

Current sensor dedicated for Construction machineries

~Open loop(ASIC) LA07 series~



TAMURA

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Current sensor dedicated for Construction machineries

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~Open loop(ASIC) LA07 series~
- 04 Technology to support of Current Sensors
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Current sensor dedicated for Construction machineries

1. Why, When we started development Current Sensors



Transformer Technology



Circuit design Technology



Potting Technology



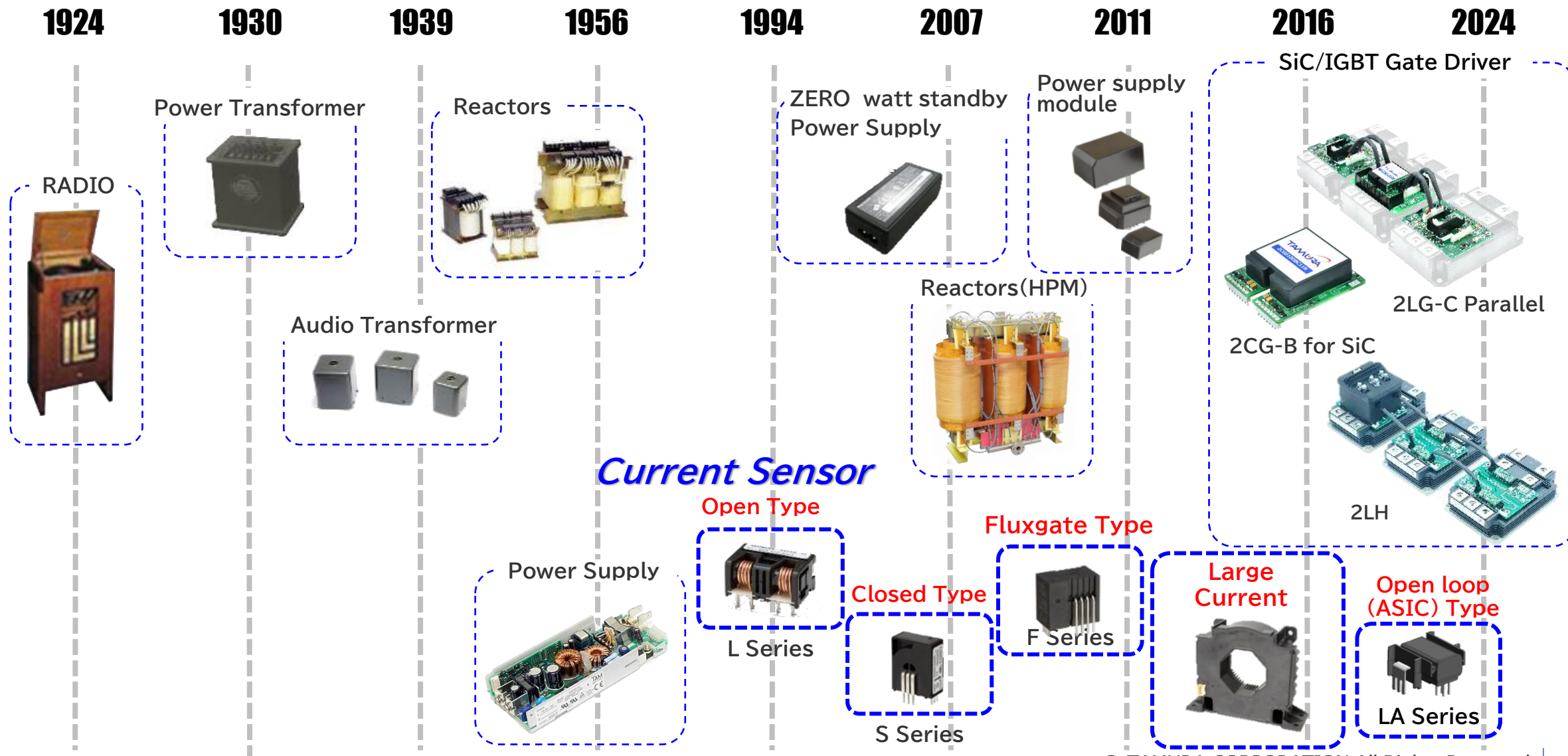

EMI/EMC Solution



Market Awareness

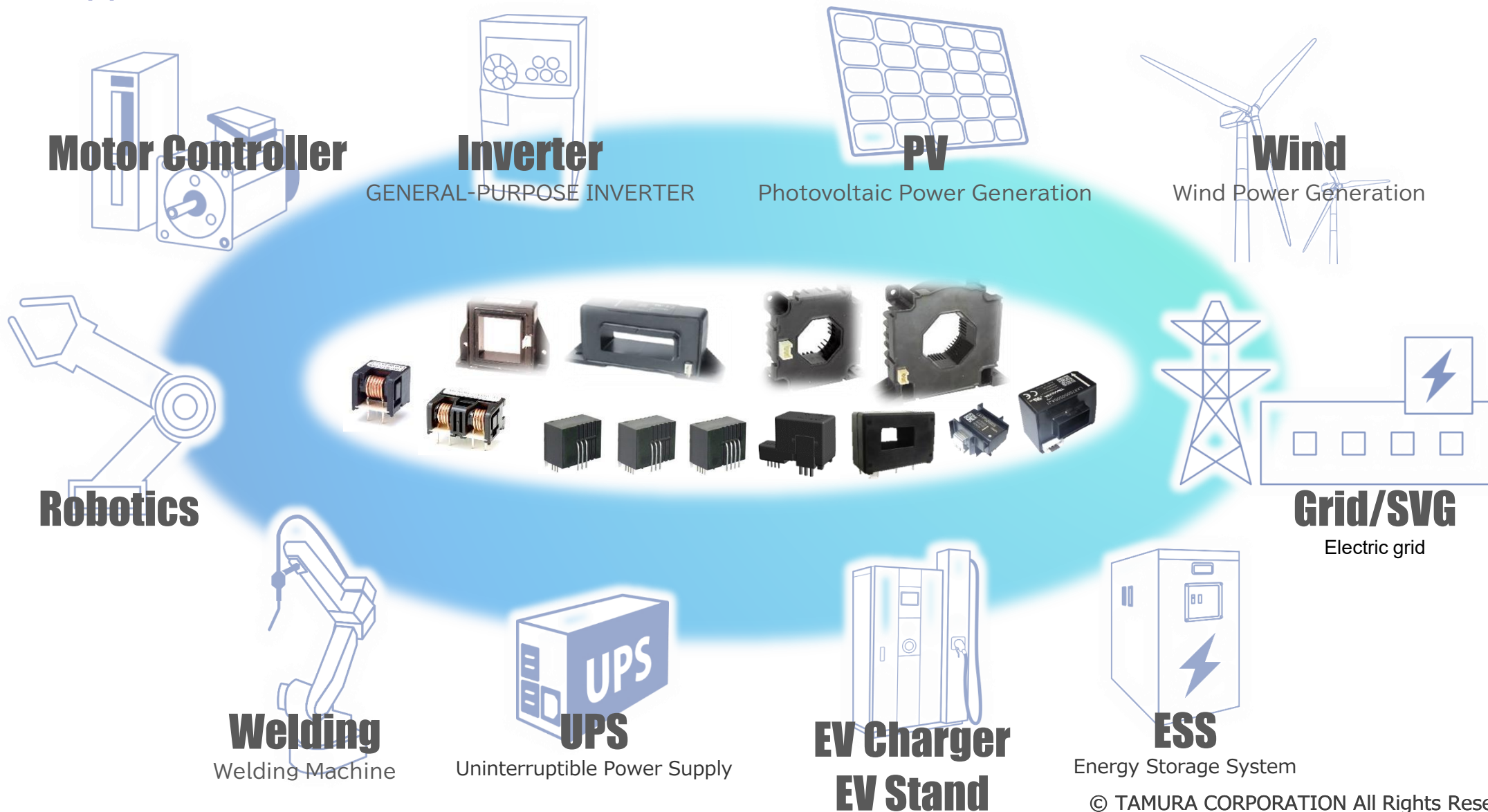
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1. Why, When we started development Current Sensors



