Digital Broadband Probe Repeater

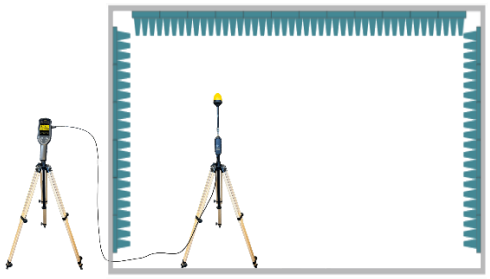
In connection with the FieldMan® field meter

The Digital Broadband Probe Repeater converts the digital electrical signal of a connected FieldMan broadband probe into an optical signal. The optical signal is transmitted to the FieldMan via a fiber optic cable. In this way, distances of up to 50 m to the measuring point can be bridged without interference. The particularly high irradiation resistance of the housing enables measurements even at extremely high field strengths where people are not allowed to be present. Thanks to the digital interface of the FieldMan probes, the measurement data is transmitted to the intermediate repeater without interference. This eliminates the need to calibrate the Digital Broadband Probe Repeater. As an alternative to the FieldMan RF probes, NBM RF probes with an additional A/D probe converter can also be connected.

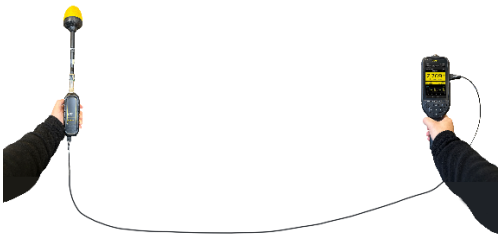
- Measurements without interference of the results, even over long distances
- Very high radiation resistance of over 1000 V/m for measurements at extremely high field strengths.
- Handy shape when used as probe extension
- For RF broadband probes of the FieldMan and the NBM-500 instrument family (with A/D Probe Converter)
- Universal charging interface USB-C
- Requires no calibration

Application examples

Thanks to the high electromagnetic shielding of the Digital Broadband Probe Repeater, it is possible to carry out precise measurements in fields of over 1,000 V/m, making the Digital Broadband Probe Repeater particularly suitable for use in an EMC chamber. The galvanic isolation reliably prevents overcoupling of RF fields.



The compact design and handy shape of the Digital Broadband Probe Repeater can also be used as a probe extension, making it much easier to measure in areas that are difficult to access. Even when searching for specific fields, this solution allows you to maintain an overview at all times without losing focus of the FieldMan display.



In environments with high field strengths that are either inaccessible or already dangerous for the user, the Digital Broadband Probe Repeater proves to be an indispensable tool. With the ability to handle field strengths of at least 1,000 V/m, it offers a reliable solution for challenging EMF environments. The optical cable enables the Digital Broadband Probe Repeater to take precise measurements within a range of 2 to 50 meters without compromising the measurement result. This not only ensures the safety of the user, but also the accuracy of the results, even in extreme situations.

With an impressive operating time of up to 130 hours and a universal charging interface via USB-C, the Digital Broadband Probe Repeater offers reliable performance over long periods of use.

