

# RTC Module Time stamp function

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# Comparison of Time stamp function

Some Epson RTC modules have a time stamp function that records the time an event occurs in the internal memory

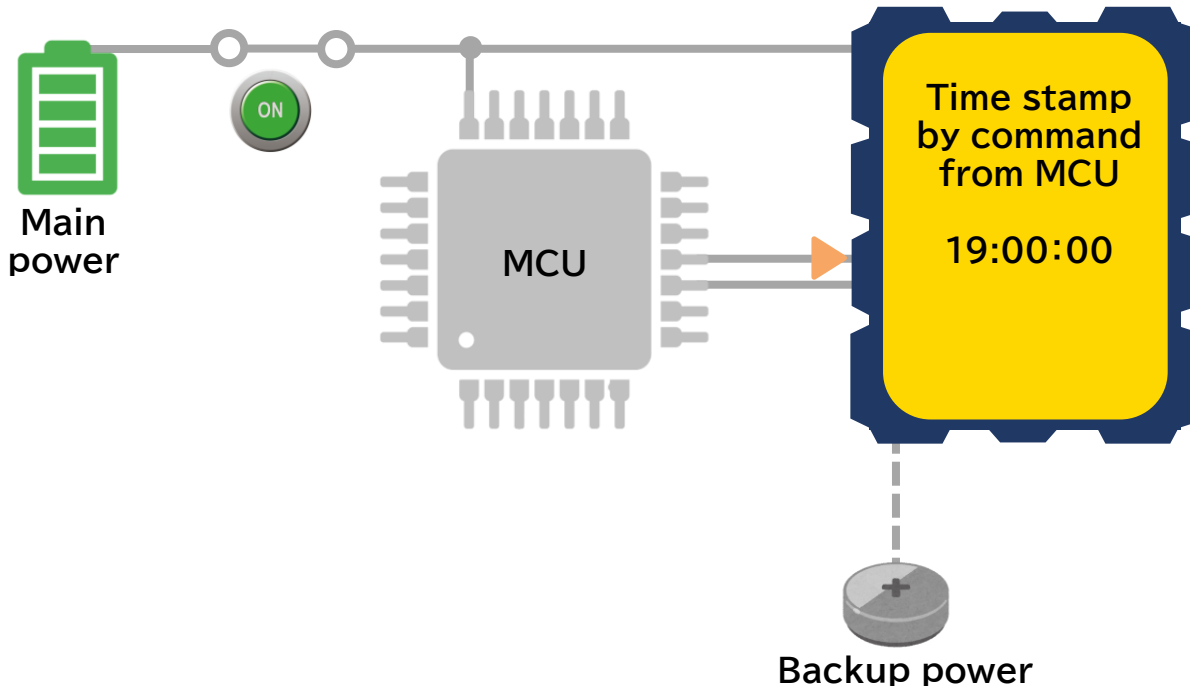
The video with commentary



Features	RX8901CE	RX4901CE	RA8000CE	RA4000CE	RX8111CE	RX4111CE	RX8804CE RA8804CE
Number of recordable events	32	32	2	2	8	8	1
Command from MCU	via I <sup>2</sup> C	via SPI	via I <sup>2</sup> C	via SPI	via I <sup>2</sup> C	via SPI	-
Number of external event input terminals	2 or 3	0 or 1 or 2	0 or 1 or 2	0 or 1 or 2	1	-	1
Main power OFF	✓	✓	-	-	✓	✓	-
Power outage	✓	✓	-	-	✓	✓	-
Main power voltage drop	✓	✓	✓	✓	✓	✓	-
Backup power voltage drop	✓	✓	-	-	✓	-	-
Oscillation stop	✓	✓	✓	✓	✓	✓	-
Temperature compensation update stop	✓	✓	✓	✓	-	-	-

