[Notes]
e² studio Smart Configurator Plug-in,
Smart Configurator for RX

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Outline

When using the e² studio Smart Configurator Plug-in and Smart Configurator for RX, note the following points.

1. When using the comparison function of the 12-bit A/D converter
2. When using the real-time clock in calendar count mode
3. When using the 12-bit A/D converter in continuous scan mode
4. When using the 12-bit A/D converter in single scan mode

1. When Using the Comparison Function of the 12-bit A/D Converter

1.1 Applicable Products

- e² studio V5.3.0 (Smart Configurator Plug-in V1.1.0) or later
- Smart Configurator for RX V1.1.0 or later

1.2 Applicable Devices

- RX family:
  RX651, RX65N, RX66T, RX72T, and RX72M groups

1.3 Details

RX651, RX65N groups:

When using Single Scan Mode, Group Scan Mode, or Continuous Scan Mode, the following error occurs.

(a) When Temperature sensor output or Internal reference voltage is used for window A in the comparison function, all window B GUI settings are not disabled.
For details, see Figure 1.1.

(b) When Temperature sensor output or internal reference voltage is used for window B in the comparison function, all window A GUI settings are not disabled.
For details, see Figure 1.2.

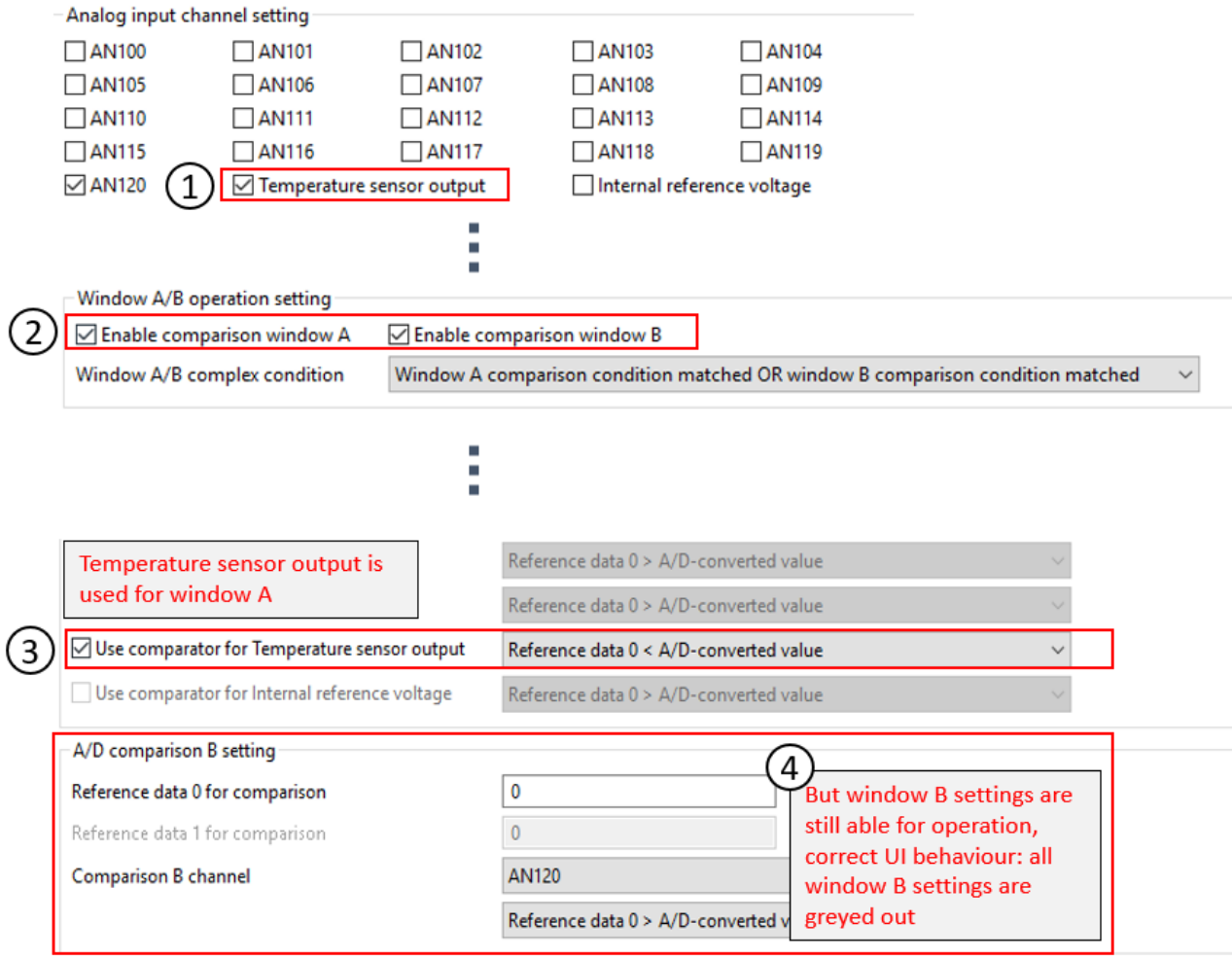


Figure 1.1 Example of using Temperature sensor output for window A while using Single Scan Mode

