



Portable VHF Stations

**GK615
GK616**

Installation and Operation

Manual DV16800.03

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WARNING - USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Becker Avionics provide product or system options for further investigation by users who have technical knowledge.

The user is responsible for making the final selection of the system and components. The user has to assure that all performance, endurance, maintenance, safety requirements of the application are met and warnings be obeyed.

For this the user has to include all aspects of the application to be compliant with the applicable industry standards and the requirements of the responsible aviation authority. The product documentations from Becker Avionics have to be obeyed.

To the extent that Becker Avionics provides component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

Term definition: User in the sense of user, installer, installation company.

Preface

Dear Customer,

Thank you for purchasing a Becker Avionics product. We are pleased that you have chosen our product and we are confident that it will meet your expectations.

For development and manufacturing of our product, the guidelines for highest quality and reliability have been borne in mind, supplemented by selection of high-quality material, responsible production and testing in accordance with the standards.

Our competent customer support department will respond to any technical question you may have. Please do not hesitate to contact us at any time.

Portable VHF Stations*



Example: GK61X with accessories



Example: GK61X with accessories

* design depends on variant.

* Some figures in this manual are for basic understanding and can be different to the current design.

List of Effective Pages and Changes

Only technical relevant modifications are described in this table.

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Cover Page		01/2026	
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Chapter 1 – 5		01/2026	
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05	1-76	all	Updated: Editorial adjustments.
	--	all	Updated/Added: Product descriptions.
	--	all	Updated/Added: More detailed information about installation requirements and battery.
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List of Abbreviations

List of Abbreviations

AC	Alternating Current Altitude Code
ADR	Accord européen relatif au transport international des marchandises Dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ATC	Air Traffic Control
ATM	Air Traffic Management
AWG	American Wire Gauge
CBIT	Continuous Built-In Test
DC	Direct Current
EMC	Electro-Magnetic Compatibility
EMI	Electro-Magnetic Interferences
ESD	Electrostatic Sensitive Device
FAA	Federal Aviation Administration
GND	Ground (electrical)
HW	Hardware
IATA	International Air Transport Association
DGR	Dangerous Goods Regulations
IMDG	International Maritime Code for Dangerous Goods
LED	Light Emitting Diode
PBIT	Power-On Built-In Test
PTT	Push To Talk
RF	Radio Frequency
RID	Règlement concernant le transport international ferroviaire de marchandises Dangereuses (Agreement concerning the International Carriage of Dangerous Goods by Rail)
RX	Receiver, Receive
SW	Software
TX	Transmit, Transceiver
VHF	Very High Frequency

Units

Units

A, mA	Ampere, Milliampere
°C	Degree Celsius
dBm	Power Ratio In Decibel, referenced to 1 mW
dB	Decibel
ft	Foot, feet
g, kg	Gram, Kilogram
kHz, MHz	Kilohertz, Megahertz
mm, cm	Millimeter, Centimeter
Nm	Newton Meter
Ω	Resistance in Ohm
s	Second
V, mV	Volt, Millivolt
W, mW	Watt, Milliwatt
"	Inch

General Safety Definitions



Indicates a hazardous situation which, if not avoided, will result in death or serious injury.



Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



Is used to address practices not related to physical injury.



Safety instructions (or equivalent) signs indicate specific safety-related instructions or procedures.

Disposal

⚠CAUTION The packaging material is inflammable, and by burning, toxic fumes can develop.

This product contains materials that fall under the special disposal regulation. We recommend the disposal of such materials in accordance with the current environmental laws.

- Dispose circuit boards by a technical waste dump which is approved to take on e.g. electrolytic aluminum capacitors. Do under no circumstances dump the circuit boards with normal waste dump.

NOTICE



The symbol of the crossed out wheeled bin shows: DO NOT throw the battery (device) into municipal waste.

Discharged and partly discharged batteries can still have enough energy to be dangerous. Information about where batteries can be disposed free of charge is available at your local authorities.

Obey the transportation regulations for batteries, see "Transportation Information - Batteries" page 10.

Warranty Conditions

Modifications are only permitted within the scope of the instructions documented in this manual. All other modifications and incorrect use of the components will result in the exclusion of liability.

- The device must not be opened.
- Do not make any modifications to the device, except for those described in the manual.
- Make connections to the inputs, outputs and interfaces only in the manner described in the manual.
- Install the devices according to the instructions.
We cannot give any guarantee about other methods.

Conditions of Utilization

With this device you bought a product which was manufactured and tested before delivery with the utmost care.

Please take your time to read the notices which you ought to follow closely during installation and operation.

Otherwise all claims under the warranty will become void and a decreased service life or even damages must be expected.

⚠CAUTION The user is responsible for protective covers and/or additional safety measures in order to prevent damages to persons and electrical accidents.

Non-Warranty Clause

We checked the contents of this publication for compliance with the associated hard and software. We can, however, not exclude discrepancies and do therefore not accept any liability for the exact compliance. The information in this publication is regularly checked; necessary corrections will be part of the subsequent publications.

Transportation Information - Batteries

The transportation of rechargeable bloc batteries, batteries assembled in trays, single battery cells and battery systems are regulated.

The transport conditions depends the method of transport (sea, land, air), the type of battery (e.g. wet, wet non-spillable).

SAFETY INSTRUCTIONS

Prevent risks to humans and the environment

Discharged lead-acid batteries must not be disposed of in domestic waste or be mixed with other batteries.

The electrolyte must not be disposed of improperly under any circumstances.

Disposal or recycling must be carried out by specialized companies.

Rules for Batteries, wet, filled with Acid

Land Transportation in compliance with ADR/RID

Special Provision 598 (SP 598) under ADR/RID:

It is permitted to transport new and discharged lead-acid batteries (wet, filled with acid) as non-dangerous goods if they meet these conditions:

- Safety: Cannot slip, fall, or get damaged.
- Handling Aids: Have carrying devices or are stacked e.g. on pallets.
- Cleanliness: No dangerous traces of acid or alkali on the outside.
- Short-Circuit Protection: Protected against short circuits.

SAFETY INSTRUCTIONS

If the requirements of SP 598 are not fulfilled, the transport of new and discharged batteries must be transported as dangerous goods (Class 8).

Conditions:

- UN Number: UN 2794
- Proper Shipping Name: BATTERIES, WET, FILLED WITH ACID
- Hazard Class: 8
- Packing Group: none
- Hazard Label: 8
- ADR Tunnel Restriction Code: E

Sea Transportation in compliance with IMDG Code

Conditions:

- UN Number: UN 2794
- Proper Shipping Name: BATTERIES, WET, FILLED WITH ACID
- Hazard Class: 8
- Packing Group: none
- Packing Instruction: P 801
- EmS: F-A, S-B
- Hazard Label: 8

Air Transportation in compliance with IATA-DGR**Conditions:**

- UN Number: UN 2794
- Proper Shipping Name: BATTERIES, WET, FILLED WITH ACID
- Class: 8
- Packing Group: none
- Packing Instruction: 870 (PI 870)
- Hazard class: (8) Corrosive

Rules for Batteries, wet, non-spillable**Land Transportation in compliance with ADR/RID****Conditions:**

- UN Number: UN 2800
- Proper Shipping Name: BATTERIES, WET, NON-SPILLABLE
- Hazard Class: 8
- Packing Group: none
- Packing Instruction: P 003, P 801a
- Hazard Label: 8
- Special Provision 238 para. a) + b):
 - No transport as dangerous goods (non-spillable batteries are not subject to other requirements of ADR/RID if they meet the requirements of Special Provision 238.
 - An appropriate manufacturer's confirmation is necessary.
 - Batteries which do not meet the requirements of Special Provision 238 must be packed and carried as listed in "Land transportation ADR/RID in compliance with SP 598, see "Rules for Batteries, wet, filled with Acid" - "Land Transportation in compliance with ADR/RID" page 10.

Sea Transportation in compliance with IMDG Code**Conditions:**

- UN Number: UN 2800
- Proper Shipping Name: BATTERIES, WET, NON-SPILLABLE
- Hazard Class: 8
- Packing Group: none
- Packing Instruction: P 003, PP 16
- Hazard Label: 8
- EmS: F-A, S-B
- Special Provision 238 no. 1 + 2:
 - No transport as dangerous goods (non-spillable batteries are not subject to other requirements of IMDG Code if they meet the requirements of Special Provision 238.
 - An appropriate manufacturer's confirmation is necessary.
 - Batteries which do not meet the requirements of Special Provision 238 must be packed as listed in "Sea transportation IMDG Code in compliance with Packaging Instruction P 801" and carried as dangerous goods according to UN 2794", see "Rules for Batteries, wet, filled with Acid" - "Sea Transportation in compliance with IMDG Code" page 10.

Air Transportation in compliance with IATA-DGR**Conditions:**

- UN Number: UN 2800
- Proper Shipping Name: BATTERIES, WET, NON-SPILLABLE
- Hazard Class: 8
- Packing Group: none
- Packing Instruction: 872
- Hazard Label: (8) Corrosive
- Special Provision A 67:
 - No transport as dangerous goods (non-spillable batteries are not subject to other requirements of IATA DGR if they meet the requirements of Special Provision A 67. Provided that poles are secured against short-circuit.
 - An appropriate manufacturer's confirmation is necessary.
 - Batteries which do not meet the requirements of Special Provision A 67 must be packed as listed in "Air transportation IATA-DGR in compliance with Packing Instruction 870 and carried as dangerous goods according to UN 2794", see "Rules for Batteries, wet, filled with Acid" - "Air Transportation in compliance with IATA-DGR" page 11.

Rules for Batteries, damaged**Conditions:**

- UN Number: 2794
- Proper Shipping Name: WASTE, BATTERIES, WET, FILLED WITH ACID, ENVIRONMENTALLY HAZARDOUS (ENVIRONMENTALLY HAZARDOUS must be attached when transporting in bulk).
- Hazard Class: 8
- Packing Group: none
- Packing Instruction: P 801a
 - Transport as dangerous goods (packing in battery boxes) or
 - Special Provisions VC2, AP8 (transport as dangerous goods in bulk).
- Hazard Label: 8
- ADR Tunnel Restriction code: E

Notice: These references can be applied by transportation of lead-acid batteries of UN 2800 as well.

Rules for Batteries, dry

Batteries delivered without electrolyte "dry batteries or cells" are not in the scope of dangerous goods transportation regulations.

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1 General Description

In this chapter you can read about:

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This manual describes the Becker Avionics Portable VHF Stations GK615 and GK616, and its variants. The type plate on your device shows the part number for identification purposes (see "Type Plate" page 35).

Before starting operation of the device(s) please read this manual carefully, with particular attention to the description referring to your device(s).

Purpose of Equipment

1.1 Introduction

The technical information in this document applies to the described product GK61X-(XXX).

Details for variants please see "Variants Overview" page 17.

- For further descriptions we also use the terms "GK61X".
- If a description refers to only one product variant is it specified.

The manual "Installation and Operation (I&O) contains the sections:

Section	DV16800.03 I&O
General	X
Installation	X
Operation	X
Certifications	X

1.2 Purpose of Equipment

The portable VHF stations GK61X are made for mobile and fixed operations on airfields or landing strips. It can also be used in hot air balloons, for ferrying aircraft or recovery of gliders.

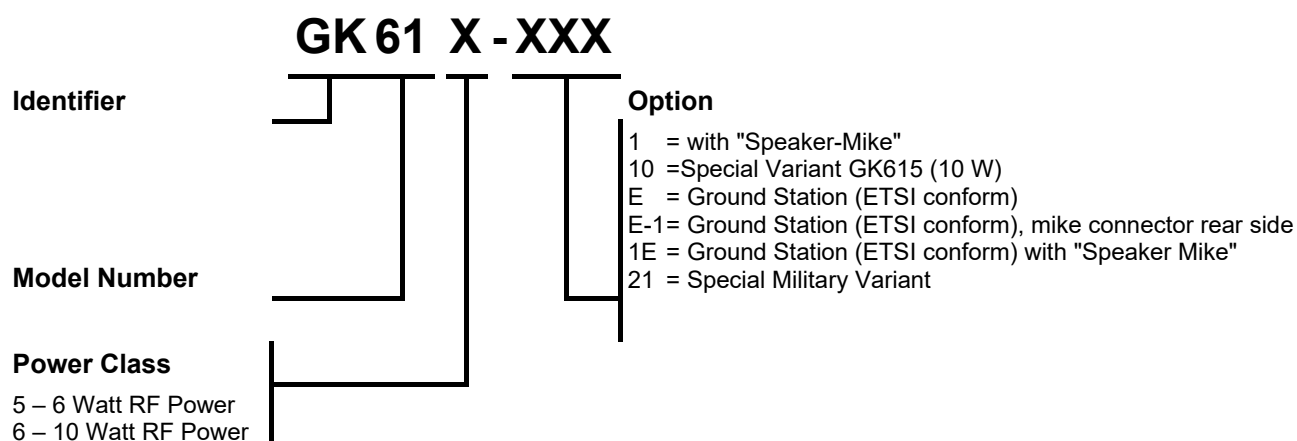
The portable VHF station consists of the carrying case and a transceiver.

Available transceiver see "Variants Availability" page 18.

