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# LCR.iQ

**SAFETY**  
**MOBILITY**  
**CONFIGURABILITY**  
**EASE OF USE**

part of  
**CENTRILOGiQ'**



**LIQUID CONTROLS\***

# FUELING AUTOMATION MADE EASY



v1.13

including features from previous releases

### QR Code e-Tickets



(pat. pending)

Collect e-ticket data by scanning a QR Code

### Configurable Prompts



Enter custom ticket data before or after delivery

### Pump Timer Control



Set parameters for starting and stopping the pump.

### Multi-Language



Language updates

# LCR.iQ Designed by those who use it

Built from the ground up by Liquid Controls' Research & Development team with close collaboration with customers. Fueler safety, ease of use, and data management are the highest priorities in the design of the LCR.iQ®.

## HIGH-RESOLUTION DISPLAY WITH DAY/NIGHT MODES

7" ultra bright display handles extreme climates and rigorous environmental conditions.

## LARGE SCALABLE DIGITS FOR EASY VIEWING

Large digits for easy viewing, day or night, up to 100 feet (30 m) away.

## CONFIGURABLE FUELING DATA

The LCR.iQ® allows users complete control over the fueling data fields displayed on-screen.

## SMART KEYS FOR GUIDED OPERATION

Smart keys guide the operator through next steps in the operation and minimize risk of error.

## LARGE KEYS FOR EASY OPERATION

Large UV & fuel resistant elastomer keys provide confident feel and consistent operation.

## METER MOUNT BASE

Standard meter-mount base with integrated pulser for easy upgrade to LCR.iQ.

## CONFIGURABLE SCREEN DETAILS

Easily configurable fueling screens. Features like **tank level gauge**, **flow rate**, **totalizers**, and any other field the register measures can be displayed on the main screen.



## PANEL MOUNT ENCLOSURE OPTION

Panel mount option allows convenient remote mounting, providing OEMs greater design flexibility.

## ACTIVE FUELING FULL SCREEN MODE

Yellow background indicates active fueling to improve safety and fueling status awareness.

## MULTI-LANGUAGE FUNCTIONALITY

Operator level languages include: English, Spanish, German, French, Portuguese, Chinese, Korean, Greek

# Configurability

## It's just that simple.

LC engineers designed the LCR.iQ® from the **user's perspective** to provide a user-guided, configurable interface that walks the operator through the complete fueling operation, **minimizing chance for error**.

### COMMON FUELING PROCESSES COMPLETED IN 3 STEPS OR LESS



### CONFIGURABLE DELIVERY PROCESSES

Guide the operator through the fueling process of your choosing. From basic pump and print to preset by volume, total price, or product weight\*, the operator can also select product type, multiple deliveries, or other options.

### OPERATOR FRIENDLY SCREENS WITH DAY / NIGHT MODES AND BRIGHTNESS CONTROL

LCR.iQ® delivery screens conveniently adapt to the various fueling modes.



Day mode idle screen Night mode idle screen Active fueling mode full screen Active night mode detail screen

### LCR.iQ® User Configuration and Setup Features

#### User Configuration Features

- Configurable idle screen** - Design the fueling screen the way you want it.
- Configurable fuel delivery process** - Step by step on-screen instructions guide the operator through the fueling process you specify.
- Configurable Languages** - English, Spanish, French, German, Portuguese, Chinese, Korean
- Configurable date, time, and units of measure formats** - Set local units of measure and date/time formats to eliminate unit conversions
- Configurable product types** - Configure product types and terms based on local terminology
- Configurable flow rate min/max thresholds** - Set alerts to notify user if flow rates exceed thresholds
- Configurable I/O settings** - Define what each input and output is assigned to and how they are utilized
- Configurable tickets and printer settings** - Easily tailor ticket header text, fields, and printer type
- Configurable product pricing and taxes** - Either fixed or user definable pricing and taxes at the delivery level
- Configurable data logging and retention period** - Define how long to retain fueling transactional data on-board the LCR.iQ®
- Configurable electronic temperature volume compensation** - Available with optional temperature probe and thermo-well kit

#### Setup, Calibration and Security

- iQ settings and preferences transferable to multiple registers** - Set up once, then backup and install configuration across multiple units
- Intuitive Calibration** - Easy to follow meter calibration and linearization process.

