Technical File

The Electric Vehicles (Smart Charge Points) Regulations 2021

Contents

This template is provided to assist sellers of relevant charge points that are subject to the Electric Vehicles (Smart Charge Points) Regulations 2021 ("the Regulations") in meeting the requirements of Regulation 13.

This requires the seller to have a technical file for any relevant charge point that they sell, and to supply a copy of the technical file to any purchaser on request. In the event of bulk purchases, a single technical file can be provided for all identical charge points. Separate technical files are required however if there are any differences in make, model, software version etc between charge points sold.

The seller is not mandated to use this template, but any alternative format must meet the requirements of the Regulations.

This document is the technical file for the following charge point:

Charge point make:	HUMAX
Charge point model:	HS71007x/AMx.C0.M0.320x/UK
Software version at point of sale:	SOEE v1.0.5
Seller: *Person responsible for compliance with the Regulations*	Humax Electronics Co. LTD
Manufacturer(s): *If different to seller*	Humax Co., Ltd
Last update to technical file:	24 July 2025

Description of the smart charge point

This page outlines the general description of the charge point, including a description of its design manufacture, and operation.

(Note: all descriptions must be written in plain English, including written descriptions of any diagrams or drawings used or referred to)

This section describes the charge point general design, manufacture, and operation.

Humax charge point is designed and manufactured with focus on delivering affordable, fast, and easy-to-install charge point for UK residential application. The charge point is configured with Humax software out of the box to provide smart charging and other features. The charge point is manufactured in Korea with extensive development feedback from UK market.

Its feature includes:

1. Single phase charging power (up to 7kW)
2. IP65 Rating
3. Integrated RFID Reader (Mifare ISO/IEC 14443A)
4. 2.4GHz Wi-Fi connection + Ethernet connection
5. Built-in 6mA RDC-DD + RCBO External Installation
6. Built-in PEN Fault Protection
7. Built-in Powerline Communication Module(PLC)
8. Manual and Smart Control through Humax application
9. LED Indicator

Operating manual

Copy of operating manual as available at point of sale can be found *(cross as appropriate)*:		~~Attached to this document (hard copy)~~
	√	Attached to this document as a digital file (soft copy) HS71007_Manual_rev1.0_reduced.pdf
		~~Available online via hyperlink (soft copy)~~
Link if available online:		https://www.humaxcharging.com/uk/resources/documents-and-manuals

Version of file received at point of sale if available online:	

Technical solutions implemented to meet the requirements of the Regulations

This section provides descriptions in plain English of the solutions adopted to meet the requirements of the Regulations, including descriptions and explanations in plain English of any diagrams or drawings used.

Information provided here may be appended if appropriate, but any appendages should be listed here with clear indication of which specific requirement(s) they evidence.

Smart functionality

Requirement	Technical solution adopted to meet the requirement
Charge point is able to send and receive information via a communications network	The charge point can connect to the internet through Wi-Fi or Ethernet. It sends and receives information based on OCPP 1.6 protocol.
Charge point is able to respond to signals or other information received by it by: • Increasing or decreasing the rate of electricity flowing through the charge point • Changing the time at which electricity flows through the charge point	The charge point respond signal sent by Humax server to control the rate and timing of the current flow through the charge point based on OCPP 1.6 protocol.
Charge point is capable of using this functionality to provide demand side response services, including response DSR services	The charge point can be controlled remotely through Humax server to provide demand-side response services when it is available
Charge point has at least one user interface, incorporated in the charge point or otherwise made available to the owner	The charge point has multiple user interface: - Humax mobile application available from the Apple App Store and Google Play Store. This is the main user interface to control the charge point - Bluetooth Interface / A temporary Bluetooth interface is activated for 15 minutes after the charge point is powered on, allowing the user to configure Wi-Fi settings on the charger. - LED light for status indication - RFID card and reader for charging session authorization

Electricity supplier interoperability

Requirement	Technical solution adopted to meet the requirement
Charge point is configured such that is will not cease to have smart functionality if the owner changes their electricity supplier	The charge point smart functionality depends on the availability of an accessible 2.4GHz Wi-Fi with internet connection and minimum signal strength of -60dBm. Or it depends on Ethernet connected to the internet. Change in electricity supplier does not influence the charge point smart functionality.

Loss of communications network access

Requirement	Technical solution adopted to meet the requirement
Charge point is configured such that, in the event it ceases to be connected to a communications network, it will remain capable of charging an electric vehicle	The charge point can be paired to RFID cards enclosed in the package through Humax Charger Installer app as Charge Key which can be used when the network is offline.

