

Safety instructions

In case of thunderstorms or overload

Both inputs of the MD 300DX have an input protection circuit against static discharges with ESD protectors up to 8kV and thus conforming to IEC 61000-4-2 Level 2/max 1ns and an additional 4kV fine protection

Disclaimer - please note

The integrated overvoltage protection circuit will not protect your equipment from a lightning strike in the event of a direct hit to the house or the vicinity. Irrespective of the radiation element lengths, high voltages can permanently damage the antenna electronics and/or connected devices. For this reason, liability for these devices is excluded. Other types of damage caused by overloads or by direct HF-exposure (transmitting antennas) are also excluded from the warranty.

In case of absence from home, the potential danger of transmitting (ham radio stations), and thunderstorms etc., can be avoided by disconnecting the antenna cable to avoid any damage.

In the vicinity of strong transmitters, please note also

In the rare case of immediate vicinity (less than 100m) to very strong transmitters, overdrive effects can occur, which may overload the antenna electronics and/or connected devices. This can happen in the case of more than -10dBm output level. Weak signals may be suppressed and phantom signals can occur.

Since the reception range of the MD 300 X is 300MHz max, signals outside the shortwave spectrum can also cause such negative effects.

TECHNICAL DATA

Antenna:

Power supply: 10 - 15V DC (max. 40mA) via power inserter or 5V supply via USB with reduced IP-values of 3-5dB and same gain
Connectors and impedance: BNC / 50 Ohms
Radiator connections: M5 screws (stainless steel)

Frequency response (-3dB) and nominal gain:

- 0dB Gain: 9kHz - 300MHz
- 3dB Gain: 9kHz - 130MHz

IP3: typ. +30dBm (@7.00 & 7.20MHz)
IP2: typ. +78dBm (@7.00 & 7.20MHz)
Size / weight: 98 x 90 x 38mm / 0.12kg

DualPower Inserter CPI1000DP:

Power supply max. 15V DC / max. 400mA current-limited and protected against polarity reversal
Connectors: 2.1mm DC power socket (positive inner; alternatively via USB (USB-B port))
Size / weight: 86 x 70 x 29mm / 0.09kg

Scope of delivery:

- MegaDipol MD 300DX
- DualPower Inserter CPI1000DP
- 2x 2.5m long radiating elements (PVC-coated, salt water resistant stainless steel ropes)
- 2x insulators for installation (weatherproof plastic material with 4.5mm fixing hole)

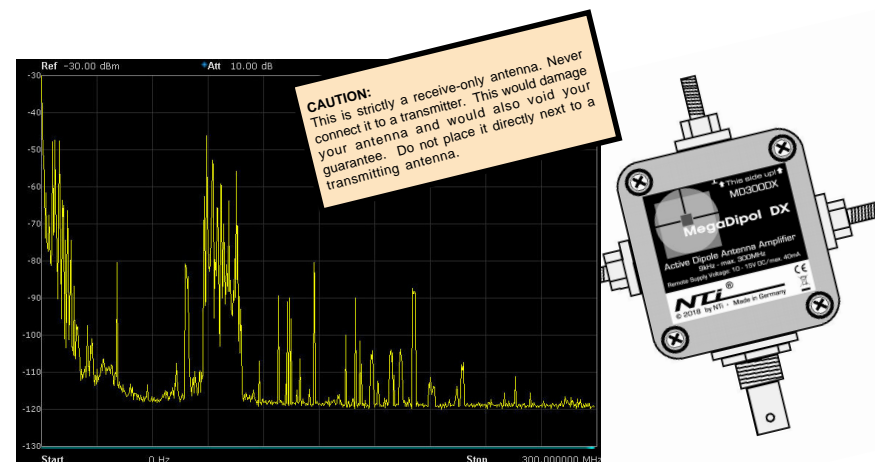
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Issue 06/2018

MegaDipol MD300DX

Active Dipole Antenna Amplifier 9kHz - max. 300MHz

Operating Manual Version V1.2



NTI®

Manufactured by Rudolf Ille Nachrichtentechnik • www.nti-online.de

Distributed by

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Operating principle

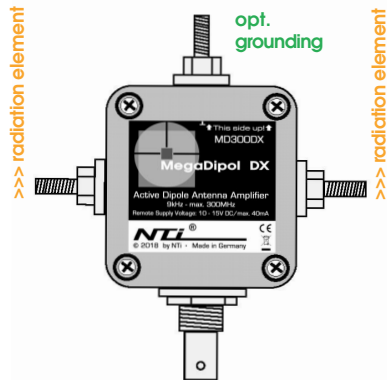
The MegaDipole 300DX is a broadband active dipole with a maximum upper working frequency of 300 MHz. The dipole reacts to the electrical component (E-Field) of the electromagnetic field. The dipole will deliver best results regarding signal strength and SNR (signal -to-noise-ratio) at locations with little or no locally generated interference. Nonetheless, the receiver should have a high enough dynamic range so that it can effectively process the received signals. In contrast to simple E-field antennas with only one radiating element, the symmetrical construction of the MegaDipole 300DX, will result in almost no negative resonance effects or reflections caused by the coaxial cable.