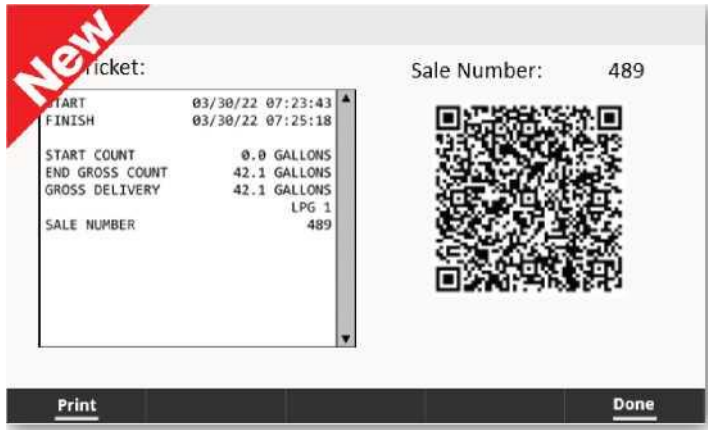
\*Preset fueling by weight is patent pending intellectual property of Liquid Controls LLC

# Features

## RECEIVE TRANSACTION DATA BY QR CODE *(patent pending)*

The LCR.iQ provides the ability to retrieve electronic ticket data by scanning a QR Code with any iOS or Android smart device.

Once scanned, the data can be sent by text message, email, or even saved to an existing app on the mobile device.



### QR Code Transaction Data

Once scanned, a digital version of the ticket data can be sent by text message, email, or even uploaded to an existing app on the mobile device (dependent on the features provided in the 3rd party QR scanner app).

### QR Reader apps on Apple and Google Play Stores:

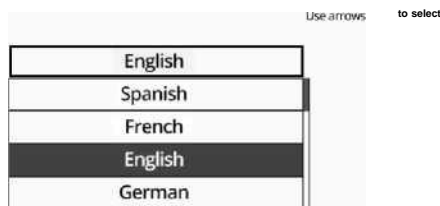
- Example: "QR Reader" by Tap Media\* (free)
- Many more to choose from with various capabilities

*\*Liquid Controls has no affiliation with Tap Media, use at your own discretion*

## MULTIPLE LANGUAGE SUPPORT

The LCR.iQ provides embedded language files to support operator level language translations easily selectable from the settings menu.

### Enter Select Language



### Multi-Language for Operators

LCR.iQ® fully supports multiple languages on operator level screens for increased safety and accuracy in fueling.

- English
- Spanish
- French
- German
- Portuguese
- Chinese
- Korean
- Greek (New)

## U^^ADDITIONAL NEW FEATURES IN LCR.iQ

- **Definable Fueler Prompts:** Prompt the driver with customizable questions prior to or after each delivery such as Customer #, gate # (aviation), driver #, or any additional input you need printed on the ticket or electronic record.
- **API Table 60B net volume temperature compensation:** Provides an additional net volume temperature compensation method using API table 60B (for 20 °C reference temperature).
- **Pump start and stop timer control:** Allows you to set pump start and stop times relative to the beginning and/or end of the delivery.
- **Net volume indication as a reference:** Allows you to display net volume as a reference value, while maintaining gross volume as the primary indication.
- **Differential Pressure for 4-20mA devices:** Allows configuration of 4-20mA pressure sensors to measure and report dP in aviation applications, in addition to conventional RS-485 connected devices.

# Features

## AUTOMATIC OR MANUAL TANK INVENTORY

The LCR.iQ provides highly accurate tank level measurement and inventory management for up to 12 tanks and products. Each tank can be configured according to product type, tank size, or measurement method to be used (either automatic or manual level control).

## TANKiQ (patent pending)

### Auto-Calibrating Tank Measurement

The LCR.iQ offers the first ever continuously calibrated tank profile that does not require entering tank strapping charts.

- When combined with an approved tank level gauge with 4-20 mA output, it auto-generates a precise tank strapping profile.
- Delivers highly accurate measured tank inventory and controls without the need of middleware or third party control devices.



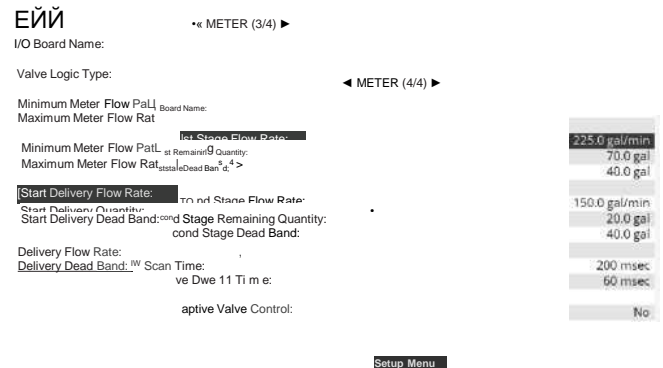
## DIGITAL VALVE CONTROL

The LCR.iQ provides fully configurable digital valve control for full event-based control over delivery flow rates, compared to conventional registers that are limited to simple 2-stage block valve control.

