DPharp
FOR THE DIGITAL WORLD

Differential Pressure and Pressure Transmitter

DPharp Feature Guide

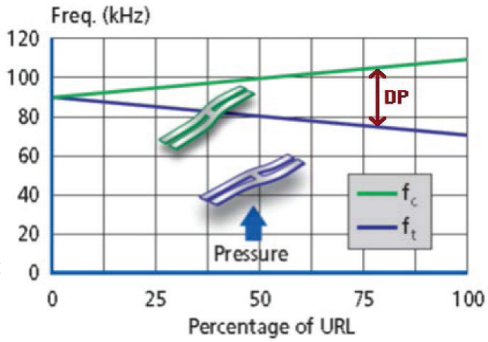
YOKOGAWA

DPharp Features

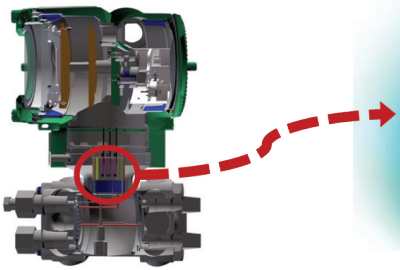
WORKING PRINCIPLE

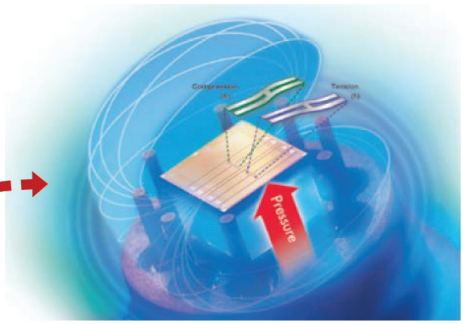
The unique DPharp digital sensor provides the most stable and precise pressure measurement available today. Two single crystal silicon resonators vibrate at their natural frequencies. When pressure is applied, the frequency of one resonator increases and the other decreases.

The CPU directly counts the sensor output frequencies without any additional A/D conversion. Due to the excellent elastic properties of silicon material, the DPharp sensor exhibits greater linearity and repeatability, with no inherent hysteresis.



Differential Pressure is the difference of the two frequencies.



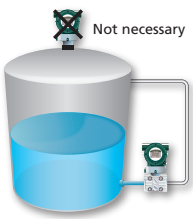


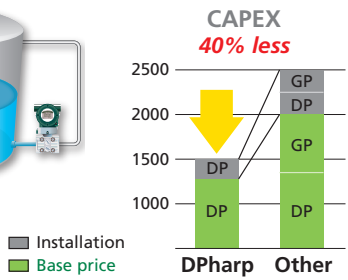
☑ EJX-A ☑ EJA-E ☐ EJA-A

Unequaled precision and long term stability for your measurements

MULTI-SENSING

DPharp digital sensor has the unique ability to accurately measure static pressure and differential pressure simultaneously. Multi-sensing platform enables real-time dynamic compensation for unmatched precision and forms the basis for advanced diagnostics implementation.





