

## Narda FieldMan®

All-in-one electromagnetic field meter ranging from 0 Hz to 90 GHz



The Narda FieldMan performs highly accurate measurements of non-ionizing high-frequency radiation and low-frequency fields. Equipped with digital probes for measuring electric or magnetic field strengths, it covers the range from static and low-frequency fields in medical and industrial applications to mobile radio frequencies and millimeter waves. Flat frequency response probes (“flat probes”), as well as so-called shaped probes that evaluate the field strength on the basis of a human safety standard are available. Probes with built-in FFT analysis enable spectral measurements along with time domain analyses up to frequencies of 400 kHz. All probes have a digital interface that transmits the measurement data to the basic device in a fail-safe manner. This eliminates the need to calibrate the basic unit.

- › Non-directional measurement using isotropic probes for applications in the frequency range 0 Hz (DC) to 90 GHz
- › Large sunlight readable color display 5” diagonal with 1280x720 HD resolution
- › Digital probe interface for broadband and selective probes – no more meter calibration
- › Powerful time and frequency domain analysis for low frequency fields up to 400 kHz including Weighted Peak measurements
- › WiFi/Bluetooth interface for remote operation via smartphone app (Option)
- › Built-in GPS receiver and rangefinder for easy location determination (Option)
- › Fast data transmission
  - › optical interface
  - › Ethernet
  - › USB-C



# Applications

The Narda FieldMan is used to make precision measurements to establish human safety, particularly in workplace environments where high electric or magnetic field strengths are likely to occur. An essential task is to demonstrate compliance with general safety regulations, such as FCC, IEEE, ICNIRP or EMF Directive 2013/35/EU. Examples of measurement environments are:

- › Radiocommunication base stations (e.g. IEC / EN 62232)
- › Broadcasting systems (e.g. IEC 62577)
- › Radar and satellite communications systems
- › Induction heating and melting (e.g. EN 50519)
- › Household appliances (e.g. IEC / EN 62233)
- › Electric welding equipment (e.g. IEC / EN 62822)
- › Railroad operations (e.g. EN 50500)
- › Automotive operations (e.g. IEC 62764)
- › Energy supply systems (e.g. IEC / EN 62110)
- › Electrical medical devices (e.g. IEC / EN 60601)
- › TEM cells and absorber chambers to demonstrate electromagnetic compatibility (EMC)

# Digital Probes

A large number of isotropic field probes are available for the FieldMan. All of them transmit their information and measurement data as a digital signal to the FieldMan, either via an electrical USB interface or via an optical COM interface. In this way, interference is significantly reduced compared to high-resistance analog interfaces. The specially developed screw connectors and electrical contacts are extremely robust and resilient.

The probes are automatically recognized after connection to the FieldMan. Sensors inside the probe record the temperature of the measuring location and transmit it to the FieldMan display. In addition to the automatic offset correction, the temperature measurement is also used to compensate for the typical temperature dependency of the sensor diodes. The advantages are uninterrupted measurements without zero adjustment and higher measurement accuracy over wide temperature ranges.

An automatic self-test function can even detect possible errors in the sensor system, which means that additional checking with a test generator is superfluous. Only the digital probes are calibrated. You can continue to use your FieldMan during this time.

There are probes for many different applications with the appropriate frequency and level ranges. The following table gives an overview of common areas of application.










