

**FH001**  
**FH002**  
**FH003**  
**FH005**  
**FH103**

**Flash Writer ( AF200 ) Control Module**

**Model Micom :**

**H8-539F (HD64F5398) (FH001)**  
**H8-538F (HD64F5388) (FH002)**  
**SH7050F (HD64F7050) (FH003)**  
**SH7044F (HD63F7044) (FH005)**  
**H8/3048F (HD64F3048) (FH103)**

**User's Manual**

**Yokogawa Digital Computer Corporation**

This control module is the Battery Back-upped and its duration is about 3 years.  
Following remarks are for the usage.

- ① Please **DO NOT** store your files into the control module as the permanent storage. Use DOS are as the temporary storage area.
- ② Please change the battery of control module under the plugged-in conditions to powered-on PC or AF200.

**FH003**  
**INSTRUCTION MANUAL**  
**No. M1079HQ-10**

## **Revision History**

<b>Edition</b>	<b>Publication Date</b>	<b>Changes</b>
First Edition	7 April, 1997	Initial Publication
Second Edition	10 July, 1997	
Third Edition	11 September, 1997	
Fourth Edition	15 December, 1997	
Fifth Edition	25 December, 1997	
Sixth Edition	24 February, 1998	Specification of FH005 and FH103
Seventh Edition	19 March, 1998	Internet Prep
Eighth Edition	10 April, 1998	3-2-1 Revised
Ninth Edition	10 Jun, 1999	Revised Model Micom as Ver.Up (FF103A)
Tenth Edition	27 July, 1999	Revised as Utility Assy Ver.UP

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## 1. Overview

FH003 is a control module for AF200 advanced on-board flash microm programmer.

FH003 supports HITACHI HD64F7050 and other microms having the same programming algorithm and protocol. (FH001 is for HD64F5398, FH002 is for HD64F5388, FH005 is for HD64F7044 and FH103 is for HD64F3048.)

This control module contains a PC with the programmer control software and a utility disk. Refer to Section 4-⑨ for the utility disk usage.

The free area on the PC card can be used as the DOS file system area to store your object file.

2Mbyte (/P2) or 4Mbyte (/P4) of the PC card is available as an option. The /P2 supports up to 128byte and the /P4 does up to 512byte of the flash memory.

YDC offers three types of the probe cable as standard, AZ210, AZ211, AZ212-S1.

Consult with YDC or your local distributors for other probe supports.

### Notes:

The control module supports the model and other microms which have the same programming algorithm and protocol.

As using this control module for non-model microms, the optional controller /parameter generator is required to modify some parts of control parameters. Refer to Section 5 for the parameter modification.

Confirm that the microm you are using is supported or has the same algorithm and the protocol as the model microm's.

SH7044F requires the /P4 option as the flash memory of it is 256K bytes.

### Import Points:

- a. The programming method is the same as the model microm's.
- b. The programming voltage (Vpp) and the control algorithm is the same as the model microm's.
- c. The communication protocol for the programming control is the same as the model microm's.
- d. For other microms having the RAM loading method control program, supply an appropriate control program which is the same as the model microm's.

Contact YDC or your local distributors if you have any question.

Caution:

Using the wrong control module can lead to the serious damage for your target maicom and the target system.

## 2. Specification

### 2-1 Specification of FH001-FH103

(Refer to AF200 Standard regarding the unlisted items.)

#### 2-1-1 Target Micom

Control Module	FH001	FH002	FH003	FH005	FH103
Model MCU	H8/539F	H8/538F	SH7050F	SH7044F	H8/3048F
Flash Memory Capacity	128KB	61056KB	128KB	256KB	128KB
Flash Memory Address	#10000~ #2FFFF	#0 ~ #EE7E	#0 ~ #1FFFF	#0 ~ #3FFFF	#0~ #1FFFF
Programming Voltage (Vpp)	12.0V±0.6V	12.0V±0.6V	Vcc-0.7V ~ Vcc+0.3V	Vcc-0.7~ Vcc+0.3V	12.0V±0.6V
Default	12.0V	12.0V	5V	5V	12.0V
Object File Format	Intel HEX Motorola-S Binary	Intel HEX Motorola-S Binary	Intel HEX Motorola-S Binary	Intel HEX Motorola S Binary	Intel HEX Motorola S Binary
Default	Intel HEX	Intel HEX	Intel HEX	Intel HEX	Intel HEX
Byte Order	Motorola Type				
Erased Value	#FF	#FF	#FF	#FF	#FF

## 2 - 1 - 2 Programming Method

Module Type	FH001	FH002	FH003	FH005	FH103
Model MCU	H8/538F	H8/538F	SH7050F	SH7044F	H8/3048F
Target Interface	UART (Asynchronous) Interface 2400, 4800, 9600, 312500 or 62500bps <input type="checkbox"/> MSB first <input checked="" type="checkbox"/> LSB first				
Vpp	12V	12V	5V	3~ 5V	12V
Vcc (Minimum Target Voltage during Programming)	2.3V	2.3V	2.3V	2.3V	2.3V
Transfer Data Format (Writer – Target)	S-record (S28) full space	S-record (S16)	Binary	Binary	Binary
MCU Clock during Programming (Model Frequency)	16MHz (max) ( 16MHz )	16MHz (max) ( 16MHz )	4~ 20MHz ( 20MHz)	4~ 28.7MHz (20MHz)	2~ 16MHz (16MHz )

### Notes:

The control module requires JUST ONE writing control program (WCP).

The WCP is downloaded to the MCU before the target program, and controls the writing procedure.

The attached utility program, ASSY contains two groups of model WCP and it's source programs for the model programming speed ( $f=16\text{MHz}$ ).

One of groups is for 9600bps data transfer. Must copy one appropriate WCP for your target system clock ( $f_1$ ).

The other group is for 62500 data transfer. The target system clock should be matched to the model frequency mentioned above to use this WCP.

The control programming needs to be changed is the programming speed you are using is neither of these two. YDC or offers to develop the custom WCP with certain engineering support fee.

Refer to Section 4-② regarding the WCP installation.

## 2-2 Specified Parameter Setting

The specified parameters shown below must be set by [FUNCTION D F] and [FUNCTION 8 x].

Item	Function Name	n	Contents
27	Clock Setting	DF	System Clock Speed in the Target Micom

The AUX setting function,[FUNCTION 8 X] is not used with this control module.

Baud Rate set by [FUNCTION] [D] [2] defined as follows.

(Refer to AF200 Instruction Manual Section 5-10-2-②)

- ① The transfer rate is switched over to the high speed baud rate after the initial booting (9600baud).  
→This high speed baud rate is set as a function.
- ② No changes in the transfer speed.  
→This function has no meaning.

## 2-3 Device Function and Its Operation

The chart below shows the each of operations during the AF200 device function procedure.

Device Function		Erase	Blank Check	Program	Read	EPR	Copy
Target Memory Area	[Func 0] Command (with block alignment)	×	×	○ (“Erase”, only for the internal area)	○ * 1	○ (“Erase”, only for the internal area)	×
	[Func D 6] Command	×	×	×	×	×	×
Operation for Flash Memory		<input type="checkbox"/> Erase <input type="checkbox"/> Blank Check	<input type="checkbox"/> Blank Check	<input checked="" type="checkbox"/> Erase <input type="checkbox"/> Blank Check <input checked="" type="checkbox"/> Program <input type="checkbox"/> Read Verify <input checked="" type="checkbox"/> Sum Check	<input checked="" type="checkbox"/> Read Verify	<input checked="" type="checkbox"/> Erase <input type="checkbox"/> Blank Check <input checked="" type="checkbox"/> Program <input checked="" type="checkbox"/> Read Verify <input checked="" type="checkbox"/> Sum Check	<input checked="" type="checkbox"/> Copy
Notes:		Erase Operation deletes the internal area regardless of functions. * 1 The operation for FH001/FH002/FH003/FH005/FH103 Copy and Read Verify take effect only in Application Mode.					

