Date: Mar. 24, 2017

RENESAS TECHNICAL UPDATE

TOYOSU FORESIA, 3-2-24, Toyosu, Koto-ku, Tokyo 135-0061, Japan
Renesas Electronics Corporation

Product Category	System LSI	Document No.	TN-RIN-A022A/E	Rev.	1.00
Title	R-IN32 Series User's Manual (CC-Link Remote device station) (Rev. 1.00 to Rev. 1.01) Revised contents: Corrections and new functions		Information Category	Technical Notification	
Applicable Product	See following	Lot No. All lots	Reference Document	R-IN32 Series User's Manual (CC-Link Remote device station) R-IN32M3-EC R-IN32M3-CL R-IN32M3-CL2 Rev.1.01 (R18UZ0056EJ0101)	

R-IN32 Series User's Manual (CC-Link remote device station) R-IN32M3-EC, R-IN32M3-CL, R-IN32M4-CL2 (R18UZ0056EJ0101) has been released on Renesas website. This technical update follows revision 1.00 and includes the entirety of revised items. For details, refer to "2. Documentation Updates" given below.

1 Applicable Product

Product Type	Model Marking	Product Code
R-IN32M3-EC	MC-10287F1	MC-10287F1-HN4-A
		MC-10287F1-HN4-M1-A
	MC-10287BF1	MC-10287BF1-HN4-A
		MC-10287BF1-HN4-M1-A
R-IN32M3-CL	D60510F1	UPD60510F1-HN4-A
		UPD60510F1-HN4-M1-A
	D60510BF1	UPD60510BF1-HN4-A
		UPD60510BF1-HN4-M1-A
R-IN32M4-CL2	R9J03G019	R9J03G019GBG

2 Documentation Updates

No	Applicable Item (Rev. 1.01 Section)	Applicable Page (Rev. 1.01)	Contents
1	Figure 4.1 How to R-IN32 Series Initialization	5	Complement
2	Table 5.1 Correspondence between CC-Link Remote Device Station Pins and R-IN32M3 Series Pins	6	Complement
3	6.2 Setting the Station Number and Baud Rate	9	Expression alignment
4	Table 6.3 Light ON/OFF/BLINK conditions	11	Complement
5	8.2.2 Station number switch information, Number of occupied stations information and Baud rate switch information	18	Expression alignment
6	Figure 9.1 Initial Processing	32	Error correction
7	14.2 software (1)Questions and answers related to initial processing	74	Delete
8	14.2 software (2)Questions and answers related to reception enable	75	Delete
9	14.2 software (6)Questions and answers related to reception data read processing	78	Error correction

No.1 Figure 4.1 How to R-IN32 Series Initialization

Add description for speed setting by software

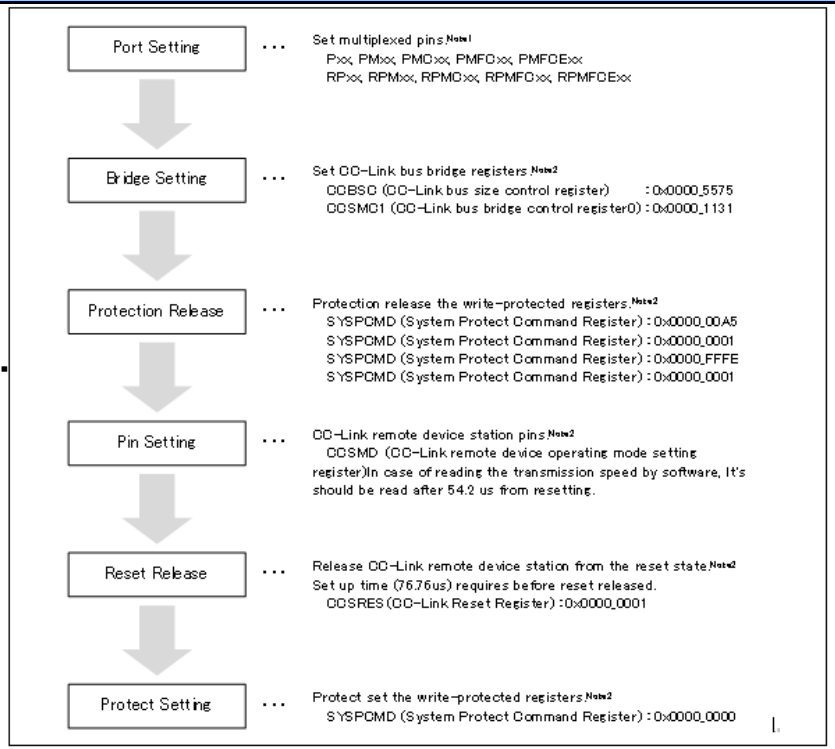
<table>
<tr><th colspan="2">V1.00</th><th colspan="2">V1.01</th></tr>
<tr><th>Page</th><th>Description</th><th>Page</th><th>Description</th></tr>
<tr><td>5</td><td> 