☑ EJX-A ☑ EJA-E ☐ EJA-A

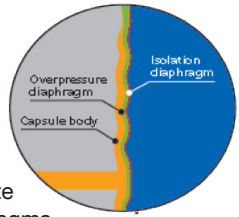
More really does mean less

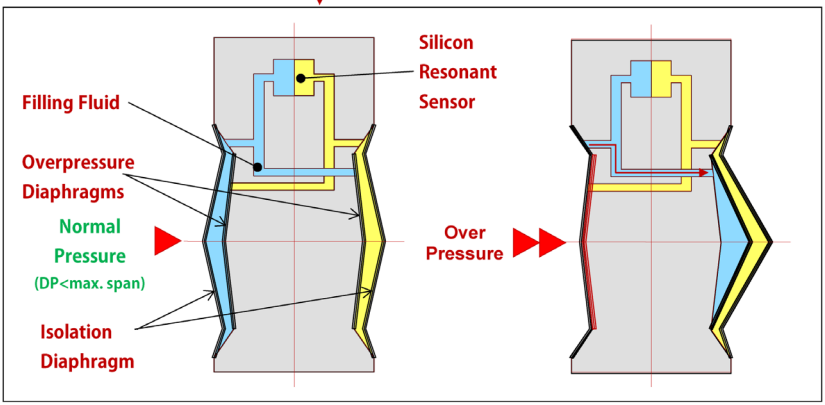
DPharp Features

OVERPRESSURE

Overpressure event may occur due to incorrect operation of valve manifolds or process upsets during plant start-up. DPharp transmitters incorporate additional overpressure diaphragms to protect the sensor from abnormal pressure surges. Yokogawa has a published overpressure specification based on DPharp superior sensor characteristics.

Improved reliability by protecting against overpressure events





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Improved reliability by protecting against overpressure events

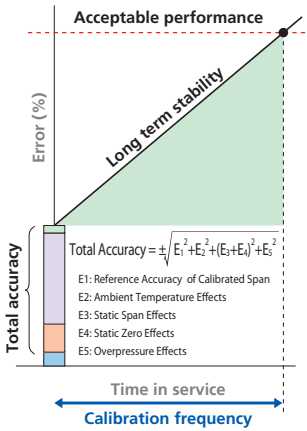
DPharp Features

HIGH PERFORMANCE

Accurate and stable measurement in real world conditions is fundamental to realize reliable and efficient plant operation.

Total Accuracy & Long Term Stability

When installed in the field, DP transmitters are subjected to continuous variations in pressure and temperature which will affect the accuracy. The performance will drift over time and is quantified using long term stability. The calibration interval is determined by comparing the transmitter performance with the acceptable performance.

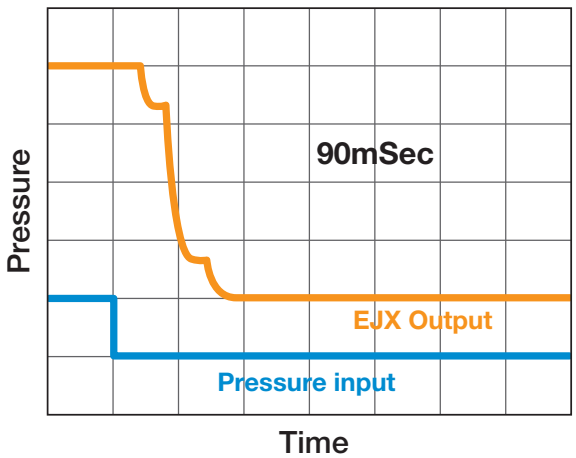


☑ EJX-A ☑ EJA-E ☐ EJA-A

Unconditional guarantee of long-term stability under complete range of operating conditions

RESPONSE TIME

A compact design and powerful electronics enable a fast response of 90 milliseconds allowing you quicker response to process changes.



☑ EJX-A ☑ EJA-E ☐ EJA-A

Fast response to changes in process pressures for critical applications

DPharp Features

SAFETY AS STANDARD

DPharp transmitters are capable of SIL2 single use and SIL3 redundant use, as standard. Yokogawa transmitters have undergone complete assessment of hardware for SIL2 and development processes for SIL3 capability to IEC61508 safety standards.

TÜV NORD Safety Approved ®

exida®

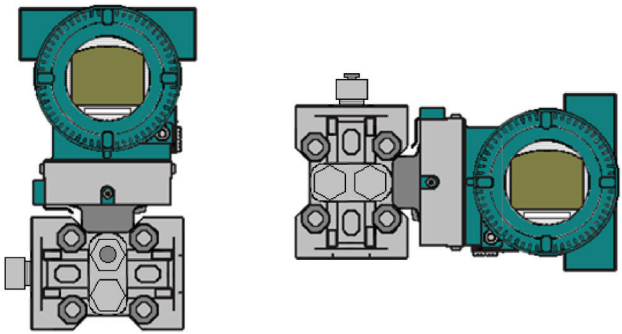
Certified IEC61508

☑ EJX-A ☑ EJA-E ☐ EJA-A

Plant safety and reliability ensured

UNIVERSAL MOUNT

Dpharp pressure transmitters are available with a universal mount flange and universal mounting bracket to accommodate almost any kind of installation. Universal mounting brackets and flanges reduce inventory and assist with older device retrofits.