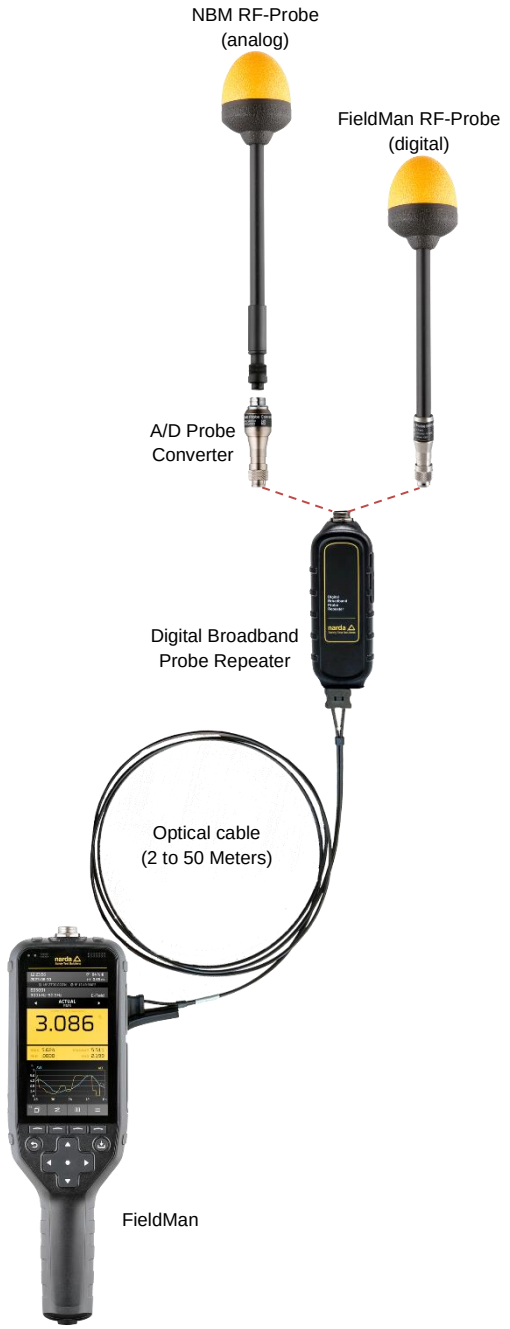
Description

The Digital Broadband Probe Repeater is designed for on-site use. The focus was deliberately placed on very high immunity to interference and simple handling, the function is limited to the essential properties required for precise measurement of RF fields.

The Digital Broadband Probe Repeater has a wide range of applications in various areas of EMF, including broadcasting systems, radio and base stations, vehicle environments, medical electrical equipment and many more. Thanks to its high immunity to interference, the Digital Broadband Probe Repeater is predestined for use in EMC and radar applications.

In addition, old RF probes of the NBM 500 device family can still be used with the A/D Probe Converter (2465/01), which ensures flexibility and compatibility.

Structure



Interfaces

1	Connection for probes
2	Battery charge status indicator
3	Status-LED
4	On/Off-Button
5	Tripod connection (¼-inch thread, 20-gear UNC female thread)
6	USB-C socket (charging connection)
7	Optical interface

Specifications [1]

General data and product properties		
Frequency range		Covers the frequency range of all RF FieldMan and NBM RF probes
Input (probe connection)[2]		Direct connection for any FieldMan RF broadband probes and for analog NBM RF probes using the optional adapter 2465/01
Output (optical interface)		Connection for an optical cable with RP-02 connector for connection to the FieldMan
RF immunity		1000 V/m typ. (100 kHz to 60 GHz); may be below the permissible measuring range of a probe.
Power supply	Internal	Lithium-ion battery pack (permanently installed and not replaceable)
	External (Charging)	USB-C (maximum 5V / 2A)
Charging	Operating time (nom.)	130 hours (nom.)
	Charging time (nom.)	< 5 hours (80% after 3 hours) Status LED: Red = battery is charging, Green = battery is fully charged
	Battery charge level	1 LED's: < 25%, 2 LED's: 25 - 50%, 3 LED's: 50 - 75%, 4 LED's: > 75%.
Calibration		Calibration of the Digital Broadband Probe Repeater is not necessary. Test report included in delivery. Only the probes are calibrated.
Size		153 mm x 55 mm x 41 mm
Weight		240 g
Country of origin		Germany