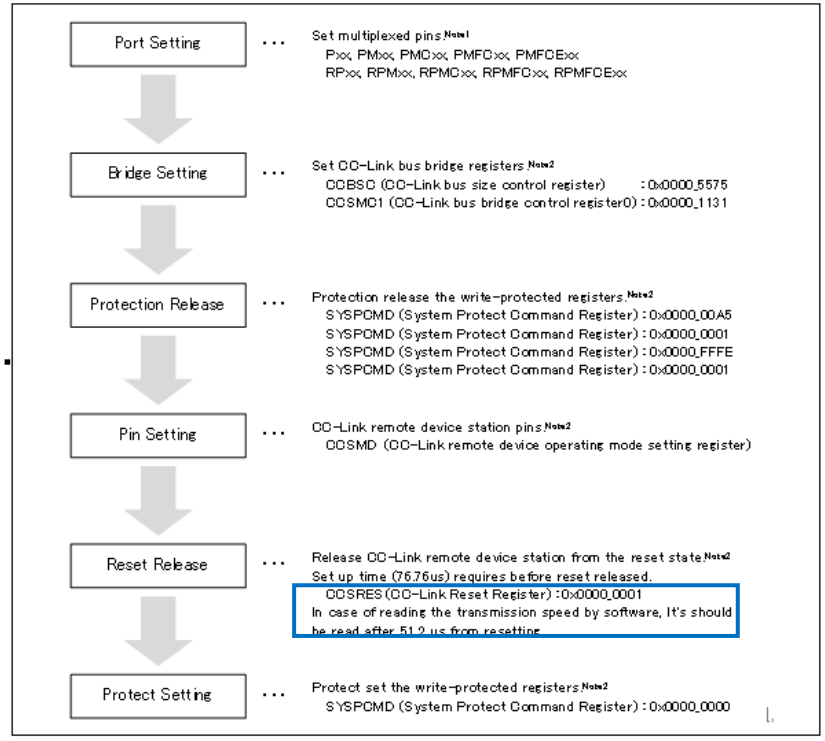
Figure 4.1 How to R-IN32 Series Initialization</td><td>5</td><td> 

Figure 4.1 How to R-IN32 Series Initialization <R></td></tr>
</table>

No.2 Table 5.1 Correspondence between CC-Link Remote Device Station Pins and R-IN32M3 Series Pins

Add PIN name and description for each function

V1.00

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Description:

CC-Link Pin Name	R-IN32M3 Pin Name	Shared Port	Description
SD	CCS_SD	P54	Communications circuit data transmission pin
RD1	CCS_RD	P53	Communications circuit data reception pin
SDGATEON	CCS_SDGATEON	P52	Communications circuit transmit data & gate control pin
RUN	CCS_LNKRUNZ	P50	Link RUN LED control output
ERRL	CCS_ERRZ	P25	Operation check LED
SDLED	CCS_SDLEDZ	RP00	Operation check LED
RDLED	CCS_RDLEDZ	P51	Receive data LED control output
IOTENSU	CCS_IOTENSU	P22	Initial setting pin
SENYU0	CCS_SENYU0	P23	Initial setting pin
SENYU1	CCS_SENYU1	P24	Initial setting pin
BS1, 2, 4, 8	CCS_BS1, 2, 4, 8	RP02-RP05	Baud rate setting switch input pin
SW1, 2, 4, 8, 10, 20, 40, 80	CCS_STATION_NO_0-7	P70-P77	Station no. setting switch input pins
REFSTB	CCS_REFSTB	P10	Interrupt signal

