

ART-28A

Balloon Portable Station

USER MANUAL



1. Introduction

Dear customer, thank you very much for acquiring this top-line communications equipment. We have carefully designed it to provide many years of reliable operation. Please read carefully the entire manual and keep it in a secure place for future reference, it contains important information about safety and operation of this device.

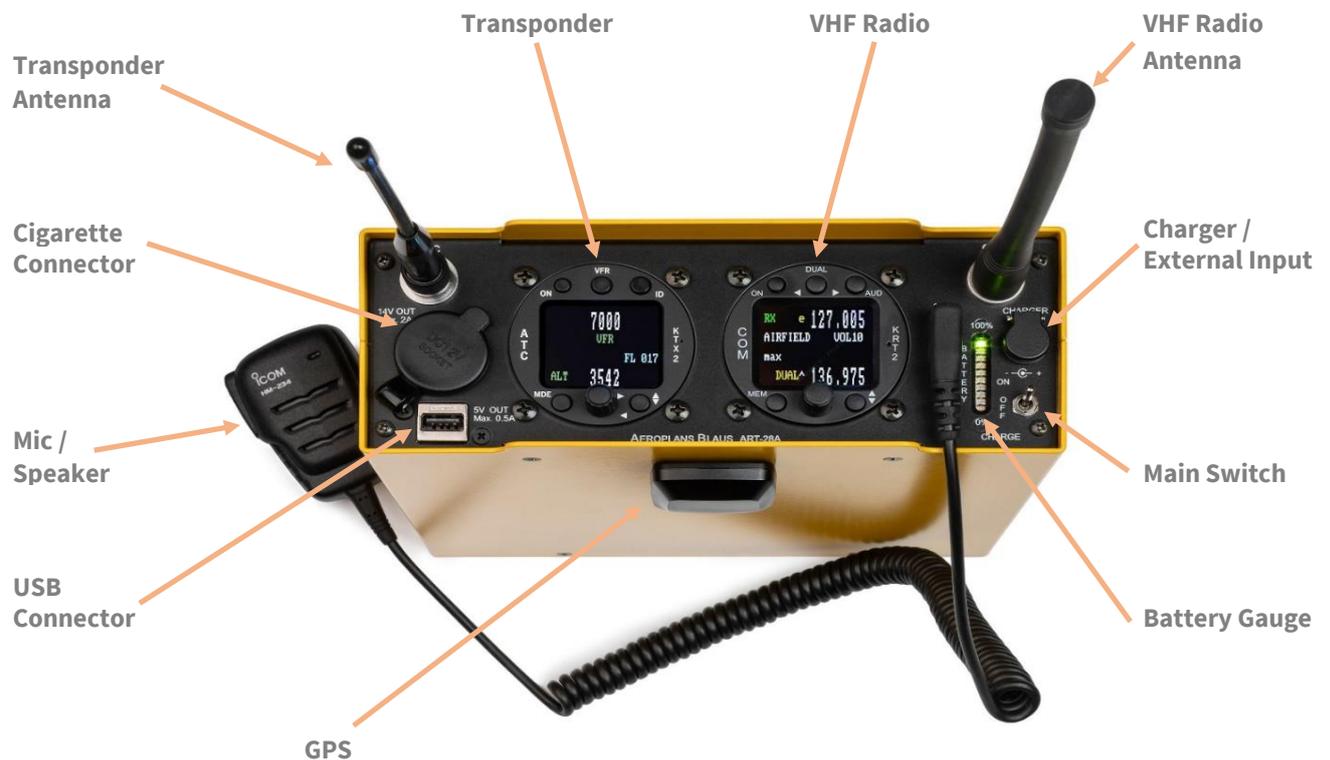
The ART-28A is a portable ATC/COM station specially designed for use in balloons, but will fulfill its function were a portable Transponder (ATC) and/or VHF radio (COM) are needed.

To fit the needs of every customer it has modular design, so you can choose the equipments to be installed in.

2. Common Parts

The box is made using rugged aluminum, lightweight but robust at the same time. Installed equipments are not waterproof so please protect them against rain and dust. Cordura carry bag with protective cover is supplied with every portable station.

The picture shows ART-28A in its maximum configuration, with all optional modules installed. In the front panel you will find the following:



2.1 Battery

Inside the box we have a very powerful 135Wh Lithium-Ion battery with a smart Battery Management Circuit (BMC) that controls over-charge, over-discharge, overload, cell balance and temperature for a long, safe and reliable operation. Don't worry about recharging a partially discharged battery because Lithium-Ion batteries are not affected for this.

2.2 Charger

The supplied battery charger accepts any mains AC system, and can be placed in the carry bag if needed. It is designed to fully charge the battery in less than 7h. The charge LED will light red when the battery is charging and green when the battery is full. To charge the battery the main switch has to be in the CHARGE position.

