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RENESAS TECHNICAL UPDATE

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

Product Category	MPU/MCU		Document No.	TN-RH8-B0463A/E	Rev.	1.00
Title	Additional Description for the Flash Security of RH850 Gen1 Series		Information Category	Technical Notification		
Applicable Product	RH850/E1x-FCC1, E1M-S, E1L, RH850/E1x-FCC2, E1M-S2, RH850/P1L-C, P1M-C, P1H-C, RH850/P1M, P1M-E RH850/C1H, C1M, RH850/C1M-A RH850/D1x, RH850/R1L RH850/F1x, F1Kx	Lot No. All lot	Reference Document	See related documents below.		

1. Explanations

Regarding the RH850 Gen1 Series, a supplementary explanation of the flash security function has been added to User's Manual Hardware and Flash Memory User's Manual: Hardware Interface. Please consider this content to use the applicable products.

2. Modified Description

2.1. The following description will be modified in the User's Manual: Hardware (Red character).

(1) RH850/E1x-FCC1, RH850/E1M-S, RH850/E1L

(1-1) Section 33 Flash Memory

33.4 Functional Overview

Table 33.4 Summary of Security Functions

<Before>

Table 33.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the user boot area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of code flash memory writing by self-programming.
Prohibition of connection of a dedicated flash memory programmer	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated Flash Memory programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands	Block erasure commands and programming commands at the time of serial programming are prohibited. Block erasure commands can only be executed by erasing all user areas in the following order starting from block 0: erasure of all areas → erasure of user boot area → erasure of data areas starting from block 0. The prohibition setting can only be initialized by issuing the configuration clearing command.
Prohibition of read commands	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

<After>

Table 33.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the user boot area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of code flash memory writing by self-programming.
Prohibition of connection of a dedicated flash memory programmer *1	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated Flash Memory programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands *2	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands *2	Block erasure commands and programming commands at the time of serial programming are prohibited. Block erasure commands can only be executed by erasing all user areas in the following order starting from block 0: erasure of all areas → erasure of user boot area → erasure of data areas starting from block 0. The prohibition setting can only be initialized by issuing the configuration clearing command.
Prohibition of read commands *2	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

Note1. The "Prohibition of connection of a dedicated flash memory programmer" function can be used in conjunction with "ID authentication" or the prohibition of commands (*2).

Note2. Prohibition of commands (for block erasure, programming, and reading) can be set independently.

(1-2) Section 34 Flash Security

34.1.1.2 Functions Unique to Serial Programming Mode

<Before>

Three functions are provided as security functions unique to serial programming mode: ID authentication, prohibition of programming, erasure, and read commands, and prohibition of serial programmer connection. Parallel use of these functions is not allowed.

<After>

Three functions are provided as security functions unique to serial programming mode: ID authentication, prohibition of programming, erasure, and read commands, and prohibition of serial programmer connection. ~~Parallel use of these functions is not allowed.~~

(1-3) Section 34 Flash Security

34.1.1.2 Functions Unique to Serial Programming Mode

Table 33.4 Summary of Security Functions

<Before>

Table 34.1 Security Functions in Each Mode

Operation Mode	Code Flash, Data Flash, and ID Code Protection	Restriction on Debug Interface Connection
User boot mode	• SELF ID authentication • OTP (Parallel use of OTP with other security features is possible.)	• Security level 1 (OCD ID authentication) • Security level 2 (Debug interface connection is prohibited)
Serial programming mode	• ID authentication • Programming commands, block erasure commands, and read commands are prohibited. • Connection of serial programmers is prohibited. (The above three cannot be used in parallel.) • OTP (parallel use possible)	• No function (Debug interface connection is always prohibited.)

<After>

Table 34.1 Security Functions in Each Mode

Operation Mode	Code Flash, Data Flash, and ID Code Protection	Restriction on Debug Interface Connection
User boot mode	• SELF ID authentication • OTP (Parallel use of OTP with other security features is possible.)	• Security level 1 (OCD ID authentication) • Security level 2 (Debug interface connection is prohibited)
Serial programming mode	• ID authentication • Programming commands, block erasure commands, and read commands are prohibited. • Connection of serial programmers is prohibited. ~~(The above three cannot be used in parallel.)~~ • OTP (parallel use possible)	• No function (Debug interface connection is always prohibited.)

(2) RH850/E1x-FCC2, RH850/E1M-S2

(2-1) Section 34 Flash Memory

34.4 Functional Overview

Table 34.4 Summary of Security Functions

<Before>

Table 34.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the user boot area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from “prohibited” to “permitted” is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of code flash memory writing by self-programming.
Prohibition of connection of a dedicated flash memory programmer	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated Flash Memory programmer is prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of block erasure commands	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of programming commands	Block erasure commands and programming commands at the time of serial programming are prohibited. Block erasure commands can only be executed by erasing all user areas in the following order starting from block 0: erasure of all areas → erasure of user boot area → erasure of data areas starting from block 0. The prohibition setting can only be initialized by issuing the configuration clearing command.
Prohibition of read commands	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

<After>

Table 34.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the user boot area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from “prohibited” to “permitted” is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of code flash memory writing by self-programming.
Prohibition of connection of a dedicated flash memory programmer *1	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated Flash Memory programmer is prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of block erasure commands *2	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of programming commands *2	Block erasure commands and programming commands at the time of serial programming are prohibited. Block erasure commands can only be executed by erasing all user areas in the following order starting from block 0: erasure of all areas → erasure of user boot area → erasure of data areas starting from block 0. The prohibition setting can only be initialized by issuing the configuration clearing command.
Prohibition of read commands *2	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

Note1. The “Prohibition of connection of a dedicated flash memory programmer” function can be used in conjunction with “ID authentication” or the prohibition of commands (*2).

Note2. Prohibition of commands (for block erasure, programming, and reading) can be set independently.

