Series 2100
Flow Monitor

The Data Industrial Series 2100 is a versatile, compact sized, digital flow monitor.

The two line X 16 character alphanumeric display can be configured by the user to display flow rate and total simultaneously. Rate or total may also be displayed with other information such as optional relay status or control information.

The panel meter has a NEMA 4X rated front and conforms to DIN Standard dimensions, 192 mm X 96 mm, for meter sizes and panel cutouts. Versions of the Series 2100 are also available in NEMA 4 or NEMA 4X wall mount configurations.

Like all Data Industrial flow monitors, the Series 2100 may be field calibrated by the user. Data Industrial sensors are calibrated by entering "K" and offset numbers, while other pulse or frequency output sensors may use a "K" factor only. The Series 2100 also accepts analog, sine wave, a scaled pulse per gallon signal or a sixteen point linearization equation.

Programming is menu driven. All data is entered using five, front panel mounted keys. A software lock allows the user to enter a password to prevent changes in flow total, calibration or control settings. Programming flexibility is extended to units of measure. Series 2100 software contains nineteen rate of flow units of measure and seven total flow units of measure. There is also a provision for adding custom units. The software contains a self diagnostic program to assist the operator in troubleshooting.

The Series 2100 provides a standard pulse output to interface with external data collection devices that accept a pulse or dry contact closure. The resolution of this TTL compatible signal may be programmed from the front keypad.

All calibration information, units of measure and flow totals are stored in a non-volatile memory that does not require battery backup for data retention.

The Series 2100 is expandable with a wide variety of options to customize units for individual requirements.

The Model 2101 is a dual channel version that accepts two flow inputs. These inputs are independent and need not be the same format. Each channel can accept a digital pulse, sine wave or analog input. Optional counters, relays and analog outputs may be assigned to either channel.

The LCD Display may be programmed to show both flow rates, both flow totals or other combinations.
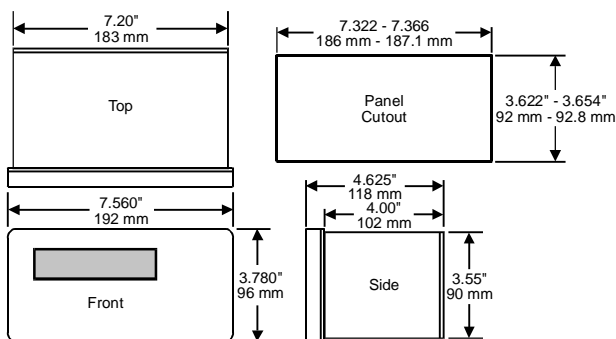
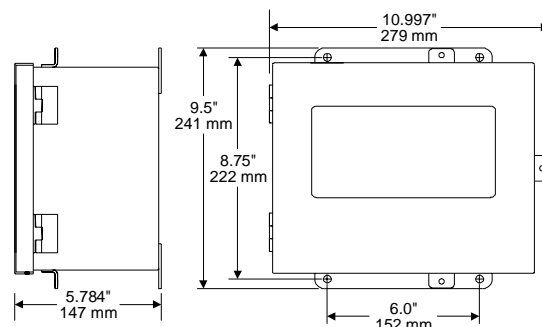**The Model 2101 requires at least one optional input card for the second channel.** If Data Industrial sensors are used, one connects to the normal sensor input terminals, the other to a pulse input option card. If two other sensors are used, two option cards must be used.

Options Include:

- Display backlighting - with variable contrast for low light situations.

- Power supplies - in addition to standard 12 VDC; choose 12-36 VDC, 24 VAC, 115 VAC or 230 VAC.

- Mechanical counters - built-in, non-resettable seven digit mechanical counters.

- Control relays - Form C mechanical relays, either two or four available, independently programmed from the keypad by rate for alarms or pump control, or by total for counting or proportioning.

- Analog output- isolated 4-20 mA , 0-20 mA, 0-5 Volt or 0-10 Volt outputs, programmed from the keypad.

- Analog input - allows the use of other flow devices with analog outputs.

- Second flow channel - converts the 2100 to a 2101, a two channel device.

- RS232/485 port - allows two way serial communication with the 2100.