| Frequency range                          | DC up to 1 kHz  | Up to 400 kHz   | Up to 400 kHz   | Up to 30 MHz  | Up to 1 GHz  | Up to 6 GHz   | Up to 40 GHz  | Up to 90 GHz  | Up to 50 GHz  |
|--|---|---|---|---|--|---|---|---|---|
| Field type, magnetic (H) or electric (E) | H   | E+H   | H   | H   | H  | E   | E   | E   | E Shaped  |
| Probe models                             | HP-01   | EHP-50F/G   | BFD-400-1 (100 cm <sup>2</sup> )<br>BFD-400-3 (3 cm <sup>2</sup> )                  | HFD-3061  | HFD-0191   | EFD-0391<br>EFD-0392<br>EFD-0691<br>EFD-0692  | EFD-1891<br>EFD-4091  | EFD-5091<br>EFD-6091<br>EFD-9091  | EAD-5091<br>EBD-5091<br>ECD-5091<br>EDD-5091  |
|  |  |  |  |  |  |  |  |  |  |
| 5G mobile radio / telecommunications     |   |   |   | ●   | ●  | ●   | ●   | ●   | ●   |
| Broadcast radio / TV                     |   |   |   | ●   | ●  | ●   | ●   |   | ●   |
| Satellite communications                 |   |   |   |   |  |   | ●   | ●   | ●   |
| Radar                                    |   |   |   |   |  |   | ●   | ●   | ●   |
| Industry: Heating and tempering          |   |   |   | ●   |  | ●   |   |   |   |
| Industry: Plastics welding               |   |   |   | ●   |  | ●   |   |   |   |
| Industry: Semiconductor production       |   |   |   | ●   |  | ●   |   |   |   |
| Medicine: Diathermy, hyperthermy         |   |   |   |   |  | ●   |   |   | ●   |
| Leak location                            |   |   |   |   |  |   | ●   | ●   | ●   |
| Household appliances                     |   |   | ●   |   |  |   |   |   |   |
| Electric welding equipment               |   | ●   | ●   |   |  |   |   |   |   |
| Railroad operations                      | ●   | ●   | ●   |   |  |   |   |   |   |
| Automotive operations                    | ●   |   | ●   |   |  |   |   |   |   |
| Energy supply systems                    |   | ●   | ●   |   |  |   |   |   |   |
| Electric medical devices                 | ●   | ●   | ●   |   |  |   |   |   |   |
| Accredited calibration included          |   |   |   | ●   |  | ●   | ●   | ●   | ●   |
| Probe interface                          | Optical connection  |   |   | Digital probe interface   |  |   |   |   |   |

Fig. 1. Areas of application and suitable probe models

# Use and benefit

During the development of the FieldMan, special attention was paid to achieving simple, well-structured and fluid operation. The arrangement of many display elements known from smartphones, the self-explanatory symbols and the FieldMan processes, which are perfectly tailored to the measurement tasks, offer maximum ease of use. The large, anti-glare HD color display shows the measured values numerically and graphically with all important additional information in a clear form and is easy to read even in bright sunlight. From simple broadband measurements to sophisticated time signal recording in real time or spectral frequency analysis of low-frequency fields, you have the right operating modes at your disposal.

Measurement results can be commented on by text or voice and can be saved as a screen copy at the push of a button. Built-in sensors record the current environmental conditions as well as the position data and automatically add them to the measurement result. The built-in distance meter (option) shows you the measuring height above the ground, which makes the exact positioning of the measuring device much easier. For a better overview, the measurement results can be assigned to freely definable projects, which is particularly helpful when the measurement locations change frequently. If you want to document your measurement results with photos and videos, the FieldMan smartphone app will help you. For example, the app wirelessly transfers media files created with the smartphone to the project directory on the FieldMan SD memory card. A newly developed, extremely powerful PC software "Narda-TSX" is available for documenting the measurement results, media and other information. It is Narda's new software platform for device configuration, measurement data evaluation and documentation, which in addition to the FieldMan will also support other Narda products in the future.