(2-2) Section 35 Security

35.1.1.2 Functions Unique to Serial Programming Mode

<Before>

Three functions are provided as security functions unique to serial programming mode: ID authentication, prohibition of programming, erasure, and read commands, and prohibition of serial programmer connection. Parallel use of these functions is not allowed.

<After>

Three functions are provided as security functions unique to serial programming mode: ID authentication, prohibition of programming, erasure, and read commands, and prohibition of serial programmer connection. ~~Parallel use of these functions is not allowed.~~

(2-3) Section 35 Security

35.1.2 Connection Restriction Function of Debug Interface

Table 35.1 Security Functions in Each Mode

<Before>

Table 35.1 Security Functions in Each Mode

Operation Mode	Code Flash, Data Flash, and ID Code Protection	Restriction on Debug Interface Connection
User boot mode	• SELF ID authentication • OTP (parallel use possible)	• Security level 1 (OCD ID authentication) • Security level 2 (Debug interface connection is prohibited)
Serial programming mode	• ID authentication • Programming commands, block erasure commands, and read commands are prohibited. • Connection of serial programmers is prohibited. (The above three cannot be used in parallel.) • OTP (parallel use possible)	• No function (Debug interface connection is always prohibited.)

<After>

Table 35.1 Security Functions in Each Mode

Operation Mode	Code Flash, Data Flash, and ID Code Protection	Restriction on Debug Interface Connection
User boot mode	• SELF ID authentication • OTP (parallel use possible)	• Security level 1 (OCD ID authentication) • Security level 2 (Debug interface connection is prohibited)
Serial programming mode	• ID authentication • Programming commands, block erasure commands, and read commands are prohibited. • Connection of serial programmers is prohibited. ~~(The above three cannot be used in parallel.)~~ • OTP (parallel use possible)	• No function (Debug interface connection is always prohibited.)

(3) RH850/P1L-C

(3-1) Section 28 Flash Memory

28.7 Functional Overview

Table 28.9 Summary of Security Functions

<Before>

Table 28.9 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control enabling of self-programming. The code flash memory cannot be programmed by self-programming without ID authentication.
Prohibition of connection of a serial programmer	The connection of a serial programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a serial programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

<After>

Table 28.9 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control enabling of self-programming. The code flash memory cannot be programmed by self-programming without ID authentication.
Prohibition of connection of a serial programmer *1	The connection of a serial programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a serial programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands *2	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands *2	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands *2	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

Note1. The "Prohibiting of connection of a serial programmer" can be used in conjunction with the prohibition of commands (*2).

Note2. Prohibition of commands (for block erasure, programming, and read) can be set independently.

(4) RH850/P1M-C, P1H-C

(4-1) Section 32 Flash Memory

32.7 Functional Overview

Table 32.9 Summary of Security Functions

<Before>

Table 32.9 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control enabling of self-programming. The code flash memory cannot be programmed by self-programming without ID authentication.
Prohibition of connection of a serial programmer	The connection of a serial programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a serial programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

<After>

Table 32.9 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control enabling of self-programming. The code flash memory cannot be programmed by self-programming without ID authentication.
Prohibition of connection of a serial programmer *1	The connection of a serial programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a serial programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands *2	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands *2	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands *2	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

Note1. The "Prohibiting of connection of a serial programmer" can be used in conjunction with the prohibition of commands (*2).

Note2. Prohibition of commands (for block erasure, programming, and read) can be set independently.

(5) RH850/P1M

(5-1) Section 35 Flash Memory

35.4 Functional Overview

Table 35.4 Summary of Security Functions, Table 35.5 Available Operations and Security Settings

<Before>

Table 35.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a serial programmer	The connection of a serial programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

Table 35.5 Available Operations and Security Settings

Function	All Security Settings and Erasure, Programming, and Read Operations (√: Executable, ×: Not Executable, —: Not Supported)		Point for Caution Regarding the Security Setting	
	Serial programming	Self-programming	Serial programming	Self-programming
OTP	• Areas for which OTP is set - Block erasure commands: × - Programming commands: × - Read commands: √ • Areas for which OTP is not set - Block erasure commands: √ - Programming commands: √ - Read commands: √	• Areas for which OTP is set - Block erasure: × - Programming: × - Reading: √ • Areas for which OTP is not set - Block erasure: √ - Programming: √ - Reading: √	• The OTP setting cannot be released. • Execution of the configuration clearing command is not possible.	The OTP setting cannot be released.
ID authentication	• When the ID codes do not match - Block erasure commands: × - Programming commands: × - Read commands: × • When the ID codes match - Block erasure commands: √ - Programming commands: √ - Read commands: √	• When the ID codes do not match - Code flash memory - Block erasure: × - Programming: × - Reading: √ - Data flash memory - Block erasure: √ - Programming: √ - Reading: √ • When the ID codes match - Block erasure: √ - Programming: √ - Reading: √	• The configuration clearing command can initialize the setting for prohibition. • The setting for prohibition of block erasure commands is not available. • The setting for prohibition of programming commands is not available. • The setting for prohibition of read commands is not available.	ID authentication is always in effect.
Prohibition of the connection of a serial programmer	• Block erasure commands: × • Programming commands: × • Read commands: ×	• Block erasure: √ • Programming: √ • Reading: √	Since execution of the configuration clearing command is not supported, initialization of the setting for prohibition is not possible.	Initialization of the settings prohibited is impossible because the configuration clearing command is not supported.
Prohibition of block erasure commands	• Block erasure commands: × • Programming commands: √ • Read commands: √	• Block erasure: √ • Programming: √ • Reading: √	• Since execution of the configuration clearing command is prohibited, initialization of the setting for prohibition is not possible. • The setting for prohibition of serial programmer connection is not available. • The setting for ID authentication to be effective for serial programming is not available.	Initialization of the settings prohibited is impossible because the configuration clearing command is not supported.
Prohibition of programming commands	• Block erasure commands: × • Programming commands: × • Read commands: √	• Block erasure: √ • Programming: √ • Reading: √	• Executing the configuration clearing command only can initialize the settings prohibited. • The setting for ID authentication to be effective for serial programming is not available.	Initialization of the settings prohibited is impossible because the configuration clearing command is not supported.
Prohibition of read commands	• Block erasure commands: √ • Programming commands: √ • Read commands: ×	• Block erasure: √ • Programming: √ • Reading: √		

<After>

Table 35.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a serial programmer *1	The connection of a serial programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands *2	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands *2	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands *2	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

Note1. The "Prohibition of the connection of a serial programmer" can be used in conjunction with "ID authentication" or the prohibition of commands (*2).

