KRT2-RC
Remote control for
VHF Communication Transceiver

P/N 110-(0001)-(060)

Instruction and installation
### Change history

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Description of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>June, 6th 2010</td>
<td>First issue</td>
</tr>
</tbody>
</table>

### List of Service-Bulletins (SB)

Service Bulletins are to be inserted into this manual and to be enlisted in the following table.

<table>
<thead>
<tr>
<th>SB Number</th>
<th>Rev. Nr.</th>
<th>Issue-date</th>
<th>Insertiondate</th>
<th>Name</th>
</tr>
</thead>
</table>

### Survey of Variantes

<table>
<thead>
<tr>
<th>Article number</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Basis variant</td>
</tr>
<tr>
<td></td>
<td>New issue:</td>
</tr>
<tr>
<td></td>
<td>•</td>
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1. GENERAL

This manual contains information about the physical, mechanical and electrical characteristics and about installation and operation of the remote control for VHF communication transceiver KRT2. This manual is based on the current manual for the KRT2 P/N: 100-(0001)-(060).

1.1. Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>⚠️ ⚠️</td>
<td>Advices whose non-observance can cause radiation damage to the human body or ignition of combustible materials</td>
</tr>
<tr>
<td>⚠️</td>
<td>Advices whose non-observance can cause damage to the device or other parts of the equipment.</td>
</tr>
<tr>
<td>📜</td>
<td>Supplementary information</td>
</tr>
</tbody>
</table>
1.2. Abbreviations

<table>
<thead>
<tr>
<th>Abk.</th>
<th>name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>KRT-2RC</td>
<td>Remote Control</td>
<td>Remote control for KRT2</td>
</tr>
<tr>
<td>KRT-2</td>
<td>transceiver</td>
<td></td>
</tr>
<tr>
<td>PTT</td>
<td>Push to Talk</td>
<td>Transmission button (activates transmitter)</td>
</tr>
<tr>
<td>VOX</td>
<td>Voice recognition</td>
<td>Intercom is activated by talking into the microphone</td>
</tr>
<tr>
<td>INT</td>
<td>Intercom-level</td>
<td>Level of the on board</td>
</tr>
<tr>
<td>SQ</td>
<td>Squelch</td>
<td>Noise reduction</td>
</tr>
<tr>
<td>DIM</td>
<td>Dimmung</td>
<td>Background lighting</td>
</tr>
<tr>
<td>CON</td>
<td>Contrast</td>
<td>Display contrast</td>
</tr>
<tr>
<td>EXT</td>
<td>Audio-entrance</td>
<td>Volume setting of external audio source</td>
</tr>
</tbody>
</table>
1.3. Customer service

In order to facilitate a rapid handling of return shipments, please follow the instructions of the input guide for reclamations and return shipments provided at the Service-Area within the AIRplus Web-Portal www.airplus24.com.

Any suggestions for improvement of our manuals are welcome. Contact: www.airplus24.com

Informations on software updates are available at AIRplus Avionics.

1.4. Features

- Remote control for VHF-Communication Tranceiver KRT2
  All characteristics of the KRT2 are based on the manual of the KRT2 P/N: 100-(0001)-(060)
- Installation: avionic standard cut out (57 mm).
- Regardless of the memory of the KRT2 additionally in KRT2-RC 100 free defined frequencies, (where a name of up to 8 characters can be assigned) are available

To avoid unintentional transmissions the transceiver switches off automatically after 2 minutes.
2. Operation in general

