

California Type Evaluation Program

Certificate of Approval

Weighing and Measuring Devices

For:

Hydrogen Gas-Measuring Device
Retail Motor Fuel Dispenser (RMFD)
Model(s): UBF1332, UBF1222, UBN1332, and
UBN1222

Capacity:

\$9999.99 Total Sales
999.999 kg Total Mass
\$99.99 Maximum Unit Price

Accuracy Class: 5.0

Submitted By:

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Standard Features and Options

Standard Features:

- Tatsuno Corporation Sensor and Transmitter Type: FM-1135; 3/8"; 0.25 – 3.6 kg/min Coriolis Mass Flow Meter
- Model UBF/UBN1332; 3-Hose Dispenser: 2 H70 (700 Bar) Fill Pressures and 1 H35 (350 Bar)
- Model UBF/UBN1222; 2-Hose Dispenser: 2 H70 (700 Bar) Fill Pressure
- 1 meter per hose
- Up to 2 simultaneous fills
- Membership pricing for H70M (see **Figure 5**)
- Debit/Credit Card Reader in Dispenser (CRIND) and Point-Of-Sale (POS)
- Receipt printer
- Alpha-numeric keypad
- Back-lighted Liquid Crystal Display (LCD) information screen for operating instructions
- Separate segmented display windows for unit price, kg dispensed, and total sale
- Minimum Measured Quantity (MMQ) of 0.5 kg

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.

Kristin Macey

Kristin Macey, Director
Effective Date: June 10, 2020

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Hydrogen Gas-Measuring Device / Model(s): UBF1332, UBF1222, UBN1332, and UBN1222

Application: For use in dispensing compressed hydrogen gas as a motor vehicle fuel.

Identification: The hard identification (ID) label is attached inside the dispenser upper-mid section (see *Figure 1*).

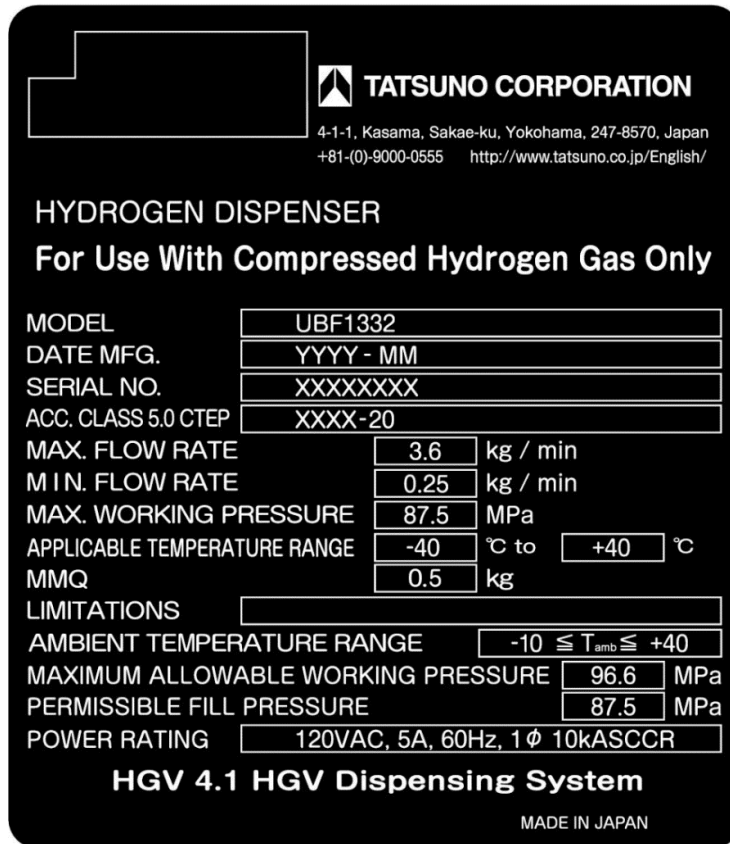


Figure 1. Hard ID badge located inside the dispenser.

Sealing: Dispenser has a Category 2 wire security sealing provision. Access to all metrological features and functions are controlled with the use of a security switch located behind the mass flow metering transmitter face cover and inside the transmitter housing (*Figure 2*). Each pressure class hose has a dedicated mass flow metering system consisting of a transmitter and sensor. The hydrogen dispenser may have up to two mass flow metering systems on one side, with one additional mass flow metering system on the other side of the dispenser's two locked upper cabinets. The calibration switch has two positions: "ON" or "OFF" (*Figure 2*). When "ON," the calibration switch, "CH3," is in the down position. The dispenser's kilograms registration display window will indicate "C2" if any meter calibration switch is in the calibration mode and cannot be sealed if left in this mode (*Figure 3*). Ensure the "C2" is not displayed prior to sealing the transmitter. Each meter cover is sealed to the meter housing by threading a security seal through a drilled head screw that's attached to the cover of the housing (*Figure 4*).