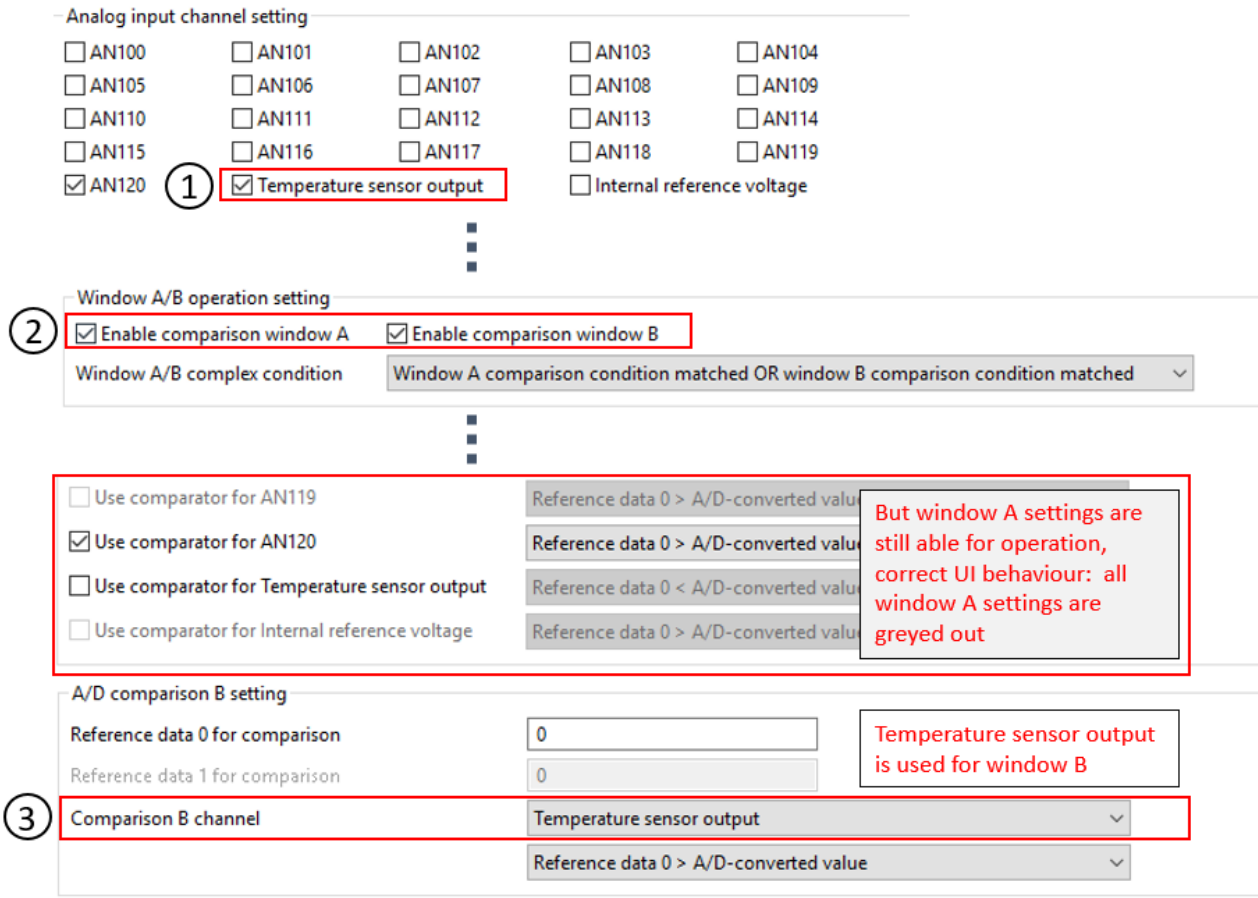


Figure 1.2 Example of using Temperature sensor output for window B while using Single Scan Mode

RX66T, RX72T groups:

When using Group Scan Mode, the following error occurs.

(a) When Temperature sensor output or Internal reference voltage is used for window B in the comparison function, all window A GUI settings are not disabled.
For details, see Figure 1.3.

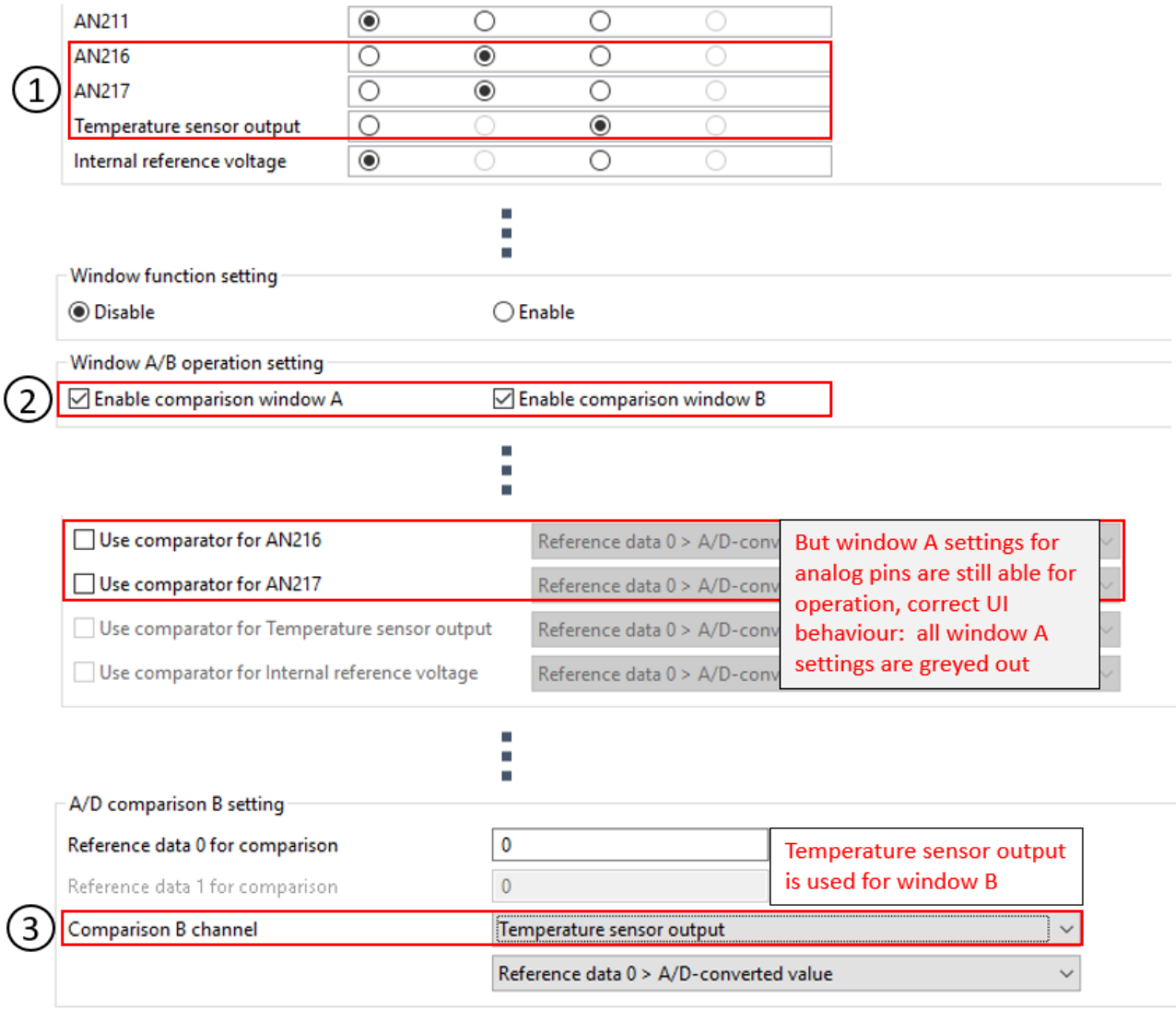


Figure 1.3 Example of using Temperature sensor output for window B while using Group Scan Mode

RX72M group:

When using Group Scan Mode, the following error occurs.

(a) When Temperature sensor output or Internal reference voltage is used for window B in the comparison function, all window A GUI settings are not disabled.
For details, see Figure 1.4.

