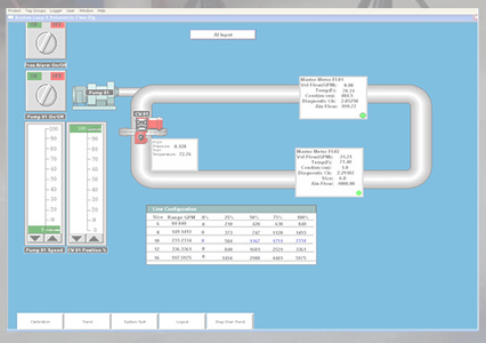
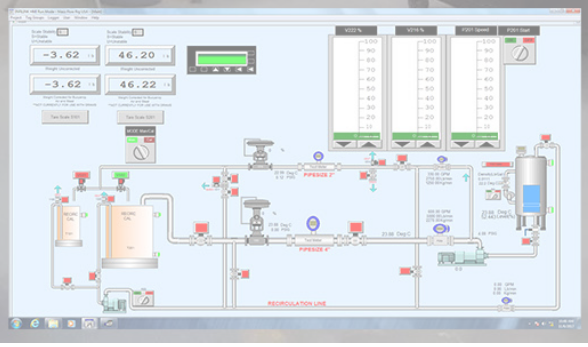
KROHNE

KEP Infilink-HMI Success!





Background

KROHNE is a worldwide manufacturer of Flow, Level, Analytical sensors, as well as systems. Our products can be found in just about any industry in any country. The company is 96 years old and its worldwide headquarters is in Duisburg Germany. The NAFTA headquarters is located in Peabody Massachusetts and will soon move to a state of the art manufacturing facility in Beverly, Massachusetts. We have 3 Flow Calibration rigs in our facility. Two are used for volumetric flow calibrations and one is for mass flow calibrations. They are used to calibrate new meters coming off the production line or for customer meter recertification. All rigs use KEP INFILINK as the HMI and KEPSeverEX to control all automation and measurements via the PLC. INFILINK also collects and transfers all essential data via Dynamic Data Exchange to a protected Microsoft EXCEL worksheet to do the higher end calculations, to create a Calibration Certificate, and to store the results as needed.

We chose KEP INFILINK because of its reliability, scalability, seamless integration, and its ease of use. In my experience, I have worked with WINCC, Wonderware, and SynEnergy on various projects as a System engineer providing Pipeline Leak Detection Systems to KROHNE customers but your software's graphic library reduces the project timeline as it has a great section for rapid development. We also can create our own graphics for operator familiarity. For instance, we use the 3D pipes feature because these calibration rigs are compact and complex. The graphic helps the operator know the lines and devices he is using and their state.

Since HMI applications can be used for entire plant wide integration, we found the simplicity and price structure of INFILINK was optimally suited to our needs with 256 tags. The available drivers make it possible to communicate to ANY device that has digital communication and a description.