Features:

- The carrying case contains:
 - Batteries, speaker, antenna socket, the socket for the microphone or microphone speaker and the voltage converter.
- A microphone, a headset or a helmet (ultralight) can be connected.
- The portable VHF station is ready for operation after the antenna is connected and the microphone is connected.
- Self-Tests (BIT) are integrated in the transceiver.

1.3 Variants Overview



1.3.1 Variants Availability



Figure 1 GK61X with microphone 1PM415-1 (example) Figure 2 GK61X with speaker/microphone 1PM415-12 (example)

1.3.1.1 Combinations with AR6201, GT6201:

	Application	Version	Transceiver	Microphone	Antenna	Remark
6 Watt Transceiver	Airborne	GK615 0622.834-923	AR6201-(022)	1PM415-1 0603.120-350	1A415 0884.294-952	whip antenna and dynamic microphone
		GK615-1 0622.842-923	AR6201-(022)	1PH012 0498.475-951	1A415 0884.294-952	whip antenna and speaker microphone
	Ground	GK615-E 0638.481-923	GT6201-05	1PM415-1 0603.120-350	1A415 0884.294-952	whip antenna and dynamic microphone
		GK615-1E 0638.498-923	GT6201-05	1PH012 0498.475-951	1A415 0884.294-952	whip antenna and speaker microphone
10 Watt Transceiver	Airborne	GK615-10 0638.625-923	AR6201-(012)	1PM415-1 0603.120-350	1A415 0884.294-952	whip antenna and dynamic microphone
		GK616 0638.463-923	AR6201-(012)	1PM415-1 0603.120-350	1A415 0884.294-952	whip antenna and dynamic microphone
		GK616-1 0638.471-923	AR6201-(012)	1PH012 0498.475-951	1A415 0884.294-952	whip antenna and speaker microphone
	Ground	GK616-E 0638.501-923	GT6201-10	1PM415-1 0603.120-350	1A415 0884.294-952	whip antenna and dynamic microphone
		GK616-E-1 0649.163-923	equipment equal to GK616-E, but mike connector at the rear side			
		GK616-1E 0638.511-923	GT6201-10	1PH012 0498.475-951	1A415 0884.294-952	whip antenna and speaker microphone
	Special Mission	GK616-21 0637.289-923	AR6201-(012)	1PH012 0498.475-951	1A415-1 0586.137-375	olive green housing, steel band antenna and speaker microphone

1.3.1.2 Combinations with AR6211, GT6201:

	Application	Version	Transceiver	Microphone	Antenna	Remark
6 Watt Transceiver	Airborne	GK615 0622.834-923	AR6211-(022)	1PM415-1 0603.120-350	1A415 0884.294-952	whip antenna and dynamic microphone
		GK615-1 0622.842-923	AR6211-(022)	1PH012 0498.475-951	1A415 0884.294-952	whip antenna and speaker microphone
	Ground	GK615-E 0638.481-923	GT6201-05	1PM415-1 0603.120-350	1A415 0884.294-952	whip antenna and dynamic microphone
		GK615-1E 0638.498-923	GT6201-05	1PH012 0498.475-951	1A415 0884.294-952	whip antenna and speaker microphone
10 Watt Transceiver	Airborne	GK615-10 0638.625-923	AR6211-(012)	1PM415-1 0603.120-350	1A415 0884.294-952	whip antenna and dynamic microphone
		GK616 0638.463-923	AR6211-(012)	1PM415-1 0603.120-350	1A415 0884.294-952	whip antenna and dynamic microphone
		GK616-1 0638.471-923	AR6211-(012)	1PH012 0498.475-951	1A415 0884.294-952	whip antenna and speaker microphone
	Ground	GK616-E 0638.501-923	GT6201-10	1PM415-1 0603.120-350	1A415 0884.294-952	whip antenna and dynamic microphone
		GK616-E-1 0649.163-923	equipment equal to GK616-E, but mike connector at the rear side			
		GK616-1E 0638.511-923	GT6201-10	1PH012 0498.475-951	1A415 0884.294-952	whip antenna and speaker microphone
	Special Mission	GK616-21 0637.289-923	AR6211-(012)	1PH012 0498.475-951	1A415-1 0586.137-375	olive green housing, steel band antenna and speaker microphone

1.3.2 Software Status

Details please see "Software/Firmware Status", page 36.

1.4 Scope of Functionality

1.4.1 Frequency Indication

- A liquid crystal display (LCD) shows frequency indication.
- The operating frequency is selectable with a rotary encoder.
- The relation between the real operating frequency and the frequency shown complies with the standards (ICAO Annex 10, Volume II).

Operating Frequency MHz	Channel Spacing kHz	Displayed Frequency	
		8.33 + 25 kHz mixed Mode	25 kHz Mode
118.0000	25	118.000	118.00
118.0000	8.33	118.005	N/A
118.0083	8.33	118.010	N/A
118.0166	8.33	118.015	N/A
118.0250	25	118.025	118.02
etc.	etc.	etc.	etc.
136.9750	25	136.975	136.97
136.9750	8.33	136.980	N/A
136.9833	8.33	136.985	N/A
136.9916	8.33	136.990	N/A

1.4.2 Audio In- & Outputs

Audio In- & Outputs of GK61X:

- Recorder output on the rear panel connector.
- Input for dynamic microphone, phone and PTT at the front panel.
- Headphone 1 output:
 - Rated output power: 300 mW into 75 Ω (with floating transformer output).
- Headphone 2 output:
 - Rated output power: 200 mW into 75 Ω.
- Speaker output:
 - Rated output power: 4 W into 4 Ω.

Notice: Headphone 2 and speaker output cannot be active at the same time.

1.4.3 Squelch Operation

The squelch (muting) circuit suppresses signals with strong signal noise (when enabled).

There are two types of squelch methods implemented, carrier- and noise-squelch.

- Carrier-squelch: It depends on the received signal strength and is adjustable in the configuration setup.
- Noise-squelch: It depends on the noise level and is adjustable in the user setup.

1.4.4 Memory Channels

It is possible to store frequencies.

- The memory contains up to 99 frequencies stored manually.
- A user defined text label is assignable for each stored frequency.
- The last recently used 9 (active) frequencies are stored automatically as "LAST" channels.

1.4.5 Scan Mode

The scan mode is a dual watch function.

- Possibility to monitor frequencies on two different channels, active & preset simultaneously.
- The signal of the active frequency is always audible; it has priority at all times.

1.4.6 Illumination

The illumination of LCD and push buttons can be controlled from the front panel through the user menu.

1.4.7 Power Supply

The built-in battery is a chargeable, sealed lead-acid battery 12 V/2 Ah. The number of the built-in batteries depends on the device variant. The battery can be charged via the external DC socket without disassembly.

- Transmitter power: 5...7 W at 12 V and 10 W at 24 V supply voltage.
- Charging time for a complete discharged battery: approximately 8 hours.
- Nominal operating time for the GK61X: approximately 6 hours at a keying ratio of 1:10 (normal radio traffic) and a transmit output power of 5 W. Similar conditions are applicable for 10 W devices.
- Reception is still guaranteed for ca. two further hours. After this time it is necessary to charge the battery of GK61X.

NOTICE Do not push the PTT button while recharging the battery.

The transceiver contains a monitoring stage for the battery voltage.

- The monitoring is active when the device is in operation.
- "LOW BATT" is indicated (appearance around each 5 s, if the supply voltage of the transceiver is less than the threshold set in the installation setup).
- The transceiver is still operable.
 - Depending on the supply voltage the transceiver can have a decreased performance.

1.4.7.1 "LOW BATT" Indication

The transceiver monitors power supply voltage. If the supply voltage of the transceiver is less than the threshold set in the installation setup, the display indicates the message "LOW BATT".

If the power supply voltage decreases further, emergency operation mode will be activated.

1.4.8 Self-Tests

The device has advanced built-in tests. The tests monitor most of the internal circuits against failures.

- PBIT (Power-ON Built-In Test):
 - Self-test when starting the device(s).
- CBIT (Continuous Built-In Test):
 - Self-test runs continuously in the background.
 - Correct operation of the device is monitored.
- If there is a problem a related error message is shown on the display.

1.5 Safety-Conscious Utilization

SAFETY INSTRUCTIONS

- Before first use, the built-in battery must be charged for 8...10 hours.
- Man-carried GK61X can be charged with the included battery charger for car installations.
 - Use the related car battery cable 1KA615 (accessory, must be ordered separately).
 - The battery charges automatically as soon as the car power supply is available.
- Do not store the GK61X in a discharged state for a longer time. This can have an unwanted effect on the battery life time.
- Never short-circuit the battery.
- Do not expose the device to temperatures $> 50^{\circ}\text{C}$ for a longer time. Overheating of the device battery can cause a risk of bursting and explosion.
- Obey all instructions in this manual.
- Use the product only within the specified conditions, see "Technical Data" page 26.

NOTICE

- Use only microphones and headsets, which are applicable for ground stations.
 - Radiation received from the equipment antenna can have an unwanted effect on the integrated amplifier of the microphone (feedback). This is noticeable in the receiving station by whistling and/or heavy distortion. These disturbances can occur in different ways on different transmit channels.
- Speak loud into the microphone and keep it always close to the lips; otherwise ambient noise can be loud and make understanding difficult.
- Transmit buttons can stick, or TX line is short circuited thus causing continuous carrier signal on the active channel. Therefore, make sure that the display sign "TX" disappears when the "PTT" button is not pushed.

⚠ CAUTION

Radiation risk:

Long-term and very intense exposure of the human body to VHF radiation can lead to health problems in individual cases.

SAFETY INSTRUCTIONS

Battery Charging:

The battery can be damaged if the device is permanently connected to the power supply/charging circuit (e.g. in a vehicle).

Recommendation:

Disconnect the device from the power supply when not in use.

1.6 Cleaning and Disinfection of Devices

Cleaning:

Within the framework of officially prescribed or recommended protective measures, it makes sense that devices and systems that are directly accessible to people, are disinfected as required. This particularly applies to the controls on avionics devices.

NOTICE

Not all commercially available cleaning agents/disinfectants are suitable for use on the surfaces of our devices. Many of the agents contain solvents or greasing components that can cause undesired effects on the controls and the display.

Example:

- Do not use aggressive cleaning agents e.g. Acetone.
 - These cleaning agents can cause damages.

Procedure:

NOTICE

- Do not clean/disinfect the device(s) during operation.

NOTICE

- Normally it is not necessary to clean the device and accessories.
- If it is necessary to clean it, do it with extreme care.
- Use only clean, soft cloths for cleaning.
- If necessary, moisten the cloth with unaggressive cleaning liquids.

Device body and controls

- Clean the device body and the controls with a clean, soft, lint free cloth moistened with clean water.

Connectors

- Do not use contact spray to clean connectors.
- If necessary, use a soft brush to remove dirt or dust carefully.

Cleaning with compressed Air

- The compressed air must be free from chemical substances, such as oil, water, etc.
- The pressure must not exceed 2 bar.

Disinfection:

To reduce the risk of infection:

- As a disinfectant, we recommend diluted monohydric alcohols such as Isopropanol or Ethanol.
 - Wear suitable protective gloves that are disinfected.
 - Moisten a clean, soft, lint free cloth with the related liquid to clean all controls.
 - Please obey the usual protective measures when using monohydric alcohols for cleaning purposes.
- Do not use spray bottles or evaporators to apply disinfectants or cleaning liquids to the Becker Avionics devices. Liquids could penetrate the devices and can result in damage.

LCD screen

- Clean the LCD screen with a clean, soft, lint free cloth moistened with clean water and take care not to scratch the surface.
- Cleaning agents suitable for cleaning TFT screens and LCD displays can also be used. Obey the related instructions from manufacturer.

1.7 Restriction for Use

**SAFETY
INSTRUCTIONS**

The device is to be used inside the declared limits.

**SAFETY
INSTRUCTIONS****Battery Charging:**

The battery can be damaged if the device is permanently connected to the power supply/charging circuit (e.g. in a vehicle).

Recommendation:

Disconnect the device from the power supply when not in use.

The batteries have a self-discharge of approx. 1% per day.

- We recommend to charge stored batteries at intervals of three months.
- Use related power supply+cable.

1.8 Technical Data

1.8.1 General Characteristics

GK61X	Specifications
DC supply voltage	10...32 V
Nominal supply voltage	12 V / 24 V
Fuse GK61X	GK615: 2x T 2 A slow blow GK616: 1x T 2 A slow blow + 1x T 3 A slow blow
Fuse AR62XX-XXX / GT6201-XX	7 A
Mike / headphone connection	Dynamic mike: 2...10 mV Headphone: 40 mW / 300 Ω
Recorder output	symmetric, 0 dBm @600 Ω
Antenna impedance	50 Ω
Number of batteries	GK615: 1 GK615-10: 2 GK616: 2
Storage temperature	-15...+50 °C
Operating temperature	-15...+50 °C

1.8.2 Battery

GK61X	Specifications
Battery type	Lead Acid Battery, sealed
Battery capacity	GK615: 1x 2 Ah / 12 V GK615-10: 2x 2 Ah / 12 V GK616: 2x 2 Ah / 12 V
Charging time	8 h for a complete discharged battery
Battery operating time	6 h at a keying ratio of 1:10 (normal radio traffic) and a transmit output power of 5 W. Further reception is possible for approximately 2 h. (Similar conditions are applicable for 10 W devices)
Transmitter power	5...7 W at 12 V 10 W at 24 V
Storage temperature	-40...+60 °C for fully charged battery -30...+60 °C at 75% state of charge -20...+60 °C at 50% state of charge -10...+60 °C at 25% state of charge

SAFETY INSTRUCTIONS

Battery Charging:

The battery can be damaged if the device is permanently connected to the power supply/charging circuit (e.g. in a vehicle).