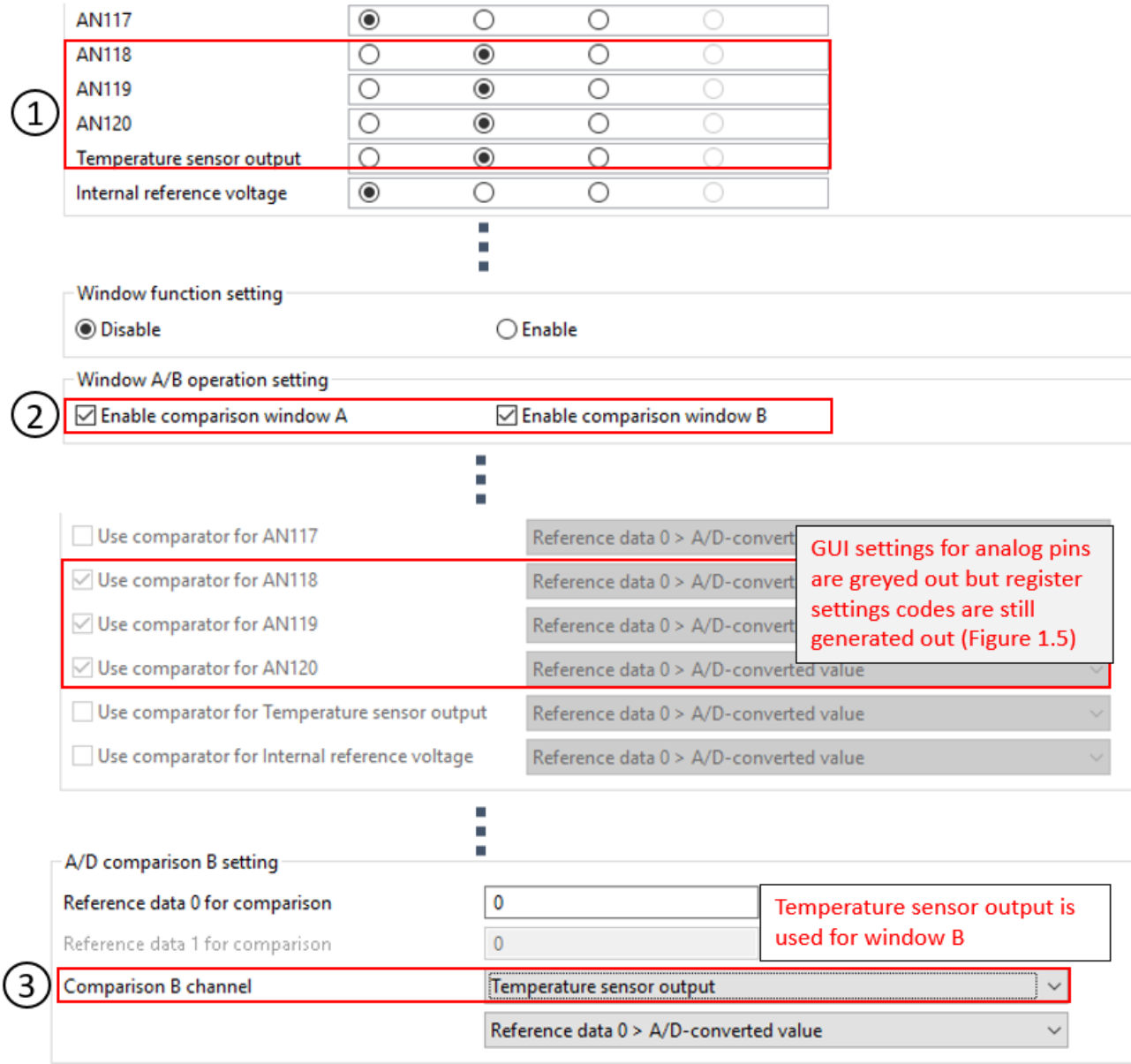


Figure 1.4 Example of using Temperature sensor output for window B and Group Scan Mode

```
/***********************************************************************************************
* Function Name: R_Config_S12AD1_Create
* Description  : This function initializes the S12AD1 channel
* Arguments    : None
* Return Value : None
***********************************************************************************************/

void R_Config_S12AD1_Create(void)
{
    /* Cancel S12AD1 module stop state */
    MSTP(S12AD1) = 0U;
    MSTP(TEMPS) = 0U;

       ......

    /* Set compare control register */
    S12AD1.ADCMPANSR1.WORD = _0004_AD_AN118_CMPA_USED | _0008_AD_AN119_CMPA_USED |
_0010_AD_AN120_CMPA_USED;
    S12AD1.ADCMPBNSR.BYTE = _20_AD1_TEMP_CMPB_CHANNEL  | _00_AD_CMPB_LEVEL0;
    S12AD1.ADCMPLR1.WORD = _0000_AD_AN118_CMPA_LEVEL0 | _0000_AD_AN119_CMPA_LEVEL0 |
_0000_AD_AN120_CMPA_LEVEL0;
    S12AD1.ADWINLLB = 0x0000U;
    S12AD1.ADCMPCR.WORD = _0200_AD_WINDOWB_ENABLE | _2000_AD_COMPAREB_INTERRUPT_ENABLE |
_0000_AD_WINDOWFUNCTION_DISABLE;

       ......

    R_Config_S12AD1_Create_UserInit();
}
```

These codes should not be generated out as their GUI settings are greyed out

Figure 1.5 Example of codes generated for the items that are grayed out in the GUI settings

1.4 Workaround

RX651, RX65N groups:
Don't configure any comparison window B GUI setting when temperature sensor output or internal reference voltage is used for comparison window A; don't configure any comparison window A GUI setting when temperature sensor output or internal reference voltage is used for comparison window B.

Examples of workarounds are shown in Figure 1.6 through Figure 1.9.

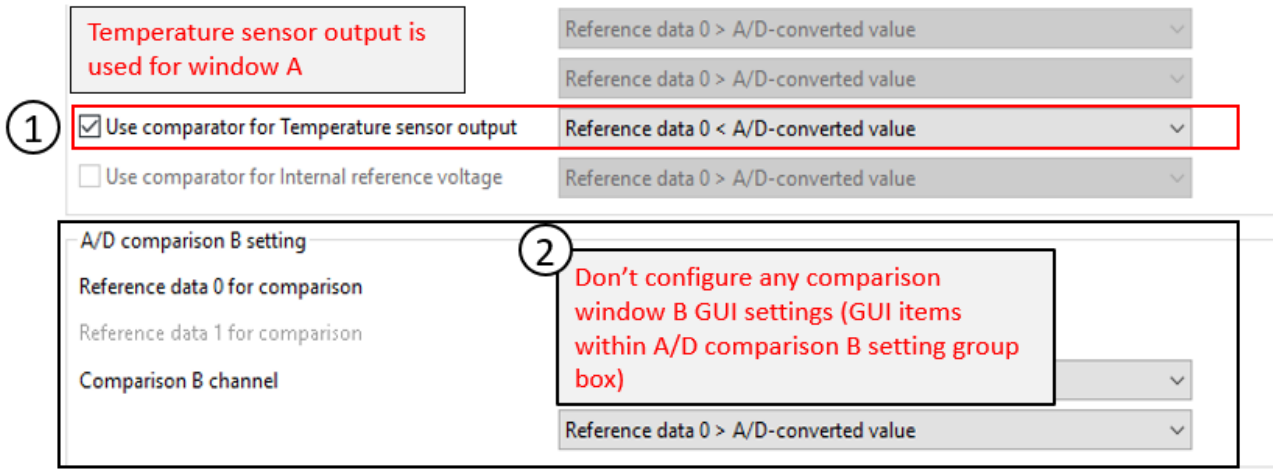


Figure 1.6 Workaround when Temperature sensor output is used for comparison window A