Moving Drain / Vent plugs around, the transmitter can accommodate numerous installations.

Flexibility

☑ EJX-A ☑ EJA-E ☐ EJA-A

DPharp LINE-UP

DPharp EJX™	DPharp EJA™	DPharp EJA™		
			Standard	Differential Pressure
EJX110A	EJA110E	EJA110A		
			Draft Pressure	
EJX120A	EJA120E	EJA120A		
			High Static Pressure	
EJX130A	EJA130E	EJA130A		
			Remote Diaphragm Seals	
EJX118A	EJA118E	EJA118W,N,Y		
			IFO	Low Flow
EJX115A	EJA115E	EJA115		
			Flush or Extended	Level
EJX210A	EJA210E	EJA210A / EJA220A		

DPharp LINE-UP

DPharp EJX™	DPharp EJA™	DPharp EJA™		
			Standard	Gauge Pressure
EJX430A	EJA430E	EJA430A		
			High Pressure	
EJX440A	EJA440E	EJA440A		
			Remote Diaphragm	
EJX438A	EJA438E	EJA438W,N		
			Absolute Pressure	
EJX310A	EJA310E	EJA310A		
			Gauge or Absolute Pressure	In-Line
EJX510A / EJX610A EJX530A / EJX630A	EJA510E EJA530E	EJA510A EJA530A		
			Mass Flow	Multi-Variable
EJX910A / EJX930A				

DPharp Features

DISPLAY CAPABILITY

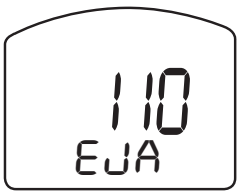
Intelligent indicator clearly displays multiple process variables, user configurable engineering units, communication protocol, output status, diagnostics, and sweeping bar graph. When using digital protocol, details of the instrument model, protocol version, and device revision are indicated at start-up.

☑ EJX-A ☑ EJA-E ☐ EJA-A

Easy to Read Display

DISPLAY START-UP

At start-up, the indicator cycles through the transmitter type, communication type, and device revision level. Each item is displayed for 3-seconds.



Transmitter Type

Digital Protocol

Device Revision Number

DPharp Features

DISPLAY OPERATION

The intelligent indicator is capable of displaying up to four different process views. It can be set up to cycle through various views.

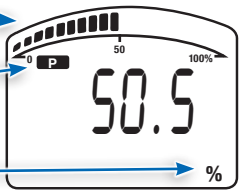
> Example of Available Display Views

Pressure in Percentage

Sweeping Bar Graph
- Percentage of Span

Variable Indicator
- Pressure

Unit of Measure of value displayed
- Percentage

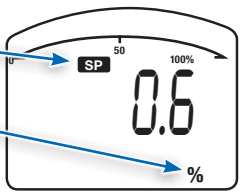


% Pressure

Static Pressure in Percentage

Variable Indicator
- Static Pressure

Unit of Measure of value displayed
- Percentage



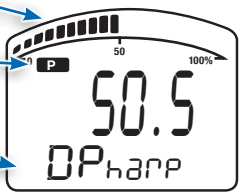
% Static Pressure

Pressure in Engineering Units

Sweeping Bar Graph
- Percentage of Span

Variable Indicator
- Static Pressure

Unit of Measure of value displayed
- Programmable – in this case it is programmed in “DPharp” units.