### 3. Connecting to the Target System

Chart 3-1-1, 3-1-2, 3-1-3 and 3-1-4 below shows the AF200 target probe connector signals with this control module.

CPU Signal	AF200 Standard Signal			CPU Signal	
GND	GND	15	1	GND	GND
	TVpp1	16 <b>a</b> <b>b</b>	2	TVcc	User Vcc
	TVpp2	17 <b>a</b> <b>b</b>	3	Vcc	
T1	WDT	18	4	TRES	(RESET)
FWE	TAUX3 TVpp1c	19 <b>a</b>	5	/TRES	/RESET
	TAUX4 TVpp2c	20 <b>b</b>	6 <b>b</b>	TCK	
GND	GND	21	7	GND	GND
GND	GND	22	8	GND	GND
	TAUX	23 <b>b</b>	9 <b>b</b>	TAUX2 (TRW)	
	TBUSY	24 <b>b</b>	10	/TICS	Multiplexed Signal
	T10	25 <b>b</b>	11 <b>a</b>	TAUX5 (/TOE)	Application Read Signal
	T11	26 <b>b</b>	12 <b>a</b>	TMODE	MD1
TXD	TRXD	27	13	TTXD	RXD
GND	GND	28	14	GND	GND

Chart3-1-1: Target Probe Signal Chart (FH003)

“**a**” signals are defined by each control module.

“**b**” signals are not used with this control module. DO NOT connect these signals to the target system.

T1 Refer to Section 3-1.

CPU Signal	AF200 Standard Signal				CPU Signal
GND	GND	15	1	GND	GND
Vpp	TVpp1	16 a	2	TVcc	User Vcc
MD2	TVpp2	17 a	3	Vcc	
*1	WDT	18	4	TRES	(RESET)
(Use Vpp Control)	TAUX3 TVpp1c	19 a	5	/TRES	/RESET
	TAUX4 TVpp2c	20 b	6 b	TCK	
GND	GND	21	7	GND	GND
GND	GND	22	8	GND	GND
	TAUX	23 a b	9 b	TAUX2 (TRW)	
	TBUSY	24 b	10	/TICS	Multiplexed Signal
	T10	25 b	11 a	TAUX5 (/TOE)	Application Read Signal
	T11	26 b	12 a b	TMODE	
TXD	TRXD	27	13	TTXD	RXD
GND	GND	28	14	GND	GND

Chart3-1-2: Target Probe Signal Chart(FH001 and FH002)

“a” signals are defined by each control module.

“b” signals are not used with this control module. DO NOT connect these signals to the target system.

\*1 Refer to Section 3-1.

CPU Signal	AF200 Standard Signal			CPU Signal	
GND	GND	15	1	GND	GND
	TVpp1	16 a b	2	TVcc	User Vcc
	TVpp2	17 a b	3	Vcc	
*1	WDT	18	4	TRES	
FWP	TAUX3 TVpp1c	19 a	5	/TRES	/RESET
	TAUX4 TVpp2c	20 b	6 b	TCK	
GND	GND	21	7	GND	GND
GND	GND	22	8	GND	GND
MD1	TAUX	23 a	9 b	TAUX2 (TRW)	
	TBUSY	24 b	10	/TICS	Multiplexed Signal
	T10	25 b	11 a	TAUX5 (/TOE)	Application Read Signal
	T11	26 b	12 a b	TMODE	
TXD1	TRXD	27	13	TTXD	RDX1
GND	GND	28	14	GND	GND

Chart3-1-3: Target Probe Signal Chart (FH005)

“a” signals are defined by each control module.

“b” signals are not used with this control module. DO NOT connect these signals to the target system.

\*1 Refer to Section 3-1.

CPU Signal	AF200 Standard Signal				CPU Signal
GND	GND	15	1	GND	GND
Vpp(12V)	TVpp1	16 a	2	TVcc	User Vcc
MD2(12V)	TVpp2	17 a	3	Vcc	
T1	WDT	18	4	TRES	(RESET)
	TAUX3 TVpp1c	19 a b	5	/TRES	/RESET
	TAUX4 TVpp2c	20 b	6 b	TCK	
GND	GND	21	7	GND	GND
GND	GND	22	8	GND	GND
	TAUX	23 a b	9 b	TAUX2 (TRW)	
	TBUSY	24 b	10	/TICS	Multiplexed Signal
	T10	25 b	11 a	TAUX5 (/TOE)	Application Read Signal
	T11	26 b	12 a b	TMODE	
TXD	TRXD	27	13	TTXD	RXD
GND	GND	28	14	GND	GND

Chart3-1-4: Target Probe Signal Chart (FH103)

“a” signals are defined by each control module.

“b” signals are not used with this control module. DO NOT connect these signals to the target system.

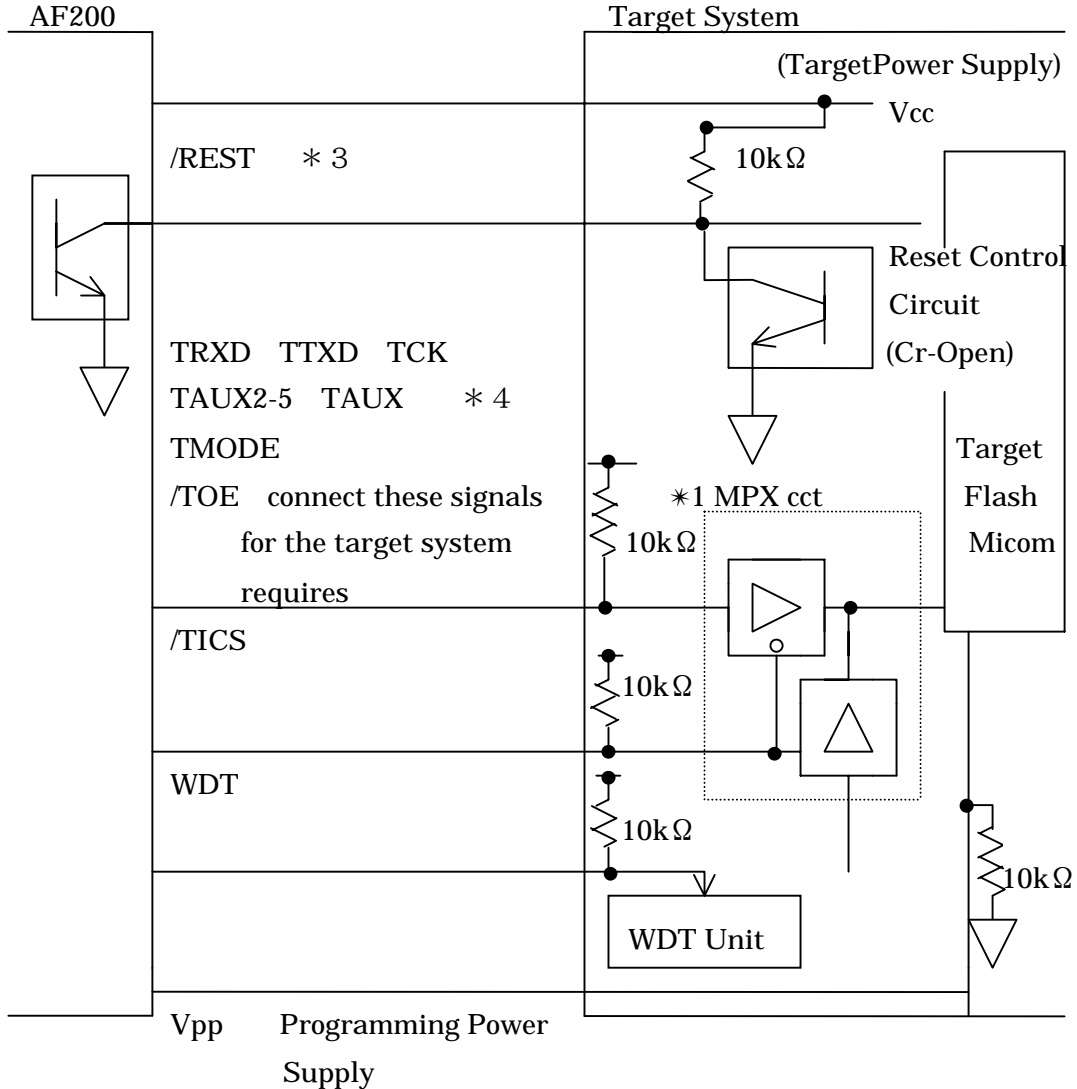
\*1 Refer to Section 3-1.

