FC839-S2
UCOP_CAN PROGRAMMER

**Control Module
For
Flash Microcomputer Programmer
(C"arNET IMPRESS)**

Instruction Manual

DTS INSIGHT CORPORATION

This Control Module is made of a PC card. The following point should be noted to use this control module.

♦ **DO NOT** use the Control Module to store the files such as a master program or store files permanently. Use the DOS area as the temporary storage area of your files.

FC839-S2

INSTRUCTION MANUAL

No. M2328CQ-02

Revision History

Edition	Date of issue	Description
First Edition	June 16, 2003	Initial publication
Second Edition	October 8, 2003	Modification is made to CAN communication supported.

Contents

1　Overview

FC839-S2 is the Control Module for C"aNETIMPRESS, the advanced on-board flash microcomputer programmer.

FC839-S2 is the definition program for the CAN Programmer built for a specific use of C"arNETIMPRESS, which is specified with the Universal CAN Open Protocol (UCOP) specifications.

The Control Module FC839-S2 consists of a PC card containing the programmer control software.

The free area of the PC card can be used as the DOS file area to temporarily store your object file created on a host computer.

FC839-S2 is available in four types for your choice: /P64, /D64, /D256 and /D512.　Choose an appropriate type according to capacity of the Compact Flash Card.　/P64 supports up to 64Mbyte of the Compact Flash Card, while /D64 supports up to 64Mbyte, /D256 for up to 256Mbyte and /D512 for up to 512Mbyte.

With the D type, you can switch between the Control Module folders.

To use this Control Module FC839-S2, it is a must to use CAN Target Probe AZ414/AZ415) as interface between C"arNETIMPRESS and a target system. For details about CAN Target Probe AZ414/AZ415, contact your local distributor or us.

NOTES:

You can perform reprogramming with this Control Module by using the Micom Pack FC839-S2Xxx supporting your microcomputer. Be sure to install the Micom Pack FC839-S2Xxx into the definition program.

When you cannot find a Micom Pack supporting your microcomputer on our WEB site, contact your local distributor or us.　We provide with the services to develop a new Micom Pack and support customized developments.

2   Specifications

2.1   Target Microcomputer and Specifications

For any items that are not specifically described here, the standard specifications of C"arNETIMPRESS are applied.

Control Module	FC839-S2
Target Microcomputer	To be specified in the Micom Pack FC839-S2Xxx. [1]
Flash Memory Capacity	To be specified in the Micom Pack FC839-S2Xxx. [1]
Flash Memory Address	To be specified in the Micom Pack FC839-S2Xxx. [1]
Programming Voltage (Vpp)	—
Default	—
Target's minimum voltage when the Vpp is applied.	—
Object File Format	Motorola S Binary Intel HEX
Default	Motorola S
Target Interface	CAN Interface 1Mbps/500Kbps/250Kbps/125Kbps
Data Transfer Format between Flash Microcomputer Programmer and Target System	Binary
Memory status when erased	#FF
MCU Clock during programming	To be specified in the Micom Pack FC839-S2Xxx. [1]

[1]   For detailed information, see the Instruction Manual of an appropriate Micom Pack.

You need to write the IPR (a user-specific initialization program routine) and the IBL (the Boot Loader provided by YDC) to your target microcomputer using a tool such as the boot programmer in advance.

For detailed information about the IPL and IBL, see the Technical Note TR-FC839S2Xxx of each appropriated Micom Pack.

2.2　Setting Up Parameters Specific to Target MPU

Make the initial settings using the AZ490, the Remote Controller running on Windows. For how to use the AZ490, see the AZ490 Instruction Manual.

2.2.1　Parameter Table1 Tab

You can set up the parameters for your target microcomputer with the Parameter Table1 tab.
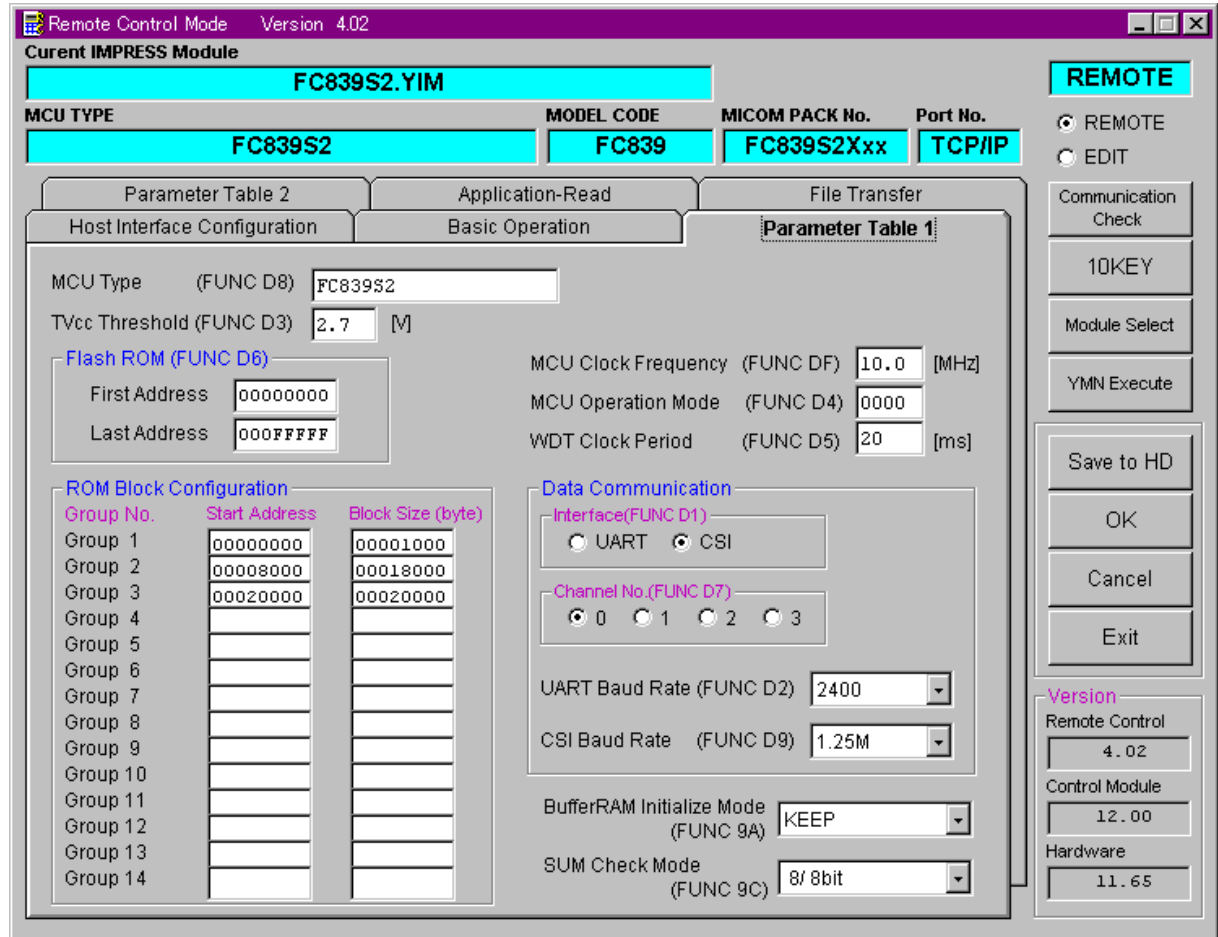
(The above screenshot is an example and may differ from an actual one.)

(1) TVcc Threshold　[FUNC D3]

Set up a value about 10% lower than the minimum operation voltage of the target microcomputer. C"arNETIMPRESS senses the operation voltage (TVcc) of the target microcomputer and executes the device functions when the TVcc gets higher than a value specified here.

For setting up TVcc threshold at the side of C"arNETIMPRESS, see the C"arNETIMPRESS Instruction Manual, Section 5. 4. 5 "TVcc Threshold Setting".

With FC839-S2, this setting is required when using the "r" Entry mode. When you need to change the setting to the "r" Entry mode, be sure to contact our support center in advance.

(2) Flash ROM　(First Address, Last Address) [FUNC D6]

Set up the flash memory area (First Address, Last Address) embedded in the microcomputer.

You cannot set up flash ROM with the C"arNETIMPRESS main unit, which only displays it.

For details, see the C"arNETIMPRESS Instruction Manual, Section 5. 4. 8 "Flash Memory Area Display".

(3) ROM Block Configuration

Set up the block configuration of flash memory.

Block Data Table:

The block data table consists of three kinds of information: Group No., Start Address and Block Size.

Group No:	You can specify up to 14 groups (Group1 to Group 14). A block group consists of memory blocks that have the same one block size on linear address. Group number is determined by the address order starting from lower address.
Start Address:	A start address of a block group.
	Flash memory of the size specified in the Block Size sequentially continues, forming one block group.
Block Size:	C"arNETIMPRESS understands that the flash memory blocks of a size specified in the Block Size are placed sequentially until a next block group address.

For the last block group, leave it blank.

Example:

Group No.	Start Address	Block Size
1	#00F80000	#00008000
2	#00FA0000	#00010000
3		

Block Start Address

F80000 →

F88000 →

F90000 →

F98000 →

FA0000 →

FB0000 →

FC0000 →

FD0000 →

FE0000 →

FF0000 →

Block Group 1

The above example shows a flash memory block which has 32K block size from #F80000 continues until a next block size starts (#FA0000).

Block Group 2

The above example shows a flash memory block that has 64K block sizes from #FA0000 continues until the last address (FFFFFF) of the flash memory.

(4) MCU Clock Frequency　[FUNC D F]

This is to set up a clock frequency for the target microcomputer.

(5) MCU Operation Mode [FUNC D 4]

This is to set up an operation mode specific to the MPU.

With FC839-S2, this setting is not required.

(6) WDT Clock Period　[FUNC D 5]

C"arNETIMPRESS has the function to output periodic clock pulse during programming. To use this function, you need to set up the WDT Clock Period.

Periodic clock pulse is output from WDT signal (No. 19 pin) listed in Table 6-1 "Target Probe Signal List".

To set up WDT signal with C"arNETIMPRESS, see the C"arNETIMPRESS Instruction Manual, Section 5.4.7 "Watchdog Timer Setting".

(7) Data Communication

With FC839-S2, all the setup items listed below are ignored and you do not have make the settings.

- FUNC D 1
- Channel No. [FUNC D 7]
- UART Baud Rate [FUNC D 2]
- CSI Baud Rate [FUNC D 9]

(8) MCU Type　[FUNC D 8]

The setting here will be displayed in the MCU TYPE field located at the top left of the Remote Control Mode window and on the C"arNETIMPRESS main unit.

You can enter any characters up to twenty characters such as microcomputer's model name or device name you are using. However, note that only 16 characters are displayed on the C"arNETIMPRESS main unit.