## Targeted products

RX8901CE / RX4901CE / RA8000CE / RA4000CE / RX8111CE / RX4111CE



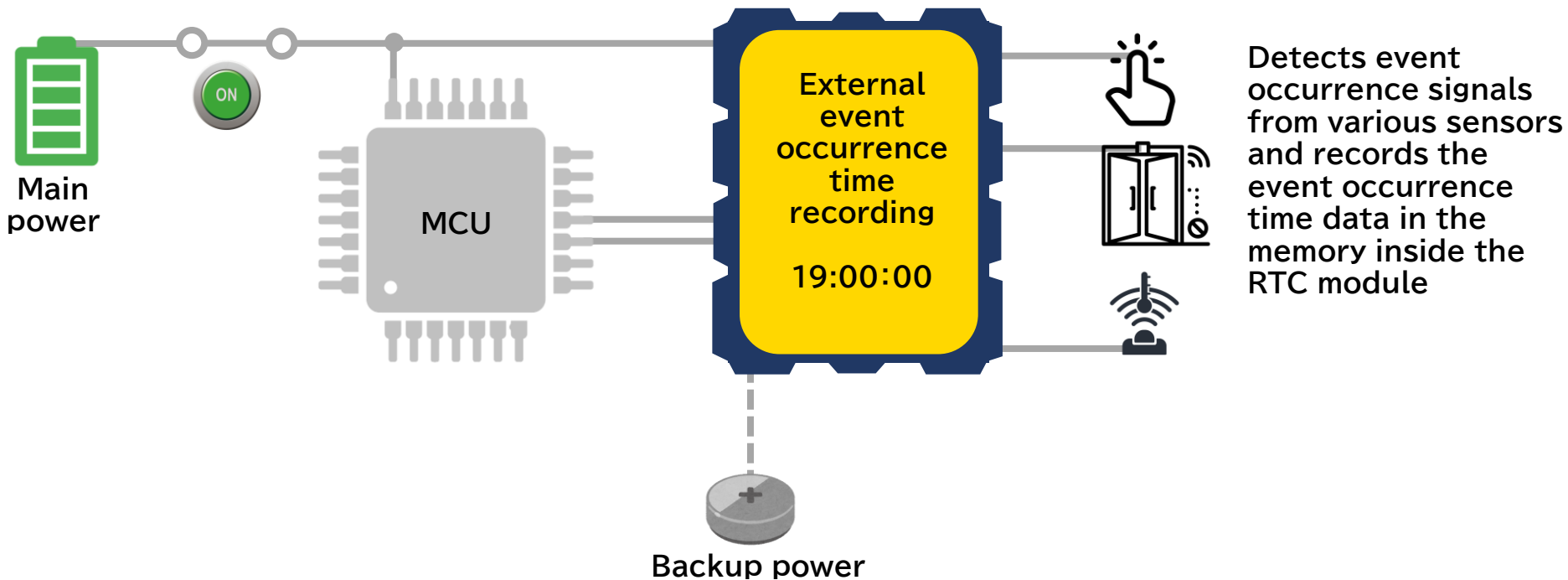
The time data is recorded in the memory of the RTC module by command from the MCU.

