



**RADIO  
INTERFACE**

INSTRUCTIONS

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**Thank you for purchasing the Lynx Micro System.**

**IMPORTANT**

The following instructions have been prepared to provide users of the Lynx Micro Communications System with the necessary information to enable safe and correct use.

Please read this booklet carefully and take time to familiarise yourself with your new equipment and its mode of operation before attempting to use it during flight.

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## INTRODUCTION

The Lynx Micro System has been specifically developed for use in the high-noise environment of open-cockpit aviation where noise attenuation and microphone noise cancellation are primary concerns.

The Lynx Micro System Radio Interface Unit is purposely designed for use with Lynx Micro System Headsets and airband radio transceivers, to provide pilots with all the facilities necessary for high quality radio telephony.

### The Interface Unit

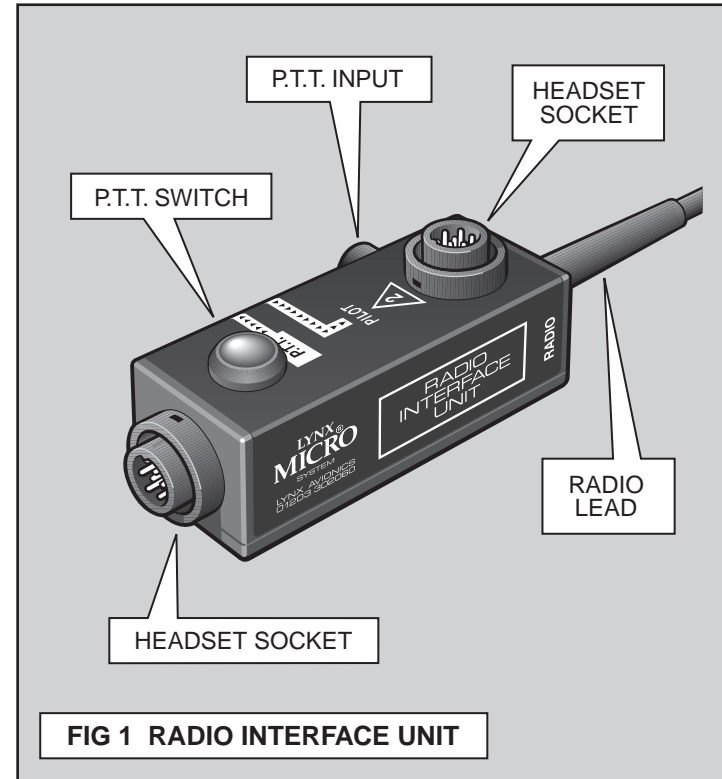
The interface is manufactured utilising the latest techniques in microcircuit design, and surface-mount component technology, to produce an exceptionally compact unit (fig 1).

Developed specifically for use in close proximity to engine ignition systems, the interface electronics are designed to be virtually immune to electrical interference. All electronic component parts of the unit, including the leads and connectors, are screened to prevent noise from electromagnetic radiation. In addition to passive shielding, the processor includes dedicated electronics to actively filter and remove interference from the audio signals passing through the unit.

The unit uses very little electrical current, especially during standby, and has no noticeable effect on headset battery life when used with a Micro System Headset.

### Radio Configuration

The Radio Interface is intended for direct connection to a hand-portable radio and can be supplied to work with all common types of radio transceiver.



## Power Supply

One or two headsets can be connected to the interface using the locking connector sockets built in to the unit (fig 1). To simplify operation, the interface draws its power directly from the self contained Micro System Headset and does not require a separate battery. The interface is switched on automatically, and is ready for use, once a headset is connected. Some specialist Lynx headsets do not contain an internal battery and can not be used with this interface unit.

## Push-To-Transmit

In order to provide the greatest flexibility of operation the interface unit is fitted with a built-in 'Push-To-Transmit' (P.T.T.) switch, and a P.T.T. input socket to allow a separate external switch to be connected.

During the operation of a P.T.T. switch, one of the headset microphones is opened, for radio transmission, and the microphone of any additional headset is muted. In order to prevent unwanted noise affecting the radio transmission only one headset is able to transmit at a time.

The two headset connection sockets, on the interface unit, are marked 'Pilot 1' and 'Pilot 2' in relation to the two P.T.T. switches. The built-in switch controls radio transmissions from a headset connected to the 'Pilot 1' socket. An external switch controls radio transmissions from a headset connected to the 'Pilot 2' socket.