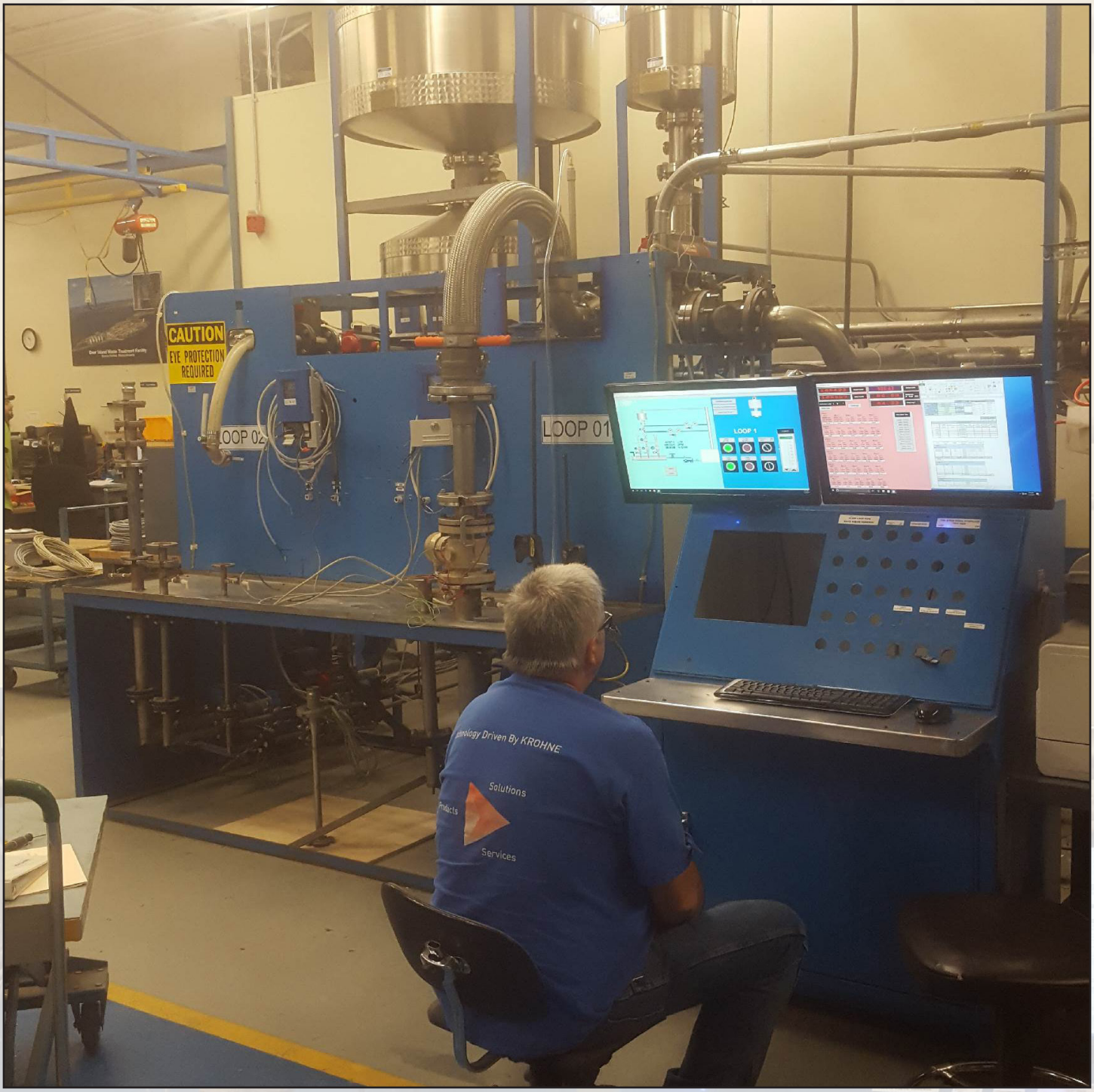
The majority of the data we receive is via the Modbus Suite but we also use some of the more open drivers like UCON when connecting to our Mettler Toledo scales to receive the data we wanted that was otherwise not available over Modbus. We poll the weight and the scales state, and tare the scale remotely. We also had used the driver ClientAce driver to create an interface using Microsoft Visual Studio from INFILINK to KROHNE propriety software. Here we can connect INFILINK to any software or create files. The newest version of INFILINK includes Database conductivity.