Recommendation:

Disconnect the device from the power supply when not in use.

The batteries have a self-discharge of approx. 1% per day.

- We recommend to charge stored batteries every three months.
- Use related power supply+cable.

NOTICE

Do not push the PTT button while recharging the battery.

1.8.3 Dimensions & Weight

GK61X	Specifications
Front panel HxW	84 x 164.5 mm (3.3 x 6.5 in)
Device depth complete	336 mm (13.2 in) with handle in maximal position
Installation method	Portable device, car installation
Weight (with battery/batteries)	GK615: 4.4 kg GK615-10: 6.5 kg GK616: 6.5 kg

Additional technical data see manuals AR62XX and GT6201.

<https://www.becker-avionics.com/manual-instructions-downloads/>

VHF Transceiver 6200 Series:

AR, RT, RCU62 I&O manual, en DV14307.03 Article no. 0617.857-071

VHF Ground Transceiver:

GT6201 I&O manual, en DV17001.03 Article no. 0640.093-071

1.8.4 Software

The "Design Assurance Level" (DAL) of AR6201/AR6211/GT6201 according ED-12B/DO-178B is:

Level C

1.8.5 Hardware

The devices do not contain Complex Electronic Hardware (CEH).

1.8.6 Maintenance Interval

A regular maintenance of this device is not necessary:

- The maintenance is specified as "on condition" only.

Transceiver:

- It is recommended to do a check of the frequency accuracy of the transceiver after 7 years.

Battery:

- The batteries must be replaced with new ones after 5 years at the latest.

Technical Data

1.8.7 Certifications

**SAFETY
INSTRUCTIONS**

Unauthorized changes or modifications to the device can void the compliance to the required regulatory agencies and authorization for continued equipment usage.

The AR6201/AR6211 and the GT6201 are the built-in transceivers of the GK615 and GK616. The type of transceiver depends on the variant of the GK61X. Details see "Variants Overview" page 17.

AR6201/AR6211 - Single Block Transceiver

Part Number	Article Number	EASA Approval	TSO Conformity	FCC Approval
AR6201-(012)	0631.418-910	EASA.21O.1249 ETSO-2C37e Class: D, E ETSO-2C38e Class: 4, 6	TSO-C169a Class: D, E, 4, 6	B54AR6201
AR6201-(022)	0636.339-910	EASA.21O.1249 ETSO-2C37e ETSO-2C38e Class: D, E, 4, 6	TSO-C169a Class: D, E, 4, 6	B54AR6201
AR6211-(012)	0662.410-910	EASA.21O.10075461 ETSO-2C169a Class: C, H2, 4, 6	TSO-2C169a	B54AR6201
AR6211-(022)	0662.429-910	EASA.21O.10075461 ETSO-2C169a Class: C, H2, 4, 6	TSO-2C169a	B54AR6201

GT6201 - Single Block Ground Transceiver

GT6201 meet the requirements of ETSI EN 300 676 Regulations

Part Number	Article Number	Approval
GT6201-05	0637.351-923	BAF - German Federal Supervisory Office for Air Navigation Services D-0030/2014 Ministero Sviluppo Economico – Dipartimento per le Comunicazioni Registro ufficiale, Prot.n. 0041697-02/07/2014 Notification GZ: BMVIT-640.825/0301-III/BFT/2016
GT6201-10	0637.361-923	

GT6201 Notification

For further details about approvals/certification please see "Certifications" page 63.

1.9 Order Code

1.9.1 GK615, GK616

Qty	GK615 (6 Watt Transceiver)	
1	GK615, portable VHF station, airborne variant with: • Car mounting bracket and handle • 1PM415-1 (dynamic microphone) • 1A415 (antenna) • Carrying bag	Article-No. 0622.834-923
1	GK615-1, portable VHF station, airborne variant with: • Car mounting bracket and handle • 1PH012 (speaker microphone) • 1A415 (antenna) • Carrying bag	Article-No. 0622.842-923
1	GK615-E, portable VHF station, ground variant with: • Car mounting bracket and handle • 1PM415-1 (dynamic microphone) • 1A415 (antenna) • Carrying bag	Article-No. 0638.481-923
1	GK615-1E, portable VHF station, ground variant with: • Car mounting bracket and handle • 1PH012 (speaker microphone) • 1A415 (antenna) • Carrying bag	Article-No. 0638.498-923

Qty	GK61X (10 Watt Transceiver)	
1	GK615-10, portable VHF station, airborne variant (country-specific certification) with: • Car mounting bracket and handle • 1PM415-1 (dynamic microphone) • 1A415 (antenna) • Carrying bag	Article-No. 0638.625-923
1	GK616, portable VHF station, airborne variant with: • Car mounting bracket and handle • 1PM415-1 (dynamic microphone) • 1A415 (antenna) • Carrying bag	Article-No. 0638.463-923
1	GK616-1, portable VHF station, airborne variant with: • Car mounting bracket and handle • 1PH012 (speaker microphone) • 1A415 (antenna) • Carrying bag	Article-No. 0638.471-923

Qty	GK61X (10 Watt Transceiver)	
1	GK616-E, portable VHF station, ground variant with: • Car mounting bracket and handle • 1PM415-1 (dynamic microphone) • 1A415 (antenna) • Carrying bag	Article-No. 0638.501-923
1	GK616-E-1, portable VHF station, ground variant (mike connector at the rear side) with: • Car mounting bracket and handle • 1PM415-1 (dynamic microphone) • 1A415 (antenna) • Carrying bag	Article-No. 0649.163-923
1	GK616-1E, portable VHF station, ground variant with: • Car mounting bracket and handle • 1PH012 (speaker microphone) • 1A415 (antenna) • Carrying bag	Article-No. 0638.511-923
1	GK616-21, portable VHF station, special mission variant with: • Car mounting bracket and handle • 1PH012 (speaker microphone) • 1A415-1 (steel band antenna) • Olive green housing • Carrying bag	Article-No. 0637.289-923

1.9.2 Accessories and Spare Parts

Examples:



Qty	Antenna	
1	Antenna 1A415	Article-No. 0884.294-952
1	Steel band antenna 1A415-1	Article-No. 0586-137.375
1	Multiplex antenna 1A415-2	Article-No. 0586-129.375

Qty	Battery	
1	Battery 12 V / 2 Ah	Article No. 0883.158-391

Qty	Microphone, Speaker	
1	Microphone 1PM415-1	Article No. 0603.120-951
1	Speaker with microphone 1PH012	Article No. 0498.475-951

Qty	Power supply + AC Cable Set	Article-No. 0629.596-918
1	Power supply	Article-No. 0530.158-918
1	AC-connector cable	Article-No. 0295.728-276

Qty	Mounting, Carry Equipment	
1	Handle	Article-No. 0549.967-252
1	Car mounting bracket	Article-No. 0549.940-262
1	Microphone holder for 1PM415-1	Article-No. 0505.897-268
1	Car battery cable 1KA615	Article-No. 0633.488-950
1	Carry bag	Article-No. 0893.854-959

1.9.3 Documentation

Qty	Documentation	
1	(I&O) Installation and Operation manual, English	Article No. 0633.496-071
1	Quick Start Guide / Kurzanleitung, English/Deutsch	Article No. 0646.921-071

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2 Installation

This manual must be available during performance of all tasks.

The installation of the device(s) depends on the type of vehicle and its equipment and therefore only general information can be given in this section.

Any deviations from the installation instructions in this document are under own responsibility.

In this chapter you can read about:

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2.2	Device Assignment	34
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2.2.2	State of Delivery	34
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2.1 Packaging, Transport, Storage

Visually inspect the package contents for signs of transport damage.

⚠ CAUTION The packaging material is inflammable, and by burning, toxic fumes can develop.

Keep the packaging material and use it in the case of a return shipment. Improper or faulty packaging can lead to transport damages.

Make sure to transport the device always in a safe manner and with the aid of suitable lifting equipment if necessary. Do never use electrical connections for lifting. Before the transport, a clean, level surface must be prepared to place the device on. The electrical connections must not be damaged when placing the device.

First Device Checkup

- Check the device for signs of damages.
- Please make sure that the indications on the type plate agree with your purchase order.
- Make sure that the equipment is complete ("Scope of Delivery", page 34).

Storage

If you do not install the device immediately, make sure to store it in a dry and clean environment. Make sure that the device is not stored near strong heat sources and that no metal chippings can get into the device.

Storage temperature see "Technical Data" page 26.

2.2 Device Assignment

This manual is valid for the devices:

- GK615-XXX + accessories
- GK616-XXX + accessories

2.2.1 Scope of Delivery

- Manuals.
 - Installation and Operation manual
- Device in accordance with your order:
 - VHF transceiver (type depends on GK61X variant)
 - Battery 12 V / 2 Ah (two batteries with GK615-10 and GK616)
 - Microphone or
 - Speaker, microphone, ... (see "Variants Availability" page 18)
 - Antenna 1A415
 - Power supply and AC-connector cable
 - Handle
 - Car mounting bracket
 - Carrying bag
- Documents: Declaration of Conformity

2.2.2 State of Delivery

The device is delivered with a default configuration (details, see related transceiver manual).

2.2.3 Additional Required Equipment

- Connectors + cables.

Details see "Accessories and Spare Parts", page 30.

2.2.4 Registration of the Device

Obey the national requirements for operation of radio equipment.

2.2.5 Type Plate

The device type is defined by the type plate (on the housing):

Example:

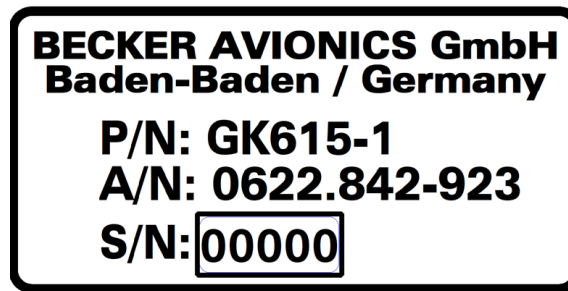


Figure 1: Type Plate (example)

Explanation:

P/N:	Example type designation: GK61X-XXX GK = Portable VHF Transceiver 615 = 6 Watt Transceiver (special case 615-10 = 10 W) 616 = 10 Watt Transceiver Options: -1 with speaker-mike -10 Special customer variant (10 W and country-specific certification) -E Ground Station (ETSI conform) -E-1 Ground Station (ETSI conform), mike connector on the rear side -1E Ground Station (ETSI conform) with speaker mike -21 Special Military variant
S/N:	Unique number of the particular device
A/N:	Article number (device order number)
	Compliance and Certifications Refer to the text and logos on the device type plate and housing

2.2.5.1 Type Plate - Built-in Transceiver

Example:

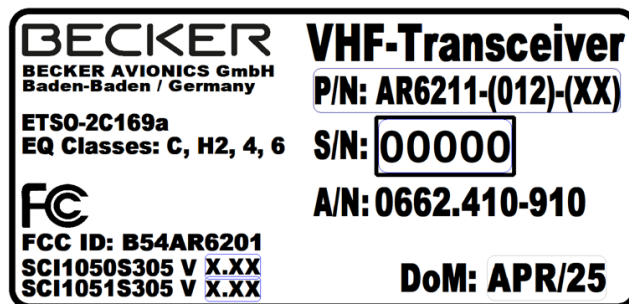


Figure 2: Type Plate - Built-in Transceiver (example)

Explanation:

P/N:	Type designation: AR6201, AR6211 = Single Block VHF Transceiver 58 mm (2¼ inch) Options: 0XX: 8.33/25 kHz channel spacing X1X: 6 W @ 12 V, 10 W @ 28 V X2X: 6 W @ 12 V XX2: white illumination color on black panel
S/N:	Unique number of the device
A/N:	Article number
DoM:	Date of Manufacturing
	Software: Refer to the version on the device type plate
	Compliance and Certifications: Refer to the text and logos on the device type plate and housing

2.2.6 Software/Firmware Status

- The implemented software/firmware version can be read out through the configuration menu.
- The software version is subject to change without notice.
- For detailed information contact our Customer Service Department.

2.3 Installation Requirements

The installation of the device(s) depends on the device, the type of vehicle and its equipment and therefore only general information can be given in this section.

The portable VHF stations GK61X are made for mobile and fixed operations on airfields or landing strips. It can also be used in hot air balloons, for ferrying aircraft or recovery of gliders.

SAFETY INSTRUCTIONS

- The device must not be opened.
- Keep enough distance to devices with integrated ventilator fans to make sure the free circulation of the cooling air.
- The installation area must have a minimum distance of 30 cm from the magnetic compass, to prevent any interference to the magnetic compass.
- Make sure that the mounting plate is not exposed to external temperature influences.
- Forced cooling is not required.
- The device is not qualified for installation in areas with fluid contamination.
- Changes or modifications made to this equipment not expressly approved in written form by Becker Avionics can void the authorization to operate this device/equipment.

SAFETY INSTRUCTIONS

The installation must be in accordance with the local authority approved guidelines.