A single headset can be used to transmit with either the built-in switch or an external switch by selecting the appropriate headset socket. Two headsets can be used with an external switch to allow both headsets to transmit alternately.

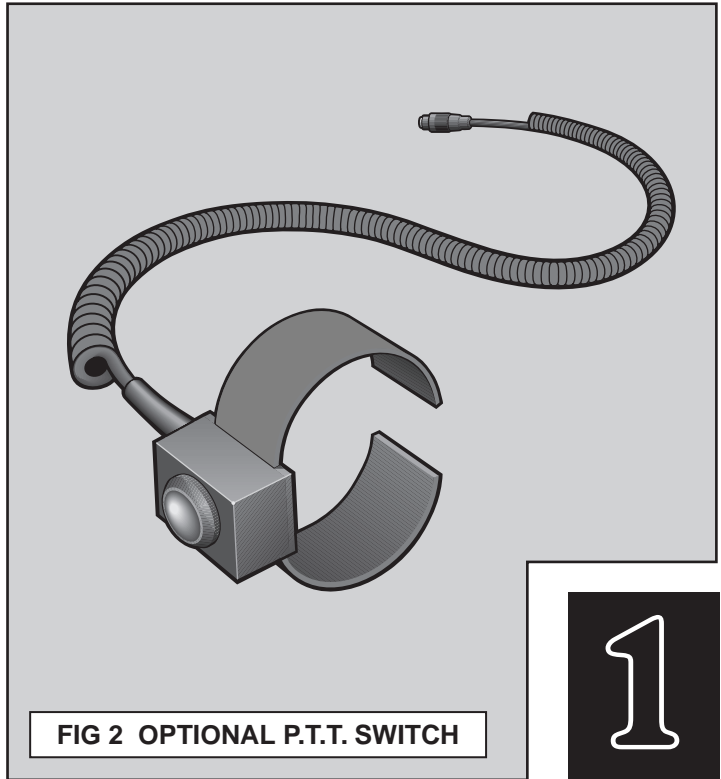
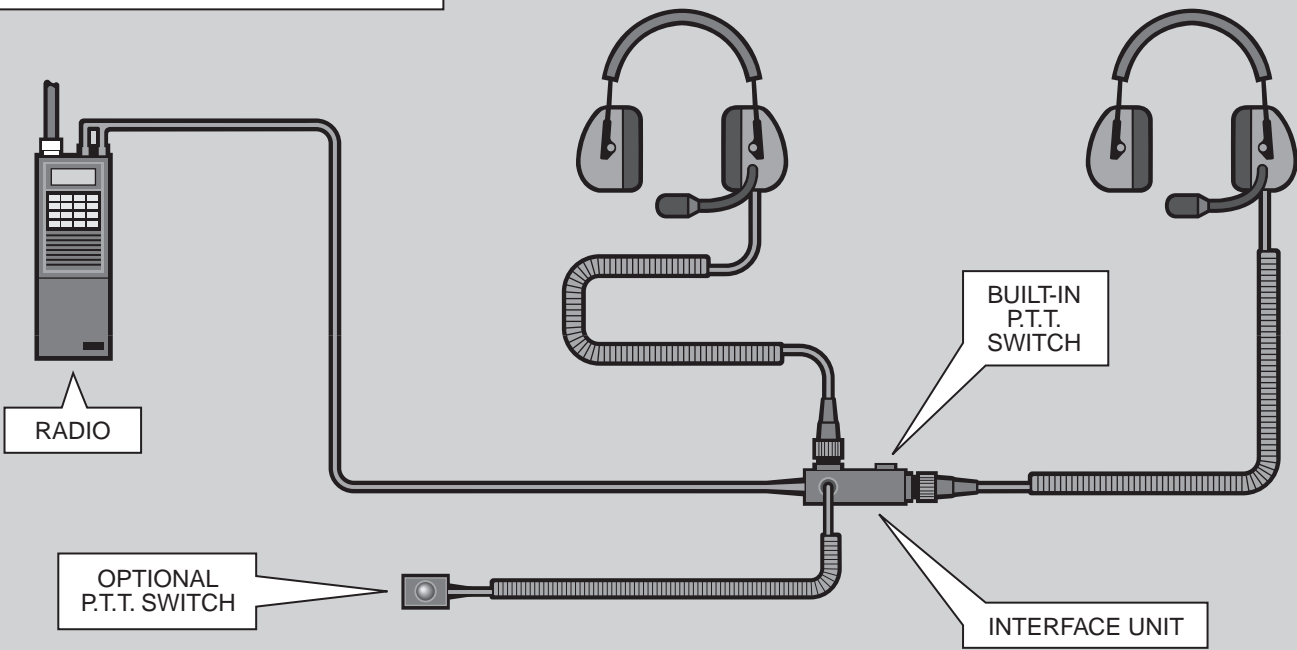


