

ICE

INTEGRATED CRYOGENIC ELECTRONICS

Product Bulletin ICE-107J

NOW AVAILABLE!



**Mobile App
for
Cryogenic
ICE**



TANKER TRUCK FLOW MEASUREMENT FOR CRYOGENIC SERVICE

The *ICE, Integrated Cryogenic Electronics* is Hoffer's most advanced truck-mounted cryogenic flow metering system. The design culminates from 50 years of Hoffer experience with cryogenic fluid measurement. The full color graphical display and electronic touch screen ensure user-friendly operator interface and provide direct access to all measurement and configuration parameters. A typical system includes *ICE*, a turbine flow meter, temperature sensor, optional pressure sensor and optional printer.

Perfecting Measurement™

HOFFER

WWW.HOFFERFLOW.COM



ICE Front Panel In Delivery Mode

ICE System Overview

The front panel includes a 4.3" full color graphical display and 3 rugged panel sealed pushbuttons. The back panel includes environmentally sealed military style electrical connectors for all standard and optional I/O connections. The rugged aluminum enclosure is equipped with shock mounts or optional U-type mounting bracket.

ICE user interface is organized into 4 distinct modes of operation:

Delivery Mode (above) Maintenance Mode Turbine Calibration Mode System Configuration Mode

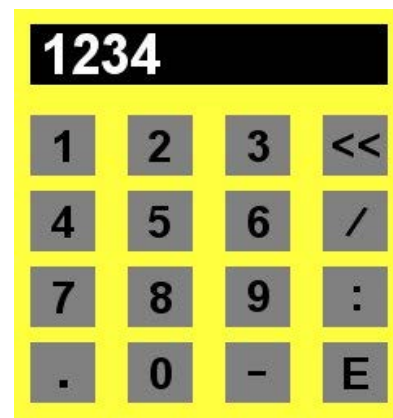
Maintenance Mode	
Print Config	Coil Ohms: 1081.8
Print Trip Log	Coil Hertz: 100.0
Clear Trip Log	RTD Counts: 539
Clear Acc Total	Internal Temp (F): 75.5
Audit Trail	Pump Hours: 153.2
Trailer: 12345678	12/22/2011::10:32

Turbine Calibration Mode	
Serial No: 123456789	Meter Size (inch): 2.00
Average K: 200.000	Min Flow (gpm): 15.0
K Method: Average	Max Flow (gpm): 225.0
K-factor Table	Min Delivery (lb): 220.0
Last Cal: 12/22/2011	
Next Cal: 12/22/2012	ICE SN: 123456789

System Configuration Mode	
Default Temp: 83.2	Temp Units: K
Default Press: 200.0	Press Units: psia
Total Decimal: 0.00	Del Units: gallons
Fluid: LIN	Compensation: T&P
Display T/O(sec) 600	Pump Delay(min) 1.0
Language: English	Change Password

The Numeric Keypad

ICE is equipped with a touch screen feature that allows easy entry of data parameters by authorized personnel. A numeric keypad simplifies the entry of numeric data for password entry or programming.



Features

- ◆ **NEW!** Hoffer ICE Cryogenic Truck systems now offers a mobile app. Truck deliveries will be accessible with Hoffer's ICE Mobile App using Bluetooth LE technology.
- ◆ **NEW!** Optional rear panel for use with Sponsler, Inc. or Turbines, Inc. existing systems. Cables not included.
- ◆ 4.3" Color LCD with touch screen.
- ◆ Pulse security/dual coil.
- ◆ Non-volatile memory for configuration parameters and delivery data.
- ◆ Real time clock .
- ◆ Supports measurement of several predefined liquids: LIN, LOX, LAR, CO2 Single Pipe, CO2 Dual Pipe, LN2O and LNG.
- ◆ Password protection to prevent unauthorized configuration of changes.
- ◆ Optional Bluetooth wireless interface.
- ◆ 1000 OHM RTD input for temp compensation.
- ◆ RS232 port for printer.
- ◆ Optional 4-20mA input for pressure compensation.
- ◆ 0.2 to 5000 Hz frequency input range.
- ◆ Trip log containing 100 previous deliveries.
- ◆ Audit trail log of last 1000 configuration changes.
- ◆ Compatible with Hoffer SY14B proving system.
- ◆ Supports English and Metric units.
- ◆ Selectable language options for user interface and printed tickets include: English, Spanish, French, German, Polish, Czech and Portuguese.

