

Polycon radio system

Reset manual

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Revision history

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Issue B	160611	Document updated with Dual Band identifier statement in Paragraph 2.8 and font change in paragraph 3.5
Issue C	190811	Document updated with more specific instructions ref saving base station settings Sect 3.5 in bold and underlined
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1 Introduction

If a radio ceases to function correctly, before returning to Axnes Aviation or Authorised repair station for repair, it is advisable for the appointed equipment manager to run through the following tests and adjustments to put the radios back to standard settings, to eliminate the possibility of the radio not operating as expected due to inadvertently changed settings for squelch, NIVOX or other parameters affecting the radio system performance.

This document describes basic checks and the procedure to reset the unit to user defined and default settings.



2 MP20 series handsets

This section describes the reset procedure for the MP20 series handsets.

When resetting and adjusting the MP20 it is recommended to note down parameters in the parameter list found in the table in the end of this document.



2.1 Power on sequence

Before starting the reset procedure for the MP20 series handset, make sure the battery is fully charged, and power the unit off before starting the procedure.

Press and hold On/Vol up (Button A) whilst observing the display. The unit should switch on, display a channel number and produce a beep sound. After a short while the display will



changing to two flashing hyphens. The channel number is the channel selected when the radio was turned off, and the radio now resumes to operate on.

2.2 Squelch reset.

The setting of the squelch defines the radios sensitivity to reception of transmissions. If the squelch is set too low the radio will be sensitive and might trigger reception on noise. If the squelch is set too high the radio might not have sufficient sensitivity and block reception.

To adjust the squelch setting, press and HOLD the Front PTT (Button D), then toggle the Volume up (Button A) to increase the setting or (Button B) to decrease the setting. The display will change from the channel number to the one step higher squelch level each time button A or B is pressed. The display reverts to the channel display number between each setting of the squelch level.

The squelch setting is recommended to be between 18 – 27, but this depends on the handset in use and the radio environment the handset is used in. Ensure that the radio is set within this range. You could adjust the setting down towards 10 to check that the radio un-squelches and then reset to 18 – 27.

Factory setting for the squelch is 19.

2.3 AGC (Automatic Gail Control) reset

The MP20 Handsets implements an AGC on the microphone input, to secure optimal performance in environments where the background noise varies. The AGC is central for the MP20 performance in noisy environments and should always be activated.

To toggle the AGC setting, press the Volume up (Button A) and Volume down (Button B) once simultaneously. The display will show either 'On' or 'OF'. The setting is strongly recommended to be set to 'On'

Note1: The handset will change the setting every time volume up and down are pressed simultaneous. This is the mode into which the transceiver has *now* been set. Note in future this feature maybe disabled to leave the AGC on constantly.

Note2: Experience shows that toggling AGC on/off may happen inadvertently. It is therefore important that the users of the equipment know how to check the AGC status, to secure optimal performance of the equipment.

2.4 Analogue trigger level – NIVOX reset

Analogue trigger level is the level of the voice overlaid on the background noise needed to trigger VOX. Lowering the analogue trigger level will make the VOX operation of the radio more sensitive to rapid changes in the background noise, and will require less voice overlay to trigger transmission. Increasing the setting will make the radio VOX operation more robust



to rapid changes in the background noise, but will require higher levels of voice overlay to trigger transmission.

To adjust the analogue trigger level, press the Volume up (Button A) and Channel down (Button E) once simultaneously. The display should show "AL".

Note: If button E or F is pressed multiple times, you will toggle between adjusting power setting, displayed as 'nP' or 'EP', and AL for analogue level.

Select option "AL" – the display will change to the setting number which can then be adjusted by using the Vol up / down buttons (A & B) to set as required.

The factory reset setting is "78"

To save the setting you MUST press the side PTT button (C) – the radio will not let you exit without doing this.

The standard factory setting is 78, but this does depend on the type and output of the microphone used and the noise levels in the operating environment.

Normally a setting between 60 and 80 will be used, and when known can be used as your default setting.

2.5 Radio output power level reset

The MP20 series handset has the possibility of switching between emergency power (full power) and normal power (as specified when unit was ordered).

