Performance Comparison of CQ233x series Current Sensors (for industrial inverters)

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Magnetic Sensors, Sensing Products Division

Asahi Kasei Microdevices Corporation(AKM)

1. Performance Comparison

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	CQ233x (AKM)	Product 1 (A company)	Product 2 (A company)	Product 3 (B company)
Power Consumption (@0A)*	40mW	95mW	95mW	50mW
Power Consumption (@50A)*	290mW	620mW	995mW	300mW
Total Accuracy**	1.3%	1.4%	2.6%	3.9%
Output Noise*	1.2mVrms (@CQ2334: 40mV/A)	4.9mVrms (40mV/A)	4.3mVrms (32mV/A)	2.0mVrms (40mV/A)
Response Time**	1.0µs	3.0µs	3.4µs	4.0µs

*Calculated from the specifications of datasheet (using typ. value)
**Measured in AKM laboratory

CQ233x has the lowest power consumption, the lowest output noise and the fastest response time among these open-loop current sensors.

2. Features of AKM: High Accuracy

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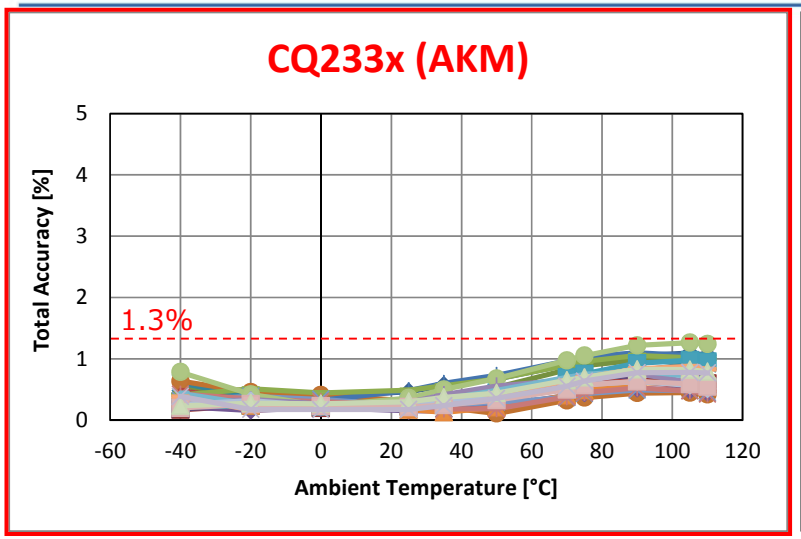