2.3 Cigarette Connector

You can use this DC output to power any device up to 2A. Voltage range at this output may vary from 10,8V to 15,4V depending on the battery charge. Before connecting any device to this cigarette connector please check the entire voltage range accepted by the device.

In the event of excessive current drain (or unexpected short circuit) the internal electronic fuse will disconnect the battery. To recover power please disconnect the external load and cycle main switch to OFF and ON again.

2.4 USB Connector

You can use this linear regulated DC output to power supply any device up to 0,5A. This way you can charge any mobile device using the internal battery of the ART-28A.

2.5 Battery Gauge

The coloured LED bar shows the charge level of the battery. In the green range the battery has most of their capacity available. Orange LED warn us we are approaching to low charging levels. In the red range we are next to the low voltage battery cut-off.

2.6 Main Switch

To turn on the box just move the power switch to the ON position and check the battery level indicator reading. Then you can individually turn on the radio and/or transponder by its own power button.

To turn OFF the box just move the power switch to the OFF position and power supply will be removed from radio, transponder, GPS, cigarette and USB connectors.

Use the CHARGE position only to charge the battery.

2.7 External DC Input

For very long use the ART-28A can be externally powered using the charge connector. Just provide DC voltage in the range of 11,5V to 14,5V and move the main switch to the ON position. When you use external power the battery level indicator is off.

This input is reverse polarity protected, but not over-voltage or over-current protected so that an external fuse in the supply cable is mandatory as well as accurate voltage check.

3. Optional Parts

These are the available parts you can order to be installed in the portable box. If you already have the radio or the transponder you can order the wired version of the portable station.

Installation of existing devices can be easily done by the user or in our facilities if provided.

3.1 VHF Radio

We offer 2 possibilities: Funke ATR833II-LCD and TQ Avionics KRT2-S.

It is very important to carefully read and understand the entire user manual provided by the selected manufacturer.

EASA Form 1 Certificate of the VHF radio is provided.

Supplied with the radio or the wired version you will find an external mic/speaker and a rubber antenna.

To avoid the possibility of mistake the radio antenna has BNC connector and the transponder antenna has TNC connector.

3.2 Transponder

We offer 2 possibilities: Funke TRT800H-LCD and TQ Avionics KTX2-S.

Both transponders are all mode, do have built-in altimeter, are ADS-B Out capable and can have up to 8 different registrations.

Important: Mode-S will be enabled only after programming the HEX code and balloon registration. Ask your local Air Control Agency to get that data.

Supplied with the Transponder you will find a rubber antenna and a 3m coaxial extension cord.

If you need a very compact installation you can directly connect the rubber Transponder antenna to the TNC base connector. Proceeding this way is ok, but due to high power transmission of the Transponder you will probably hear the squawk noise when squelch of the VHF radio is open. This do not decrease VHF communications performance in any way, but can be a little bit annoying.

To avoid that we suggest you to use the supplied 3m coaxial extension cord. Just connect the male TNC connector of the extension cord in the base female TNC connector of the box and the rubber Transponder antenna at the other end.

Be sure you screw all connectors correctly until tight. Now you can leave the antenna hanging out of the balloon basket. Proceeding this way will also increase Transponder performance.

Strongly recommend to carefully read and understand the entire user manual provided by the selected manufacturer. EASA Form 1 Certificate of the Transponder is provided.

3.3 GPS

Why do we need a GPS in the communications box? To answer this question we have to take a look at the benefits of the new Mode-S transponders.

Considering Mode-A transponders only reply the squawk code and Mode-C the squawk code + altitude, the new Mode-S transponders can transmit a lot of important information for aircraft safety. This is the ADS-B protocol.

Basic Mode-S transponders broadcast the following information: Registration, altitude, VSI, squawk code, type of aircraft and its maximum speed and flight ID.

If you connect the GPS to the transponder then you can also broadcast the following information: GPS position, heading and ground speed.

Transmitting the complete data is important in order to warn traffic detection devices and precise positioning in the Airport Traffic Control screens.

4. Technical Data

- Manufacturer: Balloon Avionics
- Model: ART-28A
- Weight of maximum configuration: 3,3 Kg
- Dimensions: 217x80x265mm
- Operating temp range: -15°C to +55°C
- Battery: 135Wh Li-Io + BMC
- Charging time: < 7h
- Charger AC input: 100 to 240V AC, 50-60Hz
- External DC input: 11,5V to 14,5V (6A max). Reverse polarity protected.
- USB output: 5V 0,5A max.
- Cigarette output: 15,4V to 10,8V (2A max) depending on battery charge.

Before connecting any device in the cigarette output please verify it can handle the entire voltage range!

For technical questions, ordering or service please contact us here:

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