Volume Calibration

Loop01,Loop2,Loop3

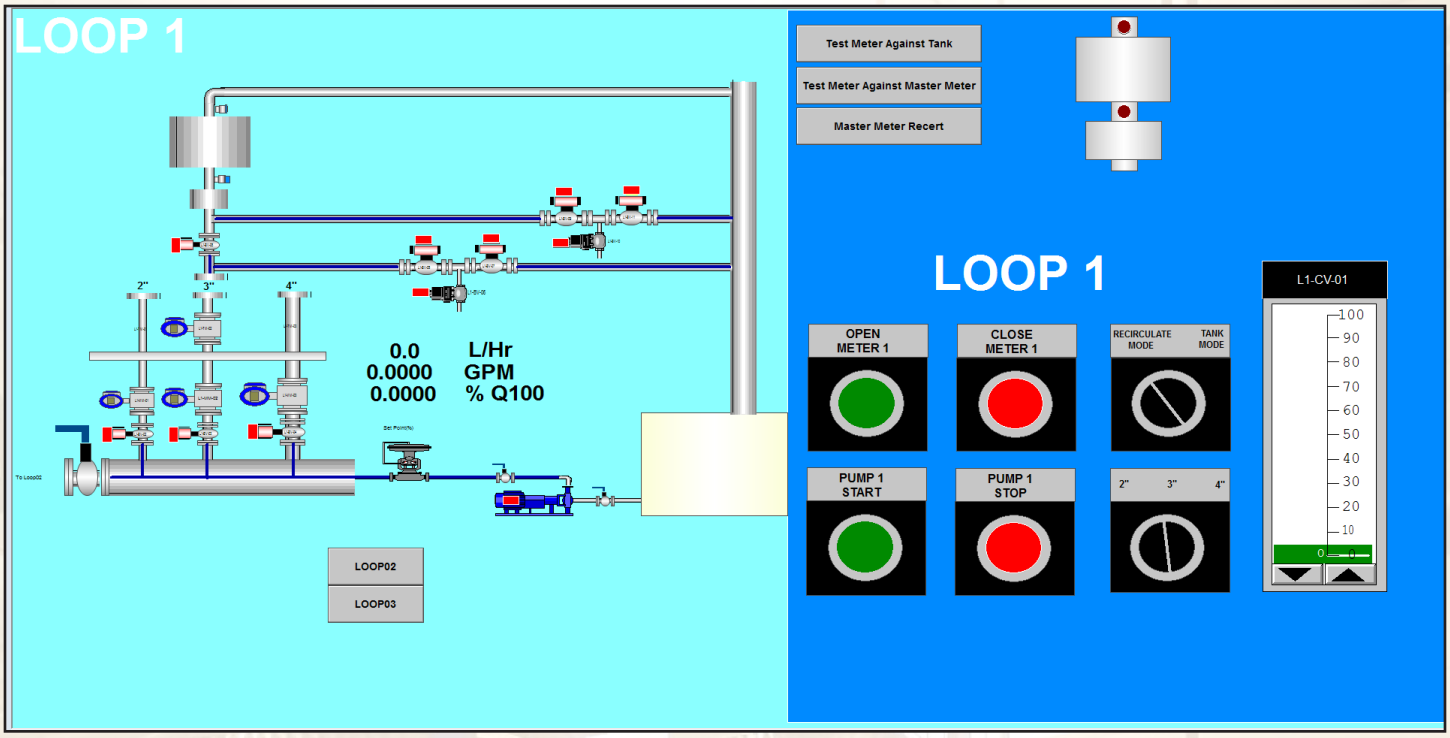
Method: Using water as our calibration medium we can calibrate volumetric flow meters from 1/10” to 4”. We use a running method against a Prover tank using pulse data. The fluid is brought up to a specific flow rate between 2.5 to 10 ft./sec using a control valve. Once the velocity is obtaining we cycle the valves from a recirculating mode to direct the fluid into the Prover tank. The pulse count does not begin until the first switch or low switch in the tank is wetted which allows the system time to regain steady state from valve change over. At this point the count will be accumulated until the 2nd switch or high switch is wetted. The volume between these switches is precisely calibrated by the State of Massachusetts Weight and Measures group.