V1.01

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Description:

Table 5.1 Correspondence between CC-Link Remote Device Station Pins and R-IN32M3 Series Pins<R>

CC-Link Pin Name	R-IN32M3 Pin Name	Shared Port	Description
SD	CCS_SD	P54	Communications circuit data transmission pin
RD1	CCS_RD	P53	Communications circuit data reception pin
SDGATEON	CCS_SDGATEON	P52	Communications circuit transmit data & gate control pin
RUN	CCS_LNKRUNZ	P50	Link RUN LED control output RUN（CCS_LNKRUNZ)=「L RUN」
ERRL	CCS_ERRZ	P25	Operation check LED ERRL（CCS_ERRZ)=「L ERR」
SDLED	CCS_SDLEDZ	RP00	Operation check LED SDLED（CCS_SDLEDZ）=「SD」
RDLED	CCS_RDLEDZ	P51	Receive data LED control output RDLED（CCS_RDLEDZ）=「RD」
IOTENSU	CCS_IOTENSU	P22	Initial setting pin
SENYU0	CCS_SENYU0	P23	Initial setting pin
SENYU1	CCS_SENYU1	P24	Initial setting pin
BS1, 2, 4, 8	CCS_BS1, 2, 4, 8	RP02-RP05	Baud rate setting switch input pin
SW1, 2, 4, 8, 10, 20, 40, 80	CCS_STATION_NO_0-7	P70-P77	Station no. setting switch input pins
REFSTB	CCS_REFSTB	P10	Interrupt signal
WDTZ	CCS_WDTZ	P13	Please connect when alarm is necessary.
FUSEZ	CCS_FUSEZ	P36	Please connect when external fuse is necessary. If there is no external fuse, input High.

No.3 6.2 Setting the Station Number and Baud Rate

Modify from "setting number" to "baud rate"

<table>
<tr><th colspan="2">V1.00</th><th colspan="2">V1.01</th></tr>
<tr><th>Page</th><th>Description</th><th>Page</th><th>Description</th></tr>
<tr><td>9</td><td>
<table>
<tr><th>Terminal \ Baud Rate</th><th>0</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5 Note2</th><th>6 Note2</th><th>7 Note2</th><th>8 Note2</th><th>9 Note2</th></tr>
<tr><td>BS8</td><td>H</td><td>H</td><td>H</td><td>H</td><td>H</td><td>H</td><td>H</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td>BS4</td><td>H</td><td>H</td><td>H</td><td>H</td><td>L</td><td>L</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
<tr><td>BS2</td><td>H</td><td>H</td><td>L</td><td>L</td><td>H</td><td>H</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
<tr><td>BS1</td><td>H</td><td>L</td><td>H</td><td>L</td><td>H</td><td>L</td><td>H</td><td>L</td><td>H</td><td>L</td></tr>
</table>
Note1. The settings result in error.
Station number setting value 1 to 64: Station number (normal)
0 or 65 and over: Results in a station number switch setting error. The L ERR. LED turns on.
2. Baud rate setting value: 0: 156kbps 1: 625kbps 2: 2.5Mbps 3: 5Mbps 4: 10Mbps
5 to 9: Results in a baud rate switch setting error. The L ERR. LED t urns on.
</td><td>9</td><td>
<table>
<tr><th>Terminal \ Baud Rate</th><th>156 kbps</th><th>625 kbps</th><th>2.5 Mbps</th><th>5 Mbps</th><th>10 Mbps</th><th>Note2</th><th>Note2</th><th>Note2</th><th>Note2</th><th>Note2</th></tr>
<tr><td>BS8</td><td>H</td><td>H</td><td>H</td><td>H</td><td>H</td><td>H</td><td>H</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td>BS4</td><td>H</td><td>H</td><td>H</td><td>H</td><td>L</td><td>L</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
<tr><td>BS2</td><td>H</td><td>H</td><td>L</td><td>L</td><td>H</td><td>H</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
<tr><td>BS1</td><td>H</td><td>L</td><td>H</td><td>L</td><td>H</td><td>L</td><td>H</td><td>L</td><td>H</td><td>L</td></tr>
</table>
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</td></tr>
</table>