Panel Mount

Wall Mount

Specifications: Series 2100

Power:
- power supply options:
  10-26 VAC/12-36 VDC (24 VAC/12-36 VDC option), or 115/230 VAC, 50/60 Hz (115/230 VAC option), or 10.6-16 VDC (12 VDC option)
- power consumption:
  8.5 Watts maximum

Display:
- 16 characters by two lines, alphanumeric, dot matrix LCD display with variable contrast
- large 0.32" character height
- STN (Super-Twisted Nematic) display type with +/- 20 degree viewing angle
- optional backlighting

Operating Temperature:
- +32°F to +158°F (0°C to +70°C)

Storage Temperature:
- -40°F to +185°F (-40°C to +85°C)

Dimensions:
- Panel Mount
  7.56"W x 3.78"H x 4.625"D
- Wall Mount
  10.997"W x 9.5"H x 5.784"D

Weight:
  3 pounds maximum (panel mount with DIN draw mounting brackets)
  9.2 pounds maximum wall mount

Sensor Input:
- digital pulse input
- input impedance:
  14 kΩ
- signal amplitudes:
  3 to 15 VDC (high)
  open or 0 to 1 VDC (low)
- frequency input range:
  0 to 10 kHz

Sensor Calibration:
- Data Industrial "K" and offset numbers or 16 point linearization with 7 digit floating point "K" Factor and frequency table entries

Units Of Measure:

Flow rate:
  19 standard, 1 custom programmable
- standard flow rate units:

GPM	gallons/minute
GPS	gallons/second
GPH	gallons/hour
MGD	millions of gallons/day
L/SEC	liters/second
L/MIN	liters/minute
L/HR	liters/hour
FT3/SEC	cubic feet/second
FT3/MIN	cubic feet/minute
FT3/HR	cubic feet/hour
CM/SEC	cubic meters/second
CM/MIN	cubic meters/minute
CM/HR	cubic meters/hour
ACF/SEC	acre-feet/second
ACF/MIN	acre-feet/minute
ACF/HR	acre-feet/hour
BBL/SEC	barrels (oil)/second
BBL/MIN	barrels (oil)/minute
BBL/HR	barrels (oil)/hour

- custom flow rate unit:
  7 letter label
  7 digit floating point conversion from gallons/minute to custom unit

Flow total:
- 7 standard, 1 custom programmable
- standard flow total units:

GAL	gallons
MG	millions of gallons
LIT	liters
FT3	cubic feet
CM	cubic meters
ACF	acre-feet
BBL	barrels (oil)

- custom flow total unit:
  4 letter label 7 digit floating point conversion from gallons to custom unit

Totalizer:
- range:
  0 to 1,000,000,000 units

Data Update Rate:
- adjustable 0.5 seconds to 5.0 seconds in 0.5 second increments
- adjustable averaging function for smoothing erratic flow rates

Pulse Output:
- open collector transistor pulse in any standard or custom flow total units
- adjustable 100 mS to 5.0 second pulse output width in 100 mS increments
- maximum sinking current:
  300 mA @ 36 VDC

Option Specifications

Relays:
- 2 or 4 optional relays
- SPDT contacts, 6.0 amps @ 250 VAC or 30VDC maximum resistive load
- user configurable totalizer, high rate alarm, or low rate alarm functions for each individual relay
- adjustable 0 to 120 second delay (in 0.5 second increments) until activation for alarm functions
- 0 to 50% (of set point) hysteresis for alarm functions

Totalizer:
- two 7 digit, non-resettable, electro-mechanical counters
- user configurable output in any standard or custom flow total units

Series 2100 Ordering Matrix

EXAMPLE: 21 x x - x x x x - x x x

SERIES		
Flow Monitor		21
MONITORING CAPABILITY		
Standard		0
16 Point Linearization		1
CHANNEL MONITORING		
Single Channel		0
Dual Channel		1

CARD OPTIONS 1,2 and 3 (select one option for each column)

No Option	0	0	0
Analog Output	1	1	1
Analog Input	2	2	2
Digital/Sine Wave Input - 10 VDC Excitation	3	3	3
Digital/Sine Wave Input - 24 VDC Excitation	4	4	4
RS-232 Serial Communications Output	5	5	5
RS-485 Serial Communications Output	6	6	6

OPTIONS-RELAY

No Relays	0
2 Relays	1
4 Relays	2

INPUT VOLTAGE / BACKLIGHTING

12 VDC - Only Without LCD Illumination	A
24 VAC / 12-36 VDC Without LCD Illumination	B
115 VAC Without LCD Illumination	C
230 VAC Without LCD Illumination	D
12 VDC - Only With LCD Illumination	E
24 VAC / 12-36 VDC With LCD Illumination	F
115 VAC With LCD Illumination	G
230 VAC With LCD Illumination	H

COUNTER

No Mechanical Counter	0
One Mechanical Counter	1
Two Mechanical Counters	2

MOUNTING

Panel Mount NEMA 4X Front Panel	0
Wall Mount NEMA 4X Hinged Polymer Enclosure	3
Wall Mount NEMA 4 PreWired Hinged Metal Enclosure	4

Data Industrial®