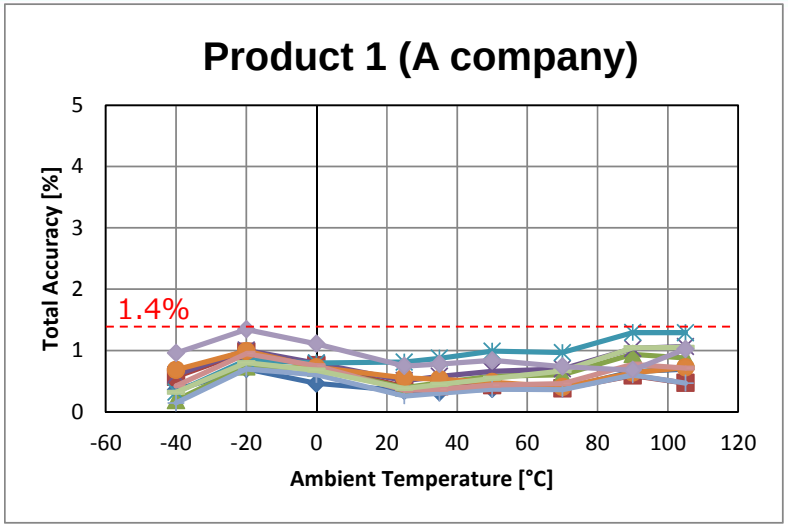

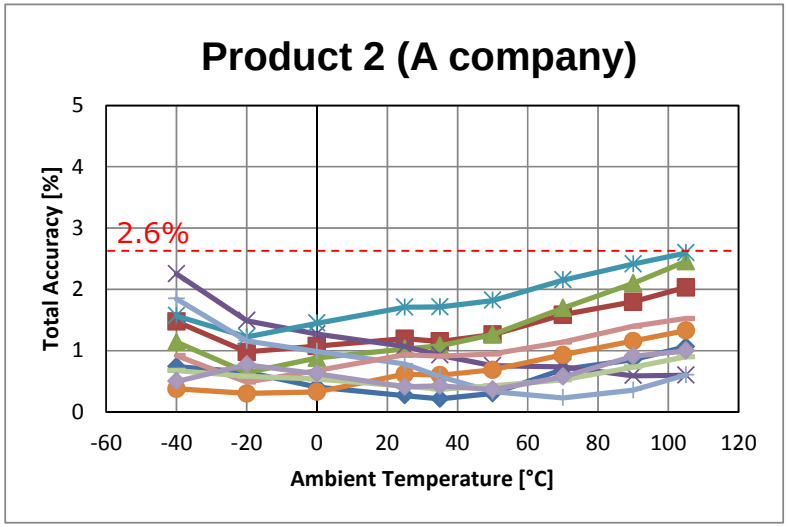

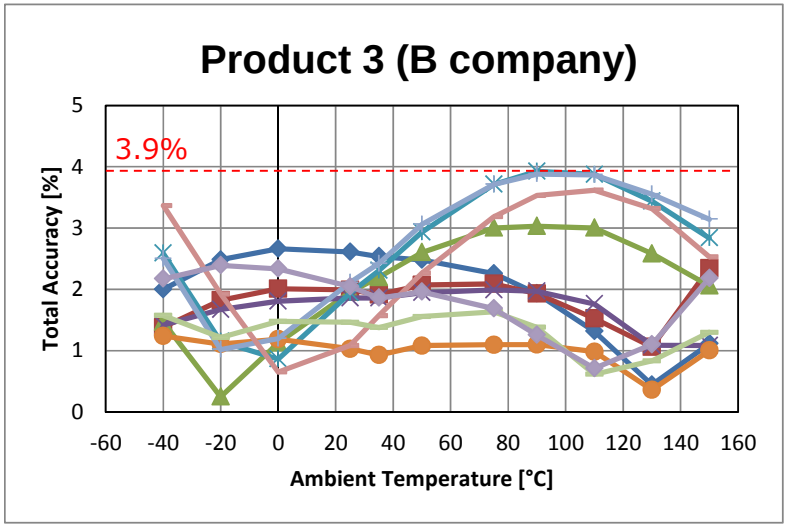

AKM's current sensor has the highest accuracy among open-type current sensors. This will improve the inverter efficiency.

2. Features of AKM: Fast Response Time

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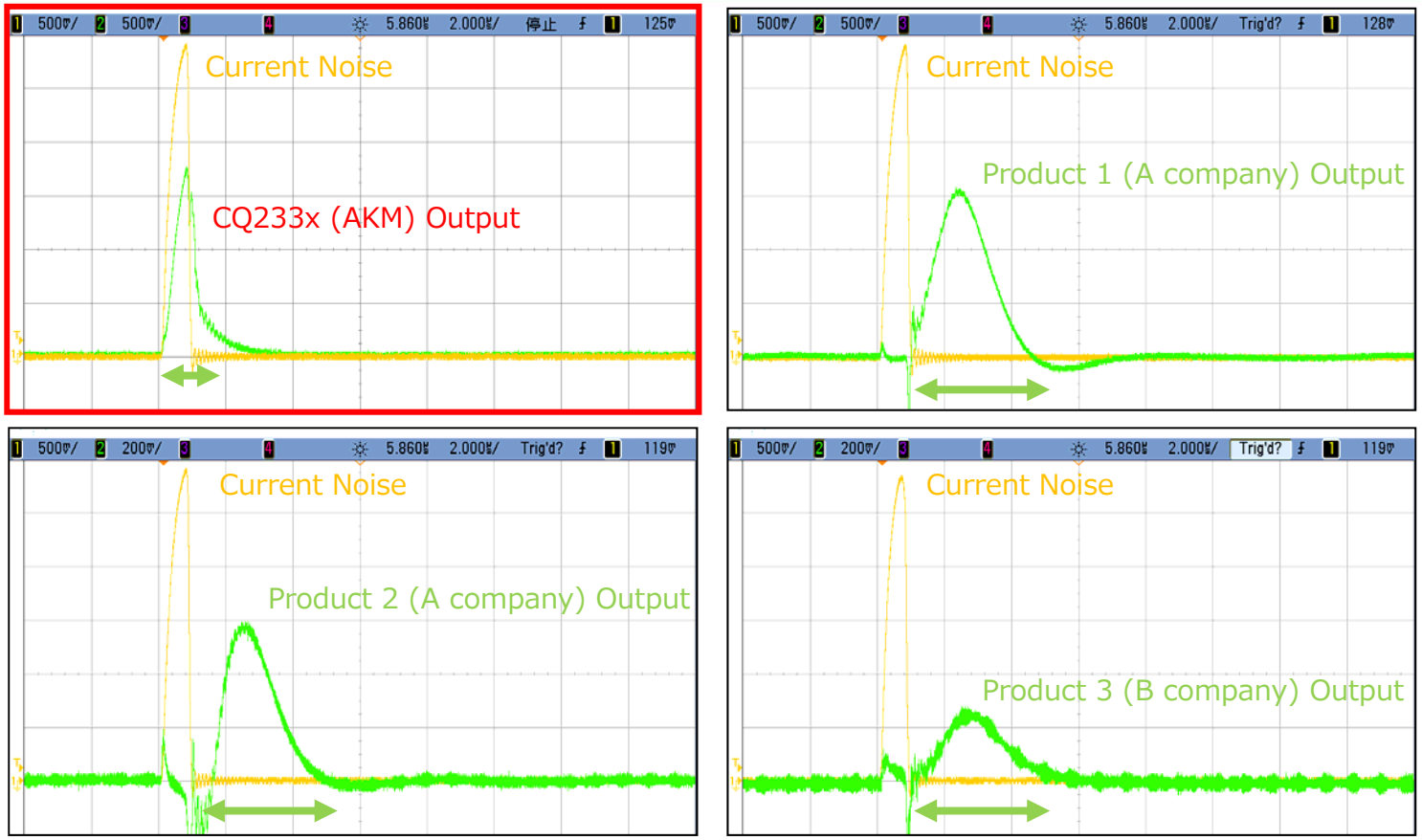