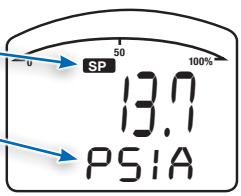


Pressure

Static Pressure in Engineering Units

Variable Indicator
- Pressure

Unit of Measure of value displayed
- psia



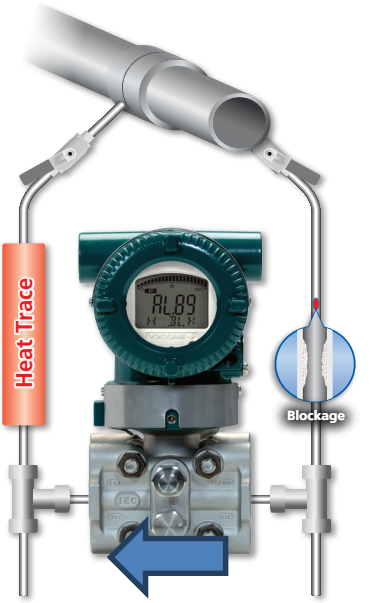
Static Pressure

EJX-A Features

PREMIUM PERFORMANCE

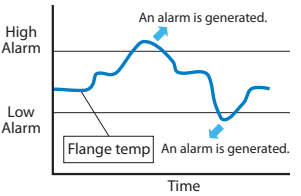
The EJX Series of the pressure transmitters delivers premium performance with an industry leading stability guarantee. All DP transmitters provide a static pressure measurement of 0.2%, which provides greater insights into your process with fewer devices.

Reduced process variability and greater insights into your process

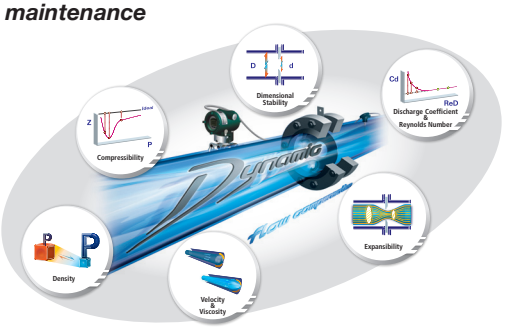


ADVANCED DIAGNOSTICS

Impulse line blockage detection (ILBD) and heat tracing provides an early warning of installation issues before they cause a failure of the transmitter.



Increased plant availability through predictive maintenance



MULTI-VARIABLE TRANSMITTER:

EJX900 multi-variable transmitter successfully integrates the DPharp multi-sensing capability with an onboard flow computer and can be configured for multi-variable (DP,SP,T) or dynamically compensated mass flow outputs.

Improved mass flow measurement with fewer devices

HIGH PRESSURE CAPABILITY

The EJX600 series of gauge and absolute pressure transmitter provides high performance with safety as standard with a direct threaded process connection for compact installation.

Safer measurement at higher pressures

DP harp
FOR THE DIGITAL WORLD

Differential Pressure and Pressure Transmitter

	EJA-A	EJA-E	EJX-A
ACCURACY			
+/- 0.025%			●
+/- 0.040%		●	●
+/- 0.055%		●	
+/- 0.065%	●		
STABILITY			
+/- 0.1% of URL for 10 years			●
+/- 0.1% of URL for 7 years		●	
+/- 0.1% of URL for 5 years	●		
MAXIMUM WORKING PRESSURE			
250 bar		●	●
160 bar	●	●	
TURN DOWN			
200 : 1			●
100 : 1	●	●	
MULTI SENSING			
DP, SP		●	●
SAFETY			
FMEDA report	●	●	●
IEC61508 Certified		●	●
RESPONSE TIME			
< 90msec		●	●
USER LINEARISATION			
10 points signal characteriser		●	●
FF FUNCTION BLOCKS			
AI (Analog Input)	●	●	●
PID (PID control)	●	●	●
Other *		●	●
LINK MASTER			
Standard		●	●
Option	●		
ADVANCED DIAGNOSTICS			
Impulse line blockage detection			●
Heat trace monitoring			●
ALARM OUTPUT			
Contact output			●
MULTI-VARIABLE			
DP,SP,PT,QV & QM			●
WIRELESS COMMUNICATION			
ISA100.11a			●

[* Other FB includes SC (Signal Characteriser), IT (Integrator), AR (Arithmetic) and IS (Input Selector)]

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DFG-001 3rd Edition