

# HBE767 and HSE767

## Data sheet Helicopter Radio Control System 767

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- Helicopter Control Panel **HBE767** for an easy and comfortable *handling* of TETRA- and analogue BOS (PPDR) radio systems
- Proper and seamless Integration in helicopters through an *airworthy* design
- High-contrast graphical color display for *simultaneous presentation* of the actual states of multiple radio systems
- Use of a dedicated MMI or use of the *original MMI (console interface)* of the radio system
- Illumination of display and keys adjustable by the use of the existing *dimming controller*
- Display and Illumination *suitable for night vision goggles (NVG)*. Activation of NVG mode via input contact
- IrDA interface for wireless data communication
- Qualification according to DO-160F
- Helicopter Control Unit **HSE767** with TETRA radio (Digital 1) and DC/DC converter as the central component of the system
- Interfaces for a second TETRA radio (Digital 2) and up to two analogue BOS (PPDR) radios
- *Use of the existing radio wire connections*
- ARINC429 and RS232 interfaces for additional applications (e.g. for future use)
- Multiple system configurations via encoding inputs available
- **SiKaPlug** slots in **HBE767 M** for Digital 1 and 2 for an easy exchange of the BOS security SIM (German PPDR authorities)



In the course of technical enhancements and the equipment with TETRA in helicopters it is essential for the air services of the BOS (“Behörden und Organisationen mit Sicherheitsaufgaben”, i.e. PPDR (“Public Protection and Disaster Relief” authorities)) to deploy new control panels for the use of the BOS (PPDR) radio communication. This kind of control panels is necessary to *operate the now existing analogue and the upcoming digital BOS (PPDR) radios* optimally under tactical aspects. The requested radio control systems have to support the complete functionality of the analogue and digital radios. This concerns in particular the characteristics of the TETRA radios certified by the German BDBOS (“The Federal Agency for Digital Radio of Security Authorities and Organisations”).

# Helicopter Radio Control System 767

The Helicopter Control Panel **HBE767** in connection with the Helicopter Control Unit **HSE767** forms an universal Control System for a comfortable handling of analogue as well as digital PPDR radios. This combination enables an easy installation of multiple configurations for the analogue and digital voice and data radio communication. *Up to four radios* (two digital and two analogue) can be connected via the Helicopter Control Unit **HSE767** and can be operated by using *one or two Helicopter Control Panels HBE767*.

## Helicopter Control Unit HBE767

There are two versions of the Helicopter Control Panel **HBE767** available:

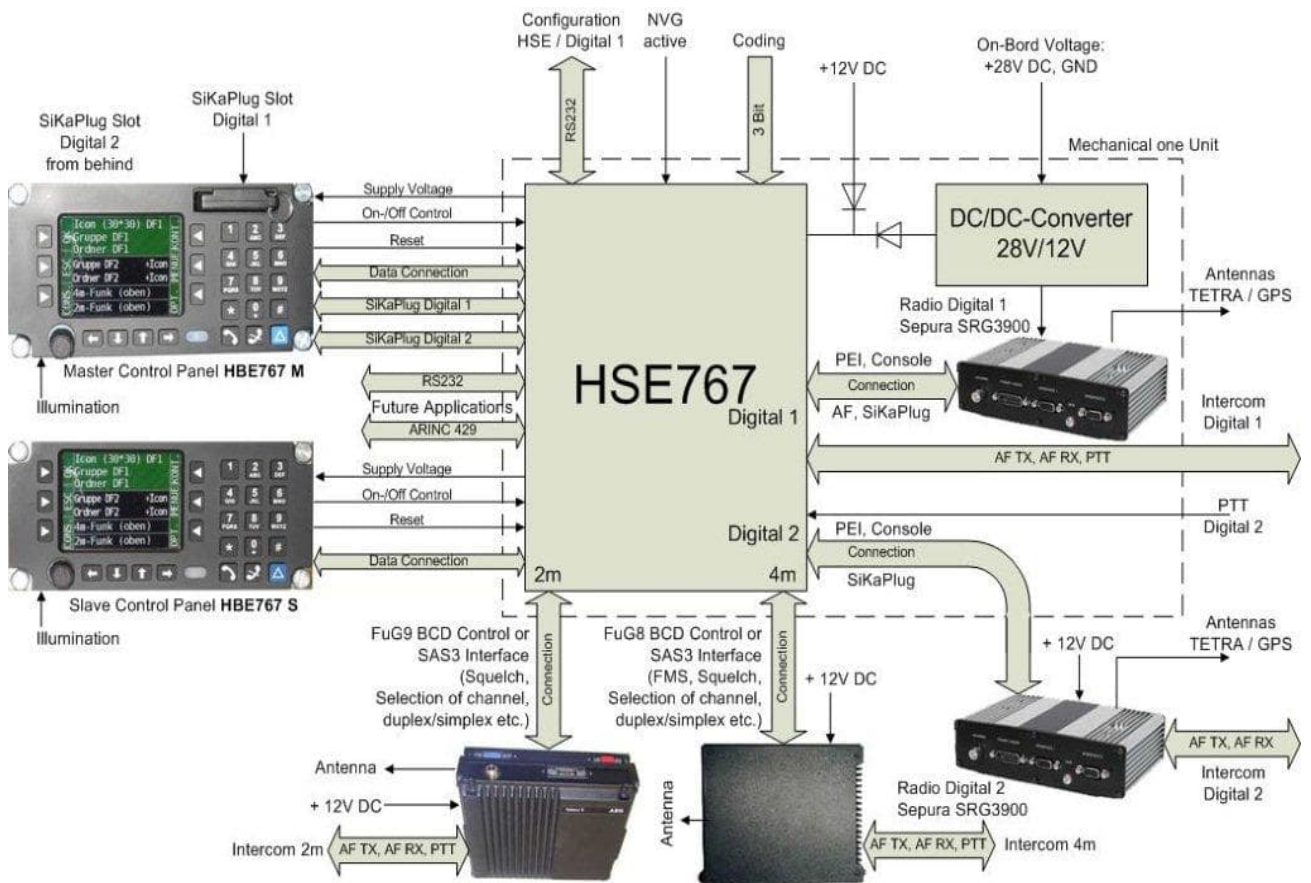
- The Master Control Panel **HBE767 M** with two slots for two **SiKaPlug**
- The Slave Control Panel **HBE767 S** without the slots for **SiKaPlug**

