HBE767 and HSE767

Data sheet Helicopter Radio Control System 767

- 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 HMI or use of the original HMI (Console interface)
- Illumination of display and keys adjustable by use of the existing dimming controller
- Display and illumination suitable for night vision goggles (NVG).
- Qualification according to DO-160G

- 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 in a **HSE767 S** (Second Control Unit) and up to two analogue BOS (PPDR) radios
- Use of the existing radio wire connections
- CAN, Ethernet and RS232 interfaces for additional applications (e.g. for future use)
- Multiple system configurations via encoding inputs available
- **SiKa*Plug*** 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 was essential for air services of the BOS (“Behörden und Organisationen mit Sicherheitsaufgaben”, i.e. PPDR (“Public Protection and Disaster Relief” authorities)) to deploy new control heads for the use of the BOS (PPDR) radio communication. This kind of control heads is necessary to operate the still existing analogue and the established 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 Organizations”).

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 up to four Helicopter Control Panel **HBE767**.

Helicopter Control Panel HBE767

Two versions of the Helicopter Control Panel **HBE767** are available:

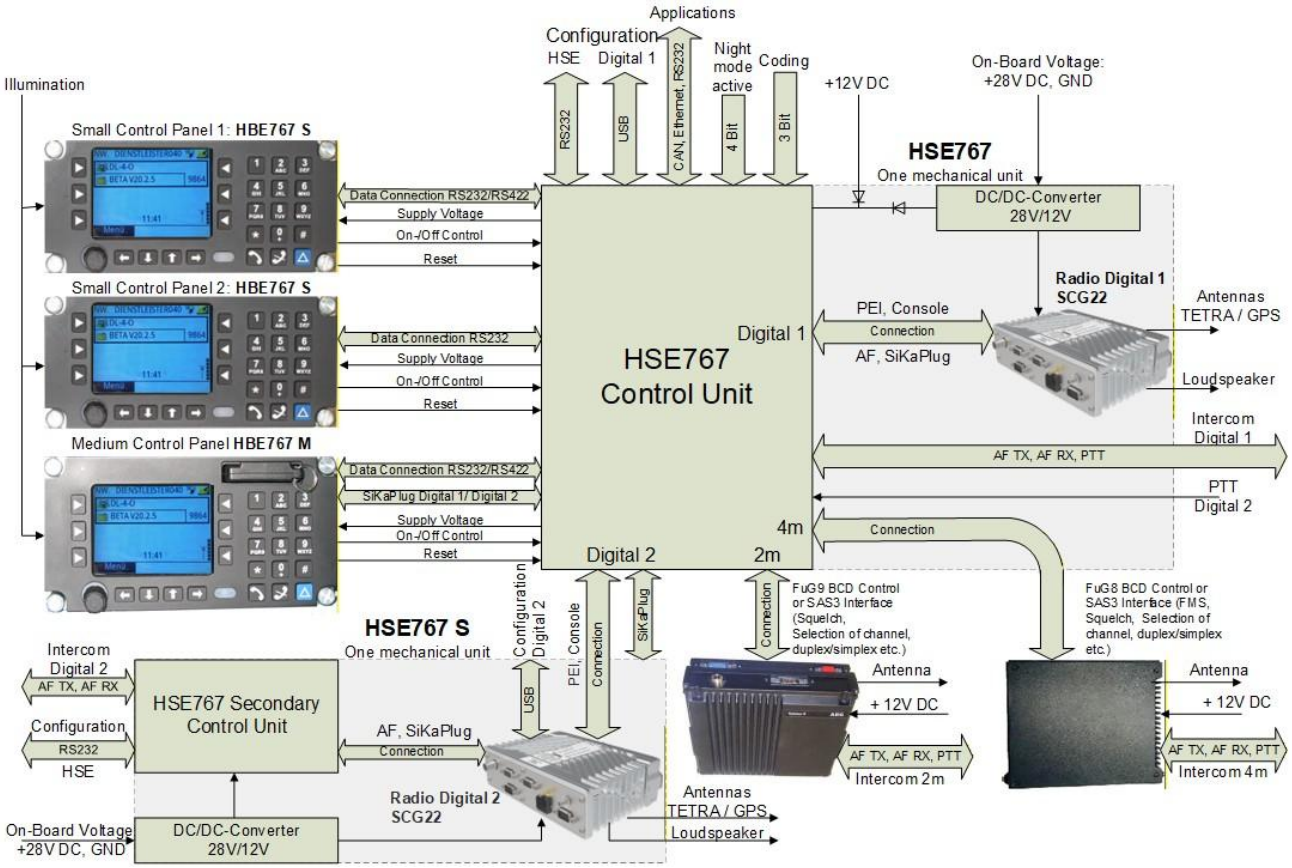
- The Medium Control Panel **HBE767 M** with two slots for two **SiKa*Plug***
- The Small Control Panel **HBE767 S** without slots for **SiKa*Plug***

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

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

A few words about the **SiKa*Plug***: 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 **SiKa*Plug*** as a code plug for the FMS identification (4m-Teledux9) as well as the holder 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.