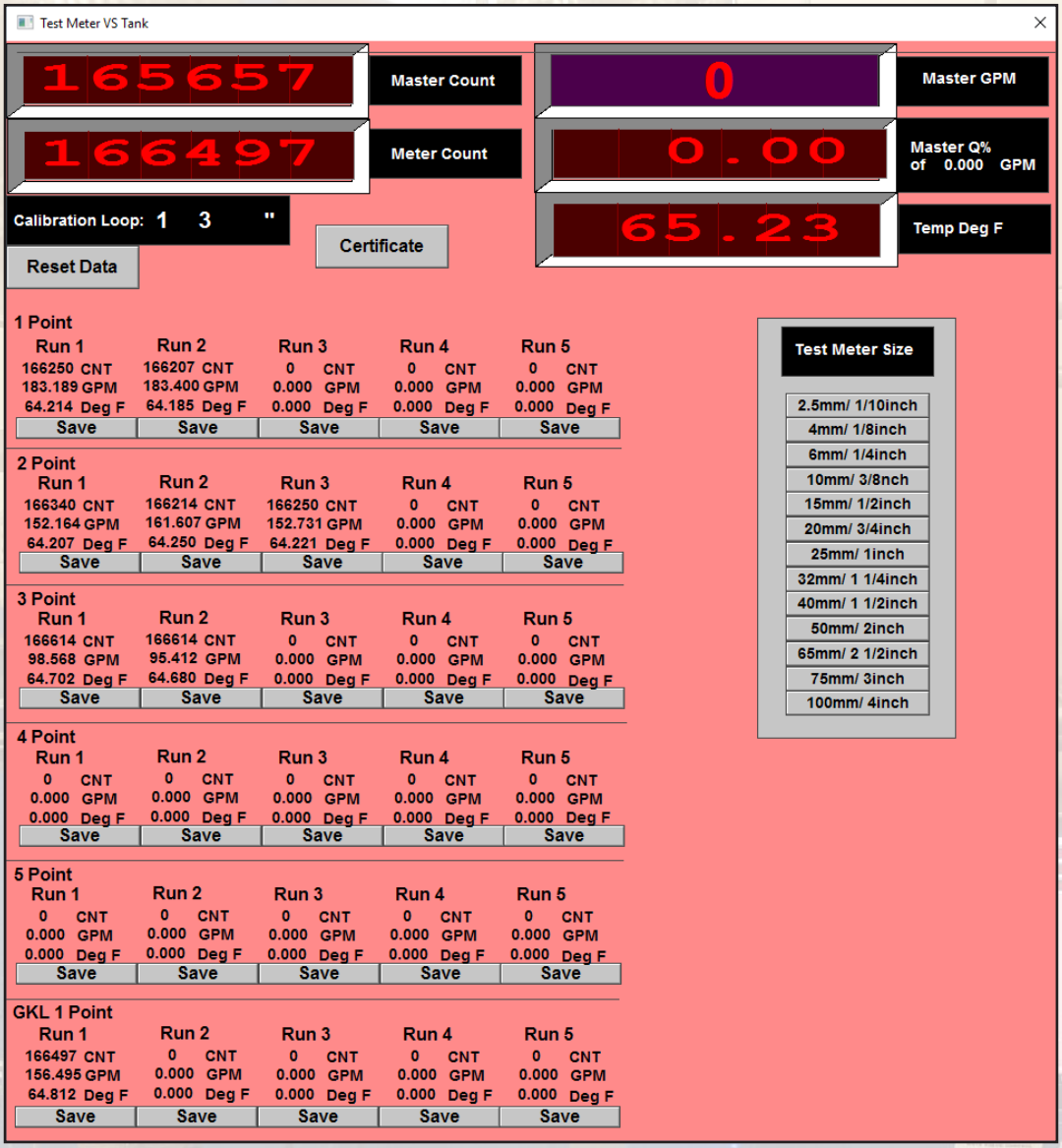
While the meter in test is being calibrated we also are measuring the volume accumulated by the inline master. By doing so we are verifying system integrity of the test system.




