

NEMA-7 Flowmeter/Transmitter/Switch



The 3700 Series meter measures the flow rate of liquid, gas or steam in vertical or horizontal pipelines. In addition, it provides flow proportional signal outputs as well as switch options in an electrical enclosure appropriate for use in Class 1, Division 1, Groups C & D areas. Even without power, the flow rate indicator functions.

Several signal output options are available:

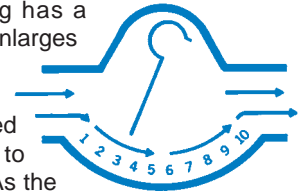
- 4-20 mA two wire loop powered transmitter.
- 4-20 mA transmitter with two adjustable set points.
- Low flow limit switch. Adjustable 20-50% of full scale. SPDT contacts rated 0.25 A @ 120V ac/1.5 A @ 24V dc.
- High flow limit switch. Adjustable 50-90% of full scale. SPDT contacts rated 0.25 A @ 120V ac/1.5 A @ 24V dc.
- Low and high flow limit switches. There must be a 30% of full scale differential between low and high switch settings. SPDT contact rated 0.25 A @ 120V ac/ 1.5 A @ 24V dc.

Features

- UL Listed enclosure.
- Low pressure loss.
- Install in horizontal or vertical pipe systems.
- Local flow rate indicator operates without power.
- Direct reading, each instrument is individually calibrated for the operating conditions specified.
- Available with signal and switch options.

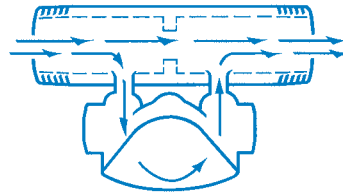
Principle of Operation

The Armor-Flo™ body housing has a variable internal volume which enlarges from the inlet to the outlet.



The primary sensor is a tempered alloy vane with one end affixed to the apex of the meter housing. As the flow rate changes, the vane is flexed in direct proportion. A Teflon® encapsulated magnet links the vane position with the pointer in the indicator housing and the signal output/switch circuit. All adjustments and electrical connections are accessible from the front of the meter housing.

The 1/2", 3/4" and 1" connections typically have female threaded ends. Sizes 1 1/4" through 6" utilize an integral bypass housing permitting larger connection sizes in the format of a spool with a constant 12" end to end dimension. In addition, it permits a wide variety of connection types which include threaded, flanged, grooved-ends and tri-clamp.



Applications

- Water
- Air
- Compressed gasses
- Saturated steam (limit switches only)
- Fuels and lubricants
- Chemicals
- Coolants
- Vacuum service
- Nitrogen blanketing/purging

Specifications

Agency approval:

- Class I UL listed enclosure for metering equipment: Groups C & D
- Class II Groups E, F & G

Transmitter Supply Voltage: 20-30V dc

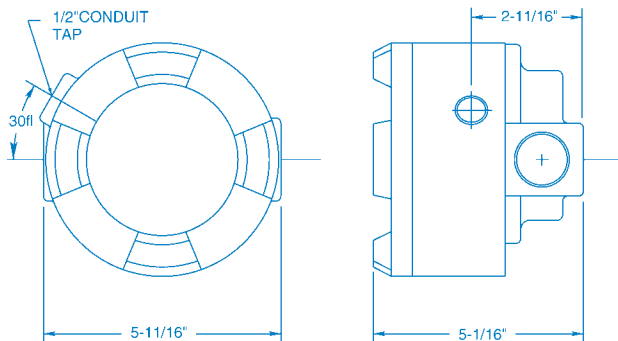
Transmitter Supply Current: 50 mA

Accuracy: ± 2% Full Scale

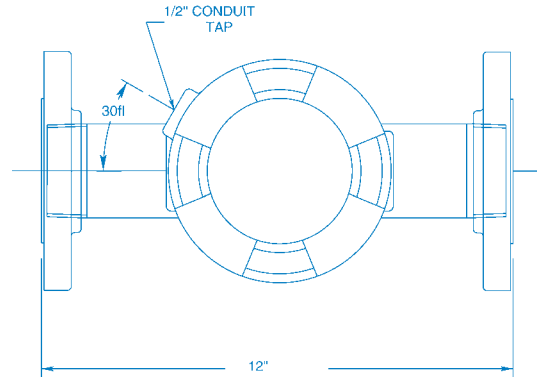
Repeatability: ± 1% Full Scale

NEMA-7 Flowmeter/Transmitter/Switch

3700 Series 1/2", 3/4", & 1" connections



3700 Series 1 1/4" to 6" connections



Temperature Limits:

0 to 85°C (32 to 185° F)
 with transmitter
 -23 to 121° C (-10 to 250° F)
 with buna-n o-ring
 -23 to 204° C (-1- to 400° F)
 with limit switches and Viton®
 or ethylene propylene o-ring.

Materials of Construction:

Housing: 316 stainless steel
 Shunt: 316 stainless steel or carbon steel
 Vane: Cobalt/chromium/nickel alloy
 Window: Tempered glass
 O-ring: Buna-n, ethylene propylene, Viton®
 or perfluoroelastomer

1/2" to 1" NPT female (400 psig)
 1 1/4" to 4" NPT male (200 or 400 psig)
 1/2" to 3" Tri-clamp (200 psig)
 1 1/4" to 6" Grooved (200 psig)
 1 1/4" to 6" Beveled (200 psig)
 1/2" to 8" 150# RF/FF ANSI
 carbon stl flanges (200 psig)
 1/2" to 8" 300# RF/FF ANSI
 carbon stl flanges (400 psig)
 1/2" to 6" 150# RF/FF ANSI
 stainless stl flanges (200 psig)
 1/2" to 6" 300# RF ANSI
 stainless stl flanges (400 psig)
 15 to 25 mm, DIN 2999/BS21 ISO R7
 threaded female (27.6 barg)
 15 to 150 mm, DIN PN 16
 stainless stl or carbon stl
 flanges(13.8 barg)

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Model Number System

The example **3761-12F5-114** describes a 3700 Armor-Flo™ meter with a stainless steel body/carbon steel shunt for left to right flow, glass window, EPM O-Ring and 4-20 mA output. Connections are 3" 150# raised carbon steel flanges.

37	6	1	-	12	F	5	-	1	1	4
Series	Housing Material	Flow Direction		Size	Type	Shunt Material		Window	O-Ring	Signal
37 -3700	6 -Stainless Stl 8 -Stainless Stl 1000 psig	1 -L to R 2 -R to L 3 -Up 4 -Down		02 -1/2" (15mm) 03 -3/4" (20mm) 04 -1" (25mm) 05 -1 1/4" (32mm) 06 -1 1/2" (40mm) 08 -2" (50mm) 10 -2 1/2" (65mm) 12 -3" (80mm) 16 -4" (100mm) 20 -5" (125mm) 24 -6" (150mm) *32 -8"	T -NPT End F -Flange 150#RF G -Grooved H -Flange 150#FF J -Flange 300#RF K -Flange 300#FF L -Flange DIN PN 10/15 M -BSP Thread End N -BSP Thread Back P -Flange 600#RF R -NPT Back S -Tri-clamp W -Socket End 1/2"-1" X -Beveled	0 -None 1 -Aluminum 2 -Brass 5 -Carbon Steel 6 -Stainless Steel 7 -Carbon Steel 8 -Stainless Steel 400 psig		1 Glass	1 EPM 2 Viton 3 Buna-N 4 Perfluoroelastomer	1 Low Switch 2 High Switch 3 Low & High Switch 4 4-20 mA Output

*gas applications only