Signal Name (Pin No.)	FH001	FH002	FH003	FH005	FH103
TAUX2 (TR/W) (9)	Not Used				
TAUX5 (/TOE) (11)	Application Read Mode: The signal which informs the target system of the read function execution on the application read mode.				
TAUX (23)	Not Used			MD1 Signal Line	Not Used
TVpp2 (17)	MD2 Signal Line		Not Used		
TAUX3 (TVpp1c) (19)	TVpp1 Control Signal (0 to 5V) This signal is used for switching Vpp generated in the target system. High(5V): switch on Vpp.		FEW S.L	FWP S.L.	Not Used
TMODE (12)	Not Used		MD1 S.L.	Not Used	Not Used
T10 (25)	Not Used				
T11 (26)	Not Used				

Chart 3-1-5: Specified Signals Definition Chart

### 3-1 Model Connection to the Target System

This figure below shows the model connection to the target system.



Model Connection to the Target System

\* 1 For such signals defined as the double function pins, the multiplexing cct. of these signals must be provided on the user system.

/TICS signal is an asserted signal only during AF 200 is device functioning.

/TICS signal multiplexes the signals connected to these double function pins.

The multiplexing cct. is not required for the target system, which those signals are defined only as the control signals for the flash micom.

Insert the multiplexing cct. into the user system to provide the status in which

AF200 is unconnected( or unplugged the connector) during /TICS is being negated.

- \* 2 The clock signal defined by "FUNCTION D 5" is generated from the WDT signal pins of AF200. (generate only while /TICS is asserted: Cr-OPEN output)  
Connect to the proper user cct. requiring the clock signal during the programming to the flash memory.

\*3 TRES

/TRES is included in AF200 standard probe.

/TRES signal is an open collector output to connect to obtain the wired-or /RESET.

TRES signal is available to the target system requiring the positive RESET signal.

TRES signal is a totem pole output signal.

\*4 TAUX2 ~ TAUX5

These signals can be used as the peculiar programming signals to set the modes and other functions of the target micom just as AUX(23) signals.

### 3-2 Programming Signal Chart

#### 3-2-1 Programming Mode

Fig. 3-2-1 below shows the timing chart of the programming mode.

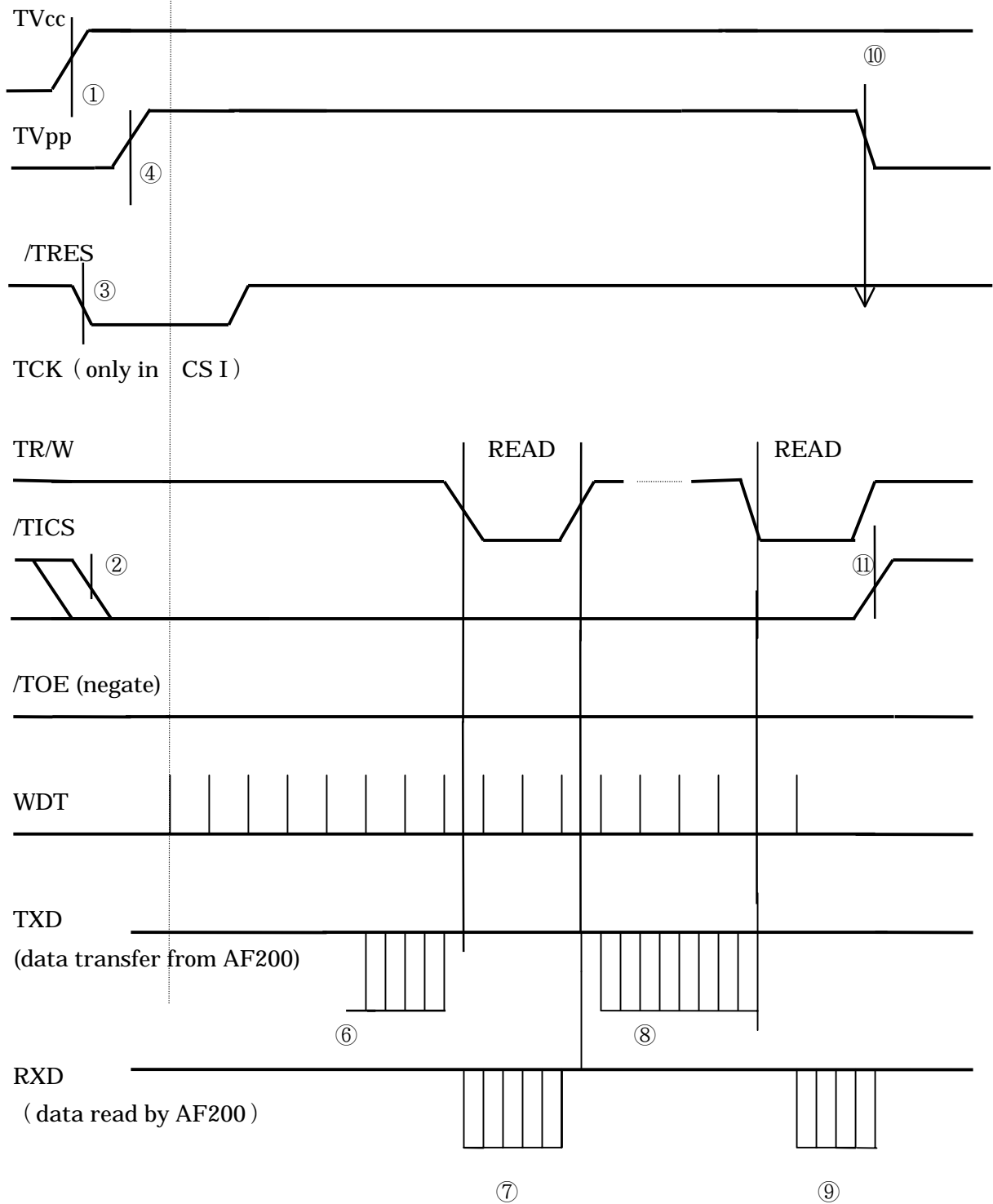


Fig. 3-2-1: H8-539F Programming Mode

- ① Switch on the target system first and the flash writer.
- ② /TICS is asserted by operating the programming command then the communication channel for the flash programmer is multiplexed to the flash writer on the target system.  
(The system does not require the multiplexing cct. Refer to Fig3-1)
- ③ The flash writer generates the RESET signal to let the target micom into the programming mode.
- ④ Output Tvpp to the specified voltage.
- ⑤ After the programming mode is being operated, the target micom starts the communication to AF200 through the selected communication channel.  
The channel defined by "FUNCTION D 1" is chosen as the communication channel.
- ⑥~⑨ The communication for the programming starts under the specified writing protocols.
- ⑩ AF200 stops Vpp automatically after the programming operation.
- ⑪ /TICS is negated also.