If there is no need to exchange the BOS security SIM (digital radios) or to change the FMS identifier (analogue radios), the smaller Slave Control Panel **HBE767 S** can be used without the Master Control Panel.

In the other case (frequently used by the German PPDR authorities) the Master Control Panel **HBE767 M** can be used. If there is the need of *two Control Panels*, the Control Panel in the cockpit (HBE767 M or HBE767 S) can be used in combination with a second Control Panel (for example in the cabin for the patients).

A few words about the **SiKaPlug**: The encoding and decoding procedures of the digital radio system used by the German PPDR authorities are implemented in connection with a so called "BSI Sicherheitskarte" (the security SIM for the German PPDR authorities) that has to be installed in the mobile radio terminal. Due to *personalization demands* in many mission scenarios there can be the need to exchange or remove the security SIM (for example if the crew changes or leaves the helicopter). A smart solution for this problem is the security SIM plug, the so called **SiKaPlug** in the size of and as a code plug for the FMS identification (4m-Teledux9) as well as the carrier for the security SIM.

The following overview of the Helicopter Radio Control System shows the interaction of all possible kind of system components in a maximum configuration:

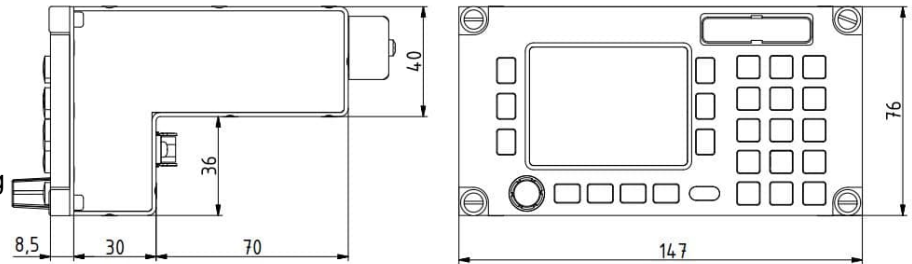


## Technical Data

### Helicopter Control Panel

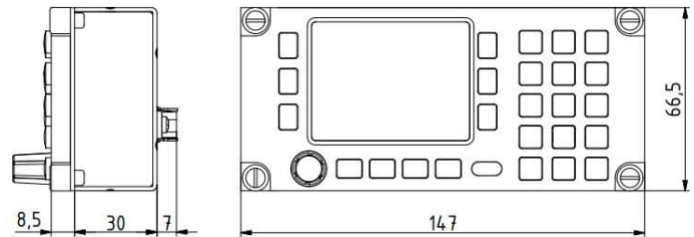
#### Master Control Panel HBE767 M

Part Number: **767-2011**  
 Dimensions in mm: see drawing  
 Weight with **SiKaPlug**: approx. 640g  
 Installation: DZUS locking



#### Slave Control Panel HBE767 S

Part Number: **767-2012**  
 Dimensions in mm: see drawing  
 Weight: approx. 350g  
 Installation: DZUS locking