Note2. Prohibition of commands (for block erasure, programming, and read) can be set independently.

Table 35.5 Available Operations and Security Settings

Function	All Security Settings and Erasure, Programming, and Read Operations (√: Executable, ×: Not Executable, —: Not Supported)		Point for Caution Regarding the Security Setting	
	Serial programming	Self-programming	Serial programming	Self-programming
OTP	• Areas for which OTP is set - Block erasure commands: × - Programming commands: × - Read commands: √ • Areas for which OTP is not set - Block erasure commands: √ - Programming commands: √ - Read commands: √	• Areas for which OTP is set - Block erasure: × - Programming: × - Reading: √ • Areas for which OTP is not set - Block erasure: √ - Programming: √ - Reading: √	• The OTP setting cannot be released. • Execution of the configuration clearing command is not possible.	The OTP setting cannot be released.
ID authentication	• When the ID codes do not match - Block erasure commands: × - Programming commands: × - Read commands: × • When the ID codes match - Block erasure commands: √ - Programming commands: √ - Read commands: √	• When the ID codes do not match - Code flash memory - Block erasure: × - Programming: × - Reading: √ - Data flash memory - Block erasure: √ - Programming: √ - Reading: √ • When the ID codes match - Block erasure: √ - Programming: √ - Reading: √	• The configuration clearing command can initialize the setting for prohibition. • The setting for prohibition of block erasure commands is not available. • The setting for prohibition of programming commands is not available. • The setting for prohibition of read commands is not available.	ID authentication is always in effect.
Prohibition of the connection of a serial programmer	• Block erasure commands: × • Programming commands: × • Read commands: ×	• Block erasure: √ • Programming: √ • Reading: √	Since execution of the configuration clearing command is not supported, initialization of the setting for prohibition is not possible.	Initialization of the settings prohibited is impossible because the configuration clearing command is not supported.
Prohibition of block erasure commands	• Block erasure commands: × • Programming commands: √ • Read commands: √	• Block erasure: √ • Programming: √ • Reading: √	• Since execution of the configuration clearing command is prohibited, initialization of the setting for prohibition is not possible. • ~~The setting for prohibition of serial programmer connection is not available~~. • The setting for ID authentication to be effective for serial programming is not available.	Initialization of the settings prohibited is impossible because the configuration clearing command is not supported.
Prohibition of programming commands	• Block erasure commands: × • Programming commands: × • Read commands: √	• Block erasure: √ • Programming: √ • Reading: √	• Executing the configuration clearing command only can initialize the settings prohibited. • The setting for ID authentication to be effective for serial programming is not available.	Initialization of the settings prohibited is impossible because the configuration clearing command is not supported.
Prohibition of read commands	• Block erasure commands: √ • Programming commands: √ • Read commands: ×	• Block erasure: √ • Programming: √ • Reading: √		

(6) RH850/P1M-E

(6-1) Section 35 Flash Memory

35.4 Functions

35.4.1 Functional Overview

Table 35.4 Summary of Security Functions, Table 35.5 Available Operations and Security Settings

<Before>

Table 35.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a dedicated flash memory programmer	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

Table 35.5 Available Operations and Security Settings

Function	All Security Settings and Erasure, Programming, and Read Operations (√: Executable, ×: Not Executable, —: Not Supported)		Point for Caution Regarding the Security Setting	
	Serial programming	Self-programming	Serial programming	Self-programming
OTP	• Areas for which OTP is set - Block erasure commands: × - Programming commands: × - Read commands: √ • Areas for which OTP is not set - Block erasure commands: √ - Programming commands: √ - Read commands: √	• Areas for which OTP is set - Block erasure: × - Programming: × - Reading: √ • Areas for which OTP is not set - Block erasure: √ - Programming: √ - Reading: √	• The OTP setting cannot be released. • Execution of the configuration clearing command is not possible.	The OTP setting cannot be released.
ID authentication	• When the ID codes do not match - Block erasure commands: × - Programming commands: × - Read commands: × • When the ID codes match - Block erasure commands: √ - Programming commands: √ - Read commands: √	• When the ID codes do not match - Code flash memory - Block erasure: × - Programming: × - Reading: √ - Data flash memory - Block erasure: √ - Programming: √ - Reading: √ • When the ID codes match - Block erasure: √ - Programming: √ - Reading: √	• The configuration clearing command can initialize the setting for prohibition. • The setting for prohibition of block erasure commands is not available. • The setting for prohibition of programming commands is not available. • The setting for prohibition of read commands is not available.	ID authentication is always in effect.
Prohibition of the connection of a serial programmer	• Block erasure commands: × • Programming commands: × • Read commands: ×	• Block erasure: √ • Programming: √ • Reading: √	Since execution of the configuration clearing command is not supported, initialization of the setting for prohibition is not possible.	Initialization of the settings prohibited is impossible because the configuration clearing command is not supported.
Prohibition of block erasure commands	• Block erasure commands: × • Programming commands: √ • Read commands: √	• Block erasure: √ • Programming: √ • Reading: √	• Since execution of the configuration clearing command is not supported, initialization of the setting for prohibition is not possible. • The setting for prohibition of serial programmer connection is not available. • The setting for ID authentication to be effective for serial programming is not available.	Initialization of the settings prohibited is impossible because the configuration clearing command is not supported.
Prohibition of programming commands	• Block erasure commands: × • Programming commands: × • Read commands: √	• Block erasure: √ • Programming: √ • Reading: √	• Executing the configuration clearing command only can initialize the settings prohibited. • The setting for ID authentication to be effective for serial programming is not available.	Initialization of the settings prohibited is impossible because the configuration clearing command is not supported.
Prohibition of read commands	• Block erasure commands: √ • Programming commands: √ • Read commands: ×	• Block erasure: √ • Programming: √ • Reading: √		

<After>

Table 35.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a dedicated flash memory programmer *1	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands *2	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands *2	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands *2	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

Note1. The "Prohibition of the connection of a dedicated flash memory programmer" can be used in conjunction with "ID authentication" or the prohibition of commands (*2).