- Vehicle installation: All electrical systems in the vehicle must be switched off and shielded.
- Recommended: Put marks on the cable terminations to prevent wiring failures.
- Fit sleeves over the solder joints on the equipment connector.
- Use only cables which are qualified for related use (e.g. self-extinguishing).
- The wiring harness must be able to move freely to prevent the wires from breaking.. The cables must not rub against edges or housings..
- Use twisted, shielded cables for symmetrical connections to minimize interference from electrical and magnetic fields.
- No other leads should be included in the power supply loop.
- HF cable must not be included in the cable harnesses.

⚠ CAUTION

Examine the wiring carefully before you start the device(s) and examine particularly correct connection of the power supply lines.

2.3.1 Installation in a Vehicle

GK61X is a portable device with car mounting bracket. There is no special requirement for installation. The device can be installed in a vehicle.

- Use the installed car mounting bracket (bottom) for installation.
- Remove the handle.
- Remove the installed car mounting bracket (bottom).
 - Keep the two screws (right, left side) for later use.
- Use the car mounting bracket as drilling template.
 - Make sure to find an applicable area to install the car mounting bracket. Details see: Dimensions, "Car Mounting Bracket for Vehicle Installation" page 40.
 - Make sure to have easy access to the user interface.
- Use applicable screws (3x) to attach the car mounting bracket.
 - Torque and length for fixing screws depends on material (type, strength) of the mounting location.
- Connect and tighten all required cables to the related sockets at rear plate, details see "Connector Pin Assignments - PBD406" page 51.
- Slide the GK61X into the car mounting bracket.
- Use the two screws (right, left side) to tighten the GK61X to the car mounting bracket.

Details see "Dimensions", page 39.

Dimensions mm (inch)

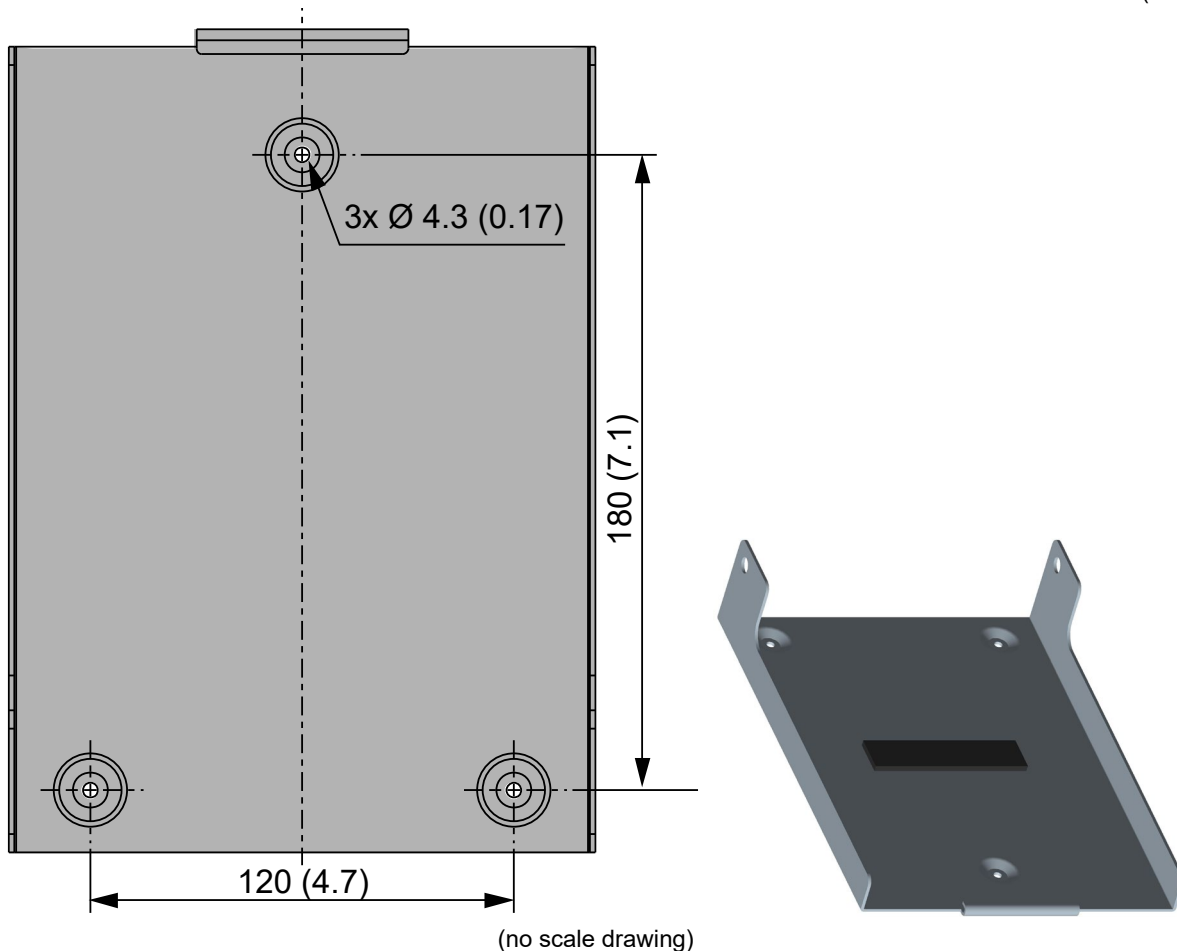


Figure 3: Drilling Template -Vehicle Installation

2.4 Dimensions

2.4.1 GK61X

Dimensions mm (inch)

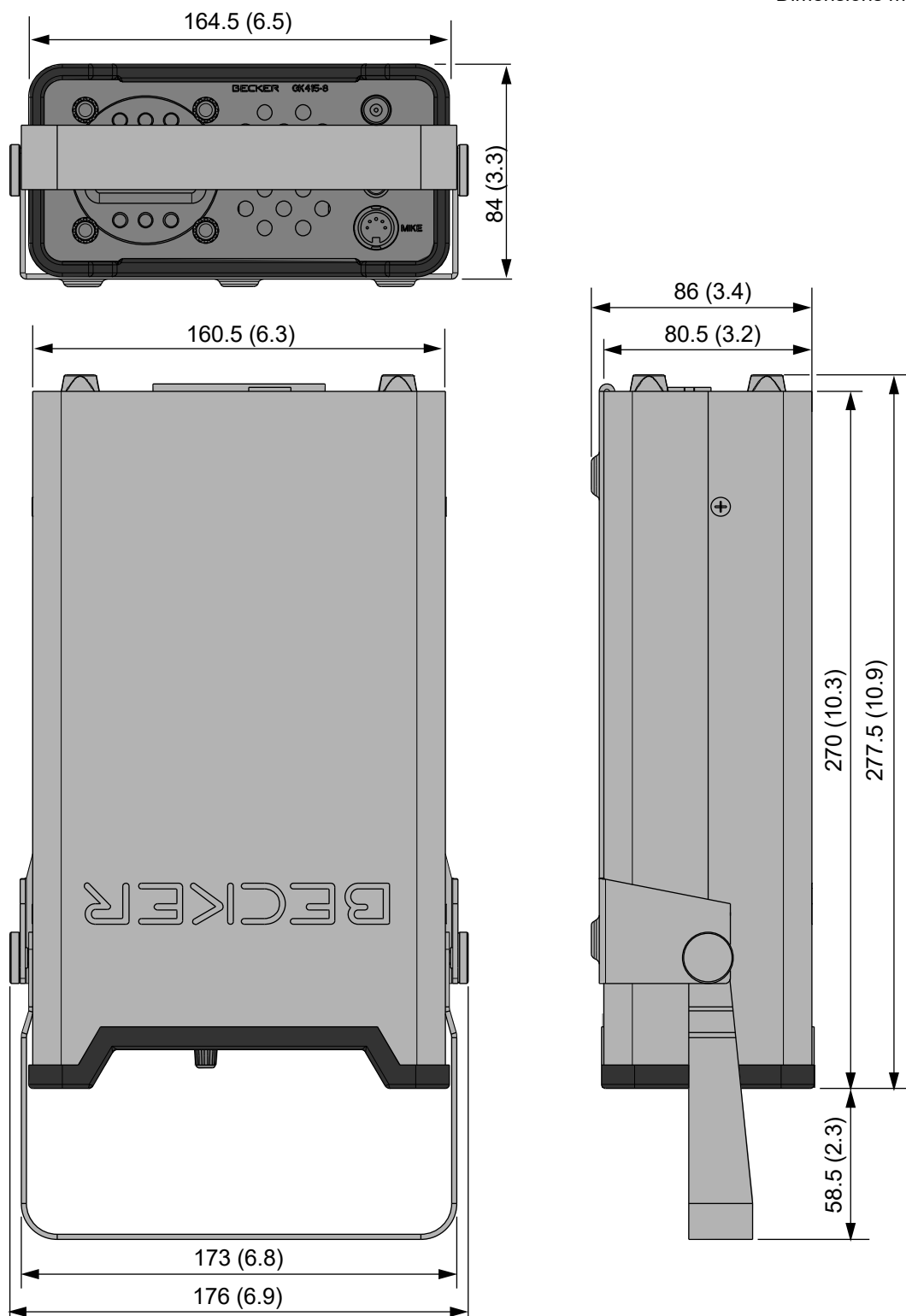


Figure 4: Dimensions - GK61X

Permitted deviation for dimensions without tolerances: DIN ISO 2768 T1 C (dimensions in mm)		
≤ 6 (± 0.3)	$> 30 \dots 120$ (± 0.8)	$> 400 \dots 1000$ (± 2.0)
$> 6 \dots 30$ (± 0.5)	$> 120 \dots 400$ (± 1.2)	$> 1000 \dots 2000$ (± 3.0)

2.4.2 Car Mounting Bracket for Vehicle Installation

Dimensions mm (inch)

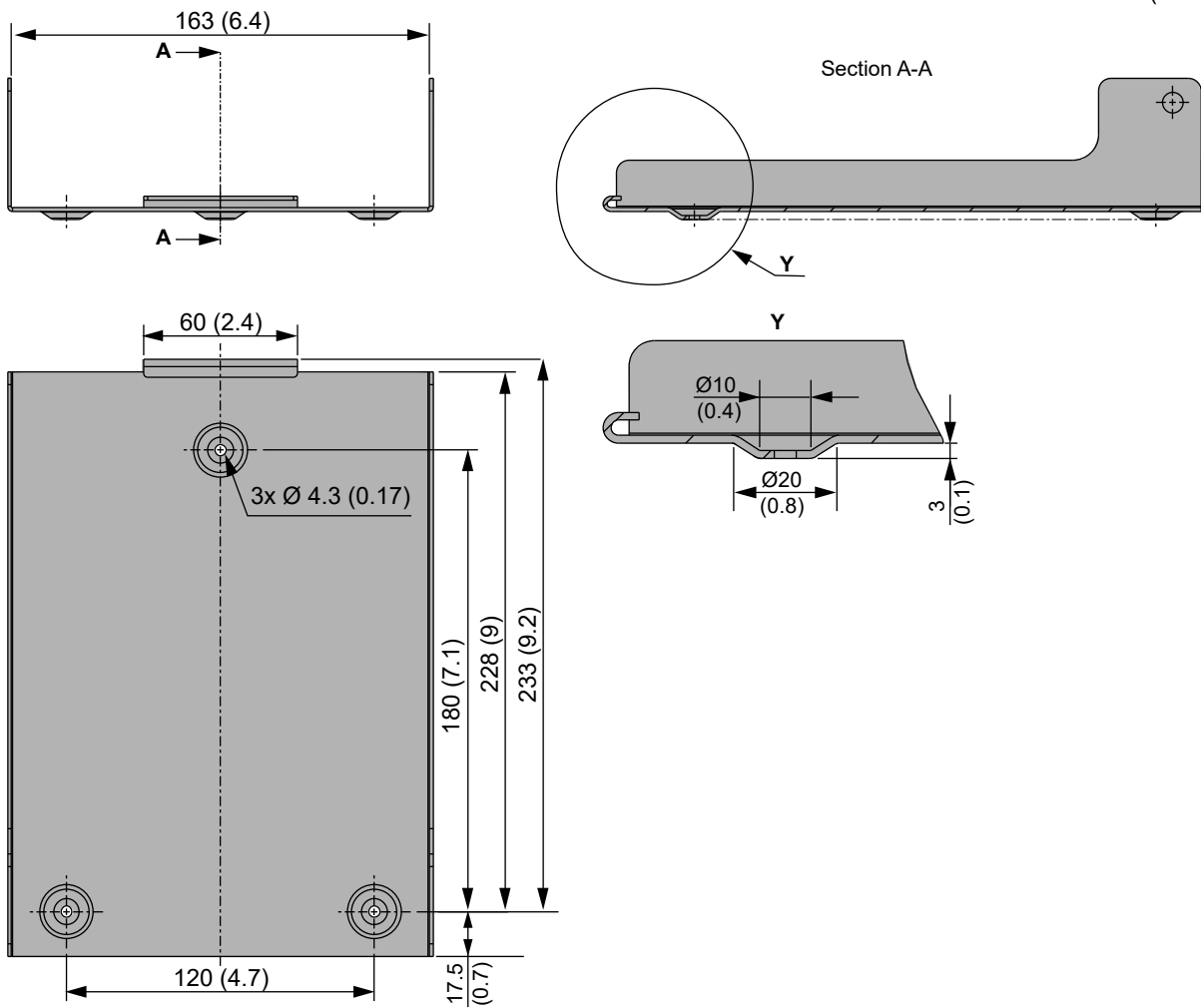


Figure 5: Dimensions - Car Mounting Bracket for Vehicle Installation

Permitted deviation for dimensions without tolerances: DIN ISO 2768 T1 C (dimensions in mm)		
≤ 6 (±0.3)	> 30...120 (±0.8)	> 400...1000 (±2.0)
> 6...30 (±0.5)	> 120...400 (±1.2)	> 1000...2000 (±3.0)