CAUTION
KROHNE

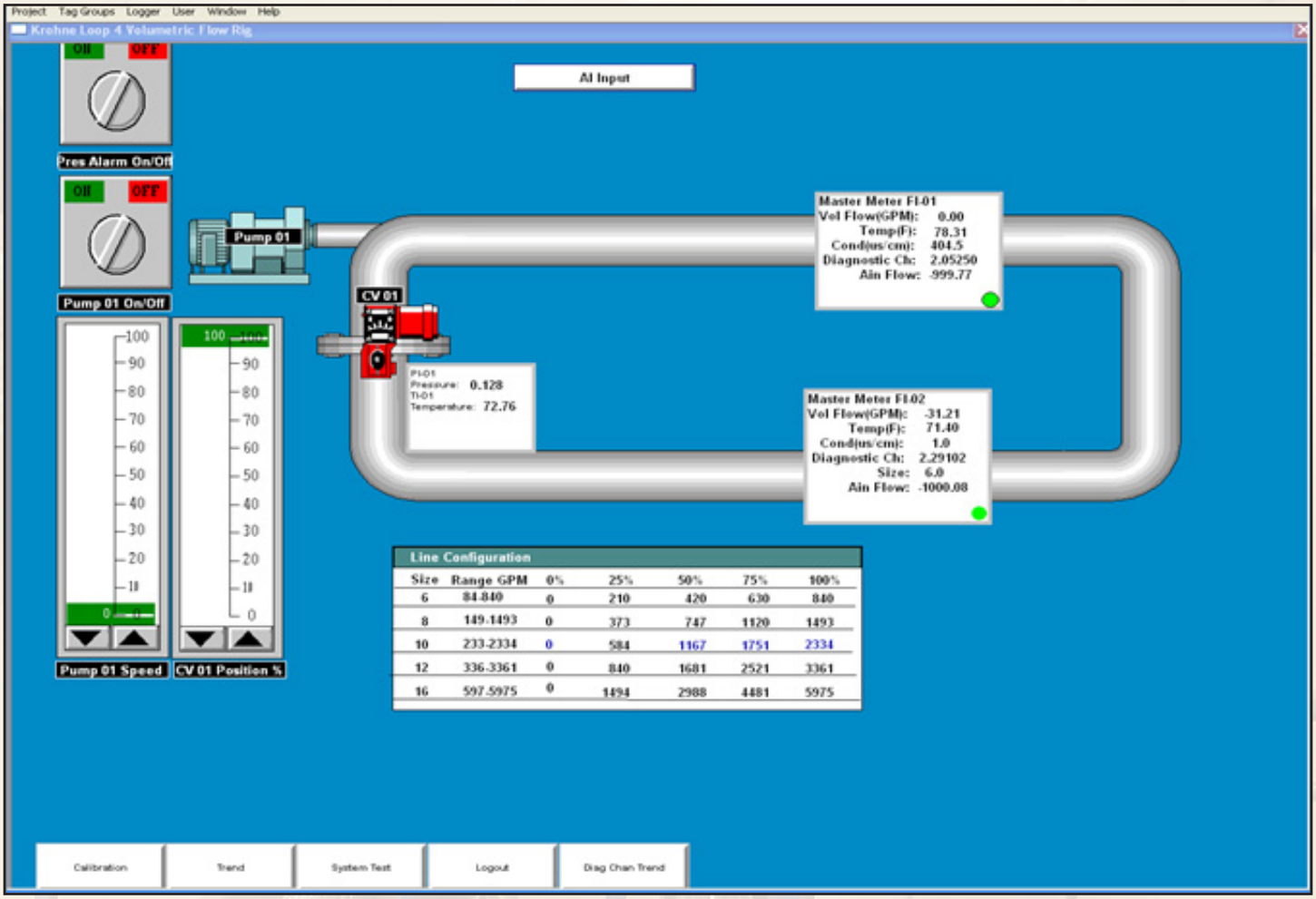

LOOP 1
165505
166214
166.88
76.96
64.27
Master GPM
Temp Deg F
FLOW LOOP PIPE
GATE VALVE CONTROL
COUNTER RESET
TANK BYPASS MANUAL ACCUMULATED
COUNT MODE
START
STOP


