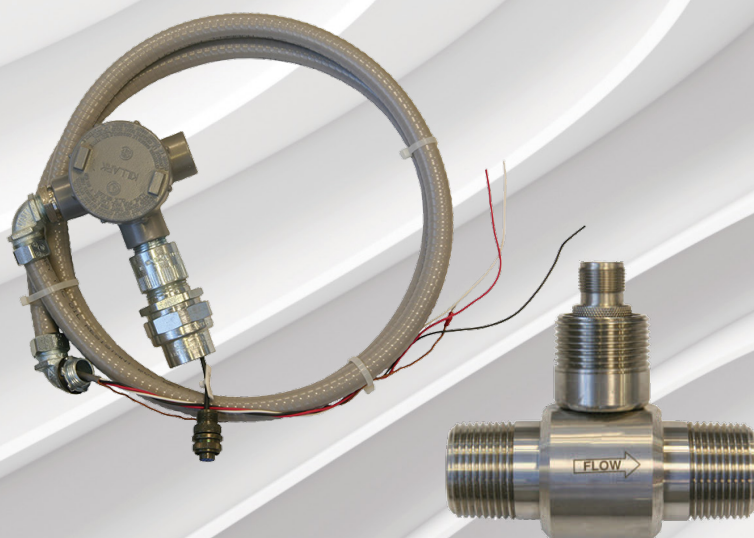


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ABB MEASUREMENT & ANALYTICS | DATA SHEET

# Magnetic pickup preamplifier overview

## XSeries products



## Description

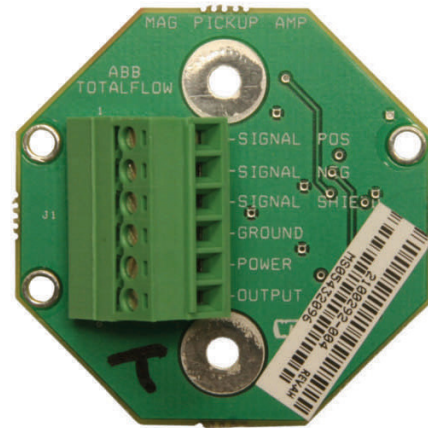
The ABB Totalflow Magnetic Pickup Preamplifier/Signal Conditioner is a high performance, low power, amplifier designed for amplifying and conditioning the output signals of a magnetic pickup (such as used in liquid turbine meters). Special design pickup considerations and on-site testing were performed with the amplifier to insure reliable operation, even under extremely noisy conditions such as: the presence of variable frequency drives, motors, or pumps.

The unit's wide power supply voltage range combined with its very low current draw make the amplifier especially suitable for use in low power applications such as solar power and remote sensing applications up to 4000 feet<sup>1</sup> or more from its power source. The amplifier has also been designed to drive highly capacitive loads, often used for input signal de-bouncing and filtering. The amplifier is especially recommended when using ABB Totalflow Flow Computers or Remote Controllers. It is also excellent for driving the digital inputs of any other device having 5VDC compatible inputs.

- Specifically designed for use with turbine flow meters
- Designed for extremely noisy environments
- Very low power consumption (600  $\mu$ A)
- Wide temperature operation
- Wide power supply voltage range
- 5 Vdc output drive requires no additional pull-up resistors
- 0 to 20 KHz operation
- Capable of driving very long cables with highly capacitive loads<sup>1</sup>

