CHOICE of SENSOR MODULE:	
with FCC Sensor Module	**2271/101**
with IEEE Sensor Module	**2271/111**
with SC6 Sensor Module	**2271/122**
with ICNIRP Sensor Module	**2271/131**
Nardalert S3 Optioned Model (enables Data Logging, Histogram and Alarm Varying)	
NS3 Option Key	**2270/90.01**
Individual Sensor Modules (without Nardalert S3 Mainframe)	
Sensor Module, FCC 1997 "Occupational/Controlled"	**2271/01**
Sensor Module, IEEE C95.1-2005, "Controlled"	**2271/11**
Sensor Module, Safety Code 6, "Controlled"	**2271/22**
Sensor Module, ICNIRP 1998, "Occupational"	**2271/31**
Optional Accessories	
Weather Resistant/Carrying Pouch	**2270/92.01**
Cable, optical fiber, duplex (1000 µm) RP-02, 2 m	**2260/91.02**
Cable, optical fiber, duplex (1000 µm) RP-02, 20 m	**2260/91.03**
Cable, optical fiber, duplex (1000 µm) RP-02, 50 m	**2260/91.04**
Cable, optical fiber, duplex, F-SMA to RP-02, 0.3 m	**2260/91.01**
Fiber Optic converter RS232, RP-02/DB9	**2260/90.06**
Fiber Optic converter USB, RP-02/USB	**2260/90.07**
Cable, adapter, USB 2.0 - RS232, 0.8 m	**2260/90.53**
Mounting Bracket for Nardalert S3 (Supports Area Monitoring)	**11232200**