No.4 Table 6.3 Light ON/OFF/BLINK conditions

Add explanation for Table 6.3

V1.00

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6.3 Transmission Monitor Section Terminals (for LED)

(1) Light ON/OFF/BLINK conditions

Table 6.2 Light ON/OFF/BLINK conditions

LED name	Status	Condition
L RUN <R> (ON: "L" output)	ON	When the refresh signal or the refresh signal and polling signal are normally received after network entry. (see Figure 6.1)
	OFF	1. Before network entry (see Figure 6.1) 2. Channel carrier detection failed 3. Timeout 4. During hardware reset
	Blinking	-
L ERR. (ON: "L" output)	ON	1. CRC error 2. Station number switch setting error at reset release (0 or 65 stations or more including the number of occupied stations) 3. Baud rate switch setting error at reset release (a setting of 5 or higher)
	OFF	1. Normal communication 2. During hardware reset
	Blinking	The switch setting changed from the setting at reset release. (0.4s blinking)
SD (ON: "L" output)	ON	During transmission or +0.41ms × $2^{(n-1)}$ after transmission (n = 1 to 8)
	OFF	1. Other than the above 2. During hardware reset
	Blinking	-
RD (ON: "L" output)	ON	During channel carrier detection
	OFF	1. Channel carrier detection failed 2. During hardware reset
	Blinking	-

V1.01

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6.3 Transmission Monitor Section Terminals (for LED)

(1) Light ON/OFF/BLINK conditions

Each LED is automatically set ON / OFF / BLINK under the following conditions <R>

Table 6.3 Light ON/OFF/BLINK conditions<R>

LED name	Status	Condition
L RUN (ON: "L" output)	ON	When the refresh signal or the refresh signal and polling signal are normally received after network entry. (see Figure 6.1)
	OFF	1. Before network entry (see Figure 6.1) 2. Channel carrier detection failed 3. Timeout 4. During hardware reset
	Blinking	-
L ERR. (ON: "L" output)	ON	1. CRC error 2. Station number switch setting error at reset release (0 or 65 stations or more including the number of occupied stations) 3. Baud rate switch setting error at reset release (a setting of 5 or higher)
	OFF	1. Normal communication 2. During hardware reset
	Blinking	The switch setting changed from the setting at reset release. (0.4s blinking)
SD (ON: "L" output)	ON	During transmission or +0.41ms × $2^{(n-1)}$ after transmission (n = 1 to 8)
	OFF	1. Other than the above 2. During hardware reset
	Blinking	-
RD (ON: "L" output)	ON	During channel carrier detection
	OFF	1. Channel carrier detection failed 2. During hardware reset
	Blinking	-

No.5 8.2.2 Station number switch information, Number of occupied stations information and Baud rate switch information

Modify from "setting number" to "baud rate"

<table>
<tr><th colspan="2">V1.00</th><th colspan="2">V1.01</th></tr>
<tr><th>Page</th><th>Description</th><th>Page</th><th>Description</th></tr>
<tr><td>18</td><td>11-8 BSW8-BSW1 Baud rate switch information
<table>
<tr><th>BSW8</th><th>BSW4</th><th>BSW2</th><th>BSW1</th><th>Switch Setting</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0</td><td>2</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td><td>3</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>0</td><td>4</td></tr>
</table></td><td>18</td><td>11-8 BSW8-BSW1 Baud rate switch information
<table>
<tr><th>BSW8</th><th>BSW4</th><th>BSW2</th><th>BSW1</th><th>Baud rate</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>0</td><td>156kbps</td></tr>
<tr><td>0</td><td>0</td><td>0</td><td>1</td><td>625kbps</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>0</td><td>2.5Mbps</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td><td>5Mbps</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>0</td><td>10Mbps</td></tr>
</table></td></tr>
</table>