The WDT signal continues to generate the pulse signal while /TICS is asserted.

### 3-2-2 Read Function

This flash micom AF200 is to program do not have the memory read function.  
The information on the flash memory can be read by the user application program on the target micom. (Application Read Function)  
Refer to AF 200 Users Manual regarding the user application program.

Fig 3-2-2 shows the timing chart during the application read mode procedure.

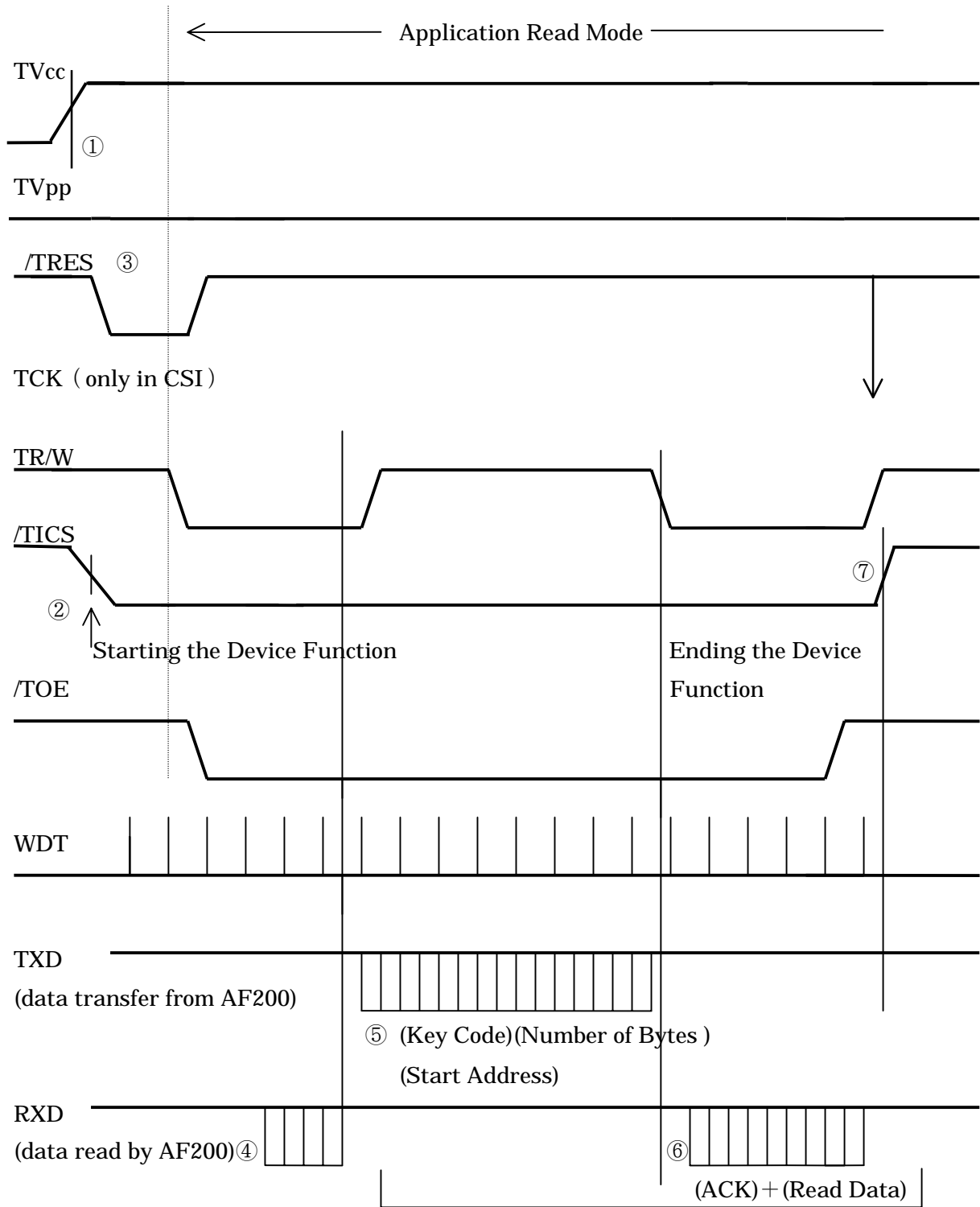
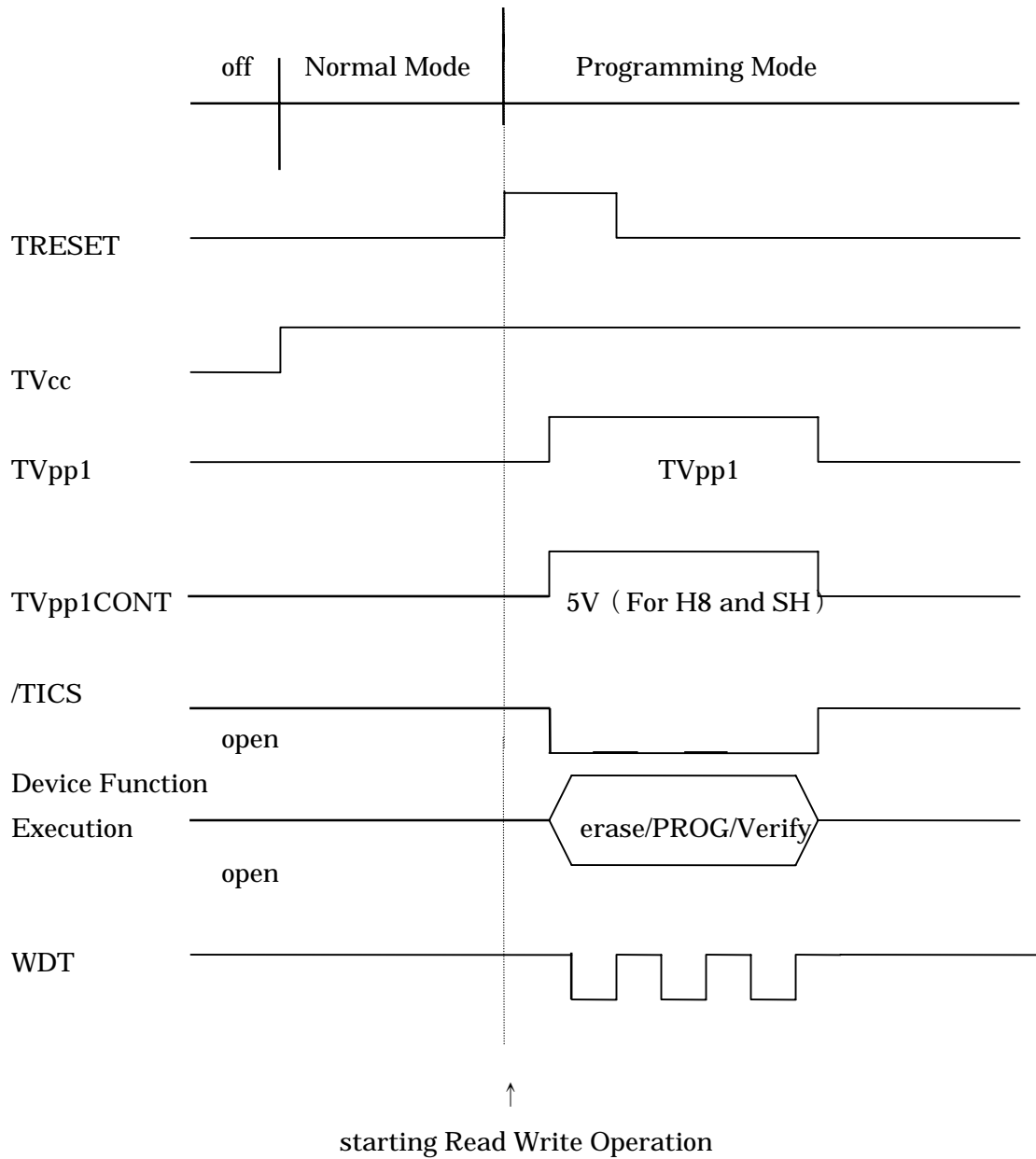


