California Type Evaluation Program

Certificate of Approval

Weighing and Measuring Devices

For:	**Submitted By:**
Electric Vehicle Fueling Systems (EVFS) DC Only Models: HYC_50UL HYC_200UL HYC_400UL	alpitronic GmbH Bozner-Boden-Mitterweg 33 39100 Bozen Italy Contact: Dr.-Ing. Marko Hoerter Tel: (011 US exit code) +39 347 846 2995 Email: m.hoerter@alpitronic.it Web site: https://www.alpitronic.it/

Standard Features and Options

Standard Features:

- Direct Current (DC) system in kilowatt-hour (kWh)
- Accuracy Class 2.0 for DC with 1.0% accuracy tolerance or better
- Single, Dual, Triple, and Quad port charging with Combined Charging Standard type 1 (CCS1), CHArge de MOve (CHAdeMO), and North American Charging Standard (NACS) connection options
- Maximum Rate of Energy Transfer: 50, 200, and 400 kW
- Maximum Deliverable Amperes (MDA):
  HYC_50UL: CCS1 150A, CHAdeMO 125A, NACS 150A
  HYC_200UL: CCS1 600A, CHAdeMO 200A, NACS 600A
  HYC_400UL: CCS1 600A, CHAdeMO 200A, NACS 600A
- Minimum Measured Quantity (MMQ): 0.1 kWh
- Voltage Rating: 1000VDC for CCS1 and NACS, 500VDC for CHAdeMO
- Temperature Rating: -30°C to 55°C (-22°F to 131°F)
- Software (SW) Version: hyc_v2.2.0 or higher
- 0.0001 kWh display resolution with non-resettable totalizer
- Internal meter and cloud data storage with network connection
- Activation via payment card, Radio Frequency Identification (RFID)

Options:

- Automatic activation via Autocharge and ISO 15118 Plug and Charge
- Hardware-ready for ISO 18118 bi-directional charging (Vehicle-to-Grid)
- Time-based fees (Time-of-Use Rates and parking fees)

This device was evaluated under the California Type Evaluation Program (CTEP) and was found to comply with the applicable requirements of California Code of Regulations for "Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

Kevin Schnepp, Director
Effective Date: February 20, 2024

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Electric Vehicle Fueling Systems / Models: HYC_50UL, HYC_200UL, HYC_400UL

Application: For use as an Electric Vehicle Fueling System (EVFS) in commercial applications under the California Code of Regulations (CCR) and the National Institute of Standards and Technology (NIST) Handbook 44 Section 3.40. EVFS are also known as Electric Vehicle Supply Equipment (EVSE).

Identification: The alpitronic identification (ID) badge (***Figure 1***) is located on the left side of the device body, when facing the EVFS. The SW version is displayed on the top left corner of the EVFS display when the screen is idle (***Figure 2***). The totalizer values and maximum power capacity are located on the connector selection screen (***Figure 3***).