Ordering Information

Model ICE	(A)	(B)	(C)	(D)	(E)	(F)	(G)
A. SERVICE							
(1T) LIN/LOX/LAR -TEMP/COMP							
(2T) CO2 -TEMP/COMP							
(3T) NITROUS OXIDE -TEMP/COMP							
(6T) LNG -TEMPERATURE COMP							
(V) TRUE VOLUMETRIC							
(P) FOR PRESSURE COMP. (4-20MA) ADD "P" TO ANY ABOVE OPTION, SPECIFY PRESSURE RANGE. INCLUDES PRESSURE TRANSMITTER CLEANED FOR OXYGEN SERVICE AND 6' CABLE.							
B. PUMP INTERLOCK							
(PI) PUMP INTERLOCK							
THE TEMPERATURE COMPENSATION OPTION MUST BE USED WITH THE PUMP INTERLOCK OPTION.							
C. PULSE SECURITY OPTION							
(PS) QUADRATURE INPUT PER ISO6551 LEVEL B COMPLIANT REQUIRES SECOND MAG COIL ON TURBINE							
(X) INSERT "X" IF NONE OF THE ABOVE APPLY							
D. POWER							
(12) 12 VDC STANDARD							
(24) 24 VDC OPTION							
(AC) 110/220 VAC POWER INPUT, EXTERNAL							
E. HEATERS							
(H) HEATER - STANDARD							
F. MOUNTING							
(S) STANDARD - FLAT MOUNT WITH SHOCKS							
(UB) U-TYPE MOUNTING BRACKET							
(E) EX AND NEMA ENCLOSURES.							
(ND) NEMA 4X ENCLOSURE - FOR WALL MOUNTING							
G. SPECIAL FEATURES							
(SW) POWER SWITCH (WEATHER-PROOF)							
(CT) CUSTOM TICKETS							
(BLE) BLUETOOTH LOW ENERGY. FOR USE WITH SMART PHONE APPS.							
(BTA) AIR CABLE (BLUETOOTH)							
(SP) ANY SPECIAL FEATURES THAT ARE NOT COVERED IN THE MODEL NUMBER. USE A WRITTEN DESCRIPTION OF THE -SP.							
(ORP) OPTIONAL REAR PANEL-FOR USE WITH SPONSLER AND TURBINES,INC.™ CABLES. NO CABLES INCLUDED.							
(X) NONE							

Technical Information

Dimensions:

4.35"L X 6.54"W X 4.125"H
11.05cm X 16.61cm X 10.47cm

Fully Assembled Dimensions with Connectors and Shock Mounts:

5.6"L X 6.54"W X 4.875"H
14.224cm X 16.61cm X 12.38cm

Weight: 4.2 lbs., 1.90 Kg

Power Supply: 10-30 Volts DC

Operating Temperature:

-20°C to 70°C (-4°F to +158°F)
-40°C to 70°C w/ opt. heater
(-40°F to +158°F)

Storage Temperature Range:

-30°C to +70°C
(-40°F to +158°F)

Relative Humidity:

0-95% Non-condensing

Options:

Optional Explosion-proof enclosure.
Optional U-type Mounting Bracket
Pump Interlock
Bluetooth Wireless Interface

Approvals:

Design Approvals, Standards and Regulatory Compliance

CE
Emissions EN55022 & FCC Part 15
Immunity EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-6
MIL-STD810G (Shock and Vibration)
NCWM Publication 14
NIST Handbook 44

National & State Legal for Trade

Australia — NMI
Brazil — INMETRO
China — OIML R81
European Union — MID
India—W & M
Indonesia & Malaysia — SIRIM
South Africa — SABS (Pending)
United States — NTEP & CTEP

ISO 17025
Accredited
Cryogenic Field
Calibration Services



System Components

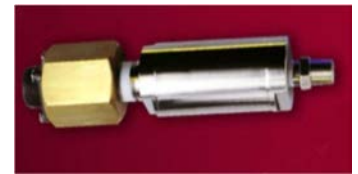
Hoffer ICE Cryogenic Mobile App



ICE shown with Standard Flat mount with shocks



Pressure Sensors



Turbine Flow Meters



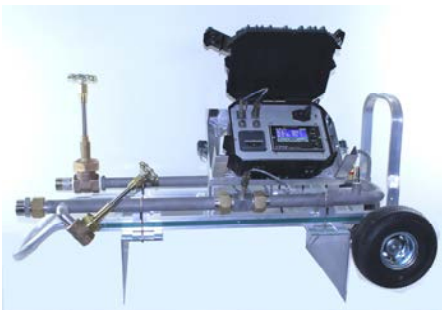
Optional Rear Panel (ORP)- Option to convert existing Sponser and Turbines, Inc.™ systems



Temperature Sensors



Provers



Printer Options:

P-6



P-8



Sample Delivery Ticket

METER DELIVERY TICKET

TRAILER NUMBER:
12345678
PRODUCT NAME: LIN
DELIVERY: 876543.21
UNITS: LITERS @ NBP
DATE: 01/13/2014
TIME: 13:55
DELIVERY NUMBER: 3

ACCUMULATED TOTAL:
109876543210

Turbine Flow Meters and Installation Kits



HOFFER FLOW CONTROLS, INC.
107 Kitty Hawk Lane, P. O. Box 2145, Elizabeth City, NC 27906-2145
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www.hofferflow.com email: info@hofferflow.com

The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.



CORPORATE SUSTAINING MEMBER
CRYGENIC SOCIETY OF AMERICA INC.

Hoffer Flow Controls Quality Management System

