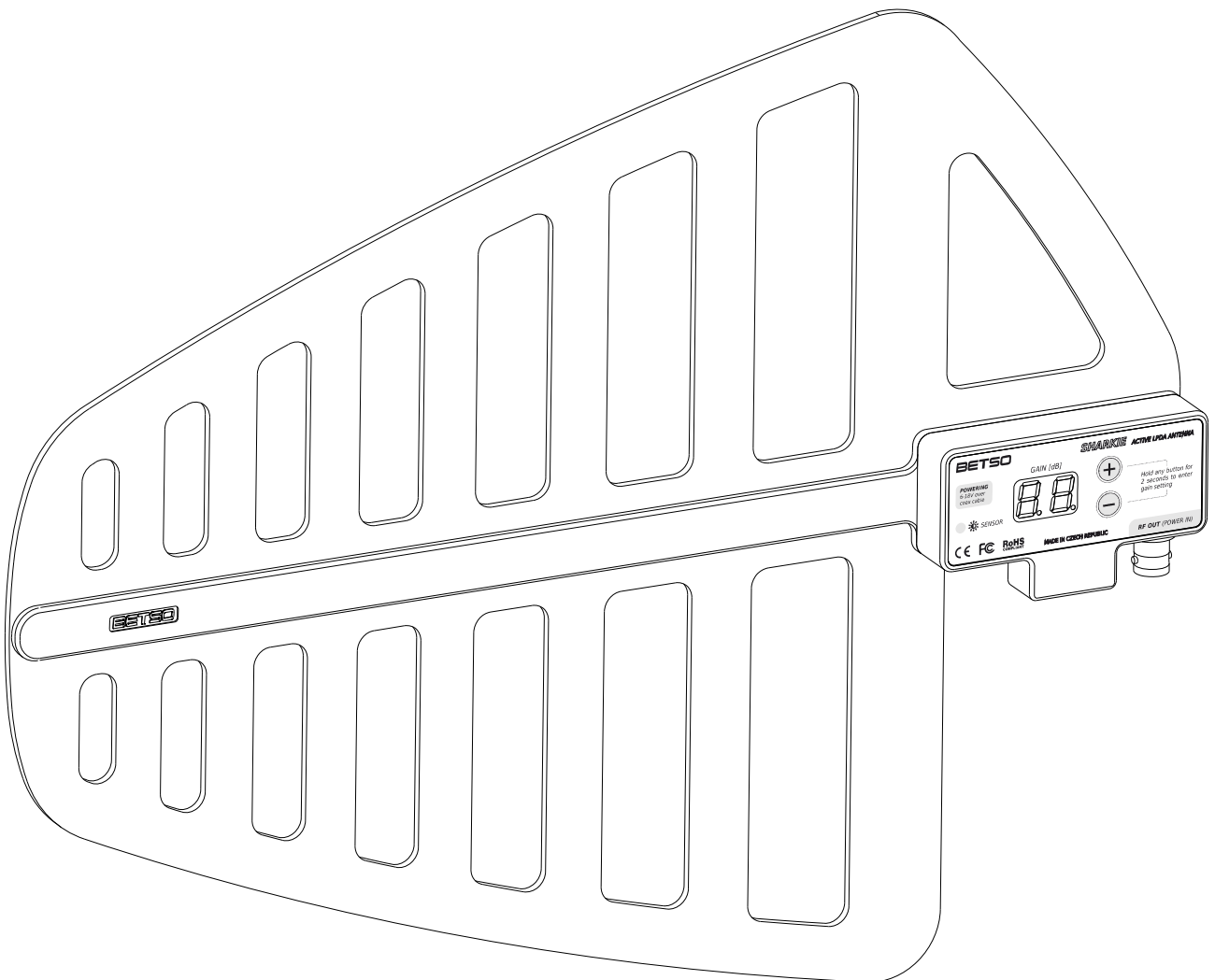


BETSO

SHARKIE

Active antenna with extremely low noise and easy gain adjustment



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Used symbols



Indicates text that has only informative character. If you overlook this information, it can't result in product damage by it's mishandling.



