

# RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU		Document No.	TN-RZ*-A0100A/E	Rev.	1.00
Title	RZ/G1M, G1N and G1E Specification Change for DU		Information Category	Technical Notification		
Applicable Product	RZ/G Series	Lot No.	Reference Document	RZ/G Series, User's Manual: Hardware Rev.1.00 (R01UH0543EJ0100)		
	RZ/G1M RZ/G1N RZ/G1E	All lots				

This technical update describes document correction of RZ/G Series product.

[Summary]

Specification Change for RZ/G Series, User's Manual: Hardware Rev.1.00.

[Priority level]

Importance: "Normal"

Urgency: "Normal"

[Products]

RZ/G1M

RZ/G1N

RZ/G1E

[Section number and title]

Section 21. DU (Display Unit)

“This is empty adjustment page to compare next Current (from) and Correction (to) on facing page. “

(By using two pages view of PDF readers this enables previously and prospectively view on odd and even pages.)

[Correction]

1. Section 21. DU, Page 21-296, Section 21.4.23 RGB → YC Color Space Conversion Formula [RZ/G1M/N/E]

Current (from):

**21.4.23 RGB → YC Color Space Conversion Formula [RZ/G1M/N/E]**

The formulae for RGB-YC conversion are given below. The underlined coefficients are defined by the settings in the corresponding registers.

$$Y = \underline{YCLRP} \times R + \underline{YCLGP} \times G + \underline{YCLBP} \times B + \underline{YCLAP}$$

$$Cb = \underline{CBCLRP} \times R + \underline{CBCLGP} \times G + \underline{CBCLBP} \times B + \underline{CBCLAP}$$

$$Cr = \underline{CRCLRP} \times R + \underline{CRCLGP} \times G + \underline{CRCLBP} \times B + \underline{CRCLAP}$$

Values to be set for full scale to ITU-R BT.601 conversion are as follows.

$$Y = 0.257 \times R + 0.504 \times G + 0.098 \times B + 16$$

$$Cb = -0.148 \times R - 0.291 \times G + 0.439 \times B + 128$$

$$Cr = 0.439 \times R - 0.368 \times G - 0.071 \times B + 128$$

Values to be set for full scale to full scale conversion are as follows.

$$Y = 0.299 \times R + 0.587 \times G + 0.114 \times B + 0$$

$$Cb = -0.169 \times R - 0.331 \times G + 0.550 \times B + 128$$

$$Cr = 0.500 \times R - 0.419 \times G - 0.081 \times B + 128$$

Correction (to):

**21.4.23 RGB → YC Color Space Conversion Formula [RZ/G1M/N/E]**

The formulae for RGB-YC conversion are given below. The underlined coefficients are defined by the settings in the corresponding registers.

$$Y = \underline{YCLRP} \times R + \underline{YCLGP} \times G + \underline{YCLBP} \times B + \underline{YCLAP}$$

$$Cb = \underline{CBCLRP} \times R + \underline{CBCLGP} \times G + \underline{CBCLBP} \times B + \underline{CBCLAP}$$

$$Cr = \underline{CRCLRP} \times R + \underline{CRCLGP} \times G + \underline{CRCLBP} \times B + \underline{CRCLAP}$$

Values to be set for full scale to ITU-R BT.601 conversion are as follows.

$$Y = 0.257 \times R + 0.504 \times G + 0.098 \times B + 16$$

$$Cb = -0.148 \times R - 0.291 \times G + 0.439 \times B + 128$$

$$Cr = 0.439 \times R - 0.368 \times G - 0.071 \times B + 128$$

Values to be set for full scale to full scale conversion are as follows.

If the calculation result is less than 16, the output is rounded to 16, and if the calculation result is 256 or more, the output is rounded to 255. Therefore, the range of all outputs is 16 to 255.

$$Y = 0.299 \times R + 0.587 \times G + 0.114 \times B + 0$$

$$Cb = -0.169 \times R - 0.331 \times G + 0.550 \times B + 128$$

$$Cr = 0.500 \times R - 0.419 \times G - 0.081 \times B + 128$$

[Reason for Correction]  
Specification change.

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- End of Document -