

ATR833-II-BOX

VHF Communication
Transceiver - Headless



P/N 833-II-(Mxxx)-(Mxxx)

Operation and Installation

Document No. 01.143M.010.71e

Change History

Revision	Date	Description of Change
1.00	25.02.2022	

List of Service Bulletins (SB)

Service-Bulletins are to be inserted in the manual and to be recorded in this table

SB Number	Rev. No.	Date of Issue	Entry Date	Name

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1 GENERAL


This manual contains information about operation and installation of the VHF transceiver ATR833-II BOX, as well as information about the physical, mechanical and electrical characteristics.


Please read this manual carefully before installing the device.

Please observe the limitations and safety instructions.

1.1 Symbols

	Warning
Warning texts indicate a possibly dangerous situation and include advices whose non-observance may harm the user or cause severe damage to the device or other parts of the equipment.	

	Information
Information texts indicate the possibility of incorrect operation, malfunction or fail of the equipment, if the instructions are not followed.	

	Note
Note texts give advice or hints that facilitate the use of the equipment.	

1.2 Abbreviations

Abb.	Name / Subject	Definition
D-SUB	D-Subminiature	Standardized connector type
GND	Ground	Ground connection
KHz	Kilo Hertz	Oscillation of 1 thousand Hertz
LCD	Liquid Cristal Display	Light reflecting display type
MHz	Mega Hertz	Oscillation of 1 Million Hertz
OLED	Organic Light Emitting Diode	Self-luminous display type
RCU	Remote Control Unit	Separate control head
RMA	Return Merchandise Authorization	Process for Repair and Maintenance
RS232	Recommended Standard 232	Standard for serial interface
RX	Reception	Receiving status
TX	Transmission	Transmitting status
VDC	Volts of Direct Current	Voltage

1.3 Customer Support

In order to facilitate a rapid return of shipments in case of repairs, please follow the instructions of the input guide “Reshipment RMA” provided at the Service-Area within the f.u.n.k.e. AVIONICS GmbH web portal www.funkeavionics.de.

If you need further information or support, please feel free to contact us by phone or e-mail.



Information

Information on software updates is available on the website of f.u.n.k.e. AVIONICS GmbH : www.funkeavionics.de

**Note**

Any suggestions for improvement of our manuals are welcome.
Contact: service@funkeavionics.com.

2 SYSTEM DESCRIPTION

The ATR833-II BOX is an ATR833-II VHF transceiver without integrated control head. The equipment characteristics are identical with the ATR833-II transceiver.

The integrated control head is substituted by a cover with a D-SUB DE9 pin female socket and contains the serial interface and the power supply for a remote control unit.

3 OPERATION

3.1 Operation with one Remote Unit

If the unit shall be operated with one control head only, it is mandatory that this control unit is connected to the front socket. The operation of a single unit connected to the rear remote interface will not work. The unit will not switch on.

**Information**

A single Remote Control Unit shall be always connected to the front socket.

The ATR833-II BOX can be operated either with the LCD or the OLED variant of the Remote Control Unit.

3.2 Operation with two Remote Units

With a remote interface connected to the front socket, a second Remote Control Unit can be connected to the rear interface. The type of display, LCD or OLED, does not matter.

3.3 Description of Operation

For operation details and transceiver technical data please refer to

Doc.-No. 01.143.010.71d/e ATR833-II - Operation and Installation

Doc.-No. 01.1313.010.71d/e ATR833S

– Operation and Installation

The above mentioned manuals can be downloaded from service webpage of f.u.n.k.e. AVIONICS:

www.funkeavionics.de/en/service/manuals/

4 CONFIGURATION

The configuration of the ATR833-II BOX is identical to the ATR833-II transceiver. See §3 of the Operation and Installation Manual.

All setting commands and acknowledgements are performed via the remote control interface. The protocol scheme is described in the following chapter.

4.1 Remote Interface

The remote control interface is a serial RX-TX interface with RS232 voltage levels with 9600 baud, 8 data bits, no parity, 1 stop bit, no handshake.

Each message begins with 2 byte sequences 0x02 (STX) and 0x72 ('r') for synchronization followed by a message identification-byte and a different number of data bytes.

