



GPS/GNSS/Beacon Ex-d active antenna

IECEX certified

Explosion-proof

Zone 1/21 – 2/22



Key Features

- Explosion-proof, flameproof and waterproof, corrosion-resistant housing filtering for harsh RF jamming environments
- Proven extra rugged, reliable
- Cable with TNC or N end-connector provided with any cable length (Zero Halogen), Ultra-Flex in option
- GPS or GPS+GLONASS+BEIDOU+GALILEO versions
- Additional MSK Beacon: 283.5 - 325.0 kHz version
- Additional Trimble Acutime version (360 or 720) with NMEA and TSIP output
- Standard or sub-centimeter accuracy versions
- Optional pole mounting available (50cm height or custom size)

Labeling

Certificate number : IECEx PCET 22.0010X

Ex db IIC T6 Gb

Ex db IIB+H2 T6 Gb

Ex tb IIIC T80°C Db

IP66

IIC: $-40^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$

IIB+H2: $-60^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$

Product brief

Heol Design has designed a performing Ex-d GNSS antenna, for systems requiring high performance in Ex zones 1/21 and 2/22 offshore environments.

Whatever the environment, this GNSS antenna will provide, year after year a perfect solution for fixed-site, rooftop, GNSS Timing/positioning systems.

The antenna is housed in a flameproof box designed to withstand exposure to corrosion (use of aluminum marine resistant and anti-corrosive polyester coating), stainless steel fixations (as well as the optional pole), shock, excessive vibration, extreme temperatures, rain, snow and sunlight.

The globe is highly resistant to impacts.

The zero Halogen, low loss cable is provided with on-request length (tested with cables length from 2m to 150m, connected to GNSS receiver). Can be provided with Ultra-Flex cable too. Alternatively, it can be mounted with a N coax bushing element.

Heol Design can provide the HDA-67xx-Ex antenna with GPS, GLONASS, GALILEO, BEIDOU satellites constellations frequency ranges.

In the highest accuracy version, a wide-band spherical antenna element enables the HDA-6790-Ex antenna to deliver a ± 2 mm phase centre variation (PCV), making it ideal for high-precision applications.

The Acutime smart antenna versions allow direct output of NMEA and TSIP data (RS422 level), on 10-pin dedicated cable.

This series HDA-67xx-Ex antennas are designed, manufactured and tested in accordance with ISO9001, and comply with the following standards:

IEC60079-0:2017

IEC60079-1:2014

IEC60079-31:2013



Environmental characteristics

Ambient Operating Temperature	-40/+55 °C
Waterproof	IP66
Mounting	2 screws M8, 140 mm spacing
Weight	6.5 kilograms (without cable)
Cable weight	0.123 kilogram/m (HF400-LSZH)
Cable diameter	10.3mm

