FLARM Firmware Release Notes

Published 19 March 2020

Updates and Interoperability

Every FLARM device must be updated with the latest firmware version at least every 12 months to avoid firmware expiration. This will also ensure interoperability with all other FLARM devices. Make sure to enter the update schedule into applicable maintenance documentation.

If you haven’t updated your device within the last 12 months, do so before your next flight. Also check the “Safety Equipment Requires Care and Maintenance” section on https://flarm.com/support/manuals-documents/ or from the manufacturer of your device.
Version 7.00

Published 19 March 2020

Platforms All PowerFLARM- and Classic FLARM-based devices
Build 0124db65d (PowerFLARM), 92e6098a6 (Classic FLARM)
Expiration Not operational after 31 October 2021

Changes since 6.82

Enhancements

- PowerFLARM: Suppress warnings in tow plane from ADS-B-only glider
- PowerFLARM: Support for GPT and exFAT on USB flash drives and SD cards
- PowerFLARM: Added data port baud rates: 115,200 and 230,400 (see FTD-014)
- FLARM Atom: Received signal strength (RSSI) added to $PFLAA for FLARM signals
- PowerFLARM: Update of ADS-B/Mode-S receiver firmware
- PowerFLARM: Experimental TIS-B/ADS-R support (needs license, US only)

Fixes

- PowerFLARM: IGC task declaration was not valid under some conditions (no GPS, no reset between declaration and flight)
- PowerFLARM: IGC files now have the correct creation/modification date set on readout

Know Issues

- PowerFLARM Core/Portable: Own Mode-C signal is not suppressed correctly. This may lead to the own aircraft being shown on the display as an undirected target. Only applies if Mode-C processing is enabled (MODEC=1 in configuration file).

Note: On Classic FLARM, the firmware version is indicated as shown in the graphic below:
Version 6.83

Published 19 March 2020

Platforms
Build
Expiration

PowerFLARM Core and PowerFLARM Portable
5f33b5d52
Not operational after 31 October 2021

Changes since 6.82

Fixes

- PowerFLARM Core/Portable: Allow downgrade from Version 7.00. See section on Known Issues for Version 7.00 if this is needed.
Version 6.82

Published 19 December 2019

Platforms All PowerFLARM- and Classic FLARM-based devices
Build 5160cc420 / 2a33be7d1
Expiration Not operational after 31 May 2021

Changes since 6.81

Enhancements

- PowerFLARM: Added textual version information at startup on the data port

Fixes

- PowerFLARM: Fixed incorrect error code in reply to $PFLAE,R
- PowerFLARM: Continuous Range Analysis data was missing in IGC File output when device was not properly shut down
- Atom: Fixed rare issue with startup at cold temperatures
- PowerFLARM OEM: Incorrect non-directional target output on data port

Note: On Classic FLARM, the firmware version is indicated as shown in the graphic below:
Version 6.81

Published 27 August 2019

Platforms: PowerFLARM Core
Build: 211d276bd
Expiration: Not operational after 31 January 2021

Changes since 6.80

Fixes

- PowerFLARM Core: Fixed a bug where the LED would not change from amber to green after startup, even with 3D GPS position and when no errors were present
Version 6.80

Published 30 July 2019

Platforms: All PowerFLARM- and Classic FLARM-based devices
Build: b1c88a304 (PowerFLARM), 07ec1aba2 (Classic FLARM)
Expiration: Not operational after 31 January 2021

Changes since 6.67

Enhancements

- PowerFLARM: Data port support for Version 9 (see FTD-012):
  - $PFLAA: Added fields for signal source (FLARM/ADS-B/TIS-B/etc.) and signal strength.
  - $PFLAE: Added query to list (transient) errors after device initialization
- PowerFLARM: Introducing continuous RF range statistics $PFLAN (see FTD-012)
- PowerFLARM: New flexible software customization scheme added

Fixes

- PowerFLARM: Fixed a bug with wrong replies to a $PFLAI command
- Classic FLARM: Maintenance release
Version 6.67

Published 04 March 2019

Platforms
All PowerFLARM- and Classic FLARM-based devices

Build
a072808ac

Expiration
Not operational after 31 October 2020

Changes since 6.63

Enhancements
- PowerFLARM: Suppress warnings from tow aircraft equipped with ADS-B Out, but not FLARM
- All: Info Alarms/traffic advisories in saturated situations are moderated such that they can no longer be mistaken as full traffic alarms

For OEMs/Integrators
- PowerFLARM OEM: Fixed external navigation injection ($PFLAG) not working in January