2.5 Connector Pin Assignment

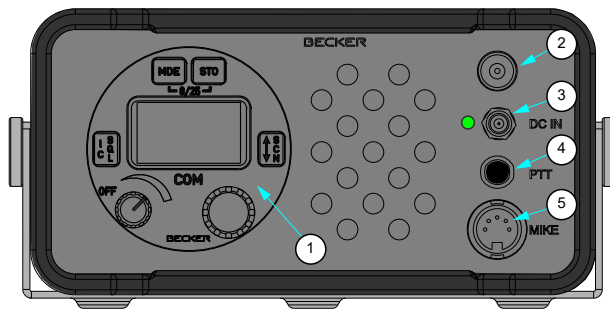
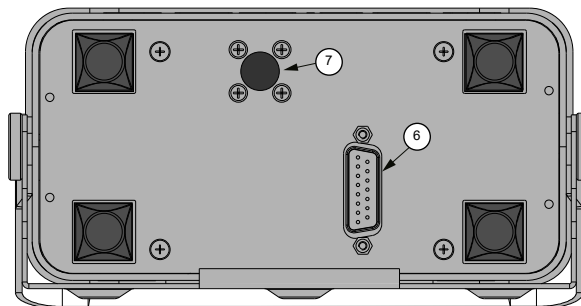


Figure 6: GK61X - Connector Layout (front side)

- 1: VHF transceiver AR62X1 / GT6201
- 2: Antenna connector
- 3: DC IN connector for external power supply
- LED ON shows; the battery is charging.
- 4: PTT button
- 5: Microphone connector (5-way DIN)



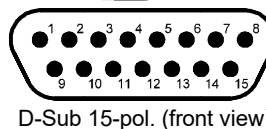
design depends on variant

Figure 7: GK61X - Connector Layout (rear side)

- 6: Device connector P2 (D-Sub 15-pol.)
- 7: Antenna connector
(possibility to connect antenna,
connector behind the protection cover),
see "Antenna Connector for Installation in a
Vehicle" page 42.

2.5.1 Connector P2

P2 Pin	Pin Name	
1	DC EXT +9...36 V	
2		
3	RECORDER OUT A	
4		
5		
6		
7		
8	DC EXT GND	
9	DC EXT +9...36 V	
10		
11	RECORDER OUT B	
12		
13		
14		
15	DC EXT GND	



D-Sub 15-pol. (front view)

2.5.2 Antenna Connector for Installation in a Vehicle

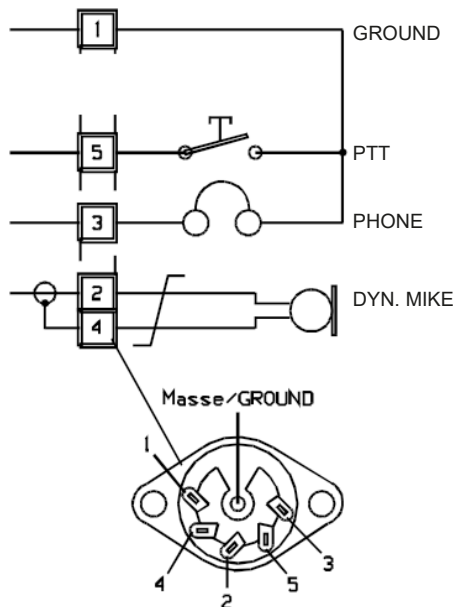
The antenna connector is available at the front panel as standard.

For vehicle installations, it is recommended to move the antenna connector from the front panel to the rear side of the GK61X. To do this:

- Remove both half shells of the housing.
- Remove the cover plate of the front panel.
- Remove the screws (4x at front panel) that fasten the antenna connector.
- Remove the screws (4x at rear side) and remove the cover plate on the rear side.
- Move the antenna connector to the related installation position at the rear side.
- Tighten the antenna connector with the related screws (4x).
- Attach the cover plate to the front panel with the related screws (4x).
- Assemble the cover plate.
- Assemble the housing.

2.5.3 External PTT or Foot PTT Switch

It is possible to connect an external PTT switch to the microphone connector.



Mike connector (rear view, turned)

Figure 8: Wiring - External PTT or Foot PTT

2.6 Configuration Setup

The configuration setup is for the configuration of installation and device parameters.

For detailed information refer to the related manual of the built-in transceiver.

Additional technical data see manuals AR62XX and GT6201.

<https://www.becker-avionics.com/manual-instructions-downloads/>

VHF Transceiver 6200 Series:

AR, RT, RCU62 I&O manual, en DV14307.03 Article no. 0617.857-071

VHF Ground Transceiver:

GT6201 I&O manual, en DV17001.03 Article no. 0640.093-071

2.7 Post Installation Check

After the device/system is completely installed do a test. Make sure that the compliance with the authority required procedures is obeyed.

The description that follows gives guidance for such tests.

2.7.1 Mechanical Installation and Wiring Check

- Make sure that all cables are attached and that the shields are connected to ground.
- Make sure that all screws are tight and the connectors of the device are secured.

2.7.2 Power Supply

- Examine the power supply lines and the correct polarity.
- Make sure that the power supply is in the specified limits.

2.7.3 Self-Test

Make sure that the device does not show failure after setting the power to "ON" and build-in tests. For detailed information refer to the related manual for the product.

For detailed information refer to the related manual of the built-in transceiver.

Additional technical data see manuals AR62XX and GT6201.

<https://www.becker-avionics.com/manual-instructions-downloads/>

VHF Transceiver 6200 Series:

AR, RT, RCU62 I&O manual, en DV14307.03 Article no. 0617.857-071

VHF Ground Transceiver:

GT6201 I&O manual, en DV17001.03 Article no. 0640.093-071

2.8 Error / Failure Indication

It is possible to read out and reset error flags.

- For read out and reset see: "Read Out and Reset Error Flags" page 58 or contact Becker Avionics Customer Service.
- Failure description see: "Warning and Failure Indications" page 59.

2.9 Troubleshooting

If you cannot correct the problem stop the use of the device(s) and contact authorized maintenance shop for assistance, please.

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3 Operation

In this chapter you can read about:

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3.1 General

This chapter contains information and instructions for safe operation of the device(s).

NOTICE

In this section the figures for display content mainly show transceivers working in 8.33/25 kHz mixed mode. Dedicated pictures for 25 kHz mode are not explicitly shown (they differ only in number of digits for frequency).

3.1.1 Registration of the Device

Obey the national requirements for operation of radio equipment.

3.2 Device Description

The portable VHF stations GK61X are made for mobile and fixed operations on airfields or landing strips. It can also be used in hot air balloons, for ferrying aircraft or recovery of gliders.

The portable VHF station consists of the carrying case and a transceiver.

3.2.1 Device Assignment

This manual is valid for the devices:

- See page 34.

3.2.2 Packing, Transport, Storage

- See page 33.

3.2.3 Scope of Delivery

- See page 34.

3.2.4 State of Delivery

- See page 34

3.2.5 Type Plate

- See page 35.

3.2.6 Controls and Indications

3.2.6.1 GK61X

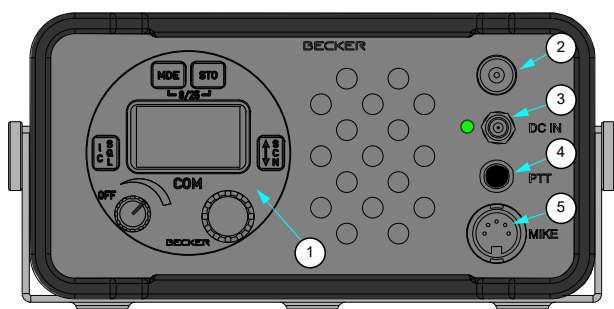


Figure 9: GK61X - Connector Layout (front side)

- 1: VHF transceiver AR62X1 / GT6201
- 2: Antenna connector
- 3: DC IN connector for external power supply
- LED ON shows; the battery is charging.
- 4: PTT button
- 5: Microphone connector (5-way DIN)

3.2.6.2 Transceiver



Figure 10: Controls and Indicators AR62X1/GT6201

	Symbol	Description	Main Function
1		IC/SQL (Intercom/Squelch)	"Short push" during normal operation toggles the RX -SQL ON/OFF. "Long push" during normal operation starts Intercom Menu (function not planned for GK61X).
2		MDE (Mode)	"Short push" during normal operation changes the frequency selection mode. "Long push" during normal operation starts the user menu.
3		STO (Store)	"Short push" during normal operation starts storage procedure.
4		↑/SCN (Exchange/SCAN)	"Short push" during standard mode, or scan mode toggles between preset and active frequency. "Long push" starts scan mode.
5		Power ON/OFF, Volume Knob	Turns the transceiver ON/OFF and is used to adjust the volume level of received signals.
6		Rotary encoder	- Turn the rotary encoder to change the selected parameters (frequency, IC-volume, VOX, ...). - Push the rotary encoder to select the digits. - Push the rotary encoder to confirm the setting.
	-8/25-	Change of Channel Spacing	Push and hold the MOD and STO key at the same time for > 2 s to change 8.33 to 25 kHz channel spacing and vice versa.
7		Display	LCD: Liquid Crystal Display
8		Active frequency	Only on the active frequency: - Transmission is possible and the reception has priority, even in scan mode. - Frequency tuning is not possible in standard mode.
9		Preset frequency	- Frequency tuning is possible in standard mode. - In scan mode both frequencies, active and preset are in listening watch. - If no receive signal is detected on the active frequency, receiving signals on the preset frequency will be audible, but will be muted as soon as a signal on the active frequency is detected.

The device identifies a:

"Long push": push and hold down a key for ≥ 2 seconds.

"Short push": any push < 2 seconds.

If any action by the user is invalid, the whole display is inverted for a short time.

3.2.6.3 Symbols on the Display

Symbol	Function
IC	Intercom operation is started (triggered by VOX or external IC key)
	Intercom operation with VOX is disabled
TX	The transceiver is in transmit operation
SQL	The squelch function is started
SCAN	Transceiver operates in scan mode
STO	The transceiver is in a storage procedure
LOW BATT	The battery voltage is less than the predefined threshold
	Inverted figures or letters on the display are selected to change
	The speaker is on

3.3 Start-up

- Connect the antenna and the mike/speaker to the related connectors.
- Turn the volume knob clockwise to switch on the device.
- After power-on, the device starts a self-test (PBIT).
 - The display shows the message "WAIT".
 - The display shows the software versions of the control head (CH) and the chassis module (CM).
- If there is an error the display shows the message "FAILURE, push any key" (for details see "Warning and Failure Indications" page 59).
- If there is no error the transceiver changes to the last active mode before power-off.
- During normal operation, a self-test (CBIT) permanently examines the correct operation of the device.
 - If there is an error the display shows the related message.

3.4 Receive Mode

- If PTT (Push To Talk) inputs are inactive, the transceiver stays in receive mode.
 - Received signal from antenna is supplied on the headphone(s) outputs (if enabled).
 - Received signal from antenna is supplied on the speaker output (if enabled).

3.5 Transmit Mode

TX **118.005**
127.000

- If /PTT input is active (Push To Talk key is pushed) the transceiver is set to transmit mode.
- Microphone signals can modulate the transmitter.
- The "TX" symbol shows that the device is in transmit mode.

NOTICE

- In transmit mode some user actions are blocked e.g. change the frequency selection mode or channel spacing mode, which are normally permitted in receive mode.
- Changes in standard mode e.g. the "Preset" frequency are possible during transmission.
- Transmit mode is automatically terminated (return to receive mode) after 120 s of continuous transmitting.
 - The display shows "STUCK PTT", see "Warning and Failure Indications" page 59.
 - For the start of a new transmission first it is necessary to set the /PTT line inactive.

3.6 Frequency Selection Modes

Available modes:

- Standard mode
- Direct tune mode
- Channel mode
- Scan mode

Standard mode	Direct tune mode	Channel mode	Scan mode
118.005 SQL 127.000	118.005 SQL BAT 13.5V	125.875 SQL CH 01 TWR EDSB	118.005 SQL SCAN 127.000

NOTICE

The availability of the modes depends on the adjustments in the configuration setup*.

*Details see related manual.

The modes "Standard Mode", "Direct Tune Mode" and "Channel Mode" have different layouts for the selection of the operating frequency.

- The modes are selectable with short push of the "MDE" key, one after the other.
 - The display shows one by one: "Standard Mode", "Direct Tune Mode" "Channel Mode", "Standard Mode", and so on.
- During the changes between the modes the active frequency is always the same and active.

The mode SCAN is a sub-mode of standard mode and is for monitoring two frequencies at the same time.

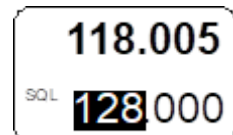
- Push "↕/SCAN" key (2 s) to start/stop the scan function.

