LIQUID CONTROLS

MASTERLOAD® Series

THE NEXT GENERATION ELECTRONIC REGISTER

MASTERLOAD.iQ™
Zone 2 & Div. 2 Rated

MASTERLOADx.iQ™
Zone 1 Rated

PART OF
CENTRILOGiQ®

Ease of Use

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

HIGH-RESOLUTION DISPLAY WITH DAY/NIGHT MODES
7" ultra bright video display designed for extreme climates and rigorous fueling environments.

LARGE SCALABLE DIGITS FOR EASY VIEWING
Large digits provide easy viewing, day or night, up to 100 feet (30 m) away.

CONFIGURABLE FUELING DATA
The **MASTERLOAD.iQ®** allows users complete control over the fueling data fields displayed on the detailed delivery screen.

SMART KEYS FOR GUIDED OPERATION
Smart keys guide the operator through the next available steps in the operation to minimize risk of error.

LARGE KEYS FOR EASY OPERATION
Large, petroleum and UV resistant elastomeric keys provide confident feel and consitent operation.

CONFIGURABLE SCREEN DETAILS
Easily configure the idle and active fueling screens the operator sees before, during, and after fueling. 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
New panel mount design allows convenient remote mounting, providing OEMs greater design flexibility.

ACTIVE FUELING FULL SCREEN DETAIL MODE
Yellow background indicates active fueling mode to improving safety and fueling status awareness of operators,

MULTI-LANGUAGE FUNCTIONALITY
Operator level languages include: English, Spanish, German, French, Portuguese, Chinese, Korean

Configurability

It's just that simple.

LC engineers designed the **MASTERLOAD.iQ®** from the **user's perspective**. The result is 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!

SMART CONFIGURATIONS

Guide the operator through the fueling process of your choosing.

From basic pump and print to presets by volume, price, or even product weight*, the operator can be automatically guided through a series of questions prior to starting the delivery.

OPERATOR FRIENDLY SCREENS WITH DAY / NIGHT MODES AND BRIGHTNESS CONTROL

MASTERLOAD.iQ® screens adapt to the operator. Full, active fueling screen with yellow background when "Start" is pressed with day/night mode and brightness control options.

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

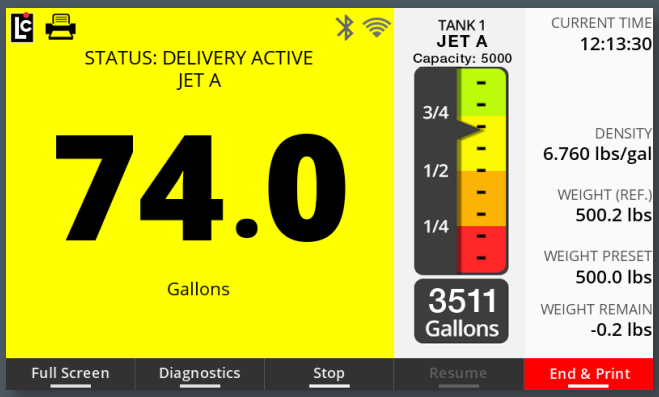
MASTERLOAD.iQ® User Configuration and Setup Features
User Configuration Features
Configurable idle screen – Design the fueling screen the way you want it.
Configurable fuel delivery process – Step by step on-screen instructions guide the operator through the fueling process you specify.
Configurable 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 **MASTERLOAD.iQ®**
Configurable electronic temperature volume compensation – Available with optional temperature probe and thermowell 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*

New Features

MEASURED AND MANUAL TANK INVENTORY

The MASTERLOAD.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)*

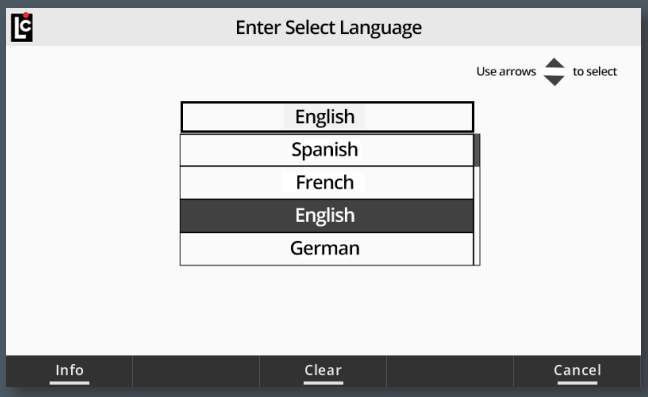
Auto-Calibrate Your Tank Inventory

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

- When using 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 or display devices.

MULTIPLE LANGUAGE SUPPORT

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



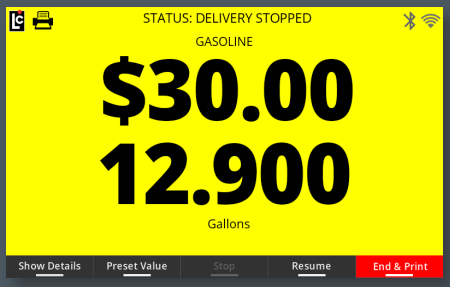
Change the Language for Operators

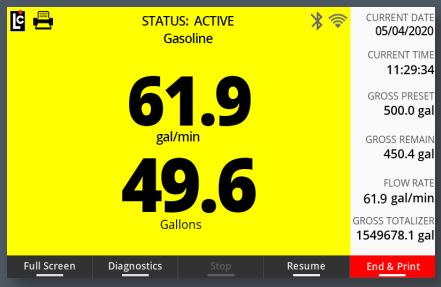
MASTERLOAD.iQ® fully supports multiple languages on operator level screens for increased safety and efficiency in fueling.