Indicates text that has important instruction character. If you overlook this information, it may result in product damage not covered by warranty.

Thank you that you have purchased the product BETSO!

Please pay sufficient attention to the following user manual of your new product BETSO. Following these instructions, you will avoid the possible damages of your new device and at the same time, they will be presented to you all the available features that allow you to take advantage of the potential of the product.

For the latest informations about our products BETSO please contact your local distributor or visit our website <http://www.betso.eu>.

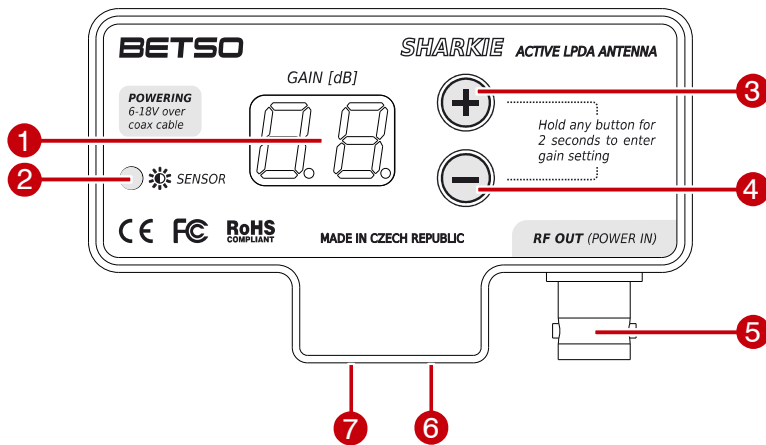
1. Product description

The SHARKIE is our new compact, wideband UHF, active receiver antenna with Log Periodic Dipole Array (LPDA) structure and cardioid directivity. It's extremely low noise amplifier with easy gain setting is ideal for variable coaxial cable length attenuation compensation in the field. Rock solid mechanical construction guarantees careless functionality both in indoor and outdoor locations.

2. Top features

- Frequency range 470 MHz to 850 MHz
- Antenna structure average gain 8 dB (9dB peak)
- Ultra low noise onboard amplifier with gain from -9 dB to +18 dB
- Excellent RF parameters:
 - 0.75 dB amplifier IC NF
 - > 34 dBm IP3 point
 - < 1.2 V.S.W.R.
- High efficient input filters for removing unwanted RF spectrum
- Plug and work, surprisingly easy to setup and put to workflow
- Top build quality
- Easy gain setting with automatic last set gain storing
- Brightness of LED display can be automatically adjusted according to ambient light
- Brightness of LED display can be also set manually to requested level
- Display can be completely turned off with ability to show preset gain value upon button request

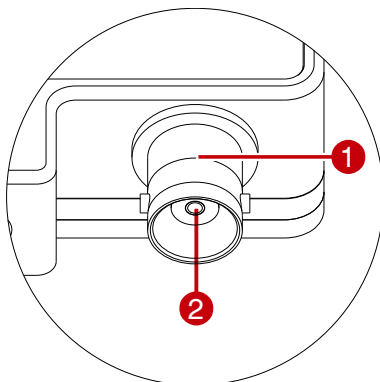
3. Control elements



1. Display
2. Ambient light sensor
3. Button "UP"
4. Button „DOWN“
5. BNC output/powering connector
6. 1/4" mounting thread
7. 3/8" mounting thread

4. Power supply

External power supply 5-20V DC has to be applied using coaxial cable connected to the input BNC connector, which schematic is shown below.



1. GND
2. 5-20V DC/Antenna signal



Warning: Never insert power supply with voltage exceeding operating range of 5-20V DC! Violation of this operating condition can lead to losing warranty and destroying the device!