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2. Application

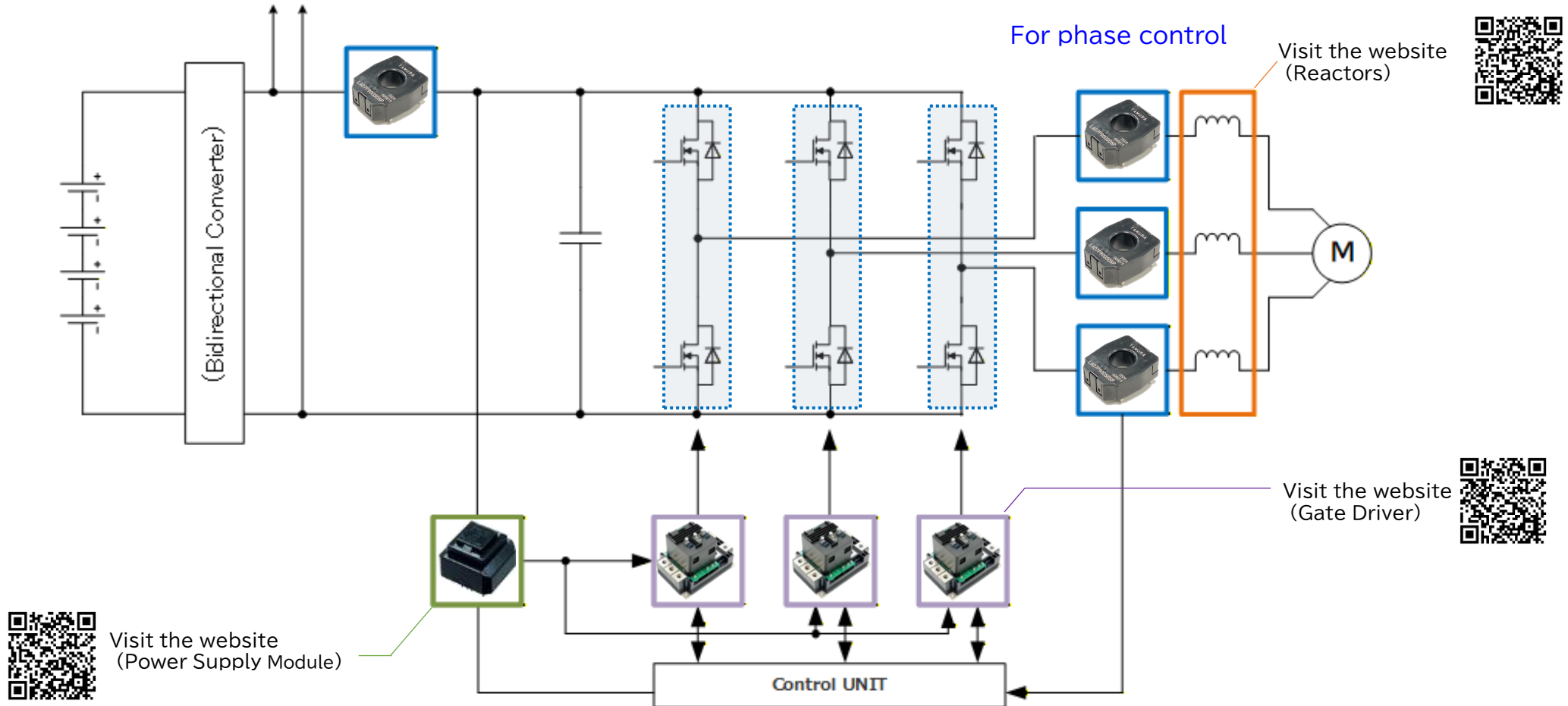


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2. Application

Construction machineries

To/From Renewable energy



Visit the website (Power Supply Module)



Visit the website (Reactors)



Visit the website (Gate Driver)

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3. Features of Tamura Current Sensors

~Open loop(ASIC) LA07 series~

Features items

Applied technology

Benefits

No malfunctions



Higher precision improving noise characteristics!