Fig. 2. FieldMan display and controls



Fig. 3. The FieldMan is supplied with a robust transport case

# 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).

# Specifications

| Metrics                      |   |
|------------------------------|---|
| Electric and magnetic fields | Measurement control and result display for the following probes and analyzers. Frequency range and level range depending on the probe/ analyzer.  |
| Broadband probes             | 100 kHz to 90 GHz (see list of digital broadband probes)  |
| Selective probes             | 1 Hz to 400 kHz, B-field (see list of digital selective probes)   |
| Probe model EHP-50F/G        | 1 Hz to 400 kHz, E-field and B-field (FFT-Analyzer, see separate datasheet)   |
| Probe model HP-01            | 0 Hz to 1 kHz, B-field (Magnetometer/ FFT-Analyzer, see separate datasheet)   |
| Electric field units         | V/m, mW/cm <sup>2</sup> , W/m <sup>2</sup> , % of standard (depending on the connected probe)   |
| Magnetic field units         | A/m, Tesla, Gauss, mW/cm <sup>2</sup> , W/m <sup>2</sup> , % of standard (depending on the connected probe)   |
| Temperature <sup>1</sup>     | Logging of the ambient temperature at the time of measurement (-40 °C to +85 °C) in °C or °F  |
| Humidity <sup>1</sup>        | Logging of the ambient relative humidity at the time of measurement (0% to 100% RH)   |
| Air pressure                 | Logging of the ambient air pressure at the time of measurement (300 to 1100 hPa)  |
| Distance (Option)            | An ultrasonic rangefinder on the bottom side measures the distance to ground or to an object (0.25 m to 4 m) in m, ft, in or yd. Coverage ratio ≈ Distance / 4.   |
| Geolocation (Option)         | Built-in GNSS receiver for determining latitude, longitude and altitude (MSL). 72 channels with the support of GNSS systems (GPS / QZSS, Galileo, GLONASS, BeiDou) and the SBAS extension system (WAAS, EGNOS, MSAS, GAGAN). Position accuracy: Autonomous 2.5 m CEP. |
| Display                      |   |
| Display type                 | Sunlight readable 5" color TFT-LCD anti-glare display (HD 1280 x 720 pixels)  |
| Brightness                   | Manual control or automatic control via brightness sensor   |
| Operating languages          | Largely language-independent measurement control via symbols. Menu languages: English, German, more are planned.  |

<sup>1</sup> The permissible operating range of the device and probe must not be exceeded. The temperature sensor is located in the probe.

