ASG Products
Falcon Sportscaster Console

Operation Guide

Version 1 – 3/16/12 (10/13/13) (3/12/15)

REV-3

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SECTION 1

Introduction / Features

1.1 Introduction

The *Falcon* On-Air Sportscaster Console is an ultra-compact high-performance solution for live, on-air sports commentary applications. Featuring dual talk-back outputs, a noise-free, passive broadcast microphone path and high-performance, low distortion, ear amplifiers, the Falcon sets a new standard in performance/size capability.

1.2 Features

Passive Microphone mute circuit, two line-level talk-back outputs with level adjust and limiter, stereo and mono earpiece compatibility. The Falcon can support all common headset /microphone connector formats including 3, 5 and 6-pin XLR.

Interchangeable Rear-Panel Connector Assembly allows for two interfacing methods.

●A 3-PIN XLR equipped rear panel allows existing audio cabling to be used. The XLR panel also supports the required external power when using dry IFB circuits.

●A unique "Low-Profile" side-exit multi-pin connector solution allows for either left or right hand cable dressing, minimizing the front to back dimension. The included break-out cable converts to 3-PIN XLR connections.

SECTION 2

Operation

2.1 Precautions

2.1.1 Explanations

	Identifies safety information
	Identifies important performance information
Note	Identifies important operator actions

2.1.2 Applications

2.1.2.1 Environmental

Do not expose this equipment to rain or excessive moisture or direct sunlight for extended periods of time. Due to the passive nature of the switching circuits, excessive dust and moisture can create audible artifacts when activating the Cough or talk-back functions.