Note2. Prohibition of commands (for block erasure, programming, and read) can be set independently.

Table 35.5 Available Operations and Security Settings

Function	All Security Settings and Erasure, Programming, and Read Operations (√: Executable, ×: Not Executable, —: Not Supported)		Point for Caution Regarding the Security Setting	
	Serial programming	Self-programming	Serial programming	Self-programming
OTP	• Areas for which OTP is set - Block erasure commands: × - Programming commands: × - Read commands: √ • Areas for which OTP is not set - Block erasure commands: √ - Programming commands: √ - Read commands: √	• Areas for which OTP is set - Block erasure: × - Programming: × - Reading: √ • Areas for which OTP is not set - Block erasure: √ - Programming: √ - Reading: √	• The OTP setting cannot be released. • Execution of the configuration clearing command is not possible.	The OTP setting cannot be released.
ID authentication	• When the ID codes do not match - Block erasure commands: × - Programming commands: × - Read commands: × • When the ID codes match - Block erasure commands: √ - Programming commands: √ - Read commands: √	• When the ID codes do not match - Code flash memory - Block erasure: × - Programming: × - Reading: √ - Data flash memory - Block erasure: √ - Programming: √ - Reading: √ • When the ID codes match - Block erasure: √ - Programming: √ - Reading: √	• The configuration clearing command can initialize the setting for prohibition. • The setting for prohibition of block erasure commands is not available. • The setting for prohibition of programming commands is not available. • The setting for prohibition of read commands is not available.	ID authentication is always in effect.
Prohibition of the connection of a serial programmer	• Block erasure commands: × • Programming commands: × • Read commands: ×	• Block erasure: √ • Programming: √ • Reading: √	Since execution of the configuration clearing command is not supported, initialization of the setting for prohibition is not possible.	Initialization of the settings prohibited is impossible because the configuration clearing command is not supported.
Prohibition of block erasure commands	• Block erasure commands: × • Programming commands: √ • Read commands: √	• Block erasure: √ • Programming: √ • Reading: √	• Since execution of the configuration clearing command is not supported, initialization of the setting for prohibition is not possible. • ~~The setting for prohibition of serial programmer connection is not available.~~ • The setting for ID authentication to be effective for serial programming is not available.	Initialization of the settings prohibited is impossible because the configuration clearing command is not supported.
Prohibition of programming commands	• Block erasure commands: × • Programming commands: × • Read commands: √	• Block erasure: √ • Programming: √ • Reading: √	• Executing the configuration clearing command only can initialize the settings prohibited. • The setting for ID authentication to be effective for serial programming is not available.	Initialization of the settings prohibited is impossible because the configuration clearing command is not supported.
Prohibition of read commands	• Block erasure commands: √ • Programming commands: √ • Read commands: ×	• Block erasure: √ • Programming: √ • Reading: √		

(7) RH850/C1H, C1M

(7-1) Section 31 Flash Memory

31.4 Functional Overview

Table 14.4 Summary of Security Functions

<Before>

Table 31.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the user boot area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of code flash memory programming by self-programming.
Prohibition of connection of a dedicated flash memory programmer	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands	Block erasure commands and programming commands at the time of serial programming are prohibited. Block erasure commands can only be executed by erasing all user areas in the following order starting from block 0: erasure of all areas → erasure of user boot area → erasure of data areas starting from block 0. Only through execution of the configuration clearing command, the prohibition can be lifted.
Prohibition of read commands	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command, the prohibition can be lifted.

<After>

Table 31.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the user boot area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of code flash memory programming by self-programming.
Prohibition of connection of a dedicated flash memory programmer *1	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands *2	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands *2	Block erasure commands and programming commands at the time of serial programming are prohibited. Block erasure commands can only be executed by erasing all user areas in the following order starting from block 0: erasure of all areas → erasure of user boot area → erasure of data areas starting from block 0. Only through execution of the configuration clearing command, the prohibition can be lifted.
Prohibition of read commands *2	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command, the prohibition can be lifted.

Note1. The "Prohibition of the connection of a dedicated flash memory programmer" can be used in conjunction with "ID authentication" or the prohibition of commands (*2).

Note2. Prohibition of commands (for block erasure, programming, and reading) can be set independently.

(7-2) Section 32 Flash Security

32.1.1.2 Functions Unique to Serial Programming Mode

<Before>

Three functions are provided as security functions unique to serial programming mode: ID authentication, prohibition of programming, erasure, and read commands, and prohibition of serial programmer connection. Parallel use of these functions is not allowed.

<After>

Three functions are provided as security functions unique to serial programming mode: ID authentication, prohibition of programming, erasure, and read commands, and prohibition of serial programmer connection. ~~Parallel use of these functions is not allowed.~~

(7-3) Section 32 Flash Security

32.1.2 Connection Restriction Function of Debug Interface

Table 32.1 Security Functions in Each Mode

<Before>

Table 32.1 Security Functions in Each Mode

Operation Mode	Code Flash and Data Flash, ID Code Protection	Restriction on Debug Interface Connection
User boot mode	• SELF ID authentication • OTP (parallel use possible)	• Security level 1 (OCD ID authentication) • Security level 2 (Debug interface connection is prohibited)
Serial programming mode	• ID authentication • Programming commands, block erasure commands, and read commands are prohibited. • Connection of serial programmers is prohibited. (The above three cannot be used in parallel.) • OTP (parallel use possible)	• No function (Debug interface connection is always prohibited.)