LOOP 1
0.0 L/Hr
0.0000 GPM
0.0000 % Q100
LOOP02
LOOP03
Test Meter Against Tank
Test Meter Against Master Meter
Master Meter Recert
LOOP 1
OPEN METER 1
CLOSE METER 1
RECIRCULATE MODE
TANK MODE
PUMP 1 START
PUMP 1 STOP
2" 3" 4"
L1-CV-01
100
90
80
70
60
50
40
30
20
10
0


Test Meter VS Tank
165657
Master Count
166497
Meter Count
Calibration Loop: 1 3 "
Reset Data
Certificate
0
Master GPM
0.00
Master Q% of 0.000 GPM
65.23
Temp Deg F
1 Point
Run 1 166250 CNT 183.189 GPM 64.214 Deg F
Run 2 166207 CNT 183.400 GPM 64.185 Deg F
Run 3 0 CNT 0.000 GPM 0.000 Deg F
Run 4 0 CNT 0.000 GPM 0.000 Deg F
Run 5 0 CNT 0.000 GPM 0.000 Deg F
Save
2 Point
Run 1 166340 CNT 152.164 GPM 64.207 Deg F
Run 2 166214 CNT 161.607 GPM 64.250 Deg F
Run 3 166250 CNT 152.731 GPM 64.221 Deg F
Run 4 0 CNT 0.000 GPM 0.000 Deg F
Run 5 0 CNT 0.000 GPM 0.000 Deg F
Save
3 Point
Run 1 166614 CNT 98.568 GPM 64.702 Deg F
Run 2 166614 CNT 95.412 GPM 64.680 Deg F
Run 3 0 CNT 0.000 GPM 0.000 Deg F
Run 4 0 CNT 0.000 GPM 0.000 Deg F
Run 5 0 CNT 0.000 GPM 0.000 Deg F
Save
4 Point
Run 1 0 CNT 0.000 GPM 0.000 Deg F
Run 2 0 CNT 0.000 GPM 0.000 Deg F
Run 3 0 CNT 0.000 GPM 0.000 Deg F
Run 4 0 CNT 0.000 GPM 0.000 Deg F
Run 5 0 CNT 0.000 GPM 0.000 Deg F
Save
5 Point
Run 1 0 CNT 0.000 GPM 0.000 Deg F
Run 2 0 CNT 0.000 GPM 0.000 Deg F
Run 3 0 CNT 0.000 GPM 0.000 Deg F
Run 4 0 CNT 0.000 GPM 0.000 Deg F
Run 5 0 CNT 0.000 GPM 0.000 Deg F
Save
GKL 1 Point
Run 1 166497 CNT 156.495 GPM 64.812 Deg F
Run 2 0 CNT 0.000 GPM 0.000 Deg F
Run 3 0 CNT 0.000 GPM 0.000 Deg F
Run 4 0 CNT 0.000 GPM 0.000 Deg F
Run 5 0 CNT 0.000 GPM 0.000 Deg F
Save
Test Meter Size
2.5mm/ 1/10inch
4mm/ 1/8inch
6mm/ 1/4inch
10mm/ 3/8nch
15mm/ 1/2inch
20mm/ 3/4inch
25mm/ 1inch
32mm/ 1 1/4inch
40mm/ 1 1/2inch
50mm/ 2inch
65mm/ 2 1/2inch
75mm/ 3inch
100mm/ 4inch

Loop4

Method: Using water as a calibration medium we can calibrate volumetric flow meters from 6” to 16”. We use a close loop system with an elbow booster pump. This is a running calibration method where the fluid is brought up to a specified flow rate between 2.5 to 10 ft/sec using a control valve and VFD. We capture the pulse output for 2 minutes and compare to the masters pulse count. The master meters are made by KROHNE and have been calibrated to ISO 17025 using one of the world’s most accurate flow rigs in Europe.