(9) OK

By clicking this OK button, you can send the settings on the Parameter Table 1 tab to the Control Module. Be sure to click the OK button before moving to other tabs so that you can make the changes of (1) – (9) valid. If you do not click the OK button, the changes will not be sent to the Control Module.

2.2.2 Basic Operation Tab

With the Basic Operation tab, you have the three features to work with as described below.
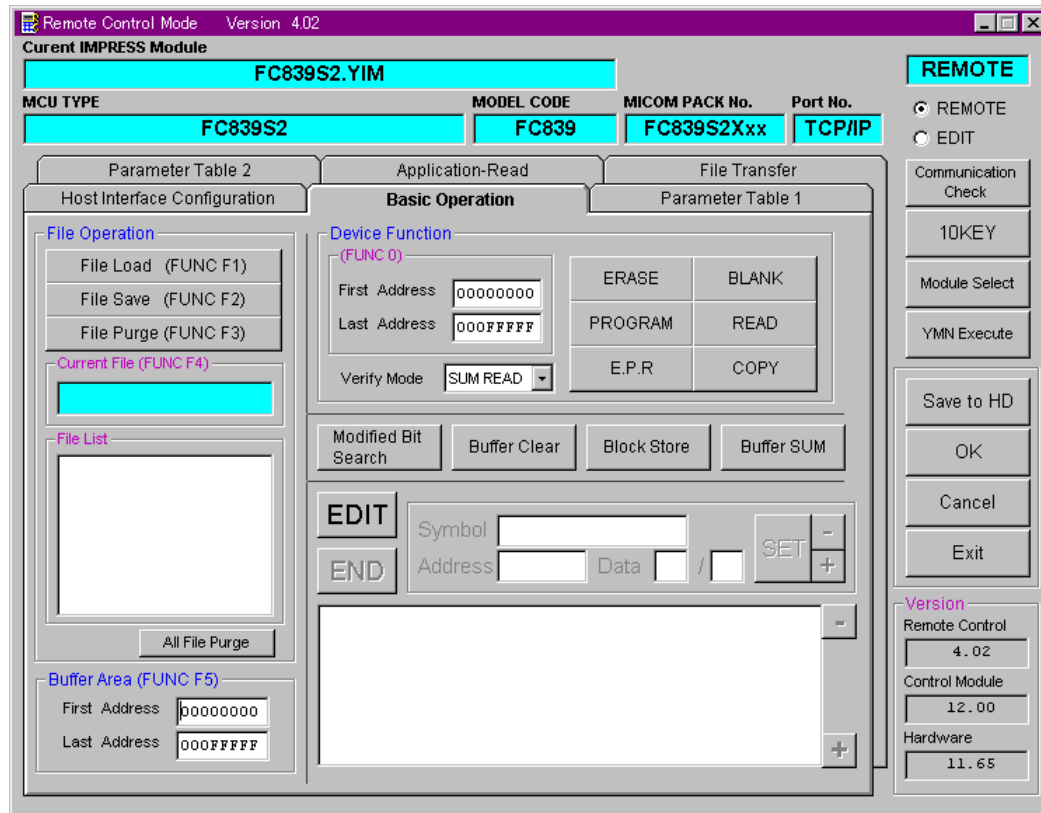
(The above screenshot is an example and may differ from an actual one.)

(1) Device Function [FUNC 0]

Set up the areas to execute the device functions such as reading, programming, etc.

Normally, set up the same areas as those you set up for the Flash ROM described in the Section 2.2.1 (2).

The Device Function [FUNC 0] is automatically aligned with the block boundary address of a flash memory by its specified address as shown in Figure 2-1. The device functions will be executed to thus automatically aligned area.

(2) Buffer Area [FUNC F 5]

Set up an area to save and load the data on the buffer memory of C"arNETIMPRESS (when you have a binary file). Normally, set the same areas as those for Flash ROM described in the Section 2.2.1 (2).

Figure 2-2 shows how the Device Function [FUNC 0], Buffer Area [FUNC F 5] and Flash ROM Area [FUNC D 6] relate with each other.

(3) OK

Click this "OK" button to send the settings on the Basic Operation tab into the Control Module. When you made changes to the above (1) and (2) settings, be sure to click the OK button before moving to other tabs. If you do not click the OK button, the changes will not be reflected.

7

Target MCU Memory Area

First Address

Block Boundary→

FUNC 0
Sets up address.

FUNC D 6
Displays flash memory area.

Last Address

Area to execute Device Functions
(Target area to program)

∞

Actual target area: ▯ + ▯
that will be automatically aligned
with block boundary.

Flash Memory:
Consists of a group of small
flash memory blocks, which
can be erased on in a unit of a
block, not in a unit of 1 byte.

Use the AZ490 to set up block
configuration and flash
memory area.

FUNC 0   **Address Setup & Address Alignment**

Figure 2-1

Target MCU Memory Area

First Address

← **Address range when loading a binary file**

→ **Address range when saving**

FUNC 0
Sets up address

Flash Memory Area

FUNC D 6
Displays flash memory area

FUNC F 5
Sets address to send.

Last Address

Area to execute Device Function (Ex. Area you want to program)

FUNC 0
FUNC D 6
FUNC F 5

same setting

In case settings of FUNC 0, D5 and D6 are not matching, the alarm beep sounds when C"areNETIMPRESS is switched on.

Caution!

Be sure to set up one same address for First Address and ROM First.

Binary File

0001020
3040506
070809
…

DOS File: Area where a binary file is loaded (because a binary file has no address).
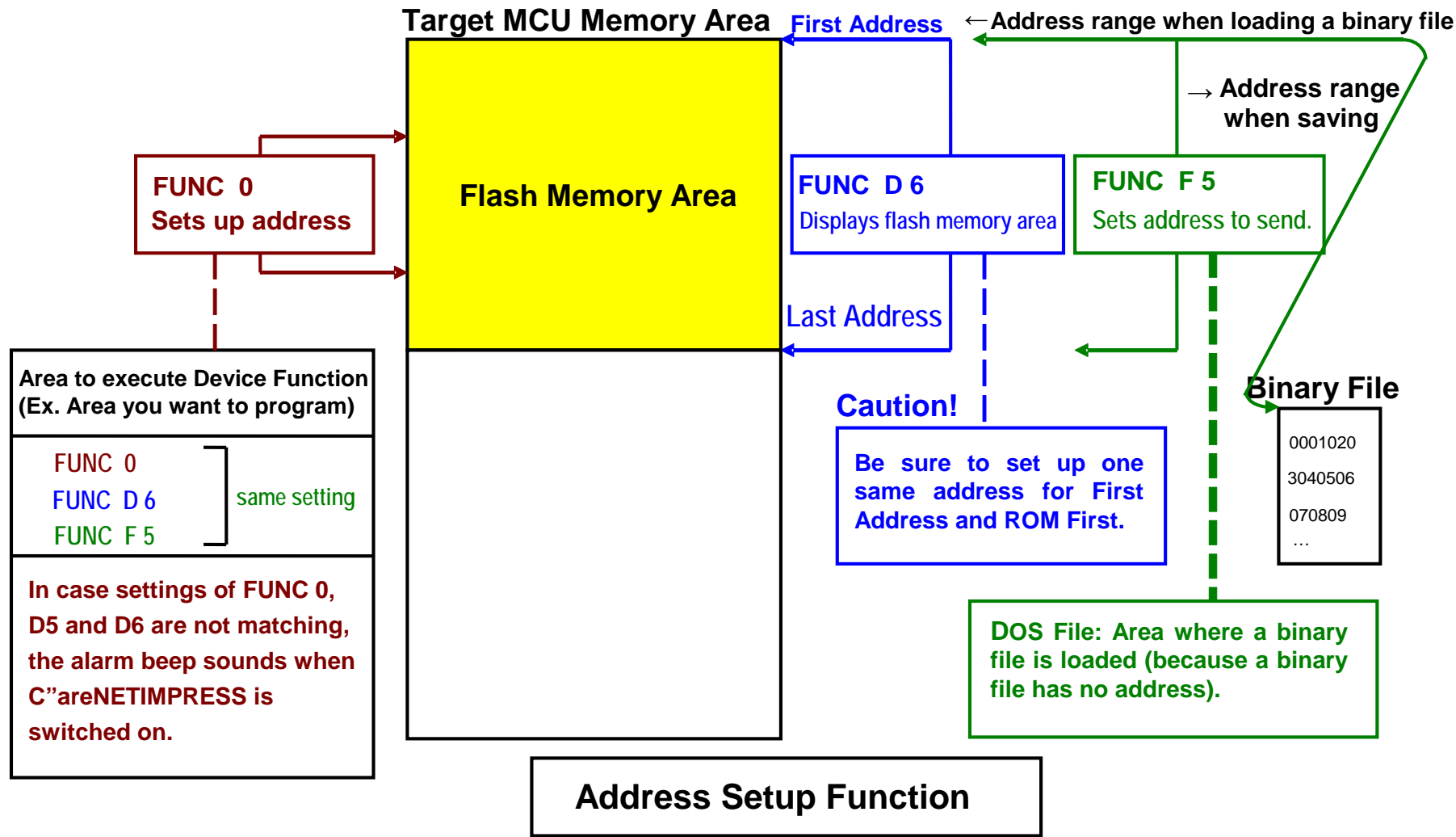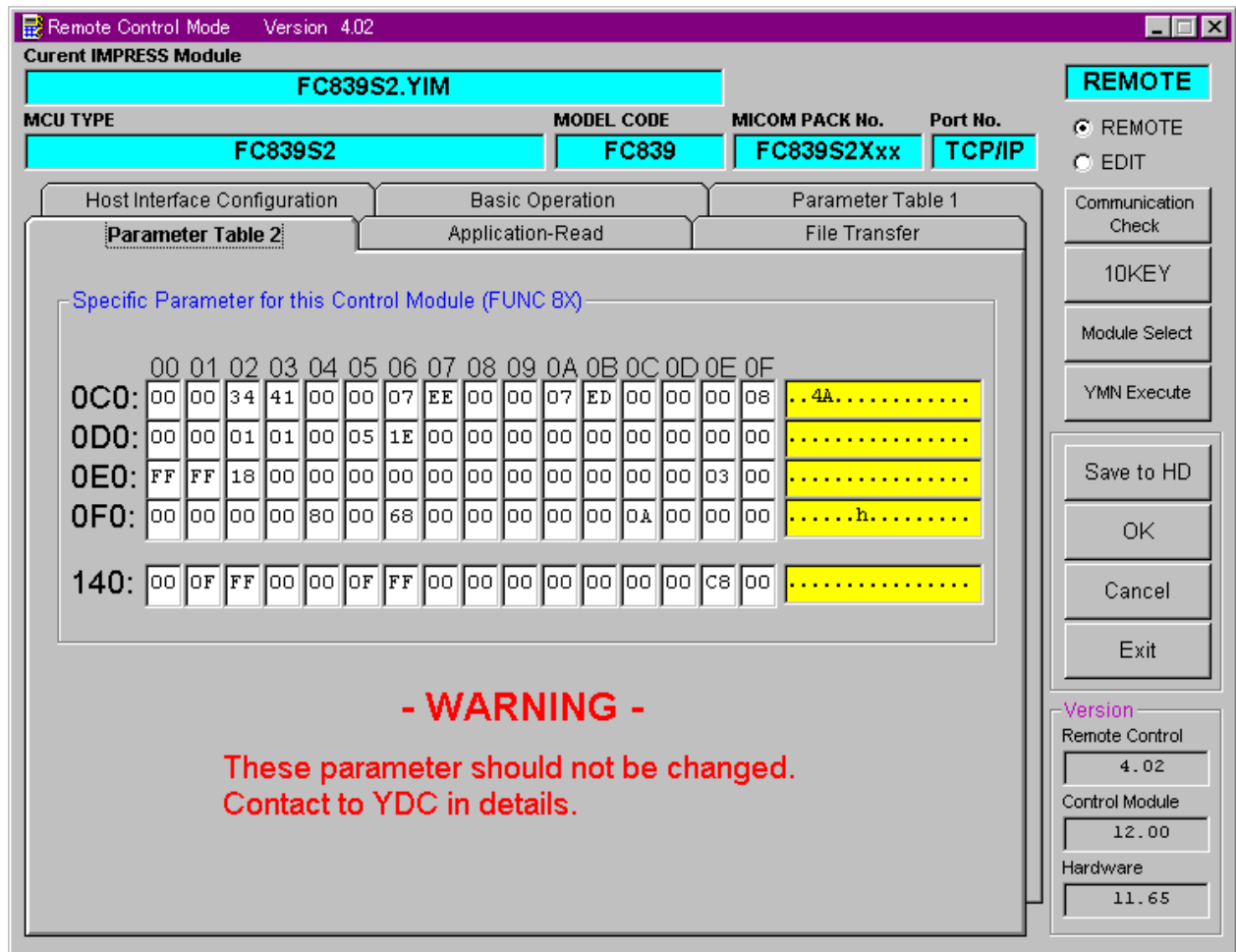
Address Setup Function