### Gain Full Flow Control Over Your Deliveries

Gain full control over your fueling application with multi-stage variable control and ramp up and ramp down of flow rates during deliveries.

- Ideal for applications where precise flow-rate control is critical for both safety and fueling accuracy.
- Utilize the same fuel trucks in both high and low flow rate applications.



## CONFIGURABLE LARGE DIGIT DISPLAY

The LCR.iQ allows users to display total retail sale and volume measured to the 1/1000th decimal place or flow rate and volume when real-time of rate of fuel delivery monitoring is required.



### Configure Large Digit Details

Certain retail fueling applications require total sale and volume to the 1/1000th place or real-time flow rates on the primary fueling screen.

# LCR.iQ Connectivity

## BLUETOOTH

- Wireless printing with compatible Bluetooth enabled printers

## Wi-Fi

- Wireless control and data transfer
- Wireless diagnostics and data log transfer

## ETHERNET

- Fueling control and data transfer via LCP protocol
- Transaction details accessible using FTP

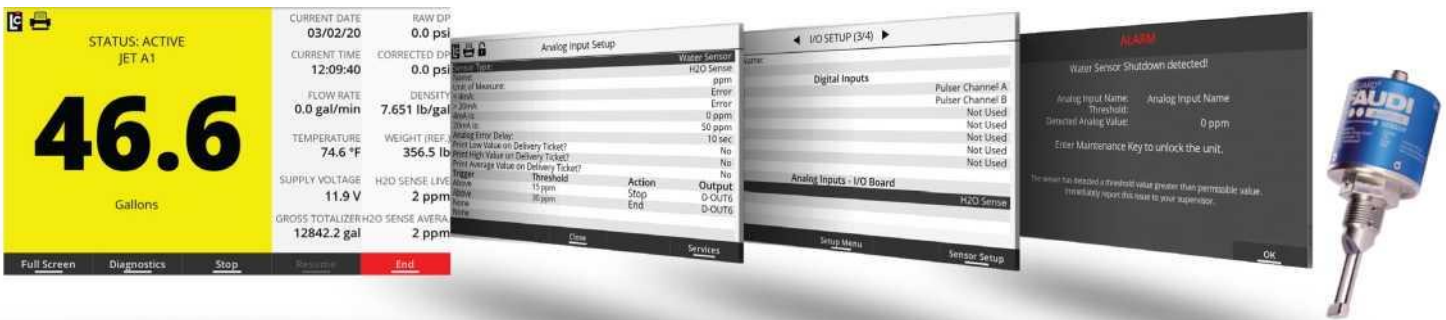


## SERIAL CONNECTION

- Fueling control and data transfer via LCP protocol
- Ticket printing

## WATER DETECTION AND SAFETY CONTROLS (Aviation)

When configured with an approved water sensor, LCR.iQ provides active boundary controls and safety shut down according to Joint Inspection Group(JIG)and AirlinesforAmerica standards.



\*FAUDI AFGUARD is a product of FAUDI Aviation

## EXPANDABLE INPUTS & OUTPUTS

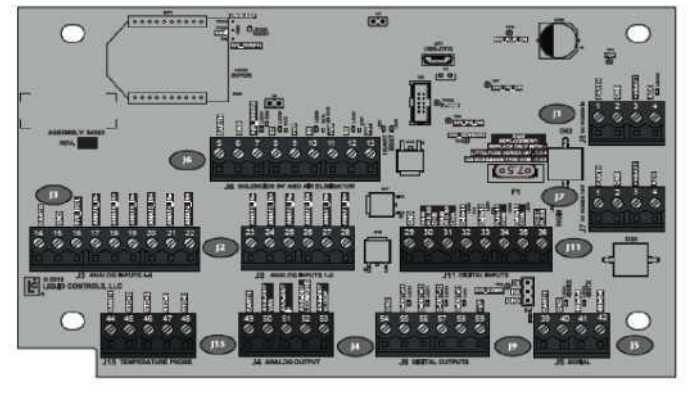
The SENSEiQ expansion board is available for applications with more demanding sensing and control options such as multiple measured tank levels, water detection, remote controls, external display devices, etc.

## SENSEiQ

### Sensor Expansion Board

Provides users the capability to connect and control a multitude of external devices in applications where additional I/O is required.