Loop 4 Master Meter Volume Rig

RUN 1 PASSES

0.00 GPM
0.0000 DCM
0.0000 DCT

	Pass 1	Pass 2	Pass 3	Ave
Master Meter	0	0	0	0
Test	0	0	0	0
Dev (%)				0.0000

RUN 2 PASSES

0.00 GPM
0.0000 DCM
0.0000 DCT

	Pass 1	Pass 2	Pass 3	Ave
Master Meter	0	0	0	0
Test	0	0	0	0
Dev (%)				0.0000

RUN 3 PASSES

0.00 GPM
0.0000 DCM
0.0000 DCT

	Pass 1	Pass 2	Pass 3	Ave
Master Meter	0	0	0	0
Test	0	0	0	0
Dev (%)				0.0000

RUN 4 PASSES

0.00 GPM
0.0000 DCM
0.0000 DCT

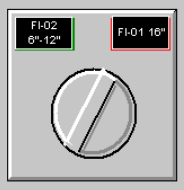
	Pass 1	Pass 2	Pass 3	Ave
Master Meter	0	0	0	0
Test	0	0	0	0
Dev (%)				0.0000

RUN 5 PASSES

0.00 GPM
0.0000 DCM
0.0000 DCT

	Pass 1	Pass 2	Pass 3	Ave
Master Meter	0	0	0	0
Test	0	0	0	0
Dev (%)				0.0000

Master Configuration



Software version
1.000.A

Reset Data

REAL TIME DATA

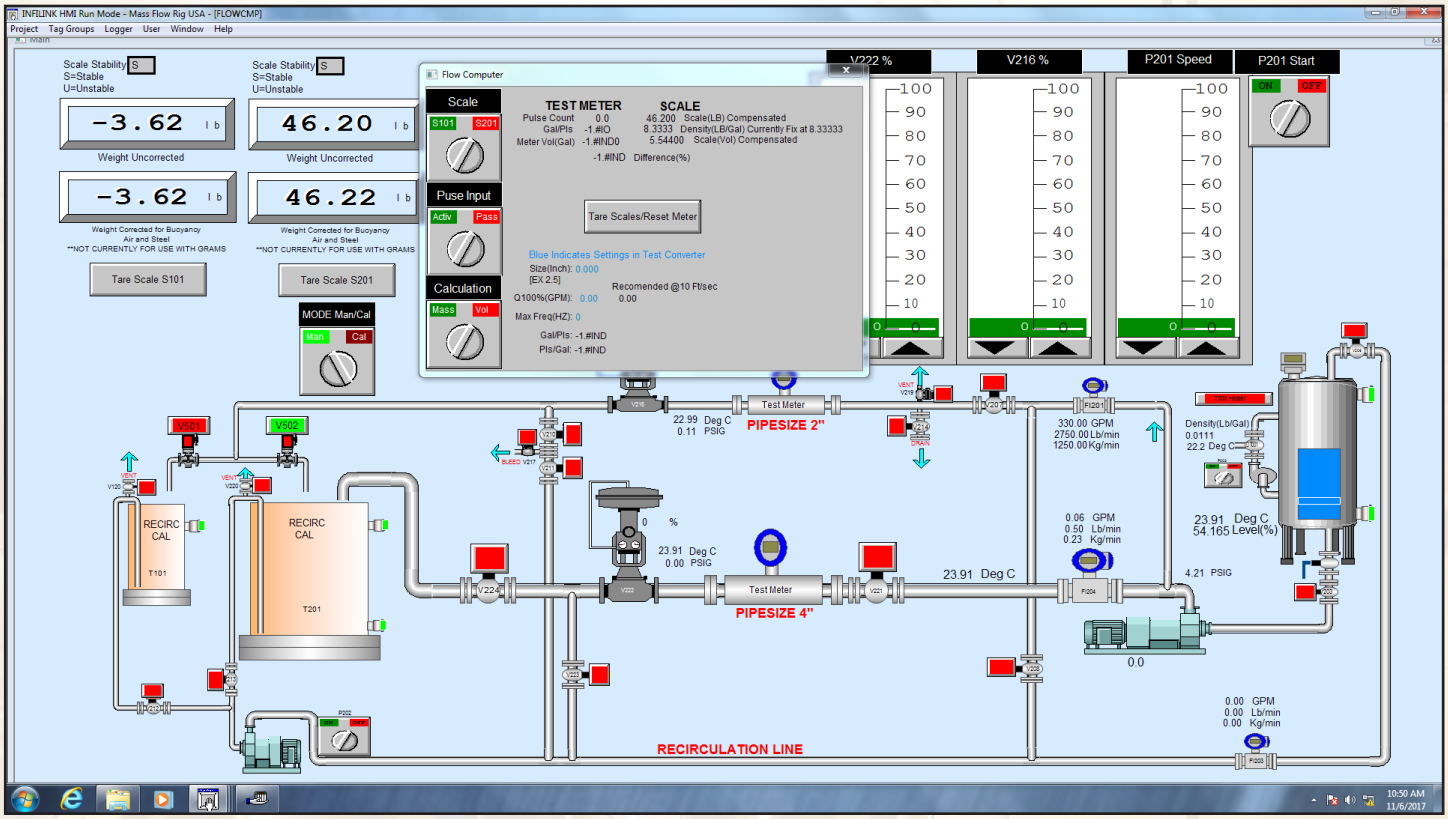
	PIs	GPM
Master Meter	0	0.00
Test Meter	0	
Temperature	72.76	Deg F
Run Time	0	Sec
Duration of Prove	90	Sec