Figure 2- 2

2.2.3 Parameter Table 2 Tab

The Parameter Table 2 tab contains the parameters specific to the microcomputer and parameters for CAN communication. When you change them, you do so on your own responsibility. For setting up parameters for CAN communication, see Chapter 3 "Setting CAN Communication".

(The above screenshot is an example and may differ from an actual one.)

2.3   Device Functions and Their Operation

The table below lists the operations to the flash memory that are executed when C"arNETIMPRESS starts the device functions.

Device Function		Erase	Blank Check	Program	Read	E.P.R	Copy
Target Memory Area	A partial areas of flash memory by [FUNC 0] command (with Block Alignment)	Supported	Supported	Supported	Supported	Supported	Not supported
	Entire area of flash memory by [FUNC D6] command	Supported	Supported	Supported	Supported	Supported	Supported
Operation to Flash Memory		■Erase ■Blank *2	■Blank*2	□Erase □Blank ■Program ■Read *1	■Read	■Erase ■Blank *2 ■Program ■Read *1	■Copy ■Read *2
Notes:		Each device function is executed in a unit of block.					

Notes & Cautions

- **To execute the device functions:**

When you execute the device functions, **place the Write Control Program of extension .BTP in the DOS area of the Control Module.**
In case the Write Control Program is not placed, the error occurs outputting the message "E2: NO BTP FILE". Also, when two or more Write Control Programs are placed, it results in an error outputting the message "E1: FILE OPEN ERR".
Be sure to place only one Write Control Program in the DOS area of the Control Module.

- **About areas to execute the device functions:**

The device functions are executed to a whole flash memory area or partial flash memory areas.
The partial areas mean the blocks that are listed in the ROM Block Configuration field of the Parameter Table 1 tab.
When you execute the device functions to the partial areas, keep in mind to make an execution size not to be smaller than each block size.

*1: For the Read Verify operation that is executed at a time of the device functions E.P.R and Program, the Read Verify set up with the Read Verify mode (FUNC 99) is executed. To set up the Read mode with C"arNETIMPRESS, see the C"arNETIMPRESS Instruction Manual, Section 5. 4. 19. "Read Mode Switchover".

(1) SUM READ VERIFY : C"arNETIMPRESS reads a SUM value of an area where the device function Program is executed, and compares it with a SUM value of programmed data that is previously transferred when the device function Program is executed. (A SUM value of an area where the device function Program is executed is calculated by adding 8-bit and 16-bit, while ignoring overflow.)

(2) FULL READ VERIFY : C"arNETIMPRESS reads data of an area where the device function Program is executed and compares with programmed data when executing the device function Program.

*2: Blank Check command

For the blank checking, the Blank Check set up with the Bland Check mode (FUNC 88) is executed.

(1) Blank check by Programmer : C"arNETIMPRESS reads data of the flash memory from the target microcomputer and checks if the flash memory area is blank.

(2) Blank check by Microcomputer : C"arNETIMPRESS sends the Blank Check command to a microcomputer and a microcomputer performs blank checking and sends back checked results to C"arNETIMPRESS.

3   Setting CAN Communication

With FC839-S2, you can set up CAN communication in the two ways, that is, by using the functions unique to FC839-S2, and by using the Parameter Table 2. The CAN communication setup feature may not be supported depending on a microcomputer you are using.

3.1   Setting CAN communication using the functions [FUNC 8 x] unique to FC839-S2

[FUNC 8 1]   Setting up the ID format (Programmer → Microcomputer)
This sets up the ID format (Programmer → Microcomputer) to perform CAN communication. You can choose either "STANDARD" or "EXTENDED".

[FUNC 8 2]   Setting up the ID format (Microcomputer → Programmer)
This sets up the ID format (Microcomputer → Programmer) to perform CAN communication. You can choose either "STANDARD" or "EXTENDED".

[FUNC 8 3]   Setting up CAN communication baud rate
This sets up a baud rate for CAN communication.

You can choose either 1Mbps or 500Kbps or 250Kbps or 125Kbps.

[FUNC 8 6]   Setting up an ID
This sets up an ID to perform CAN communication.

[FUNC 8 7]   Setting KILL register to ON
This sets the KILL register to ON.

When the KILL register is set to ON, you cannot perform CAN communication.

[FUNC 8 8]   Setting up Blank Check mode
You can set up the Blank Check mode of the following two types.

* NORMAL BLANK
  C"arNETIMPRESS reads flash memory data from the microcomputer and checks if flash memory area is blank or not.

* EXTENDED BLANK
  C"arNETIMPRESS sends the blank check command to the microcomputer and the microcomputer performs blank check and sends checking result to C"arNETIMPRESS.

[FUNC 8 9]   Adding a Secondary ID
This adds an ID to perform CAN communication. You can specify an ID for both "Programmer → Microcomputer" and "Microcomputer → Programmer" in a set.   When you specify only either one of them, set up as follows for an ID that you do not specify:

Standard ID: 7FF,   Extended ID: 00000,   Format: STANDARD

3.2   Setting CAN Communication using the Parameter Table 2

By using the Parameter Table 2, you can change BCR (Bit Configuration Register) setting of H8S/2623F that is used to convert CAN signals.

Note: When you change the BCR setting using the Parameter Table 2 and if you change a baud rate with [Func 8 3], the value will be overwritten to the one executed with [Func 8 3].

When you open the Parameter Table 2 tab, you will be asked to enter a password. Then, enter **"AF200"** as a password in capital letters. **Do not change any parameters other than CAN settings. If you change them, you do so on your own responsibility and are responsible for any loss or damages that would arise from such changes.**

The bit parameter elements of the following five types are placed at the address #0C0 to #0C3 listed on the Parameter Table 2.

- Baud rate prescale (the portion marked as "a" in the below figure)

- Resynchronization Jump Width (the portion marked as "b" in the below figure)

- Time Segment 1 (the portion marked as "c" in the below figure)

- Time Segment 2 (the portion marked as "d" in the below figure)

- Bit Sample Point (the portion marked as "e" in the below figure)

In order to set up BCR of H8S/2623F, C"arNETIMPRESS sends 4-byte data to the the built-in CAN Adapter when starting execution of the device functions. Also, BCR of H8S/2623F is set up whenever the device functions are executed.
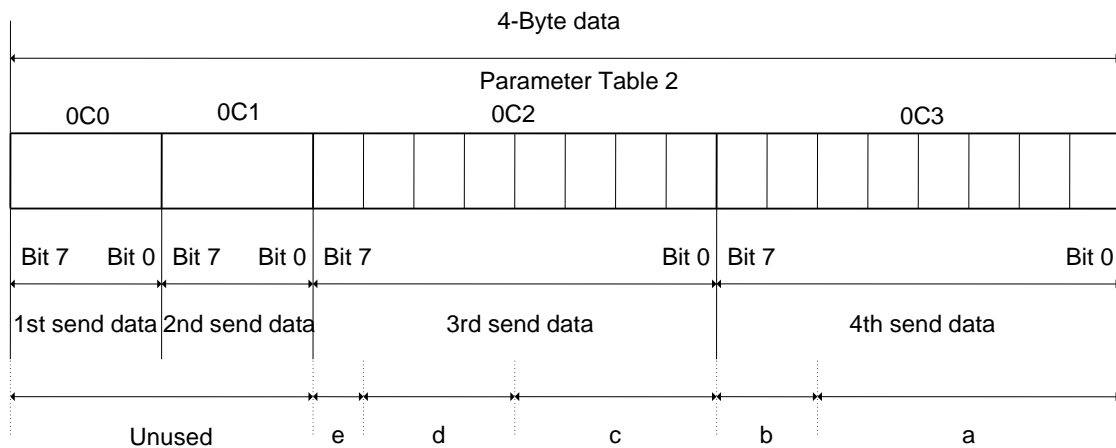
(1) Baud rate prescale: 6-bit

This is the data to set at Bit 8 to Bit 13 of BCR of H8S/2623F, which sets up operation clock of the CAN block in H8S/2623F. Bit 0 to Bit5 of the 4th send data correspond to Bit 8 to Bit 13 of BCR of H8S/2623F.