3.6.1 Standard Mode

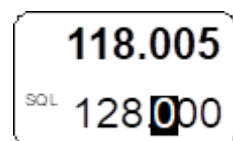


- Push the "MDE" key to change to the standard mode page.
 - The active frequency is shown in the top line and preset frequency in the bottom line.
- The change of the active frequency is not possible in standard mode (only available in direct tune mode).
- The change of the preset frequency is possible.

Change the preset frequency in standard mode:



- Make a "short push" on the rotary encoder to change the MHz digits.
 - The changeable digits are shown inverted.
- Turn the rotary encoder clockwise/counterclockwise to change the frequency in 1 MHz steps.



- Make another "short push" on the rotary encoder to change the 100 kHz digit.
 - The changeable digit is shown inverted.
- Turn the rotary encoder clockwise/counterclockwise to change the frequency in 100 kHz steps.



- Make another "short push" on the rotary encoder to change the 25/8.33 kHz digits.
 - The changeable digits are shown inverted.
- Turn the rotary encoder clockwise/counterclockwise to change the frequency in 25/8.33 kHz steps.

NOTICE

- A short push of the "↓/SCN" key exchanges active frequency to preset frequency and vice versa.
- While the transceiver operates in transmit mode, the exchange function is disabled.
- Push the "STO" key to store the active frequency into the next vacant memory position of the user channel database (see "Frequency Storage Functions", page 54).

3.6.2 Direct Tune Mode



- Push the "MDE" key to change to the direct tune mode page.
 - The active frequency is shown in the top line.
- The battery information is shown.

NOTICE

The battery information is only shown if BATTERY VOLTAGE is selected in the configuration setup*.

*Details see related manual.

Change the active frequency in direct tune mode:



- Make a "short push" on the rotary encoder to change the MHz digits.
 - The changeable digits are shown inverted.
- Turn the rotary encoder clockwise/counterclockwise to change the frequency in 1 MHz steps.



- Make another "short push" on the rotary encoder to change the 100 kHz digit.
 - The changeable digit is shown inverted.
- Turn the rotary encoder clockwise/counterclockwise to change the frequency in 100 kHz steps.



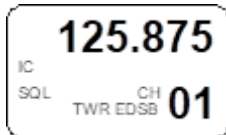
- Make another "short push" on the rotary encoder to change the 25/8.33 kHz digits.
 - The changeable digits are shown inverted.
- Turn the rotary encoder clockwise/counterclockwise to change the frequency in 25/8.33 kHz steps.

NOTICE

- The changes are active immediately.
- While the transceiver transmits, the change of the active frequency is not possible.
- Push the "STO" key to store the active frequency into the next vacant memory position of the user channel database (see "Frequency Storage Functions", page 54).

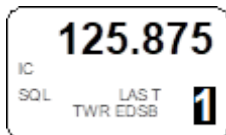
3.6.3 Channel Mode

- Channel mode shows data from the user channels database ("CH"), or last channels database ("LAST").
- The entry shows a customized label (identifier, max. 10 characters), if applied, for the frequency.



The channel database can store frequencies in channels:

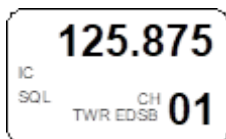
- CH01...CH99 and
- LAST 1...LAST 9.



NOTICE

- The functions "LAST" and Store/Restore are only available if they are enabled in the configuration setup* - ("MEM OPTIONS").
- If the device operates in the 25 kHz mode a selection of stored 8.33 kHz channels is not possible.
- For selection of 8.33 kHz channels, the device must operate in 8.33/25 kHz mixed mode.

*Details see related manual.



- Push the "MDE" key to change to the channel mode page.
- Use the rotary encoder to select the channel number/frequency.
 - The top line shows the related frequency and the bottom line the customized label (identifier) and the channel number/frequency.
 - If the active frequency is not yet stored, then shows the display "CH--".

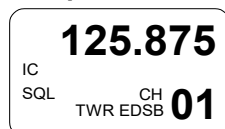
3.6.3.1 Select Channels

NOTICE

The functions "LAST" and Store/Restore are only available if they are enabled in the configuration setup* - ("MEM OPTIONS").

*Details see related manual.

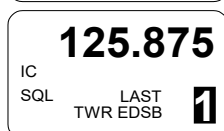
Example: With CH01 user channel shown on the display:



- The first turn clockwise in channel mode starts access to the user channels CH01...CH99.
 - Make a short push on the rotary encoder or:
 - Make one clockwise turn with the rotary encoder.



- The channel number is now highlighted.
- Turn the rotary encoder to select a channel.
- With each step the device tunes immediately to the shown frequency.



- The first turn counterclockwise starts access to channel "LAST 1".
- The channel number is now highlighted.
- One of the nine last used channels is selectable.
- Turn the rotary encoder to select a channel.

NOTICE

- The "LAST" mode is left automatically after a 5 second timeout or stopped by the user with a push on the rotary encoder.
- When leaving the "LAST" channel database and the last shown frequency is not stored in the user channel database, the display shows "CH__".
- Push "STO" to start the storage process.

Cancel channel mode:

- Push the "MDE" key.
 - The channel mode will be closed.
 - The standard mode page is shown.

3.6.4 Frequency Storage Functions

Start store function:



- Push "STO" key.
(in "Standard", Direct Tune" or "SCAN Mode").
 - The symbol "STO" is shown.

3.6.4.1 Store

NOTICE

The functions "LAST" and Store/Restore are only available if they are enabled in the configuration setup* - ("MEM OPTIONS").

*Details see related manual.

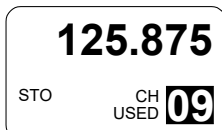
The transceiver has two databases:

- The user channel database - it has 99 channels CH01...CH99 to store frequencies with the possibility to apply a customized label (identifier) with max. 10 alphanumeric characters.
- The last channel database - it automatically stores the last used frequencies. Named and callable as LAST 1...LAST 9, the customized identifier will be shown (if applied).
- You can store frequencies (in the range 118.000...136.9916 MHz) to any channel with a push the "STO" key.
- All 99 channels are changeable.

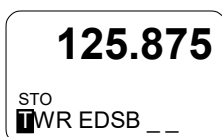
With the start of the storage procedure, the device proposes the next free channel first.



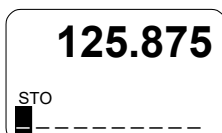
- The label "FREE" shows together with the channel number if the selected channel is vacant.



- A selected channel with a stored frequency has the label "USED".



- If the same frequency is stored a second time, then the existing data (frequency, label/identifier data) is offered to store.



- If the frequency has no label attached, ten underscore digits are shown to give in a label.
- The cursor automatically starts on the first position.

Overview - The user can store data to:

- Next free channel (offered from system).
- A selected free channel.
- A selected used channel (the existing data will be overwritten).

3.6.4.2 Label (Identifier) Data



- Turn the rotary encoder to select the characters.
 - The selection works in both directions (example: blank → A → ... Z → 0 → ... 9 → — → / → blank → A with a turn clockwise or counterclockwise).
 - A short push on the rotary encoder and the cursor is in the next position.
 - A short push on the "STO" key stores the label.
 - A long push on the "STO" key clears the label.
- When the change is stored the transceiver changes to the before selected mode.
- If no action occurs in label editing mode in 7 seconds, the transceiver changes to the before selected mode without storage the frequency and label information.
- Stored frequencies are callable in channel mode (see "Channel Mode" page 52).

3.6.5 Automatic Storage Function

The transceiver stores recently selected frequencies. Named and callable as LAST 1...LAST 9 (see "Channel Mode" page 52).

- With the change to a new active frequency, the before selected active frequency is stored in memory as LAST 1.
- The frequencies stored in LAST 1...LAST 8 are shifted to memory channels LAST 2...LAST 9.

Notice: The functions "LAST" and Store/Restore are only available if they are enabled in the configuration setup* - (page "MEM OPTIONS").

*Details see related manual.

3.6.5.1 Delete data

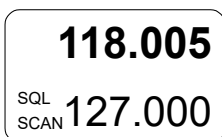
The stored data in the user channel database can only be deleted in the configuration setup*.

Please notice the whole channel database will be reset.

*Details see related manual.

Squelch (SQL)

3.6.6 Scan Mode

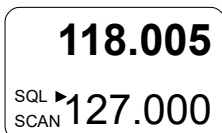


- In scan mode the display shows both frequencies.
 - The active frequency is shown on the top line and the preset frequency on the bottom line.

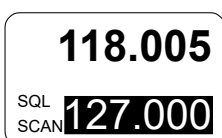
- The SCAN symbol in the display shows that scan function is started.

In all frequency selection modes:

- A long push (>2 s) of "↓/SCN" key starts the scan function and changes to standard mode, if started from channel or direct tune mode.
- A short push on the "MDE" key or a long push (>2 s) on "↓/SCN" key stops the scan function. The device stays in standard mode.



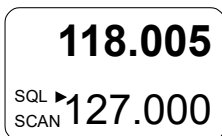
- The arrow symbol "►" in front of the frequency shows that this frequency is audible.



If both the active and preset frequency find a signal at the same time, the active frequency (top) has priority.

- The preset frequency is shown inverted and blinks.
- An audio notification "beep" tone is audible and the preset frequency blinks to show that there is a RX signal on the preset frequency (if enabled in the configuration setup*).

*Details see related manual.

Reception on preset frequency in scan mode

- If the preset frequency finds a signal and no signal is on the active frequency, the transceiver automatically changes to the preset frequency.
- The arrow symbol "►" in front of the frequency shows that this frequency is audible.

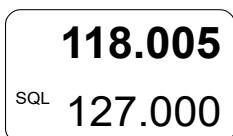
Notice:

For transmission the active frequency is always used, also if the monitored frequency is currently audible.

If TX on the preset frequency is required, push the "↓/SCN" key to change active and preset frequency.

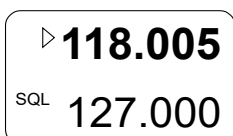
3.7 Squelch (SQL)

- This function operates independently of the selected operation menu.
- A short push on "SQL/IC" key changes the function to "ON" or "OFF".



Squelch "ON"

- If the squelch function is active ("ON") the audio noise is muted.



Squelch "OFF"

- If the squelch is "OFF" the arrow symbol "▷" in front of the active frequency is into view all the time.
- Audio noise is audible as long as the signal is received.

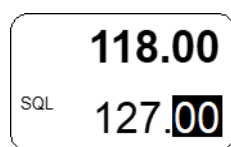
- The squelch threshold is adjustable see "User Menu" page 58.

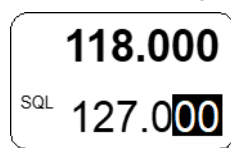
3.8 RX Field Strength Indication

- The field strength is shown with triangle symbol in front of the related frequency (in all frequency selection modes).
- The field strength of a received signal relates to the measured RSSI level ("Received Signal Strength Indication").

Weak Signal Strength	Good Signal Strength	Excellent Signal Strength
RSSI passing squelch levels (empty triangle)	-88 > RSSI > -80 dBm (half-filled triangle)	RSSI > -80 dBm (fully filled triangle)
 118.005 SQL 127.000	 118.005 SQL 127.000	 118.005 SQL 127.000

3.9 Channel Spacing


 25 kHz
channel spacing


 8.33 kHz
channel spacing

- The transceiver can operate in 8.33 and 25 kHz frequency channel spacing.
- Push and hold the MOD and STO key at the same time for > 2 s to change 8.33 to 25 kHz channel spacing and vice versa.
- In 25 kHz mode, 5 frequency digits are shown.
 - Only operating frequencies with a channel spacing of 25 kHz are selectable.
 - This mode has a faster tuning, because it does not show the 8.33 kHz frequency steps.
- In 8.33 /25 kHz mixed mode 6 frequency digits are shown.
 - The transceiver tunes to all possible frequencies in the aviation VHF frequency band.

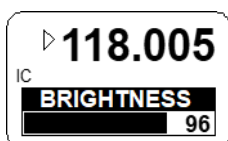
3.10 Menu

Available during normal operation in a frequency selection mode:

- User menu,
used for adjustments of panel brightness and squelch threshold.

3.10.1 User Menu

- A long push (>2 s) on "MDE" key starts the user menu.
- The menu has two pages:
 - BRIGHTNESS
 - SQUELCH TRH
- A short push on "MDE" key or the rotary encoder changes the pages.



BRIGHTNESS:

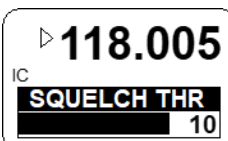
- The display shows the active frequency in the top line.
- The adjustable value is shown as bar graph and as numerical indicator in the bottom line.
- The brightness is adjustable from 0...100 (rotary encoder).
 - 0, illumination is off.
 - 100, maximum brightness.

Notice:

The page "BRIGHTNESS" is not available if the dimming input is set to 14 V or 28 V in the configuration setup*.

In this case the dimming circuit controls the brightness parameters.

*Details see related manual.



SQUELCH TRH:

- The display shows the active frequency in the top line.
- The adjustable value is shown as bar graph and as numerical indicator in the bottom line.
- The squelch threshold is adjustable from 6...26 (rotary encoder).
 - 6, very weak signals are audible with high noise content; squelch opens at about -105 dBm.
 - 26, only quite strong signals are audible with low noise content; squelch opens at about -87 dBm. The receiver sensitivity is very decreased.

