

Active Receiving Antenna VPA 30 AM-FM

For many years, Naval Electronics AB has been a recognized design and manufacturing company for ship-bound antennas and CATV-systems. A lot of the experience and know-how gained during this period, has gone into the new VPA 30 active receiving antenna. Thorough design of mechanical and electrical parts will give you years of troublefree, top performance, meeting the very special demands put on ship antennas. The antenna is optimized for AM reception from 100 kHz to 30 MHz. The antenna is omnidirectional and senses vertical polarization.

Features

- Antenna factor $K_a = 0.16$ with overall length 0.85 m.
 - High signal handling capability, desensitization 1 dB at 10 V/m input.
 - Extremely low intermodulation.
 - External noise limited (50% probability according to CISPR 322).
 - Die-cast hydronalium body, which is salt water resistant.
 - Lightning arrester built in.
 - Recognized equipment by Det Norske Veritas, approval no A-4531.
- Cold test according to USSR Register of shipping.
Salt mist test according to DEF-STAN 810D.

TECHNICAL SPECIFICATIONS

AM

Frequency range (MHz)	0.1-30
Output impedance* (ohm)	75
Returnloss (dB)	>17
IP2 in (V/m)	1250
IP2 out (dBm)	+60
IP3 in (V/m)	150
IP3 out (dBm)	+38
Antenna factor K_a	0.16

Antenna noise
External noise limited (50% probability according to CISPR 322)

FM

Frequency range (MHz)	68-110
Output impedance (Ohm)	75
Return loss (dB)	8
Antenna gain (dBi)	typ 3

AM-FM

Overall frequency range (MHz)	0.1-110
Polarization	Vertical

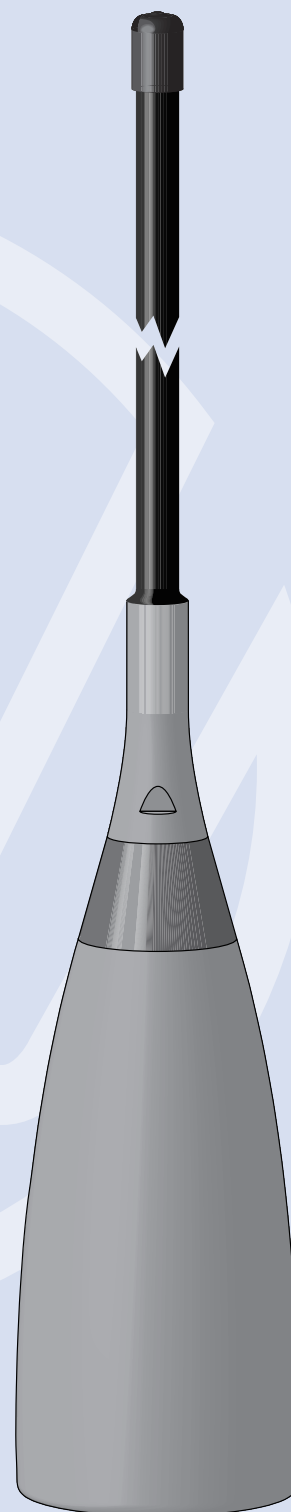
POWER & ENVIRONMENT

Supply voltage DC (V)	$15 \pm 17\%$
Supply current (mA)	115 ± 10
Temperature range (C)	-40 - +70

MECHANICAL

Coaxial connector *	75 ohm female BNC
Rod length (mm)	850
Rod diam. (mm)	10
Base height (mm)	200
Base max diam. (mm)	84
Mounting pipe diam. (mm)	45-50
Weight (kg)	1.65

*Also available in a 50 ohm, N-conn. version, see separate leaflet.



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Since 1971, the objective of Naval Electronics has been to offer the best possible products for TV and Radio reception at sea. Naval began with omnidirectional antennas and is the world leader in this field of technology today. Now, with an expanded product range, the name Naval means much more than antennas. Naval operates in more than 40 countries and has installations on thousands of vessels all over the world.