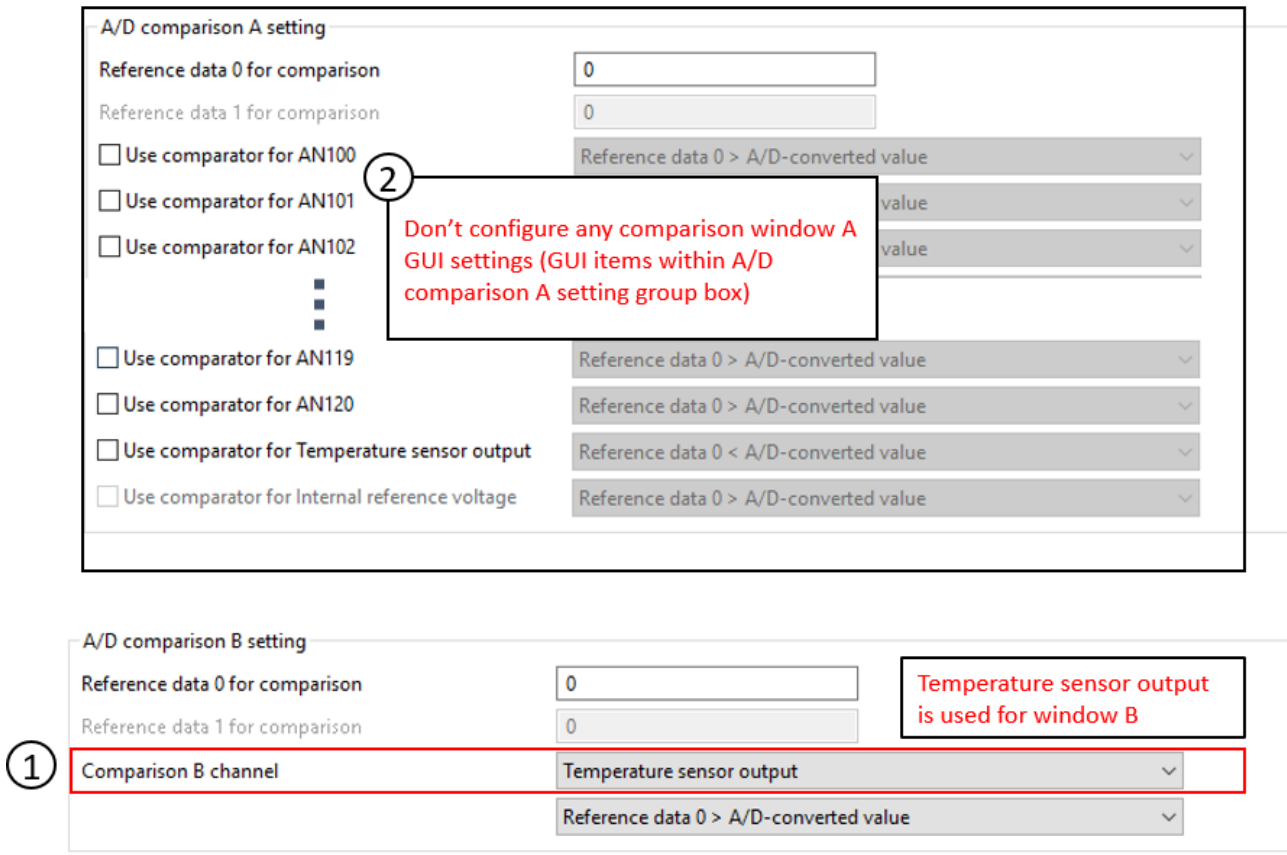


Figure 1.7 Workaround when Temperature sensor output is used for comparison window B

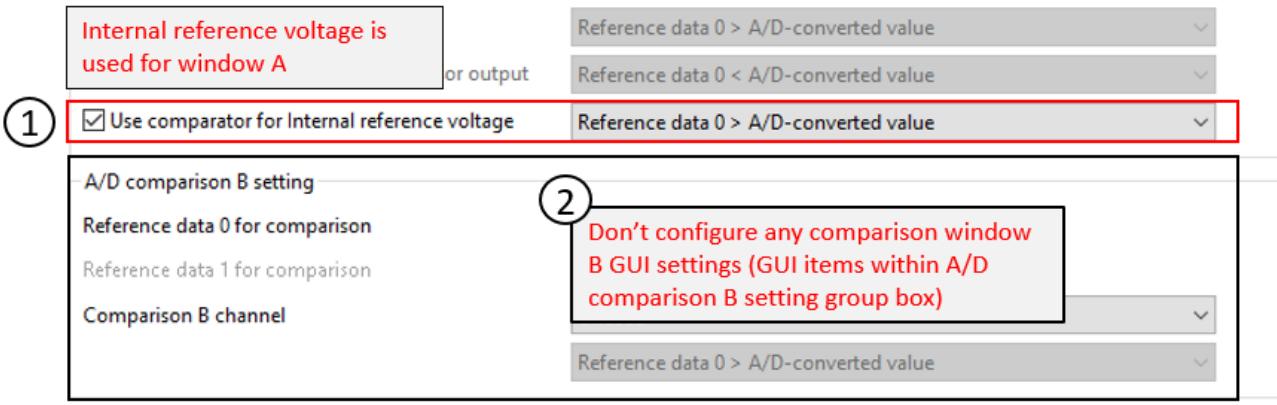


Figure 1.8 Workaround when Internal reference voltage is used for comparison window A

