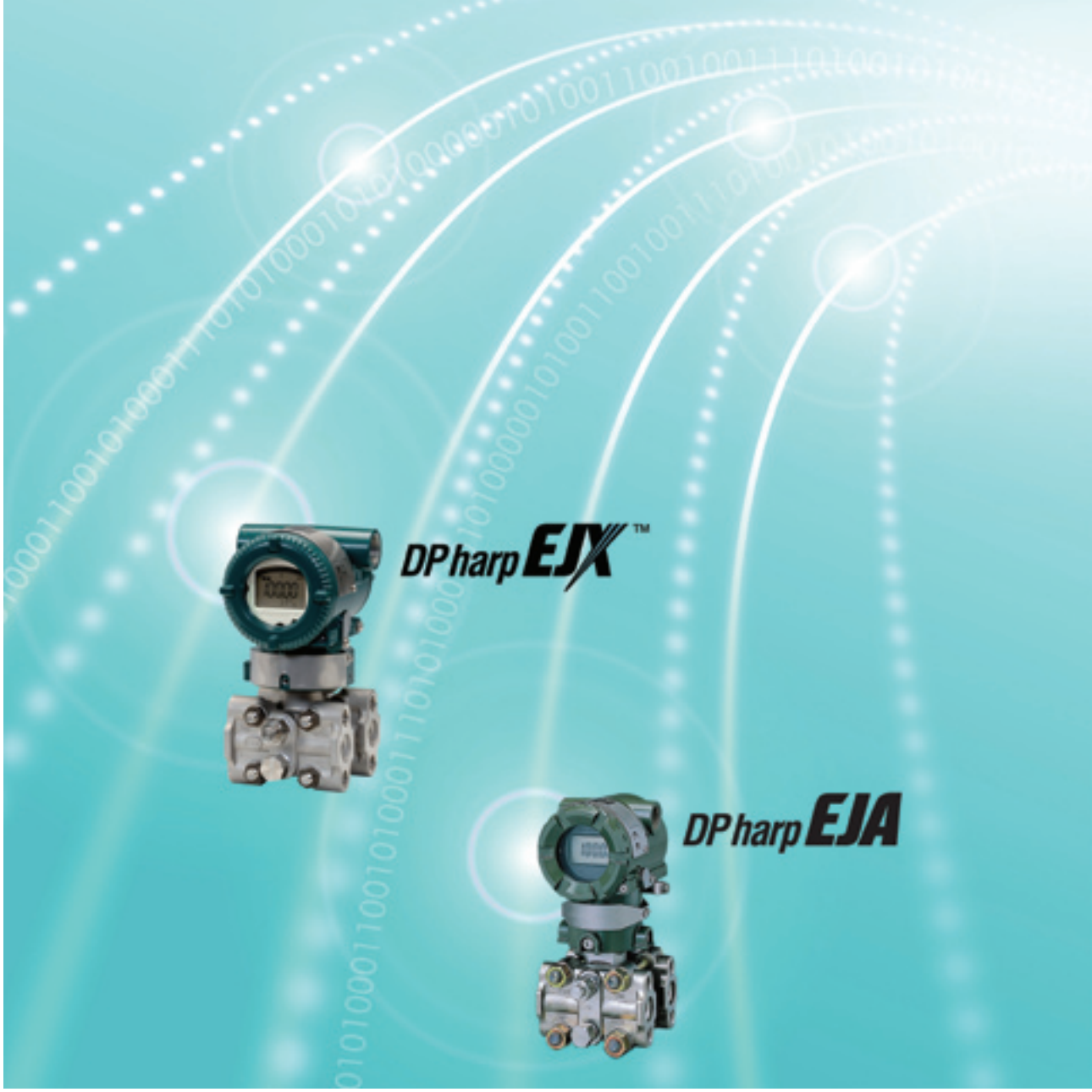


DPharp
FOR THE DIGITAL WORLD

The digital world continues to expand with the introduction of our latest members, each delivering a lifetime of

- Precision
- Multi-Sensing
- Stability
- Safety

Bulletin 01C25A10-01E

Multi-Variable

EJX910A Multi-Variable Solution

The EJX910A Multi-Variable transmitter is unique among the EJX digital family of pressure transmitters as it is Yokogawa's first and most advanced D/P mass flow solution. It is able to make three process measurements, D/P, A/P & PT (Process Temperature) and compensate for density changes using four distinct methods. The on board flow computer is then able to derive mass flow with an accuracy of 1% of reading over a turndown of 10:1 on flow, or 100:1 on D/P.