Byte #	Value	Description
1	0x02 (STX)	Synchronization
2	0x72 ('r')	Synchronization
3	<i>id</i>	<i>id</i> of message
4...3+n	<i>n data bytes</i>	depending on message
4+n	<i>checksum</i>	XOR of bytes #2 ... #3+n i.e. excluding the STX and the checksum itself

Byte stuffing


If the STX byte (0x02) appears in the data byte of a message, this byte is doubled to distinguish it from STX. The checksum then contains both 0x02 values.

The standby frequency is set with the ID 0x12 and contains two data bytes:

Data Byte #	Description	Possible Values / Remarks
1	MHz	118...136
2	kHz / 5	0...198 (corresponds to 0...990 kHz)

The standby frequency and the active frequency can also be adjusted by Garmin devices. The protocol corresponds to the Garmin GTR225.

Document 01.142.090.36 ATR833S/-II Remote Protocol Description provides a complete description of the interface.


	Note
The complete description of the ATR833S/-II Remote Protocol is available on request.	

5 INSTALLATION

5.1 Advice and Tips

Following recommendations shall be considered before installation:

- Select a position away from heat sources. Care for adequate convection cooling.
- Leave sufficient space for the installation of cables and connectors.
- Avoid sharp bends and wiring close to control cables.
- Leave sufficient lead length for inspection or repair of the wiring of the connector.
- Bend the harness at the rear connectors to inhibit water droplets (formed due to condensation) from collecting in the connector.
- The ATR833-II Box is fixed front-laterally in the mounting tray with four 4x8mm screws.

	Warning
No screws may be turned in more than max. 15mm into the device – even if no hard limit is noticeable!	



Information

The D-Sub-Connector (plug) has to be clamped with both spring locks. It is recommended to additionally secure them with a cable tie.

5.2 Telecommunication Data

Manufacturer:	f.u.n.k.e. AVIONICS GmbH
Type Designation:	ATR833-II BOX
EASA Number:	EASA.21O.10062108 REV. B
Transmitter Power Output:	6 Watt
Frequency:	118,000 – 136,975 MHz
Emission Designator:	6k00A3E for 25khz channel spacing 5k00A3E for 8,33kHz channel spacing

5.3 Unpacking and Inspecting the Equipment

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



Information

Please use the original packing material for storage and shipping.

5.4 Mounting

The ATR833-II BOX comes with a mounting tray for an installation outside the instrument panel.


Location and kind of the installation should be specified in cooperation with a maintenance shop. The maintenance shop can supply all cables. Suitable cable harnesses are available from f.u.n.k.e. AVIONICS GmbH.

5.5 Equipment Connector

The 25 pin D-SUB connector on the rear side of the ATR833-II BOX includes all electrical connections, except for the antenna.

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See Document No. 01.143.010.71d/e ATR833-II - Operation and Installation chapter 4.6, 4.7 and 4.8.

	Warning
<p>The (+UB)-wire (PWR – Pin 11/12) has to be protected by a circuit breaker (4 Amp. slow-blow)!</p>	

5.6 Conductor Cross Section

The conductors used must be approved for aircraft installation.

Power Supply (Power, GND): AWG18 (0.96 mm²)

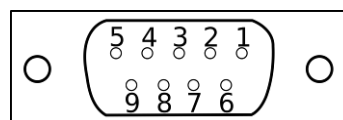
Signals: AWG22 (0.38 mm²)

5.7 Front Connector for Remote Control

The ATR833-II BOX provides two D-SUB DE-9 pin sockets: The primary one is on the front of the ATR833-II BOX and the secondary socket is a part of the cable harness BSKS833D-S and BSKS833S-S.

The connection between the main remote control and the ATR833-II BOX front connector requires a shielded 9-wire D-SUB cable. The front connector shows following pin allocation:

Front Connector for
Remote Control Unit



Front View

- 1: Coding Pin (removed)
- 2: Data TX
- 3: Data RX
- 5: Data GND
- 6: Main Switch
- 7: Remote Switch
- 8: +5VDC
- 9: +5VDC

For proper functionality the cable BSKS600R5 shall be used. This cable includes all pin connections required to switch the main unit on and off.