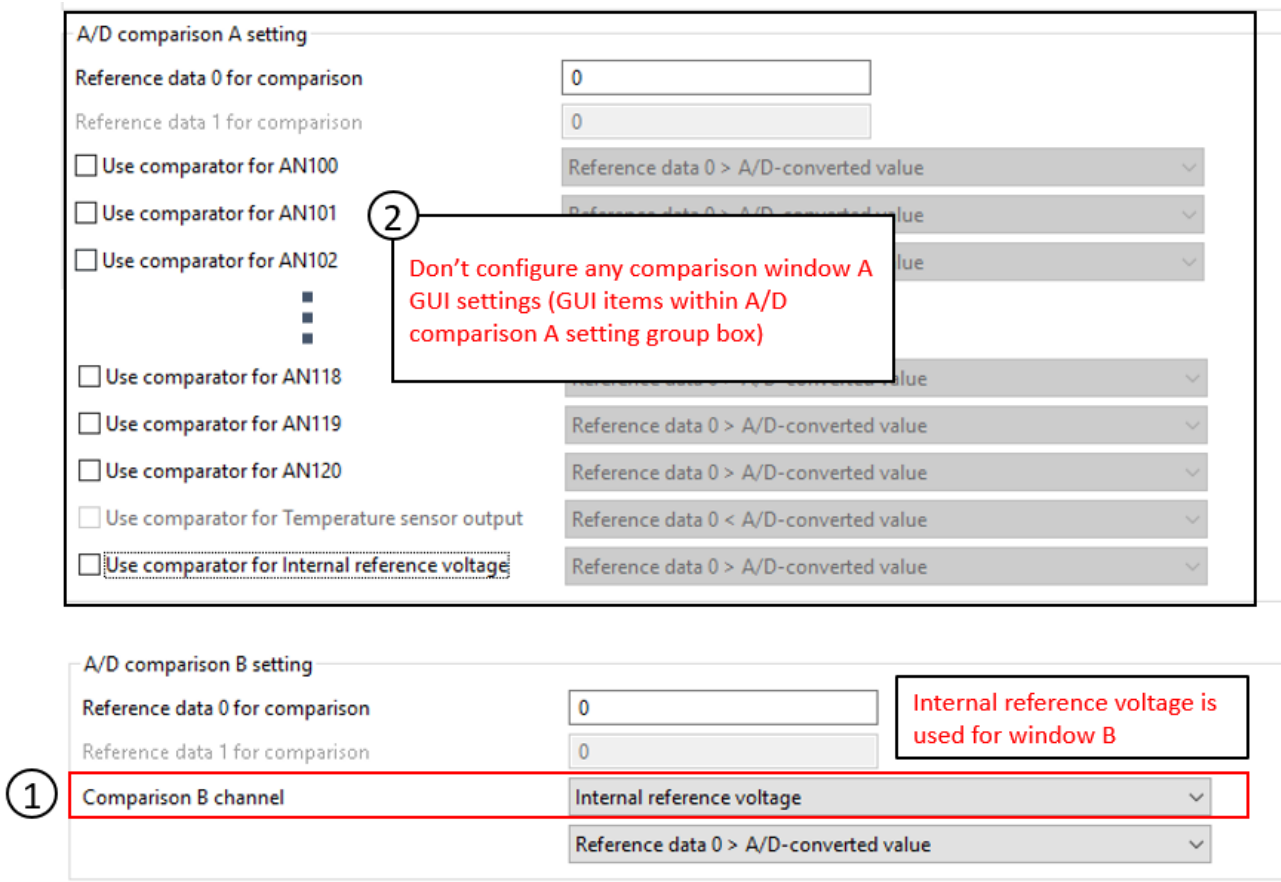


Figure 1.9 Workaround when Internal reference voltage is used for comparison window B

RX66T, RX72T groups:
Don’t configure any window A GUI settings for analog pins when temperature sensor output or internal reference voltage is used for comparison window B.

Examples of workarounds are shown in Figure 1.10 and Figure 1.11.

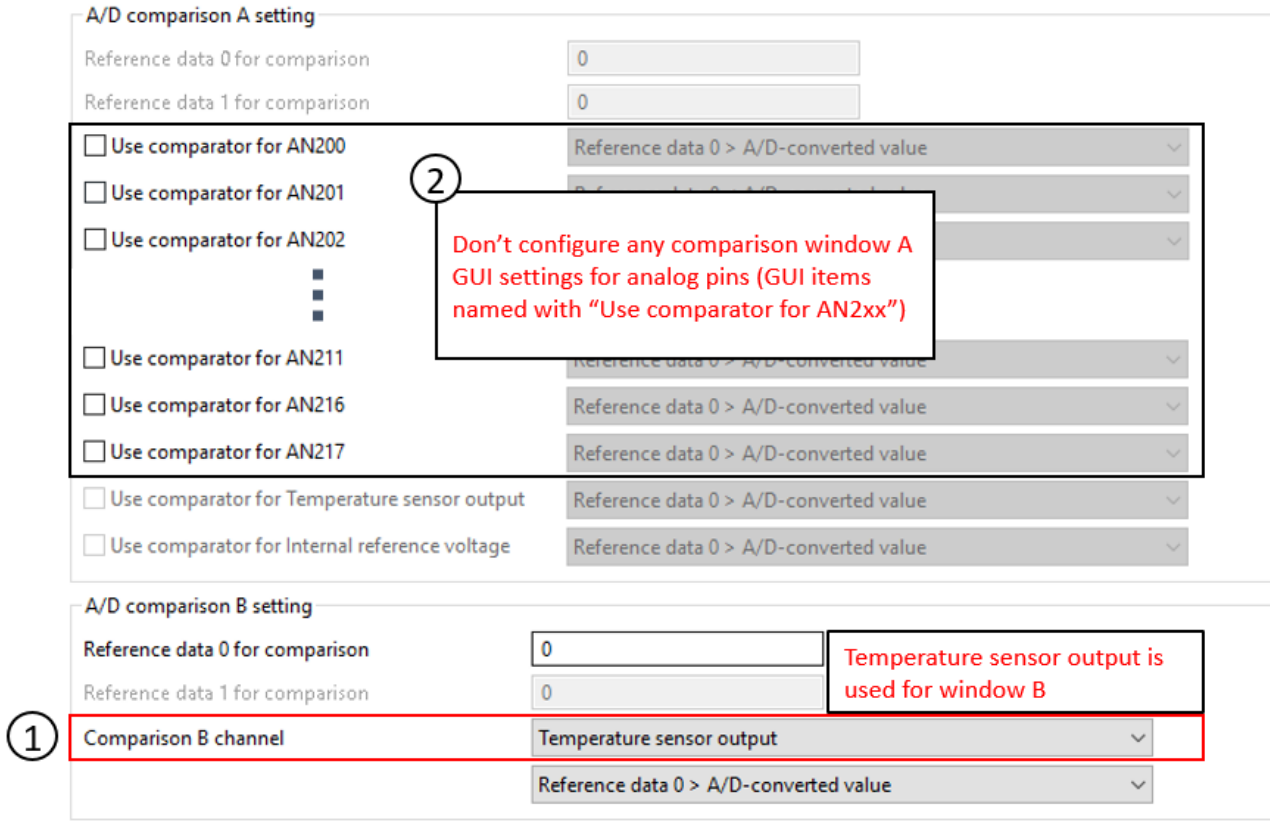


Figure 1.10 Workaround when Temperature sensor output is used for comparison window B