Fig.3 - 2 - 2 : Application Read Mode

- ① Confirm that the flash writer is switched on first and so is the target system's.
- ② /TICS is asserted after sensing TVcc.
- ③ The flash writer asserts the RESET signal to the target micom and starts the application read program on the target micom.
- ④~⑥ The reading data on the flash memory starts as the protocol of the application read program.  
Regarding the micoms without the application program, the error message is generated after the specific term of the ④STR receipt.
- ⑤~⑥ is repeated if much number of the data.
- ⑦ Negate /TICS and /TOE after reading the data.

### 3-2-3 Operation of Device Function and Data Edition



#### Data Edition

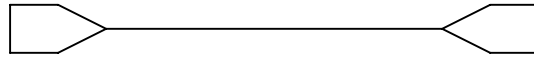
/TICS continues to be asserted until the RESET key is pressed in the editing mode.

### 3-3 Probe

YDC offers the probe shown below as standard. (sold separately)

Consult with YDC or your local distributors for other probes.

AZ210



1 to 1 connection

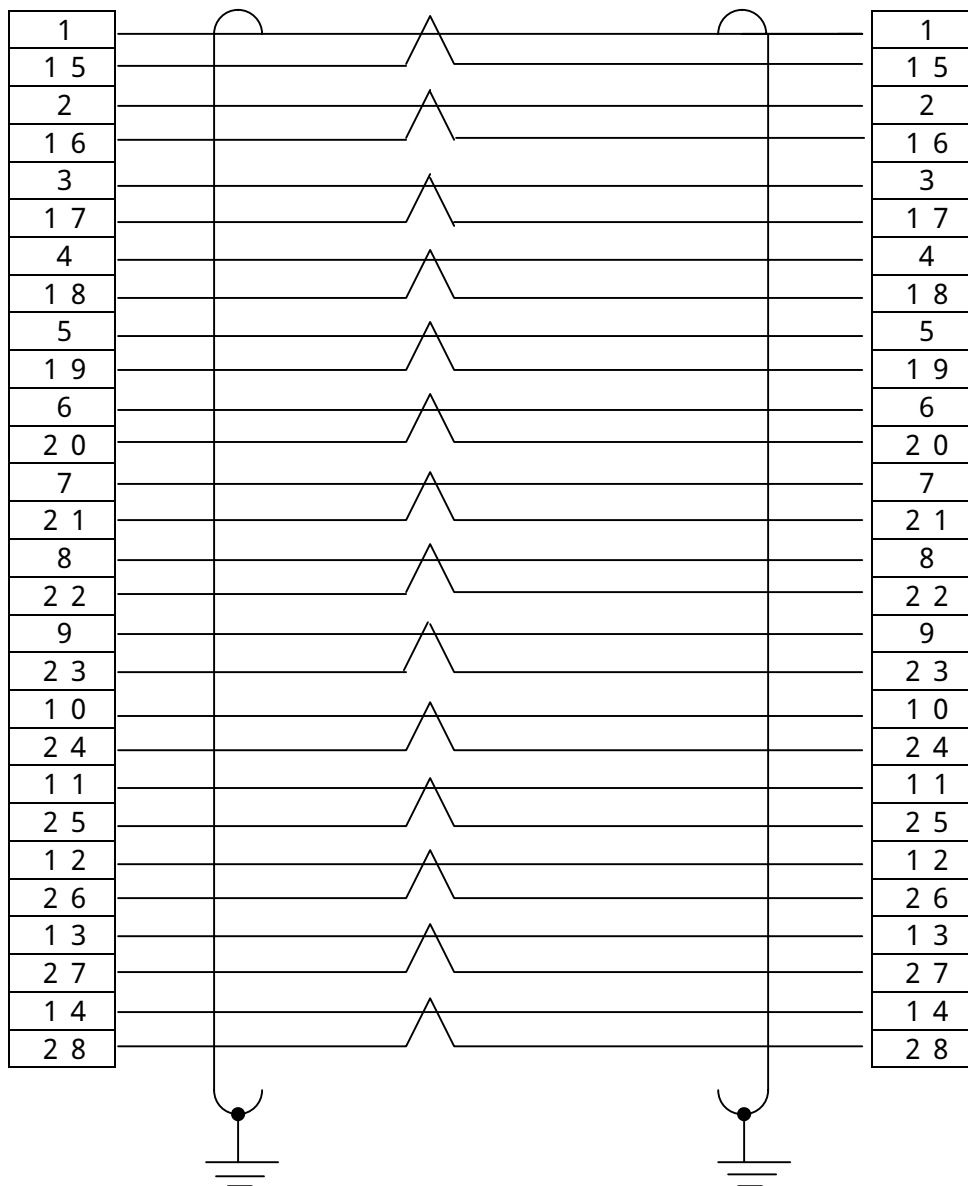


Fig. 3-3-1 AZ210 Standard Probe

/AD (pull-up resistor) assembly (optional)

Most of AF200I/O lines have 100K pull-down resistor between the GND line and itself.

Also the control lines from AF200 used on the target system must be negated not to disturb the target system as if AF200 connector is not attached.

These lines are recommended to be 10K pull-upped or pull-downed the target power on the target side.

If not available on the target board, optional /AD assembly can be used instead.

The /AD assemble enables you to add pull-up/pull-down resistor on itself to any of AF200 control lines.

