

 **PBS Velká Bíteš**

Two-channel Ignition Device

TWO-CHANNEL IGNITION DEVICE

P/N 86500.03

Technical specifications

Purpose of the product

The P/N 86500.03 ignition device is designed to create voltage impulses for two spark plugs, the resultant sparks in the gaps of the plugs then ignite a mixture of fuel and air in the combustion chamber of a turbojet engine.



Two-channel Ignition Device

Technical data

› Technical parameters

Nominal voltage	28 V DC
Nominal current consumption	< 3 A
Operating voltage	14 V DC ÷ 30 V DC * ¹)
Output voltage	2.5 ÷ 3 kV
Supplied energy	> 0.6 J / channel
Discharge frequency at 14V DC	3 Hz ÷ 6 Hz
Discharge frequency at 30V DC	4 Hz ÷ 7 Hz
Operating temperature	-55°C ÷ 100°C
Weight.....	1.1 kg
Operational mode	Intermittent (designed also for continuous operation)

*¹) The minimum allowable voltage is 12V DC, with a proportional reduction in discharge frequency compared with the discharge frequency at 14 V DC.

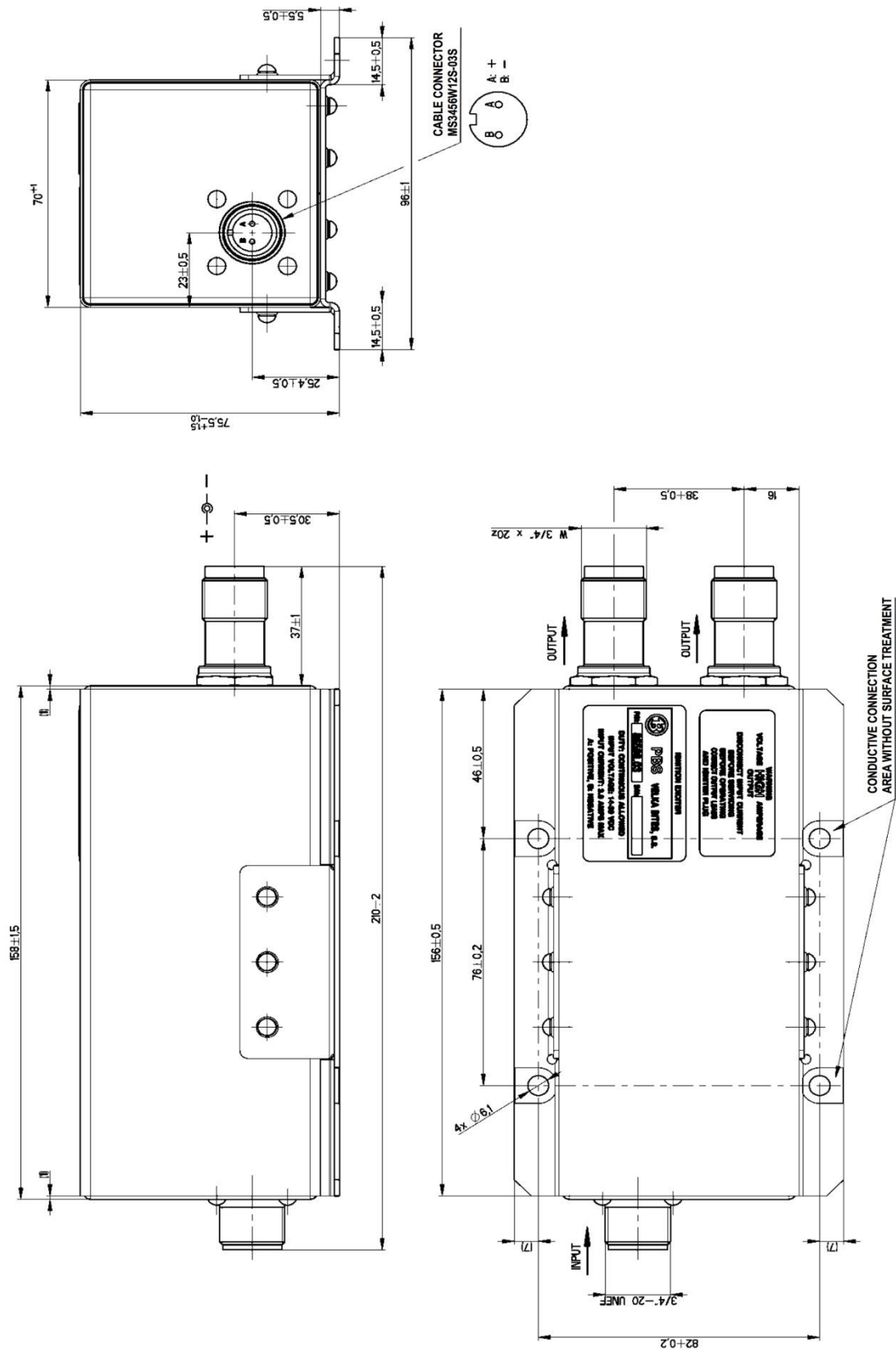
› Operating conditions

Requirements for resistance to external influences are based on RTCA/DO-160E documentation and the ISO 2678 standard in the categories detailed in the table below. Any tests marked with an X are not necessary.