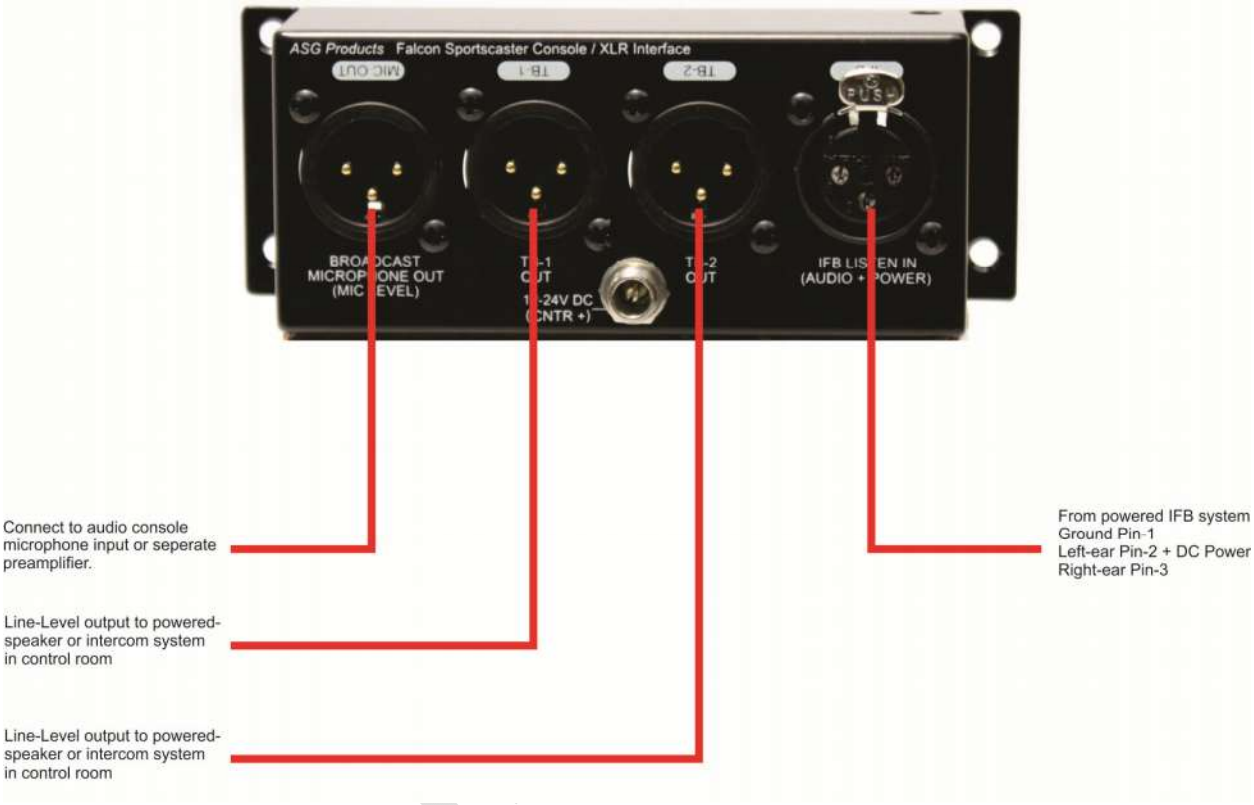
2.1.2.2 Electrical

Maximum DC supply voltage not to exceed 50V DC on the IFB input.
Maximum DC supply voltage not to exceed 24V DC on the external power input.

2.2 Operation Details

2.2.1 General Functionality

System connection drawing



2.2.2 Broadcast Microphone Path

1	Microphone Shield
2	Microphone Signal (+)
3	Microphone Signal (-)

1	Microphone Low
2	Microphone High
3	Earpiece Common
4	Earpiece Left Ear (interrupt)
5	Earpiece Right Ear (non-interrupt)
6	Microphone Shield

The microphone connects via a front panel located connector as a 3-Pin XLR with standard wiring or a 6-PIN XLR for integrated headset cables including the ear-piece signals

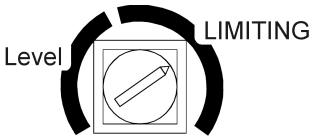
The broadcast microphone path is a passive circuit which allows audio to pass and the cough button to function even if no power is supplied to the Falcon. Phantom powered (up to 48-Volt) and dynamic microphones will function equally as well. "T" powered microphones will not function properly with a Falcon. Typical loss through the Falcon is less than 6dB if driving a 600 ohm load. There are no frequency limiting circuit elements in the Falcon's broadcast path.

Since the Falcon is not AC powered, noises attributed to ground loops are highly unlikely. To maximize noise immunity and protection from RF and other forms of interference on the microphone path, it is not recommended to lift ground on pin-1 of the microphone output

⚠ Optimum noise suppression is attained by having a solid ground connection on Pin-1 of the Broadcast Microphone Output connector.

2.2.3 Talk-Back Function

The talk-back outputs are line-level, transformer balanced with an integrated audio level limiter/compressor. This compressor does not affect the broadcast microphone path. The under-side TB Trim control sets the TB microphone preamplifier between 20 and 40 dB of gain. Inside the Falcon is a two-pin circuit-jumper that engages or disengages the limiter. The Jumper is actually a resistor which sets the limiter ratio. From the factory, it is a 10k ohms value which sets approximately a 2.5:1 ratio. More aggressive ratios can be attained by decreasing the resistor's value. A hard short is about a 10:1 ratio with about 15 dB less gain. With the factory value installed, a -40dB input will show 1dB of gain reduction and a -30dB input will show 9dB.



Talk-Back Level Adjust

There is no internal Pin-1 connection on either of the Talk-Back outputs. If noises typically attributed to "ground-loops" are experienced on the Talk-back outputs, the use of an XLR Pin-1 lift will have no effect.

2.2.4 IFB Listening

2.2.4.1 Setting Levels

The earpiece amplifiers in the Falcon are capable of driving a pair of Sony MDR-7506 headphones to 102dB-spl at zero distance from the earpiece driver. This amount of acoustic energy can hurt. Common, best practice is to place the headphones around your neck before plugging the headphones into any device. This eliminates the potential for unexpected acoustic levels to be placed close to the ear.

Do not place transducer(s) (headphones, earpiece, headset) on the ear until assured of the expected SPL which will be produced by a connection to other equipment.

The volume controls are logarithmic in nature. 50% of the change in volume occurs in the first 25% of rotation.

