Linear Link®

High Performance Turbine Meter System

Description

The Linear Link® is a high performance turbine flowmeter linearizer which has redefined the methodology for optimum linearization. Based on measuring the time between turbine rotor blades, the Linear Link® can output “real time” corrected K-factor flow data in 10 mS, with an accuracy of ±0.1% of reading over the full repeatable range of the flowmeter. This wide turndown is made possible by a unique approach that enhances resolution in the low flow range of the turbine meter where linearization is critical.

The Linear Link® is available in locally mounted or remote enclosures, including NEMA 4X, aluminum and explosion-proof, with or without a display. When the operating temperature exceeds the limits of the electronics or the application requires an industrial enclosure, the system’s remote enclosure options provide the solution.

Putting It To Work

The Linear Link® operates on a wide 12–32 VDC power input, making it ideal for on-board vehicle testing in the automotive and aircraft industries, and engine test stands in the aerospace industry. The outputs available are a raw flow meter frequency, a linearized frequency, and a choice of linearized analog voltage or current outputs.

A variety of packaging options are available to meet your industry needs. MS style connectors are available for automotive and aerospace test stands while explosion-proof enclosures are avaialble for the industrial market.

Linear Link®

Features

- Integral or remote enclosure mounting
- Linearizes outputs to ±0.1% of reading, typical, over the maximum repeatable range of the flowmeter
- Fast 10 mS linearized frequency response
- Operates from 12–32 VDC power
- Simultaneous frequency and analog outputs
- Combines linearization and analog converter in one compact package
- Provides user-selectable K-factor outputs for ease of replacement
- Reduces space requirements and cost of installation
- Fully-programmable and scalable through user-friendly Windows® Visual Link 5 software, via serial communication
- Compliant with EMC Directive 2014/30/EU per EN61000-6-2 and EN61000-6-4

FTI FLOW TECHNOLOGY™

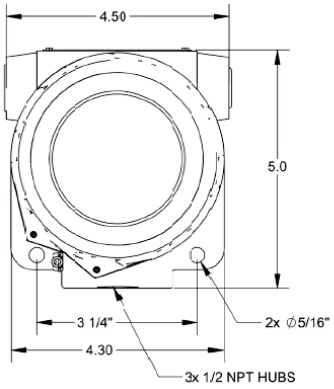
nqa. ISO 9001 Registered

ANAB ACCREDITED

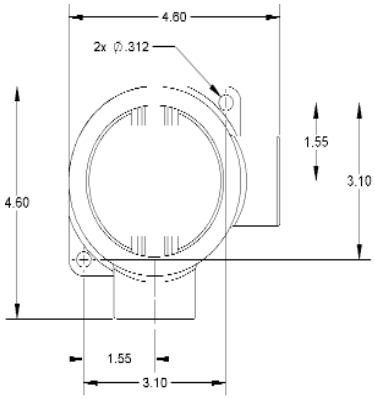
nqa. AS9100 Registered

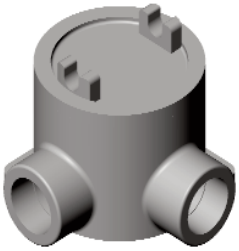
Mechanical Dimensions

Explosion Proof Display (-F1 enclosure)

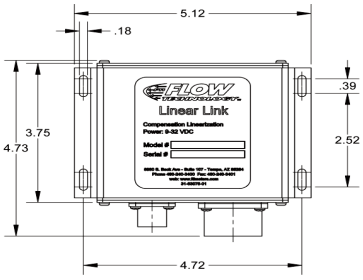


Explosion Proof (-9 enclosure)

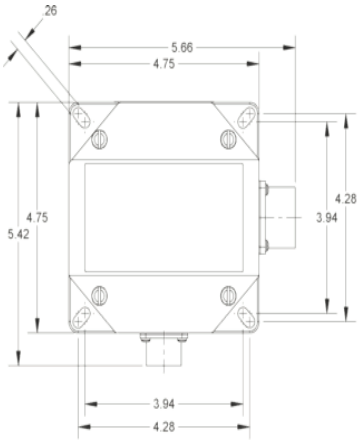


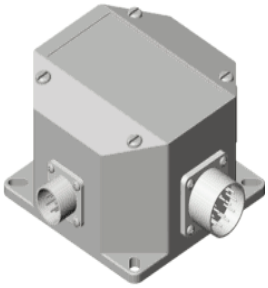


Dustight Aluminum, MS Connectors (A7 enclosure)