Section	Environmental Conditions		Categories
4	Temperature and Altitude		C3
5	Temperature Variation		B
6	Humidity		C
7	Operational Shocks and Crash Safety		6g/11ms
8	Vibration		W curve
9	Proof against Explosion		X
10	Waterproofness		W
11	Fluid Susceptibility		F
12	Resistance to Sand and Dust		D
13	Resistance to Fungus		F
14	Resistance to Salt Spray		S
15	Magnetic Effects		Z
16	Power Input		Z
17	Voltage Spikes		A
18	Audio Frequency Conducted Susceptibility		Z
19	Induced Signal Susceptibility		Z
20	Radio Frequency Susceptibility (Radiated and Conducted)		T
21	Emission of Radio Frequency Energy	Input	L
		Output	B
22	Lightning Induced Transient Susceptibility		XXC2
23	Lightning Direct Effects		X
24	Icing Test		A
25	Electrostatic Discharge		X

Two-channel Ignition Device

› Installation dimension



Technical description

› Description of the P/N 86500.03 ignition device

The P/N 86500.03 is a two-channel ignition device. This is an electrical unit containing electronic circuits for converters on printed circuit boards that are connected with inherent main elements fastened on a bearing structure. This structure is placed in a metal box and embedded in foam. The box is tightly sealed and soldered. The box is equipped with a connector for supply voltage and two connectors for attaching connecting cables. The base plate of the ignition device has four holes for fastening the device to the frame.

› Description of function

The ignition device boasts two separate channels. Each channel is formed by a freely oscillating converter that charges a capacitor. When the flashover voltage of the internal gap is reached, the energy accumulated in the capacitor discharges in the spark plug. The frequency of such discharge depends on the supply voltage; at 14 V it has a value of minimum 3 Hz, while at 30 V it is a maximum of 7 Hz.

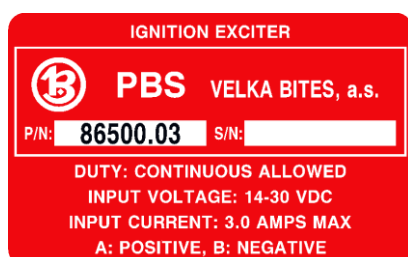
Other data

› Product markings

Two labels in English are adhered to the ignition device, detailing the type of unit and a warning. The type label contains the following data: the company logo, product name, type designation (P/N) and serial number (S/N) containing the six-digit number of the order, a dot, and a two-digit ordinal number in the order. After this an area is reserved for identifying any revisions – see the picture below.

The warning label warns of the presence of high voltage; prior to maintenance it is necessary to disconnect the device from the supply voltage.

Type label



Warning label



Instructions for use

- › For installation dimensions, see the Installation Dimensions section.
- › When installing the ignition device, it is necessary to ensure correct polarity of the ignition wiring (see Installation Dimensions).
- › When installing the ignition device, at least one fastening point must be reliably (electrically) connected to the frame of the engine.
- › The recommended intermittent mode consists of 30 seconds of operation + 2.5 minutes of rest. However the device can be used continuously if needed (e.g. when flying in rain).
- › No setting has to be made and no special tools or jigs are required during installation.

Maintenance instructions

- › The ignition device does not require any special operation and maintenance when in use.
- › Once the time to overhaul is reached, it is necessary to send the device to the manufacturer for such maintenance.

Service life, guarantees

› **Service life**

Time to overhaul

- 8 years or
- 3,000 starts with 30 s duration, i.e. 90,000 seconds (25 hours) in total, whichever comes first

Expected service life

- 25 years or
- 9,000 starts with 30 s duration, i.e. 270,000 seconds (75 hours) in total, whichever comes first

› **Guarantees**

The Supplier guarantees failure-free operation of the product for a period of 12 months or 500 starts from the moment of commissioning at the Customer, whichever comes first. The Manufacturer guarantees failure-free operation only if the installation instructions, installation conditions and operating conditions specified in these Technical Specifications are met.

Repair instructions

- › The ignition device is an electrical unit that cannot be repaired or disassembled.

Ordering products

- › The purchaser is required to state precise data in their order, in particular:
 - The P/N 81550.01 ignition device
 - The number of pieces
 - The method of conservation (short-term or long-term). If the conservation method is not stated in the order, the product will be delivered with short-term conservation.
 - The language of the accompanying documents shall be in English.

P/N 86500.03 Ignition Device delivery

- › Full delivery includes the following:
 - P/N 86500.03 Ignition Device 1 pc
 - No spare parts are delivered with the product
 - No tools are delivered with the product
 - The delivery includes the following accompanying documentation – Certificate of Quality and Completeness



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