5. Turning on

turning on	antenna will turn on automatically upon power insertion through coaxial cable
turning off	to turn off antenna, simply remove coaxial cable or turn off DC powering component on power source



Warning: Never insert power supply with voltage exceeding operating range of 5-20V DC! Violation of this operating condition can lead to losing warranty and destroying the device!

6. Setting of antenna gain in the range -9 to +18 dB

Antenna gain can be set in the range of -9 to +18 dB.

enter settings	long (2 seconds) press of UP or DOWN buttons
change settings	short press of UP or DOWN button
save settings	if no button is pressed during 3 seconds, gain value stops to flash and actual value is stored in memory



When the antenna is turned on, it will automatically recall last saved gain settings.

7. Setting of right gain value to get the best performance

To get the best RF performance of your wireless system, **setting of right value of antenna gain is important**. Always start with setting the gain, which covers losses of your coaxial cable. Losses of common types of coaxial cables are in the table on [page 8](#).



If signal indicator on your receiver indicates very weak signal even if you set the gain which covers coaxial cable losses, you can try to add more gain and get better performance. For example in places with low RF noise this gain can add multiple working distance of your wireless system.



If signal indicator on your receiver indicates very strong signal and you still have dropouts in audio, there is possibility your receiver is overloaded. It can cause high power of wireless transmitter and short distance between transmitter and receiving antennas. In this case decreasing of antenna gain (even to negative gain) can help to get much better performance of your wireless system.

8. Display settings

Variable display settings are available for possibility to adjust behavior of antenna display to actual ambient light conditions or specific requirements of shooting place.

enter the settings	long (2 seconds) press of UP and DOWN buttons at once
change setting	short press of UP or DOWN button
save setting	if no button is pressed during 3 seconds, display settings stops to flash and actual value is stored in memory

Available display settings are listed bellow:

b.A	automatic display brightness according to ambient light
b.0	display is turned off until one of buttons is pressed, then display will temporarily turn on for the period of 3 seconds with automatic brightness settings
b.1 - b.5	manual brightness level set to one of 5 levels (1 is lowest)



When the antenna is turned on, it will automatically recalled lastly saved display settings.

9. Recommended accessories

Optional accessories include various cables for the connection of the antenna output signal and input power supply and special threaded variable angle antenna mounting adaptor.

For the latest informations about our products BETSO please contact your local distributor or visit our website <http://www.betso.eu>.

10. Troubleshooting

Lastly set gain or display settings is not recalled upon turning on

Please make sure, that you disconnect the coaxial cable with power supply after finished storing of preset gain value or display settings, which is indicated by stopped display blinking.

11. Safety instructions



Never open the electrical device! All reparations must be performed by an authorized service center. In the case of opening of the device away from the authorized service center, you will automatically loose the warranty of the device.



To clean the device, use a dampened piece of cloth. Never use any chemical solvents!

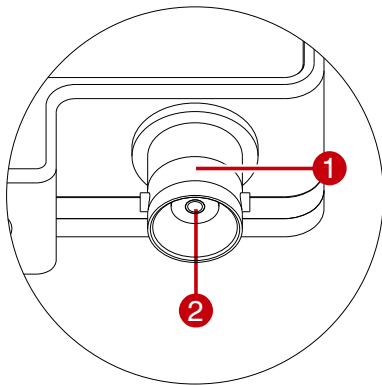
12. Technical specifications

Frequency range	470 MHz to 870 MHz
Input filters attenuation	High below 450 MHz (for example -82dB @ 100 MHz) High above 870 MHz (for example -35dB @ 2.4 GHz)
Antenna gain	8 dB of average gain (peak 9 dB)
Antenna directivity	Cardioid
Antenna polarization	Linear
Amplifier gain	-9 dB to +18dB
Amplifier noise	Ultra low noise < 0.75 dB
Antenna VSWR	Excellent < 1.2 (max. 0.8% of received signal power is reflected)
Amplifier IP3	Very high > 34 dBm
Display	Bright blue LED with automatic or manual brightness settings and stand-by mode
Powering	External powering 5 - 20 V DC
Current consumption	35 mA *

Mechanical construction	CNC milled, anodized aluminium alloy and glass-reinforced epoxy laminate
Mounting	1/4" and 3/8" threads
Dimensions (h x w x d)	275 x 350 x 21 mm (10.83" x 13.78" x 0.82")
Weight	approx. 320 g (0.7 lb.)