Factory setting is "nP"

The radio factory setting is displayed as "nP" which is the standard 300mw setting for standard usage and battery life optimisation.

In emergencies it can be switched to "EP" emergency or high power of 500mw output, but obviously this will impact battery life between charges.

Toggle between the two, to select "nP"

To select power level, press the Volume up (Button A) and Channel down (Button E) repeatedly until the unit displays "nP" or "EP".

To toggle between the normal power and emergency power press channel up or down (buttons E & F)

To save the setting you MUST press the side PTT button (C) – the radio will not let you exit without doing this.



2.6 Radio volume reset

The audio level delivered to the headset or the MP20 internal speaker is controlled by the volume setting, controlled by button A/B. Volume is displayed when adjusted as a number between 0 and 9. Note: the radio is not totally silent if set to '0'

Power on volume is set to '4'.

2.7 Channel selection

The channels available on the radio are factory set when the radios are purchased and are not reset-able in the field. MP20 series handsets can be programmed with 1 to 16 channels.

2.8 Dual Band radio

The dual band radio can be identified by p/n "MP20-02DB" and be programmed with a mix of up to 16 UHF and VHF channels.

Displayed channel text is defined at order and programmed at production. Unless other is specified at time of ordering, UHF channels will be prefixed with a 'U', and VHF channels will be displayed as the usual standard marine band number ie: "16" "00" or "56"

Note: When units are programmed without the prefix 'U' at the UHF channels there could be some confusion as any marine channels from 1 – 16 will look the same as the radio standard channels of 1 – 16. This is usually made clear by having the UHF channels at the beginning for example 1 – 5 and then listing the VHF channels at the end of the list of 16.

If you have completed all of the above checks and the radio will still not work, the radio should be returned to an Axnes Aviation authorised repair station for further investigation and repair.

For details, visit our website:

<http://www.axnes.com/support>



3 004 RLI Polycon Base Station radio system

This section describes the reset procedure for the Polycon Base station 004RLI series. Please refer to the Installation and operation manual for Polycon Base station 004RLI series for details around installation and operation.

When resetting and adjusting the base station it is recommended to note down parameters in the parameter list found in appendix B in the Installation and operation manual for Polycon Base station 004RLI series, or the table in the end of this document.

3.1 Power on sequence

The Polycon Base station 004RLI series will start up automatically when power is applied to it from the aircraft system. The base station will start on the settings as they were stored.

If power is applied and the base station does not turn on – press the blue power button to initiate the power on sequence.

As per the auto start the unit will display the software version it is programmed to and then change to the channel selected and “OK”. The unit may display an error message instead of OK. If it is displaying an error – the unit must be returned to an Axnes Aviation Authorised repair station for repair.

3.2 Reset audio volume to ICS

To adapt the audio coming from the Polycon system to the level coming from other audio sources in the ICS, the volume out of the Polycon base station can be adjusted. To adjust the Polycon audio level press “Menu” button on the front of the base until the display displays “ICS Vol”. Adjust the volume from the Polycon base station by pressing +/- buttons until optimal level is found, and press STORE button. The setting range is 0-9.

Factory ICS level: 6.

3.3 Reset the squelch

To adapt the squelch on the Polycon base station press the menu button until “LEVEL II” is displayed. Press and hold +/- buttons simultaneously to enter level two menu. **NOTE: When entering the level II menu by pressing + and – simultaneously care must be taken when releasing the buttons not to alter the value of AGC on/off (first entry in level II menu). AGC value is normally ON.** Press menu button until “Squelch” is displayed, and adjust the squelch in the Polycon base station by pressing +/- buttons until optimal level is found, and press STORE button. Note down optimal level for future reference:

Factory squelch level: 19.