Fixes
- PowerFLARM: Filesystem issue that prevented firmware updates in rare occasions
- PowerFLARM: Alert Zone Generators: AZNFROM and AZNUNTIL settings are no longer persisted
Version 6.63

Published 31 October 2018

Platforms All PowerFLARM- and Classic FLARM-based devices
Build 07d10ec6e
Expiration Not operational after 31 May 2020

Changes since 6.62

Fixes

- PowerFLARM: Unreliable ENL sound reception.
Version 6.62

Published 16 October 2018

Platforms All PowerFLARM- and Classic FLARM-based devices
Build abb00d962
Expiration Not operational after 31 May 2020

Changes since 6.60

Enhancements

- All devices: Compliance with new IGC specification for flight recorders from 2016/04
- PowerFLARM: Improved flight recording for UAVs, helicopters and balloons

Fixes

- PowerFLARM: Could not retrieve IGC flight record when an empty task was declared
Version 6.60
Published 11 July 2018

Platforms  All PowerFLARM- and Classic FLARM-based devices
Build      acc16f4eb
Expiration Not operational after 31 January 2020

Changes since 6.42

Enhancements
- PowerFLARM: Improved data fusion of mixed FLARM/ADS-B targets
- PowerFLARM: $PFLAA output of ADS-B targets sorted by distance
- PowerFLARM: Invalid commands sent over the data port do not trigger diagnostic output. Mitigates issues with data port stalling in some setups, e.g. SN10
- PowerFLARM: Throttle output of excessive diagnostic messages on serial ports
- PowerFLARM: THRE configuration is no longer overridden by ACFT, see FTD-014
- PowerFLARM Portable: Blank display duration during startup shortened
- All devices: Targets with no-track enabled are output on data port if very close, even when own aircraft is stationary/hovering, see FTD-012

For OEMs/Integrators
- PowerFLARM: Added “Force Flight State” command, see FTD-014
- PowerFLARM: Added status message $PFLAJ, see FTD-012
- Application Module: Support for 1090 Receiver Module
- Application Module: Support for device model configuration for e.g. IGC file output

Fixes
- PowerFLARM: Capabilities are properly output in the device log
- LXV, LXV_FM and LXV_FM_IGC devices: Fixed unrealistic targets
- PowerFLARM: Fixed firmware update when using macOS. This fix will be active once the device is running firmware version 6.60 or higher
- All devices: Correct alarm type ("no alarm") in $PFLAU when towing or being towed
Known issues

- Because of the method previously used by PowerFLARM-based devices to validate firmware files, only one firmware file (.fw) may be present on the USB stick or SD card. If more than one firmware file is present, the update might not work, with no error message given. The only symptom will be that the device will continuously restart, as long as the USB stick or SD card is in the device. Therefore, make sure that only the latest firmware file is present on the USB stick or SD card when updating to version 6.60. For future updates, this issue has been solved (see under “Fixes” above”).

- When downloading/saving the firmware file on a Mac computer, because of the non-standard way in which macOS saves file metadata, a second hidden .fw file will be saved and consecutively copied to the USB stick or SD card. This may cause the problem described above. There are two different ways to mitigate the problem:
  1. If you are familiar with the Terminal, you can delete the improper file by using the dot_clean command, as described on the following page: goo.gl/CG9BGh
  2. If you are not familiar with the Terminal, use a PC to copy the firmware file to the USB stick or SD card
Version 6.42

Published 06 November 2017

Platforms  All PowerFLARM- and Classic FLARM-based devices
Build      1f59603
Expiration Not operational after 31 October 2019

Changes since 6.41

Fixes

- PowerFLARM: Fixed an issue with suppressing ADS-B targets with a lower altitude, based on the ADSBVRANGE configuration setting
- PowerFLARM Portable: Fixed an issue where the screen would rarely remain white after start-up
- Classic FLARM: Maintenance release

Known issues

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- When downloading/saving the firmware file on a Mac computer, because of the non-standard way in which macOS saves file metadata, a second hidden .fw file will be saved and consecutively copied to the USB stick or SD card. This may cause the problem described above. There are two different ways to mitigate the problem:

  1. If you are familiar with the Terminal, you can delete the improper file by using the dot_clean command, as described on the following page: goo.gl/CG9BGh
  2. If you are not familiar with the Terminal, use a PC to copy the firmware file to the USB stick or SD card
Version 6.41 (Classic FLARM)

Published 08 September 2017

Platforms Classic FLARM-based devices
Build 36bffda6
Expiration Not operational after 31 January 2019

Changes since 6.40

Fixes

- Classic FLARM: Fixed an issue where a not configured device uses a wrong FLARM ID
Version 6.40