| Operating Modes                        |   |  |   |   |
|--|---|--|---|---|
| Mode description                       | Field Strength  | Broadband field measurements. Numerical results with time curve or bar graph display.              |   |   |
|  | Spatial Average   | Procedure for spatial averaging of broadband measurements over several measurement positions.      |   |   |
|  | Timer Logging   | Time-controlled broadband measurement of the field strength in a definable period.                 |   |   |
|  | Spectrum  | FFT analysis with spectrum display, marker evaluation and display of the broadband level.          |   |   |
|  | Shaped Time Domain  | Time domain assessment (WPM, WRM) with digital filtering related to a selected safety limit.       |   |   |
|  | Scope   | Triggered measurement of the field curve over time with pretrigger feature.                        |   |   |
| Available modes                        | Broadband Probes<br>Digital Interface<br>100 kHz to 90 GHz  | Selective Probes<br>Digital Interface<br>1 Hz to 400 kHz   | Model EHP-50F/G<br>Optical Interface<br>1 Hz to 400 kHz | Model HP-01<br>Optical Interface<br>DC to 1 kHz |
| Field Strength                         | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>                     | <input checked="" type="checkbox"/>             |
| Spatial Average                        | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>                     | <input checked="" type="checkbox"/>             |
| Timer Logging                          | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>                     | <input checked="" type="checkbox"/>             |
| Spectrum                               |   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>                     | <input checked="" type="checkbox"/>             |
| Shaped Time Domain                     |   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>                     |   |
| Scope                                  |   | <input checked="" type="checkbox"/>  |   |   |
| Features                               |   |  |   |   |
| Probe features                         | Recognition   | Probes are automatically recognized after being plugged in.  |   |   |
|  | Operating principle   | Measurement signals are sampled and processed inside the probe and provided as digital values.     |   |   |
|  | Offset compensation   | Automatic offset compensation enables gapless RF measurements without zero adjustment.             |   |   |
|  | Self-test   | Functional test including the sensor function of each measuring axis for digital interface probes. |   |   |
| Signal detection                       | RMS detection, Peak detection for WPM measurements and selectable detection RMS/Peak with BDF-400 probes.   |  |   |   |
| Numerical display                      | Total field (isotropic) and field components X, Y, Z (for probes up to 18 GHz).   |  |   |   |
| Result types                           | Field Strength  | Actual, Max, Min, Avg (average) and Max Avg  |   |   |
|  | Spectrum  | Actual or Max or Avg   |   |   |
|  | Shaped Time Domain  | Actual, Max and Min  |   |   |
|  | Scope   | Actual, Max and marker for dB/dt   |   |   |
| Average mode                           | Moving average over time of the square values of the field strength.  |  |   |   |
| Averaging time                         | Field Strength, Timer Logging   | 1 s, 3 s, 10 s, 30 s, 1 min, 3 min, 6 min, 10 min, 30 min, 1 h, 6 h, or 24 h                       |   |   |
|  | Spectrum  | 4, 8, 16, 32 or 64 number of averages  |   |   |
| Graphical display with marker function | Field Strength  | Actual and Avg trace vs. time, time span selectable from 48 s to 24 hours.                         |   |   |
|  | Spatial Average   | Bar graph of results for each measurement position ( $\leq 100$ ) and the spatial average line.    |   |   |
|  | Timer Logging   | Timeline during measurement, results as a graph vs. time after measurement.                        |   |   |
|  | Spectrum  | Frequency spectrum and selectable limit line. All axes are measured, one can be displayed.         |   |   |
|  | Shaped Time Domain  | Exposure index (WPM or WRM) in % vs. time, time span selectable from 4 min to 24 h.                |   |   |
|  | Scope   | Sign-based recorded signal with 25 % pretrigger. Recording time selectable from 1 ms to 30 s.      |   |   |
| Screenshots                            | Manually initiated screenshot or automatically when saving a measurement result.  |  |   |   |
| Comments                               | Voice and/or text comments can be assigned to a measurement result.   |  |   |   |
| Alarm                                  | Alarm sound and alarm message when an adjustable field strength is exceeded.  |  |   |   |
| Audible field indicator                | Acoustic hotspot search with field strength-dependent audio frequency (available for RF-probes).  |  |   |   |
| Scheduled measurements                 | Mode Timer Logging with automatic wake-up and shutdown after measurement.<br>Start time pre-selection: up to 24 h or immediate start<br>Timer duration: up to 100 h<br>Storage interval: 1s to 6 min (in 11 steps, up to 32000 intervals) |  |   |   |
| Correction factors                     | Post-processing for broadband probes to increase the accuracy at a known field frequency (direct frequency entry, interpolation between calibration points)   |  |   |   |



| Interfaces         |  |
|--------------------|--|
| Probe interface    | Digital probe interface for direct connection or via the optional extension cable.   |
| Optical port       | Serial, full duplex, $\geq 1$ Mbit/s, to connect the Field Analyzer EHP-50F/G, the Magnetometer HP-01 or the Digital Probe Repeater. Recommended interface for PC controlled measurements. |
| USB 2.0            | USB-C connection for battery charging, remote control and data transfer.   |
| Ethernet           | Gigabit Ethernet LAN connectivity for remote control and data transfer.  |
| Bluetooth (Option) | BT 4.0 for remote control via smartphone app (Android).  |
| WiFi (Option)      | WLAN connectivity for remote control and data transfer.  |
| AUX                | MMCX connector, reserved for future use.   |