Temperature characteristics



Reference voltage is constant from high to low temperature!

Compact



Reduced size 1/3!

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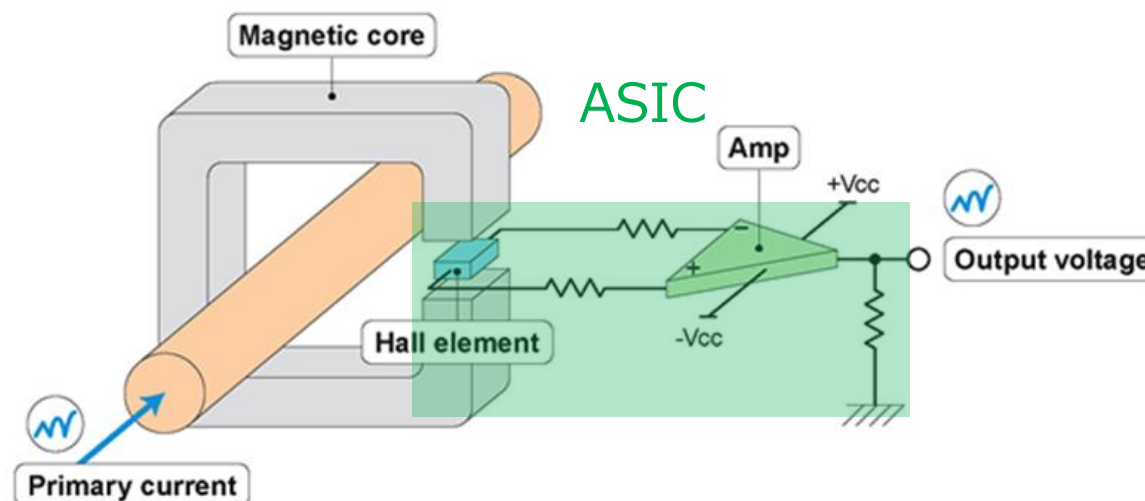
3. Features of Tamura Current Sensors

~Open loop(ASIC) LA07 series~

What is **ASIC**?

Application Specific Integrated Circuit

Open loop type
Current sensor



Circuit configuration

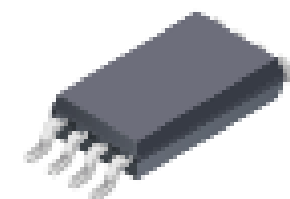
Discrete current sensor

- Hall element
- Operational amplifier
- Regulator IC
- Resistance
- Capacitor

In one-chip



ASIC



- Offset correction
- Temperature correction
- Selectable function

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3. Features of Tamura Current Sensors ~Open loop(ASIC) LA07 series~