0C0	0C1	0C2	0C3

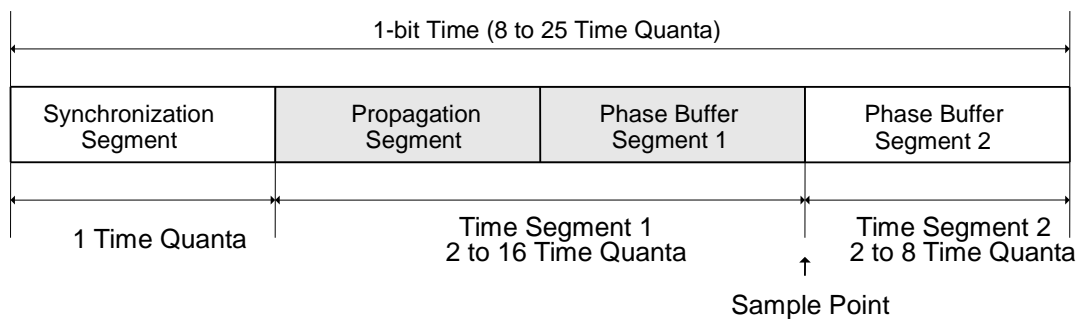| BCR5	BCR4	BCR3	BCR2	BCR1	BCR0
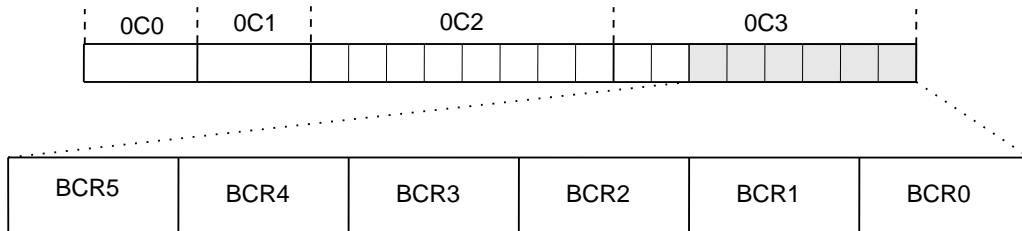
(2) Resynchronization Jump Width: 2-bit

This is the data to set at Bit 14 and Bit 15 of BCR of H8S/2623F. Set up a maximum range for bit synchronization. Bit 6 and Bit 7 of the 4th send data correspond to Bit 14 and Bit 15 of BCR of H8S/2623F.

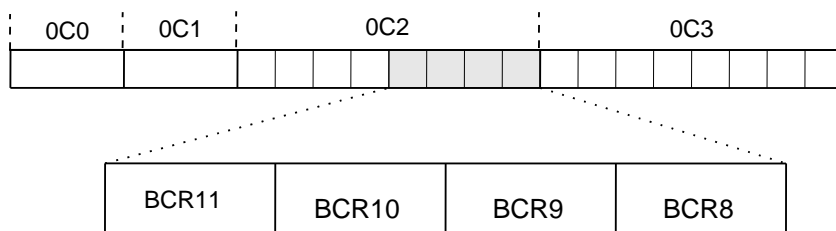| 0C0	0C1	0C2	0C3

BCR7	BCR6
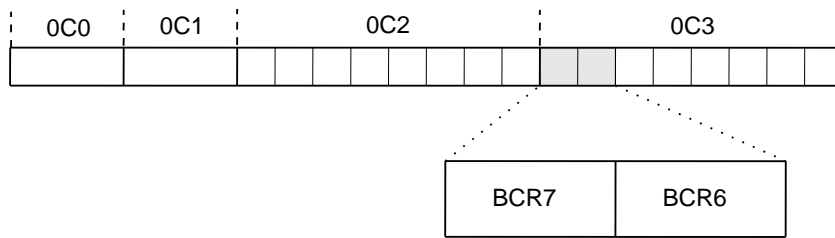
(3) Time Segment 1: 4-bit

This is the data to set up at Bit 0 to Bit 3 of BCR of H8S/2623F. Set up a buffer segment to absorb phase lag at the plus side.

1-bit Time (8 to 25 Time Quanta)			
Synchronization Segment	Propagation Segment	Phase Buffer Segment 1	Phase Buffer Segment 2
1 Time Quanta	Time Segment 1 2 to 16 Time Quanta		Time Segment 2 2 to 8 Time Quanta

Sample Point

Bit 0 to Bit 3 of the 3rd send data correspond to Bit 0 to Bit 3 of BCR of H8S/2623F.

0C0	0C1	0C2	0C3

BCR11	BCR10	BCR9	BCR8

(4) Time Segment 2: 3-bit

This is the data to set up at Bit 4 to Bit 6 of BCR of H8S/2623F. Set up a buffer segment to absorb phase lag at the minus side.
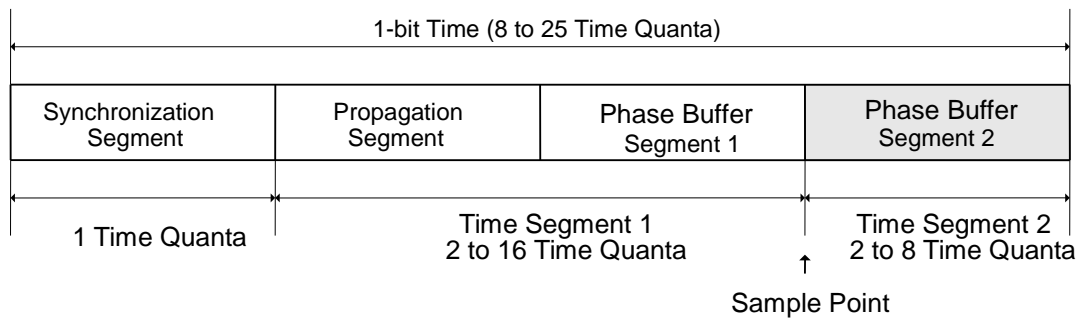

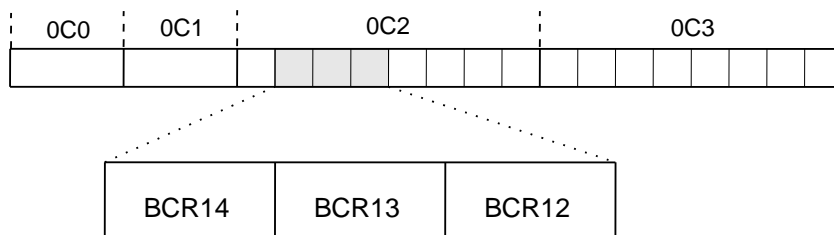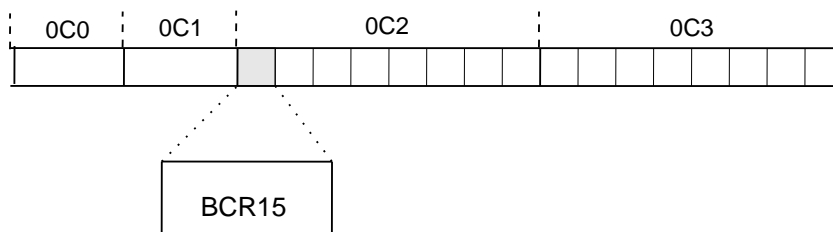Bit 4 to Bit 6 of the 3rd send data correspond to Bit 4 to Bit 6 of BCR of H8S/2623F.

(5) Bit Sample Point: 1-bit

This is the data to set up at Bit 17 of BCR of H8S/2623F.   Set up a point to sample data.

Bit 7 of the 3rd send data correspond to Bit 15 of BCR of H8S/2623F.

4   Copying the Write Control Program into Microcomputer

4.1   Overview

With the Control Module FC839-S2, you need to send the Write Control Program (WCP) to the target microcomputer to run on it before execution of the device functions. The microcomputer executes the programming sequence under this Write Control Program.

Copy the Write Control Program into the DOS area of the Control Module and save it under a file name (binary format) with extension ".BTP" in advance.

Only one file with extension ".BTP" can be placed in the DOS area of the Control Module. You cannot place multiple files with extension "BTP" or use the Control Module without placing a file with extension ".BTP".

C"arNETIMPRESS

Target System

Write Control Program that is booted.

Control Module

DOS Area

abc.S ← Object Program File

xxx.BTP ← Write Control Program
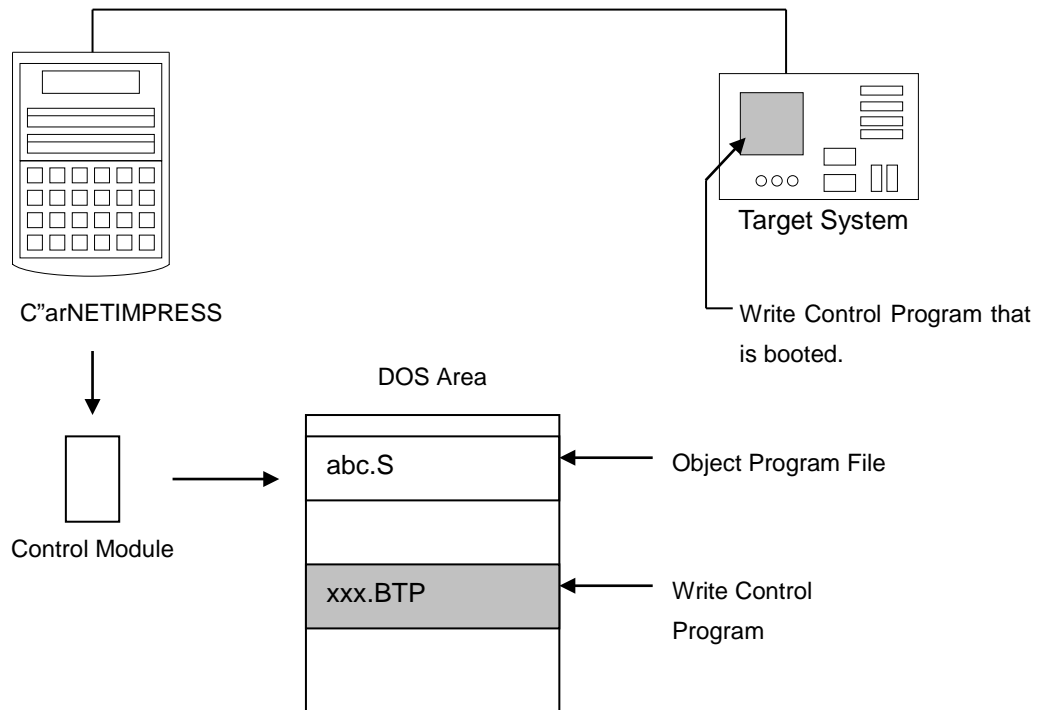
4.2   How to Copy the Write Control Program (WCP)

The Write Control Program is contained in a Micom Pack that can be downloaded from our Web site. Download an appropriate Micom Pack supporting your microcomputer from our Web site at the following address:

Download page: https://www.dts-insight.co.jp/en/support/support_netimpress/top/index.php?m=Search

Home page: https://www.dts-insight.co.jp/en/

Follow the steps below to save the file with extension ".BTP" in the DOS area of the Control Module.

When using a PC that has the CF Card slot

(1) Set the Control Module in a personal computer that has the CF Card slot.

(2) Copy the Write Control Program (xxx. BTP) from the Micom Pack, which you have downloaded, into the DOS area of the Control Module.