**The Magnetic Pickup Preamplifier/Signal Conditioner is available in several configurations.**

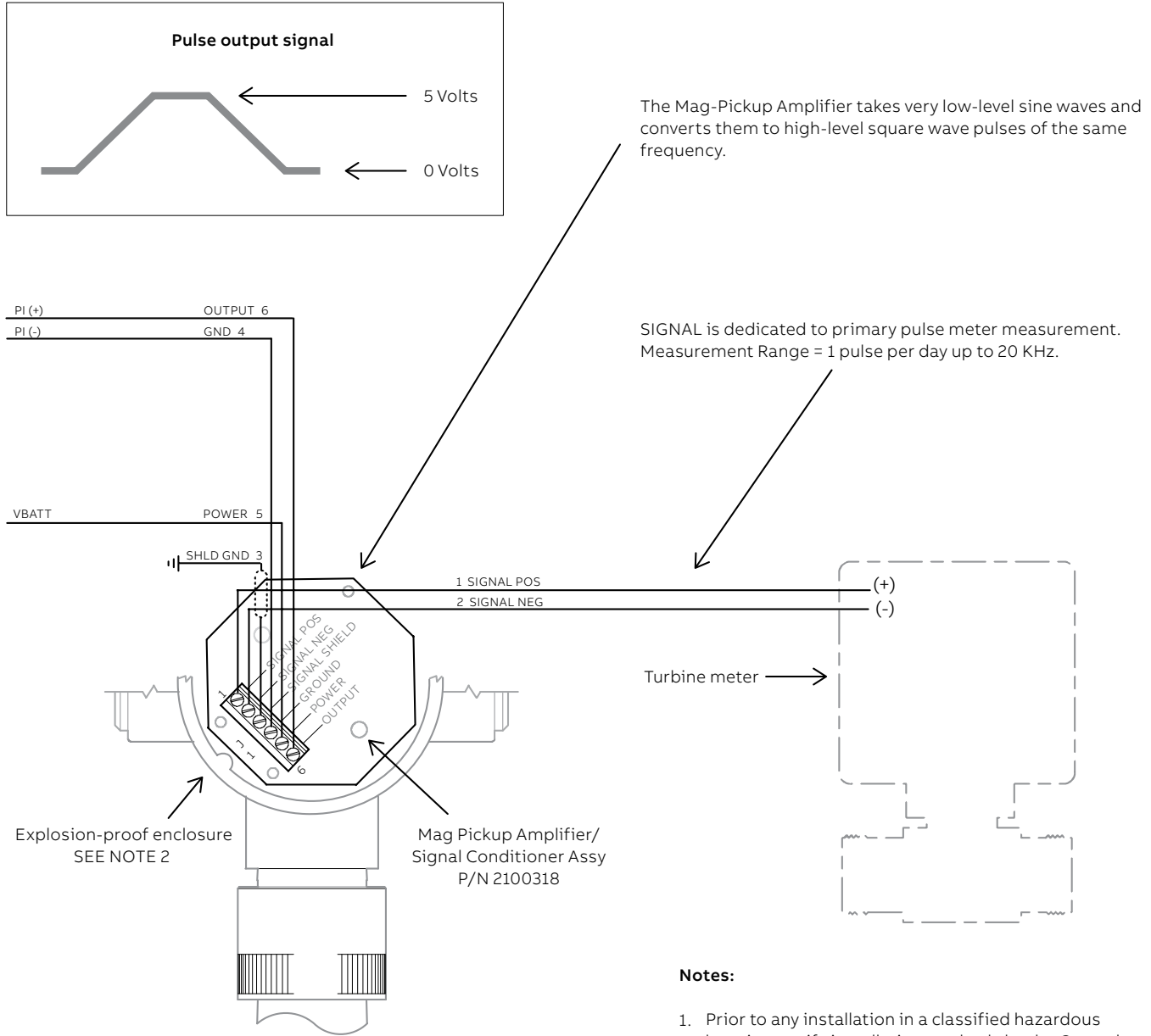
- Pulser Magnetic pickup amplifier electronic board only
- Mag-Pickup Amplifier/Signal Conditioner, with 15 foot cable, in flex conduit
- Mag-Pickup Amplifier/Signal Conditioner, with fittings (Customer supplies cable)
- Mag-Pickup Amplifier/Signal Conditioner, with twisted pair turbine sensor cable & 15 foot flow computer unit cable
- Mag-Pickup Amplifier/Signal Conditioner, with twisted pair turbine sensor cable & fittings, (Customer supplies flow computer unit cable)
- Mag-Pickup Amplifier/Signal Conditioner, with twisted pair turbine sensor cable, fittings & 6 foot flow computer unit cable



