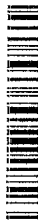


Micro Motion, Inc.

Mass Flowmeter Calibration Certificate

13075880

Product Code: CNG050S290NCAAEEZZZ Serial ID: 13075880 Order ID: 10167714 Line: 1.1 Item: 4 Customer Tag: 14091015A



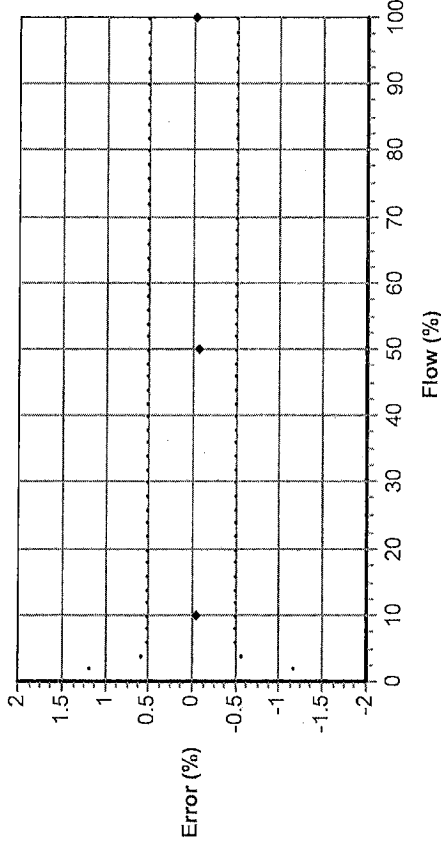
Process ID : 5.24983383
 Process Time : 2014.04.29 22:44:43
 Process Stand : TSGCNG@SSCN
 Stand Uncertainty : +/- 0.030%
 Fluid : H2O
 100% Rate : 38.6 KG/MIN
 Pickoff : 1
 Max Rate P/T : 50.21 PSIG/26.1 C

Results

Status : PASS
 D1 : 0
 D2 : 1
 K1 : 4038.766
 K2 : 4208.497
 DT : 4.25
 FD : 0
 DTG : 0
 DFQ1 : 0
 DFQ2 : 0
 FlowCal : 140.294.50
 FFQ : 0
 FTG : 0
 DensCal : 04039042084.25
 FCF : 140.29
 FT : 4.5

By: *Wang Rong*
 XIA, RONG
 Technician

Detail



Flow (%)	Flow Rate (kg/min)	Meter Total (kg)	Reference Total (kg)	Error (%)	Specification (±%)
100.0	38.6	29.05937	29.06547	-0.021	0.500
10.0	3.86	3.073654	3.075181	-0.050	0.500
50.0	19.3	14.7912	14.79969	-0.057	0.500
100.0	38.6	28.68559	28.69249	-0.024	0.500

Product Code	Serial ID	Order ID	Line	Item	Customer Tag
CNG050S290NCAAEZZZ	13075880	10167714	1.1	4	
2700I13ABAEZWW	3283981	10167714	1.34	4	
PUCK700	33066160				





Process

Process ID : 1.30961566
 Process Time : 2014.05.13 23:48:20
 Process Stand : SSCB-CONFIG1@SSCB

Sensor

D1 : 0
 D2 : 1
 DFQ1 : 0
 DFQ2 : 0
 DT : 4.25
 DTG : 0
 Density Meter Factor : 1
 Density Press Comp Factor : 0
 FCF : 140.29
 FD : 0
 FFQ : 0
 FT : 4.5
 FTG : 0
 Flow PCP : 0
 Flow PCF : 0
 K1 : 4038.766
 K2 : 4208.497
 Mass Flow Meter Factor : 1
 Temperature Cal Factor : 1.00000T.00000
 Volume Flow Meter Factor : 1

Assignments

Event 1 Variable : DENSITY
 Event 2 Variable : DENSITY
 Frequency Scaling Method : FREQUENCY/FLOW
 Frequency Variable : MASS FLOW RATE
 mA1 Variable : MASS FLOW RATE

Ranges

Event 1 Setpoint : 0
 Event 1 Type : LOW ALARM
 Event 2 Setpoint : 0
 Event 2 Type : LOW ALARM
 Frequency Active State : ACTIVE HIGH
 Frequency Hertz : 1000
 Frequency Pulses/Unit : 93264.24
 Frequency Rate : 38.6
 Frequency Units/Pulse : 1.0722222E-5
 mA1 LRV : 0
 mA1 URV : 38.6