In auto-compensation mode the EJX910A transmitter utilizes sophisticated algorithms to compensate for minor changes in the total flow solution. Changes such as the thermal expansion of the process pipe and primary measurement element and density changes within the flowing medium are corrected, whether that medium is a liquid, gas or vapor, plus a whole host of other related flow variables.

While the EJX910A is a sophisticated mass flow transmitter the end user needn't be too concerned as our FSA120 flow configuration tool enables quick and convenient configuration of the transmitter's parameters. With FSA120 you even have the ability to simulate the flowing conditions to prove your parameters while offline.

"EJX910A enables advanced multi-variable mass flow solutions"

The FSA120 configuration tool is based on FDT/DTM technology which allows for simplified and convenient visualization of the transmitter parameters. The FSA120 breaks parameters down into logical groupings and sequences. A further advantage is that the FSA120 configuration tool can be used with both HART and Foundation Fieldbus communication technologies, in FieldMate and any third party compliant FDT frame application.

EJX910A can be used on liquids, gases or vapors, with a wide variety of primary elements, in standard, allocation or fiscal metering solutions, in natural gas applications where compliance with standards such as AGA3 and AGA8 are mandatory.

Interoperability

DP^{harp} Pressure transmitters provide an extensive choice of open industrial protocols such as HART, BRAIN, Foundation Fieldbus, Profibus PA, EDDL and FDT/DTM. This enables the most efficient configuration of your instrumentation using the protocol of your choice.

Our strategy is to support our customer's existing and legacy systems plus new green field developments, while enabling full integration of the latest process automation devices. This unlocks the full potential of advanced diagnostics in field devices, such as EJA and EJX series of pressure transmitters.

"Unlocking the full potential of advanced diagnostics in field devices."

In the digital world, state of the art transmitters are required to communicate with other field devices in order to deliver the full potential of advanced diagnostics. An example being the PST (Partial Stroke Testing) of Valves, where the downstream D/P transmitter must communicate the change in flowrate to the control valve to verify that it is still fully functional.

DP^{harp} for the digital world meets the present and future demands of the process automation industry, by providing a best in class, reliable, interoperable series of pressure transmitters.

FDT Group

HART® FIELD COMMUNICATIONS PROTOCOL

PROFI® PROCESS FIELD BUS

FOUNDATION®

One Tool for All

FieldMate fully embraces both the FDT/DTM and DD technologies that promise open, rich, intuitive access to the latest intelligent devices.

FieldMate™

Versatile Device Management Wizard

DPharp EJX

Best Installed Performance

DP^{harp} for the digital world represents Yokogawa's commitment to deliver leading edge solutions. Compact, lightweight, intuitive and intelligent, EJA & EJX simplify all aspects of handling, commissioning, installation and operation while delivering outstanding best in class performance. Whether installed in the harsh environmental conditions of an offshore oil production platform, down stream in a refinery, or the burning desert heat, EJA & EJX deliver accurate, repeatable, high integrity process measurements.

"Best installed performance means delivering best in class transmitters."

Reduced process variability, increased yield, and improved product reproducibility are achieved with best reference accuracy as low as 0.025% of span. All backed by an unconditional stability guarantee of 0.1% of URL for 10 years. This ensures an installed total performance of better than 0.125% of span.

Best installed performance means delivering best in class transmitters. Robustness, reliability and quality that you can rely on are characteristics that Yokogawa is renowned for.