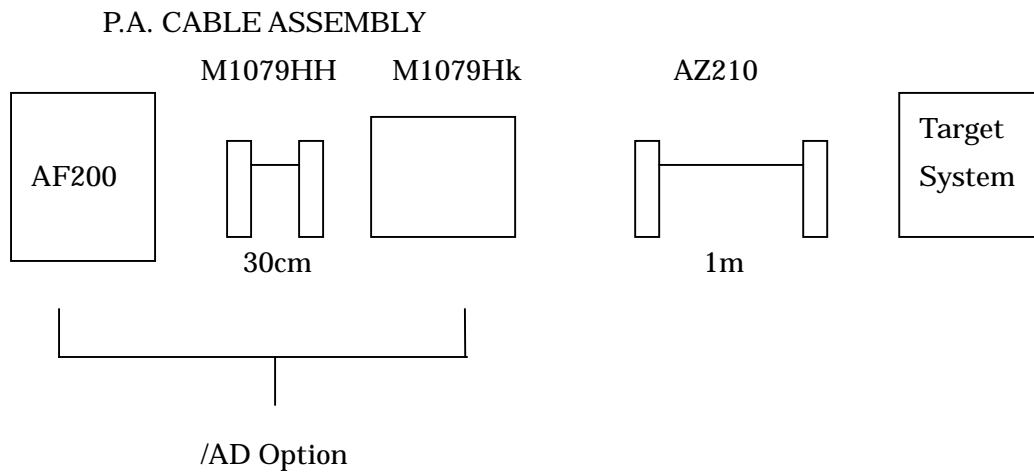
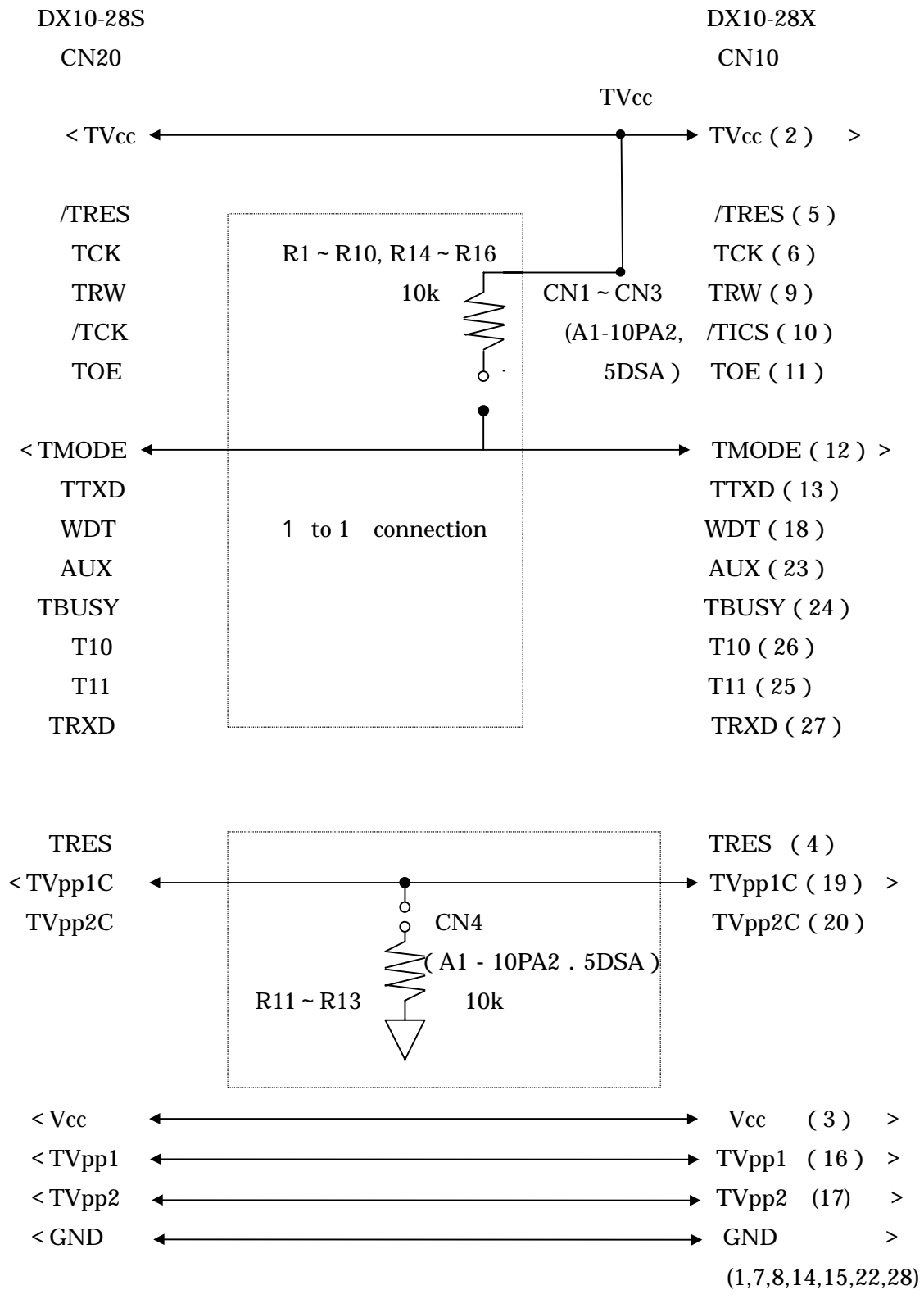


Fig. 3-3-2 /AD Option Usage



PCB:M1079HK  
PWB:M1079HL

Fig.3-3-3 / AD Optional PCB Assembly Figure

## 4 . Notes and Caution

This control module is only for AF200. *DO NOT* use for other micoms.

This control module is only for the specified micoms. Using the unspecified control module and micoms can cause a permanent damage to the target system.

AF200 requires a few mA of the target power from Tvcc to drive interface IC.

Attach the control module to either AF200 or PC and keep its power on during the replacement procedure of batteries for the control module. The duration of batteries is about 3 years at room temperature.

The write protect switch on the control module(PC card) must be OFF.

*DO NOT* initialize (format) the control module, as containing the flash writer control program as well. Initializing can destroy this control program.

*DO NOT* eject the control module during the read and write operation to the control module (SRAM PC card).

Ejection a PC card during the operation can cause a serious damage to the information in the PC card.

Press RESET key before ejecting.

This control module works with AF200 main unit.

## Installation of WCP (Writing Control program on Target MCU)

### (1) Overview

WCP should be down loaded into the target MCU before the device function execution in this module, and the target MCU executes the programming sequence under this WCP.

The WCP should be included in the DOS area of this control module and is named as XXX.BTP.

Only one XXX.BTP file should be located in the DOS area and no more than one should be located in this control module. Also no XXX.BTP file is not permitted.