 **Naval**[®]
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All specifications stated are subject to change without notice.

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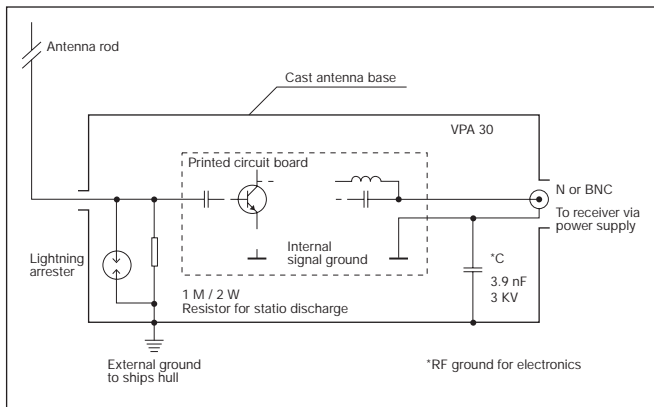
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Operating principle

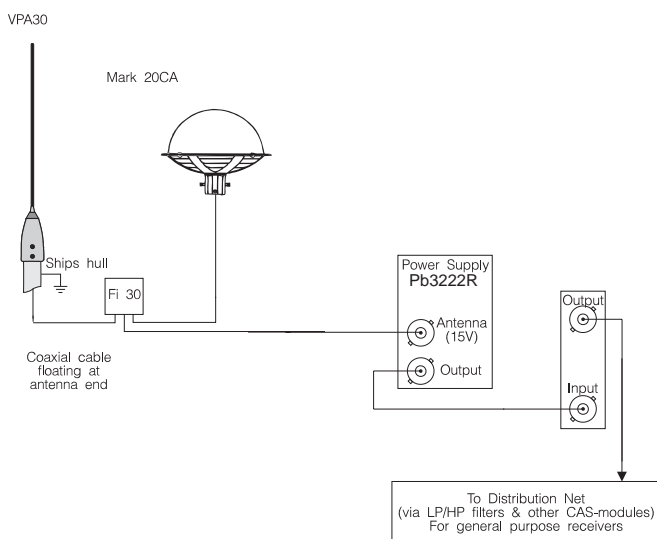
The electronics performs a two stage impedance transformation between the E-field at the rod and the 75 ohm cable. A K_a value of 0.16 means that at all frequencies, the antenna is as efficient as a full size dipole. The design of the complete antenna is made in such a way, that for most of the listening time (day-night and seasonal variations) the external, atmospheric noise, masks the noise generated by the electronics. The design is fine tuned in this respect and neither rod diameter nor rod length should be altered.

Power is fed to the antenna via the coaxial cable, which floats with respect to ground at the antenna end, except for a 3nF/3 kV decoupling capacitor between the coax shield and body. The circuit has adequate protection against lightning. There are no serviceable parts inside.

Principal electrical diagram



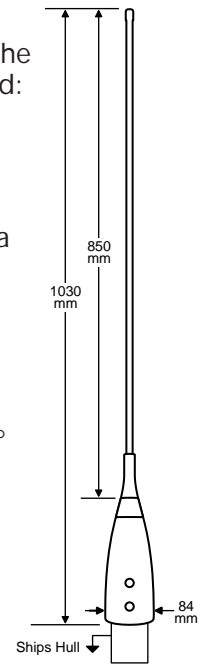
Typical installation 1



Installation

To achieve best possible reception the following provisions must be ensured:

- Suitable siting; away from ship's transmitting antennas, radar beams etc.
- Effective grounding of the antenna base is very important.
- Installation of a tube (45–50 mm) at the selected antenna siting, connected to the ship's hull. Mounting angle is not critical and the VPA 30 may be tilted up to 30° from the vertical position.
- Secure the whip to the top of the antenna body.
- Connect a suitable power supply, e.g. PS 30 or Pb 3222, if you intend to use the VPA 30 in a Naval CAS system.



Typical installation 2