| Result Storage                   |  |
|----------------------------------|--|
| Storage triggers                 | Manual (by keypress) or scheduled (Timer Logging Mode).  |
| Storage medium                   | Removable micro SD card for storing measurement data, setups and comments.   |
| Storage capacity                 | Up to 128 GB. 16 GB micro SD card included.  |
| Screenshots                      | Screenshots can be saved for documentation as PNG files.   |
| Voice recorder                   | Voice comments can be added to measurement results (recording and playback).   |
| Text editor                      | Text comments can be added to measurement results (integrated virtual keyboard).   |
| Photos / videos (WiFi/BT Option) | Photos and videos from a smartphone can be transferred to the device using the FieldMan app.   |
| Printouts (WiFi/BT Option)       | Saved measurement results can be printed locally by using the FieldMan Android app for on-site documentation (requires a compatible wireless printer). |

| General Specifications              |   |  |
|-------------------------------------|---|--|
| Recommended calibration interval    | Calibration of the basic unit is not required. Only the probes are calibrated.        |  |
| Power supply                        | internal  | Li-Ion rechargeable battery pack, included and replaceable     |
|                                     | external  | USB-C PD (maximum 12 V / 3A, compatible with BC1.2 and QC 3.0) |
| Operating time (nom.)               | 16 hours (with broadband probes and analyzers)  |  |
| Charging time (nom.)                | 4 hours (80% charged in 2½ h)   |  |
| RF Immunity                         | 200 V/m (100 kHz to 60 GHz); can be below the permissible measuring range of a probe. |  |
| Operation in static magnetic fields | $\leq 30$ mT (to avoid high force on the device)                                      |  |
| Dimensions (H x W x D)              | 51 mm x 93 mm x 312 mm without probe  |  |
| Weight                              | 695 g (without probe)   |  |
| Country of origin                   | Germany   |  |

| Environmental Conditions |   |   |
|--------------------------|---|---|
| Range of application     | Suitable for outdoor use and an operating altitude of up to 5000 m  |   |
| Operating temperature    | -20 °C to +50 °C during normal operation with battery<br>0 °C to 40 °C during the charging process with an external charger |   |
| Humidity                 | < 29 g/m <sup>3</sup> (< 93 % RH at +30 °C), non-condensing   |   |
| Ingress protection       | IP54 (probe screwed on, protective flap closed, stand folded in)  |   |
| Climatic conditions      | Storage   | 1K4 (IEC 60721-3) extended to -30 °C to +70 °C (battery removed)<br>1K3 (IEC 60721-3) extended to -20 °C to +50 °C (battery inserted) |
|                          | Transport   | 2K3 (IEC 60721-3) extended to -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)   |

| Compliance |  |  |
|------------|--|--|
| EMC        | European Union   | Complies with Directive 2014/53/EU, EN 301489-1, EN 301489-17 and EN 61326 -1        |
|            | 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, 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 |  |
| Material   | Complies with European RoHS Directive 2011/65/EU and (EU)2015/863          |  |

## ORDERING INFORMATION

### Instrument Sets

| Description   | Part number     |
|---|-----------------|
| <b>FieldMan Basic Set</b> <i>- Probes are not included -</i><br><b>Includes:</b> <ul style="list-style-type: none"> <li>› FieldMan Basic Unit</li> <li>› Hard Case for FieldMan and up to 5 Probes</li> <li>› Power Supply USB-C PD, AU/EU/UK/US Plugs</li> <li>› Cable, 2x USB-C(M), 3 A, 2 m</li> <li>› Shoulder Strap, 1 m</li> <li>› Marking Rings for FieldMan Probes</li> <li>› Quick Start Guide</li> <li>› Safety Instructions</li> <li>› USB Stick: Manuals and Documents</li> <li>› Software Narda-TSX (free download)</li> </ul> | <b>2460/101</b> |

