

The Frequency Synthesizers ND 500 D and ND 1000 D are the most intelligent bench top instruments of our synthesizer models. This remarkable design has all the attributes demanded by Research & Development, calibration laboratories and production. All instrument settings are displayed on a LCD and can be stored in a non-volatile memory. Data entry to set frequency and output level is done via numeric keyboard, function keys or rotary control knob. The ND 1000 D is also available with a programmable output attenuator down to - 137 dBm. The excellent high spectral purity of the output signal (SSB-phase noise \leq - 126 dBc/Hz; residual FM \leq 0.1 Hz) allows applications as local oscillator (LO) during the R&D phase of new module designs.

Frequency Synthesizer ND 500 D

- ◆ Frequency range 100 kHz ... 500 MHz
 - ◆ Keyboard entry or rotary control knob to set frequency, output level and LCD
 - ◆ Highly-stable refer. frequency (OCXO)
 - ◆ Residual FM \leq 0.1 Hz
 - ◆ SSB phase noise \leq - 126 dBc/Hz
 - ◆ Fast frequency switching \leq 1 μ s
 - ◆ Output level 0 dBm ... + 13 dBm
 - ◆ BCD parallel control
- RS 232 and IEEE-Bus as option



Specifications ND 500 D

Reference Frequency:

Frequency/Type: 10 MHz/OCXO
Temperature stability (+ 5 °C ... + 45 °C): $\leq 3 \times 10^{-8}$
Ageing: $\leq 2 \times 10^{-8}$ /month
Reference frequency output: 10 MHz; + 10 dBm
Reference frequency input: 10 MHz, 5 MHz, 2 MHz
..... $\pm 2 \times 10^{-7}$
Input level: 0 dBm ... + 8 dBm

Synthesizer:

Frequency range: 100 kHz ... 499.999 999 9 MHz
Resolution: 0.1 Hz
Accuracy: same as reference
Frequency setting: keyboard, rotary control, BCD-parallel
RS 232 and IEEE-Bus (option)
Switching time to new frequency: steps < 1 MHz: ... $\leq 1 \mu\text{s}$
steps ≥ 1 MHz: ... $\leq 20 \mu\text{s}$
Phase (< 1 MHz step width): phase-continuous

Spectral purity:

Harmonics (level $\leq + 13$ dBm): ≤ -30 dBc
Sub-harmonics: none
Discrete spurious: ≤ -72 dBc
Residual FM (CCITT, rms): ≤ 0.1 Hz
SSB-phase noise (10 kHz offset): ≤ -126 dBc/Hz
Noise floor: ≤ -138 dBc/Hz

Output:

Output level range: 0 dBm ... + 13 dBm
Frequency response: $\leq \pm 1$ dB
Impedance: 50 Ω
VSWR: ≤ 1.5
Connector: N-socket

General data:

Display: LCD-graphic display (240 x 64 dots)
Backlighting: LED's, 4 brightness settings
Non-volatile memory: ... for 100 compl. instrument settings
Power supply: 110 V/120 V, 220 V/240 V ± 10 %
..... 47 Hz ... 63 Hz; 101 VA (Stand-by 9 VA)
Electrical safety: EN 61010
Operating temperature: + 5 °C ... + 45 °C
EMC: CE-mark
Dimensions (W x H x D): 447 mm x 88 mm x 450 mm
Weight: approx. 13 kg

Supplied accessories:

1 ea. power cord
1 ea. operating manual
1 set spare fuses

Ordering information:

Frequency Synthesizer ND 500 D BN 86303.000
with BCD-interface

Option:

RS 232- and IEEE-Bus interface BN 86303.201

Accessory:

19" adapters for rack-mounting BN 86302.101