When the inverter switching noise comes to a primary conductor, other current sensors generate the delayed and expanded output noise.
This causes unexpected errors and loses the inverter controllability.

AKM's current sensor has the fastest response time, and causes less problems.

3. Example of Inverter Current Detection

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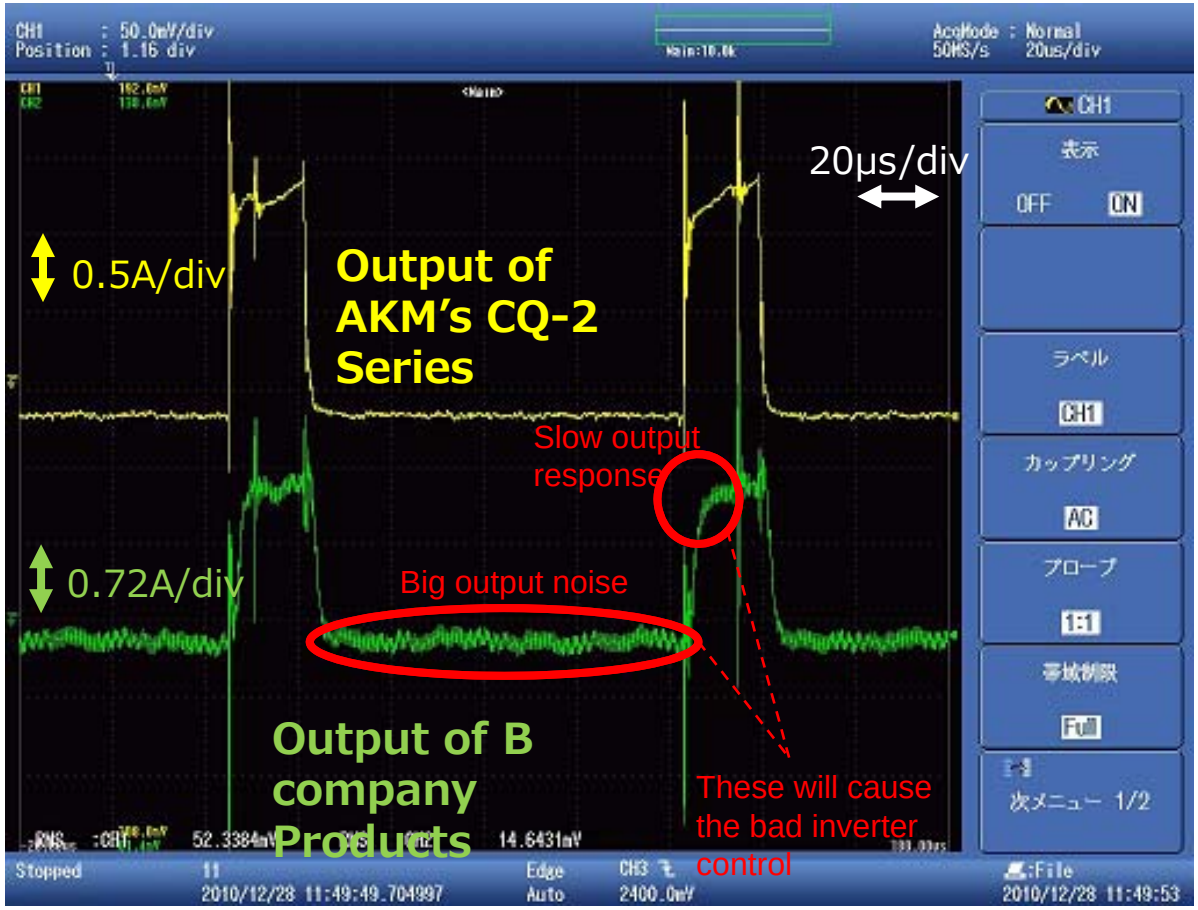

Fig. Current monitor result of inverter in low-voltage side
(Rotational speed = 475rpm, Load torque = 0.5Nm)

CQ-series are the best current sensor to improve the inverter controllability.