Units

Density Unit : LB/CUFT
 Mass Flow Unit : LB/HR
 Pressure Unit : PSI
 Special Mass Base Unit : GRAM
 Special Mass Conv Factor : 1
 Special Mass Flow Text : NONE
 Special Mass Time Unit : SEC
 Special Mass Total Text : NONE
 Frequency Fault Behavior : DOWNSCALE
 Frequency Fault Value : 15000
 RS485 Fault Behavior : NONE

A

Faults

mA1 Fault Behavior : DOWNSCALE
mA1 Fault Value : 2

Other

Calibration Process ID : 5.24983383
Core Software Rev : 34
Density Cutoff : 12.48559
Density Damping : 1.6
Density High Limit : 5
Density Low Limit : 0
Direction : FORWARD
Fault Dwell Time : 0
Feature Key : 1
Flow Damping : 0.8
HART Device ID : 3069350
LD Coil : 0
LD Type : 0
Mass Flow Cutoff : 14.57167
Pressure Comp Line Pressure : 0
Pressure Compensation State : OFF
RS485 Baud : 1200
RS485 Parity : ODD
RS485 Protocol : HART
Slug Duration : 0
Tag :
Temperature Damping : 4.8
Transmitter Software Rev : 66
Volume Flow Cutoff : 0.02910119



Tulsa Gas Technologies, Inc.
4809 S. 101st East Ave Tulsa, OK 74146
PHONE: 918-665-2641 FAX: 918-665-2657

9/5/2014

Dispenser Serial Number 14091015

SIDE A

Micro Motion Transmitter Configuration

Required settings for correct operation of Micro Motion mass flow meter.

Transmitter Model Number: 2700
Sensor Model Number: CNG050
Transmitter Serial Number: 3283981
Sensor Serial Number 13075880
Flow Calibration Factor: 140.294.50
Flow Units lb/min

Communication on RS-485

Protocol Modbus ASCII 7 Bit
Modbus Address 1
Baud Rate 9600
Parity Even
Stop Bits 1

HART Communication

Superimposed on Primary mA (PV)

Analog Output (4-20 mA)

Analog Variable (PV) Mass Flow
Lower Range Value 00000 lb/min
Upper Range Value 300.000 lb/min
mA Cutoff 0.0000 lb/min

Freq/Rate

Frequency variable (TV) Mass Flow
Frequency Cutoff 0.2500 lb/min
Pulses per Unit 1000.00000 per lb

Temperature

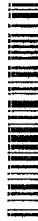
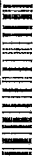
Temp Units deg F

Micro Motion, Inc.

Mass Flowmeter Calibration Certificate

13074041

Product Code: CNG050S290NCAAEZZZ Serial ID: 13074041 Order ID: 10167714 Line: 1.1 Item: 2 Customer Tag: 14091015B

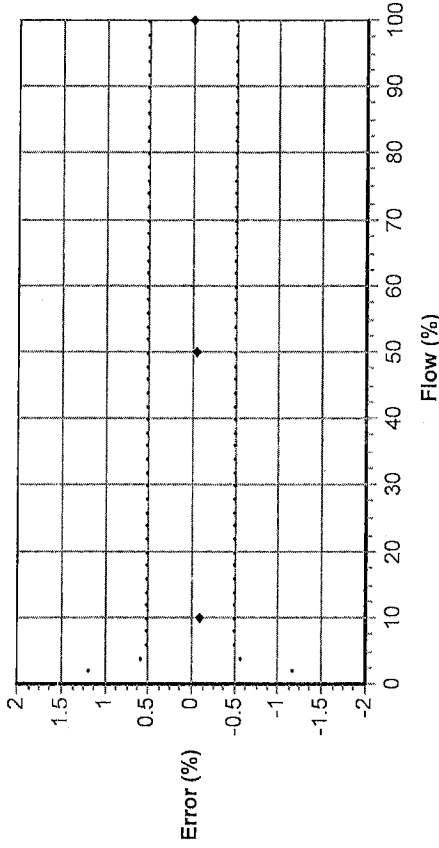


Process ID : 5.24962032
Process Time : 2014.04.09 23:14:36
Process Stand : TSGCNG@SSCN
Stand Uncertainty : +/- 0.030%
Fluid : H2O
100% Rate : 38.6 KG/MIN
Pickoff : 1
Max Rate P/T : 35.77 PSIG/24.3 C

Process Detail

Results

Status : PASS
D1 : 0
D2 : 1
K1 : 4034.037
K2 : 4203.863
DT : 4.25
FD : 0
DTG : 0
DFQ1 : 0
DFQ2 : 0
FlowCal : 140.304.50
FFQ : 0
FTG : 0
DensCal : 04034042044.25
FCF : 140.3
FT : 4.5