- English
- Spanish
- French
- German
- Portuguese
- Chinese
- Korean
- Greek

CONFIGURABLE LARGE DIGIT DISPLAY

The MASTERLOAD.iQ now allows users to configure the large digit data displayed to include 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 Your Display

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

New Features

EXPANDABLE INPUTS & OUTPUTS

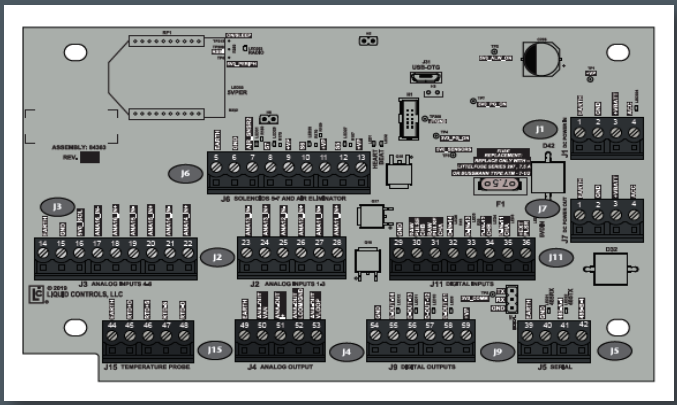
The SENSEiQ expansion board is available for applications with more demanding sensing and control options such as multiple measured tank levels, water detection, remote controls, external display devices, etc.

SENSEiQ™

Expand Your Inputs and Outputs

Provides end users the capability to connect and control a multitude of external devices in applications where additional inputs or outputs are 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.



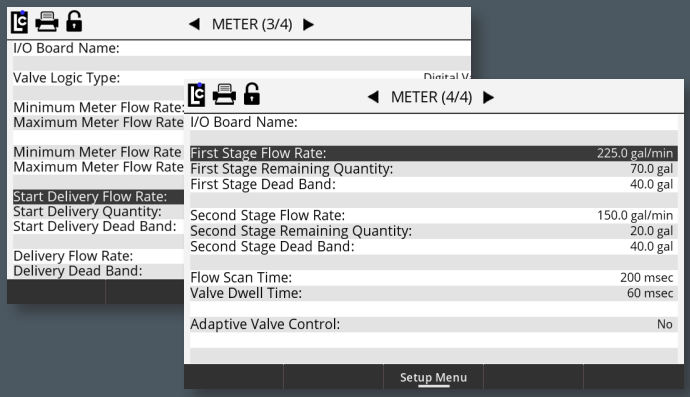
DIGITAL VALVE CONTROL

The MASTERLOAD.iQ provides configurable digital valve control to gain higher levels of control over delivery flow rates than conventional registers that are limited to utilizing simple 2-stage block valves for flow control.

Gain 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 fueling equipment in both high and



WATER DETECTION AND SAFETY CONTROLS (Aviation)

When configured with an approved water sensor, MASTERLOAD.iQ provides boundary controls and safety shut down according to Joint Inspection Group (JIG) and Airlines for America standards.

**FAUDI AFGUARD is a product of FAUDI Aviation*

Wireless & Data Connectivity

BLUETOOTH
- **Wireless printing** with compatible Bluetooth enabled printers
- Wireless control and data transfer via FUELiQ app or SDK

Wi-Fi
- Wireless control and data transfer via FUELiQ app or SDK
- Transaction details accessible using FTP

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

FUELiQ™ Android App

Liquid Controls' new FUELiQ application provides a wireless pathway for fuelers and third-party data providers to gain read-write access to pre-settable data fields on the MASTERLOAD.iQ for operational mobility, efficiency, and transactional data.

[currently in limited beta testing]

Technical Features and Benefits

LCR.iQ® Features

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
- **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		I/O	
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 / outputs	1 input standard + 6 inputs / 1 output expandable	Scalable Pulse Output (Additive inj, display, PLC)	1

Processor & Storage

Dual-Core Processor Speed	800 MHz
Internal RAM	1GB

CENTRILOGiQ®

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

MASTERLOAD.iQ® simplifies fueling operations with process configurability, intuitive operation, real-time fueling diagnostics and data connectivity to maximize up-time and daily throughput.

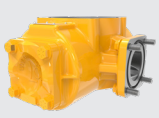
Aviation Fueling

MASTERLOAD.iQ® provides an easy to use, operator interface and integrates critical sensing devices in aviation fueling systems, improving safety and efficiency while safeguarding all fueling system data.

Security / Preset Valves

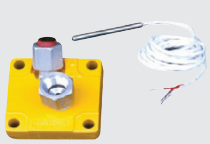
MASTERLOAD.iQ®
with LC M40, dP, and Slipstream Densitometer

Slipstream® Densitometer
with Preset by Weight
Patent Pending



Strainers & Air Eliminators

Electronic Differential Pressure (dP)
US Patent: #7765978



Temperature Compensation

Printers, Mobile App, Large Digit Display

Water Detection
Per JIG, A4A, IATA and EI 1598

LIQUID CONTROLS

IDEX ENERGY
Advanced Flow Solutions

9201 North I-35 Service Road Oklahoma City, OK. 73131
MAIN: 847.295.1050
TOLL FREE: 800.458.5262
LCmeter.com