FIG 3 INTERFACE CONFIGURATION



# SYSTEM CONFIGURATION

The Lynx Micro System concept is intended to simplify considerably the configuration and operation of radio interface equipment within the open cockpit environment.

## Solo Operation

For solo applications a single headset may be connected to either headset socket on the unit depending on which P.T.T. switch is to be used. If required the headset lead may be extended, using an optional extension lead, to allow the unit to be conveniently located.

It is important to remember that the P.T.T. switch built into the unit controls a headset connected to the 'Pilot 1' socket, and an external P.T.T. switch controls a headset in the 'Pilot 2' socket. Always take care when connecting a headset to ensure that the correct socket is selected in relation to the required P.T.T. switch.

The headset connection to the unit should be bayonet locked, and correct operation of the equipment should always be established, by a radio check, before flight.

## Dual Operation

For intercom and radio use, two headsets may be connected to the unit with the option of an external P.T.T. switch. It is important to note that the individual headsets must be correctly fitted to the unit in relation to the relevant P.T.T. switch.

An external P.T.T. switch should be located in the aircraft in relation to the relevant headset to avoid confusion during operation. If necessary the headset leads can be extended by fitting an extension lead to the unit. Depending on the application, it may be desirable to

fit either one or two headset extension leads to allow the unit to be conveniently located.

Correct operation of the equipment should be established by a radio check before flight, and again always make sure that the bayonet-locks, on all of the connections to the unit, are properly engaged.

## Radio Connection

The interface unit is normally fitted with a standard radio connector which will connect directly to most available transceivers. The interface electronics, however, are always configured to work with the specific make and model of radio specified when ordering the unit.

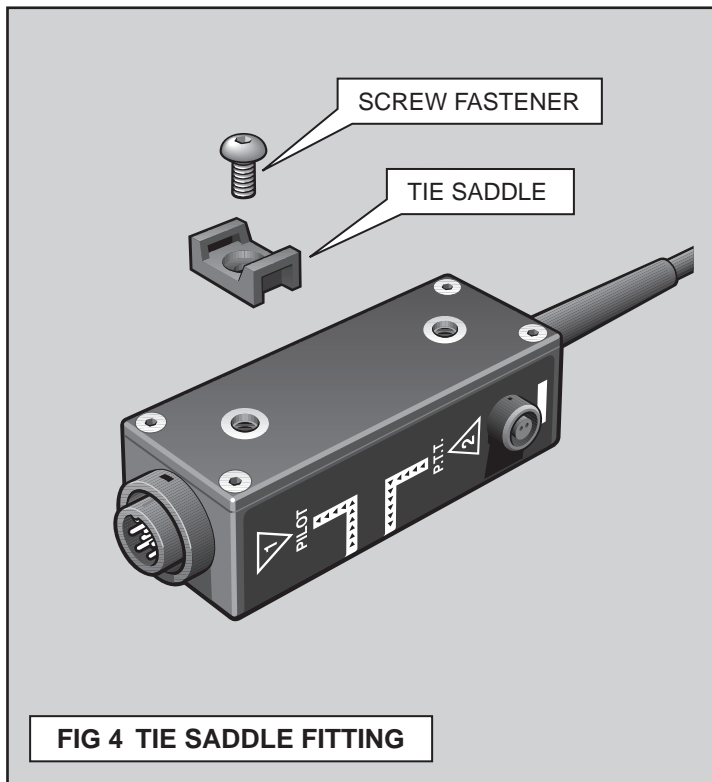
Before using an interface with a radio, it is important to establish that the unit is correctly configured, as connecting and using an interface which does not match the radio may damage the unit or the radio.

Hand-portable radios must be powered from their own battery pack, or an external power source, when used with the interface unit.

## Antenna Connection

The antenna connected to a radio greatly affects the performance of the radio, both during reception and transmission. While it is possible to operate a hand-portable radio in an aircraft using the short helical antenna, this practice is not recommended. The fitting of a 1/4-wave whip antenna to the aircraft effectively increases the power of a radio, in comparison to the helical antenna, and allows transmission and reception over a much greater range.