When using a PC that does not have the CF Card slot

(1) Connect C"arNETIMPRESS and the AZ490.

(2) Copy the Write Control Program (xxx. BTP) from the Micom Pack, which you have downloaded, into the DOS area of the Control Module using the File Copy (Load) button in the Bundle File field on the File Transfer tab.

5 ID Code Protect Function

5.1 Overview

The Control Module FC839-S2 has the function to send an ID code to a microcomputer. A microcomputer that communicates with C"arNETIMPRESS has the function to receive and read an ID code. By sending an ID code to a microcomputer, you can guard against illegal writing and reading of data.

Also, an ID code is sent to a microcomputer whenever the device functions are executed, and the microcomputer performs ID code checking.

5.2 Entering ID Code

The figure 5.1 shows the ID code process flow of the C"arNETIMPRESS. You can enter an ID code in the following two ways.

(1) Enter an ID code by saving an ID file, which has the extension "xxx.KEY", in the DOS area of the Control Module in advance.

   Note that the ID file name with extension ".KEY" should be the same as a current file name (*i.e.*, a file name that is transferred to the Buffer RAM of C"arNETIMPRESS).

(2) Enter an ID code from the keyboard of C"arNETIMPRESS.

   With this method, you directly enter address of the ID code area and an ID code. You can use the ID address guidance function to enter an ID code from the keyboard by saving a master key file (YMxxC839. AMK) in the DOS area of the Control Module.

Whichever method is taken, **be sure to place a master key file (YMxxC839. AMK) in the DOS area of the Control Module.**

When you use C"arNETIMPRESS as stand-alone, you can use both ID code entry methods (1) and (2).

When you use C"arNETIMPRESS by remotely controlling from a personal computer, use the method (1) that uses an ID file.

You can easily generate an ID file by using the Key File Generator AZ481 that is available for an additional order.   The screen shot of the Key File Generator is shown in Figure 5.2.

The table below summarizes the entry methods of ID code.

ID Code Entry method	C"arNETIMPRESS is remotely controlled from a PC.	C"arNETIMPRESS is operating In stand-alone mode
Enter ID code using an ID file.	Supported	Supported
Enter ID code from keyboard.	Not supported	Supported

The master key file (YMxxC839.KEY) is placed in an appropriate Microcomputer Pack, which you can download from our Web site at the following URL address.

Download page: https://www.dts-insight.co.jp/en/support/support_netimpress/top/index.php?m=Search

Home page: https://www.dts-insight.co.jp/en/

Follow the steps below to save the master key file in the DOS area of the Control Module.

When using a PC that has the CF Card slot

(1) Set the Control Module in a personal computer that has that the CF Card slot.

(2) Copy the master key file (YMxxC839.AMK) from the Micom Pack, which you have downloaded, into the DOS area of the Control Module.

When using a PC that does not have the CF Card slot

(1) Connect C"arNETIMPRESS and the AZ490.

(2) Copy the master key file (YMxxC839.AMK) from the Micom Pack, which you have downloaded from our Web site, into the DOS area of the Control Module using the File Copy (Load) button in the Bundle File field on the File Transfer window.

A master key file name is formed as follows.

YMxx C839 **.**AMK
— Master key file extension
— Model name of the Control Module
— Model name of a microcomputer pack
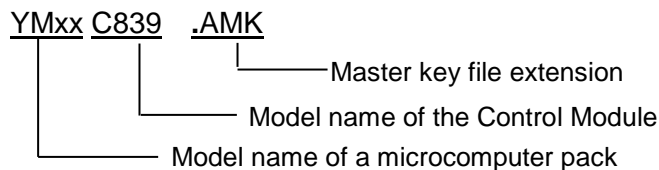
Note: With FC839-S2, you can place ID code of a size between 7 to 255 byte at any address in a password check area that is registered in the initial setup file.   The master key file contains area information as an example to place an ID code of a minimum size starting from the top address that can be placed.

To use the master key file, download an appropriate Micom Pack from our Web site and save the YMxx839.AMK in the DOS area of the Control Module.

Control Module

abc.S
abc.KEY
YMxx_C839.AMK

Control Module
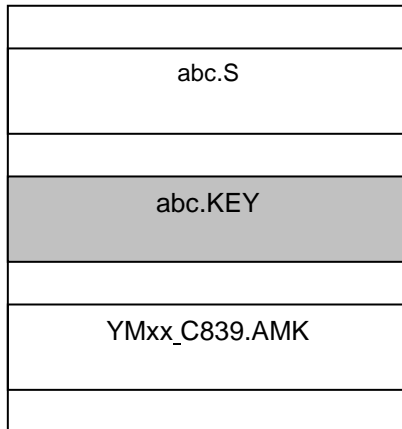
abc.S
YMxx C839.AMK

When a key file (abc.KEY) of a current object file (abc.S) exists in the Control Module, C"arNETIMPRESS treats this abc.KEY file as an ID file and sends an ID code from this file to the microcomputer.
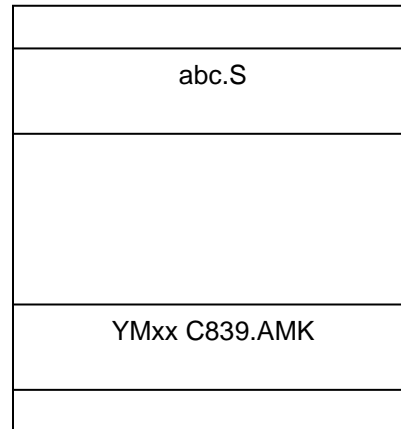
When no key file (abc.KEY) of a current object file (abc.S) exists in the Control Module, C"arNETIMPRESS displays an ID code address as a guidance on the LCD using the master key file (YMxxC839.AMK).

Figure 5.1: ID Code Process Flow

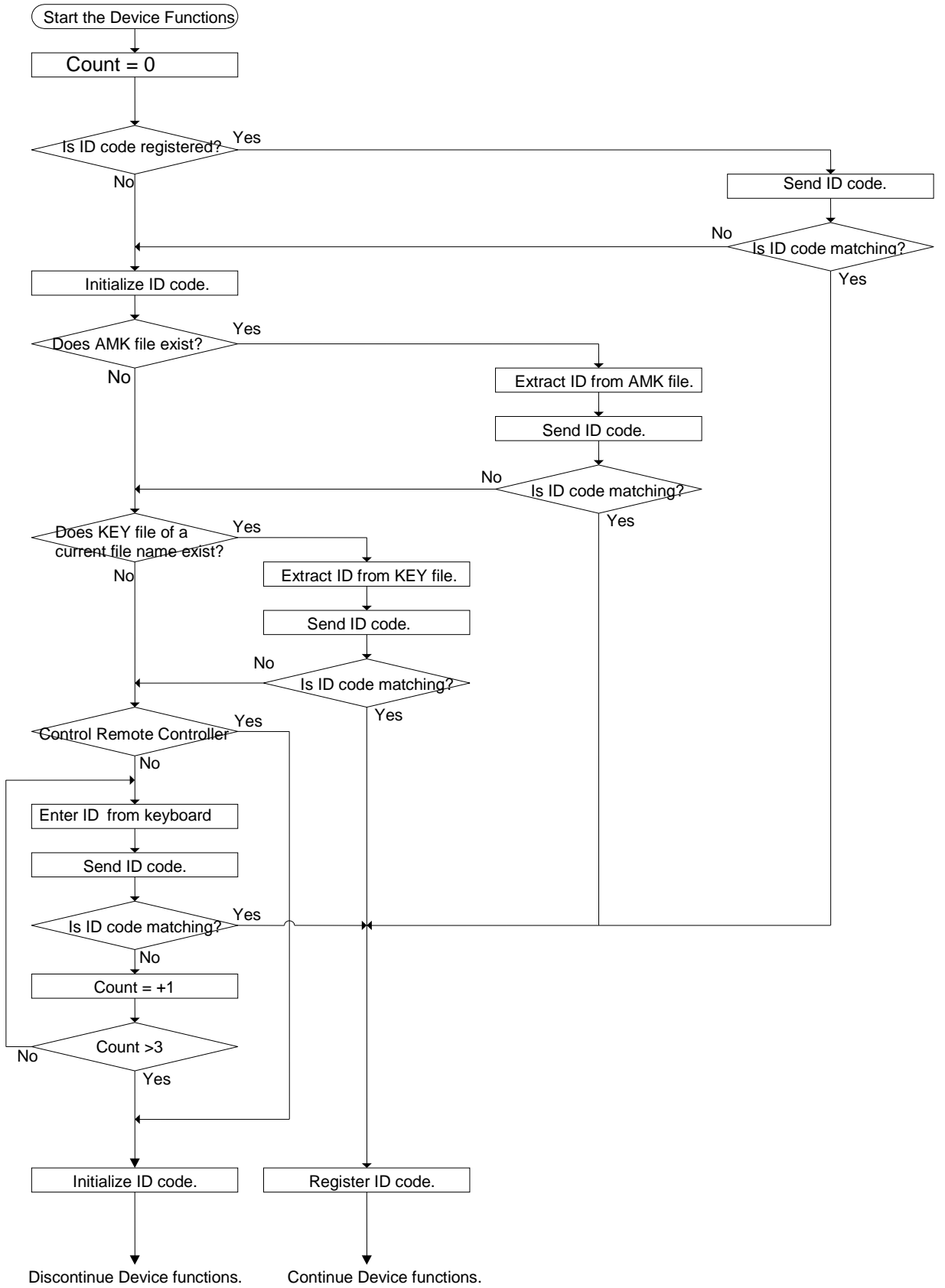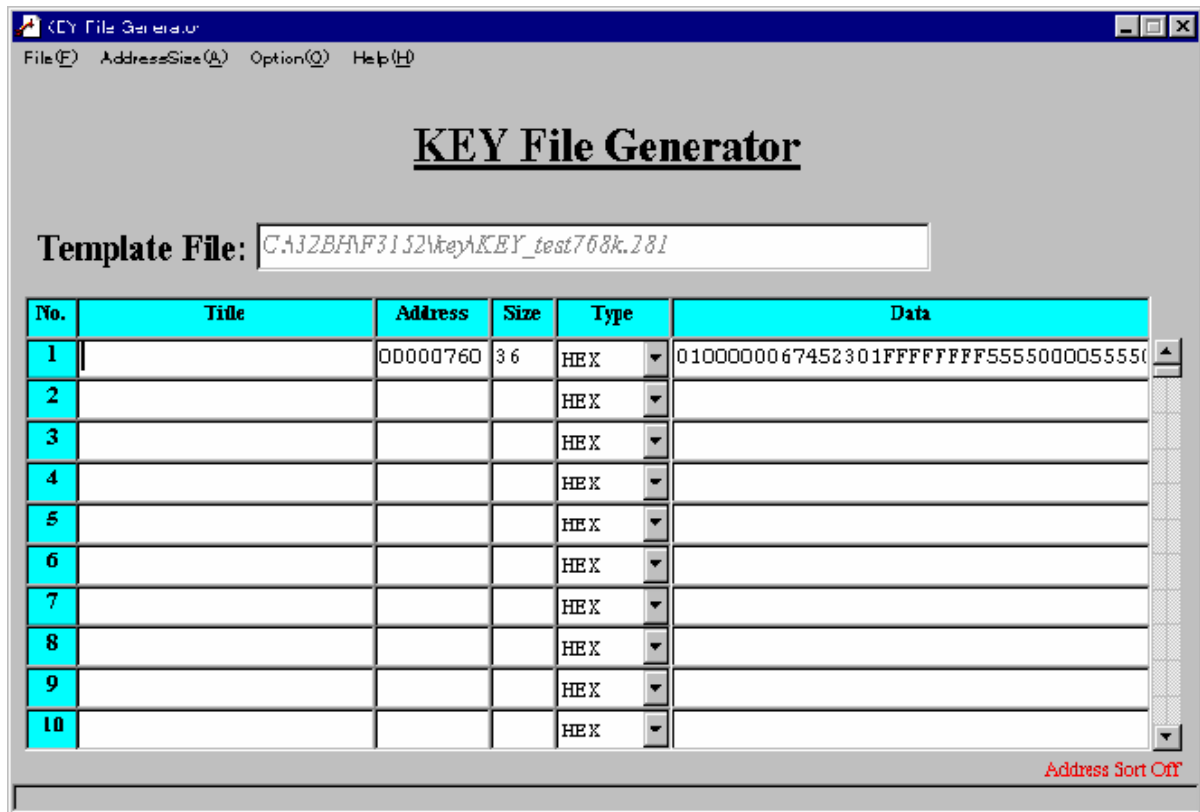The above screenshot is an example and may differ from an actual image.