# External event input

## Targeted products

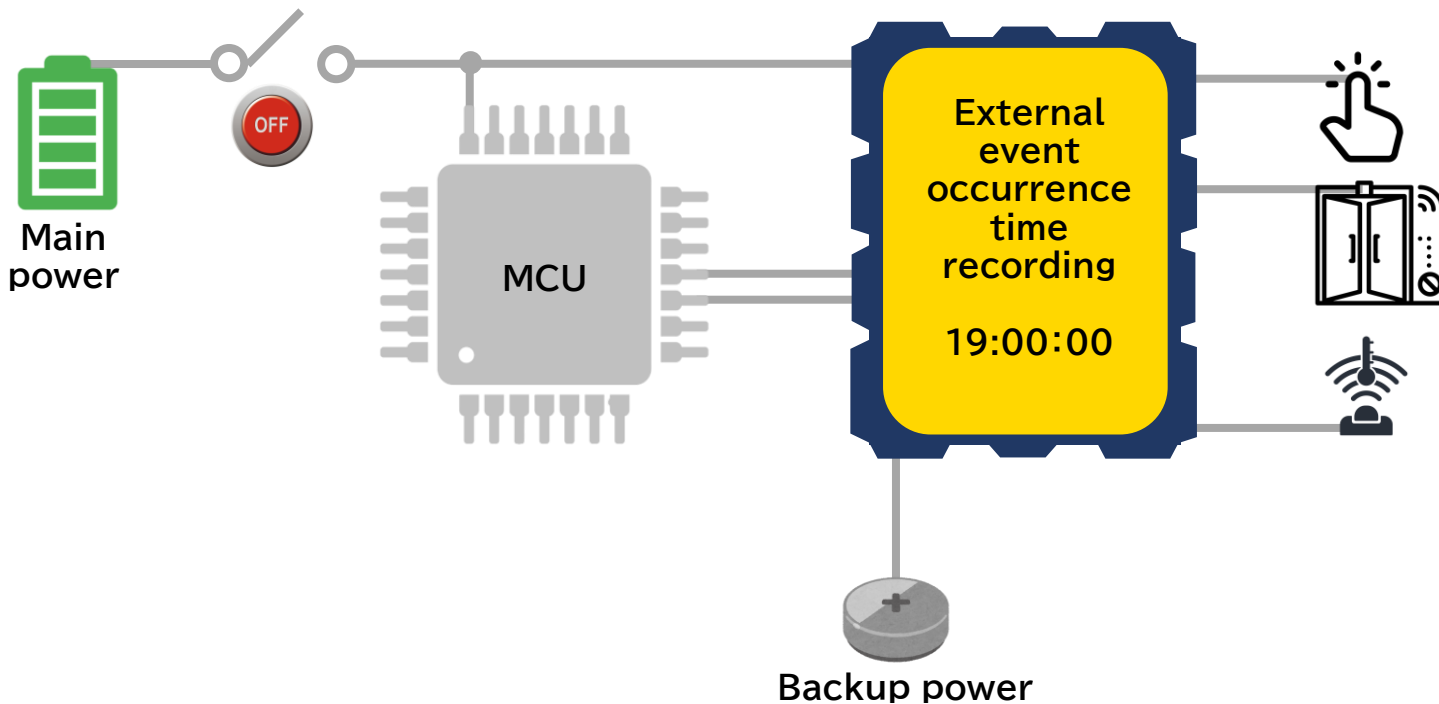
RX8901CE / RX4901CE / RA8000CE / RA4000CE / RX8111CE / RX8804CE / RA8804CE