Features Table
Accuracy
0.025%
0.04%
0.065%
Stability
0.1% of URL for 10 Y
0.1% of URL for 5 Ye
Turndown
200:1
100:1
Multisensing
D/P & S/P
Multi Variable
D/P, S/P, PT, QV & QI
Communications
BRAIN, HART, FF & F
Profibus PA
Agency Approvals
ATEX, FM, CSA, IEC
Safety
FMEDA
TUV
Response time
<= 90 msec
User Linearisation
10 point matrix
Alarms
Contact output

Safety as Standard

In today's highly regulated environment, compliance with the latest safety standards and regulations is mandatory.

"Do you regard safety as an option? No? Neither do we!"

For these reasons Yokogawa believes safety should not be an option. It should be standard in all process automation & control equipment. Our strategy is to continue to build the finest high quality, reliable, industrial automation & control solutions while incorporating the latest safety standards such as IEC61508 in their design. EJX, with its unique digital, inherently fail-safe DP^{harp} sensor, has been designed and built in accordance with this new philosophy. Whether or not EJX is installed in a Safety Instrument Function (SIF) it will deliver a lifetime of benefits. One benefit being high integrity process measurements validated by onboard safety diagnostic functions.

With EJX, you no longer have to sacrifice plant availability for plant safety. EJX allows you to maximize your plant's safe availability while optimizing operational uptime.

Multi-Sensing

DP^{harp} multi-sensing digital sensor has the unique ability to accurately measure static pressure and differential pressure simultaneously. This single digital sensor provides additional insight and a wider window into your process. This window includes advanced diagnostics which are realized through continuous statistical analysis of the resonators.

This information is available through the supported digital communication protocols; HART, BRAIN, FF, Profibus PA, EDDL and FDT/DTM. The purely digital signal provided by the DP^{harp} is never degraded by any analog to digital converters.

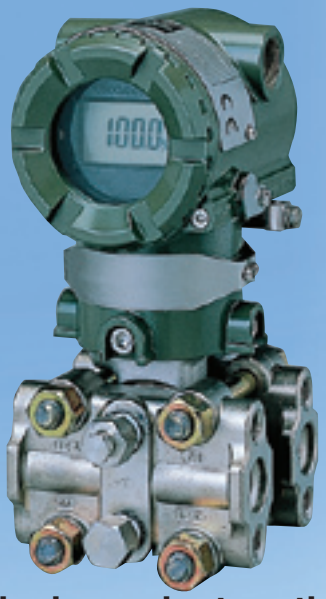
Multi-sensing allows the process to operate with fewer devices by utilizing the additional functionality of the EJA & EJX pressure transmitters.

TÜVIT®

DPharp EJA

	EJX	EJA
	•	
	•	
		•
ears	•	
ars		•
	•	
		•
	•	•
M	•	
FDT/DTM	•	•
		•
& TIIS	•	•
	•	•
	•	
	•	
	•	
	•	

Robustness



Robustness is the ability to function under extreme conditions. **DP^{harp} for the digital world**, provides the most rugged and reliable pressure transmitters available today. Constructed from the highest grade of materials, our transmitters continue to perform even in the most sever applications.

The DP^{harp} digital sensor is the heart of EJA and EJX. This micro-machined single crystal silicon sensor, in conjunction with the unique overpressure protection system, will withstand abnormal pressure events without loss of accuracy or performance. Many processes contain corrosive and other aggressive mediums. Therefore, EJA & EJX are available with a selection of compatible materials, such as 316L stainless steel, Monel, Tantalum and Titanium.

To protect against harsh environments the IP67/NEMA-4X dual compartment explosion-proof housing is also available in either low-copper aluminium or stainless steel. Plant availability is largely dependent on the robustness of the installed instrumentation. EJA & EJX deliver uncompromising quality and durability with longevity in mind.