Environmental conditions		
Application area		Suitable for outdoor use and an operating altitude of up to 5000 m
Operating temperature		-20 °C to +50 °C 0 °C to 40 °C during charging with external charger
Humidity		< 29 g/m³ (< 93 % RH at +30 °C), non-condensing
Ingress protection		IP54 (with screwed-on probe or / adapter / closed socket cover / plugged-in optical cable)
Climatic conditions	Storage	1K3 (IEC 60721-3) extended to -20 °C to +50 °C
	Transport	2K3 (IEC 60721-3) -30 °C to +70° C
	Operating	7K2 (IEC 60721-3) extended to -20 °C to +50 °C
Mechanical conditions	Storage	1M3 (IEC 60721-3)
	Transport	2M3 (IEC 60721-3)
	Operating	7M3 (IEC 60721-3)

Conformity		
EMC	European Union	2014/30/EU, EN 61326-1:2021
	Immunity	IEC/EN: 61000-4-2, 61000-4-3, 61000-4-4, 61000-4-5, 61000-4-6, 61000-4-8, 61000-4-11
	Emissions	IEC/EN: 61000-3-2 Class A, 61000-3-3, IEC/EN 55011 (CISPR 11) Class B
Safety		Complies with European Low Voltage Directive 2014/35/EU and IEC/EN 61010-1:2010
Material		Complies with European RoHS Directive 2011/65/EU and (EU)2015/863

1 Unless otherwise noted specifications apply at reference condition: device in far-field of source, ambient temperature 23±3 °C, relative air humidity 25% to 75%, sinusoidal signal, probe sampling rate 5 Hz.
2 Extension cable for digital probes is not supported

Definitions and Conditions

Conditions

Unless otherwise noted, specifications apply after 30 minutes warm-up time within the specified environmental conditions. The product is within the recommended calibration cycle.

Specifications with limits

These describe product performance for the given parameter covered by warranty. Specifications with limits (shown as <, ≤, >, ≥, ±, max., min.) apply under the given conditions for the product and are tested during production, considering measurement uncertainty.

Specifications without limits

These describe product performance for the given parameter covered by warranty. Specifications without limits represent values with negligible deviations, which are ensured by design (e.g. dimensions or resolution of a setting parameter).

Typical values (typ.)

These characterize product performance for the given parameter that is not covered by warranty. When stated as a range or as a limit (shown as <, ≤, >, ≥, ±, max., min.), they represent the performance met by approximately 80% of the instruments. Otherwise, they represent the mean value. The measurement uncertainty is not taken into account.

Nominal values (nom.)

These characterize expected product performance for the given parameter that is not covered by warranty. Nominal values are verified during product development but are not tested during production.

Uncertainties

These characterize the dispersion of the values attributed to the measurands with an estimated confidence level of approximately 95%. Uncertainty is stated as the standard uncertainty multiplied by the coverage factor k=2 based on the normal distribution. The evaluation has been carried out in accordance with the rules of the “Guide to the Expression of Uncertainty in Measurement” (GUM).

Ordering Information

Description	Part number
Digital Broadband Probe Repeater – *Charger and optical cable not included* –	**2464/01**

Digital broadband probes	Part number
Check FieldMan - Probe Program - Website: Probe program (narda-sts.com)	**narda-sts.com**

Optional accessories	Part number
Power Supply USB-C PD, AU/EU/UK/US Plugs	**2259/92.29**
Cable, 2x USB-C (M), 3A, 2 m	**2260/90.76**
Cable, FO Duplex (1000 µm), RP-02, 2 m	**2260/91.02**
Cable, FO Duplex (1000 µm), RP-02, 5 m	**2260/91.09**
Cable, FO Duplex (1000 µm), RP-02, 10 m	**2260/91.07**
Cable, FO Duplex (1000 µm), RP-02, 20 m	**2260/91.03**
Cable, FO Duplex (1000 µm), RP-02, 50 m	**2260/91.04**
A/D Probe Converter for NBM Probes	**2465/01**

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

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

Narda Safety Test Solutions S.r.l.
Via Benessea 29/B
17035 Cisano sul Neva, Italy
Phone +39 0182 58641
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