Figure 5.2: Key File Generator

5.3 How to enter ID code from Keyboard (Stand-Alone Mode)

When you enter an ID code from the keyboard of C"arNETIMPRESS, you can use the ID address guidance feature by placing the ID file or the master key file (YMxxC839.AMK) into the DOS area of the Control Module. If an ID file of a current object file does not exist in the DOS area of the Control Module, a key word address you should enter will be displayed on the LCD based on the key address information in the master key file.

<Steps to enter ID code>

(1) When the master key file is installed in the DOS area of the Control Module, and if an ID file of a current object file does not match with an ID code in the microcomputer, address guidance information for an ID code you should enter will be displayed on the LCD of C"arNETIMPRESS.

```
HV/FC839S2
/          /READ /
A=00010000    / D=FF
```

(2) Input an ID data in the Data field ("D= ") and press the SET key of C"arNETIMPRESS. When the SET key is pressed, C"arNETIMPRESS displays the following ID code address on the LCD.

```
FC839S2
/          /READ /
A=000100001   /D=FF
```

(3) Enter an ID code of an appropriate size repeating the above step (2).

When all ID codes are entered, ID code address on the LCD becomes blank.

When you confirm the ID code you entered and press the SET key, the ID code entered using the 10-key is registered as the current ID code in C"arNETIMPRESS and sent to the microcomputer.

This current ID code remains valid until you turn off the power of C"arNETIMPRESS, or another new current ID code is registered.

(4) For the ID code sent to the microcomputer, when C"arNETIMPRESS receives a response from the microcomputer telling that the ID code is illegal, C"arNETIMPRESS starts again the password entry sequence from the beginning.

If C"arNETIMPRESS receives three illegal ID code responses, it discontinues the device functions sequence.

Note: When neither an ID code file nor master key file (YMxxC839.AMK) is placed in the DOS area of the Control Module, you need to enter address information too.

6 Connecting to a Target System and Connector

The target probe connector of two types are available: AZ414 (connector of 26 pins at both ends) and AZ415 (0_sub 9-pin connector).

6.1 Signal List

The below table lists signals at the side of the target probe connector AZ414 for using the Control Module FC839-S2.

MPU Signal Name	AZ414 Standard Signal				MPU Signal Name
	TCK	14	(1)	GND	GND
	TRES	15	(2)	/TRES	
TVcc	TVccs	(16)	3	TVccd	
	TI0	17	4	TTxD	
	TAUX5	18	5	TRxD	
	WDT	(19)	6	Reserve	
	TBUSY	20	7	Reserve	
	TAUX2	21	8	TAUX	
	TAUX4	(22)	(9)	TAUX3	
	TMODE	23	10	/TICS	
CANL	CANL_high	(24)	(11)	CANH_high	CANH
	CANL_low	25	12	CANH_low	
GND	GND	(26)	13	CANH_sing	

Table 6.1: Target Probe Signal List (FC839-S2)

- Be sure to connect all the signals marked with a circle " ◯ " to the target system.

- The signals in parentheses are also controlled for output. Connect them only when necessary.

- For the signals not marked with a circle " ◯ " or those not in parentheses, be sure not to connect them to a circuit of the target system.

The table below lists signals at the side of the target probe connector AZ415 when using the Control Module FC839-S2.

AZ415 Signal Name	AZ415 Pin Number	MPU Signal Name
TVccs	(1)	TVcc
CANL_high	②	CANL
GND	③	GND
Open	4	
Open	5	
TI0	6	
CANH_high	⑦	CANH
TMODE	8	
Open	(9)	

Table 6.2: Target Probe Signal List (FC839-S2)

- Be sure to connect all the signals marked with a circle "◯" to the target system.

- The signals in parentheses are also controlled for output. Connect them only when necessary.

- For the signals not marked with a circle "◯" or those not in parentheses, be sure not to connect them to a circuit of the target system.

6.2   Model Connection to Target System

(1) The figure below shows a connection example with a target using AZ414.
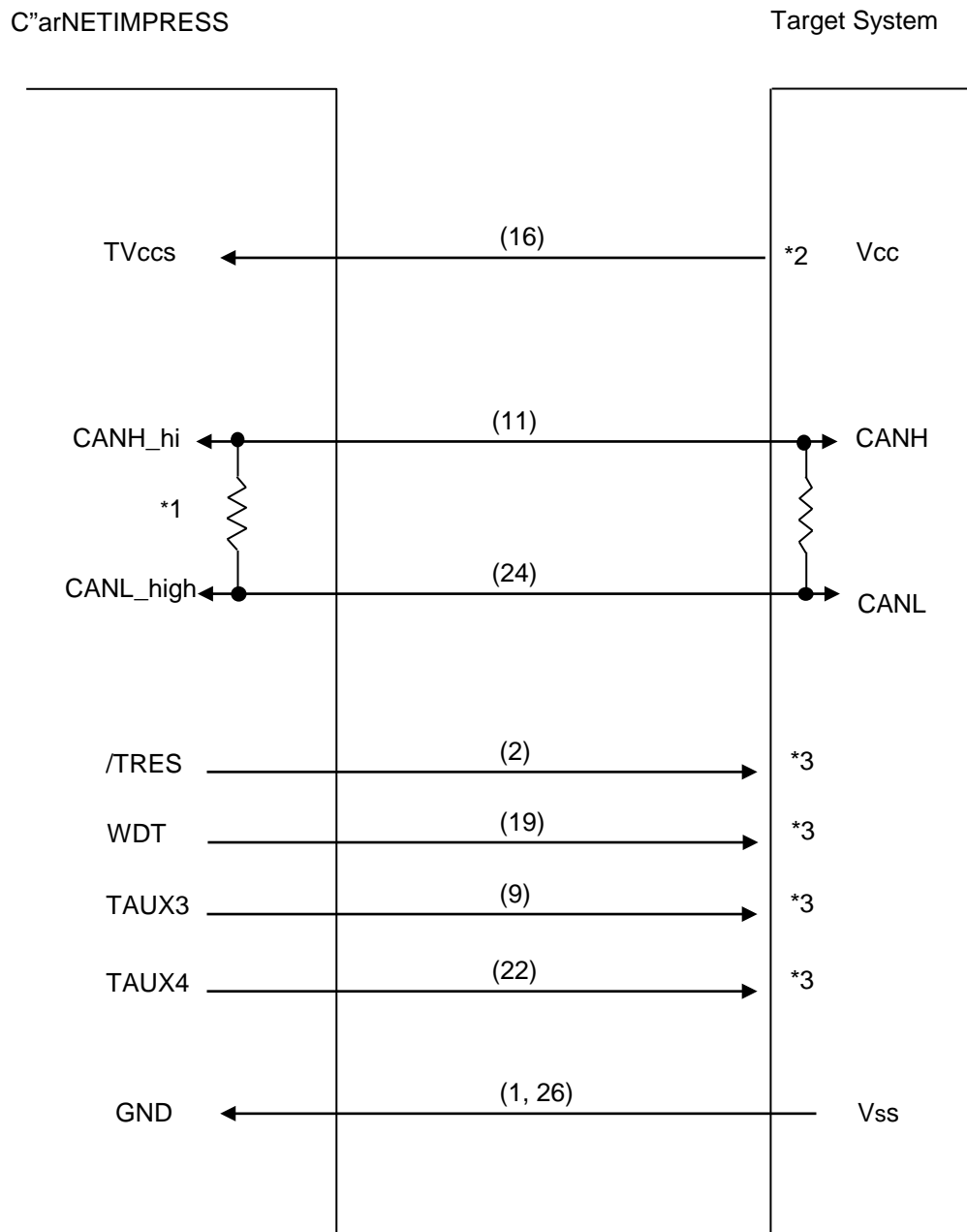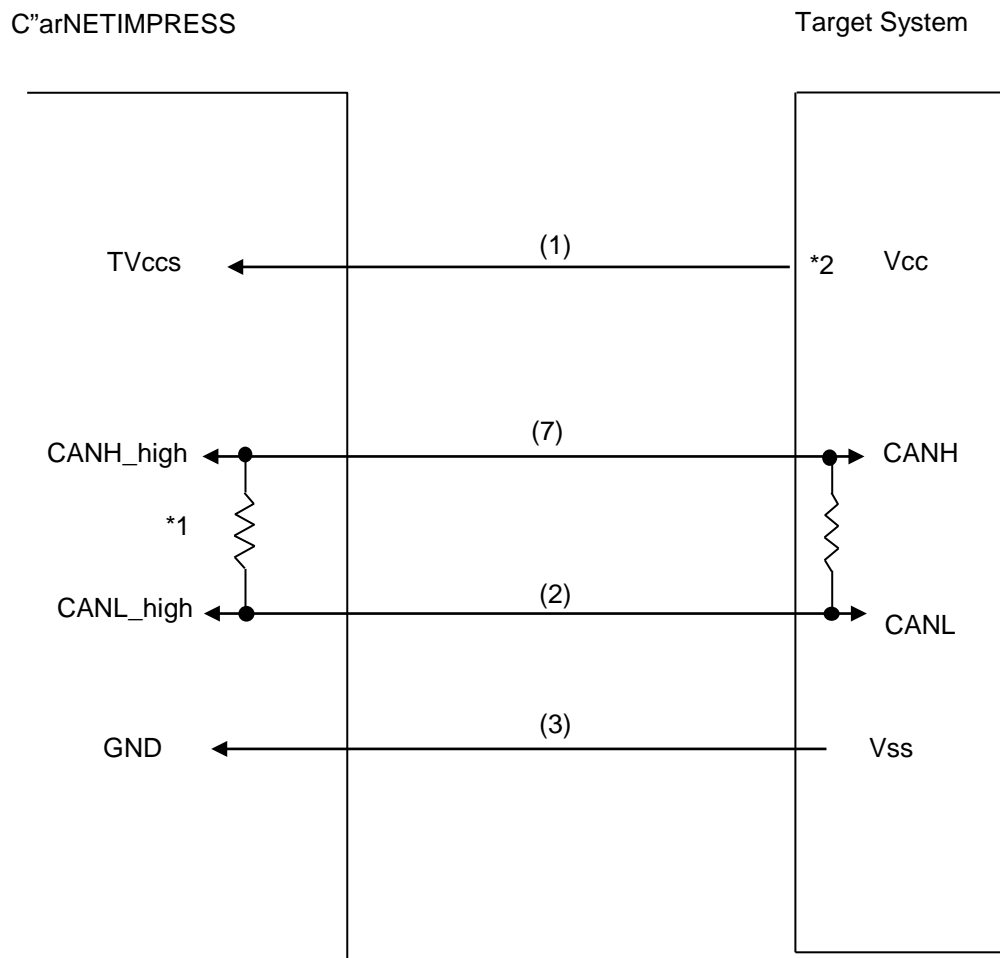