<After>

Table 35.1 Security Functions in Each Mode

Operation Mode	Code Flash, Data Flash, and ID Code Protection	Restriction on Debug Interface Connection
User boot mode	• SELF ID authentication • OTP (parallel use possible)	• Security level 1 (OCD ID authentication) • Security level 2 (Debug interface connection is prohibited)
Serial programming mode	• ID authentication • Programming commands, block erasure commands, and read commands are prohibited. • Connection of serial programmers is prohibited. ~~(The above three cannot be used in parallel.)~~ • OTP (parallel use possible)	• No function (Debug interface connection is always prohibited.)

(8) RH850/C1M-A

(8-1) Section 35 Flash Memory

35.4 Functional Overview

Table 14.4 Summary of Security Functions

<Before>

Table 35.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the user boot area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of programming of the code flash memory by self-programming.
Prohibition of connection of a dedicated flash memory programmer	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands	Block erasure commands and programming commands at the time of serial programming are prohibited. Block erasure commands can be run only by the method of erasing all user areas from Block 0 in turn → erasing the user boot areas → erasing all data areas from Block 0 in turn. Only through execution of the configuration clearing command, the prohibition can be lifted.
Prohibition of read commands	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command, the prohibition can be lifted.

<After>

Table 35.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the user boot area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of programming of the code flash memory by self-programming.
Prohibition of connection of a dedicated flash memory programmer *1	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands *2	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands *2	Block erasure commands and programming commands at the time of serial programming are prohibited. Block erasure commands can be run only by the method of erasing all user areas from Block 0 in turn → erasing the user boot areas → erasing all data areas from Block 0 in turn. Only through execution of the configuration clearing command, the prohibition can be lifted.
Prohibition of read commands *2	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command, the prohibition can be lifted.

Note1. The "Prohibition of the connection of a dedicated flash memory programmer" can be used in conjunction with "ID authentication" or the prohibition of commands (*2).

Note2. Prohibition of commands (for block erasure, programming, and reading) can be set independently.

(8-2) Section 36 Flash Security

36.1.1.2 Functions Unique to Serial Programming Mode

<Before>

Three functions are provided as security functions unique to serial programming mode: ID authentication, prohibition of programming, erasure, and read commands, and prohibition of serial programmer connection. Parallel use of these functions is not allowed.

<After>

Three functions are provided as security functions unique to serial programming mode: ID authentication, prohibition of programming, erasure, and read commands, and prohibition of serial programmer connection. ~~Parallel use of these functions is not allowed.~~

(8-3) Section 36 Flash Security

36.1.2 Connection Restriction Function of Debug Interface

Table 36.1 Security Functions in Each Mode

<Before>

Table 36.1 Security Functions in Each Mode

Operation Mode	Code Flash and Data Flash, ID Code Protection	Restriction on Debug Interface Connection
User boot mode	• SELF ID authentication • OTP (parallel use possible)	• Security level 1 (OCD ID authentication) • Security level 2 (Debug interface connection is prohibited)
Serial programming mode	• ID authentication • Programming commands, block erasure commands, and read commands are prohibited. • Connection of serial programmers is prohibited. (The above three cannot be used in parallel.) • OTP (parallel use possible)	• No function (Debug interface connection is always prohibited.)

<After>

Table 36.1 Security Functions in Each Mode

Operation Mode	Code Flash and Data Flash, ID Code Protection	Restriction on Debug Interface Connection
User boot mode	• SELF ID authentication • OTP (parallel use possible)	• Security level 1 (OCD ID authentication) • Security level 2 (Debug interface connection is prohibited)
Serial programming mode	• ID authentication • Programming commands, block erasure commands, and read commands are prohibited. • Connection of serial programmers is prohibited. ~~(The above three cannot be used in parallel.)~~ • OTP (parallel use possible)	• No function (Debug interface connection is always prohibited.)

(9) RH850/D1x

(9-1) Section 52 Flash Memory

52.4 Functional Overview

Table 52.4 Summary of Security Functions

<Before>

Table 52.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible in D1M1A and D1M1-V2. For the RH850/D1L/D1M products except D1M1A and D1M1-V2, execution of the configuration clearing command is not prohibited. Thus, changing a security setting from "prohibited" to "permitted" is possible.
ID authentication	The result of ID authentication can be used to control the connection of a serial programmer for serial programming. The result of ID authentication is also used for enabling/disabling of code flash self-programming. Re-programing of the data flash in self-programming is always possible without any authentication.
Prohibition of connection of a serial programmer	The connection of a serial programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a serial programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

<After>

Table 52.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible in D1M1A and D1M1-V2. For the RH850/D1L/D1M products except D1M1A and D1M1-V2, execution of the configuration clearing command is not prohibited. Thus, changing a security setting from "prohibited" to "permitted" is possible.
ID authentication	The result of ID authentication can be used to control the connection of a serial programmer for serial programming. The result of ID authentication is also used for enabling/disabling of code flash self-programming. Re-programing of the data flash in self-programming is always possible without any authentication.
Prohibition of connection of a serial programmer *1	The connection of a serial programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a serial programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands *2	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands *2	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands *2	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

Note1. The "Prohibition of connection of a serial programmer" can be used in conjunction with "ID authentication" or the prohibition of commands (*2).

Note2. Prohibition of commands (for block erasure, programming, and read) can be set independently.

(10) RH850/F1L

(10-1) Section 35 Flash Memory

35.4 Functions

35.4.1 Functional Overview

Table 35.4 Summary of Security Functions

<Before>

Table 35.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from “prohibited” to “permitted” is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a dedicated flash memory programmer	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of block erasure commands	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of programming commands	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

<After>

Table 35.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from “prohibited” to “permitted” is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a dedicated flash memory programmer *1	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of block erasure commands *2	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of programming commands *2	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands *2	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

Note1. The “Prohibition of the connection of a dedicated flash memory programmer” can be used in conjunction with “ID authentication” or the prohibition of commands (*2).

