IRF-SHU

Introduction

Advanced Engine Suite (AES) is a multi-functional management box suitable for application in airplanes equipped with engines.

Through the VBAT (XT30) power input port, users can only use one battery to power all connected devices, eliminating the trouble of providing an independent power supply for the ignition control unit. AES also adopts a safety solution to avoid potential risks caused by interference between the connected ignition and receiver devices.

The AES module is equipped with a wealth of sensor interfaces, including 2 RPM sensor ports, 1 flowmeter sensor port, and 5 temperature sensor ports. In addition, AES also provides 2 AD ports, allowing users to flexibly use different types of AD devices required in your airplane. At the same time, through the FBUS/S.Port feature of the connected receiver, users can monitor the telemetry data in real-time on the transmitter to know the aircraft's operating status.



Specifications

- Dimension: 50x46.4x18mm (L×W×H)
- Weight: 53.5g
- Battery Voltage Input Range: 4.5-13V
- Battery Input Connector: XT30
- IGN (Ignition Port) Voltage Output Range: 4.5-13V (Sync with the input voltage settings of VBAT.)
- Operating Current: 20mA@5V
- Signal Voltage Level
 - RPM1/RPM2 Port: 3V-12V (Requires the driven current>5mA)
 - Flow Port: 3.3V
 - AD1/AD2 Port: 0-3.3V

Features

- Battery Eliminator Design for Powering System
- Anti-interference Capability between Ignition & Receiver Parts
- 5 Ports for Temperature Sensors
- 2 Ports for RPM Sensors
- 2 Ports for AD/RPM Sensors
- 1 Port for Flowmeter Sensors
- 1 Powering Port for Receiver
- 1 Powering Port for Ignition Kill Switch Unit
- Signal Input Ports for FBUS/S.Port (Auto Recognization), SBUS, and PWM
- 1 Battery Input Port with XT30 Connector (Input Range: 4.5-13V)
- Real-Time Configuration Capability (by S.Port of ETHOS radio or FBUS capable receivers)

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LED Status			
LED light	LED Working Status	Mode	
Green	Fast Flashing	FBUS Mode	
	Slow Flashing	S.Port Mode	
Red	Lits	IGN in power	
	Off	IGN is unpowered	

Configuration Method Selection (Wireless or Wired)

Before configuring the AES module, users can decide on the method to configure the module.

Note: Please ensure the ETHOS version has been upgraded to the 1.5.8 or the later versions.



When the AES module is connected to the receiver in FBUS mode, users can select the [Both modules] method to recognize the receiver automatically for configuring the AES module remotely. Users can also manually select the [Internal/External module] method according to the type of the connected RF module in binding.

Module		Both modules 💌
	Module	00 🕶
	Both modules	0000
	Internal module	
	External module	
Data Rate	S.Port connector	0.0s
Flow pulse		

By leading a cable to connect the AES module which is powered to the S.Port of the ETHOS radio, and select the [S.Port connector] mode, users can configure the module directly without adding any other devices.

ID Setup (by ETHOS)



Ensure the FBUS capable receiver is bound to the ETHOS radio, and connect the receiver to the AES module by the FBUS/S.Port port.

< Device cont	ig ETI		
Air speed	Current	SBEC	Gas Suite
	GPS	Lipo voltage	RB 30/40
RPM	SxR	SxR calibration	Variometer
V\$600	XAct	Pressure	Temperature
Remote NFC			

[System] > [Device Config] > [AES]

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< AES E	ethos äläi4ee
Module	Both modules 🔻
Physical ID	16 🕶
Application ID	0D00 🔻
Firmware version	
Data Rate	0.1s
IGN	CH15
Flow pulse	0.100ml/p

[Physical ID] Each type of FrSky devices has its unique physical ID. The default physical ID for this AES module is 16.

< AES	ETH06	
Module		Both modules 🔻
Physical ID		16 🕶
Application ID		0D00 🔻
Firmware version		
Data Rate		0.1s
IGN		CH15
Flow pulse		0.100ml/p

[Application ID] To achieve the same type of telemetry data from the different types of devices, please ensure the set Application IDs are different.



1. Plug the external LED [01100275] to the IGN LED/A2/R4 port of AES module;



3. In the [Device Config] \rightarrow [AES] tool menu, set the ADC2 Config as the IGN LED; (ETHOS is required to update to v1.5.10 or later versions.)



2. Connect the FBUS port of the receiver to the FBUS/S.Port of AES as the diagram;



4. When the LED starts lighting, it indicates the ignition device is powered by the AES module properly.

IGN Setup (by ETHOS) for the Kill Switch function

< AES ETHOS	
Firmware version	
Data Rate	0.2s
IGN	CH24
Flow pulse	0.200ml/p
Volume	4100ml
Volume Factory setting	4100ml OFF ON

< Mixes library Ailerons Elevators Rudders Throttle Ail => Rud Airbrake Flaps Butterfly Camber Flaps => Ele Ele => Camber Rud => Ail Rud => Ele Snap roll Thr => Ele Thr => Rud Test mix Offset

Select a channel for the IGN using the [Device Config]> [AES] menu tool;

< Free mix	ETH <mark>OS</mark>	2411 4 100
Name	Free mix 🕞	100%
Active condition	Always on 🔻	
Source	= SA 💌	0%
Operation	Add 🔻	
Actions		-200%
Always on Weight	100%	Select the control source of this
	+ Add a new action	
Channels count	1	

Decide a switch for the [Source] as the control switch of the IGN function;

Other Settings and Data Reset

AES ETHOS			
Firmware version			
D. L. D. L.	0.0	IGN	CH24
Data Kate	0.28	Flow pulse	0.200ml/p
IGN	CH24		
		Volume	4100ml
Flow pulse	0.200ml/p	Eactory setting	
Volume	41.00ml		
Volume	4200111		Reset residual volume
Factory setting	OFF 🌒 ON		Reset max flow
	Reset residual volume		Development (Inc.
	Reset residual volume		Reset average flow
Data Rate / Flow Pulse / Volume	e	Data Reset	

FrSky is continuously adding features and improvements to our products. To get the most from your product, please check the download section of the FrSky website www.frsky-rc.com for the latest update firmware and manuals

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Move to the [Mixer] menu tool, and create a FreeMix.

< Free mix	ETHOS	²⁴⁰
Operation	Add 🔻	100%
Actions		
Always on Weight	100%	
	+ Add a new action	
Channels count	1	-200%
Reverse	OFF ON	0
Output1	CH24 (Free mix) 🔻	Select the channel you want to be affected by this mix
CH24 Channel: -100.0% (988	us) Mixes: -100.0%	

Under the same [FreeMix], use the Channel same as the IGN for the [Output1] as the control channel of the IGN function.