Safety

Requirement	Technical solution adopted to meet the requirement
Charge point is configured such that it will not allow a relevant person to carry out a specified operation where to do so would or may result in a risk to the health or safety of persons. "Relevant persons" means the owner, or an end-user of the relevant charge point who is not the owner. "Specified operation" means: • Overriding the default mode of charging during the default charging hours • Overriding the provision of demand side response services • Overriding the random delay	The charge point operation is changeable through a secure authorized access of its user interface. The charge point is also equipped with well-designed automated electrical protection which along with the externally required electrical protection device, such as type A RCBO, protects the end-user and other person in vicinity from health and safety hazard

Measuring system

Requirement	Technical solution adopted to meet the requirement
On each occasion it is used, the charge point measures or calculates:	The charge point measures voltage and current during a charging session. The electrical power (kW) and electrical energy (kWh) are then calculated. This

• The electricity it has imported or exported (in watt-hours or kilowatt-hours) • The amount of time for which it is importing or exporting electricity	information is sent to Humax Charge server. The total imported energy can be seen from Humax Charge app and portal.
The charge point is configured such that the owner can view the information in reference to: • Any occasion on which it was used to import or export electricity within the past 12 months • Any month within the past 12 months • The entirety of the last 12-month period	All charging sessions data are stored in the Humax Charge servers. The owner of the charge point is able to retrieve all relevant information since the charge point was connected to Humax Charge server.
The charge point is configured such that it can: • On each occasion it is used, measure or calculate every one second the electrical power it has imported or exported (in watts or kilowatts) • Provide this information via a communications network	The charger measures the power output every second. But Transmitting the information every second would cause significant amount of load to Humax server. Thus, the charge point will not transmit this information via a communications network every second unless it is required by a demand-side response service through Humax
The charge point is configured such that: • The figures measured or calculated are accurate to within 10% of the actual figure • Any inaccuracies are not systematic	The charge point has power and electrical energy measurement accuracy within 10% of the actual figure. There is no systematic inaccuracy.

Off-peak charging

Requirement	Technical solution adopted to meet the requirement
The charge point: • Has pre-set default charging hours which are outside of peak hours • Offers the owner the opportunity to accept, remove, or change the default charging hours on first use • Offers the owner the ability to change, remove, or set default	When connecting any charge point to Humax Charge server in UK, it is configured by default to charge only outside of peak hours. The owner can, either during initial setup or at any time afterward, using Humax Charge mobile application to change, remove, or reset the default charging hours, and may also choose to allow charging during peak hours if desired.

charging hours any time after first use unless the charge point is sold with a DSR agreement, configured to comply with the requirements of this agreement, and details of the agreement are included in the statement of compliance	
The charge point is configured: • To charge a vehicle during the default charging hours (if any), unless the owner overrides the default mode of charging during this time • Such that the owner can override the provision of demand side response services	The charge point will charge a vehicle during pre-set default charging hours unless the owner overrides the default charging hours or the charging mode. The owner can override the default charging hours or the charging mode in the Humax Charge mobile application, and can also initiate charging regardless of the pre-set charging hours.

Randomised delay

Requirement	Technical solution adopted to meet the requirement
The charge point is configured such that it must operate, at each relevant time, with a delay of random duration up to 600 seconds, determined to the nearest second each time	Humax Charge server generates the random delay between 0 to 600 seconds before actual charging starts when a scheduled charge is initiated
The charge point is configured such that the maximum duration of this delay can be remotely increased to up to 1800 seconds if required	As the random delay is handled by the Humax Charge server, Humax will be able to implement a forced longer random delay if required.
The charge point is configured such that the random delay will not operate where: • The owner or another relevant end-user has manually overridden it • An equivalent random delay has already been applied to the operation of the relevant charge point • The charge point is responding to a response DSR service	The owner has the option to disable the random delay in the Humax Charge mobile application.

Security

[Information in this section is only required from 30 December 2022. Before this date, completing this section is optional.]