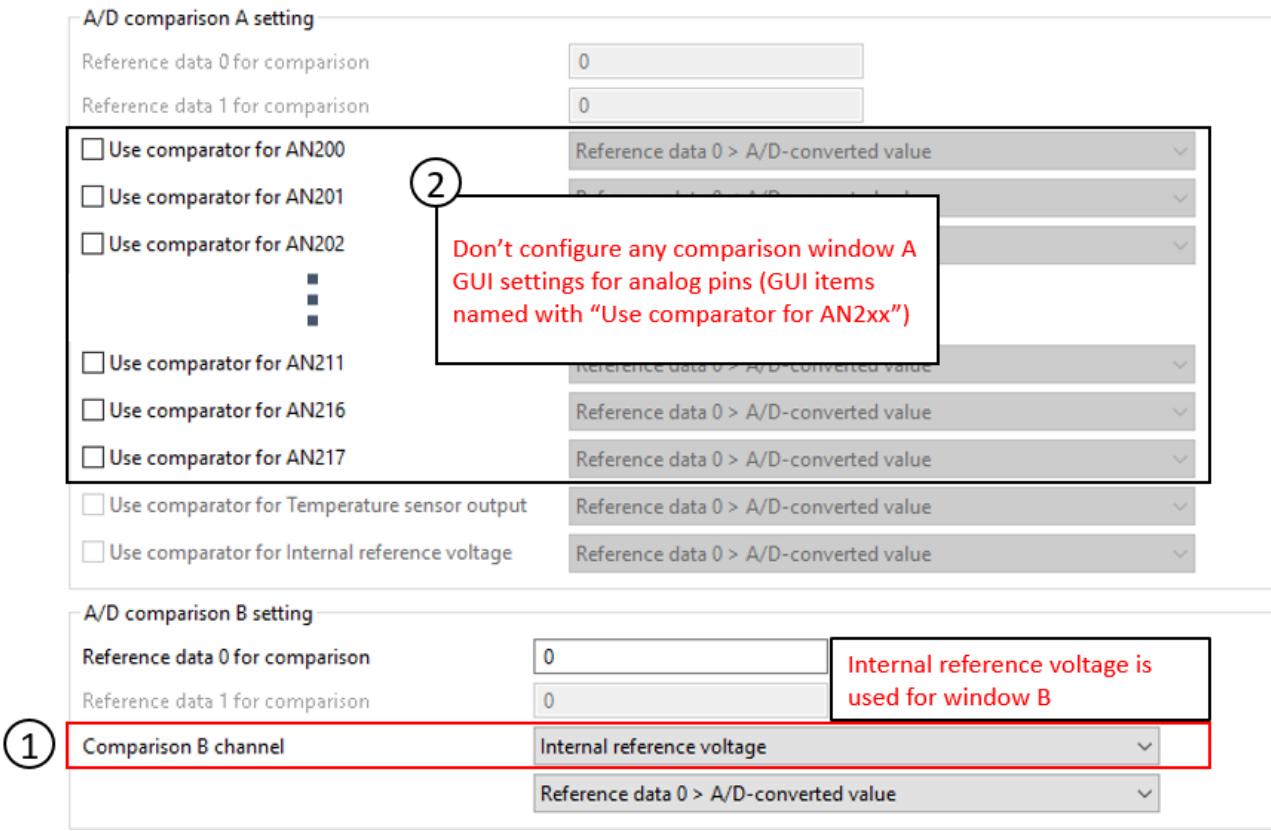


Figure 1.11 Workaround when Internal reference voltage is used for comparison window B

RX72M group:
Assure all window A GUI settings for analog pins are in unchecked status when Temperature sensor output or Internal reference voltage is used for comparison window B.

Examples of workarounds are shown in Figure 1.12 and Figure 1.13.