- 6 Analog inputs: Multiple Tank level sensors, H2O sensor
- 4 Digital inputs: remote start / stop / print. Pulse inputs
- 4 Digital outputs: Large digit external displays, calibrated pulse output, alarms, deadman control alarms.



# CENTRiLOGiO Center of Fueling Logic

Inspired through LC's PartnerConnect™ initiative, Liquid Controls' new **CENTRiLOGiQ®** platform provides adaptive sensing and communication that is scalable to adapt to future decades of new technology.

## LPG & Refined Fuels

**LCR.iQ®** is designed to simplify fueling operations with process configurability, intuitive operation, and real-time fueling diagnostics and data connectivity to maximize up-time and daily throughput.

## Aviation

**LCR.iQ®** provides an easy to use, intuitive operator interface and ties together critical sensing devices in aviation fueling systems, reducing complexity, improving efficiency and safeguarding all fueling system data.



Security / Preset Valves



Strainers & Air Eliminators



LCR.iQ® with M7 meter and accessories



Slipstream® Densitometer with Preset by Weight  
*Patent Pending*



Electronic Differential Pressure (dP)  
*US Patent: #7765978*



Temperature Compensation



Printers, Mobile App, Large Digit Display



Water Detection  
*Per JIG, A4A, IATA and EI 1598*

# LCR.iQ Technical Features and Benefits

## LCR.iQ® Feature:

### User Input & Display Features

- Large 7" high definition, full color video display - High clarity and easy visibility
- Customizable home screen and delivery setup prompts - Streamline driver interface
- Full alpha-numeric keypad and arrow selection keys - Quick, intuitive navigation
- Instant on-board diagnostics and help screens - Quickly troubleshoot & resolve issues to minimize downtime
- Full screen active delivery mode - Largest readable digits in the industry, viewable from up to 100'
- Day/night mode and brightness adjustment - Operator can select preferred viewing mode for conditions
- Customizable printed tickets - Easily tailor ticket formats without software updates
- Transaction history logs store 365+ days of data - No more lost tickets; Easily access and print historical tickets
- Weights & measures historical audit log and event log - Search and download by date range or field
- Large LED back lit keypad - Easy to operate with gloved hands, easy to read in daylight or at night

### Control Features

- Remote control (E-Stop) compatible to third party systems - Seamless retrofit into existing systems
- 3rd party fleet automation connectivity and data management - Seamless retrofit into existing systems
- Toggle flow - Optimizes fuel flow rate without driver intervention in refined fuels delivery systems
- Wireless Printing - Operator can print from hand-held remote printer

### General

- Standard meter mount base - Drop-in retrofit for all conventionally mounted registers
- Panel mount enclosure option - For remote panel mounting of LCR.iQ®
- Preset delivery by volume or weight - Provides highest accuracy of fuel delivery to prevent over-fueling *\*Preset by weight - Patent Pending*
- 4-Bolt even seal o-ring design - Water-tight, weather-proof seal protects internal components
- Die-cast aluminum housing - Chromate and powder coated for long term corrosion resistance.
- 11 Conduit Ports (1/2" NPT) - To accommodate many I/O and control options
- Multi-point calibration up to 16 points - Maximize accuracy over entire flow range
- Internal telescoping hinges - Eliminates seizing and corrosion of external door hinges
- Serial accessibility to LCP data communication protocol - Compatible with major in-cab/back office systems
- Electronic temperature volume compensation - Available with optional probe and thermowell kit

## LCR.iQ® Specifications

### Enclosure

Waterproof, corrosion resistant and dust-proof - meets IP66 and UL Type 4X requirements

### Display

7 inch, 800 x 480 high-resolution, Full Color

Temperature Range		Input Voltage	
-40°F (-40°C) to 140°F (60°C)		9-28 VDC	
Keypad			
LED Back-lit		Petroleum-resistant	
Non-conductive, UV resistant elastomer		Field Replaceable	
Communication			
RS232/485 Comm Ports	2	Solenoid Outputs (high current)	4
RS485 Dedicated Comm Ports	2	Programmable Digital Outputs	6
WiFi	Internal antenna	Digital Inputs	6
Bluetooth	Internal antenna	RTD Probe Input	1
Extended range antenna (externally mounted)	Optional accessory	Optical Sensor Input	1
4-20 mA inputs	1 expandable to 7	Scalable Pulse Output (Additive inj, display, PLC)	1
Processor & Storage			
Dual-Core Processor Speed		800 MHz	
Internal RAM		1GB	
Internal Storage		128MB Flash NAND 8GB eMMC Flash drive	
External Storage via Removable USB			



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