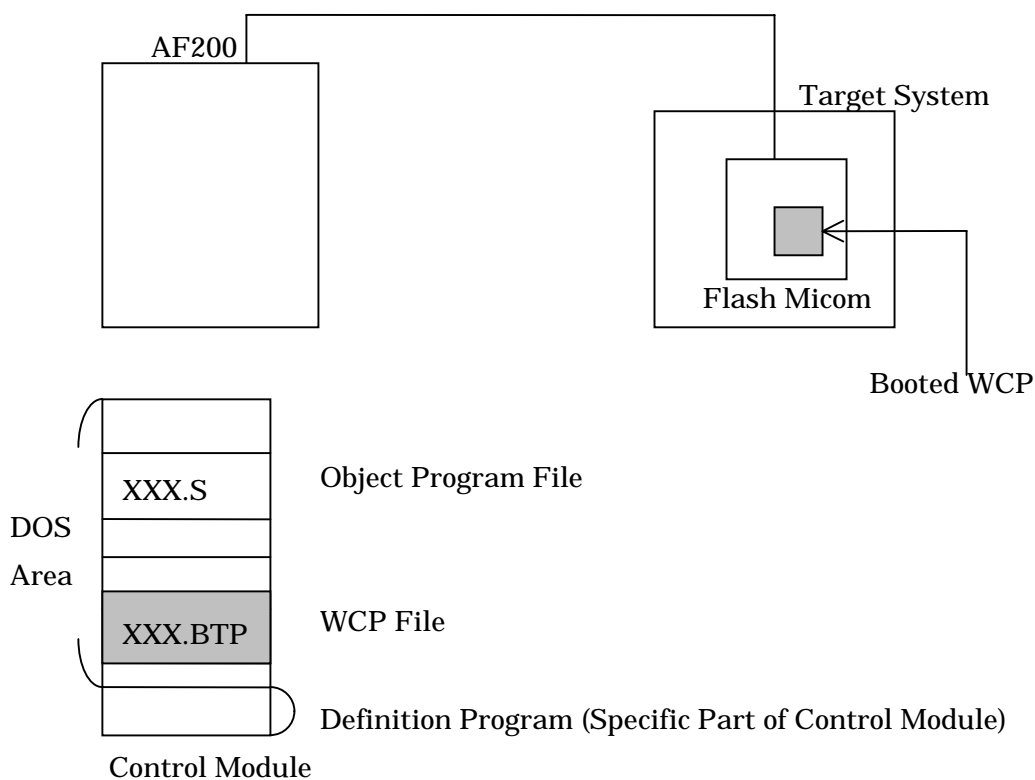


Fig. 4 : Location of XXX.BTP File (WCP File) and WCP Program Down Loaded into the Target System

## (2) How to Install XXX.BTP File

### (2)-1 Selection of WCP (XXX.BTP)

Select a proper XXX.BTP file matched to your target MCU from the utility assembly, the operating frequency and the baud rate between the user target system and AF200.

#### <Caution!>

The baud rate means the speed-upped baud rate after the booting the WCP. The programming time can be shortened by defining the speed-upped baud rate.

The WCP (XXX.BTP) is included in the utility assy as the following file names. Refer to the next page.

- | - BTP¥ . . . WCP (XXX.BTP) Directory
- | | - H0011662.BTP . . . WCP for FH001 16MHz / 62500bps
- | | - H0011696.BTP . . . WCP for FH001 16MHz / 9600bps
- | | - H001S116.BTP . . . WCP for FH001-S1 16MHz / 62500bps
- | | - H0021696.BTP . . . WCP for FH002 16MHz / 9600bps
- | | - H0021662.BTP . . . WCP for FH002 16MHz / 62500bps
- | | - H002S116.BTP . . . WCP for FH002-S1 16MHz / 62500bps
- | | - H0032096.BTP . . . WCP for FH003(SH7050F) 20MHz / 9600bps
- | | - H0032062.BTP . . . WCP for FH003(SH7050F) 20MHz / 62500bps
- | | - H0032096\_SH7051.BTP . . . WCP for FH003(SH7051F) 20MHz / 9600bps
- | | - H0032062\_SH7051.BTP . . . WCP for FH003(SH7051F) 20MHz / 62500bps
- | | - H3S12062.BTP . . . WCP for FH003-S1(SH7050F) 20MHz / 62500bps
- | | - H0052096.BTP . . . WCP for FH005(SH7044/45F) 20MHz / 9600bps
- | | - H0052062.BTP . . . WCP for FH005(SH7044/45F) 20MHz / 62500bps
- | | - H0052896.BTP . . . WCP for FH005(SH7044/45F) 28.7MHz / 9600bps
- | | - H0052862.BTP . . . WCP for FH005(SH7044/45F) 28.7MHz / 62500bps
- | | - H1031696\_H83048.BTP . . . WCP for FH103(H8/3048F) 16MHz / 9600bps
- | | - H1031662\_H83048.BTP . . . WCP for FH103(H8/3048F) 16MHz / 62500bps
- | | - H1032096\_H8S2144.BTP . . . WCP for FH103(H8S/2144F) 20MHz/9600bps
- | | - H1032062\_H8S2144.BTP . . . WCP for FH103(H8S/2144F) 20MHz/62500bps
- | | - H1031096\_SH7055.BTP . . . WCP for FH103(SH7055F) 10MHz(Ext.)/9600bps
- | | - H1031062\_SH7055.BTP . . . WCP for FH103(SH7055F) 10MHz(Ext.)/62500bps
- | | - H1031096\_H83039.BTP . . . WCP for FH103(H8/3039F) 10MHz / 9600bps
- | | - H1031076\_H83039.BTP . . . WCP for FH103(H8/3039F) 10MHz / 76800bps
- | | - H1031896\_H83039.BTP . . . WCP for FH103(H8/3039F) 18MHz / 9600bps
- | | - H1031862\_H83039.BTP . . . WCP for FH103(H8/3039F) 18MHz / 62500bps
- | | - H1032096\_H8S2345.BTP . . . WCP for FH103(H8S/2345F) 20MHz / 9600bps
- | | - H1032076\_H8S2345.BTP . . . WCP for FH103(H8S/2345F) 20MHz / 76800bps

- | - BIN¥ . . . Format Converter directory
- | | - MOT2BIN . EXE...Motorola S Record Binary Format Conversion Utility

- | - SRC¥            · · · Source Program Directory
  - | - H8539        · · · WCP Source Program for FH001(H8/539F)
    - |                | - 539 . SRC   · · · Assembler Source Program
    - |                | - ASM . BAT · · · Batch File for Assembling
  - | - H001S1      · · · WCP Source Program for FH001 - S1(H8/539F)
    - |                | - 539 . SRC · · · Assembler Source Program
    - |                | - ASM . BAT · · · Batch File for Assembling
  - | - H8538        · · · WCP Source Program forFH002(H8/538F)
    - |                | - 538 . SRC · · · Assembler Source Program
    - |                | - ASM . BAT · · · Batch File for assembling
  - | - SH7050¥     · · · WCP Source Program for FH003(SH7050F)
    - |                | - SH7050 . SRC · · · Assembler Source Program
    - |                | - ASM . BAT · · · Batch File for Assembling
  - | - SH7051¥     · · · WCP Source Program forFH003(SH7051F)
    - |                | - SH7051 . SRC   · · · Assembler Source Program
    - |                | - ASM . BAT · · · Batch File for Assembling
  - | - H003S1¥     · · · WCP Source Program for FH003-S1(SH7050F)
    - |                | - SH7050 . SRC   · · · Assembler Source Program
    - |                | - ASM . BAT · · · Batch File for Assembling
  - | - SH7044¥     · · · WCP Source Program for FH005(SH7044F)
    - |                | - SH7044 . SRC   · · · Assembler Source Program
    - |                | - ASM . BAT · · · Batch File for Assembling
  - | - SH7045¥     · · · WCP Source Program for FH005(SH7045F)
    - |                | - SH7045 . SRC   · · · Assembler Source Program
    - |                | - ASM . BAT · · · Batch File for Assembling
  - | - H83048¥     · · · WCP Source Program for FH103(H8/3048F)
    - |                | - 3048 . SRC   · · · Assembler Source Program
    - |                | - ASM . BAT · · · Batch File for Assembling
  - | - H8S2144¥    · · · WCP Source Program for FH103(H8S/2144F)
    - |                | - H8S2144 . SRC   · · · Assembler Source Program
    - |                | - 2144F.INF   · · · Serup Information
    - |                | - XMACRO.INC   · · · Macro Include File
    - |                | - ASM . BAT · · · Batch File for Assembling

- |
- | - SH7055¥ · · · WCP Source Program for FH103(SH7055F)
- |                   | - 7055F . SRC · · · Assembler Source Program
- |                   | - ASM . BAT · · · Batch File for Assembling
- | - H83039¥ · · · WCP Source Program for FH103(H8/3039F)
- |                   | - F3039 . SRC · · · Assembler Source Program
- |                   | - ASM . BAT · · · Batch File for Assembling
- | - H8S2345¥ · · · WCP Source Program for FH103(H8S/2345F)
- |                   | - H8S2345 . SRC · · · Assembler Source Program
- |                   | - ASM . BAT · · · Batch File for Assembling

Note: The contents of the utility assembly will be enhanced with the new development for future MCUs. The latest information is introduced in our home page.