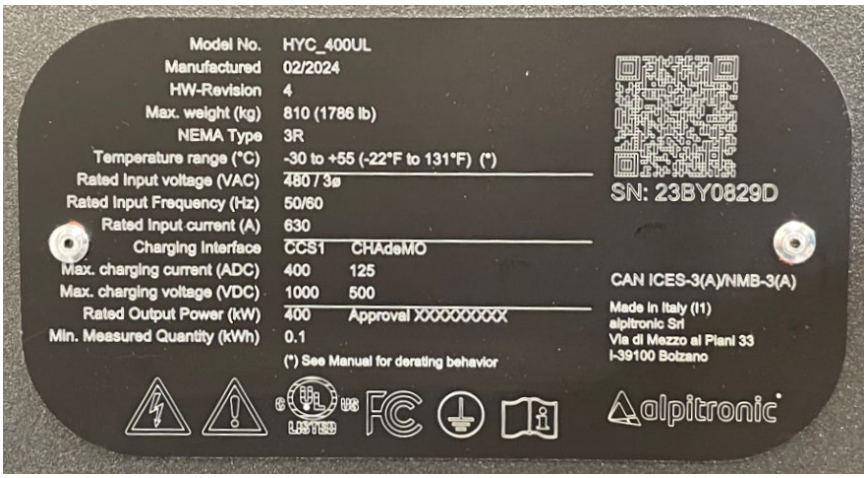

Figure 1. Example of ID badge

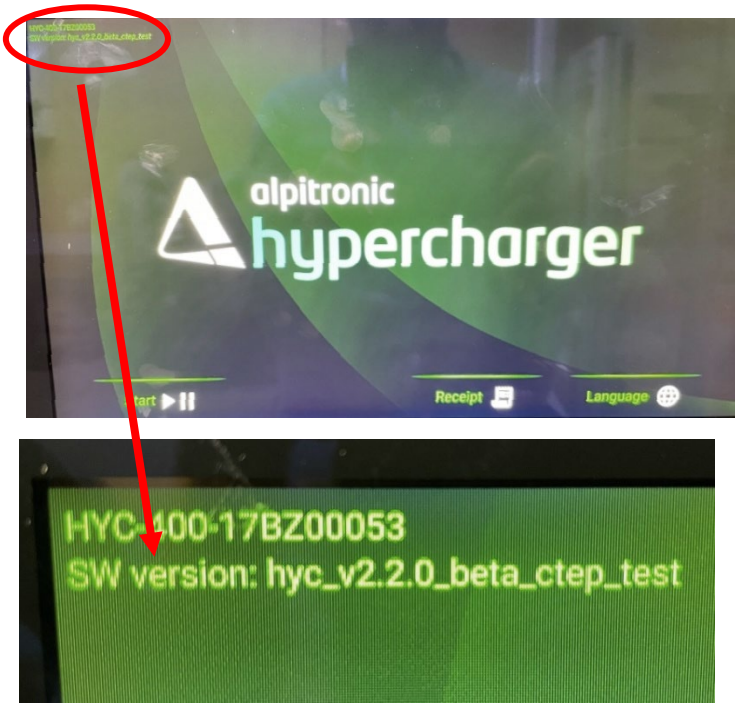

Figure 2. SW version number

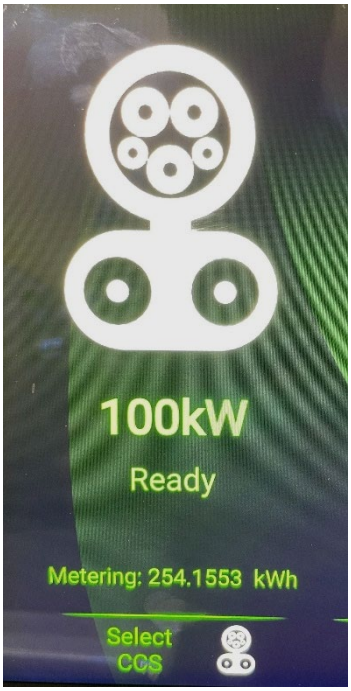

Figure 3. Totalizer value

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Sealing: The alpitronic EVFS is a Category 1 device, which cannot be recalibrated. The meters are enclosed in a clear plastic casing and secured with a zip seal to indicate if the meter is removed (***Figure 4***).