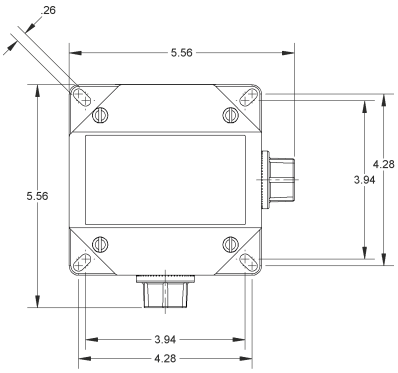


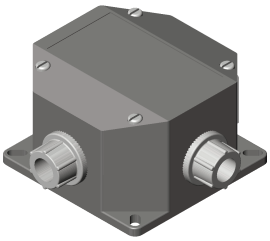
Nema 4X, MS Connections (B7 enclosure)





Nema 4X, Conduit Hubs (B6 enclosure)





Specifications

Input Power

24 VDC nominal	12–32 VDC: no display and unloaded Vout 110mA max
	15–32 VDC: with display and unloaded Vout 160mA max
	19–32 VDC: no display and current out 135mA max
	23–32 VDC: with display and current out 200mA max

Flowmeter Input Type

Magnetic	
Frequency range:	10 Hz – 4 kHz (low Hz dependent on meter configuration)
Impedance:	Greater than 5 K ohms
Sensitivity:	20 mV p-p
Pulse	
Frequency range:	2.5 Hz to 4 kHz
Impedance:	5.8 K ohms to +5 VDC
Schmitt Trigger Buffer	
Voltage (STB):	Low: 0–1 VDC; High: 4–5 VDC
Input Maximum:	0–10 VDC, 1 Hz–4 kHz
RF	
Frequency range:	5–3500 Hz
Inductance:	1 mH
Oscillator frequency:	45–55 kHz
Other RF	
Frequency range:	5–3500 Hz
Inductance:	350 microH
Oscillator frequency:	45–55 kHz

Linearization

Flow Meter K-factor	
Number of Points:	2 to 20
Interpolation Method:	LInear
Density	
Number of Points:	Fixed

Performance

Accuracy	
Linearized Frequency:	0.1% of reading or better, typical
Linearized Analog:	0.1% of full scale or better
Linearization Latency	9–20 mS + period of input

Outputs

Frequency (Flow Rate)	
Flow Rate Raw Frequency:	0–5 VDC pulse
Flow Rate Linearized Frequency:	0–5 VDC pulse (1–3500 Hz)
Impedance:	2.2 K ohms
Transmission Distance:	250 ft maximum
Analog (Flow Rate)	
Voltage	0–10 VDC or 0–5 VDC (factory settable)
Linearized, Scaled Zero Offset:	less than 10 mV
Current	4-20 mA,
Linearized, Scaled MaximumLoad:	IRload = (supply voltage-4)/0.02
RS-232 (Volume/Mass Flow)	
Baud Rate:	19200
Update Rate:	0.5/sec, 1.0/sec, or 2.0/sec
See 'Communication' for additonal details	

Environment

Temperature	
Operating:	-40° F to +185° F (-40° C to +85° C)
with F1 display	32° F to +122° F (0° C to +50° C)
Storage:	-55° F to +257° F (-67° C to +125° C)
with F1 display	14° F to +140° F (-10° C to +60° C)
Humidity	0 to 85% RH non-condensing
Enclosure	NEMA 4X, Class I, Division 1 & 2, Groups A, B, C, & D Explosion Proof; Dust-tight aluminum (options)

Communication

Interface	RS232, serial USART connection to personal computer (with serial cable)
Baud	
Output:	19200
Programming:	19.2 K
Data Bits:	8
Stop Bit:	1
Parity:	None

Approvals

CE	Directive 2014/30/EU
	Immunity Standard EN61000-6-2
	Emissions Standard EN61000-6-4

Programming Cables

Choose one for field programming changes	
Basic	19-62627-104
MS Connector version only	19-62627-106

Model Numbering System

LA	–		–		–			–	

Base Model No.

Power
5 = 12-32 VDC

Flow Meter Signal Input
A = Magnetic
B = Pulse
C = RF Carrier
D = Other RF

Analog Output
V1 = Analog Voltage (0-10 VDC) for Flow Rate
V2 = Analog Voltage (0-5 VDC) for Flow Rate
MA = Analog Current (4-20mA) for Flow Rate
Note: Minimum input power required for 4-20mA output is 15 VDC

Special Configuration
XXX = Three digit Special Code (factory assigned)
CFP = CE per EN 61326
Increased Safety per EN 60079-7
EEx ec IIC T5 G3
Available on enclosure option: – F

Enclosure
– 0 = No Enclosure (n/a with pickoff version)
– 9 = Class 1 Div 1&2, Groups A, B, C & D Explosion Proof
– F = Adalet XIHFCX3
A7 = Aluminum with MS Connectors
B6 = NEMA 4X with 1/2" Conduit Hubs
B7 = NEMA 4X with MS Connectors
F1 = Rate and Total Display, Adalet XIHFGCX2L Explosion Proof

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