### Digital Broadband Probes

| Description   | Part number    |
|---|----------------|
| Probe HFD-3061, H-Field, 300 kHz–30 MHz                               | <b>2462/05</b> |
| Probe HFD-0191, H-Field, 27 MHz–1 GHz                                 | <b>2462/06</b> |
| Probe EFD-0391, E-Field, 100 kHz–3 GHz                                | <b>2462/01</b> |
| Probe EFD-0392, E-Field, High Power, 100 kHz–3 GHz                    | <b>2462/12</b> |
| Probe EFD-0691, E-Field, 100 kHz–6 GHz                                | <b>2462/14</b> |
| Probe EFD-0692, E-Field, 600 MHz–6 GHz                                | <b>2462/20</b> |
| Probe EFD-1891, E-Field, up to 18 GHz                                 | <b>2462/02</b> |
| Probe EFD-4091, E-Field, up to 40 GHz                                 | <b>2462/19</b> |
| Probe EFD-5091, E-Field, 300 MHz–50 GHz, Thermocouple                 | <b>2462/03</b> |
| Probe EFD-6091, E-Field, 100 MHz–60 GHz                               | <b>2462/17</b> |
| Probe EFD-9091, E-Field, 100 MHz–90 GHz                               | <b>2462/18</b> |
| Probe EAD-5091, FCC 1997 Controlled, Shaped, 300 kHz–50 GHz, E-Field  | <b>2462/07</b> |
| Probe EBD-5091, IEEE 2019 Restricted, Shaped, 3 MHz–50 GHz, E-Field   | <b>2462/21</b> |
| Probe ECD-5091, SC 6 2015 Controlled, Shaped, 300 kHz–50 GHz, E-Field | <b>2462/16</b> |
| Probe EDD-5091, ICNIRP 2020 Occ, Shaped, 300 kHz–50 GHz, E-Field      | <b>2462/22</b> |

Note: Separate data sheets are available for the probes

### Digital Selective Probes

| Description   | Part number    |
|---|----------------|
| Probe BFD-400-1, B-Field, 100 cm <sup>2</sup> , 1 Hz–400 kHz, selective | <b>2463/01</b> |
| Probe BFD-400-3, B-Field, 3 cm <sup>2</sup> , 1 Hz–400 kHz, selective   | <b>2463/02</b> |

Note: Separate data sheets are available for the probes

## Field Analyzers

| Description   | Part number |
|---|-------------|
| EHP-50F E&H Field Analyzer Set, 1 Hz–400 kHz (no Transport Case included) | 2404/105    |
| EHP-50F E&H Field Analyzer Set, 1 Hz–400 kHz, Stand-alone/PC use          | 2404/104    |
| HP-01 Magnetometer Set DC–1 kHz   | 2405/101    |

## Options

| Description  | Part number |
|--|-------------|
| Option, Narda-TSX Live Measurements, for FieldMan Digital Probes (expected from Q3 2023) | 2460/95.01  |
| Option, GPS/ Range Finder for FieldMan   | 2460/95.11  |
| Option, WiFi/ Bluetooth for FieldMan (expected from Q4 2023)                             | 2460/95.12  |

## Accessories

| Description   | Part number |
|---|-------------|
| Digital Broadband Probe Repeater                          | 2464/01     |
| Test-Generator 27 MHz                                     | 2244/90.38  |
| Tripod, Non-Conductive, 1.65 m, with Carrying Bag         | 2244/90.31  |
| Tripod, Benchtop, 0.16 m, Non-Conductive                  | 2244/90.32  |
| Tripod Extension, 0.50 m, Non-Conductive (for 2244/90.31) | 2244/90.45  |
| Handle, Non-Conductive, 0.42 m                            | 2250/92.02  |
| Car Charger Adapter, USB-C PD                             | 2259/92.28  |
| Cable, Digital Probe Extension, 2 m                       | 2460/90.02  |
| Cable, Digital Probe to USB 2.0 (Type A), 3 m             | 2460/90.03  |
| 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  |
| Cable, FO Duplex, F-SMA to RP-02, 0.3 m                   | 2260/91.01  |
| O/E Converter RS232, RP-02/DB9                            | 2260/90.06  |
| O/E Converter USB, RP-02/USB                              | 2260/90.07  |
| Cable, Adapter USB 2.0 - RS232, 0.8 m                     | 2260/90.53  |

# Microtron®

Flexible electronic solutions

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