Requirement	Technical solution adopted to meet the requirement
General principles The charge point is designed, manufactured, and configured to provide appropriate protection: • Against the risk of harm to, or disruption of the electricity system • Against the risk of harm to, or disruption of, the charge point • For the personal data of the owner and any other end-user of the relevant charge point	If a charge point is in any way in unsafe condition, as defined by IEC 61851, it will switch to fault mode. The user will not be able to override the specified operation. OCPP J1.6 whitepaper profile 2 or above is implemented on the communication between charge point and OCPP platform The charge point is compliant with EN 303 645 standard to protects personal information of the owner or the user of the charge point.
Passwords The charge point is configured such that where passwords are used on it: • The password is unique to the charge point and not derived from, or based on, publicly available information, or is set by the owner • The password cannot be reset to a default password applying to both the charge point and other charge points	The charge point does not use explicit passwords to access the charge point.
Software The charge point incorporates software which is able to be securely updated using adequate cryptographic measures to protect against cyber attack	[HUMAX complies with EN 303 645] The charge point supports secure upgrades.
Software The charge point is configured such that: • It checks for security updates available when first set up by the owner and periodically after • It verified the authenticity and integrity of each prospective software update by reference to both the data's origin and its contents and only applies the update if the authenticity and integrity of the software have been validated	[HUMAX complies with EN 303 645] The charge point fully supports the update functionality required by EN 303 645.

• By default, it provides notifications to the owner about prospective software updates • The owner can implement software updates without undue difficulty	
Software The charge point is configured such that: • It verifies via secure boot mechanisms that its software has not been altered other than in accordance with a validated software update • If unauthorised change to software is detected, it notifies the owner and does not connect to a communications network other than for purposes of this notification	[HUMAX complies with EN 303 645] The charge point supports secure boot and notifies the user if any changes occur.
Sensitive security parameters The charge point is configured such that: • Security credentials stored on the charge point are protected using robust security measures • Software does not use hard-coded security credentials	[HUMAX complies with EN 303 645] The charge point supports the security measures required by EN 303 645 and does not use hard-coded software.
Secure communication The charge point is configured such that communications it sends are encrypted	[HUMAX complies with EN 303 645] The charge point supports WSS and TLS 1.3.
Data inputs The charge point is configured such that: • Data inputs are verified so that the type and format of the data is consistent with that expected for the function • If such data cannot be verified, it is discarded or ignored by the charge point in a relevant manner	[HUMAX complies with EN 303 645] The charge point supports the following. 1. InpVal-Regular Expressions 2. InpVal-Range Checking 3. InpVal-Length Checking 4. InpVal-Format Validation 5. InpVal-Data Integrity Verification
Ease of use The charge point is configured to minimise the inputs required from the	[HUMAX complies with EN 303 645] The user can operate the system with minimal input through the mobile user app.

owner in connection with its set-up and operation	
Ease of use The charge point is configured such that any personal data can be deleted from it by the owner without undue difficulty	[HUMAX complies with EN 303 645] The charge point allows easy deletion of personal data through the user app without difficulty.
Protection against attack The charge point is designed and manufactured to provide an adequate level of protection against physical damage to the charge point	[HUMAX complies with EN 303 645] The charge point is designed to provide protection against physical damage.
Protection against attack The charge point incorporates a tamper-protection boundary to protect the internal components of the charge point	[HUMAX complies with EN 303 645] The charge point provides tamper protection functionality to secure the tamper-protection boundary.
Protection against attack The charge point is designed and manufactured to provide an adequate level of protection to its user interfaces and against use or attempted use of the charge point other than through the user interface	[HUMAX complies with EN 303 645] The charge point is accessible only to authorized users.
Protection against attack The charge point is configured such that: • If there is an attempt to breach the tamper-protection boundary, the owner is notified • Its software runs with only the minimum level of access privileges required to deliver functionality • Any logical or network interfaces that are not required for the normal operation of the charge point or otherwise comply with the Regulations are disabled • Software services are not available to the owner unless necessary for the relevant charge point to operate • Any hardware interfaces that are used for the purposes of testing or development, but not otherwise	[HUMAX complies with EN 303 645] The charge point faithfully implements EN 303 645 and meets all its requirements.

during the operation of the charge point are not exposed	
Security log The charge point incorporates a security log – an electronic record which includes attempts (whether or not successful) to: • Breach the tamper-protection boundary • Tamper with the relevant charge point • Gain unauthorised access to the charge point These entries must record the time and date the event occurred (by reference to Coordinated Universal Time).	[HUMAX complies with EN 303 645] The charge point stores the security log in FLASH memory, and logs any tampering attempts as well.

Test reports

The Regulations do not set a requirement to test charge points, however if tests have been performed which are deemed relevant to evidencing compliance with the Regulations, these should be included in this document.

This page documents the outcome of any tests. Resulting test reports, certifications, or other evidence should be attached to this file.

Name of test	Date of test	Outcome	Certificate attached to file?	Notes (e.g., did test occur via third party?)
EN 303 645	24 July 2025	PASS	N/A	Humax Internally tested