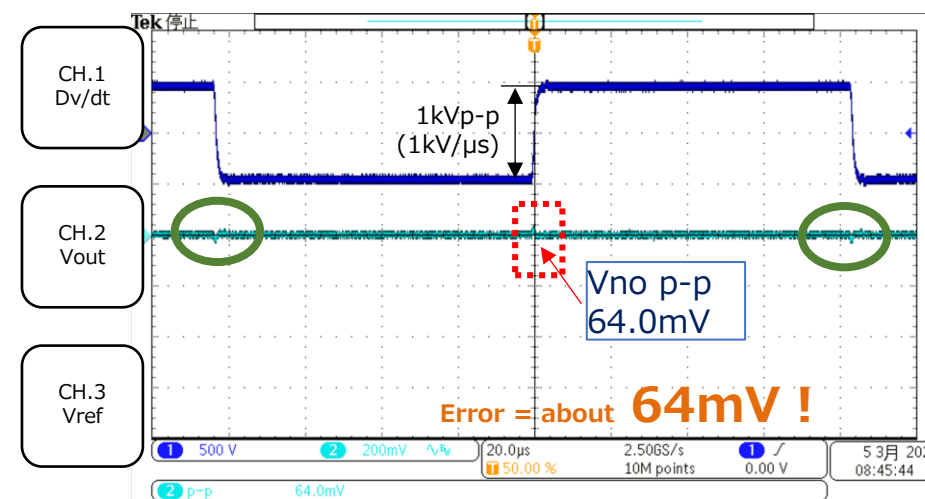
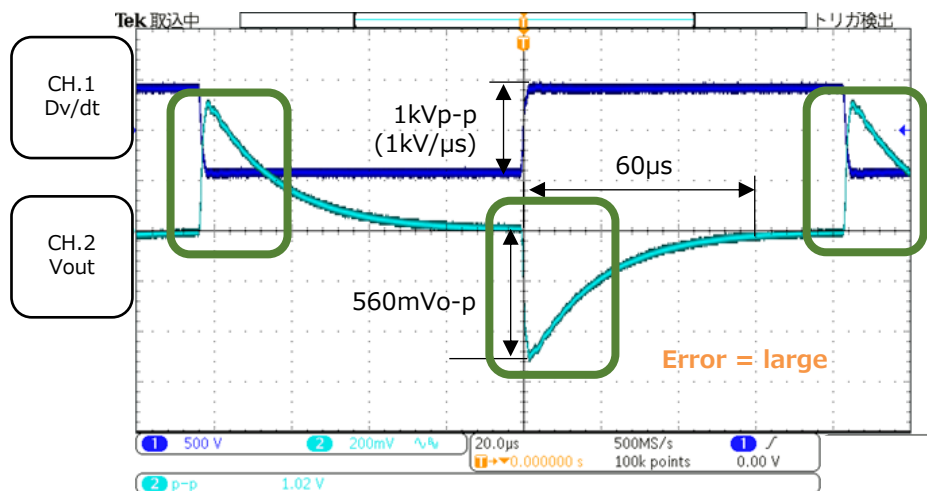
No malfunctions

dv/dt Characteristics

L06P400S05



LA07P500S05



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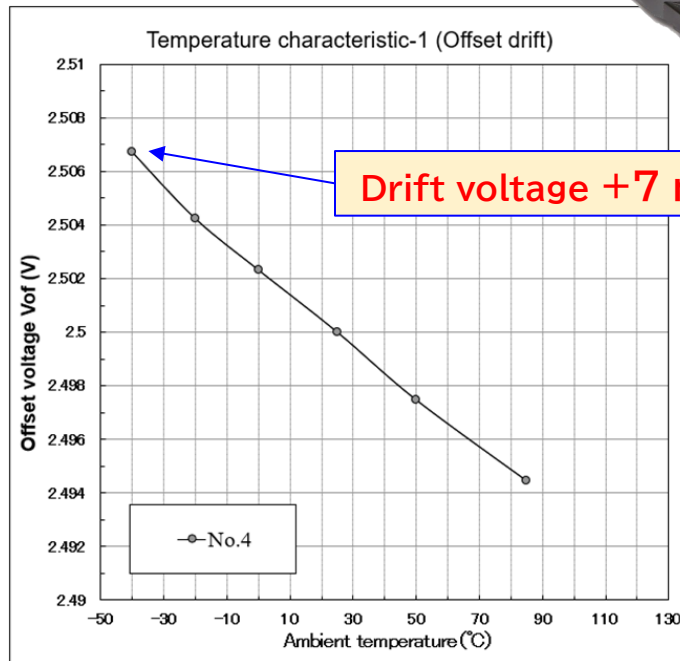
3. Features of Tamura Current Sensors ~Open loop(ASIC) LA07 series~