\*When the RX8901CE has three external event input pins



# External event input

Targeted products with power switching function  
RX8901CE / RX4901CE / RX8111CE

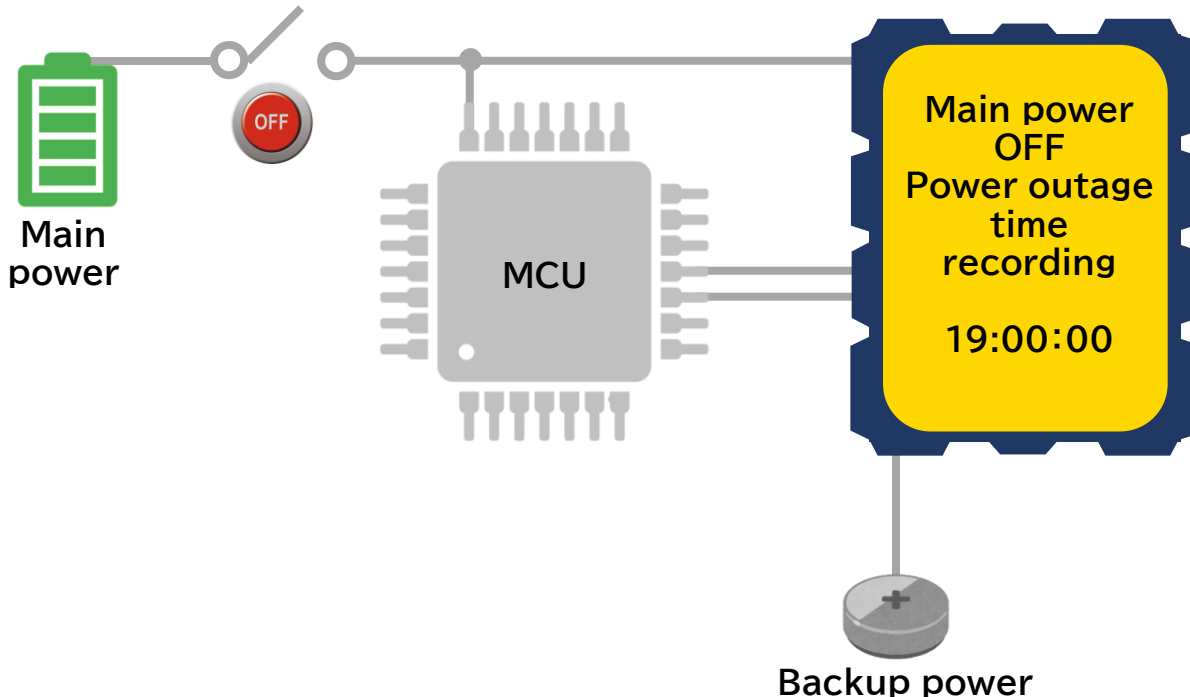


Even when the main power is off or there is a power outage, time data is recorded in the memory inside the RTC module

# Main power OFF

Targeted products

RX8901CE / RX4901CE / RX8111CE / RX4111CE



- When the main power is turned off
  - When a power outage occurs
- the time data is recorded in the memory of the RTC module

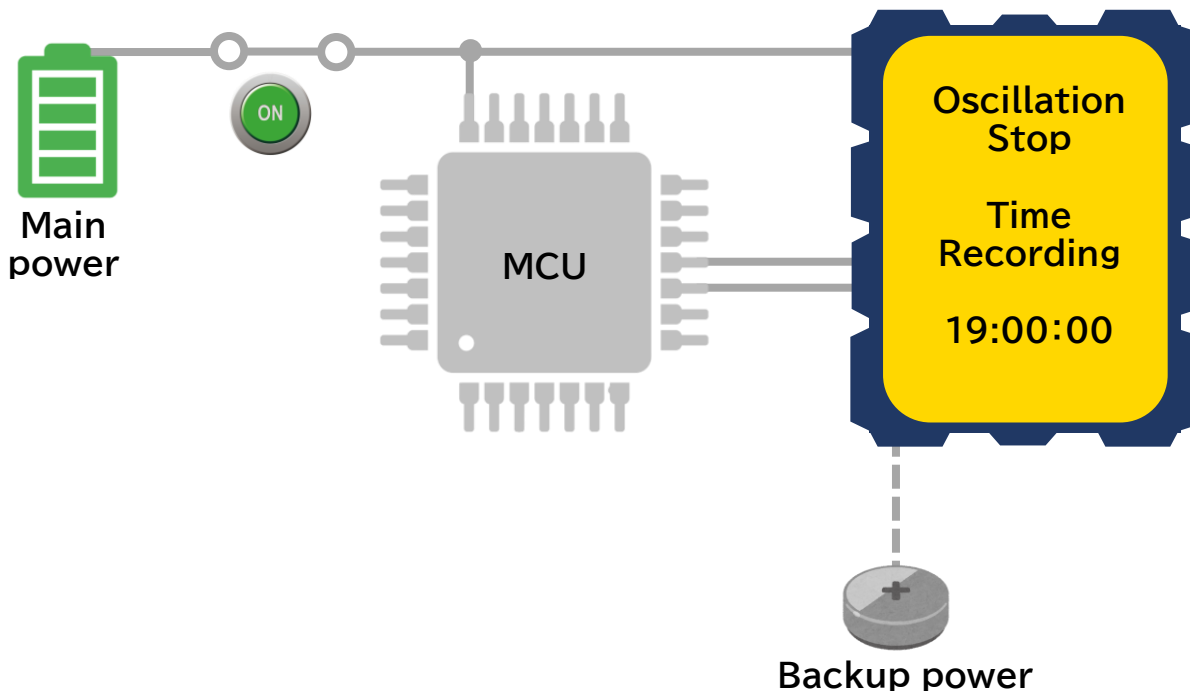
Backup power

\*In the case of RX4111CE, an external diode is required when using a primary battery

# Oscillation stop

Targeted products

RX8901CE / RX4901CE / RA8000CE / RA4000CE / RX8111CE / RX4111CE



When the oscillation of the built-in crystal stops for 10 ms or more due to some reason such as a momentary power outage, it is detected as a stop in oscillation