Note2. Prohibition of commands (for block erasure, programming, and read) can be set independently.

(11) RH850/R1L

(11-1) Section 25 Flash Memory

25.4 Functions

25.4.1 Functional Overview

Table 25.4 Summary of Security Functions

<Before>

Table 25.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from “prohibited” to “permitted” is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a dedicated flash memory programmer	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of block erasure commands	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of programming commands	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

<After>

Table 25.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from “prohibited” to “permitted” is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a dedicated flash memory programmer *1	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of block erasure commands *2	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of programming commands *2	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands *2	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

Note1. The “Prohibition of the connection of a dedicated flash memory programmer” can be used in conjunction with “ID authentication” or the prohibition of commands (*2).

Note2. Prohibition of commands (for block erasure, programming, and read) can be set independently.

(12)RH850/F1M

(12-1) Section 36 Flash Memory

36.4 Functions

36.4.1 Functional Overview

Table 36.4 Summary of Security Functions

<Before>

Table 36.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from “prohibited” to “permitted” is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a dedicated flash memory programmer	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of block erasure commands	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of programming commands	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

<After>

Table 36.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a dedicated flash memory programmer *1	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands *2	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands *2	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands *2	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

Note1. The "Prohibition of the connection of a dedicated flash memory programmer" can be used in conjunction with "ID authentication" or the prohibition of commands (*2).

Note2. Prohibition of commands (for block erasure, programming, and read) can be set independently.

(13)RH850/F1H

(13-1) Section 37 Flash Memory

37.4 Functions

37.4.1 Functional Overview

Table 37.4 Summary of Security Functions

<Before>

Table 37.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a dedicated flash memory programmer	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

<After>

Table 37.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from "prohibited" to "permitted" is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a dedicated flash memory programmer *1	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of block erasure commands *2	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from "prohibited" to "permitted" is not possible.
Prohibition of programming commands *2	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands *2	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

Note1. The "Prohibition of the connection of a dedicated flash memory programmer" can be used in conjunction with "ID authentication" or the prohibition of commands (*2).

Note2. Prohibition of commands (for block erasure, programming, and read) can be set independently.

(14)RH850/ F1H-100

(14-1) Section 37 Flash Memory

37.4 Functions

37.4.1 Functional Overview

Table 37.4 Summary of Security Functions

<Before>

Table 37.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from “prohibited” to “permitted” is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a dedicated flash memory programmer	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of block erasure commands	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of programming commands	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

<After>

Table 37.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from “prohibited” to “permitted” is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a dedicated flash memory programmer *1	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of block erasure commands *2	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of programming commands *2	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands *2	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

Note1. The “Prohibition of the connection of a dedicated flash memory programmer” can be used in conjunction with “ID authentication” or the prohibition of commands (*2).

Note2. Prohibition of commands (for block erasure, programming, and read) can be set independently..

(15)RH850/F1K

(15-1) Section 37 Flash Memory

37.4 Functions

37.4.1 Functional Overview

Table 37.4 Summary of Security Functions

<before>

Table 37.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from “prohibited” to “permitted” is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a dedicated flash memory programmer	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of block erasure commands	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of programming commands	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

<After>

Table 37.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from “prohibited” to “permitted” is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a dedicated flash memory programmer *1	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of block erasure commands *2	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of programming commands *2	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands *2	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

Note1. The “Prohibition of the connection of a dedicated flash memory programmer” can be used in conjunction with “ID authentication” or the prohibition of commands (*2).

Note2. Prohibition of commands (for block erasure, programming, and read) can be set independently.

(16)RH850/F1KM, F1KH

(16-1) Section 44 Flash Memory

44.4 Functions

44.4.1 Functional Overview

Table 44.4 Summary of Security Functions

<before>

Table 44.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from “prohibited” to “permitted” is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a dedicated flash memory programmer	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of block erasure commands	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of programming commands	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

<After>

Table 44.4 Summary of Security Functions

Function	Description
OTP	OTP can be individually set for each block of the user area and the extended user area of code flash memory. When the OTP setting is made for an area, programming by serial programming and by self-programming is prohibited. Once set, the OTP setting cannot be released. Furthermore, since execution of the configuration clearing command is prohibited for any area for which OTP has been set, changing a security setting from “prohibited” to “permitted” is not possible.
ID authentication	The result of ID authentication can be used to control the connection of a dedicated flash memory programmer for serial programming. The result of ID authentication can also be used to control enabling of self-programming.
Prohibition of connection of a dedicated flash memory programmer *1	The connection of a dedicated flash memory programmer for serial programming is prohibited. Since execution of the configuration clearing command is also prohibited when the connection of a dedicated flash memory programmer is prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of block erasure commands *2	Block erasure commands at the time of serial programming are prohibited. Since execution of the configuration clearing command is also prohibited when block erasure commands are prohibited, changing a security setting from “prohibited” to “permitted” is not possible.
Prohibition of programming commands *2	Block erasure commands and programming commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.
Prohibition of read commands *2	Read commands at the time of serial programming are prohibited. Only through execution of the configuration clearing command can the prohibition be lifted.

Note1. The “Prohibition of the connection of a dedicated flash memory programmer” can be used in conjunction with “ID authentication” or the prohibition of commands (*2).

Note2. Prohibition of commands (for block erasure, programming, and read) can be set independently.

