HBE767 and HSE767

Data sheet Helicopter Radio Control System 767

- Helicopter Control Head **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* (*RDC 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
- 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** (secondary HSE767) 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 the 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 maybe 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 Organisations").

Helicopter Radio Control System 767

The Helicopter Control Head **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 three Helicopter Control Heads* **HBE767**.

Helicopter Control Unit HBE767

There are two versions of the Helicopter Control Head **HBE767** available:
- The Medium Control Head **HBE767 M** with two slots for two **SiKaPlug**
- The Small Control Head **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 Small Control Head **HBE767 S** can be used without the Medium Control Head.

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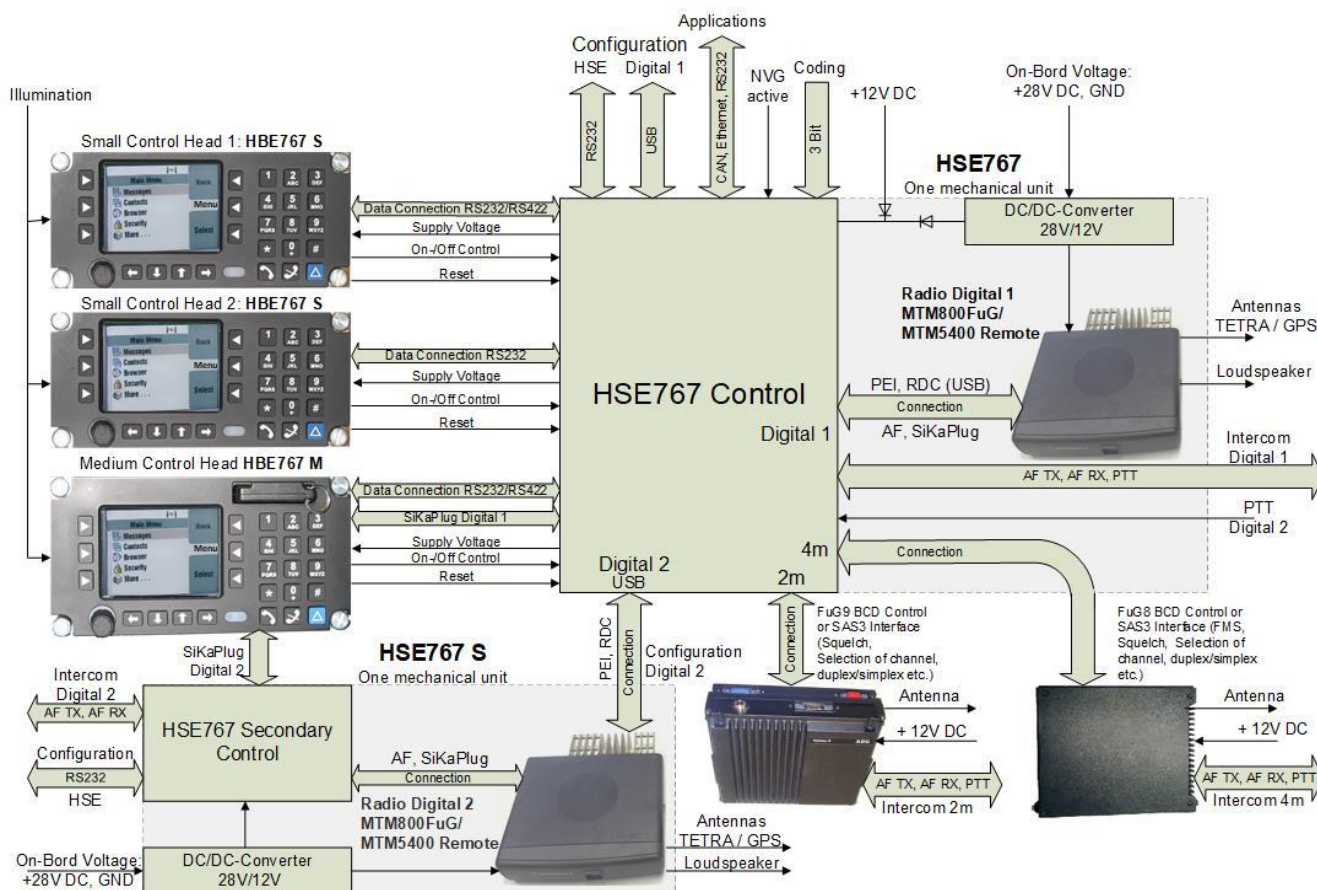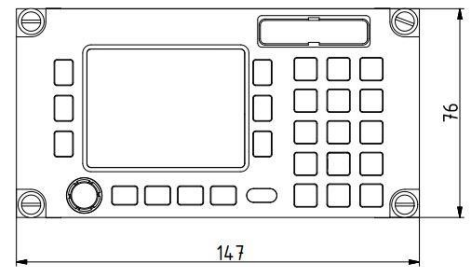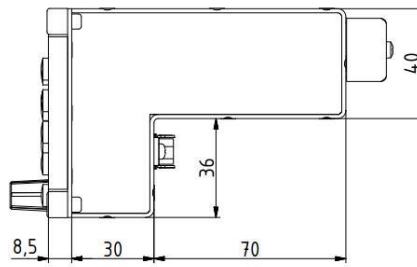
Technical Data