## (2)-2 Modification of WCP (XXX.BTP)

Modify the following WCP if your target system does not match to the XXX.BTP files in the WCP directory. (Refer to (2)-1)

The WCP program is included in the utility assembly with its own source program.

This source can be modified by the conditions of your target system.

These source programs are included in the SRC ¥ directory.

- | - SRC¥            · · · Source Program Directory
  - | - H8539    · · · WCP Source Program for FH001(H8/539F)
    - |            | - 539 . SRC    · · · Assembler Source Program
    - |            | - ASM . BAT · · · Batch File for Assembling
  - | - H001S1    · · · WCP Source Program for FH001 - S1
    - |            | - 538 . SRC · · · Assembler Source Program
    - |            | - ASM . BAT · · · Batch File for Assembling
  - | - H8538    · · · WCP Source Program for FH002(H8/538F)
    - |            | - 538 . SRC · · · Assembler Source Program
    - |            | - ASM . BAT · · · Batch File for Assembling
  - | - SH7050¥ · · · WCP Source Program for FH003(SH7050F)
    - |            | - SH7050 . SRC · · · Assembler Source Program
    - |            | - ASM . BAT · · · Batch File for Assembling
  - | - SH7051¥ · · · WCP Source Program for FH003(SH7051F)
    - |            | - SH7051 . SRC · · · Assembler Source Program
    - |            | - ASM . BAT · · · Batch File for Assembling
  - | - H003S1¥ · · · WCP Source Program for FH003-S1(SH7050F)
    - |            | - SH7050 . SRC    · · · Assembler Source Program
    - |            | - ASM . BAT · · · Batch File for Assembling
  - | - SH7044¥ · · · WCP Source Program for FH005(SH7044F)
    - |            | - SH7044 . SRC    · · · Assembler Source Program
    - |            | - ASM . BAT · · · Batch File for Assembling
  - | - SH7045¥ · · · WCP Source Program for FH005(SH7045F)
    - |            | - SH7045 . SRC    · · · Assembler Source Program
    - |            | - ASM . BAT · · · Batch File for Assembling
  - | - H83048¥ · · · WCP Source Program for FH103(H8/3048F)
    - |            | - 3048 . SRC    · · · Assembler Source Program

		- ASM . BAT . . . Batch File for Assembling
	- H8S2144¥ . . . WCP Source Program for FH103(H8S/2144F)	
		- H8S2144 . SRC . . . Assembler Source Program
		- 2144F.INF . . . Serup Information
		- XMACRO.INC . . . Macro Include File
		- ASM . BAT . . . Batch File for Assembling
	- SH7055¥ . . . WCP Source Program for FH103(SH7055F)	
		- 7055F . SRC . . . Assembler Source Program
		- ASM . BAT . . . Batch File for Assembling
	- H83039¥ . . . WCP Source Program for FH103(H8/3039F)	
		- F3039 . SRC . . . Assembler Source Program
		- ASM . BAT . . . Batch File for Assembling
	- H8S2345¥ . . . WCP Source Program for FH103(H8S/2345F)	
		- H8S2345 . SRC . . . Assembler Source Program
		- ASM . BAT . . . Batch File for Assembling

<Caution!>

- YDC is not responsible for the user customized programs.
- ASM.BTP batch file requires the HITACHI original compiler, assembler and linker.
- The binary load module should be produced by using MOT2BIN, EXE Utility Program

## **5. Adapting to the Derivative MCU -Parameter Modification, etc.-**

Two procedures of the parameter modification are shown below.

### **5-1 Minor parameter modification through AF200 keyboard**

The parameters defined by function command(FUNCTION D 1 to FUNCTION D F), shown in AF200 Manual Section 8, can be modified through AF200 keyboard.

(I.e. Communication Interface, Target Voltage, etc.)

Refer to AF200 Manual Section 4-2 and 5.

Note:

AF200 keyboard operation does not support the modification of the parameters for the target processors. Use optional remote controllers.

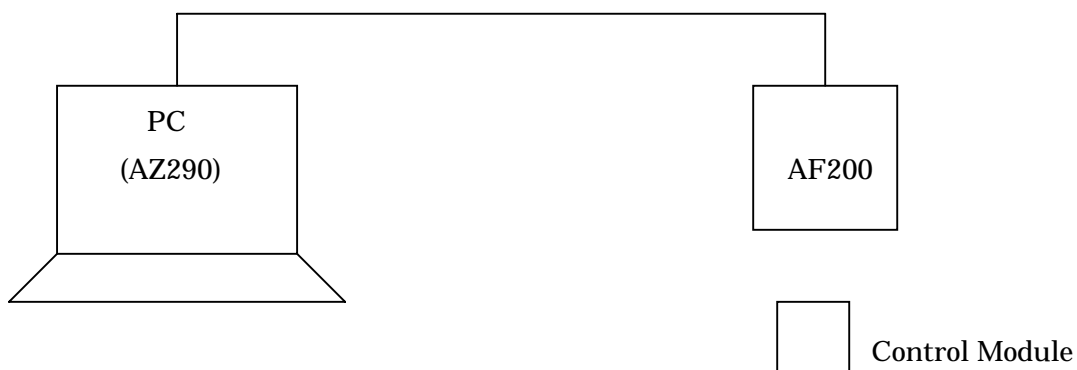
### **5-2 Modification of the parameters for the target processor**

by using an optional remote controller

YDC provides an optional remote controller software(AZ290) to control AF200 from the PC. This software enables you to remote control AF200 as well as the parameter check and the configuration. The configurable parameters are as follows except [FUNCTION D 1] to [FUNCTION D F]:

- 1)MCU Type : The target device name  
Able to customize the names displayed on AF200LCD
- 2)Flash ROM Area :The flash memory are of the model micoms
- 3)ROM Block :The flash memory block alignment can be set by the Block Group Address and the size. Therefore other micoms having the same protocol and algorithm can be modified as well.
- 4)MCU Clock :MCU operating frequency
- 5)Other defined parameters set by [FUNCTION 8 X] if requires.

### 5-2-1 Changing Parameters by Remote Controller Software (AZ290)



Connect between PC and AF200 through the cable (AZ290). Then insert the control module for the model micom (as same kind of the target micom) into AF200 card slot.

Launch the remote control software (sold separately), then the parameter table in the control module can be customized through your PC.

The parameter information generated by the remote controller can be saved in the PC, and you can easily exchange the parameter tables for the same kind but another derivatives.