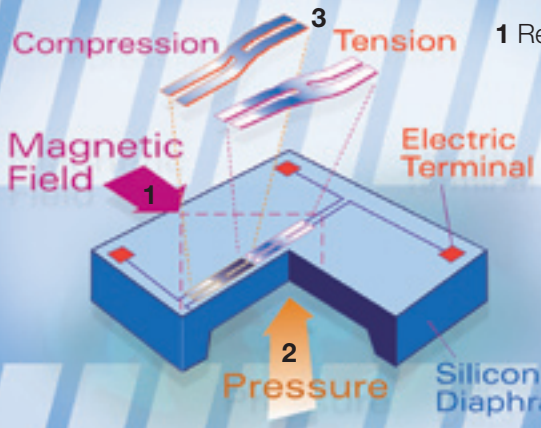
"Plant availability is largely dependent on the robustness of the installed instrumentation."

Stability and Reliability

Science has identified single crystal materials as those materials which have negligible hysteresis. Unfortunately, these same single crystal materials do not make very good pressure sensors in their natural state and significant development was needed to produce an excellent pressure sensor based upon these materials. Such sensors exist today in the form of our Yokogawa DPharp resonant pressure sensor.

"By micro-machining the resonators directly within the single crystal silicon material we are able to derive the maximum benefits."

By micro-machining the resonators directly within the single crystal silicon material we are able to derive the maximum benefits from the elasticity of the single crystal silicon material while enhancing sensitivity and repeatability. In fact, the properties of the resonators remain constant over time. This makes DPharp the ideal pressure sensor for harsh industrial automation environments. DPharp delivers stability, repeatability and reliability that you can rely on.



1 Resonators integral to the silicon substrate

2 Applied pressure moves one resonator into tension and the other into compression .

3 As the pressure continues to increase, so does the differential frequency.

EJX110A
Bottom Connection

EJX118A
EJX438A

EJX110A
EJX120A

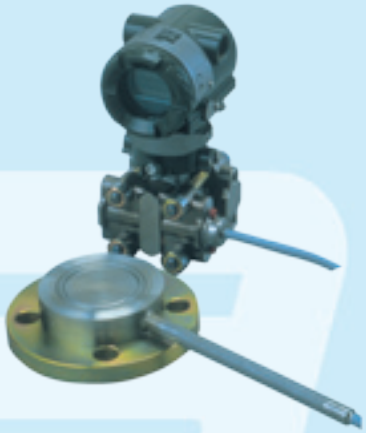
EJX130A

Solution	Installtion Type	Model
Differential Pressure	Manifold Mounting	EJX110A EJA110A
Low Flow with Integal Orifice		EJX115A EJA115
Draft Range Differential Pressure High Static Pressure Differential Pressure		EJX120A EJA120A EJX130A EJA130A
Absolute Pressure		EJX310A EJA310A
Gauge Pressure		EJX430A EJA430A
High Gauge Pressure		EJX440A EJA440A
Multi-Variable		EJX910A
Remote Level Differential Pressure	Flange Mounting	EJX118A EJA118[ ] N, W & Y
Direct Level Differential Pressure		EJX210A EJA210A & 220A
Remote Gauge Pressure		EJX438A EJA438[ ] N & W
Absolute Pressure Absolute Pressure Gauge Pressure Gauge Pressure	Direct Mounting	EJX510A EJA510A EJX530A EJA530A
Absolute Pressure Gauge Pressure		EJX610A EJX630A

