



**ADMAG AXR<sup>®</sup>**

Superior 2-Wire Magnetic Flowmeter

**vigilantplant.<sup>®</sup>**  
The clear path to operational excellence

**YOKOGAWA** 

[www.yokogawa.com](http://www.yokogawa.com)

Bulletin 01E30A11-01EN

# The gate to the future.

Magnetic flowmeters traditionally use more current to achieve higher performance. Therefore magnetic flowmeter 4-wire configuration as standard because cannot deliver enough current. Now that concept is a thing of the past. With YOKOGAWA's ADMAG AXR supreme performance is realized ADMAG AXR is the

current to achieve higher performance. have traditionally been driven by 2-wire loop powered configurations for acceptable performance. 2-wire magnetic flowmeter, with leading-edge technology. gate to the future.

Efficiency

Safety

Reliability

Friendly



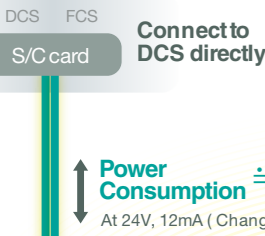
ADMAG AXR 2-wire magnetic flowmeter can be installed in a 2-wire loop powered system without the need for any external AC power source, thus drastically reducing the initial instrumentation and installation cost. The ADMAG AXR is the world's first 2-wire magnetic flowmeter which employs the fluid noise-free "Dual Frequency Excitation" Technology, achieving excellent stability. User-friendly functions such as a full dot-matrix LCD indicator, adhesion diagnostic level function, multi-lingual display and the magnet switches that can be used for checking and setting parameters without exposing the electronics. Make the ADMAG AXR friendly to use, safe to operate and easy to maintain.

ADMAG **AXR**<sup>®</sup>

## 2-Wire Benefit

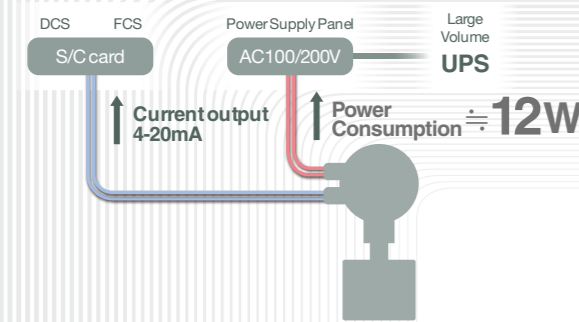
An extra AC power supply is not necessary. 2-wire loop powered performance allows direct connection to DCS I/O card possible - allowing for real cost reductions.

- Reduce the CAPEX and OPEX on your site.
- Power saving : 1 to 4% power consumption of typical 4-wire magnetic flowmeter.
- Annual CO<sub>2</sub> emissions can be reduced from approximately 73kg to 1.4kg (compare to a standard 4-wire magnetic flowmeter).



### 2-Wire magnetic flowmeters

### 4-Wire magnetic flowmeters

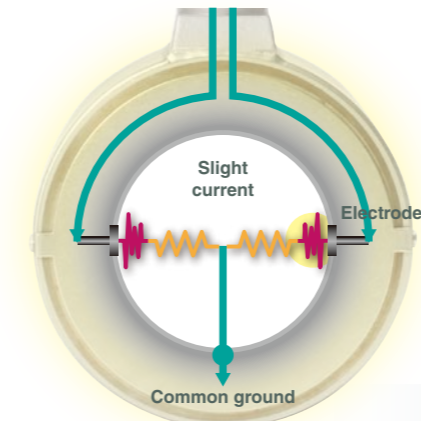


# Reliability

Reliability through Technology

## Adhesion Diagnostic Level Function

The Electrodes is one of the most important parts of a Magnetic flowmeter. Only YOKOGAWA has the "Adhesion Diagnostic Level Function". It diagnoses the condition of the electrode surface and indicates the adhesion/coating in 4 levels. Users can change the detection level (threshold) depending on each individual process condition. This allows for predictive maintenance and reduced operating costs.



## Alarm Indication

YOKOGAWA employs a Full-dot matrix LCD indicator. It can display up to 3 lines as required by the user and is available in multiple languages. When the unit has an alarm, a clear message is displayed along with a solution.



Meaning of Alarm  
-10 %  
12345678 m<sup>3</sup>  
Solution  
Process Alarm  
31:Empty Pipe  
Fill flow tube with fluid