Radiation elements

Because of the separation of the antenna electronics and antenna radiator, the MegaDipole DX offers a flexible solution for connecting different types of radiator elements.

The standard version consists of two radiating elements of 2.5m each constructed from stainless steel and sea-water resistant PVC-coated high-grade cables.

In principle, it is also possible to connect home-made radiating elements, however, they should not be longer than 4m, to avoid overloading in the antenna electronics or the receiver.



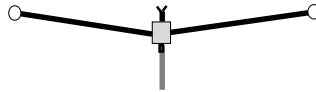
The radiators are fixed to the two M5-screw connectors on the side of the unit using tooth lock washers and wing nuts. It is important to install the antenna case with the BNC-connector pointing downwards because there are two small holes to allow condensation to exit.

Optional: You may also attach a grounding wire at the upper connector. The ground is connected internally to the coax outer conductor (ground BNC-jack).

Installation examples

Horizontal installation

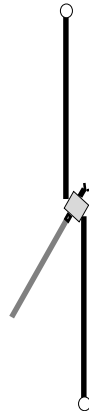
(Horizontal polarisation; two distinct minima)



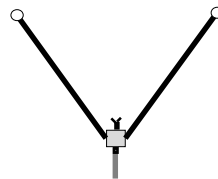
Vertical installation

(Vertical polarisation; omnidirectional reception)

Recommended for maximum performance

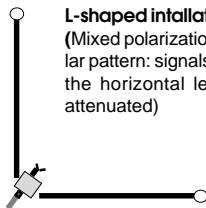


V-shaped installation
(Mixed polarization; predominantly horizontal component with only weak minima)

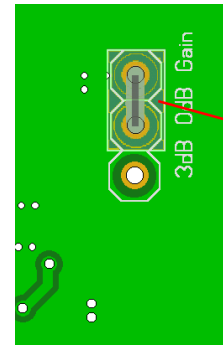


L-shaped installation

(Mixed polarization with polar pattern: signals opposite the horizontal leg will be attenuated)



Gain switching 0/3dB



Jumper for gain selection 0/3dB

Default: 0dB

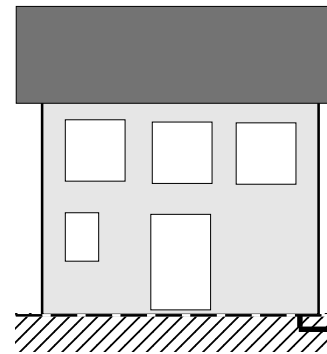
Within the antenna case, there is a jumper for selection of optimum gain.

Under normal circumstances the jumper should be set to 0dB gain.

Only when working with short radiating elements up to a maximum of 1m in length, is it advisable to increase the gain.

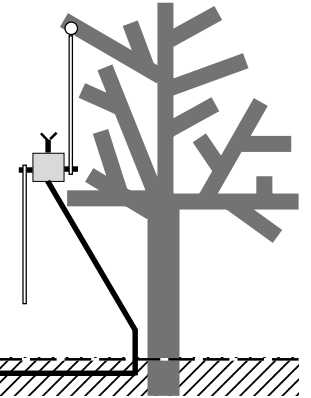
The gain of the antenna is proportional to the length of the radiation element; doubling the length of the radiating element will result in 6dB signal increase. As a consequence, you should lengthen the radiation elements before attempting to increase the gain.

Example of outdoor-installation



An inconspicuous installation for vertically polarized omnidirectional reception outside the electromagnetic noise of your home.

The coax cable run should be positioned away from the lower element and should not be placed next to the radiating element.



Coaxial power inserter

The antenna electronics are powered via the connected coaxial cable of the power inserter. Power is supplied by the power inserter (CPI 1000DP) which can also be fed by an external power supply. Whenever possible, do not use a switch mode power supply, it is always preferable to use a transformer.

Power can also be supplied via USB. Do not use different power supplies simultaneously! A self-resetting fuse will limit the power input to 400mA in case of a short circuit. The power inserter has two LED-status indicators:

Green (PWR): Operating voltage display

Red (!): Short-circuit or overload indicator

Attention:

If the red LED illuminates, disconnect the antenna and power cables from the power inserter and investigate the cause of the short circuit or overload!