Cancel the menu:

- Automatically after 5 seconds timeout.
- Another long push (>2 s) on "MDE" key.
- A short push on the rotary encoder when the "SQUELCH TRH" page is started.

3.11 Read Out and Reset Error Flags

NOTICE

The fail list (fail history) is only available in the password-protected configuration setup*.

*Details see related manual of the built-in transceiver:

VHF Transceiver 6200 Series:

AR, RT, RCU62 I&O manual, en DV14307.03 Article no. 0617.857-071

VHF Ground Transceiver:

GT6201 I&O manual, en DV17001.03 Article no. 0640.093-071

3.12 Warning and Failure Indications

If you cannot correct the problem stop the use of the device(s) and contact authorized maintenance shop for assistance, please.

Display	Description
IC 118.005 LOW BATTERY at intervals of 3 s	"LOW BATTERY": - The supply voltage of the transceiver is less than the threshold adjusted in the configuration setup. - The device is operable but it can have a decreased performance depending on supply voltage. Possible reasons for indication: - Accumulator capacity problems (gliders) - Power interrupts - General power supply problems - Setting for low battery threshold too high
IC 118.005 STUCK PTT at intervals of 3 s	"STUCK PTT": - The transmit mode is automatically terminated (return to receive mode) after 120 s of continuous transmitting. - The transceiver goes back to receive mode also if the PTT line is still active (GND). Possible reasons for indication: - Transmission continues more than 120 seconds. Frequent overriding can decrease the MTBF. - PTT-key is stuck. - PTT line permanently grounded (short circuit in installation). Notice: For the start of a new transmission it is necessary to set the /PTT line inactive (open).
IC 118.005 TX HOT at intervals of 3 s	"TX HOT": "TX HOT" is shown if the internal device temperature is $> +90\text{ }^{\circ}\text{C}$. - Transceiver is still operable. The performance of transmitter is decreased. Possible reasons for indication: - Very high environmental temperature, long transmissions times and airflow conditions are not sufficient.

Display	Description
IC 118.005 FAILURE at intervals of 3 s	- The transceiver has found an internal failure during normal operation. - Depending on failure cause, the device is operable with decreased performance, or not operable at all. Possible reasons for indication: - Specified environmental conditions - HW or SW failure inside the transceiver.
FAILURE PRESS ANY KEY	- The transceiver has found an internal failure during start up. - Depending on failure cause, the device is operable with decreased performance or not operable at all. Possible reasons for indication: - Outside specified environmental conditions - HW or SW failure inside the transceiver.
FAILURE	- The transceiver has no communication with the controller. - Depending on failure cause, the device is operable with decreased performance or not operable at all. Possible reasons for indication: - Problem with wiring.

3.13 Contact Data

In case of additional questions contact your local Becker Avionics dealer or forward your request directly to Becker Avionics "Customer Service".

In the event of damage or a defect, the entire device must be returned for repair. Trained Becker Avionics personnel must do the repair.

For relevant department and addresses, please see contact info page 2.

Any change by the user excludes any liability on our part (excluding the work described in this manual).

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4 Certifications

In this chapter you can read about:

4.1	Certificate Info	63
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4.1 Certificate Info

For detailed information about approvals and certification please see "Certifications", page 28.

4.2 BAF Approval - GT6201



Urkunde

Ein(e)	VHF-Sprechfunkgerät für Bodenfunkstellen des Flugfunkdienstes
Typ	GT6201 in den im Anhang zur Zulassungsurkunde aufgeführten Modellvarianten und zugehörigen Hard- / Softwarekonfigurationsständen
Frequenzbereich	118 – 136,975 MHz
Kanalraster	8,33 kHz / 25 kHz
der Firma	Becker Avionics GmbH Baden Airpark B108 77836 Rheinmünster
bestehend aus	Sende-/Empfangseinheit (6 W oder 10 W) in Single Block oder Remote Version ohne Control Head
für die Betriebsart	6K80A3EJN (25 kHz) / 5K00A3EJN (8,33 kHz)

ist auf Einhaltung der Anforderungen an Anlagen und Geräte für Zwecke der Flugsicherung gemäß § 4 Flugsicherungs-Anlagen- und Geräte-Musterzulassungs-Verordnung (FSMusterzulV) geprüft worden.

Die Anlage oder das Gerät entspricht damit den Festlegungen des Bundesministeriums für Verkehr und digitale Infrastruktur hinsichtlich Art, Umfang und Beschaffenheit von flugsicherungstechnischen Einrichtungen gemäß § 32 Abs. 4 des Luftverkehrsgesetzes sowie der Richtlinien und Empfehlungen der Internationalen Zivilluftfahrt-Organisation (ICAO).

Es wird daher als Muster mit den umseitig aufgeführten Auflagen in der Bundesrepublik Deutschland zugelassen.

Der Gerätetyp hat die Zulassungsnummer **D-0030/2014** erhalten.

Bundesaufsichtsamt für Flugsicherung
Langen, den 04.06.2014

Im Auftrag

Bodo Heinzl



Bundesaufsichtsamt
für Flugsicherung

Anhang zur Zulassungsurkunde

D-0030/2014

Konfigurationsstand

Ausgabestand 11.05.2017

VHF-Sprechfunkgerät GT6201

Modellvariante	Artikelnummer	Softwareversion
GT6201-05 (6 W, Single Block Version)	0637.351-923	SCI1050S305 (Control Head) SCI1051S305 (Chassis Module)
GT6201-05-R (6 W, ohne Control Head)	0641.073-923	SCI1051S305 (Chassis Module)
GT6201-10 (10 W, Single Block Version)	0637.361-923	SCI1050S305 (Control Head) SCI1051S305 (Chassis Module)
GT6201-10-R (10 W, ohne Control Head)	0641.081-923	SCI1051S305 (Chassis Module)

Für die Nutzung als tragbare VHF-Sprechfunkanlage können die VHF-Sprechfunkgeräte **GT6201-05** und **GT6201-10** in den in **Tabelle 1** aufgeführten Geräteträgern eingesetzt werden.

Modellvariante	Artikelnummer	Bemerkung
GK615-E	0638.481-923	Für die Nutzung mit GT6201-05. Ausgestattet mit: Microphone 1PM415-1 (0603.120-350), Antenne 1A415 (0884.294-952)
GK615-1E	0638.498-923	Für die Nutzung mit GT6201-05. Ausgestattet mit: Lautsprecher/Microphone 1PH012 (0498.475-951) Antenne 1A415 (0884.294-952)
GK616-E	0638.501-923	Für die Nutzung mit GT6201-10. Ausgestattet mit: Microphone 1PM415-1 (0603.120-350), Antenne 1A415 (0884.294-952)
GK616-1E	0638.511-923	Für die Nutzung mit GT6201-10. Ausgestattet mit: Lautsprecher/Microphone 1PH012 (0498.475-951) Antenne 1A415 (0884.294-952)

Bundesaufsichtsamt für Flugsicherung
Langen, den 11.05.2017

Im Auftrag

Bodo Heinzl

4.3 EC Declaration of Conformity – GT6201-05

EC Declaration of Conformity /
EC Declaration of Suitability for Use



EC Declaration of Conformity / EC Declaration of Suitability for Use for Constituents	
Name and address of manufacturer : Becker Avionics GmbH Baden Airpark, Building B108 77836 Rheinmünster Germany	Constituent / application area GT6201-05 VHF-Transceiver, communication system for ground-to-air communication
System classification:	Communication system for ground-to-air communication
Part 1: General information about the constituent in accordance with Regulation (EC) 552/2004, Annex III	
1.1 Regulation Reference Number	
Basic requirements in accordance with - Regulation (EC) No. 552/2004 Part A and Part B, subchapter 1 and 4. - Implementing Regulation (EC) No. 1079/2012 - Directive 2014/53/EU	
1.2 Manufacturer information	
Becker Avionics GmbH, Baden Airpark, Building B108, 77836 Rheinmünster, Germany.	
1.3 Description of the constituents	
The Transceiver Becker GT6201-05 is a mobile VHF-Transceiver station for air traffic management.	
Frequency Range : 118.000 – 136.9916 MHz Transm. Power Output : $\geq 6\text{ W}$ Supply Voltage : 11 VDC – 30.3 VDC Temperature Range: -20 °C - +55 °C	Channel spacing : 8.33 kHz/25 kHz Frequency stability : $\leq 1\text{ ppm}$ Weight : 645 g Dimensions W x D x H : 61.2 x 168.4 x 61.2 mm ³ (Front plate till end of antenna connector)
More detailed technical data about the transceiver itself and his physical interfaces as well as the limits of operation are given by the Installation and Operation Manual.	
1.4 Description of the procedure followed in order to declare the system's conformity or suitability for use	
Conformity is stated and has been verified in accordance with decision 768/2008/EC Annex II, Module A1.	
1.5 Relevant regulations	
ETSI EN300 676-1 V1.5.2 : Ground-based VHF hand-held, mobile and fixed radio transmitters, receivers and transceivers for the VHF aeronautical mobile service using amplitude modulation Part 1: Technical characteristics and methods of measurement ETSI EN300 676-2 V1.5.1 : Ground-based VHF hand-held, mobile and fixed radio transmitters, receivers and transceivers for the VHF aeronautical mobile service using amplitude modulation EN 62311:2008 : Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz – 300 GHz) DIN EN 60950-1 :2006 +A11:2009 + A12:2011 + A1:2010 : Information Technology Equipment – Safety EN 301 489-1 V1.9.2 : Electromagnetic compatibility and radio spectrum matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1 : Common technical requirements	

EC Declaration of Conformity /**EC Declaration of Suitability for Use**

- **EN 301 489-22 V1.3.1** : Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 22 : Specific conditions for ground based VHF aeronautical mobile and fixed radio equipment
- **SSB FL 024** : Schnittstellenbeschreibung für Bodenfunkstellen des mobilen Flugfunkdienstes
- **ICAO Annex 10** to the Convention on International Civil Aviation, Volume III and Volume IV

1.6 Notified body

CETECOM ICT Services GmbH, Untertürkheimer Strasse 6 – 10, 66117 Saarbrücken, Deutschland

1.7 References to the community specifications

The device complies with the regulations and directives :

- **Regulation (EC) No. 552/2004 Part A and Part B, subchapter 1 and 4.**
Regulation on the interoperability of the European Air Traffic Management network.
- **Implementing Regulation (EC) No. 1079/2012**
Laying down requirements for voice channels spacing for the single European sky.
- **Directive 2014/53/EU**
Radio Equipment Directive
- **Regulation (EC) No. 550/2004**
Regulation on the provision of air navigation services in the single European sky.

1.8 Information about the authorized signatures

1.) Dipl.-Ing. Jürgen Schiller, QA-Manager

Address :

Becker Avionics GmbH

Baden Airpark, Building B108

77836 Rheinmünster, Germany

Tel.: 07229/305-202

e-mail : juergen.schiller@becker-avionics.de

2.) Dr. Ingo Pletschen, Product Manager

Address :

Becker Avionics GmbH

Baden Airpark, Building B108

77836 Rheinmünster, Germany

Tel.: 07229/305-104

e-mail : ingo.pletschen@becker-avionics.de

Part 2: Declaration:

Becker Avionics GmbH, 77836 Rheinmünster declares herewith that above mentioned constituents

- have been assessed in terms of compliance with the above mentioned standards and the compliance has been ascertained;
- have been considered in terms of its suitability within the environment of air traffic management and have been classified as suitable.