No.6 Figure 9.1 Initial Processing

Modify software setting item

<table>
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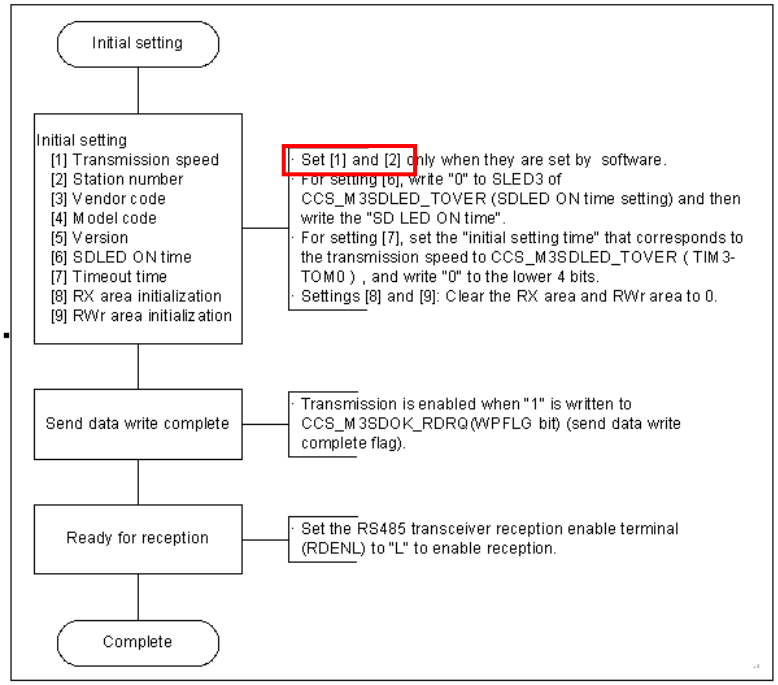
<tr><th>Page</th><th>Description</th><th>Page</th><th>Description</th></tr>
<tr><td>32</td><td> 

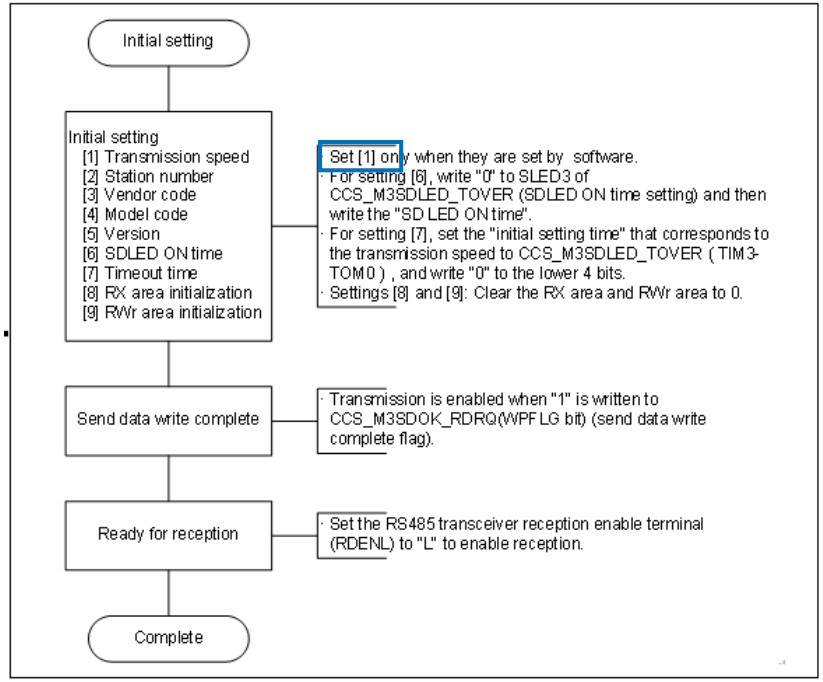
Figure 9.1 Initial Processing</td><td>32</td><td> 