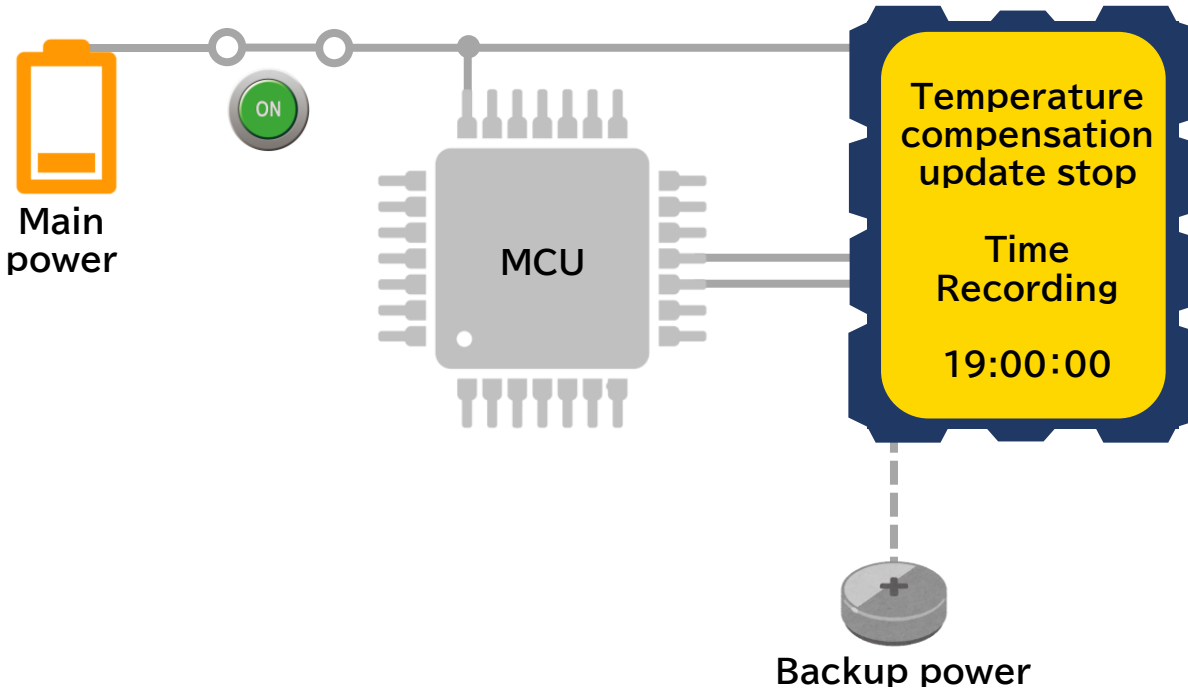




# Temperature Compensation Update Stop

Targeted products

RX8901CE / RX4901CE / RA8000CE / RA4000CE



When the main power supply voltage falls below the temperature compensation update stop voltage, the time data is recorded in the memory of the RTC module