2.2. The following description will be modified in the Flash Memory User's Manual: Hardware Interface (Red character).

(1) RH850/E1x-FCC1, RH850/E1x-FCC2, RH850/C1H,C1M, RH850/C1M-A, RH850/D1x, RH850/F1L, RH850/R1L, RH850/F1M, RH850/F1H, RH850/F1K, RH850/F1KM, RH850/F1KH

Section 6 FACI Command

6.3 Use FACI Command

6.3.17 Configuration Programming Command

<Before>

x = 7: E1x-FCC1, E1x-FCC2,
x = 6: Other than the above

Table 6.x List of Security Setting Data

Security Functions	Security Setting Data
ID authentication enabled in serial programming mode	FFFF FFFF FFFF FFFF FFFF FFFF 1EFF FFFF$_H$
Serial programmer connection disabled	FFFF FFFF FFFF FFFF FFFF FFFF F7FF FFFF$_H$
Block erasure command disabled	FFFF FFFF FFFF FFFF FFFF FFFF DFFF FFFF$_H$
Programming command disabled	FFFF FFFF FFFF FFFF FFFF FFFF BFFF FFFF$_H$
Read command disabled	FFFF FFFF FFFF FFFF FFFF FFFF 7FFF FFFF$_H$

<After>

Table 6.x List of Security Setting Data

Security Functions		Security Setting Data
ID authentication enabled in serial programming mode		FFFF FFFF FFFF FFFF FFFF FFFF 1EFF FFFF$_H$
Serial programmer connection disabled	*1	FFFF FFFF FFFF FFFF FFFF FFFF F7FF FFFF$_H$
Block erasure command disabled	*2	FFFF FFFF FFFF FFFF FFFF FFFF DFFF FFFF$_H$
Programming command disabled	*2	FFFF FFFF FFFF FFFF FFFF FFFF BFFF FFFF$_H$
Read command disabled	*2	FFFF FFFF FFFF FFFF FFFF FFFF 7FFF FFFF$_H$

CAUTION: When using the security functions in combination, write the logical AND data of the security setting data.

Example) "Serial programmer connection disabled" and "ID authentication enabled" in serial programming mode

FFFF FFFF FFFF FFFF FFFF FFFF 16FF FFFF$_H$

Note1. The "Serial programmer connection disabled" function can be used in conjunction with "ID authentication enabled in serial programming mode" or the disabling of commands (*2).

Note2. Command disabled (Block erasure, Programming, and Read) can be set in the different combination.

(2) RH850/P1M

Section 6 FACI Command

6.3 Use FACI Command

6.3.17 Config Program Setting Command

<Before>

Table 6.6 List of Security Setting Data

Security Functions	Security Setting Data
ID authentication enabled in serial programming mode	FFFF FFFF FFFF FFFF FFFF FFFF 1EFF FFFF$_H$
Serial programmer connection disabled	FFFF FFFF FFFF FFFF FFFF FFFF F7FF FFFF$_H$
Block erasure command disabled	FFFF FFFF FFFF FFFF FFFF FFFF DFFF FFFF$_H$
Programming command disabled	FFFF FFFF FFFF FFFF FFFF FFFF BFFF FFFF$_H$
Read command disabled	FFFF FFFF FFFF FFFF FFFF FFFF 7FFF FFFF$_H$

<After>

Table 6.6 List of Security Setting Data

Security Functions	Security Setting Data
ID authentication enabled in serial programming mode	FFFF FFFF FFFF FFFF FFFF FFFF 1EFF FFFF$_H$
Serial programmer connection disabled *1	FFFF FFFF FFFF FFFF FFFF FFFF F7FF FFFF$_H$
Block erasure command disabled *2	FFFF FFFF FFFF FFFF FFFF FFFF DFFF FFFF$_H$
Programming command disabled *2	FFFF FFFF FFFF FFFF FFFF FFFF BFFF FFFF$_H$
Read command disabled *2	FFFF FFFF FFFF FFFF FFFF FFFF 7FFF FFFF$_H$

CAUTION: When using the security functions in combination, write the logical AND data of the security setting data.

Example）“Serial programmer connection disabled” and “ID authentication enabled” in serial programming mode

FFFF FFFF FFFF FFFF FFFF FFFF 16FF FFFF$_H$

Note1. The “Serial programmer connection disabled” function can be used in conjunction with “ID authentication enabled in serial programming mode” or the disabling of commands (*2).

Note2. Command disabled (Block erasure, Programming, and Read) can be set in the different combination.

(3) RH850/P1M-E

Section 6 FACI Command

6.3 Use FACI Command

6.3.16 Config Program Setting Command

<Before>

Table 6.6 List of Security Setting Data

Security Functions	Security Setting Data
ID authentication enabled in serial programming mode	FFFF FFFF FFFF FFFF FFFF FFFF 1EFF FFFF$_H$
Serial programmer connection disabled	FFFF FFFF FFFF FFFF FFFF FFFF F7FF FFFF$_H$
Block erasure command disabled	FFFF FFFF FFFF FFFF FFFF FFFF DFFF FFFF$_H$
Programming command disabled	FFFF FFFF FFFF FFFF FFFF FFFF BFFF FFFF$_H$
Read command disabled	FFFF FFFF FFFF FFFF FFFF FFFF 7FFF FFFF$_H$

<After>

Table 6.6 List of Security Setting Data

Security Functions	Security Setting Data
ID authentication enabled in serial programming mode	FFFF FFFF FFFF FFFF FFFF FFFF 1EFF FFFF$_H$
Serial programmer connection disabled *1	FFFF FFFF FFFF FFFF FFFF FFFF F7FF FFFF$_H$
Block erasure command disabled *2	FFFF FFFF FFFF FFFF FFFF FFFF DFFF FFFF$_H$
Programming command disabled *2	FFFF FFFF FFFF FFFF FFFF FFFF BFFF FFFF$_H$
Read command disabled *2	FFFF FFFF FFFF FFFF FFFF FFFF 7FFF FFFF$_H$

CAUTION: When using the security functions in combination, write the logical AND data of the security setting data.

Example）“Serial programmer connection disabled” and “ID authentication enabled” in serial programming mode

FFFF FFFF FFFF FFFF FFFF FFFF 16FF FFFF$_H$

Note1. The “Serial programmer connection disabled” function can be used in conjunction with “ID authentication enabled in serial programming mode” or the disabling of commands (*2).