Flow (%)	Flow Rate (kg/min)	Meter Total (kg)	Reference Total (kg)	Error (%)	Specification (±%)
100.0	38.6	29.52836	29.52737	0.003	0.500
10.0	3.86	3.048113	3.051042	-0.096	0.500
50.0	19.3	14.77222	14.77772	-0.037	0.500
100.0	38.6	28.84642	28.84681	-0.001	0.500

By: *Paul Mullins*
XIA, RONG
Technician

Product Code	Serial ID	Order ID	Line	Item	Customer Tag
CNG050S290NCAAEZZZ	13074041	10167714	1.1	2	
2700I13ABAEZWW	3283993	10167714	1.34	2	
PUCK700	33065962				

Process

Process ID : 1.30961382
 Process Time : 2014.05.13 23:05:12
 Process Stand : SSCB-CONFIG2@SSCB

Sensor

Units

D1 : 0
 D2 : 1
 DFQ1 : 0
 DFQ2 : 0
 DT : 4.25
 DTG : 0
 Density Meter Factor : 1
 Density Press Comp Factor : 0
 FCF : 140.3
 FD : 0
 FFQ : 0
 FT : 4.5
 FTG : 0
 Flow PCP : 0
 Flow PCF : 0
 K1 : 4034.037
 K2 : 4203.863
 Mass Flow Meter Factor : 1
 Temperature Cal Factor : 1.00000T.00000
 Volume Flow Meter Factor : 1

Assignments

Event 1 Variable : DENSITY
 Event 2 Variable : DENSITY
 Frequency Scaling Method : FREQUENCY/FLOW
 Frequency Variable : MASS FLOW RATE
 mA1 Variable : MASS FLOW RATE

Ranges

Event 1 Setpoint : 0
 Event 1 Type : LOW ALARM
 Event 2 Setpoint : 0
 Event 2 Type : LOW ALARM
 Frequency Active State : ACTIVE HIGH
 Frequency Hertz : 1000
 Frequency Pulses/Unit : 93264.24
 Frequency Rate : 38.6
 Frequency Units/Pulse : 1.072222E-5
 mA1 LRV : 0
 mA1 URV : 38.6

Faults

Frequency Fault Behavior : DOWNSCALE
 Frequency Fault Value : 15000
 RS485 Fault Behavior : NONE

Units

Density Unit : LB/CUFT
 Mass Flow Unit : LB/HR
 Pressure Unit : PSI
 Special Mass Base Unit : GRAM
 Special Mass Conv Factor : 1
 Special Mass Flow Text : NONE
 Special Mass Time Unit : SEC
 Special Mass Total Text : NONE

Faults

mA1 Fault Behavior : DOWNSCALE
mA1 Fault Value : 2

Other

Calibration Process ID : 5.24962032
Core Software Rev : 34
Density Cutoff : 12.48559
Density Damping : 1.6
Density High Limit : 5
Density Low Limit : 0
Direction : FORWARD
Fault Dwell Time : 0
Feature Key : 1
Flow Damping : 0.8
HART Device ID : 3069548
LD Coil : 0
LD Type : 0
Mass Flow Cutoff : 14.57167
Pressure Comp Line Pressure : 0
Pressure Compensation State : OFF
RS485 Baud : 1200
RS485 Parity : ODD
RS485 Protocol : HART
Slug Duration : 0
Tag :
Temperature Damping : 4.8
Transmitter Software Rev : 66
Volume Flow Cutoff : 0.02910119

b



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9/5/2014

Dispenser Serial Number 14091015

SIDE B

Micro Motion Transmitter Configuration

Required settings for correct operation of Micro Motion mass flow meter.

Transmitter Model Number: 2700
Sensor Model Number: CNG050
Transmitter Serial Number: 3283993
Sensor Serial Number 13074041
Flow Calibration Factor: 140.304.50
Flow Units lb/min

Communication on RS-485

Protocol Modbus ASCII 7 Bit
Modbus Address 1
Baud Rate 9600
Parity Even
Stop Bits 1

HART Communication

Superimposed on Primary mA (PV)

Analog Output (4-20 mA)

Analog Variable (PV) Mass Flow
Lower Range Value 00000 lb/min
Upper Range Value 300.000 lb/min
mA Cutoff 0.0000 lb/min

Freq/Rate

Frequency variable (TV) Mass Flow
Frequency Cutoff 0.2500 lb/min
Pulses per Unit 1000.00000 per lb

Temperature

Temp Units deg F