Alfen NG9xx series Release notes

Release notes version 6.1.0

March 1, 2023

ALFEN
POWER TO ADAPT

Table of contents

Page

Introduction

Firmware release **6.1.0** is a minor release that introduces the UK Smart charging requirements full implementation, alongside a number of improvements and bug fixes.

In order to optimally benefit from new features and latest stability improvements we strongly recommend installing this latest firmware release. To have full support for all settings, please make sure to update Service Installer Application and/or MyEve to the latest versions. In addition, MyEve app specifically supports certain features of the UK smart charging requirements such as “direct start” and a graphical presentation of past transactions. Navigate to the Alfen website to obtain the latest version of the Service Installer Application, or use the built-in update feature. MyEve is available for download in the app stores.

New features

2.1 Compliance features for UK smart charging

For the UK smart charging requirements several features have been implemented to make private owners less dependent on charging service providers.

Explanation of the functional specification as part of the integral product and use of configuration applications is available in the Technical Files for Eve Single and Eve Double,

2.1.1 Local Charging profiles and randomised delay

Allows to configure local Time-of-Use schedules using Alfen configuration applications. These represent the default charging hours in the UK. The chargepoint assumes to have a local schedule applied similar to many other charge points. To protect the national grid, a randomised delay is applied at the start *and* stop of each period in this schedule.

When is a randomised delay applied:

a) At the start of an ‘ON’ period (off-peak charging); the delay is applied after the start of the period. For example: 11.00AM + 135 seconds
b) Before the end of an ‘ON’ period (approaching on-peak charging hours); the delay is applied before the end of the period. For example 4.00PM – 49 seconds
c) Power outage: when the charge point reboots after a power outage, it will attempt to restart the previous charging session. When successful, a random delay is applied before energy transfer to the vehicle is resumed.

For each programmed change from on-to-off, or vice versa, a different random delay is applied. It will be logged by the charge point and is available for analysis through diagnostics file if needed.

The maximum delay can be configured between 0 – 3600 seconds, with default 0 seconds for deliveries outside United Kingdom. When set to ‘0’, there is no random delay applied.

Note 1: When the charge point is configured within UK mainland, the MyEve app will configure the chargepoint to the correct setting of 600 seconds maximum delay using location information.

Note 2: when configured, take into account that a low value of this parameter reduces the effective randomness of the delay because the delay is conferred to the nearest second. Although it is still random when using a low value, avoid configuring this parameter to e.g., 1 or 2. Instead increase the maximum delay, or set to '0'.

It is possible to configure the maximum delay through the central management system, using configuration parameter RandomisedDelay.

Roll-out heads up; If a charging station had a charging profile saved locally and no backoffice configured, this profile will now be executed.

2.1.2 Direct start

Implemented the charging profile override behaviour which is needed for the Direct Start functionality of the UK smart charging requirements. The command can be sent to the charge point using Alfen configuration application (MyEve). For those offering charging services to the owner through a backoffice system, it remains possible to offer their own apps and have the owner control energy flow through the backoffice.

How it works:
Direct Start will override both the local charging profile (Time-of-Use schedule) and charging profiles received through remote backends. Override means that the schedule(s) that block energy transfer will be ignored. The event of an "override" will be logged, however there is no log of which profile was overridden.

Important notice: overriding profiles may also impact profiles sent by local energy management systems (EMS) devices that use OCPP. The chargepoint has no knowledge of the source of the charging profiles, and in combination with the regulation (requiring the possibility to override DSR services), this results in a potential risk of blackouts when the profile originates from a local EMS. It is recommended to use Alfen EMS functionalities through Modbus (Active Load Balancing license required) because these interfaces will remain in effect. It is therefore recommended not to use OCPP as a protocol for local EMS systems, or otherwise recommend owner to use an app provided with the EMS instead of MyEve app.

