

COMMUNICATION SOFTWARE FOR MM-122A

MA-716A

OPERATION MANUAL



Thank you for purchasing the Amada Miyachi Communication Software for MM-122A
MA-716A.

This operation manual describes its method of operation and precautions for use.
Read this operation manual carefully prior to use. Store appropriately for ready reference.

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- Microsoft Excel is a product of Microsoft Corporation.
- TM and ® mark are not indicated in this manual.

1. Features

The **MA-716A** is the communication software used for connecting PC with the Amada Miyachi's Weld Checker **MM-122A**.

The **MA-716A** has following features.

- Easy connection
The **MM-122A** can be connected easily to PC using the **MA-716A**. (The connecting cable is optional.)
- Reading the measured data
The value measured on **MM-122A** can be read in PC.
- Changing the setting
Each setting such as the upper/lower limit judgment of **MM-122A** can be changed using PC.
- Using Microsoft Excel
Owing to VBA (Visual Basic for Application) of Excel, the read data can be processed as they are.

2. System Requirements

- **CPU and Memory**

Environment that Microsoft Windows and Microsoft Excel you use can be operated. When the welding interval is short, however, a high-performance PC is required. (1GHz or higher CPU and 1GB or larger memory are recommended.)

- **Hard Disk**

10MB or larger space

- **Serial Port**

At least one communication port for RS-232C and RS-485

- **Microsoft Excel**

Microsoft Excel 2003 (Japanese or English edition)
(It is necessary to apply the Service Pack 3.)

- **Operation System**

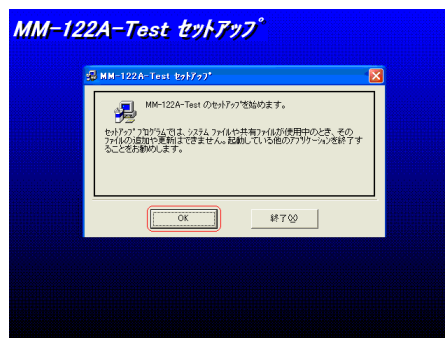
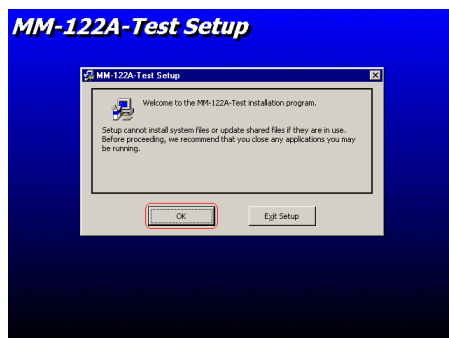
Windows XP Home/Professional 32-bit edition (Japanese or English edition)
(It is necessary to apply the Service Pack 3.)

3. Connection

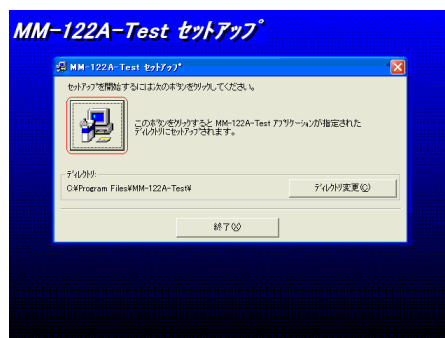
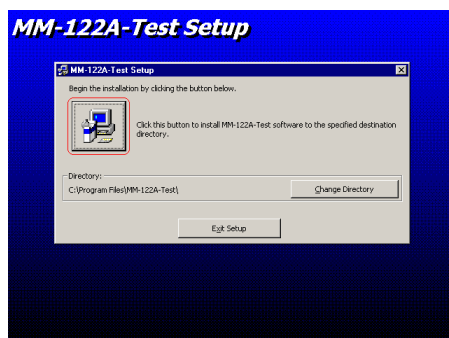
(1) Setup of Software

When using Windows XP, log on with administrator (administrator of PC) or a name of user who belongs to the administrator group. Also, do not use Japanese for user's name.