*1: C"arNETIMPRESS can switch between 120Ω and 60Ω with the Control Module.

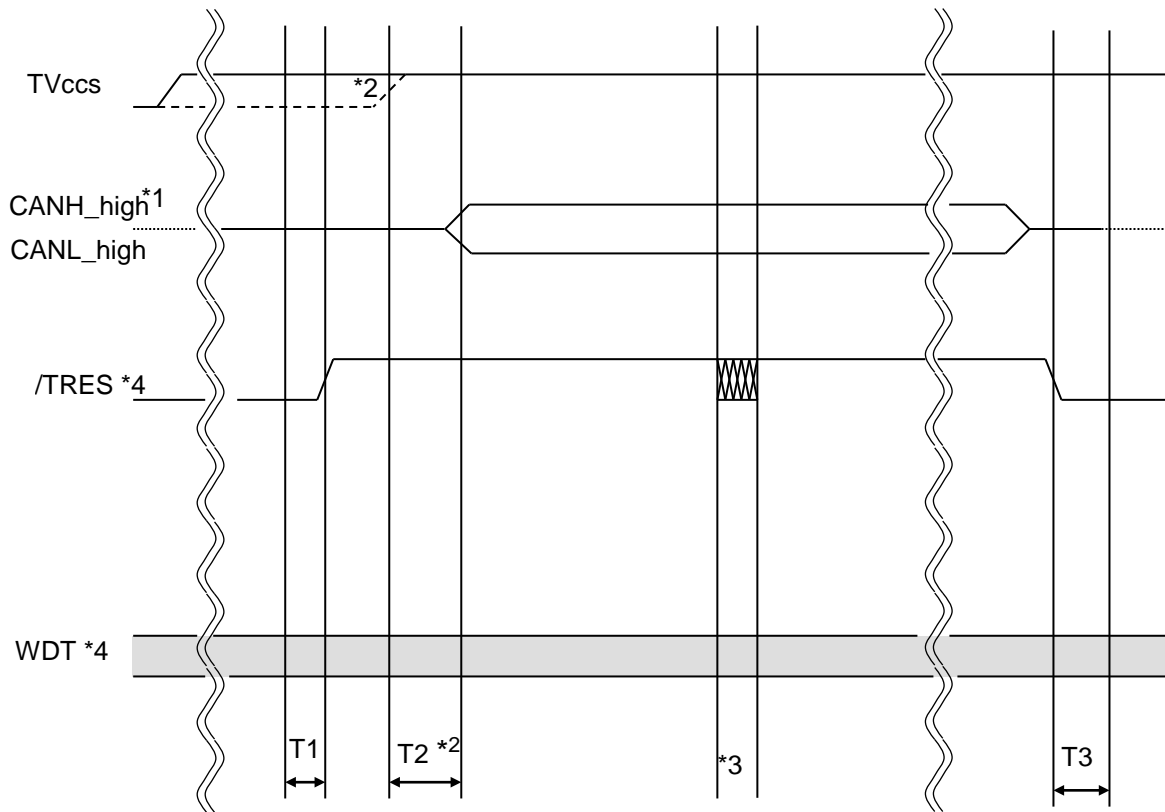*2: It is used at a time of "r Entry".

*3: Use them as required.

(2) The figure below shows a connection example with a target using AZ415.

*1: C"arNETIMPRESS can switch between 120Ω and 60Ω with the Control Module.

*2: It is used at a time of "r Entry".

6.3   Waveform of Control Signal

	MPU Specifications	C"arNETIMPRESS Specifications
T1		200ms (Min.)
T2	t2ms	
T3		350ms (Min.)

*1   The dotted line " ———————— " indicates HIZ state.

*2   It is a timing at a time of "r Entry", which differs depending on power supply and a target board environments.

*3   When it is forcibly terminated with the reset key operation during execution of the device functions, /TRES, TAUX3 and TAUX4 temporarily fall into the hunting status and move into the final process to terminate execution of the device functions.

*4   /TRES and WDT are the open collector output signals.

6.4   Probe

To write data to flash ROM on a user system using the Control Module FC839-S2, you need the CAN Target Probe that is available as an additional order. For details, contact us or your local distributor.

7　Adapting to Derivative Microcomputers ⎯ Modifying Parameters

7.1　Minor Parameter Modification through the Keyboard of C"arNETIMPRESS

For the parameters that are defined by the function commands (FUNCTION D1 to FUNCTION DF) as described in the Section 5.4 "Parameters Settings" of C"arNETIMPRESS Instruction Manual, you can modify them through the keyboard of C"arNETIMPRESS. Parameters for communication interface with a target system, voltage of a target system, for example,. are the ones you can modify through the keyboard of C"arNETIMPRESS.

NOTE:
>You cannot modify wide-ranging parameters and settings of the target microcomputer such as ROM block configuration of flash ROM address (FUNCTION D6) through the keyboard of C"arNETIMPRESS. For modifying them, it is recommended to use the Remote Controller AZ490 that is available for an additional order.

7.2　Modifying Parameters for Target Microcomputer using the Remote Controller

The remote controller software AZ490 for controlling C"arNETIMPRESS remotely from a PC is available for an additional order. This remote controller has the function to set up and confirm parameters besides the remote control capability. With the Remote Controller, you can set up and modify parameters including the following.

- MCU Type: Name of the target microcomputer
  The name of the microcomputer displayed on the LCD of C"arNETIMPRESS can be customized.

- Flash ROM Area: Flash memory area of the target microcomputer

- ROM Block: Flash memory block alignment can be set up with address and size for each ROM group, enabling you to use the Control Module with derivative microcomputers.

- MCU Clock: MCU clock frequency

- Communication Interface: You can set up a communication interface with the target system.

- Other: Microcomputer-specific information defined by the Control Module (i.e., parameters specified by pressing FUNC → 8 → X)

7.3 How to Modify Parameters Using Remote Controller Software (AZ490)

Ethernet

NET IMPRESS

Personal Computer
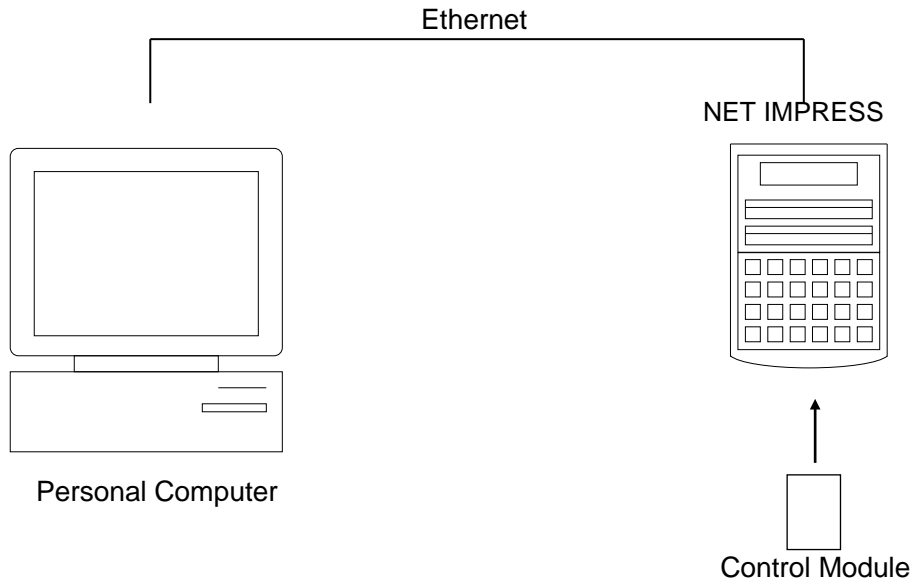
Control Module

Connect a personal computer and C"arNETIMPRESS using Ethernet cable (10BASE-T).

Insert the Control Module supporting the target microcomputer into C"arNETIMPRESS' card slot.

By running the Remote Controller on a Windows PC, you can modify or check parameter tables of the Control Module inserted in C"arNETIMPRESS.

With the Remote Controller AZ490, you can load and save parameters all at once. By saving parameter information generated with the Remote Controller in a PC, you can easily modify parameter tables for various derivative microcomputers of a same family.

Also, using this function, you can easily load the Micom Pack, which you download from our Web site, into the Control Module.

8 Replacing Definition Program

8.1 Overview

The Control Module has the function to support programming microcomputers that have different programming specifications from those of the target microcomputer. You can quickly replace the definition program using the definition program download function of the Remote Controller AZ490, instead of changing the Control Module. With this definition program replacement function, it can support a microcomputer of different programming specifications by adding the definition program license to the Control Module. The definition program license is available for your additional order. If you have any questions, contact your local distributor or us.