Temperature characteristics

Reference voltage temperature characteristics

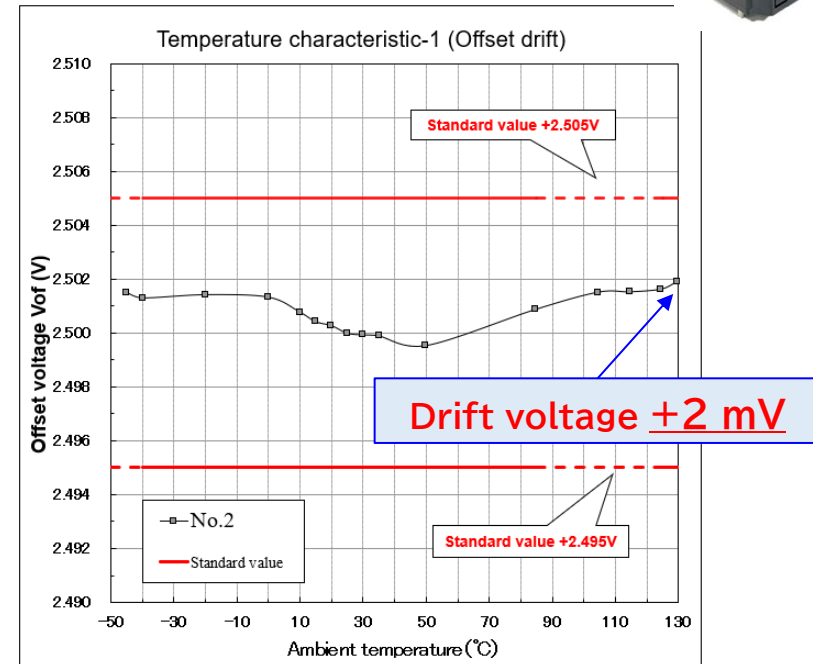
Temperature drift of Reference Voltage at $I_p=0A$

L06P400S05



At input current $I_p=0A$
 $V_{cc}=5V, R_L=10k\Omega$

LA07P100S05



At input current $I_p=0A$
 $V_{cc}=+5V, R_L=10k\Omega$

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3. Features of Tamura Current Sensors ~Open loop(ASIC) LA07 series~