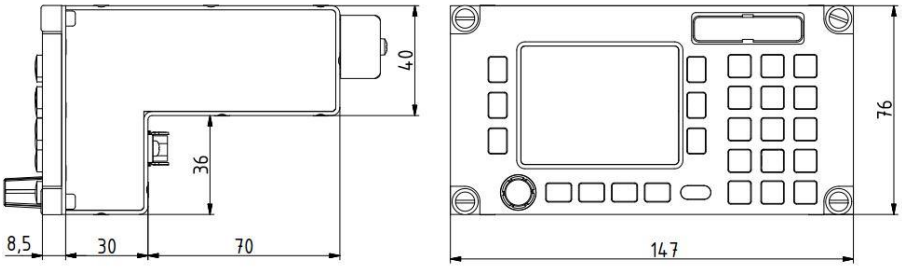


Technical Data

Helicopter Control Panel

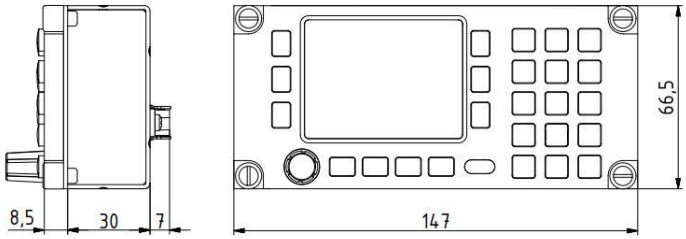
Medium Control Panel HBE767 M

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



Small 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 (Medium Control Panel only)
- Front side **SiKa*Plug*** (PPDR security SIM for TETRA 1 and FMS Code Plug)
- Back side **SiKa*Plug*** (PPDR security SIM for TETRA 2)

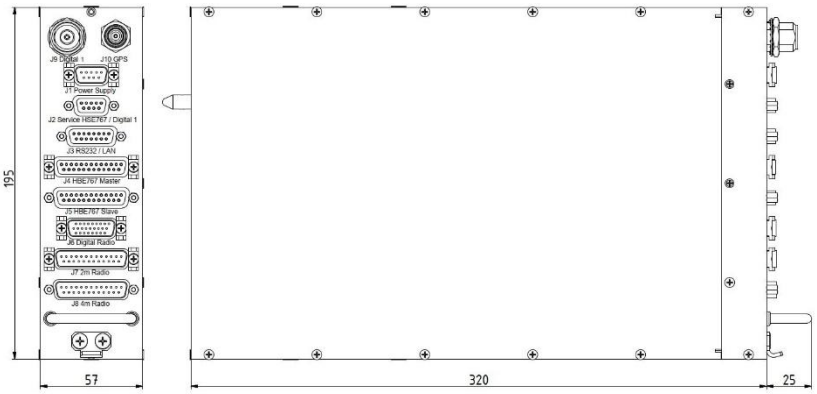
Interface with HSE767
- Data Connection
- Supply Voltage 12 V_{DC} via **HSE767**
- On/Off Control
- Reset
- Signals for external PPDR security SIM (Medium Control Panel only)

Helicopter Control Unit HSE767 (S)

Part Number:	***767-2016 (HSE767)***
	767-2017 (HSE767 S)
Dimensions in mm:	see drawing
Weight:	approx. 2800g*)
Installation:	Use of a retainer**)

767-2016: HSE767 for the first SCG22
767-2017: HSE767 S for the second SCG22

*) with built-in Sepura SCG22
**) 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 three **HBE767**)

Interfaces

Supply Voltage
- On-Board power supply $28V_{DC}$
- Emergency supply $12V_{DC}$ for Control Panel and Control Unit (only 4m Radio is active)

Radios (four Radios at the same time)
- TETRA1 (internal): Sepura SCG22
- TETRA2 (external): Sepura SCG22
- 4m Radio: AEG, ASCOM, BOSCH, EADS TX9 (Control of the internal FMS), Motorola
- 2m Radio: BOSCH, EADS TX9, Motorola FuG9, Motorola APX, EMC Lander

Antenna Connections
- TETRA1: N (coaxial)
- GPS (TETRA1): TNC

Inputs
- Encoding: 3 bits for multiple system configurations

External Applications
- Option 1: CAN
- Option 2: Ethernet
- Option 3: RS232

Service / Configuration
- Control Unit: RS232
- Internal Radio: USB to SCG22

Helicopter Dimming Controller
- Control Voltage: 0 – $28V_{DC}$ (Characteristic curves for Key and Display Illumination)

Intercom
- S-AF Digital radio (int.): $100mV_{eff}$ – $1V_{eff}$ (via parameter)
- R-AF Digital radio (int.): 1 – $4V_{eff}$ (via parameter)
- PTT: Contact with GND: separated for Digital radio internal and external

Qualification according DO-160G

Category DO-160G	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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