EJA110A

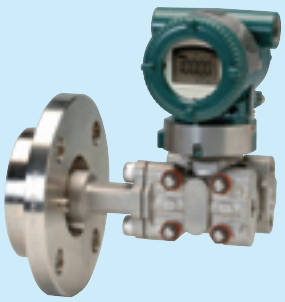
EJA115

EJA118
EJA438



EJA130A

EJX210A



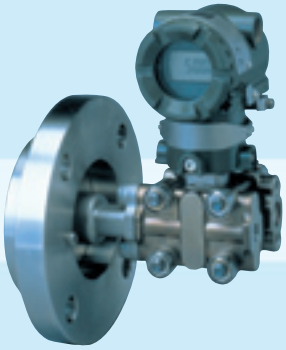
EJX310A
EJX430A

EJX510A
EJX530A

EJX910A

Capsules	Measurement Span		Maximum Working Pressure	
	kPa or (MPa)	inH2O or (psi)	MPa	psi
L, M & H	0.1 to 500	0.4 to 2000	16 to 25	2300 to 3600
L, M, H & V	0.5 to (14)	2 to (2000)	3.5 to 16	500 to 2300
L, M & H	-	-	-	coming 2008
L, M & H	1 to 210	4 to 830	3.5 to 16	500 to 2300
E	-	-	-	coming 2007
E	0.1 to 1	0.4 to 4	0.05	7.25
M & H	1 to 500	4 to 2000	32 to 45	4600 to 6500
M & H	1 to 500	4 to 2000	32 to 45	4600 to 6500
M, A & B	1.3 to (16)	5 to (2300)	0.13 to 16	19 to 2300
L, M & A	0.67 to (3)	3 to (430)	0.001 to 3	0.145 to 430
H, A & B	2.5 to (16)	10 to (2300)	16 to 25	2300 to 3600
A & B	(0.03) to (14)	(4.3) to (2000)	14 to 21	2000 to 3000
C & D	(0.25) to (50)	(36) to (7200)	32 to 50	4500 to 7200
C & D	(5) to (50)	(720) to (7200)	32 to 50	4500 to 7200
L, M & H	0.1 to 500	0.4 to 2000	25	4500
M & H	0.5 to 500	2 to 2000	Based on Flange rating	
M & H	2.5 to 500	10 to 2000	Based on Flange rating	
M & H	1 to 500	4 to 2000	Based on Flange rating	
M & H	1 to 500	4 to 2000	Based on Flange rating	
A & B	(0.035) to (7)	(5) to (2300)	Based on Flange rating	
A & B	(0.06) to (7)	(8.6) to (1000)	Based on Flange rating	
A, B, C & D	8 to (50)	(1.16) to (1200)	4 to 75	580 to 10800
A, B, C & D	10 to (50)	(1.45) to (1200)	4 to 60	580 to 7200
A, B, C & D	8 to (50)	(1.16) to (1200)	4 to 75	580 to 10800
A, B, C & D	10 to (50)	(1.45) to (1200)	4 to 60	580 to 7200
A, B, C & D	-	-	-	coming 2008
A, B, C & D	-	-	-	coming 2008

EJA210A



EJA310A
EJA430A

EJA440A

EJA510A
EJA530A

A Yokogawa Commitment to Industry

vigilance®

quality innovation foresight

What does Yokogawa **vigilance** mean to the future of your business? ***Quality***. Through products that are built from the ground up and tested to the last hour, you're ensured continuous operation and more uptime. ***Innovation***. Your business will benefit from new insights and capabilities, bringing true predictability to your process. ***Foresight***. As the market changes, you'll have solutions that give you the continuity and flexibility toplan ahead and grow. Our partners know the difference. With Yokogawa, you can count on a lifetime of plant efficiency, from instrumentation to operation support. Let us be vigilant about your business.

YOKOGAWA ELECTRIC CORPORATION
World Headquarters
9-32, Nakacho 2-chome, Musashino-shi, Tokyo 180-8750, JAPAN
www.yokogawa.com

YOKOGAWA EUROPE B.V.
Databankweg 20 - 22, 3821 AL Amersfoort, THE NETHERLANDS
www.yokogawa.com/eu

YOKOGAWA ENGINEERING ASIA PTE. LTD.
5 Bedok South Road, Singapore 469270, SINGAPORE
www.yokogawa.com.sg

YOKOGAWA CORPORATION OF AMERICA
2 Dart Road, Newnan, Georgia 30265-1094, U.S.A.
www.yca.com

YOKOGAWA ELECTRIC CHINA CO., LTD.
22nd Floor Shanghai Oriental Centre, 31 Wujiang Road
(699 Nanjing West Road) Jing'an District Shanghai 200041, CHINA

Represented by:

Bulletin 01C25A10-01E, edition 1

Printed in Singapore

YOKOGAWA