Published 23 August 2017

Platforms
All PowerFLARM- and Classic FLARM-based devices

Build
00cecd

Expiration
Not operational after 31 January 2019

Changes since 6.09

Enhancements

- PowerFLARM: New intuitive obstacle warning behavior
- PowerFLARM: Fully symmetric antenna diversity, dynamic receive and transmit on both antennas (except USA and Canada)
- PowerFLARM: Firmware update possible via data port (relevant for developers only)
- PowerFLARM: License and obstacle database update possible via data port (relevant for developers only)
- Introduced new setting to query firmware expiration date: $PFLAC,R,SWEXP
- PowerFLARM: Obstacle ID (unique for specific database version) available in PFLAU (requires data port version 8 or higher)
- Introduced supplementary privacy option (all devices except F4)
- Introduced no track setting information in PFLAA in data port version 8 and higher
- PowerFLARM: Introduced ground station license (GND)

Fixes

- Classic FLARM: Disallow unit to continue after GPS configuration failure
- Classic FLARM: Software expiration warning behavior

Known Issues

- Classic FLARM: If ID was configured incorrectly in the past, ID changes to 0xFFFFFFFF. Reconfiguring ID to any valid type and ID or restoring to defaults solves the issue.
Version 6.09 (PowerFLARM)

Published 20 April 2017

Platforms: PowerFLARM devices (PowerFLARM Core, PowerFLARM Portable)
Build: f07a879
Expiration: Not operational after 30 Sep 2018

Note: PowerFLARM devices with the obstacle database Alps 2017 installed or/and with error code 0x91 (Flight Recorder Error) must update to this version to be able to record data (IGC logger functionality) after the memory is full.

Changes since 6.08

Fixes

- PowerFLARM: Fixed a flight recording issue (error 0x91) when Alps 2017 obstacle database is installed
Version 6.09 (Classic FLARM)

Published 10 March 2017

Platforms          Classic FLARM devices including OEM FLARM devices
Build             d4ec337
Expiration        Not operational after 30 Sep 2018

Changes since 6.08

Fixes

- Classic FLARM: $GPGGA NMEA sentence now available on data port
Version 6.08

Published 28 February 2017

Platforms All FLARM and PowerFLARM devices including OEM FLARM devices
Build 0a62df4
Expiration Not operational after 30 Sep 2018

Changes since 6.07

Enhancements

- Changes in Alert Zone (AZN) alarm behavior:
  - On entering the zone: Alarm is repeated 3 times every 12 seconds. Alarm duration is 4 seconds
  - After the first 3 alarms, while still in zone: Alarm is repeated every 60 seconds
- PowerFLARM: New serial command to test audio out ($test,audio)
- PowerFLARM Core: Maximum allowed supply voltage increased to 32V
- Changes to the ‘No track’ configuration setting while flying are recorded to the IGC file
- Faster automatic detection of GPS leap second after startup

Fixes

- PowerFLARM: RANGE configuration setting handles unlimited range correctly
- PowerFLARM Portable: Airplane type ‘Unknown’ can no longer be selected on display
Version 6.07

Published 09 September 2016

Platforms        All FLARM and PowerFLARM devices including OEM FLARM devices
Build           5a5905f
Expiration      Not operational after 31 Mar 2018

Changes since 6.06

Enhancements

- Increased the maximum distance to other aircraft that is transmitted to FLARM Compatible displays from 32 km to unlimited.

Fixes

- Minor fixes.
Version 6.06

Published 06 April 2016

Platforms  All FLARM and PowerFLARM devices including OEM FLARM devices
Build  8244, 8249
Expiration  Not operational after 30 Sep 2017

Changes since 6.05

Enhancements

- IGC license activated for all PowerFLARM Core devices purchased on or after 1 February 2016
- Minor enhancements

Fixes

- Added error message for incorrect ID configuration (error code 43)
- PowerFLARM Portable: Display brightness can no longer be set to a value lower than 10%
- Minor fixes
Version 6.05

Published 4 December 2015

Platforms All FLARM and PowerFLARM devices including OEM FLARM devices
Build 7862
Expiration Not operational after 31 Mar 2017

Changes since 6.02 / 6.01

Enhancements

- User configurable ICAO aircraft address excludes some invalid values.
- More robust handling of duplicate IDs caused by user configuration.
- Added track in $PFLAA when stealth mode is active.
- Improved glider tow detection for less nuisance alarms.
- Record more diagnostics information in IGC files.
- PowerFLARM: ADS-B warnings can now be disabled by configuration.
- Classic FLARM including OEM FLARM devices: Changed default horizontal range to maximum value of 25’000 m.