2.1. Controls - overview
<table>
<thead>
<tr>
<th>Control</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>EIN/AUS</td>
<td>switch</td>
</tr>
</tbody>
</table>
| DUAL WATCH | 1. Activates Mode for mutual monitoring of two frequencies.  
2. Left cursor for name programming |
| AUDIO selection | 1. Navigation through the various basic settings for VOL, SQ, VOX, DIM etc. press shortly  
2. right cursor for name programming |
| Favorites | Selection of favorite frequencies, Programming of favorite frequencies |
| CHANGE | Change active and Standby-Frequency |
| FREQUENCY | Selection for setting of frequency and change of areas MHz, 100kHz, 10kHz |
| Turn knob | Turn knob for setting of all variable values:  
1. volume control (Headphone, speaker)  
2. change MHz / kHz in 3 areas of the Standby-Frequency  
3. enter letters into the mode Memory  
4. change of basic settings of the microphone |
<table>
<thead>
<tr>
<th>Display</th>
<th>Meaning</th>
<th>remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>DUAL</td>
<td>DUAL Watch is active</td>
<td>Can be deactivated with DUAL or change of frequency</td>
</tr>
<tr>
<td>[03] (MEMORY)</td>
<td>Favorite list index(0-99)</td>
<td>[ ] selected memory in Favorite- frequency list (0-99)</td>
</tr>
<tr>
<td>125.100 oben</td>
<td>Active - Frequency</td>
<td></td>
</tr>
<tr>
<td>134.825 unten</td>
<td>Standby - Frequency</td>
<td></td>
</tr>
<tr>
<td>&lt;</td>
<td>The pointer indicates what the turning knob will change VOL SQ VOX…..etc Standby frequency</td>
<td>Arrow is positioned in correspondence to the button pressed ( AUD or FREQ)</td>
</tr>
<tr>
<td>BAT</td>
<td>Battery low &lt;10,5V</td>
<td>Battery low or battery/Generator defect</td>
</tr>
<tr>
<td>Er_PLL</td>
<td>Internal error, no transmission</td>
<td>Return the transceiver for maintenance</td>
</tr>
<tr>
<td>Er_ADC</td>
<td>Internal error</td>
<td>Return the transceiver for maintenance</td>
</tr>
<tr>
<td>Er_FPA</td>
<td>Internal error, unit not usable</td>
<td>Return the transceiver for maintenance</td>
</tr>
<tr>
<td>a v e</td>
<td>Status of certain audio menu functions</td>
<td>a = aux. Input active v = VOX active e = external Intercom switch active</td>
</tr>
</tbody>
</table>
3. Operation

3.1. General
The KRT2-RC and the KRT2-transceiver will be synchronized by a serial RS232-interface after any change at either side of the two devices. Approx. every 30 seconds the connection is checked and will be confirmed by showing „r“ in the upper right corner of the display. With exception of the microphone steering menu and the transmission monitor all functions of the transceiver are accessible.

3.2. Switching ON/OFF

ON / OFF switching is by the self-locking push switch. After power up the following display will be displayed:

Device name
KRT2-Remote
Software
Version z.B. V2.0

(example)

The order of switching on (RC oder KRT-2) does not matter. Provided there is a cable connection next to the active frequency the "r" must appear after at least 1 minute on both devices on the top right
After the first connection confirmation on the part of KRT2 all settings are transferred from the KRT2 to KRT2-RC.

4. Monitoring of errors

In case of possible transmission errors corresponding messages are displayed in the error window (third row right)

- **R_Time** = Time-out-transmission error
- **R_ChkS** = faulty transmission (checksum error)
- **R_Cmd** = unknown command
- **R_Char** = data error
- **R_Freq** = wrong frequency

The error message will disappear once a correct command or a new frequency is entered or after 5 seconds.

The operation of the KRT2 is not disturbed by the malfunction of the remote control

The connection between the remote control and the KRT2 is checked once per minute and of the contact is confirmed with a "r" in the upper right corner of the display.
5. Installation

5.1. Notice

The following hints should be considered for installation.
A certified maintenance shop should perform the wiring
For the wiring diagram refer to chapter 5.6.3

5.2. Content of delivery

<table>
<thead>
<tr>
<th>Article number</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>KRT2-RC</td>
<td>KRT2 – Remote for communication tranceiver</td>
</tr>
<tr>
<td>ZUB2 (3 Stück)</td>
<td>Mounting screw KRT2 - for Panels up to 3mm</td>
</tr>
<tr>
<td>SSKRT2</td>
<td>connector (only when no cable set was ordered)</td>
</tr>
<tr>
<td>P/N 120-(0001)-(060)</td>
<td>manual „use and installation“</td>
</tr>
<tr>
<td></td>
<td>EASA Form 1</td>
</tr>
</tbody>
</table>
5.3. Unpacking and controlling of device

Carefully unpack the equipment. Damages due to transportation must immediately be reported to the shipping company. Save the shipping container and all packing material to substantiate your claim.

For storage or reshipment the original packing material should be used.

5.4. Installation

- In cooperation with the maintenance shop, mounting details are specified. The maintenance shop can manufacture and install all cables that may be required.

- Avoid installing the unit in the vicinity of heat sources. Sufficient air-circulation is required.

- There must be sufficient space for cables and connectors.

- Avoid sharp bends and wiring close to control cables.

- Cable length must be such that connectors are accessible for repair.