Calibrate

Ready
Proving
Done
Error

Report
Help

start | INFILINK HMI Run Mo... | KEPServerEx - [C:\Do... | Loop4 - Paint | INFILINK HMI Event L... | INFILINK HMI Design ... | 10:58 AM


INFILINK HMI Run Mode - Mass Flow Rig USA - [FLOWCMP]
Project Tag Groups Logger User Window Help
Scale Stability S
S=Stable
U=Unstable
-3.62 lb
Weight Uncorrected
-3.62 lb
Weight Corrected for Buoyancy Air and Steel
**NOT CURRENTLY FOR USE WITH GRAMS
Tare Scale S101
46.20 lb
Weight Uncorrected
46.22 lb
Weight Corrected for Buoyancy Air and Steel
**NOT CURRENTLY FOR USE WITH GRAMS
Tare Scale S201
MODE Man/Cal
Man Cal
Flow Computer
Scale
S101 S201
Puse Input
Activ Pass
Calculation
Mass Vol
TEST METER
Pulse Count 0.0
Gal/Pls -1.#IO
Meter Vol(Gal) -1.#IND0
SCALE
46.200 Scale(LB) Compensated
8.3333 Density(LB/Gal) Currently Fix at 8.33333
5.54400 Scale(Vol) Compensated
-1.#IND Difference(%)
Tare Scales/Reset Meter
Blue Indicates Settings in Test Converter
Size(Inch): 0.000
[EX 2.5]
Recomended @10 Ft/sec
Q100%(GPM): 0.00 0.00
Max Freq(HZ): 0
Gal/Pls: -1.#IND
Pls/Gal: -1.#IND
V222 %
V216 %
P201 Speed
P201 Start
ON OFF
100
90
80
70
60
50
40
30
20
10
V501
V502
RECIRC CAL
T101
RECIRC CAL
T201
Test Meter
22.99 Deg C
0.11 PSIG
PIPESIZE 2"
330.00 GPM
2750.00 Lb/min
1250.00 Kg/min
Density(Lb/Gal)
0.0111
22.2 Deg C
0 %
23.91 Deg C
0.00 PSIG
Test Meter
PIPESIZE 4"
23.91 Deg C
0.06 GPM
0.50 Lb/min
0.23 Kg/min
4.21 PSIG
23.91 Deg C
54.165 Level(%)
0.0
0.00 GPM
0.00 Lb/min
0.00 Kg/min
RECIRCULATION LINE
10:50 AM
11/6/2017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