

# Transducers series 500FC



► Electro-pneumatic (I/P - E/P) Current / Voltage to Pressure



## Description

The Flucon 500 FC series transducers are ideally used to convert current or voltage input signal to a linearly proportional pneumatic output pressure. This versatile instrument is rugged and reliable force balance transducers for use in both process control and industrial applications, for standard process control applications which typically utilise 3 to 15 psig output and industrial & high pressure application which typically utilise pressure output up to 120 psig. Flucon 500FC series transducers combines low cost, high accuracy and minimum air consumption with field proven technology. Versatile design features and rugged, compact housing with a choice of CMRI and ATEX\* approved versions for explosion proof or intrinsically safe operation when used with a suitable barrier.

## Principle of Operation

The Flucon 500 FC series transducer is a force balance device in which, when electrical current is passed through the coil of transducer, a magnetic field is created which acts on the magnet assembly, causing the anvil & diaphragm to move away from or forward the nozzle (flapper nozzle) depending on the direction of current flow. Motion at the nozzle assembly is proportional to the amount of current passing through the coil.

The flapper/anvil move away from or forward towards the nozzle creates back pressure which acts as pilot pressure to an integral booster relay. when input electrical current increases (or decreases for reverse acting) causes proportional output pressure increases.

Zero and Span are calibrated by turning easily accessible adjusting screws on the front face of the unit. The zero adjusting screw causes the nozzle to move relative to the flapper/anvil. The span adjusting screw is a potentiometer that limits the current through the coil. A thermistor circuit in series with the coil provides temperature compensation.

## Split Ranging

If split ranging is required the 4-20 mA input and 3-15 psig output version (Flucon part no. FC-501) can be recalibrated to provide 3-9 psig or 9-15 psig output.

## Mounting

The Flucon 500 FC series transducers can be pipe, panel or bracket mounted in any position. Position other than vertical will require recalibration of the zero and span adjustment. Transducers should be mounted in a vibration-free area.

## Field Reversible

All Flucon 500FC series transducers are calibrated at the factory for direct acting operation but may be used in reverse acting mode by reversing the polarity of signal leads and recalibrating. When calibrated for reverse acting applications it provide a minimum of their full rated output pressure (i.e. 3 psig) upon input signal failure.

## ► Integrated Characteristics

- Compact Design.
- Low Air Consumption.
- Integral Volume Booster - flow capacity up to 20 SCFM is boosted by the built in volume booster.
- Field Reversible - Output provides inversely proportional to input signal.
- Flexible Adjustments of Zero & Span.
- Standard Process Inputs.
- Split Ranging.
- NEMA 4X (IP65) Enclosure - *Optional*.
- Savings in Investments.

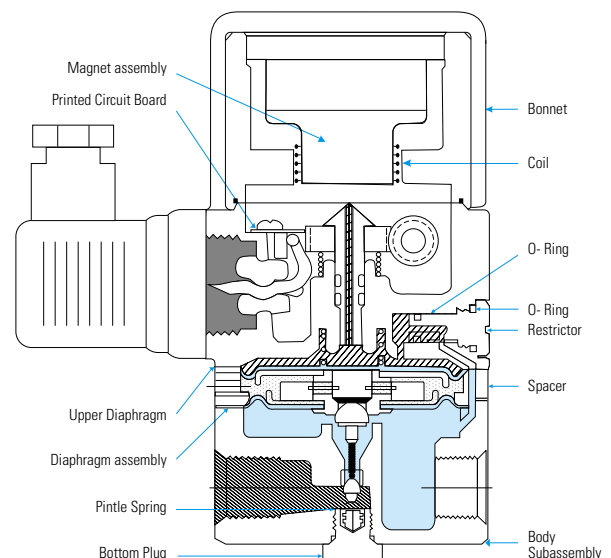
## ► Application

The Flucon 500FC series transducers converts electrical signal to a pneumatic output which can be used to operate the followings:

- Valve, Valve-Actuators,
- Damper and Louver Actuators
- Valve Positioners
- Air-Cylinders
- Relays
- Clutches
- Web Tensioners and Brakes

## Used in :

- Petrochemical Processing Systems
- Energy Management
- HVAC Systems
- Textile Processing Systems
- Pharmaceutical Processing System
- Pulp and Paper Handling Controls