- The wiring to the transceiver must be installed such that water droplets formed by condensation will not run into the connector.

- Remove the turning knob in order to install the transceiver:
  - Remove the turning knob cap with an appropriate tool.
  - Loosen the screw and remove the turning knob.
  - Install cap correctly oriented!

- Installation is from the front side of the instrument panel with three 4mm screws in a 57mm panel cut-out.

- For installation details and drawings refer to chapter 5.1
5.5. Connection of device

The 9-pin D-Sub connector contains all electrical connections (9…33V) as well as the 3-wire RS232-connection to the KRT2-transceiver.

⚠️ The battery plus connection must be protected with at least 1-amp slow blow fuse!

5.6. Cabling

5.6.1. Wire Gauges

Supply lines (Power, GND): AWG18 (0,96 mm²)
Control lines: AWG22 (0,38 mm²)

All wires must be aviation certified.

5.6.2. Occupancy of plug pin

![Diagram of 9-pin D-Sub connector with pin labels: Batt. Plus, LSP+, Microfon 1, Ext.-NF, LSP-, Microfon 2, TX-PC, Batt. Minus (GND), 8, 7, 6, 5, 4, 3, 2, 1, Headset, RX-PC, Intercom, PTT-R, PTT-L.]

![Diagram of 9-pin D-Sub connector with pin labels: Batt. Plus, TX-PC, Batt. Minus (GND), 5, 4, 3, 2, 1, RX-PC, Remote control.]
5.6.3. wiring diagram

Binder-snap-in
09-9748-00-03 & 09-9747-00-03
(1/3=GND, 2=signal)

Microfon

Microfon

Brown
PTT-Left

Yellow
Speaker
(if required)

Black
PTT-Right

Green

Blue

Red

Batt. Plus

Batt. Minus

Intercom

Microfon R

Ext.-NF

RX-Remote

TX-Remote

PTT-R

PTT-L

Headset

Remote control

Batt. Plus

PTT-R

Intercom

RX-Remote

Headset

Batt. Plus

KRT-2 Glider-Dual
V2
5.7. check after installation

A certified maintenance shop must verify the proper operation of the VHF transceiver.

A complete check of all airplane systems is required to certify that the new wiring is not causing any malfunction.
A test flight is recommended to verify proper transceiver operation.

5.8. Accessories

Suitable accessories such as wire harnesses, cable sets, and switches can be purchased at our online shop on www.AIRplus-avionics.com or from other avionics suppliers.
5.9. Drawings

5.9.1. Dimensions of the device
5.9.2. Hints for the installation

**Panel cutting**

- Diameter: 57.5 mm
- Four holes: 4 x Ø 4.5 mm
- Distance between the holes: 47.0 mm
6. Appendix

6.1. Technical Data

<table>
<thead>
<tr>
<th>GENERAL</th>
</tr>
</thead>
</table>
| Admission | ETSO-2C169a, ED-23B Class 4  
ED-23B Class C  
TSO-C169a, Class 6  
TSO-C169a, Class H1 & H2 |
| Used standards | EUROCAE ED-23B  
RTCA DO-160E  
RTCA DO-178B Software Level D |
| dimensions | Height: 66mm  
Width: 62mm  
Depth: 46mm plus rear panel plugs 60mm |
| weight | 0.14 kg |
| installation | panel mounting, cut-out Ø 57 mm |
| Temperature range | Operation -20 °C to +55 °C  
Storage -55 °C to +85 °C |
| MAX. working height | 35000 ft |
| Vibration | DO-160E, Cat. S, Vibration Curve M |
| Humidity | RTCA DO-160E, Cat. A |
| Shock | 6 G operation  
20 G crash safety |
| RTCA DO-160F ENV. CAT. | [C1Z]CAA[SM]XXXXXZBAAA[YY][M][B3F3]XXA |
| Power supply | 9 VDC to 33VDC  
test @ 12VDC |
| input |  • No backlight: 0.012 A  
• Backlight on: 0.025A |
<p>| fuse | Emergency operation: 9 VDC |
| Safety distance to compass | 30 cm |</p>
<table>
<thead>
<tr>
<th>User manual &amp; instruction for installation remote control for VHF-Communication Tranceiver</th>
</tr>
</thead>
<tbody>
<tr>
<td>KRT2-RT</td>
</tr>
</tbody>
</table>

Doc.-Nr: GT-3000-810100
Revision 1.0