Compact

Reduced size 1/3 ! *Volume

L06P series

45mm×37.5mm×20mm



Primary nominal current: 800A

LA07P series

32.7mm×27.7mm×11.95mm



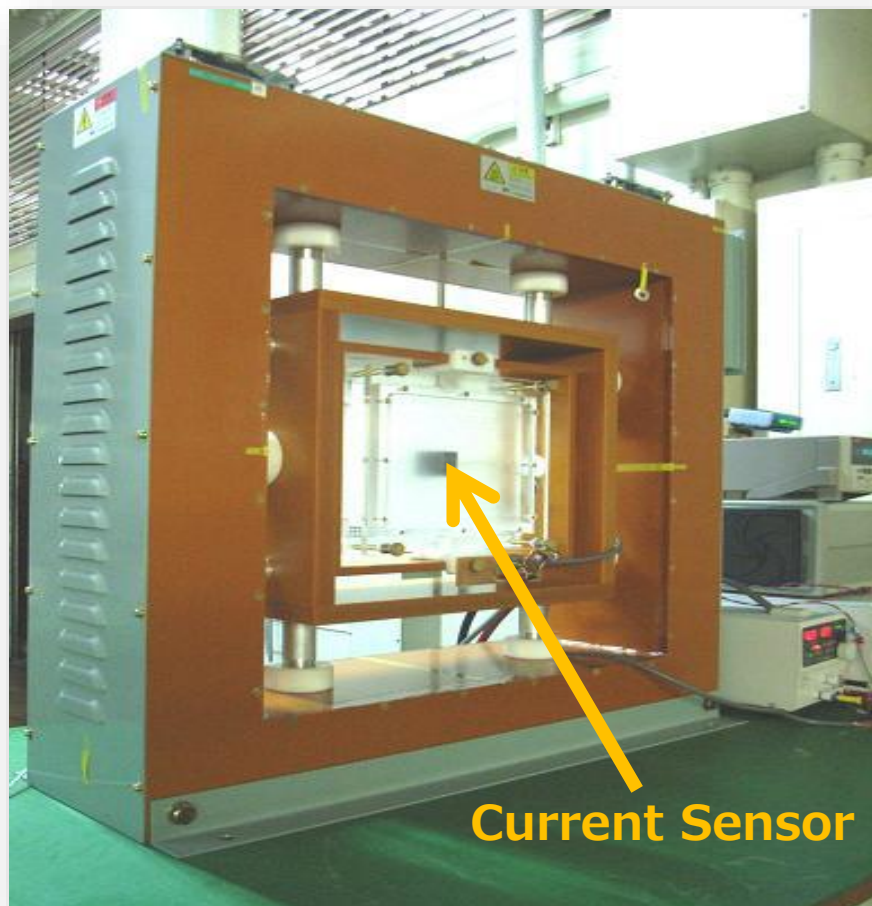
Primary nominal current: 900A



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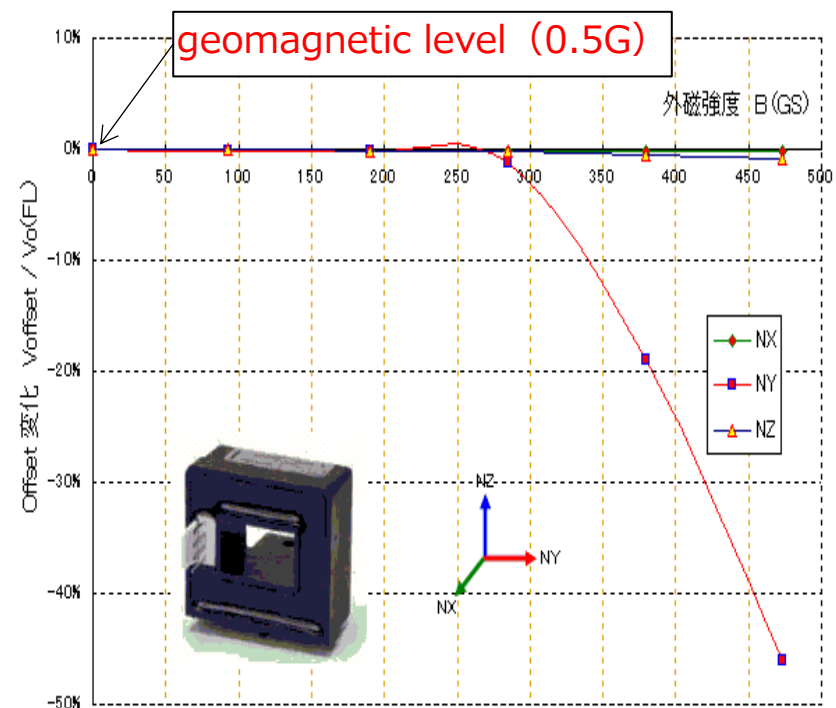
4. Technology to support of Current Sensors

Magnetic noise immunity



Current Sensor

External magnetic noise evaluation equipment



It is possible to evaluate magnetic noise immunity quantitatively from the geomagnetic level.

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5. Product lineup / Tamura CS products range

★★★ : Excellent ★★☆ : Very good ★☆☆ : Good

Current Range		Block diagram	<u>3A - 99A</u>	<u>100 - 999A</u>	<u>1000 - 2500A</u>	
Circuit Type & Method	<u>Open Loop</u>		Hall effect (Open) 3 - 2500A Accuracy : ★☆☆ Response Time : ★★★ Temperature stable output : ★☆☆			
	<u>Open Loop (ASIC)</u>		ASIC 10 - 600A Accuracy : ★★★ Response Time : ★★★ Temperature stable output : ★★★			
	<u>Closed Loop</u>		Hall effect (Closed) 6 - 2000A Accuracy : ★★★ Response Time : ★★★ Temperature stable output : ★★★			
	<u>Closed Loop (Fluxgate)</u>		Fluxgate 6 - 150A Accuracy : ★★★ Response Time : ★★★ Temperature stable output : ★★★			

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5. Product lineup (LA07P series)

Appearance	Current	Supply voltage	Offset voltage	Circuit	Primary Conductor	Details
	100A	5V	2.5V	Open loop (ASIC)	Φ12.5mm	T.B.D
	200A					
	300A					
	400A					
	500A					
	600A					
	700A					
	800A					
	900A					

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Tamura's mascot "Quenu"