Process Control Instruments  
Valve Automation  
Automated Industrial Equipments

\* ATEX approval pending

► **Specifications**

	<b>Low Output Range (up to 30 psig)</b>	<b>High Output Range (up to 120 psig)</b>
Supply Pressure Range (Min./Max.)	Minimum - 21 kPa (3 psig) above maximum output Maximum -700 kPa (100 psig)	Minimum = 35 kPa (5 psig) above maximum output Maximum -1050 kPa (150 psig)
Supply Pressure Sensitivity	0.15% of span per 10kpa (0.1% of span per psig at mid range)	.005% of span per 7.0 kPa (1.0 psig)
Terminal Based Linearity	1.0% of span	1.5% of span typical 2.0% max.
Repeatability	0.5% of span	1.0% of span
Hysteresis	1.0% of span	1.0% of span
Response Time	Depends on pressure range - typ. less than 0.25 sec. for 3-15 psig units	Depends on pressure range - typ.
Flow Rate	7.6 m <sup>3</sup> /hr (4.5 SCFM) at 175 kPa (25 psig) supply 20.0 m <sup>3</sup> /hr (12.0 SCFM) at 700 kPa (100 psig) supply	40.8 m <sup>3</sup> /hr (24.0 SCFM) at 1050 kPa (150 psig) supply
Relief Capacity	3.4 m <sup>3</sup> /hr (2 SCFM) at 35 kPa (5 psig) above 140 kPa (20 psig) set point	11.9 m <sup>3</sup> /hr (7 SCFM) at 35 kPa (10 psig) above 140 kPa (20 psig) set point
Maximum Air Consumption	0.3 m <sup>3</sup> /hr (0.15 SCFM) at midrange typical	0.15 m <sup>3</sup> /hr (0.08 SCFM ) at midrange typ.
Media	Oil free, clean dry air filtered to 40 microns.	
Temp. Range (Operating)	-30C to 60C (-20F to 140F)	
Port Sizes	1/4" NPT (Pneumatic) DIN 43650 connector (Electric)	1/4" NPT (Pneumatic) DIN - 43650 connector (Electric)
Weight	2.2 lbs. (1.0 kg) approx.	

► **Ordering Information**

**I/P Transducers 500FC**

Part No.	Input	Output Range		Impedance 1%
		psi	kPa	
FC 501	4-20 mADC	3-15	20-100	200 Ω
FC 502	4-20 mADC	9-15	60-100	110 Ω
FC 503	4-20 mADC	3-9	20-60	110 Ω
FC 504	4-20 mADC	3-27	20-185	240 Ω
FC 505	4-20 mADC	6-30	40-200	240 Ω
FC 506	4-20 mADC	1 -17	7-117	270 Ω
FC 507	10-50 mADC	3-15	20-100	90 Ω
FC 508	10-50 mADC	3-27	20-185	105 Ω
FC 509	10-50 mADC	6-30	40-200	105 Ω
FC 510	4-20 mADC	2-60*	14-420	245 Ω
FC 511	4-20 mADC	3-120*	20-830	280 Ω
FC 512	0-60 mADC	2-120*	15-830	240 Ω

**E/P Transducers 500FC**

FC 513	0-5VDC	3-15	20-100	625 Ω
FC 514	0-5VDC	3-17	20-185	550 Ω
FC 515	0-5VDC	6-30	40-200	560 Ω
FC 516	1-9VDC	3-15	20-100	1010 Ω
FC 517	1-9VDC	3-27	20-185	860 Ω
FC 518	1-9VDC	6-30	40-200	860 Ω
FC 519	0-5VDC	2-60*	14-120	520 Ω
FC 520	0-10VDC	3-120*	20-830	825 Ω

► \* Output shown is as calibrated at the factory. Large span adjustment capability allows recalibration to achieve output ranges from 20-240 kPa (3-35 psig) to 20-1000 kPa (3-145 psig).

\*\* Approval Pending

**NEMA-4X (IP65) Enclosure**

Optional NEMA 4X enclosure rating allows for installation in splashdown or outdoor environments. Unit also meets the requirements of IEC standards IP65.

**Intrinsically Safe**

The Flucon-500FC series has been tested and approved by CMRI, Dhanbad, India, for intrinsically safe Class IIa, IIb, and IIc, gas Groups C, D, E, F, and G when used with an apparatus meeting the entity requirements as mentioned hereunder.

V<sub>max</sub> = 29.9v C<sub>1</sub> = 0 C<sub>1</sub> is capacitance  
I<sub>max</sub> = 65mA L<sub>1</sub> = 35mH L<sub>1</sub> is inductance

Installation should be done in accordance with Flucon interconnection drawing. This drawing is included in the Flucon-500FC series installation, operation and maintenance manual. The intrinsically safe approval is a standard feature of the Flucon-500FC series and applies only to units with a 4-20 mA input signal that are installed with the following barriers.

**Barriers:**

**Groups**

**Leeds & Northrup**

**C&D**

P/N. 316569 & 316747

**R. Stahl, Inc.**

**C&D**

P/N. 8901/33-293/000/79

9001/01-280-100- 10

9002/13-280-110-00

**MTL, Inc.**

P/N. 728, 787S, 4045

**Pepperl & Fuchs, Inc.**

**C&D**

P/N. KHD3-ICD/Ex132

The Flucon-500FC series is also CMRI, Dhanbad, approved as nonincendive for gas groups IIa, IIb and IIc and gas groups C,D,E,F & G. Barriers are not required for nonincendive rating application.

► **Options**

Add proper letter onto end of part no.

G- Pressure Gauge : 2" face, back mounted  
Dual scale.

W-NEMA 4X : Enclosure for splashdown/outdoor use.

Ex- : Explosion-proof\*\*

2" Pipe mounting/DIN Rail mounting available on request.

► **Note :**

Consult factory for Electro-pneumatic Positioner (current/voltage input), Pneumatic to Pneumatic Valve Positioners, Position Transmitters and Limit Switches.

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Subject to Revision • 1107/2000-1/P006