* depends on the operating mode of the LED display

13. Schematic of connector



1. GND
2. 5-20V DC/Antenna signal

14. Table of common coaxial cables attenuation

Coaxial cable attenuation												
Relevant gain setting of SHARKIE amplifier												
Cable length	@ 470 MHz RG58C/U		@ 650 MHz RG58C/U		@ 850 MHz RG58C/U		@ 470 MHz RG213/H155		@ 650 MHz RG213/H155		@ 850 MHz RG213/H155	
	1 m / 3.3 ft.	0.32 dB	1 dB	0.4 dB	1 dB	0.5 dB	1 dB	0.2 dB	0 dB	0.25 dB	1 dB	0.3 dB
3 m / 10 ft.	1 dB	1 dB	1.2 dB	1 dB	1 dB	1 dB	0.6 dB	1 dB	0.75 dB	1 dB	0.9 dB	1 dB
5 m / 16.5 ft.	1.5 dB	2 dB	2 dB	2 dB	2.5 dB	3 dB	1 dB	1 dB	1.25 dB	2 dB	1.5 dB	2 dB
10 m / 33 ft.	3 dB	3 dB	4 dB	4 dB	5 dB	5 dB	2 dB	2 dB	2.5 dB	3 dB	3 dB	3 dB
15 m / 50 ft.	5 dB	5 dB	6 dB	6 dB	7.5 dB	8 dB	3 dB	3 dB	3.75 dB	4 dB	4.5 dB	5 dB
20 m / 65 ft.	6 dB	6 dB	8 dB	8 dB	10 dB	10 dB	4 dB	4 dB	5 dB	5 dB	6 dB	6 dB
25 m / 82 ft.	8 dB	8 dB	10 dB	10 dB	12.5 dB	13 dB	5 dB	5 dB	6.25 dB	7 dB	7.5 dB	8 dB
30 m / 100 ft.	10 dB	10 dB	12 dB	12 dB	15 dB	15 dB	6 dB	6 dB	7.5 dB	8 dB	9 dB	9 dB
40 m / 130 ft.	13 dB	13 dB	16 dB	16 dB	20 dB	18 dB	8 dB	8 dB	10 dB	10 dB	12 dB	12 dB
50 m / 165 ft.	16 dB	16 dB	20 dB	18 dB	25 dB	18 dB	10 dB	10 dB	12.5 dB	13 dB	15 dB	15 dB

15. EC Declaration of conformity



BETSO ELECTRONICS s.r.o.

Elisky Premyslovny 1335, 156 00 Praha 5 - Zbraslav, Czech Republic

Reg. Number: 28955706

declares that this device

BETSO SHARKIE

specification: Active antenna with extremely low noise and easy gain adjustment

frequency range: 470 – 850 MHz

conform to the essential requirements of the R&TTE Directive 1999/5/EC. To demonstrate compliance with these requirements, the following standards were consulted:

EN 300 220 (Radio spectrum Matters ERM)

EN 301 489 (Electromagnetic Compatibility)

EN 60065/2002 (Safety of Electrical Equipment)

Conformity assessed via Annex III. using a Technical Construction and Results of measurements.

October 2014

A handwritten signature in blue ink, appearing to read 'J. Zastera', is written over a light blue rectangular background.

Ing. Jan Zastera

general manager

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