Electrical/Performance characteristics

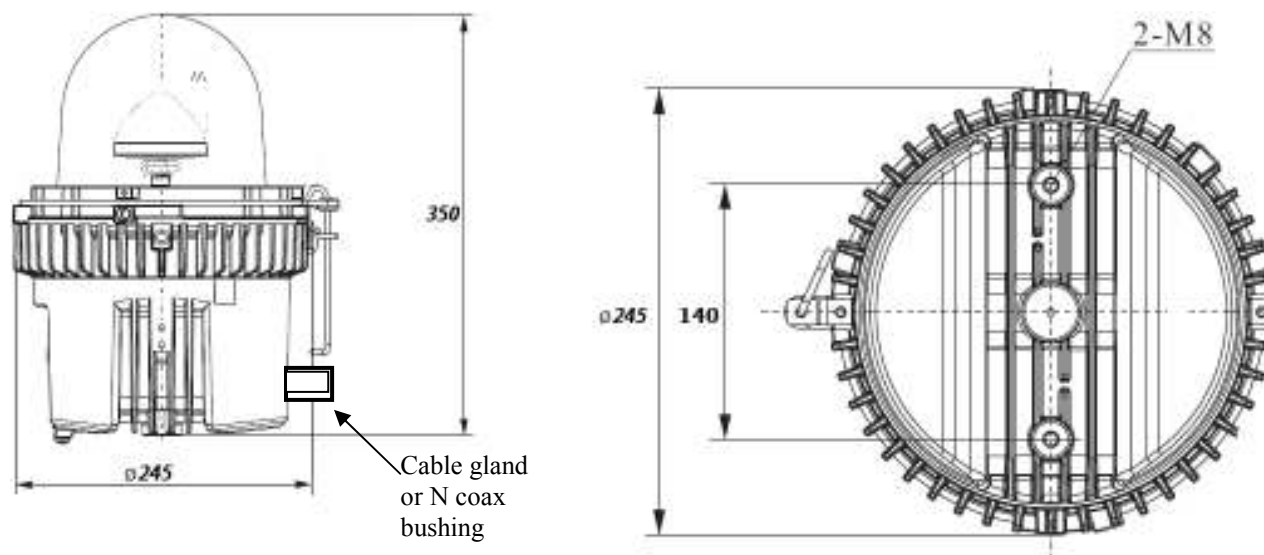
Version	GPS L1	GPS L1 + GLONASS G1 + GALILEO E1 + BEIDOU B1	GPS L1/L2/L5 GLON G1/G2/G3 GALILEO E1/E5 BEIDOU B1/B2 NavIC-L5 QZSS L-band correction	Full GNSS precision Sub-centimetre accuracy	-Combined GPS L1/L2/L5 + Glonass G1/G2/G5- + Galileo E1/E5/E6 + Beidou B1/B2/B3 + IRNSS L5 + Correction L-band -MSK Beacon: 283.5 - 325.0 kHz	Acutime 360 or Acutime 720 smart GNSS antenna
Part number	HDA-6743-Ex (*)	HDA-6745-Ex HDA-6752-Ex (*)	HDA-6746-Ex (*)	HDA-6790-Ex (*)	HDA-6795-Ex (*)	HDA-6780-Ex HDA-6781-Ex
Prime power	2.7 to 10 VDC	2.7 to 10 VDC	2.5 to 16 VDC	3.0 to 16 VDC	3.3 to 16 VDC	7 to 36 VDC
Power consumption	25mA	25mA	25mA	50mA	110mA	1W max
Gain	40dB (±1dB)	HDA-6745-Ex : 40dB HDA-6752-Ex : 50dB (±1dB)	37 dB typ	37 dB typ	45 dB typ	N/A RS422 TSIP or NMEA output
Frequency	1575.42MHz (±1.023MHz)	GPS L1 1575.42 ±3MHz BDS B1 1561 ±3MHz GLO G1 1602 ±3MHz	1164MHz to 1254MHz 1557 MHz to 1606MHz		1164MHz to 1254MHz 1557 MHz to 1606MHz 283.5 kHz to 325.0 kHz	1164MHz to 1254MHz 1557 MHz to 1606MHz
Noise	2.5dB typical (25°C ±5°C)		2.5dB typical (25°C ±5°C)	1.8dB typical (25°C ±5°C)		
Impedance	50 Ohm					
Az. coverage	360°					
El. coverage	0° to 90° elevation					

- (*) : Add '-50' at the end of the part number for adding a 50m cable (or other desired length)
 Add '-N' at the end of the part number for adding a N-type coax bushing
 Add '-B' at the end of the part number for adding breather on bottom side, to avoid internal condensation in case of excessive heat/sun.



← Breather option on bottom side

The specifications in this document are subject to change without notice.
 Heol Design is not responsible for the operation or failure of operation of GPS/GNSS satellites or the availability of GPS/GNSS satellite signals.

Mechanical:**Safety and Maintenance Instruction**

This Safety Instruction is meant for skilled electricians and instructed personnel in accordance with national legislation, including the relevant standards and, where applicable, in accordance with IEC 60079-17 on electrical apparatus for explosive atmosphere. Read carefully this instruction before installation or maintenance.

1. Ex d Antenna must be installed and maintained in accordance with all standards regarding electrical installations in hazardous areas classified for explosive gas and/or dust atmospheres.
2. Avoid any dust accumulation.
3. The Ex d antenna must **not** be operated in zone 0 hazardous areas.
4. Ambient temperature, maximum voltage and maximum current must **not** exceed mentioned values on the tag plate .
5. Changes of the design and modifications to the equipment are **not** permitted.
6. The boxes shall be operated as intended and only in undamaged and perfect condition.
7. If box or part of box is damaged, the power has to be disconnected immediately. Contact Heol Design for further instructions. It is not allowed to repair the box without the written permission of Heol Design.
8. Repairs may only be carried out by qualified electrician and will be subsequently have to be checked by an "expert" in explosion proof technology.
9. All operations of installation, replacement or control must **not** be performed when electrical circuit is alive.
10. All technical data indicated on the tag plate of the box have to be observed. Also all other information on tag plate or extra text plate have to be respected.
11. Handle carefully all joints parts so to avoid damaging coupling surface.

12. After each opening of the globe (at least once a year for inspection) the plain joints and bolts have to be cleaned and spread with silicone grease to guarantee explosion safety and mentioned IP protection. To open the globe, just remove locking screw and rotate the globe counter-clockwise. To mount the globe, rotate it clockwise and replace the locking screw. Do not use excessive force or tools to unmount/mount the globe, the rotation has to be easy and smoothly, only by hand force. Be sure that the globe is mounted completely to the surface of the Ex d antenna.

13. Tightness of the cable gland must be also yearly checked, to ensure perfect flameproof protection.

14. Be sure when mounting Ex d antenna, a minimum distance from all flameproof joints to any obstacle is observed, in order to assure proper function of flameproof joint. Distance for IIA situations 10 mm, for IIB situations 30mm and IIC situations 40mm.

15. All Ex d antenna with external earth bolt must be connected to earth with an external earth conductor with adequate cross section (at least 4 mm²).