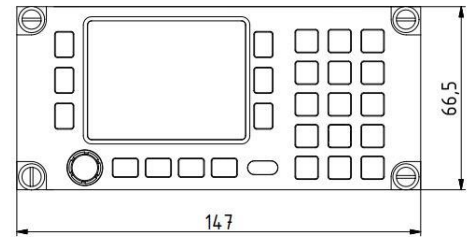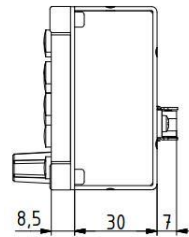## Helicopter Control Head

Medium Control Head HBE767 M
Part Number: *767-2011*
Dimensions in mm: see drawing
Weight with **SiKaPlug**: approx. 640g
Installation: DZUS locking

Small Control Head 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 Head 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 (Medium Control Head only)
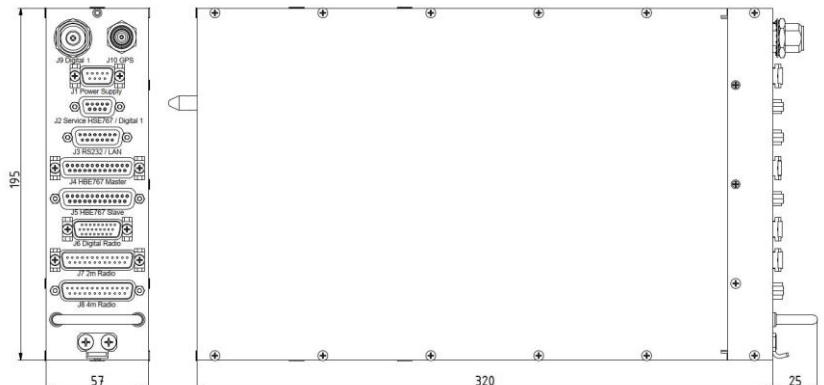
Helicopter Control Unit HSE767

Part Number: *767-2015*
Dimensions in mm: see drawing
Weight: approx. 2.880g*)
Installation: Use of a retainer**)

*) with built-in
Motorola MTM800FuG / MTM5400 Remote
**) 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 Heads and Control Unit (only 4m Radio)

Radios (five Radios at the same time)

TETRA1 (internal)	Motorola MTM800FuG / MTM5400 Remote
TETRA2 (external)	Motorola MTM800FuG / MTM5400 Remote
ASTRO Radio	Motorola APX8500
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	CAN
Option 2	Ethernet
Option 3	RS232

Service / Configuration

Control Unit	RS232
Internal Radio	USB to MTM800FuG / MTM5400 Remote

Helicopter Dimming Controler

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

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-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