It is not possible to switch the unit on from the Remote Control Unit attached to the harness connector.

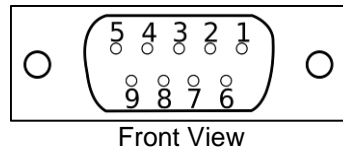
Therefore, the front connector is coded on Pin1 to prevent the attachment of the remote cable BSKS600R4 for the harness connector.

Operation and Installation

5.8 Harness Connector for Remote Control

The harness connector provides a serial interface and power supply for a second remote control unit. Pin allocation on the harness remote interface:

Connector for Remote Control Unit on cable harnesses BSKS833x-S



- 1: not connected
- 2: Data TX
- 3: Data RX
- 5: GND shielding
- 8: +5VDC

The harness BSKS600R4 shall be used for this connector.

	Information
<p>Only shielded RS232 cables with a maximum length of 3,0 meters shall be used.</p>	

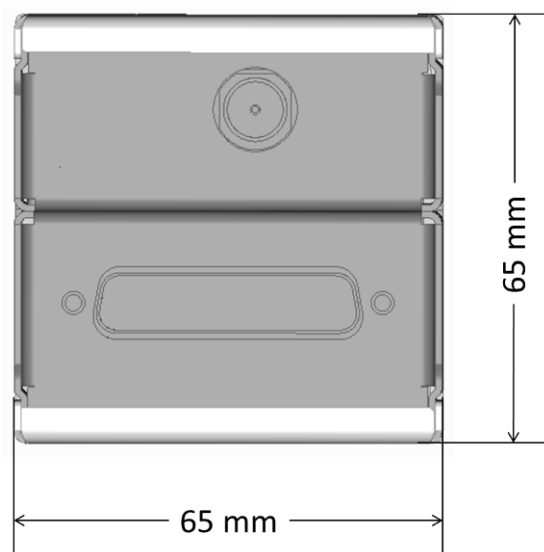
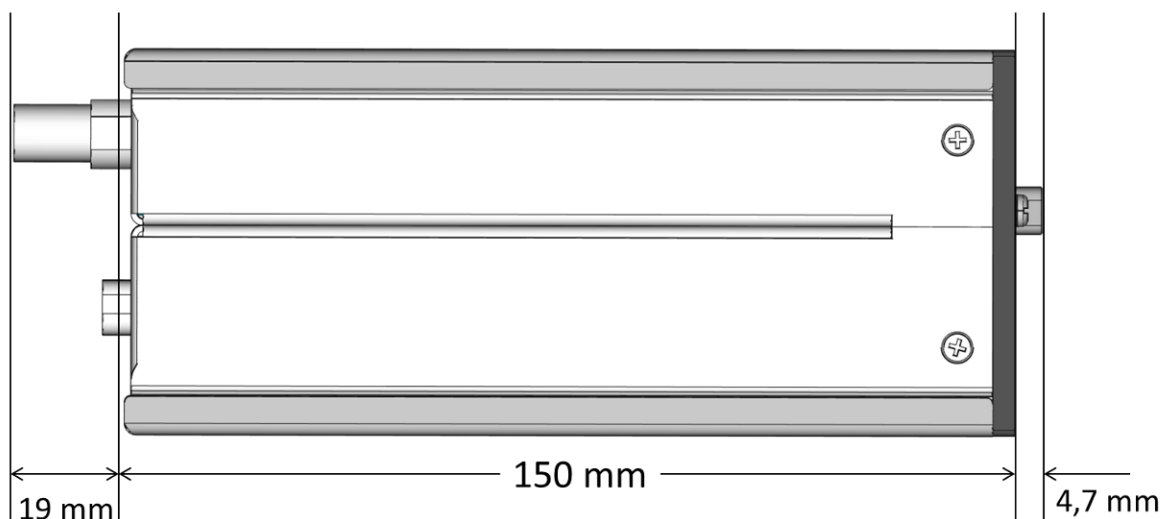
6 APPENDIX

6.1 Technical Data

The transceiver technical data are identical to the ATR833-II.
See § 5.2 of the Operation and Installation Manual.

The ATR833-II Box dimensions are slightly different due to the missing control knobs.

6.2 Dimensions



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