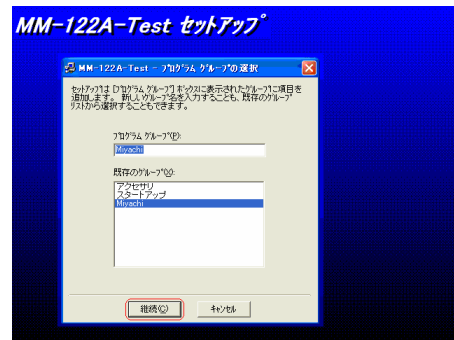
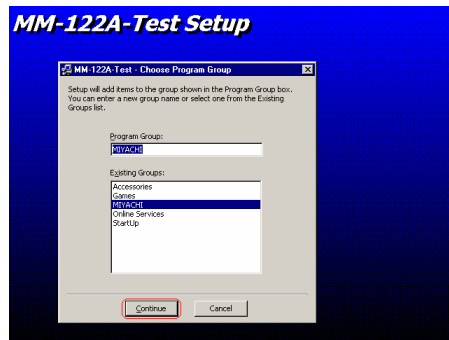
- 1) Double click [My Computer] on the screen.
When [My Computer] is not displayed on screen, open [My Computer].
For how to open [My Computer], see the operation manual for the operation system you use.
- 2) When [My Computer] is opened, double click the drive into which Setup CD-ROM is inserted.
- 3) When CD-ROM is opened, double click [setup] folder.
- 4) When [setup] folder is opened, double click [setup.exe].
- 5) When [MM-122A-Test Setup] is started, click .



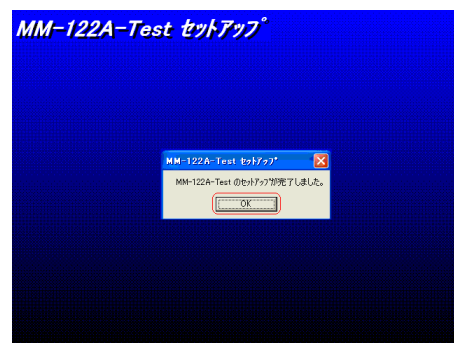
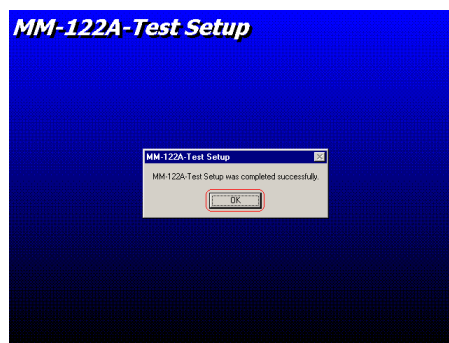
- 6) When the setting screen for folder to be setup is opened, click the button that a computer is illustrated on.



7) When the setting screen for program group is opened, click **Continue**.



8) When the end screen is displayed, click **OK** to end the setup.



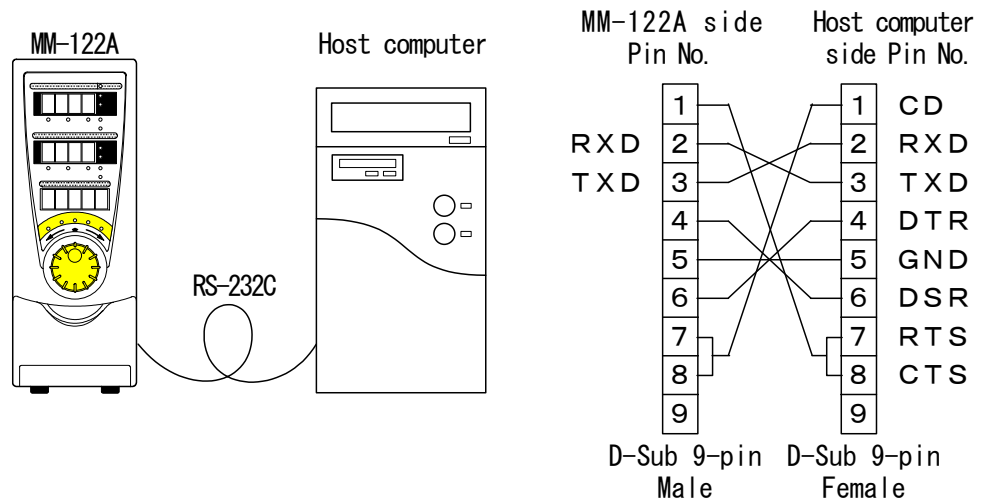
(2) Connecting the Communication Cable

Connect the communication cable to the communication connector on the rear of the **MM-122A**.