Place of issue, Date

Rheinmünster
September 18th, 2017

1st Signature

On behalf :

Dipl.- Ing. Jürgen Schiller

2nd Signature :

On behalf

(in representation Peter Fritz)

Dr. Ing. Ingo Pletschen

4.4 EC Declaration of Conformity – GT6201-10

EC Declaration of Conformity /
EC Declaration of Suitability for Use



EC Declaration of Conformity / EC Declaration of Suitability for Use for Constituents	
Name and address of manufacturer :	Constituent / application area
Becker Avionics GmbH Baden Airpark, Building B108 77836 Rheinmünster Germany	GT6201-10 VHF-Transceiver, communication system for ground-to-air communication
System classification:	Communication system for ground-to-air communication
Part 1: General information about the constituent in accordance with Regulation (EC) 552/2004, Annex III	
1.1 Regulation Reference Number	
Basic requirements in accordance with - Regulation (EC) No. 552/2004 Part A and Part B, subchapter 1 and 4. - Implementing Regulation (EC) No. 1079/2012 - Directive 2014/53/EU	
1.2 Manufacturer information	
Becker Avionics GmbH, Baden Airpark, Building B108, 77836 Rheinmünster, Germany.	
1.3 Description of the constituents	
The Transceiver Becker GT6201-10 is a mobile VHF-Transceiver station for air traffic management.	
Frequency Range : 118.000 – 136.9916 MHz	Channel spacing : 8.33 kHz/25 kHz
Transm. Power Output : $\geq 10\text{ W}$ @ $\geq 24\text{ VDC}$	Frequency stability : $\leq 1\text{ ppm}$
Supply Voltage. : 11 VDC – 30.3 VDC	Weight : 645 g
Temperature Range: -20 °C – +55 °C	Dimensions W x D x H : 61.2 x 168.4 x 61.2 mm ³ (Front plate till end of antenna connector)
More detailed technical data about the transceiver itself and his physical interfaces as well as the limits of operation are given by the Installation and Operation Manual.	
1.4 Description of the procedure followed in order to declare the system's conformity or suitability for use	
Conformity is stated and has been verified in accordance with decision 768/2008/EC Annex II, Module A1.	
1.5 Relevant regulations	
ETSI EN300 676-1 V1.5.2 : Ground-based VHF hand-held, mobile and fixed radio transmitters, receivers and transceivers for the VHF aeronautical mobile service using amplitude modulation Part 1: Technical characteristics and methods of measurement ETSI EN300 676-2 V1.5.1 : Ground-based VHF hand-held, mobile and fixed radio transmitters, receivers and transceivers for the VHF aeronautical mobile service using amplitude modulation. EN 62311:2008 : Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz – 300 GHz) DIN EN 60950-1:2006 + A11:2009 + A12:2011 + A1:2010 : Information Technology Equipment – Safety EN 301 489-1 V1.9.2 : Electromagnetic compatibility and radio spectrum matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1 : Common technical requirements	

EC Declaration of Conformity /**EC Declaration of Suitability for Use**

- **EN 301 489-22 V1.3.1** : Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 22 : Specific conditions for ground based VHF aeronautical mobile and fixed radio equipment
- **SSB FL 024** : Schnittstellenbeschreibung für Bodenfunkstellen des mobilen Flugfunkdienstes
- **ICAO Annex 10** to the Convention on International Civil Aviation, Volume III and Volume IV

1.6 Notified body

CETECOM ICT Services GmbH, Untertürkheimer Strasse 6 – 10, 66117 Saarbrücken, Deutschland

1.7 References to the community specifications

The device complies with the regulations and directives:

- **Regulation (EC) No. 552/2004 Part A and Part B, subchapter 1 and 4.**
Regulation on the interoperability of the European Air Traffic Management network.
- **Implementing Regulation (EC) No. 1079/2012**
Laying down requirements for voice channels spacing for the single European sky.
- **Directive 2014/53/EU**
Radio Equipment Directive (RED)
- **Regulation (EC) No. 550/2004**
Regulation on the provision of air navigation services in the single European sky

1.8 Information about the authorized signatures

1.) *Dipl.- Ing. Jürgen Schiller, QA-Manager*

Address :

Becker Avionics GmbH

Baden Airpark, Building B108

77836 Rheinmünster, Germany

Tel.: 07229/305-202

e-mail : juergen.schiller@becker-avionics.de

2.) *Dr. Ingo Pletschen, Product Manager*

Address :

Becker Avionics GmbH

Baden Airpark, Building B108

77836 Rheinmünster, Germany

Tel.: 07229/305-104

e-mail : ingo.pletschen@becker-avionics.de

Part 2: Declaration:

Becker Avionics GmbH, 77836 Rheinmünster declares herewith that above mentioned constituents

- *have been assessed in terms of compliance with the above mentioned standards and the compliance has been ascertained;*
- *have been considered in terms of its suitability within the environment of air traffic management and have been classified as suitable.*

Place of issue, Date

*Rheinmünster
September 18th, 2017*

1st Signature

On behalf :


Dipl.- Ing. Jürgen Schiller

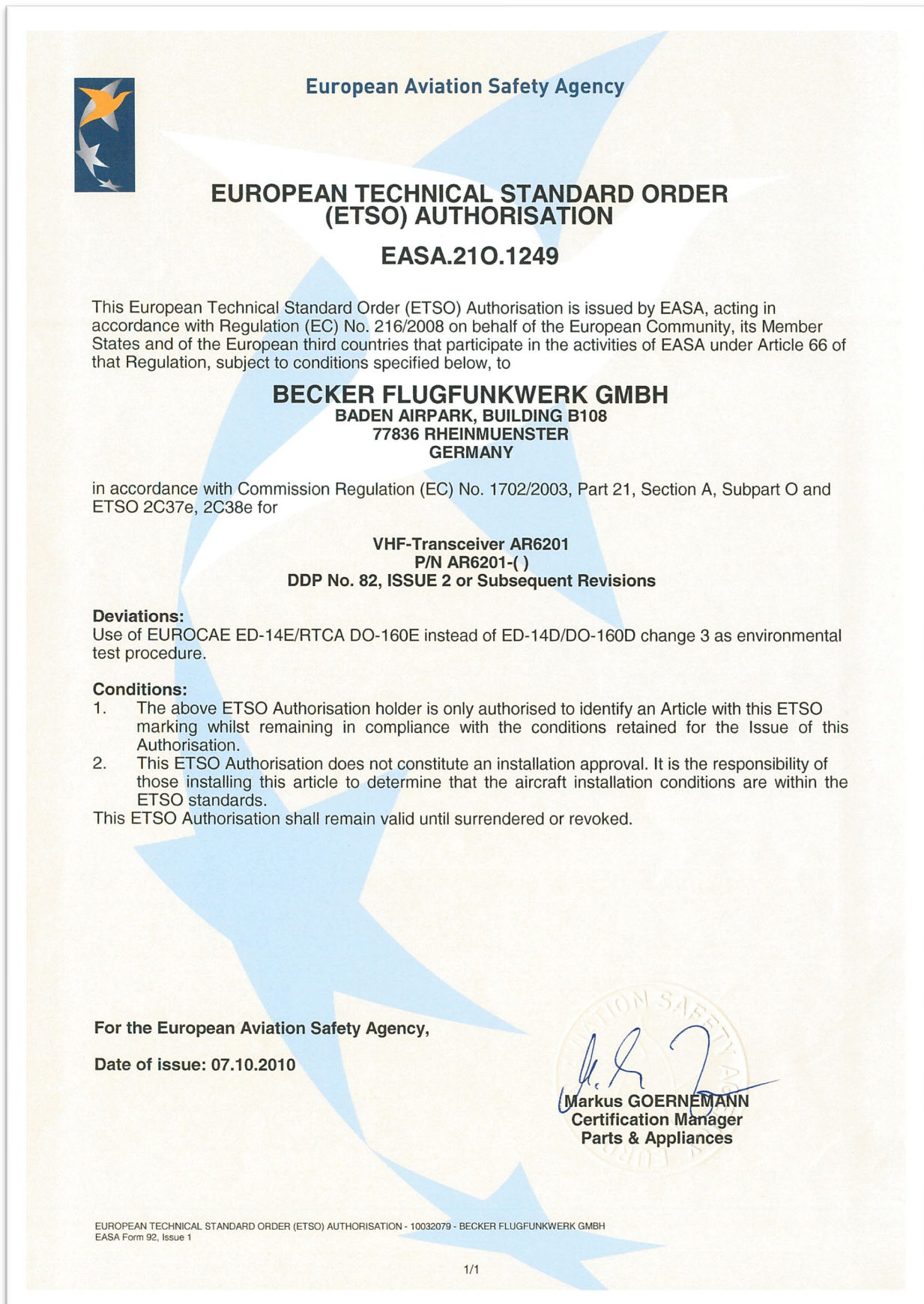
2nd Signature :

On behalf

(in representation Peter Frijz)


Dr. Ing. Ingo Pletschen

4.5 European Technical Standard Order (ETSO) Authorization



The image shows a European Technical Standard Order (ETSO) Authorization certificate issued by the European Aviation Safety Agency (EASA). The certificate is for Becker Flugfunkwerk GmbH, covering a VHF-Transceiver AR6201. It includes details about the issuing authority, the product, and the conditions of use. The certificate is dated 07.10.2010 and is signed by Markus Goernemann, Certification Manager for Parts & Appliances. The background features a large blue star, a symbol of the European Union.

 **European Aviation Safety Agency**

**EUROPEAN TECHNICAL STANDARD ORDER
(ETSO) AUTHORISATION**

EASA.210.1249

This European Technical Standard Order (ETSO) Authorisation is issued by EASA, acting in accordance with Regulation (EC) No. 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation, subject to conditions specified below, to

BECKER FLUGFUNKWERK GMBH
BADEN AIRPARK, BUILDING B108
77836 RHEINMUENSTER
GERMANY

in accordance with Commission Regulation (EC) No. 1702/2003, Part 21, Section A, Subpart O and ETSO 2C37e, 2C38e for

VHF-Transceiver AR6201
P/N AR6201-()
DDP No. 82, ISSUE 2 or Subsequent Revisions

Deviations:
Use of EUROCAE ED-14E/RTCA DO-160E instead of ED-14D/DO-160D change 3 as environmental test procedure.

Conditions:

1. The above ETSO Authorisation holder is only authorised to identify an Article with this ETSO marking whilst remaining in compliance with the conditions retained for the Issue of this Authorisation.
2. This ETSO Authorisation does not constitute an installation approval. It is the responsibility of those installing this article to determine that the aircraft installation conditions are within the ETSO standards.

This ETSO Authorisation shall remain valid until surrendered or revoked.

For the European Aviation Safety Agency,

Date of issue: 07.10.2010


Markus GOERNEMANN
Certification Manager
Parts & Appliances

EUROPEAN TECHNICAL STANDARD ORDER (ETSO) AUTHORISATION - 10032079 - BECKER FLUGFUNKWERK GMBH
EASA Form 92, Issue 1

1/1

4.6 Approval - Telecommunication Office Italy





Ministero dello Sviluppo Economico
DIREZIONE GENERALE PER LA PIANIFICAZIONE E LA GESTIONE DELLO SPETTRO RADIOELETTICO
ex Divisione II

Ministero Sviluppo Economico
Dipartimento per le Comunicazioni

REGISTRO UFFICIALE
Prot. n. **0041697 - 02/07/2014 - USCITA**


mise 000641354906

Becker Avionics GmbH
Baden-Airpark B, 108
77836 Rheinmunster GERMANIA
e-mail: info@becker-avionics.de

per conoscenza
D.G.P.G.S.R.-Ufficio IV Sede
D.G.A.T
email: dgat.segreteria@mise.gov.it

Fasc. 349022

Ispettorati Territoriali Repubblica Loro Sede

OGGETTO: Notifica di immissione sul mercato ai sensi dell'art.6.4 del decreto legislativo 9 maggio 2001 n. 269, degli apparati marca Becker Avionics modelli GT6201-05, GT6201-05R, GT6201-10 e GT6201-10R destinati al servizio aeronautico di terra.

Si prende atto della notifica pervenute a questa Direzione Generale, in data 23/6/14 e al riguardo si comunica che gli apparati in oggetto, se conformi a tutti i requisiti ed obblighi derivanti dall'applicazione del d.lgs 9.5.01 n.269 possono essere immessi sul mercato e possono essere utilizzati sul territorio nazionale **limitatamente** nella banda di frequenze prevista dal Piano nazionale di Ripartizione delle Frequenze di cui al decreto 13 novembre 2008 come ricetrasmittitori VHF destinati al servizio aeronautico di terra.

Le caratteristiche tecniche dichiarate sono le seguenti:

- Banda di frequenza: 118,0000-136,9916 MHz;
- Spaziatura tra canali: 8,33kHz e 25kHz;
- Modulazione: AM;
- Potenza di uscita: 6W/10W;
- Standard armonizzato di cui all'art.3.2 del d.lgs 9 maggio 2001, n.269: EN 300676-2 V1.5.1;

Ai sensi dell'art. 6.3 del d.lgs citato in oggetto, il costruttore o la persona responsabile dell'immissione sul mercato degli apparati deve fornire all'utente le seguenti informazioni:

- 1) come stabilito dal decreto legislativo 1° agosto 2003 n. 259 (Codice delle comunicazioni elettroniche), ai sensi degli artt. 104 parag. a), numero 1) e 126 comma 1, l'esercizio degli apparati in questione è subordinato rispettivamente al possesso dell' "autorizzazione generale" e del relativo "diritto individuale di uso";
- 2) gli apparati sono destinati al servizio aeronautico di terra.

Il Direttore Generale
(dot.ssa Eva Spina)

1

Viale America, 201 - 00144 Roma
tel. +39 06 5444 2230
benedet.c.attili@mise.gov.it

4.7 Approval SSRC for China – GK615

无线电发射设备
Radio Transmission Equipment
型号核准证
Type Approval Certificate

德国 Becker Flugfunkwerk GmbH:
根据《中华人民共和国无线电管理
In accordance with the provisions on the Radio
条例》，经审查，下列无线电发射设备
Regulations of the People's Republic of China , the following
符合中华人民共和国无线电管理规定和
radio transmission equipment , after examination , conforms
技术标准，其核准代码为: CMIIT ID: 2012HJ7993
to the provisions with its CMIIT ID:

有效期:
Validity 2020-12-14


(发证机关)
Sealed by Issuing authority
2017年11月21日
Year Month Date

编号: 2017-7022

Number

设备名称: 调幅电台
Equipment Name设备型号: GK615
Equipment Type主要功能: 话音导航通信
Main Functions调制方式: AM
Modulation Mode主要技术参数及其指标值:
Main Technical Parameters频率范围: 118-136.975 MHz
Frequency Range频率容限: $\leq 5\text{ppm}$
Frequency Tolerance占用带宽: $\leq 6.8\text{kHz}$
Occupied Bandwidth发射功率: $6\text{W} \pm 1.5\text{dB}$
Transmitting Power杂散发射限值: $\leq -30\text{dBm}$
Spurious Emission Limits

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We reserve the right to make technical changes.
The data correspond to the current status at the time of printing.
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***** End of the Document *****