Figure 9.1 Initial Processing <R></td></tr>
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No.7 14.2 software (1) Questions and answers related to initial processing

Delete the undescribed annotation "note3"

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<tr><td>74</td><td>(1) Questions and answers related to initial processing
<table>
<tr><th></th><th>Question</th><th>Answer</th></tr>
<tr><td>1</td><td>We have a question about the initial setting in the sample flowchart (Note 3). Should the RS485 reception enable signal be set to H only at initialization?</td><td>Set it to “H” at initialization, and keep it high afterwards.</td></tr>
</table></td><td>74</td><td>(1) Questions and answers related to initial processing
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<tr><th></th><th>Question</th><th>Answer</th></tr>
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</table></td></tr>
</table>

No.8 14.2 software (2) Questions and answers related to reception enable

Delete the unnecessary words

<table>
<tr><th colspan="2">V1.00</th><th colspan="2">V1.01</th></tr>
<tr><th>Page</th><th>Description</th><th>Page</th><th>Description</th></tr>
<tr><td>75</td><td>(5) Questions and answers related to reception enable
<table>
<tr><th></th><th>Question</th><th>Answer</th></tr>
<tr><td>1.</td><td>What does reception enable mean? Are there any operations necessary for the CCS?</td><td>Reception enable means allowing RS485 to receive data. There are no operations necessary for the CCS.</td></tr>
<tr><td>2.</td><td>The specifications describe a precaution on RS485 transceiver reception as "the receive enable pin of the RS485 transceiver is controlled." Are there any particular points to note, such as timing?</td><td>Enable the transceiver reception after enabling transmission during the initial settings. It can be kept enabled afterwards.</td></tr>
<tr><td>3.</td><td>In the circuit example in the specifications, the MPU port output is connected to the RDENL line connected to the RS485 transceiver. Under what circumstances might the communication input be disconnected? If it is not necessary to disconnect it, we would like to connect the MPU port output to GND.</td><td>Data reception from the master station should be disabled until the initial processing is completed (the communication input is disconnected).
The reception should then be enabled after the initial processing is completed. After that, it is not necessary to disable the reception.
Since it is necessary to disable the reception before the initial processing is performed, make sure to use the MPU port output; do not connect the MPU port output to GND.</td></tr>
</table></td><td>75</td><td>(5) Questions and answers related to reception enable <R>
<table>
<tr><th></th><th>Question</th><th>Answer</th></tr>
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<tr><td>3.</td><td>The MPU port output is connected to the RDENL line connected to the RS485 transceiver. Under what circumstances might the communication input be disconnected? If it is not necessary to disconnect it, we would like to connect the MPU port output to GND.</td><td>Data reception from the master station should be disabled until the initial processing is completed (the communication input is disconnected).
The reception should then be enabled after the initial processing is completed. After that, it is not necessary to disable the reception.
Since it is necessary to disable the reception before the initial processing is performed, make sure to use the MPU port output; do not connect the MPU port output to GND.</td></tr>
</table></td></tr>
</table>

No.9 14.2 software (6) Questions and answers related to reception data read processing

Modify mistakes from "one byte (half word)" to "byte (half word)"

V1.00				V1.01			
Page	Description			Page	Description		
78	2	The specification indicates, upon reading the reception data, that the DRDREQ bit of CCS_M3SDOK_RDRQ should be set to 1; and upon completing the read operation, it should be reset to 0. Is this operation necessary when reading one byte (word)? Is it possible to read multiple bytes (words)?	The number of data points read can be any number of bytes. The DRDREQ bit is a flag used in the reception data separation prevention processing. Data transfer between the double receive buffers within the CCS is prevented when it is set to 1.	78	2	The specification indicates, upon reading the reception data, that the DRDREQ bit of CCS_M3SDOK_RDRQ should be set to 1; and upon completing the read operation, it should be reset to 0. Is this operation necessary when reading one byte (half word)? Is it possible to read multiple bytes (words)?	The number of data points read can be any number of bytes. The DRDREQ bit is a flag used in the reception data separation prevention processing. Data transfer between the double receive buffers within the CCS is prevented when it is set to 1.