## INSTALLATION

The Radio Interface can be fitted permanently to an aircraft by screw fixing or plastic ties. Alternatively, the unit can be temporarily mounted during flight using tube clips or Velcro.

During installation it is important to ensure that the unit and leads do not interfere in any way with the aircraft control systems. Fixing holes to mount the unit, or holes for cable routing, must not be drilled in any structural member of the airframe.

Depending on the type of aircraft a specialist or licensed engineer may be required by law to fit the equipment or inspect the installation.

### Screw Fitting

The interface has two threaded inserts built into the back of the unit for mounting purposes. The threads accept M4 x 1.0 metric machine screws and allow the body of the interface to be screwed directly to a panel or bulkhead.

When mounting the unit using screw fasteners it is also important to fit the locking washers: to prevent the screws working loose due to vibration.

### Velcro Attachment

As an alternative to screw fixing, the unit may be attached to a panel or bulkhead using the Velcro pads supplied.

The two separate pads are adhesive-backed, and are easily fitted to both the unit and a suitable flat surface. Before applying the pads to the unit or aircraft, make sure that both the surfaces are clean and dry and free from grease. Providing that good adhesive bonding is achieved the Velcro pads offer a secure and flexible method of fixing.



## Plastic Tie Fitting

As an alternative to panel mounting it is also possible to fix the unit in position using plastic ties and tie-saddles. This method of mounting is useful to attach the unit to tubular structures and avoids the need to drill fixing holes.

Suitable ties, tie-saddles and screw fasteners are supplied in the fixing kit. In order to use the ties for mounting, the tie-saddles must first be securely screwed in position on the back of the unit (fig 4).

## Tube Clip Fitting

The unit is also supplied with two tube clips, which offer an alternative to the plastic tie method, for fixing to tubular structures.

The tube clips are only suitable for use with 25mm diameter tube but do allow the unit to be easily fitted or removed. The clips should be securely attached to the unit using the screws supplied (fig 5).

## Cable Routing

All cables connected to the interface should be carefully routed around the airframe and attached in position using the cable ties supplied.

Avoid fitting the cables in close proximity to possible sources of interference such as strobe lights or the aircraft antenna. Headset extension leads should be fitted with the headset connector in an easily-accessible location next to the relevant seat. The external P.T.T. switch and lead must be positioned in the aircraft, in relation to its active headset, to avoid possible confusion during operation.

Always check after installation that the interface unit and leads do not interfere in any way with the operation of the aircraft.

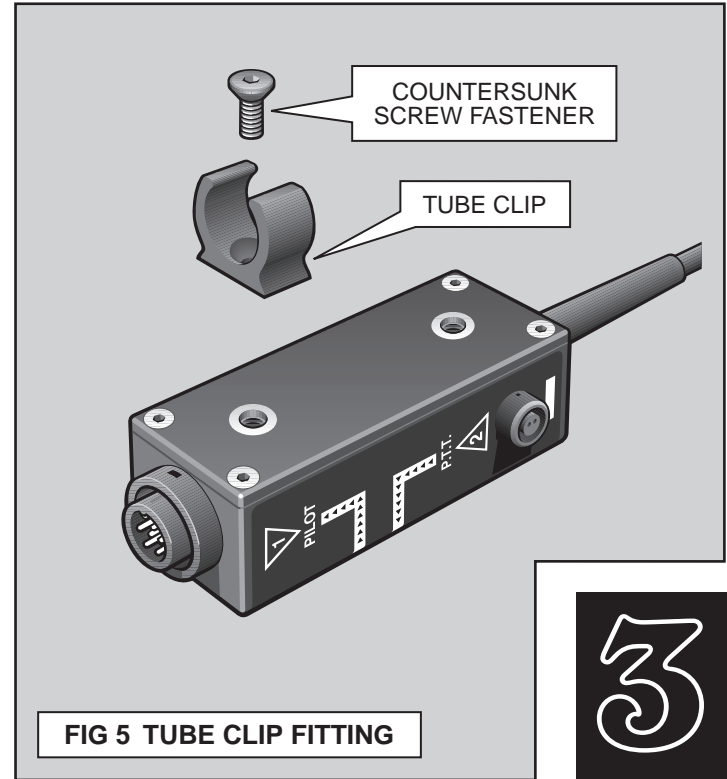


FIG 5 TUBE CLIP FITTING

## SPECIFICATION

Technical information is provided in this section which may be useful during the installation of the interface unit. Additional information can be obtained directly from Lynx Avionics.