Fixes

- GPS leap second updated.
- Classic FLARM including OEM FLARM devices: Fixed radio ID if SD card was inserted during flight while ID configuration set to automatic.
- Classic FLARM including OEM FLARM devices: Fixed nuisance warnings when erasing obstacle database from the memory.
- PowerFLARM: Reintroduced audio out beep at startup.
- Fixed incorrect date in IGC file in some rare cases.
- PowerFLARM: Fixed IGC file naming regardless of license type: use ‘G’ for IGC-approved devices and ‘X’ for other devices.
- Fixed CM2 header in IGC file.
Version 6.02

Published 1 April 2015

Platforms All FLARM and PowerFLARM devices including OEM FLARM devices
Build 7592
Expiration Not operational after 31 Mar 2017

Changes since 6.01

Fixes

- The AZN licenses can be now installed.
- Problem with setting correct aircraft type using PowerFLARM Portable display was solved.
Version 6.01

Published 18 March 2015

Platforms All FLARM and PowerFLARM devices including OEM FLARM devices
Build 7571
Expiration Not operational after 31 Mar 2017

Changes since 6.00

Fixes

- Device ID for radio communication was computed incorrectly on some devices if configured to automatic. Only LX06, LX06_FR and LX_IGC08 devices are affected.
Version 6.00

Published 13 March 2015

Platforms All FLARM and PowerFLARM devices including OEM FLARM devices
Build 7560
Expiration Not operational after 31 March 2017

Applicability
All FLARM, PowerFLARM and FLARM-compatible devices must upgrade.

Changes since 3.41 / 5.14

Enhancements

- Increased position accuracy in radio protocol for increased performance and less nuisance alarms.
- Increased maximum range in radio protocol to >300km. New PowerFLARM devices have significantly higher transmit power and receiver sensitivity, requiring support for increased maximum range.
- Added opt-out option for ground tracking (“no track”). If set, receiving ground stations do not process or store position data of aircraft. Due to increased popularity of using FLARM for flight tracking and to respect privacy concerns.
- Stealth mode improved to provide increased situational awareness and prevent unfair advantages during competitions. Modifications based on IGC and other recommendations.

New behavior:

<table>
<thead>
<tr>
<th>Target ID</th>
<th>Target is more than 2km / 300m vertical away</th>
<th>Target is closer than 2km / 300m vertical</th>
<th>Target is nearby / collision alarm detected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anonymous ID</td>
<td>Not available</td>
<td>Anonymous ID</td>
<td>Anonymous ID</td>
</tr>
<tr>
<td>Available</td>
<td>Not available</td>
<td>Available</td>
<td>Available</td>
</tr>
<tr>
<td>Available</td>
<td>Not available</td>
<td>Available with noise</td>
<td>Available</td>
</tr>
<tr>
<td>Available</td>
<td>Not available</td>
<td>Not available</td>
<td>Available</td>
</tr>
<tr>
<td>Available</td>
<td>Not available</td>
<td>Not available</td>
<td>Available</td>
</tr>
<tr>
<td>Available</td>
<td>Not available</td>
<td>Not available</td>
<td>Available</td>
</tr>
</tbody>
</table>

- Introducing alert zones marked by ground stations to notify pilots of active parachute dropzones, RC / RPAS / UAS flying areas or similar.
- RF frequency band adjusted for South America. All (North-) American units can operate in South America.
- Improved Glider tow detection for less nuisance alarms.
- Record more diagnostics information in IGC files
- Configured Data Port protocol version is now stored permanently in the device
- PowerFLARM: Mode-C/S warnings can now be silenced using $PFLAC,S,PCASBEEP,0
- PowerFLARM: Audio OUT volume can now be adjusted using $PFLAC,S,AUDIOVOLUME, <percent>
- PowerFLARM: Config file will now be read from CF<C|P><SSSSS>.TXT in addition to FLARMCFG.TXT. This is useful to quickly deploy a large base of units
- PowerFLARM: Startup log will now be written to file PF<C|P><SSSSS>.TXT
- PowerFLARM: GPS signal strength will now be recorded in IGC files
- PowerFLARM: Updated grandfather feature licenses
- PowerFLARM: Reduced nuisance warnings for gliders with ADS-B Out
- PowerFLARM: Alarms will now be issued even when outside the configured FLARM range
- PowerFLARM: Improved alarm suppression when on ground
- PowerFLARM Portable: Audio is disabled when operating on batteries

**Fixes**

- PowerFLARM: Fixed reset loop while removing obstacle database from memory.
- Classic FLARM: IGC F-record fixed
- Fixed some Data Port sentences
- Fixed TRX devices restarting in flight
- Geography for Israel frequency use corrected
- PowerFLARM: Fixed IGC validation issue in 3.41