### Handling

#### Single or multiple operation

Analogue Radio  
 Digital Radio

#### Display

2,8" High-contrast graphical display with 320 x 240 pixels and 65000 colors

#### Rotary Encoder with Key Function

Switch On/Off, Select (for example Talk groups or Menu items)

#### Keys

12 keys numeric pad  
 4 selection keys  
 6 function keys  
 2 telephone receiver keys (answer / hang up)  
 1 emergency key (highlighted in blue)

#### Slots (Master Control Panel only)

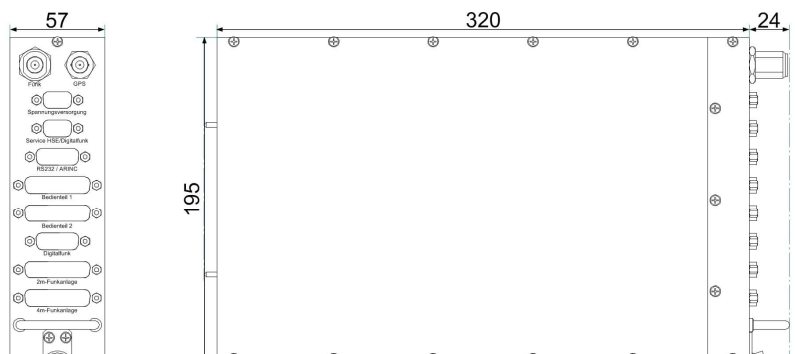
Front side **SiKaPlug** (PPDR security SIM for TETRA 1 and FMS Code Plug)  
 Back side **SiKaPlug** (PPDR security SIM for TETRA 2)

### Interface with HSE767

Data Connection  
 Supply Voltage 12V DC via **HSE767**  
 On/Off Control  
 Reset  
 Signals for external PPDR security SIM (Master Control Panel only)

### Helicopter Control Unit HSE767

Part Number: **767-2013**  
 Dimensions in mm: see drawing  
 Weight: approx. 2.800g\*)  
 Installation: Use of a retainer\*\*)



\*) with built-in Sepura SRG3900

\*\*\*) two kinds of retainers available

# Technical Data

## Complete System

### Electrical Data

Supply Voltage: 28V DC (16V – 32V)  
 Current Drain: max. 5A (with Digital Radio and supply of two **HBE767**)

### Interfaces

#### Supply Voltage

On-Board power supply 28V DC  
 Emergency supply 12V DC for Control Panels and Control Unit (only 4m Radio)

#### Radios (four Radios at the same time)

TETRA1 (internal) Sepura SRG3900  
 TETRA2 (external) Sepura SRG3900  
 4m Radio FuG8 AEG, ASCOM, BOSCH, EADS TX9 (Control of the internal FMS), Motorola  
 2m Radio FuG9 BOSCH, EADS TX9, Motorola

#### Antenna Connections

TETRA1 N (coaxial)  
 GPS (TETRA1) TNC

#### Inputs

NVG Illumination Activation of the NVG Illumination (Operation with NV goggles)  
 Encoding 3 bits for multiple system configurations

#### External Applications

Option 1 RS232  
 Option 2 ARINC429

#### Service / Configuration

Control Unit RS232  
 Internal SRG3900 RS232

#### Helicopter Dimming Controller

Control Voltage 0 – 28V DC (Characteristic curves for Key and Display Illumination)

#### IrDA

Infrared Interface on HBE767 for wireless data communication

#### Intercom

S-AF Digital radio (int.) 0,1 – 1Veff (via parameter)  
 R-AF Digital radio (int.) 1 – 4Veff (via parameter)  
 PTT Contact with GND: separated for Digital radio internal and external

### Qualification according DO-160F

Category DO-160F	Section	Remarks
Temperature and Altitude	4	B1
Short-Time Operating Low Temperature	4.5.1	-40°C
Operating Low Temperature	4.5.2	-20°C
Short-Time Operating High Temperature	4.5.3	+70°C
Operating High Temperature	4.5.4	+55°C
Altitude	4.6.1	B1
Temperature Variation	5.3.1	B
Humidity	6.3.1	A
Operational Shocks and Crash Safety	7.2 / 7.3.1 / 7.3.3	B / 1F&1R
Vibration	8.8.3	U2 / F/F1
Magnetic Effect	15	Z
Power Input	16	Z
Voltage Spike	17	B
Audio Frequency Conducted Susceptibility	18	Z
Induced Signal Susceptibility	19	AC
Radio Frequency Susceptibility	20	T
Emission of Radio Frequency Energy	21	M
Electrostatic Discharge	25	A
Fire, Flammability	26	C

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