### Radio Type

Each interface is configured to work with a specific make and model of radio transceiver; the individual radio type configuration is marked on the back of each unit.

### P.T.T. Input

Several types of 'Push-To-Transmit' switch are available from Lynx for direct connection to the interface unit and for use in different

applications. Connectors are also available which allow any 'Normally-Open Contact' switch to be used to key a radio transmission.

### Headset Extension Lead

Headset Extension Leads are available from Lynx for use with Micro System Headsets. The leads are available in two-metre lengths, and are fitted with one male connector and one female connector.

### Radio Interference

The main cause of radio interference can usually be attributed to the aircraft engine electrical system. High-tension ignition systems, and strobe lights, emit strong electromagnetic signals which are received by the radio antenna and amplified along with the radio reception.

Micro System communication equipment is virtually immune to interference from electromagnetic radiation, but can not prevent interference being introduced into the system by the radio. When using a radio in an aircraft there are several simple steps that can be followed to minimise the problem of interference, and considerably improve the quality of radio reception.

Mount the radio antenna as far away from the engine as possible and avoid routing the antenna lead close to the engine. Fit the engine ignition leads with suppressors or suppressed plug caps as a matter of course. If necessary screen the ignition leads using a braided sleeve earthed to the airframe. Finally avoid fitting strobe lights and their associated power leads near to the antenna and its lead.

### TECHNICAL INFORMATION

Unit size ..... *40 x 35 x 95 millimetres*

Fitting area required ..... *110 x 35 x 110 millimetres*

Radio Lead length ..... *2 Metres*

Stand-by power consumption ..... *< 100  $\mu$ Amp*

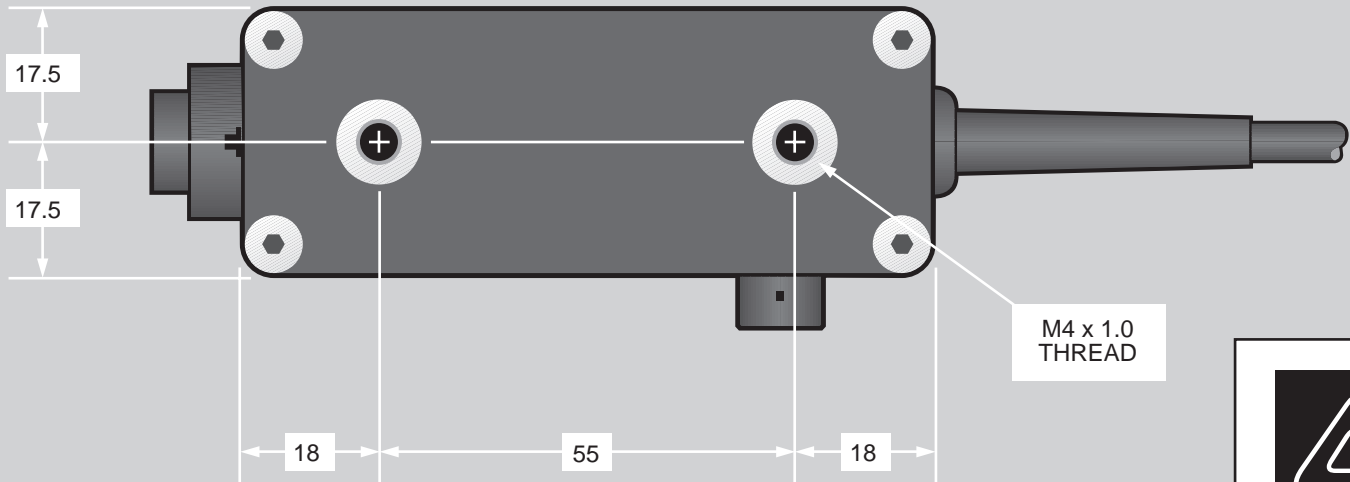
Transmit power consumption ..... *< 30 mAmp*

P.T.T. Input ..... *Normally-Open Contact*

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**FIG 6 MOUNTING HOLE DIMENSIONS**

ALL DIMENSIONS  
IN MILLIMETRES



M4 x 1.0  
THREAD

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