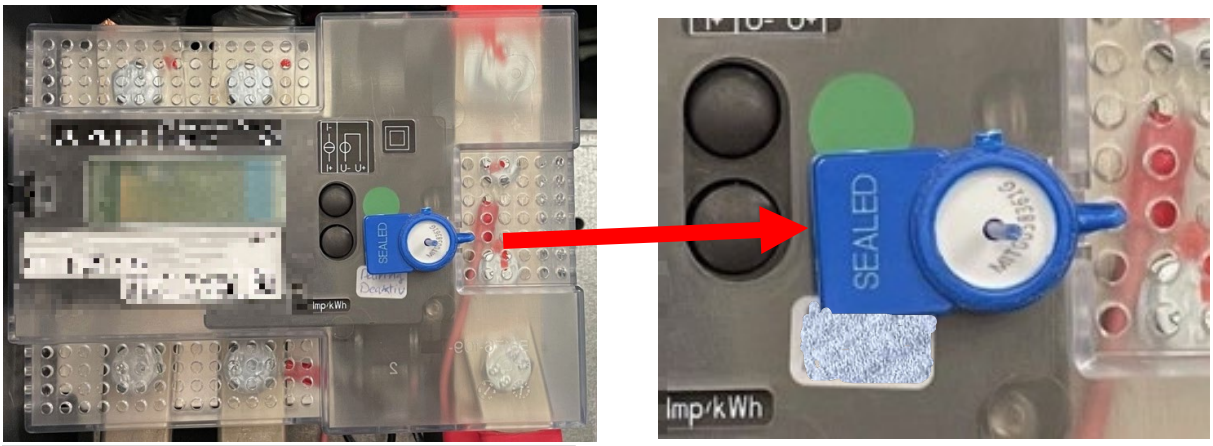

Figure 4. Meter enclosed and sealed

Operation: To start a charging session for non-automatic activation methods, the user must touch the display screen and select which charge connector they will use. After selection of the authentication/payment method, the EVFS must be connected to the vehicle. The user may use a member associated RFID card, an Electric Vehicle Service Provider (EVSP) app or choose to pay via payment card. For payment card transactions, follow the prompts on the point-of-sale terminal/payment card reader. To stop the session before charging is complete, the user can press "Stop" on the display screen or app. Membership users will receive their receipt via email or EVSP app. Payment card users can access their receipt via the receipt website: www.hyc.cash. The user must provide the location of the charger or the Charger ID, the date and last 4 digits of the payment card used for the charging session (Figure 5). The receipt of the last charging session will be displayed to the user, along with the option to have it emailed.

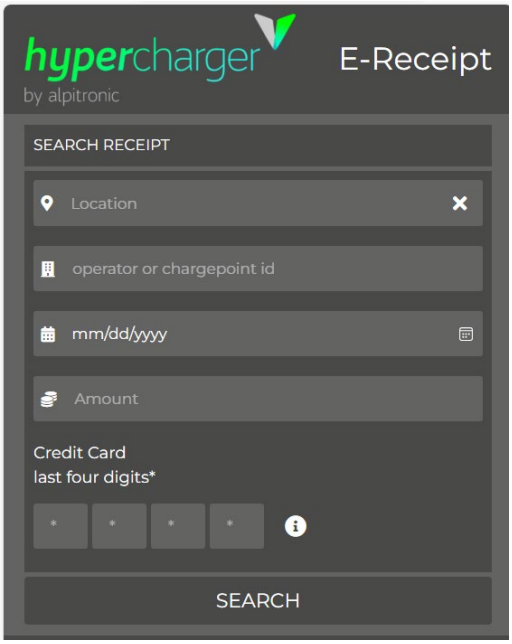

Figure 5. Receipt website

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Test Conditions: The emphasis of the evaluation for this EVFS focused on device design, performance, markings, time-based fees, sealing and energy measurement accuracy. Test measurements for the 50kW model were taken at 10% MDA: 50A and 85% MDA: 128A, over 1.0kWh and 2.0 kWh, respectively. Test measurements for the 400kW model were taken at 10% MDA: 60A and 85% MDA: 510A, over 2.0kWh and 4.0 kWh, respectively. Permanence testing was performed after 200 kWh of throughput using the same accuracy test conditions. The EVFS under test were configured with the standard 3.5-meter cable and CCS1 connector.

Evaluated By: J. Burbridge (CA)

Type Evaluation Criteria Used: *California Code of Regulations, Title 4, Division 9, Chapter 1, Article 1. General Code 1.10. and 3.40. Electric Vehicle Fueling Systems. 2023 Edition.*

Conclusion: The results of the evaluation and information provided by the manufacturer indicate the device complies with applicable requirements.

Example(s) of the Device:

HYC 50UL

HYC 200UL

HYC 400UL