Ethernet

Personal Computer   C"arNETIMPRESS

Definition Program File (XXX.CM)
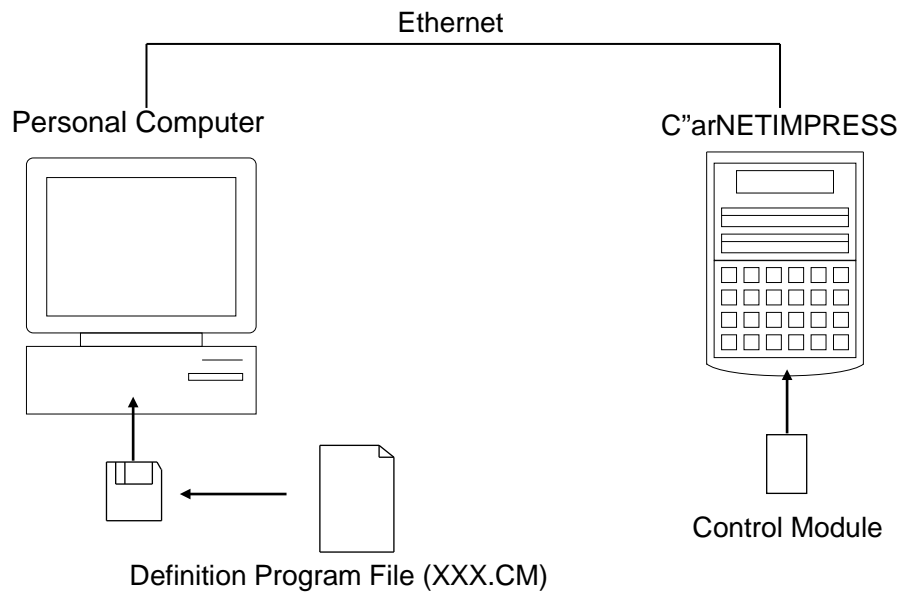
Control Module

8.2 How to Replace Definition Program

By setting the Control Module added with a definition program license into C"arNETIMPRESS, you can replace the definition program of the Control Module using the definition program download function of the Remote Controller AZ490 (the Definition Program Load button in the Control Module field on the File Transfer tab). (Note that you cannot use this function if you are using C"arNETIMPRESS as stand-alone.) When you purchase the definition program license, download the definition program file ("xxx.CM"), which is in the floppy disk provided with the definition program license, into the Control Module.
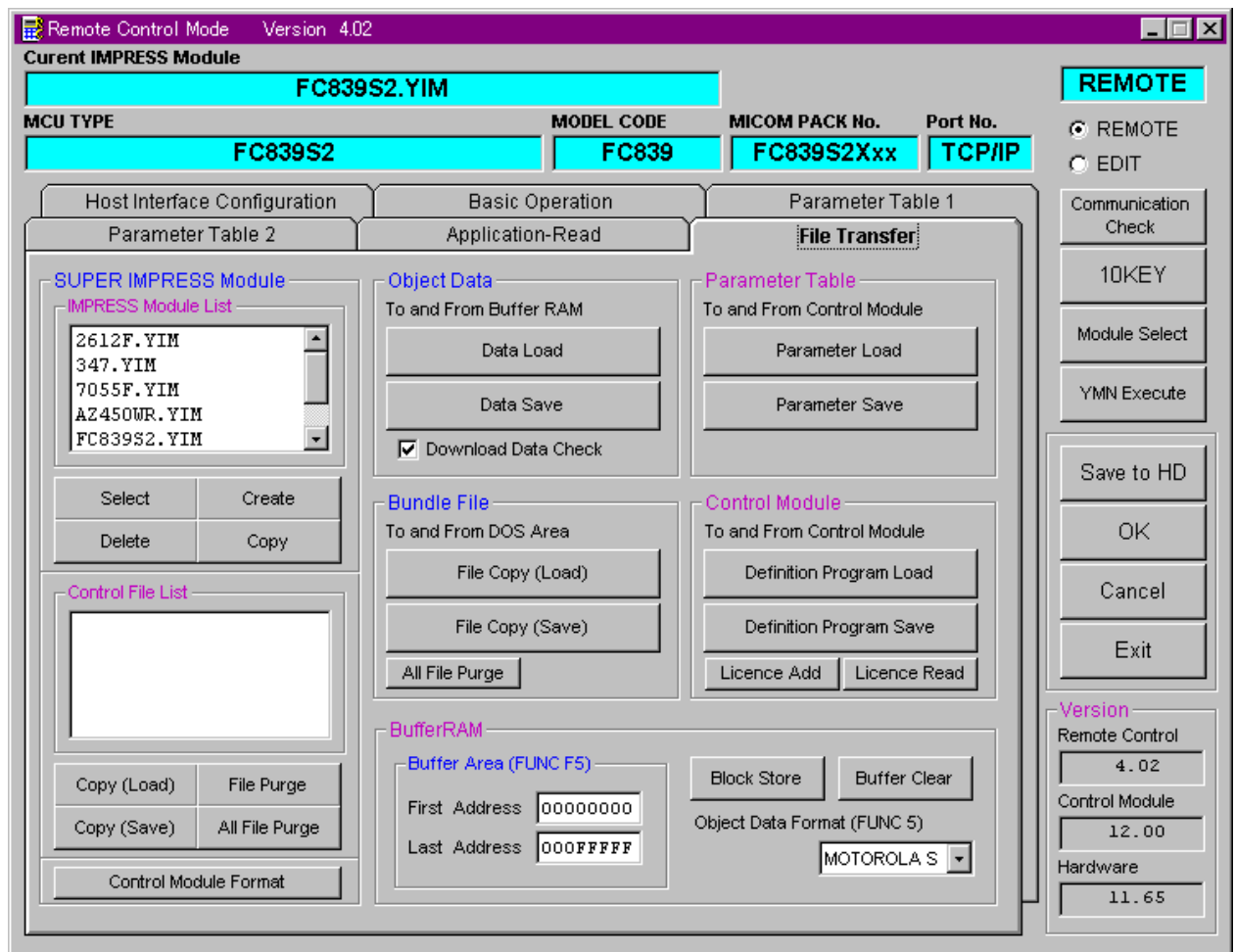
9   Errors Specific to FC839-S2

The table below lists the errors output only by FC839-S2 and their measures to be taken.

Error Message	Causes & Measures	
ERR-NO.0120 CAN ADAPTER ERR	Cause	Initial setup of CAN adaptor is not made.
	Measure	Check if C"arNETIMPRESS and CAN adaptor are properly set up and power on C"arNETIMPRESS to re-execute the device functions.
ERR-NO.0121 CAN INITIAL DATA SUM ERR	Cause	A SUM error of data was detected in communication with CAN adaptor.
	Measure	Check if C"arNETIMPRESS and CAN adaptor are properly set up.
ERR-NO.0122 RECEIVE DATA SUM ERR	Cause	A SUM error was detected while receiving data.
	Measure	—
ERR-NO.0123 ECHO BACK COMMAND ERR	Cause	An error was detected in a busy frame.
	Measure	—
ERR-NO.0124 SEND DATA SUM ERR	Cause	A SUM error was detected while sending data.
	Measure	—
ERR-NO.0125 PACKET ID ERR	Cause	An error was detected in Packet ID.
	Measure	—
ERR-NO.0126 COMMAND RETURN CODE ERR	Cause	An invalid command was entered.
	Measure	Enter the correct command.
ERR-NO.0127 UNKNOWN COMMAND	Cause	An error was detected with CCP protocol.
	Measure	—
ERR-NO.0128 COMMAND SYNTAX	Cause	An error was detected with CCP protocol.
	Measure	—
ERR-NO.0129 PARAMETER OUT OF RANGE	Cause	No more secondary ID can be added.
	Measure	A secondary ID can be registered only once. Check if a secondary ID is already registered.
ERR-NO.012A ACCESS DENIED	Cause	The station address of CCP protocol did not match.
	Measure	Check if the station address of the Control Module is matching with the station address set up in the target.
ERR-NO.012B OVERLOAD	Cause	An error was detected with CCP protocol.
	Measure	—
ERR-NO.012C ACCESS LOCKED	Cause	An error was detected with CCP protocol.
	Measure	—

Error Message	Causes & Measures	
ERR-NO.012D RESOUCE /FUNCTION NOT AVAILABLE	Cause	Retry-over of the CONNECT command.
	Measure	Check if the application at the side of the target is in the busy status when receiving the CONNECT command.
ERR-NO.012E VERSION MISMATCH	Cause	An error was detected with the version of CCP protocol received.
	Measure	—
ERR-NO.012F EXCHANGE ID ERR	Cause	An error was detected with an ID received.
	Measure	—
ERR-NO.0130 RECEIVE CTR ERR	Cause	An error was detected with a CTR value received.
	Measure	—
ERR-NO.0131 PASSWORD CHECK ERR	Cause	You have entered an invalid password.
	Measure	Enter a correct password.
ERR-NO.0132 PASSWORD SIZE ERR	Cause	A size of the password entered is not within the specified value.
	Measure	Enter a password that is within the specified value.
ERR-NO.0133 PASSWORD ADDRESS ERR	Cause	Address of the password you entered is out of the specified range.
	Measure	Enter a password of the specified range.
ERR-NO.0134 CAN DATA RECV TIMEOUT	Cause	A timeout error was detected while receiving data.
	Measure	—
ERR-NO.0135 BTP SUM ERR	Cause	A SUM error was detected while downloading the Write Control Program.
	Measure	Download the Write Control Program again.
ERR-NO.0136 KEY ERR	Cause	Key File is not set up correctly.
	Measure	Check the address and data registered in the Key File.
ERR-NO.013C COMMAND ERR	Cause	An error was detected with the command.
	Measure	—
ERR-NO.013D BLOCK ERASE ERR	Cause	An error was detected while erasing block.
	Measure	—
ERR-NO.013E PROGRAM ERR	Cause	An error was detected while programming.
	Measure	—
ERR-NO.013F DISCONNECT ERR	Cause	An error was detected with data received when the DISCONNECT command is executed.
	Measure	—

Note: Among the measures listed, those marked "—" are the errors that are difficult to be handled by you. Pease contact us by emailing to support-impress@dts-insight.co.jp.

10   Notes and Cautions for Using Control Module

(1) The Control Module FC839-S2 is built for the flash microcomputer programmer C"arNETIMPRESS. *DO NOT* use this Control Module for any flash microcomputer programmers other than C"arNETIMPRESS. You cannot use this Control Module with the AF220, AF210, AF120, AF110 and AF200.

(2) This Control Module is built tailored to the specific microcomputer. Do not use this Control Module for programming microcomputers other than the specified microcomputer. Using this Control Module for microcomputers other than the specified microcomputer would damage your target system.

(3) C"arNETIMPRESS consumes power of several mA from the Tvccd terminal to drive the interface IC (IC inside C"arNETIMPRESS).

(4) *DO NOT* eject the Control Module during the read and write operation to the Control Module. Ejecting the PC card during the operation would cause a serious damage to the information in the PC card. You must not remove the PC card from the flash microcomputer programmer while accessing it. Be sure to press the RESET key before ejecting the PC card.

(5) Use the flash microcomputer programmer with the Control Module inserted into it.