## Mag pickup electrical characteristics

Symbol	Parameter	Condition	Min	Typical	Max	Unit
<b>Environmental</b>						
T <sub>A</sub>	Ambient operating temperature range		-40		85	Deg C
<b>Power supply</b>						
V <sub>supply</sub>	Power supply voltage		7		30	Vdc
I <sub>supply</sub>	Power supply voltage	I <sub>OUT</sub> = 0 ma		600		$\mu$ A
<b>Input</b>						
F <sub>in</sub>	Input frequency <sup>(1)</sup>		0		20	KHz
V <sub>in_min</sub>	Input voltage sensitivity with sinusoidal input <sup>(2)</sup>	1 Hz		24		mVp-p <sup>(3)</sup>
		60 Hz		24		mVp-p <sup>(3)</sup>
		3 Hz		38		mVp-p <sup>(3)</sup>
		10 Hz		115		mVp-p <sup>(3)</sup>
		20 Hz		250		mVp-p <sup>(3)</sup>
<b>Input</b>						
V <sub>OH</sub>	Voltage output high	I <sub>OUT</sub> = -0.01 mA		5	5.05	Vdc
		I <sub>OUT</sub> = -0.1 mA	4.944	5		Vdc
		I <sub>OUT</sub> = -1 mA	4.892	5		Vdc
		I <sub>OUT</sub> = 0.01 mA	0	0		Vdc
		I <sub>OUT</sub> = 0.1 mA		0	0.006	Vdc
		I <sub>OUT</sub> = 1 mA		0	0.057	Vdc

## Wiring example



**Notes:**

1. Prior to any installation in a classified hazardous location, verify installation methods by the Control Drawing referenced on the product's name tag.
2. To access termination board, remove the enclosure front cover.

1. The preamp is DC coupled and can sense differential signals down to 0 Hz. However, inductive pickups do not generate signals this low since they are inherently an AC type signal generator. For reference, a small 1" Halliburton turbine meter Part No. 458-85228, with Mag Sensor EC 3030AN is normally rated for operating with a minimum flow rate of 5 GPM (Gallons Per Minute), which would generate a Minimum Pulse Output Frequency of 79 Hz.
2. The input of the preamp is a fully differential input designed for connection directly to floating inductive sensors such as used on turbine meters. It is not designed for single ended input applications. Attempting to directly drive the preamp inputs with a single ended device (such as a signal generator) will result in improper operation. For field test procedures, please contact ABB Totalflow for test configuration details.
3. Millivolts peak to peak.



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**ABB Inc.**

**Measurement & Analytics**

Quotes: [totalflow.inquiry@us.abb.com](mailto:totalflow.inquiry@us.abb.com)

Orders: [totalflow.order@us.abb.com](mailto:totalflow.order@us.abb.com)

Training: [totalflow.training@us.abb.com](mailto:totalflow.training@us.abb.com)

Support: [totalflowsupport@us.abb.com](mailto:totalflowsupport@us.abb.com)  
+1 800 442 3097 (opt. 2)

**Main Office**

7051 Industrial Boulevard

Bartlesville, OK 74006

Ph: +1 918 338 4888

[www.abb.com/upstream](http://www.abb.com/upstream)

**California Office**

4300 Stine Road

Suite 405-407

Bakersfield, CA 93313

Ph: +1 661 833 2030

**Kansas Office**

2705 Centennial Boulevard

Liberal, KS 67901

Ph: +1 620 626 4350

**Texas Office – Odessa**

8007 East Business 20

Odessa, TX 79765

Ph: +1 432 272 1173

**Texas Office – Houston**

3700 West Sam Houston

Parkway South, Suite 600

Houston, TX 77042

Ph: +1 713 587 8000

**Texas Office – Pleasanton**

150 Eagle Ford Road

Pleasanton, TX 78064

Ph: +1 830 569 8062

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