2.1.3 Tamper detection

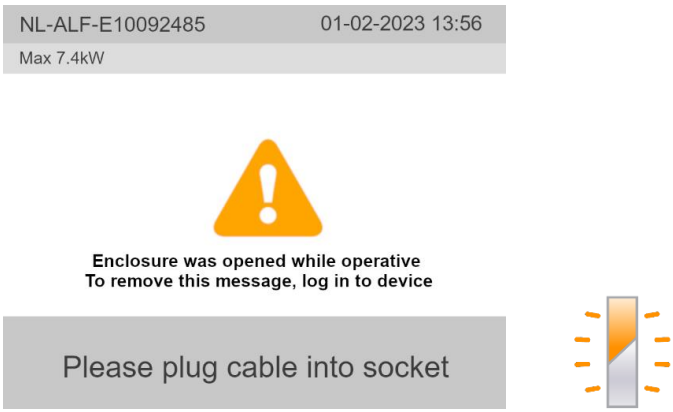
Support for tamper switches is added. The solution is backwards compatible to allow a retrofit and at the same time it does not impact existing charge points that have no tamper switch installed. A charging station that has not detected a tamper switch before will stay in the "Unknown" tamper state.
When the charge point detects a tamper switch it activates the feature which cannot be undone. Removing the tamper switch does not help either, the charge point will remain in the tampered state permanently.

Possible tamper states:

- No tamper (engaged, idle); Only with the enclosure in closed state
- Tampered; feature is engaged, with the enclosure in opened state, with a delay of 5 seconds
- Tamper acknowledged; The owner confirmed that the tampered state can be cleared after closing the product again. The enclosure can remain opened in the meantime.

Example notification from charge points to the end-user

Once in the tampered state, the product will show a message on the display explaining that the enclosure was opened. Eve Single S-line will show an orange blinking LED to indicate the tampered state.

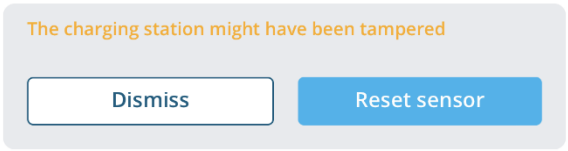


Example security notification to the backend

When tampered, a security notification will be sent to the backoffice Example:
SecurityEventNotification",{"timestamp":"2022-1215T11:22:18Z", "type":"TamperDetectionActivated"

Clearing the tampered state using MyEve

The tampered state can be cleared by using an Alfen configuration app (like MyEve). Once closed, the chargepoint will go from “Tamper Acknowledged” to “No Tamper”, 10 seconds after the enclosure has been closed. This grace period is given to the installer to close the cover properly.



2.2 Local time

Local time is implemented to support scenarios where local charging schedules are used in standalone or offline charge points. It allows the owner to have their local time displayed and configure the local schedules using their local time (where central management systems typically use UTC).

Improvements

- Fixed data field definitions for network profiles
- Improved handling of network profile priorities
- Fixed issues with security events in OCPP2.0.1 which were not sent with security profile level 0.

Minor changes

Added support for charging profile type external constrains

Security profiles are now implemented for each network profile
The security level is only updated to the intended level once a connection to a backend on that level has been established.
As security levels cannot be downgraded anymore, network profiles with lower security levels will have a reduced priority of '0' (none) and cannot be selected anymore until the security level is increased at least similar to the connection in actual use.

Switch protocol versions (1.5, 1.6 or 2.0.1) without reboot
Previously a reboot was needed, now this is not the case anymore.

Added improvement where switching from mobile to wired connection could result in loss of connectivity

Added improvement to ensure MeterValues are no longer queued until after a transaction has finished (since firmware version 6.0)

Communication changes

5.1 Backend

Property	Description	Values	Access
Added			
RandomisedDelay	Random delay in seconds, this is conferred to the nearest second and a different randomized delay is applied for every change of charging rate as defined in the default charging hours	0 – 3600 Default 0	Read / write

5.2 Error codes

No new error codes added