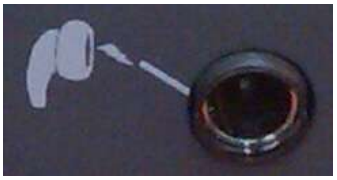
2.2.4.2 Earpiece compatibility

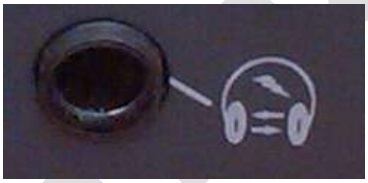
The Falcon is optimally designed to drive 300-1000 ohm earpieces.

Earpiece Impedance (ohms)	Input Level[1]	Measured SPL (dB-SPL)[2]	
63	-13dBu	106	Sony MDR-7506
600	-5dBu	111	Sennheiser HMD-25

1a Required input level with volume controls set to fully clockwise prior to clipping
1b Balanced generator output through a transformer for IFB wiring compatibility
1c Test frequency = 400Hz
2 Measurement microphone is at the plane of the ear-pad with baffle in-place

Three methods are available for listening to the IFB (1) The stereo headphone connector, (2) the mono ear-piece connector and (3) if optionally equipped the XLR connector when used with a single connector headset.


Mono Earpiece Connector


Stereo Headphone Connector

1 Microphone Low
2 Microphone High
3 Earpiece Common
4 Earpiece Left Ear (interrupt)
5 Earpiece Right Ear (non-interrupt)
6 Microphone Shield

2.2.4 Powering

The broadcast microphone path in the Falcon does not require any source of power.

Power is required for the earpiece amplifiers and Talk-back outputs to function. The Falcon can be powered by either of two sources; (1) 30v DC supplied by the IFB circuit as is common with RTS type IFB equipment or (2) when equipped with the XLR I/O accessory, an external 12-24V power supply.

Power indication is provided by one or two red Light-emitting Diodes (LED). The Low-profile option features an indicator on two faces providing indication for left or right-hand cable orientation. The XLR option provides a single indicator.

2.2.4.1 IFB Circuit Powered

Powering the Falcon by way of an incoming WET IFB circuit needs to be compatible with the RTS™ 4000 Series wiring conventions.

Pinout Detail:
Pin-1: Common
Pin-2: Left Ear (interrupt) + 30V DC
Pin-3: Right Ear (non-interrupt)

2.2.4.2 External Source

External power:

Note *External power is only available with the XLR back-panel model.*

DC power connection polarity. Center pin is 2.1mm

12-24V DC

Section 3

Panel Layouts

3.1 Panels

3.1.1 Front Panel

3.1.2 Top Panel

3.1.3 Rear Panel

Mounted on the Falcon Low-Profile assembly is a Male D-SUB-15 Connector

3.1.3.1 Low-Profile Connector Pin-out Detail

1	Broadcast Microphone Shield
2	Broadcast Microphone OUT (-)
3	Talk-Back #1 OUT (+)
4	Talk-Back #2 Shield (NC to circuit)
5	Talk-Back #2 OUT (-)
6	IFB CH-1 (left ear) and Power
7	NC
8	NC
9	Broadcast Microphone OUT (+)
10	Talk-Back #1Shield (NC to circuit)
11	Talk-Back #1 OUT (-)
12	Talk-Back #2 OUT (+)
13	IFB Shield, Common
14	IFB CH-2 (right ear)
15	NC

4.1 Audio Performance

All signals referenced to +4dBu

4.1.1 Broadcast Microphone Output

Passive audio path, zero gain

1.3k ohm, 1KHz with un-loaded output

Crosstalk from listen Signal (IFB) > -75dBu

5.5dB input to output differential

4.1.2 Talk-Back Outputs

Line Level DC protected to 50 V DC, transformer isolated/balanced.

Gain = 40dBm (maximum) 20dB (minimum)
Compression = 9dB at -30dBm input with factory 10k ohm value

4.1.3 Ear-piece amplifier circuit

Single-ended, voltage source driver for use with earpieces between 100-600 ohms for best performance.

4.1.4 Power supply details

Current consumption @ 30V DC from IFB circuit
Quiescent (Standby) ~84mA
Average Listen Level; ~92mA
Earpiece-Driven to Max SPL:~133mA

4.2 Physical Format

4.2.1 Dimensions

5.6” x 4.4”.

Weight 23 Oz