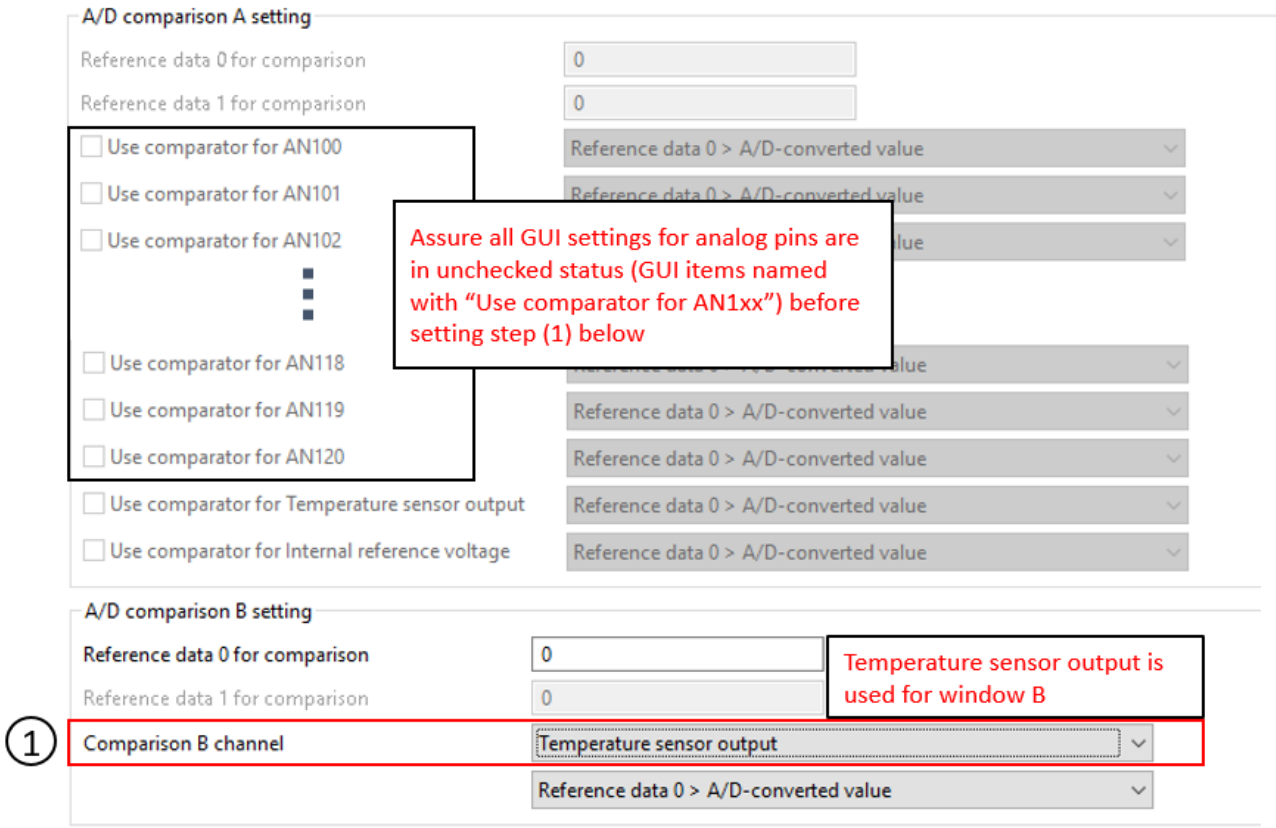


Figure 1.12 Workaround when Temperature sensor output is used for comparison B

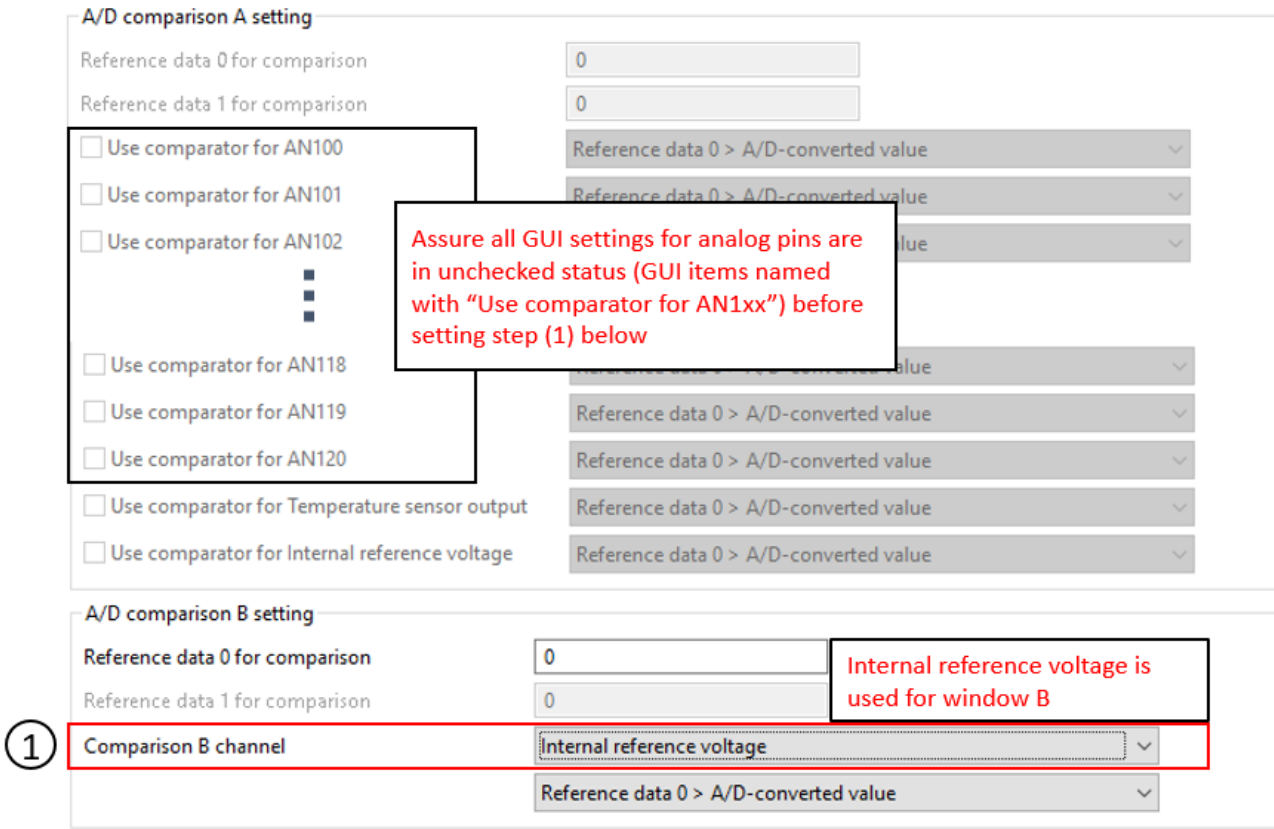


Figure 1.13 Workaround when Internal reference voltage is used for comparison B

1.5 Schedule for Fixing the Problem

This problem will be fixed in the Smart Configurator for RX V2.4.0 / e^2 studio V7.7.0 (Scheduled to be released in January 2020.)

2. When Using the Real-time Clock in Calendar Count Mode

2.1 Applicable Products

- e² studio V6.0.0 (Smart Configurator Plug-in V1.2.0) or later
- Smart Configurator for RX V1.2.0 or later

2.2 Applicable Devices

- RX family:
  RX651, RX65N groups

2.3 Details

When using the calendar API to set the counter value while using the real-time clock in calendar count mode, the statement for waiting the completion of reset operation is incorrect and may cause an infinite loop.

Error location

```
/***********************************************************************************************
*******
* Function Name: R_Config_RTC_Set_CalendarCounterValue
* Description  : This function set RTC calendar counter value
* Arguments    : counter_write_val -
*                    counter write value
* Return Value : None
***********************************************************************************************
******/

void R_Config_RTC_Set_CalendarCounterValue(rtc_calendarcounter_value_t counter_write_val)
{
    uint32_t rw_count;
    volatile uint32_t dummy;

    /* Stop all counters */
    RTC.RCR2.BIT.START = 0U;
    while (0U != RTC.RCR2.BIT.START)
    {
        /* Ensure the clock is stopped while configuring it. */
    }

    /* Execute RTC software reset */
    RTC.RCR2.BIT.RESET = 1U;
    while (1U != RTC.RCR2.BIT.RESET)
    {
        /* Wait for the reset to complete */
    }

    .....

}
```

Need to wait for the RESET bit value to become 0 instead of 1

2.4 Workaround

Manually change the checking value in the while statement from 1 to 0.

Note: When code is generated again, generated code returns to the state before modification. Therefore, modify the source file each time you generate code.

- Source file: "<*RTC-configuration-name*>.c"
- Function: "void R_<RTC- configuration-name>_Set_CalendarCounterValue (rtc_calendarcounter_value_t counter_write_val)"

  The <*RTC- configuration-name*> varies depending on the selected component of RTC.

Below is the example of modification when the <*RTC-configuration-name*> is Config_RTC (initial value) for RX651

Workaround

```
/***********************************************************************************************
* Function Name: R_Config_RTC_Set_CalendarCounterValue
* Description  : This function set RTC calendar counter value
* Arguments    : counter_write_val -
*                    counter write value
* Return Value : None
***********************************************************************************************/

void R_Config_RTC_Set_CalendarCounterValue(rtc_calendarcounter_value_t counter_write_val)
{
    uint32_t rw_count;
    volatile uint32_t dummy;

    /* Stop all counters */
    RTC.RCR2.BIT.START = 0U;
    while (0U != RTC.RCR2.BIT.START)
    {
        /* Ensure the clock is stopped while configuring it. */
    }

    /* Execute RTC software reset */
    RTC.RCR2.BIT.RESET = 1U;
    while (0U != RTC.RCR2.BIT.RESET)
    {
        /* Wait for the reset to complete */
    }

    .....

}
```

The RESET bit checking value has been modified from 1 to 0

2.5 Schedule for Fixing the Problem

This problem will be fixed in the Smart Configurator for RX V2.4.0 / e^2 studio V7.7.0 (Scheduled to be released in January 2020.)

3. When Using the 12-bit A/D Converter in Continuous Scan Mode

3.1 Applicable Products

- e² studio V7.5.0 (Smart Configurator Plug-in V2.2.0) or later
- Smart Configurator for RX V2.2.0 or later

3.2 Applicable Devices

- RX family:
  RX72M group

3.3 Details

When using Continuous Scan Mode of the 12-bit A/D converter, even if you select a different conversion resolution, the input range of the following items for the comparison function for window B is not updated correctly (fixed at 0 to 4095). As a result of this, a value that is outside the input range can be configured without causing an error.