# Safety

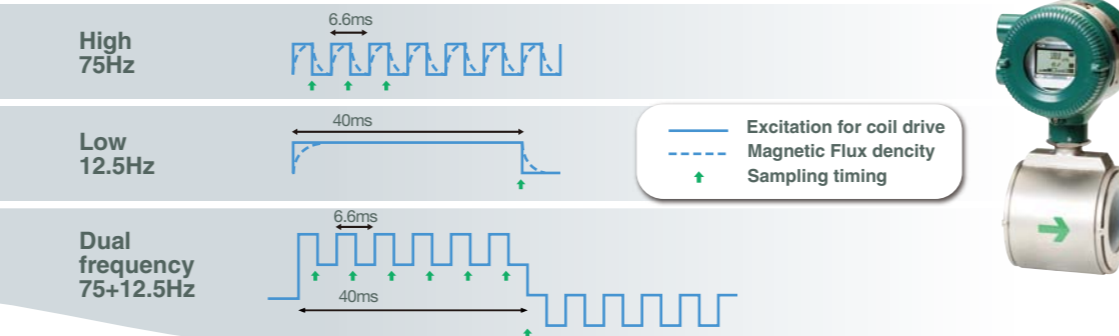
Safety is Standard

# Efficiency

Efficient Measurement

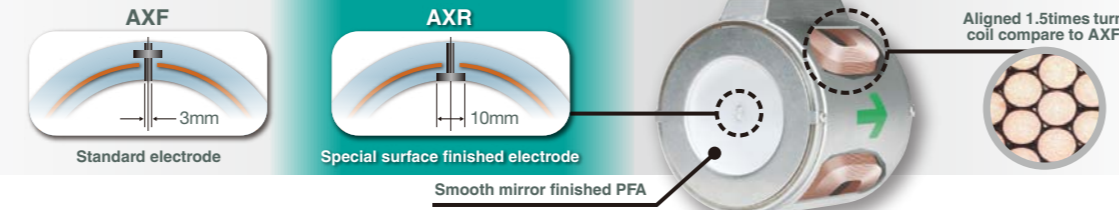
## Dual Frequency Performance

Only YOKOGAWA can provide this unique and advanced excitation method. "Dual Frequency Excitation" achieves stable measurement, zero stability and quick response times. The exclusive technology for stable and reliable measurement on your site.



## Noise reduction technology

Flow noise reduction is further achieved by incorporating smooth mirror finished PFA liners and special surface finished electrodes. This is further enhanced with aligned super high density coils that generate a stronger magnetic field.



# Friendly

Friendly with Advanced Technology

## SIL2

YOKOGAWA believes safety should not be optional, it should be standard in all modern products. AXR is the first 2-Wire Magnetic flowmeter with SIL2 Safety Integrity Level (IEC 61508) certified. AXR is capable of SIL2 single use and SIL3 redundant use, as standard.

SIL	PFDavg	RRF
4	$\geq 10^{-5}$ to $< 10^{-4}$	$> 10,000$ to $< 100,000$
3	$\geq 10^{-4}$ to $< 10^{-3}$	$> 1,000$ to $< 10,000$
2	$\geq 10^{-3}$ to $< 10^{-2}$	$> 100$ to $< 1,000$
1	$\geq 10^{-2}$ to $< 10^{-1}$	$> 10$ to $< 100$

PFD: Probability of Failure on Demand  
RRF: Risk Reduction Factor (RRF=1/PFD)



## Parameter Operation

AXR has a magnet switch for parameter setting. Users can access the functions without removing the case cover in hazardous, humid, and dusty environment.



\*Please refer to General Specifications in detail.

## ADMAG AXR Specifications

Structure	Integral flowmeter
Excitation Method	Dual frequency excitation
Nominal Pipe Size [ Unit : mm ( approx. inch ) ]	General-purpose use: 25 (1.0) to 200 (8.0) Explosion proof Type: 25 (1.0) to 200 (8.0)
Supply Voltage	Operating voltage range 14.7 to 42 V DC Two-wire system
Output Signals	Current output Digital output (One output can be selected from pulse, alarm or status outputs.)
Electrode Material	Stainless steel-JIS SUS316L (AISI 316L SS/EN 1.4404 equivalent), Hastelloy C276 equivalent, Tantalum,Platinum-iridium
Fluid Temp.	- 40 to 130 deg.C (- 40 to 266 deg.F) [ depends on model type ]
Ambient Temp.	- 40 to 55 deg.C (- 40 to 131 deg.F) [ depends on model type ]
Accuracy	0.5% of rate (Note 1) [ depends on nominal pipe size and fluid condition ]
Fluid Conductivity	10 micro-S/cm or larger [ depends on nominal pipe size and fluid condition ]
Lining	Fluorocarbon PFA (Mirror-finished lining surface) (Note 2)
Indicator	Full dot-matrix LCD
Operational Switch	4 magnet switches (including push switches)
Self Diagnosis	Electrode adhesion diagnosis, Coil open, etc.
Alarm Message	Alarm message with countermeasure is indicated ( English, German, French, Italian, Spanish, Japanese )
Options	Direction change of the electrical connection, Special Gaskets, Bar-magnet for operation of magnet switches, etc.

Note 1: The accuracy of a product before shipment is defined as totalized value at the result of calibration test in our water actual flow test facility.

Note 2: Mirror finished PFA lining is standard for size 25 to 100 mm (1 to 4 in.) and optional for size 150 to 200 mm (6 to 8 in.) specified by optional code PM.

# vigilantplant.®

The clear path to operational excellence

SEE  
CLEARLY

KNOW  
IN ADVANCE

ACT  
WITH AGILITY

VigilantPlant is Yokogawa's automation concept for safe, reliable, and profitable plant operations. VigilantPlant aims to enable an ongoing state of Operational Excellence where plant personnel are watchful and attentive, well-informed, and ready to take actions that optimize plant and business performance.

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