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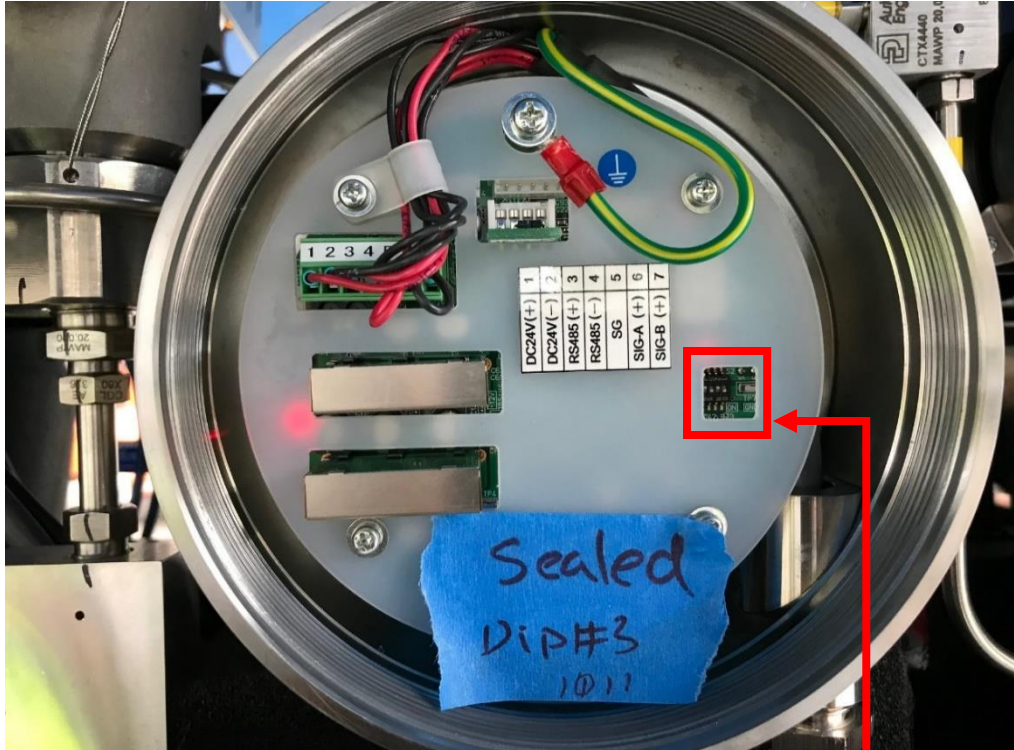


Figure 2. Category 2 sealing provision

CH4	CH3	CH2	CH1
	ON		



Figure 3. The face of the dispenser will indicate "C2" if placed in calibration mode.

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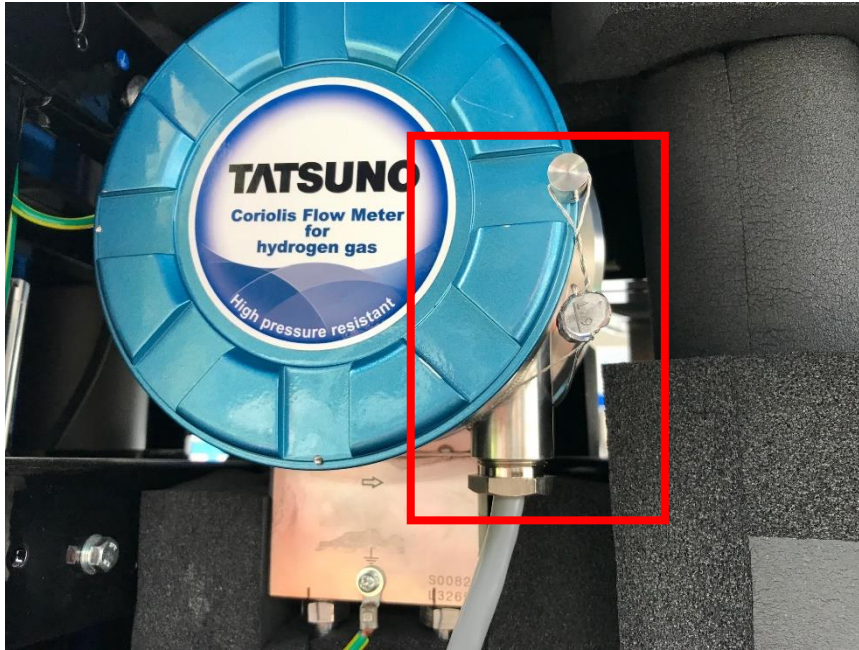


Figure 4. Each transmitter cover is sealed to the meter housing by threading a security seal through a drilled head screw.

Operation: Authorization to dispense is controlled using a credit/debit card or other fleet issued card. Operation instructions are presented on the video display after authorization to dispense hydrogen. Flow rates are dictated by the dispenser to prevent overheating of the fill tanks.

Test Conditions: The emphasis of the evaluation was on device design, performance, markings, sealing, accuracy, repeatability, and permanence. The device was tested gravimetrically. Multiple drafts were drawn using combinations of non-communication partial fills by manually stopping the dispenser, and non-communication full fills by allowing the dispenser to stop automatically at varying flows of 0.4 kg/min up to 3.6 kg/min from each 700-bar hose. Multiple drafts were also drawn from the 350-bar hose under the same conditions as above for non-communication fills. Flow rates were dictated by the dispenser to prevent overheating of the fill tanks. The MMQ of 0.5 kg was also tested. Tests described above were repeated after approximately 60 days, and all test results were within the acceptance tolerance for accuracy class 3.0. Applicant opted for accuracy class 5.0.

Evaluated By: R.N. Ingram (2020)

Type Evaluation Criteria Used: *California Code of Regulations, Title 4, Division 9, Chapter 1, Article 1. General Code 1.10. and Hydrogen Gas-Measuring Devices 3.33.*

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

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Example(s) of the Device:



Figure 5. Example of grade pricing including H70M membership pricing

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Figure 6. Hydrogen Dispenser