# e.g.) RTC Module with Time stamp function selection flow

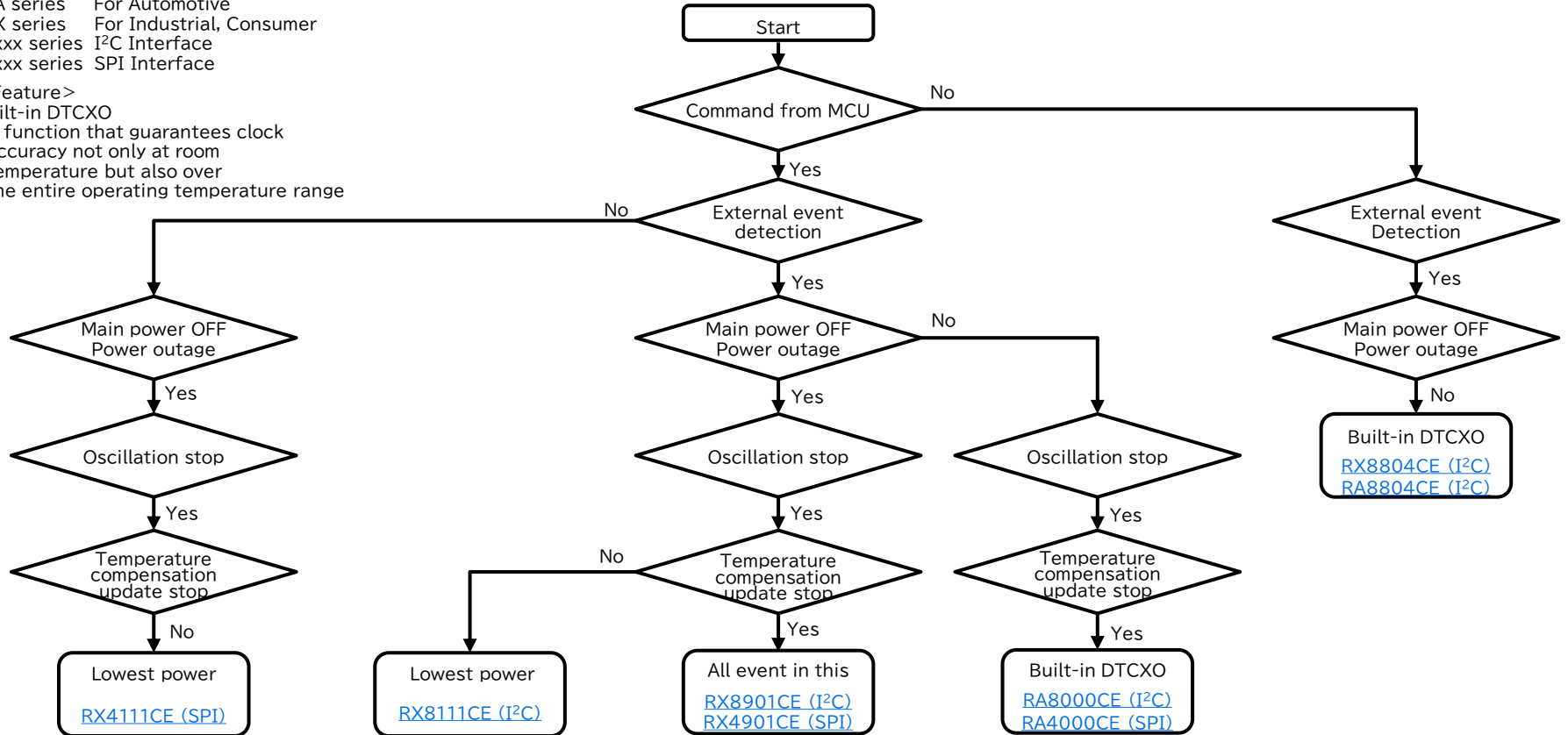
<Product name>

- RA series For Automotive
- RX series For Industrial, Consumer
- 8xxx series I<sup>2</sup>C Interface
- 4xxx series SPI Interface

<Feature>

Built-in DTCXO

A function that guarantees clock accuracy not only at room temperature but also over the entire operating temperature range



# RTC Module comparison table

Package size 3.2 x 2.5 mm

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Item	RX8901CE	RX4901CE	RA8000CE	RA4000CE	RX8804CE RA8804CE	RX8900CE RA8900CE	RX8111CE	RX4111CE	RX8130CE
DTCXO	✓	✓	✓	✓	✓	✓	-	-	-
Interface	I <sup>2</sup> C	SPI	I <sup>2</sup> C	SPI	I <sup>2</sup> C	I <sup>2</sup> C	I <sup>2</sup> C	SPI	I <sup>2</sup> C
Operating Temperature Max.	+105 °C	+105 °C	<b>+125 °C</b>	<b>+125 °C</b>	+105 °C	+85 °C	+105 °C	+105 °C	+85 °C
Backup current Typ. / 3 V	240 nA	240 nA	350 nA	350 nA	350 nA	700 nA	<b>100 nA</b>	<b>100 nA</b>	300 nA
Time stamp	<b>32 times (Max.)</b>	<b>32 times (Max.)</b>	2 times	2 times	1 time	-	8 times	8 times	-
EVIN pin	<b>2 or 3 pin</b>	0 or 1 or 2 pin	0 or 1 or 2 pin	0 or 1 or 2 pin	1 pin	-	1 pin	-	-
Power switching	✓	✓	-	-	-	✓ *Need external Diode for VBAT	✓	✓ *Need external Diode for VBAT	✓ Built-in backup battery charge control function
Reset output	-	-	✓ (optional)	✓ (optional)	-	-	-	-	✓
Automotive grade	-	-	Available	Available	Available RA8804CE	Available RA8900CE	-	-	-

Learn more about Epson's RTCs / Learn the basics of RTC modules, understand their main functions, and see application examples.

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