

# AIR Glide

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## AHI Lockout Manual

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Document name: 18.T275T276.3-0.92-EN  
Document version: 0.92  
Release date: 05/07/2013

# Notes

# Document Information

## Document identification / revision status

This manual supports the following product types:

- P/N T275 / T276 "AIR Glide"

Actual version: **AIR Glide AHI Lockout Manual • 18.T275T276.3-0.92-EN, Version 0.92(192)**

### Version history

Revision	Date	Status	Author	Changes, comments	Approved
0.9	May 2nd 2013	DRAFT	M. Foerderer	Initial Draft	-
0.91	May 6th 2013	DRAFT	M. Foerderer	more precise info on GPS Fix	-
0.92	May 7th 2013	DRAFT	M. Foerderer	minor corrections/addi- tions	-
0.93	May 31st 2013	DRAFT	M. Foerderer	corrections/additions	-
1.0	Feb 14	Release	M. Foerderer	Added AIR branding	-

### Referenced documents

Reference	Title	Version	Date	Author
AIR Glide Pilot's Manual	1.0	18.T275T276.2	Summer 2012	Butterfly

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# 1 General Information about lockable features

## 1.1 AIR Glide and AHI System

AIR Glide is a high precision ADAHRS with display unit and acoustic system.

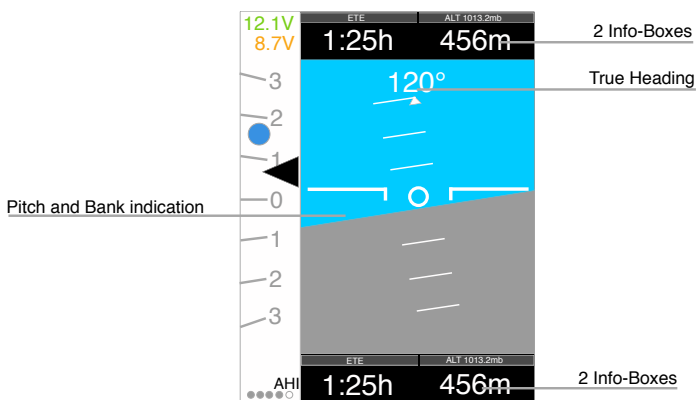
AIR Glide contains features (AHI Features) that allow for flying without ground reference. Depending on regulation it may not be allowed to use equipment that enables flying without ground reference in gliding competitions.

AIR Glide contains a special mechanism, that allows for tamper-proof locking of all such software features (AHI Features) that enable flying without ground reference. A AIR Glide unit with locked AHI Features can not be used for flying without ground reference.

## 1.2 AHI Features

Features allowing flying without ground reference:

- Attitude Indicator (Artificial Horizon page)
- True Heading Indicator (Navigation page or numerical value in info boxes)



**Figure 1:** Artificial horizon Page (not locked)

## 2 Locking Feature

### 2.1 Firmware

#### 2.1.1 Required Firmware Versions

The AHI Feature locking mechanism requires AIR Glide Firmware 1.06 or later. In version 1.07 lockout security is further improved. From Version 1.07 on no GPS time is required for the lock to be active.

It is recommended to always use the latest software release.

*Using earlier software does not compromise lockout security.*

#### 2.1.2 Updates/Downgrades

Software updates and downgrades do not affect the locking mechanism.

## 2.2 Security

### 2.2.1 Hardware

The lockout mechanism is applied to all units in a AIR Glide installation. AHI Locking can not be circumvented by interchanging single components of a AIR Glide installation.

### 2.2.2 Software security

The lockout mechanism amongst others is stored in the secure part of the Butterfly ISU which is a secure fully IGC certified flight recorder with tamper proof enclosure and tamper proof encrypted software.

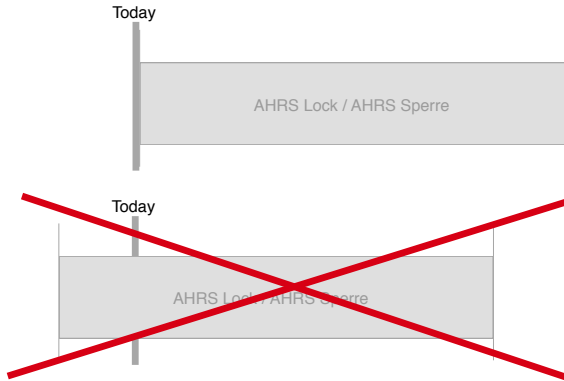
## 2.3 Activation

### 2.3.1 Setting up the AHI locking timeframe

In order to use the AHI Lockout function, go to *Menu* then *Setup* then *Flightrecorder* and here to *AHRS Lock*. Here you can set a locking timeframe. Locking can only be enabled for a timeframe following the current time.

*GPS time is required. Without GPS time AIR Glide is unable to determine exact timing and therefore the locking mechanism can not be set up. The process of obtaining GPS time may take up to 12 minutes. Without GPS time neither the locking mechanism nor the AHRS (AHI) itself will work properly.*

*From software version 1.07, the lock is also active before obtaining valid GPS time.*



**Figure 2:** Possible timeframes for AHI locks

|| **BE VERY CAREFUL:** *It is not possible to unlock a locked system*

## 2.4 Behavior when AHI lock is active

### 2.4.1 Locked out features

When AHI lock is active, all features allowing flying without ground reference are locked and can not be displayed. For displayed heading data, a 5Hz GPS signal is used.

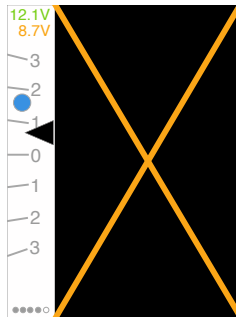
## 2.5 Determining if lock is active

### 2.5.1 During the set timeframe

During the timeframe the AHI-lock is enabled the user or e.g. a competition staff can at any time review the set up locking interval and thus is able to judge if the AHI lock has been enabled for the correct time in a competition.

| *To review AHI lock status go to Menu then Setup then Flightrecorder and here to AHRS Lock*

When locked, on the AHI page an amber colored cross is shown instead of the artificial horizon indicator.



**Figure 3:** Artificial horizon Page (locked)

### 2.5.2 During and after the set timeframe

AHI lock status is additionally documented in the IGC Flightlogs of the AIR Glide IGC approved flight recorder. Even after the locking-interval users and competition staff can review the AHI locking status of flights through IGC files.

## Notes