- Reference data 0 for comparison
- Reference data 1 for comparison

Error location:

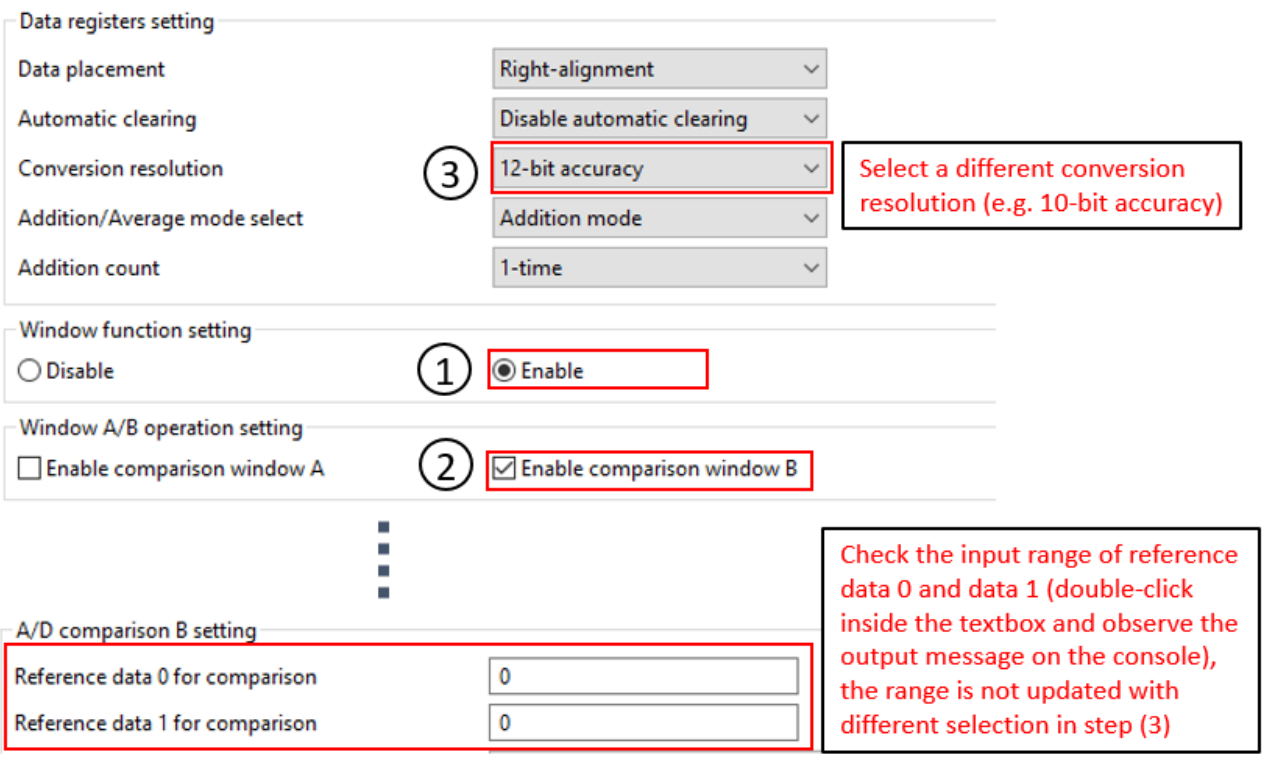


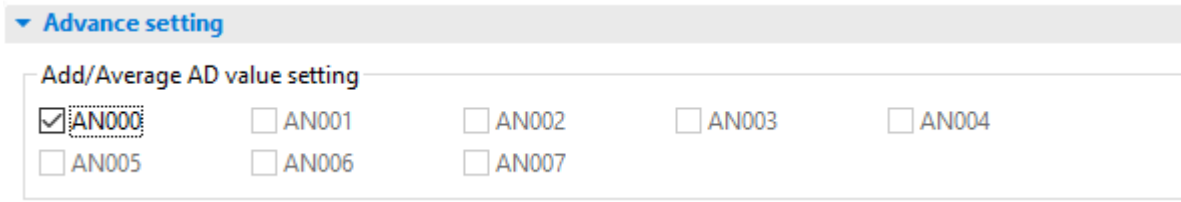
Figure 3.1 Step 1 through 4 and error location

3.4 Workaround

To input value for the reference data 0 for comparison and reference data 1 for comparison while using the comparison function for window B, refer to the following table to set value within the input range.

Addition/Average function channel & mode select	Conversion resolution	Addition count	Input range
Channel is selected * & addition mode is chosen	12-bit accuracy	16-times	0~65535
		Not 16-times	0~16383
	10-bit accuracy	Don't care	0~4095
	8-bit accuracy	Don't care	0~1023
Channel is not selected, or average mode is chosen	12-bit accuracy	-	0~4095
	10-bit accuracy	-	0~1023
	8-bit accuracy	-	0~255

*Channel is selected means any analog channel checkbox is checked as below



3.5 Schedule for Fixing the Problem

This problem will be fixed in the Smart Configurator for RX V2.4.0 / e^2 studio V7.7.0 (Scheduled to be released in January 2020.)

4. When Using the 12-bit A/D Converter in Single Scan Mode

4.1 Applicable Products

- e² studio V5.2.0 (Smart Configurator Plug-in V1.0.0) or later
- Smart Configurator for RX V1.0.0 or later

4.2 Applicable Devices

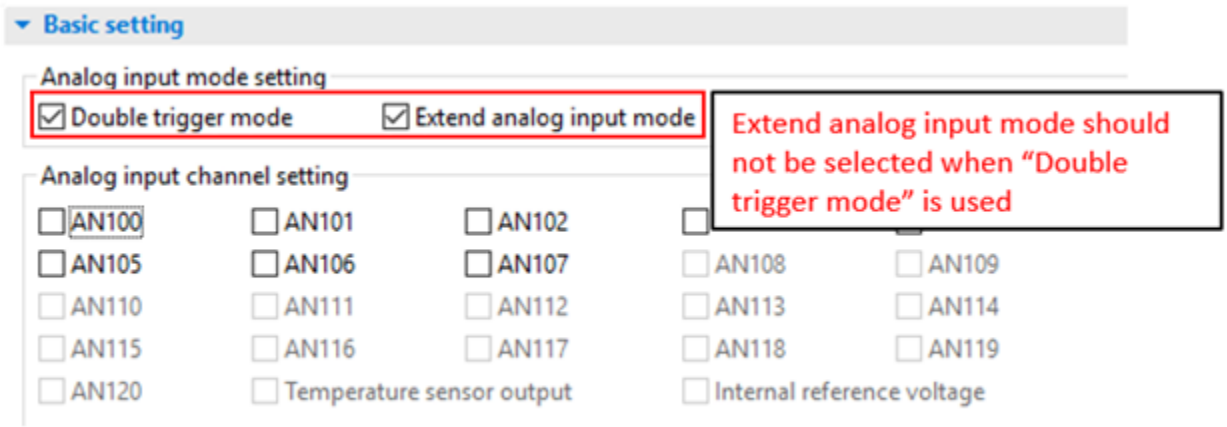
- RX family:
  RX64M, RX651, RX65N, RX71M and RX72M groups
- Channels:

  S12AD1 only

4.3 Details

When using Double trigger mode on Single Scan Mode component of the 12-bit A/D converter, “Extend analog input mode” is still available for configuration even though it cannot be used simultaneously.

Error location:



4.4 Workaround

When using Double trigger mode, don’t select “Extend analog input mode” simultaneously.

4.5 Schedule for Fixing the Problem

This problem will be fixed in the Smart Configurator for RX V2.4.0 / e² studio V7.7.0 (Scheduled to be released in January 2020.)

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Dec..16.19	-	First edition issued

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