

PRODUCT OVERVIEW

LS12x and ILS73x air-gap measurement chains



LS120
air-gap sensor



ILS730
signal conditioner

For outstanding reliability and accuracy in hydropower plants

Meggitt's Vibro-Meter® product line includes a range of air-gap measurement chains (LS12x air-gap sensors and ILS73x signal conditioners), which are designed for the contactless measurement of air gap in hydroelectric generators, and other large alternators and motors.

In hydropower plants, large hydroelectric turbines are subjected to constantly varying centrifugal, thermal, and magnetic forces that are capable of distorting the stator and rotor of the generator, thereby causing the air gap to vary. At best, this reduces operational efficiency but at worst, it can lead to potentially catastrophic breakdowns. So monitoring air gap is about much more than optimising maintenance intervals.

Benefits

Easy, fast and reliable installations

The LS121 air-gap sensor is the narrowest sensor on the market for large air-gap measurements (up to 65 mm), making it easier and faster to install on stators.

LS12x and ILS73x measurement chains are also insensitive to sensor grounding issues, and feature enhanced filtering of noise and spikes (induced by the high excitation currents), in order to ensure consistent and reliable readings.

Minimum gap signal for direct protection

ILS73x signal conditioners provide three voltage outputs (pole profile, rotor profile and minimum gap) and one current output for the transmission of any one of these three signals over longer distances.

The minimum gap provides the minimum air gap value for all poles of the rotor – without any post-processing – and is typically connected directly to a monitoring system for simple and reliable protection.

Accurate and precise measurements

Meggitt's Vibro-Meter® LS12x and ILS73x air-gap measurement chains deliver accurate and precise results over the full measurement and temperature ranges:

- Measurement precision $< \pm 5\%$
(compared to 7-10% for competitors).
- Measurement drift ≤ 200 ppm/K (°C)
(up to 7 times less sensitive than competitors).

Trusted by the biggest names in the industry

Over 65 years of sensor and systems expertise means that our solutions are trusted by original equipment manufacturers (OEMs) globally and have become standard-fit components on machinery used in Power Generation, Oil & Gas and other industrial applications.

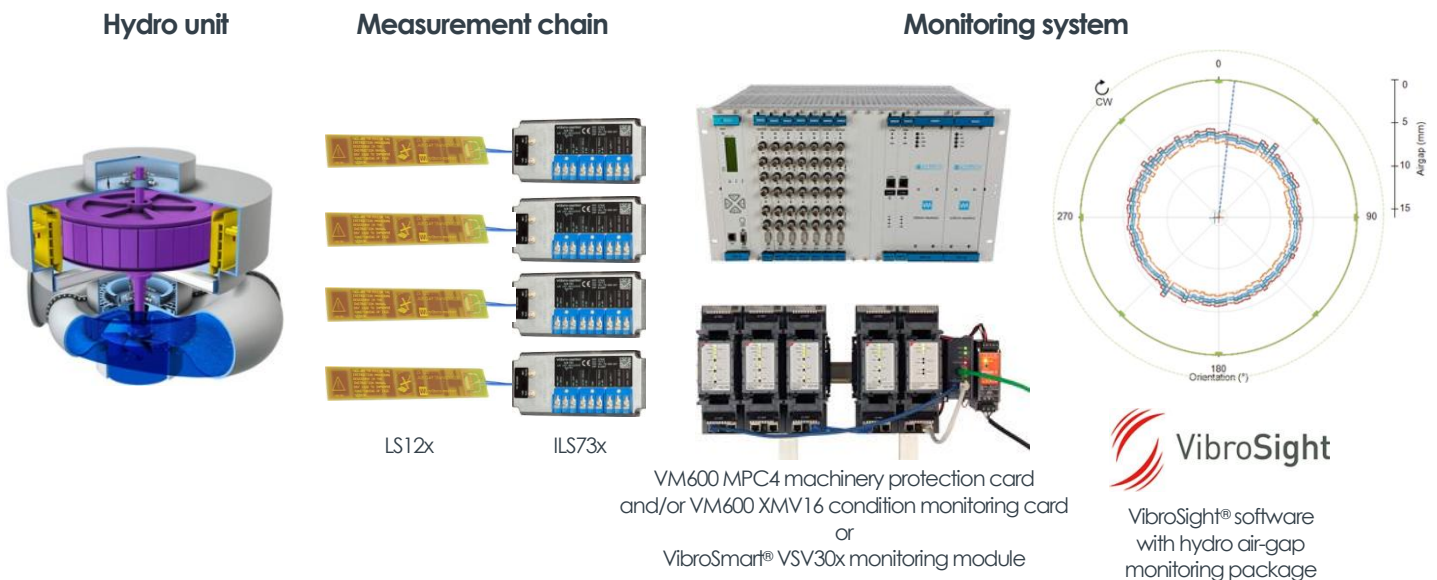
Meggitt Vibro-Meter® air-gap measurement chain comparison

Measurement chain	Measurement range (nominal)	Output sensitivity	Sensor dimensions (L x W x D)
LS120 and ILS730	2 to 33 mm (79 to 1300 mils)	320 mV/mm or 512 µA/mm	240 x 40 x 3.8 mm (9.45 x 1.57 x 0.15")
LS121 and ILS731	15 to 65 mm (590 to 2560 mils)	200 mV/mm or 320 µA/mm	345 x 60 x 4.8 mm (13.6 x 2.36 x 0.19")

Note: Apart from the specifications included in the table above, the specifications and performance of LS120/ILS730 and LS121/ILS731 air-gap measurement chains are the same.

Complete solutions

Complete turnkey solutions for hydropower plant machinery from Meggitt Vibro-Meter® include air-gap measurement using LS12x and ILS73x measurement chains, condition monitoring and/or machinery protection systems such as VM600 or VibroSmart®, and the fast, powerful and versatile VibroSight® software. Alternatively, LS12x and ILS73x measurement chains can be included with other monitoring systems.



CEATI compliant measurements

Measurements from Meggitt Vibro-Meter® air-gap monitoring systems provide true rotor and stator circularity and eccentricity calculations in accordance with the de facto industry standards from CEATI (Centre for Energy Advancement and Technological Innovation). So you can trust our monitoring systems and have confidence in your plant asset management decisions.

Expert testimonial

Douglas E. Franklin PEng, owner and senior consultant at Cigol Consulting Ltd, has more than 40 years of wide-ranging experience in hydroelectric engineering in Canada, one of the world's largest producers of hydroelectricity. Having worked on the commissioning and maintenance of large machines for electric utility companies for most of this time, Doug has used various air-gap measurement chains from different manufacturers but prefers one:

“The Vibro-Meter LS12x and ILS73x air-gap measurement chains are the best on the market. The sensing technology is better than the competitors in that it does not require linearization in the driver [ILS73x] and that the driver outputs a processed signal like minimum gap as well as pole profile and rotor profile.”