3.4 Reset intercom sensitivity

The sensitivity to signals coming from the ICS can be adjusted through the ICS AGC parameter. If transmission to the handheld Polycon radios are triggered by static noise that might be present in some aircraft ICS, or conversations on the ICS does not trigger transmission to the handheld radios, ICS AGC can be adjusted. ICS AGC will adjust the sensitivity for the signals coming from the ICS to the Polycon base station. To adjust the Polycon ICS AGC press "Menu" button on the front of the base until the display displays "ICS AGC". The level shall be between 75 and 256, and a typical level is around 120. Low value will give high sensitivity and increase the noise pickup from the ICS (and may trigger continuous transmit), and high value will require higher levels on the signal coming from the ICS and increase the resistance to ICS noise.

Adjust the ICS AGC level until optimal sensitivity for signals on the ICS is found for Polycon base station and aircraft ICS by pressing +/- buttons. Press STORE button to store the value.

Factory ICS AGC: 120.

3.5 Reset VOX sensitivity

Another parameter affecting the noise resistance and VOX operation of the Polycon base station is VOX sense – If transmission to the handheld Polycon radios are triggered by static noise that might be present in some aircraft ICS, or conversations on the ICS does not trigger transmission to the handheld radios, VOX sense can be adjusted. VOX sense is the level of the voice overlaid on the background noise needed to trigger VOX. To adjust the Polycon VOX sense press "Menu" button on the front of the base until the display displays "VOX Sense" and two figures below for example 76/70.

The figure on the right is the level sensed by the Polycon Base Station from the ICS with the current level of activity on the wired ICS. The left hand number is the trigger level for the VOX (VOX Sense). VOX Sense may be adjusted – any number LESS than the units sensed level indicated on the right, will result in continuous NIVOX operation or transmission. Any figure set above the right hand sensed figure will load the activation of the NIVOX – the higher the number the more powerful the signal will need to be to initiate the NIVOX.

Adjust the VOX sense level until optimal trigger point for transmission is found for Polycon base station and aircraft ICS by pressing +/- buttons until optimal level is found, and press STORE button.

Factory VOX Sense level: 85.

NOTE – any adjustments done to the CPU settings whilst it is powered up will be used for the duration of that power session or flight only. If the unit is switched off it will lose all adjustments and go back to the original stored setting.

To make your adjustment permanent you MUST press the blue button "Store" once before leaving the menu option, to store the adjustments / settings you have made. ie press the blue save button after EACH adjustment – not just at the end of the whole adjustment session. These will then be the permanent setting for the CPU until further adjustment. Check after storing the settings by turning the unit on / off to see that your settings have been saved.



3.6 Reset TX ON / OFF

It is possible to turn off TX from the base station both from the front panel of the base, as well as a switch fitted on a remote panel. Make sure that TX is set to "ON" or it will not TX the ICS to the handsets. The red TX off lamp should be illuminated when the TX is switched off.

It is possible to have a remote TX on / OFF switch in the cockpit which over rides the switch on the CPU – check that this is set to on if one is fitted.

Channel selection buttons – scroll through them to ensure that you are on the correct channel to match the MP20 setting. The numbers and channels should exactly match the sequence on the MP20.

Note: Definition of channels and what channels are assigned to the different channel is specified by the customer when ordering the system. As a consequence handsets and base stations delivered to different customers may not be interoperable.

3.7 Check connection

Check all connectors are securely fitted and the antenna cable is connected with a preferably single piece of cable to the external antenna.

3.8 Antenna

The stubby internal antenna may be connected to the CPU and will work – but transmit range will be drastically reduced compared to a correctly installed external antenna.

If you have completed all of the above checks and the radio will still not work, the radio should be returned to an Axnes Aviation authorised repair station for further investigation and repair.

For details, visit our website:

<http://www.axnes.com/support>

Radio setting recording sheet

Radio P/N :



Serial Number:

Used in Aircraft Reg:

<u>MP20 Radio Function Setting</u>	<u>Default Setting</u>	<u>Preferred operator setting</u>
Squelch	19	
AGC (Automatic Gail Control)	ON	
Analogue trigger level – NIVOX	78	
Radio output power level	NP	
Radio volume	4	
<u>CPU Function Setting</u>		
'ICS Vol''	4	
'ICS AGC''	120	
'VOX sens''	85/70	
TX ON / OFF	ON	
Squelch	19	