For details, see the operation manual for the **MM-122A**.

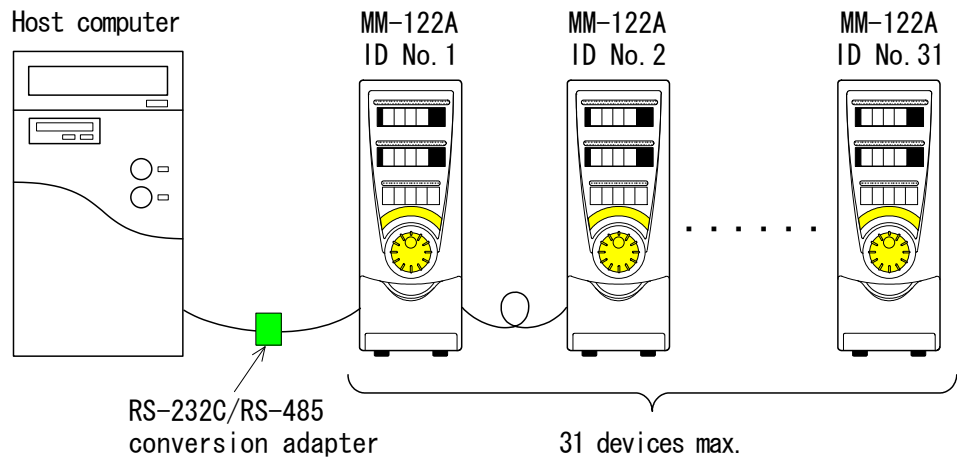
① RS-232C

One **MM-122A** is connected even when the communication method of the **MM-122A** is set to "232Sy" for the setting change or "232Fr" for the measured-value reading.



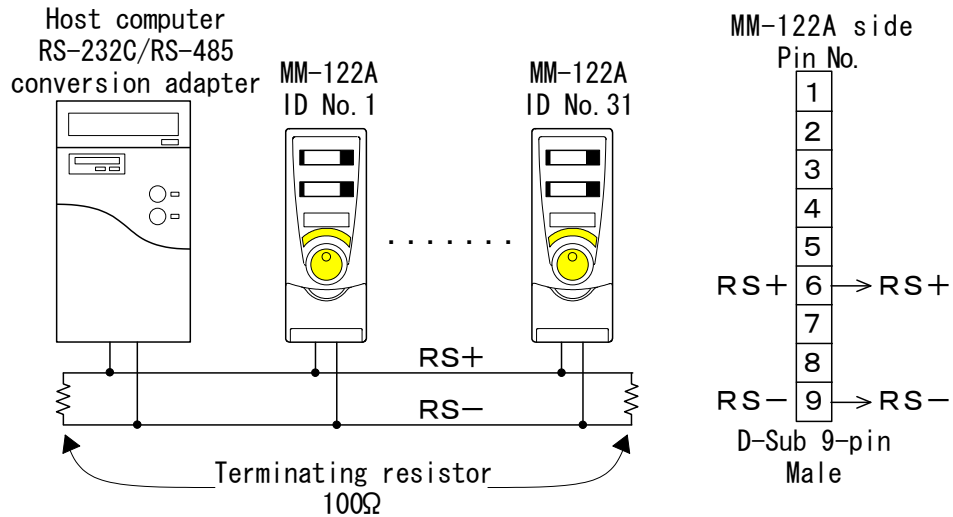
② RS-485

Up to thirty-one **MM-122As** can be connected when the communication method of the **MM-122A** is set to "485Sy" for the setting change. When "485Fr" is set for the measured-value reading, only one **MM-122A** is connected.



ATTENTION

- Do not assign one number to more than one device.
If one number is assigned to more than one device, data collision and inappropriate system operations may result.
- RS-232C/RS-485 conversion adapter is user provided.
- Install a 100Ω terminating resistor at each end of RS-485 cable.