Note2. Command disabled (Block erasure, Programming, and Read) can be set in the different combination.

(4) RH850/P1L-C, RH850/P1M-C, RH850/P1H-C

Section 6 FACI Command

6.3 Use FACI Command

6.3.16 Config Program Setting Command

<Before>

Table 6.6 List of Security Setting Data

Security Functions	Security Setting Data (16 bytes)
Serial programmer connection disabled	FFFF FFFF FFFF FFFF FFFF FFFF F7FF FFFF$_H$
Block erasure command disabled	FFFF FFFF FFFF FFFF FFFF FFFF DFFF FFFF$_H$
Program command disabled	FFFF FFFF FFFF FFFF FFFF FFFF BFFF FFFF$_H$
Read command disabled	FFFF FFFF FFFF FFFF FFFF FFFF 7FFF FFFF$_H$

<After>

Table 6.6 List of Security Setting Data

Security Functions		Security Setting Data (16 bytes)
Serial programmer connection disabled	*1	FFFF FFFF FFFF FFFF FFFF FFFF F7FF FFFF$_H$
Block erasure command disabled	*2	FFFF FFFF FFFF FFFF FFFF FFFF DFFF FFFF$_H$
Program command disabled	*2	FFFF FFFF FFFF FFFF FFFF FFFF BFFF FFFF$_H$
Read command disabled	*2	FFFF FFFF FFFF FFFF FFFF FFFF 7FFF FFFF$_H$

CAUTION: When using the security functions in combination, write the logical AND data of the security setting data.

Example）"Serial programmer connection disabled" and "Block erasure command disabled"

FFFF FFFF FFFF FFFF FFFF FFFF D7FF FFFF$_H$

Note1. The "Serial programmer connection disabled" can be used in conjunction with disabling of commands (*2).

Note2. Command disabled (Block erasure, Program, and Read) can be set in the different combination.

3. Future Action

For the user's manual, the descriptions of red characters will be released by errata.

<Related Documents>

Series	Group	Document Title	Rev.	Document Number
RH850	P1L-C	RH850/P1L-C Group User's Manual: Hardware	1.10	R01UH0592EJ0110
RH850	P1x-C	RH850/P1x-C Group User's Manual: Hardware	1.30	R01UH0517EJ0130
RH850	P1M	RH850/P1x Group User's Manual: Hardware	1.40	R01UH0436EJ0140
RH850	P1M-E	RH850/P1M-E Group User's Manual: Hardware	1.20	R01UH0585EJ0120
RH850	C1H/C1M	RH850/C1x User's Manual: Hardware	1.60	R01UH0414EJ0160
RH850	C1M-A	RH850/C1M-A1, C1M-A2 User's Manual: Hardware	1.20	R01UH0607EJ0120-
RH850	E1x-FCC1	RH850/E1x-FCC1 User's Manual: Hardware	1.20	R01UH0416EJ0120
RH850	E1M-S	RH850/E1M-S User's Manual: Hardware	1.20	R01UH0466EJ0120
RH850	E1L	RH850/E1L User's Manual: Hardware	1.20	R01UH0468EJ0120
RH850	E1x-FCC2	RH850/E1x-FCC2 User's Manual: Hardware	1.20	R01UH0527EJ0110
RH850	E1M-S2	RH850/E1M-S2 User's Manual: Hardware	1.20	R01UH0603EJ0110
RH850	D1x	RH850/D1L/D1M Group User's Manual: Hardware	2,20	R01UH0451EJ0220
RH850	F1L	RH850/F1L Group User's Manual: Hardware	1.33	R01UH0390EJ0133
RH850	R1L	RH850/R1x Group User's Manual: Hardware	1.31	R01UH0411EJ0131
RH850	F1H	RH850/F1H Group User's Manual: Hardware	1.12	R01UH0445EJ0112
RH850	F1H-100	RH850/F1H PREMIUM 100pin Version User's Manual: Hardware	1.00	R01UH0631EJ0100
RH850	F1M	RH850/F1M Group User's Manual: Hardware	1.03	R01UH0518EJ0103
RH850	F1K	RH850/F1K Group User's Manual: Hardware	1.10	R01UH0562EJ0110
RH850	F1KM, F1KH	RH850/F1KH, RH850/F1KM User's Manual: Hardware	1.30	R01UH0684EJ0130
RH850	P1x-C	RH850/P1x-C Flash Memory User's Manual: Hardware Interface	1.10	R01UH0539EJ0110
RH850	P1M	RH850/P1x Flash Memory User's Manual: Hardware Interface	1.40	R01UH0482EJ0140
RH850	P1M-E	RH850/P1M-E Flash Memory User's Manual: Hardware Interface	1.20	R01UH0615EJ0120
RH850	C1H/C1M	RH850/C1x Flash Memory User's Manual: Hardware Interface	1.40	R01UH0548EJ0140
RH850	C1M-A	RH850/C1M-A Flash Memory User's Manual: Hardware Interface	1.10	R01UH0648EJ0110
RH850	E1x-FCC1	RH850/E1x Flash Memory User's Manual: Hardware Interface	1.20	R01UH0417EJ0120
RH850	E1x-FCC2	RH850/E1x-FCC2 Flash Memory User's Manual: Hardware Interface	1.10	R01UH0552EJ0110
RH850	D1x	RH850/D1x Flash Memory User's Manual: Hardware Interface	1.10	R01UH0523EJ0110
RH850	F1L,F1M, F1H	RH850/F1L, RH850/F1M, RH850/F1H Flash Memory User's Manual: Hardware Interface	1.13	R01UH0467EJ0113
RH850	R1L	RH850/R1L Flash Memory User's Manual: Hardware Interface	1.11	R01UH0594EJ0111
RH850	F1KM, F1KH,F1K	RH850/F1KH, RH850/F1KM, RH850/F1K Flash Memory User's Manual: Hardware Interface	1.30	R01UH0622EJ0130