**(3) Checking Connection**

Use the communication-checking software to check connection.
(The communication-checking software is for checking receiving, the communication port and the transmission rate. The bidirectional communication can not be checked.)

① Setting of the **MM-122A**

Set the communication method of the **MM-122A**.

When connecting with RS-232C, set to [232Fr].

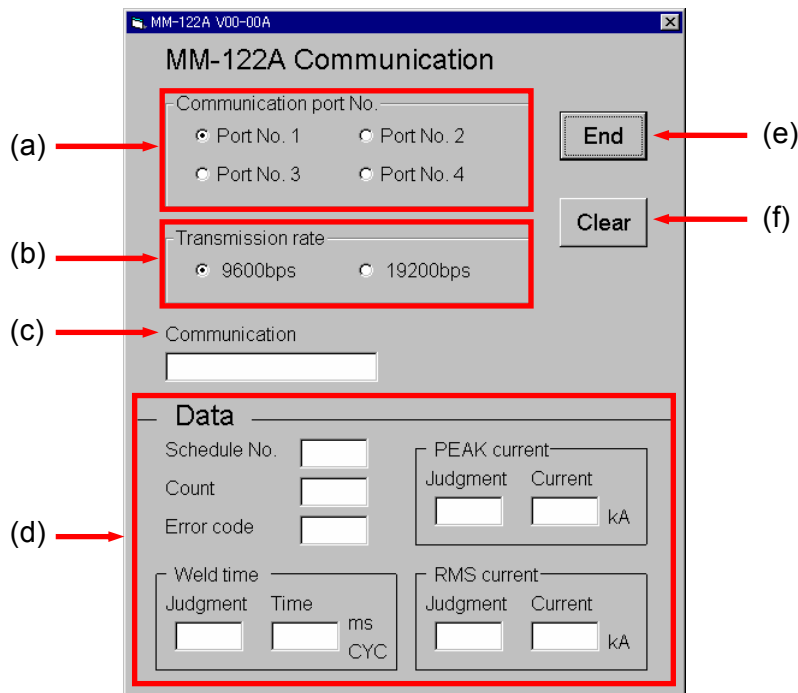
When connecting with RS-485, set to [485Fr].

Set the transmission rate to [9600bps].

For details, see the operation manual for the **MM-122A**.

② Starting the Checking Software

Click the Start button at the lower left portion of the screen and select [Program] → [MIYACHI] → [MM-122A-Test]. The communication- checking software starts.



(Remarks)

- (a) Communication port No.
- (b) Transmission rate
- (c) Communication (Displays the state of communication)
- (d) Data (Displays the received data)
- (e) End (Ends the checking software)
- (f) Clear (Clears display)

③ Setting the Checking Software

Set the communication port No. and the transmission rate.

- Set the communication port No. connected with the communication cable for [Communication port No.].
If [!!ERROR!!] is displayed for [Communication] when setting,
 - the communication port is used by other software or the like, or
 - the communication port is set to be unusable.
 End the software and check the settings of PC *1.
- Set the transmission rate set to the **MM-122A** in ② (9600bps) for [Transmission rate].

*1: See the operation manual for PC you use.

④ Checking Communication

Measure the welding current several times on the **MM-122A**.

- When the communication data is received normally
[!!OK!!] is displayed for [Communication] and the received data is displayed for each item of [Data].
- When communication is not made normally
Nothing or [!!ERROR!!] is displayed for [Communication].
Check the communication cable, connection, communication port No. and transmission rate.

When setting the transmission rate to 19200bps, change the settings for the **MM-122A** and for the checking software, then check again.

4. Reading the Measured Value

(1) Setting of the MM-122A

Set the communication method of the **MM-122A**.

When connecting with RS-232C, set to [232Fr].

One **MM-122A** is connected per host computer.

When connecting with RS-485, set to [485Fr].

One **MM-122A** is connected per host computer.

Set the transmission rate to [9600bps] or [19200bps].

For details, see the operation manual for the **MM-122A**.

(2) Copying the Measured-Value-Reading Software

Copy the measured-value-reading software to [My Documents] on the hard disk using Explorer.

The file to be copied depends on the current setting, Transmission Rate and Communication Port No. to be measured. Copy a proper file.

- Communication Port No. is the setting checked in **Chapter 3 (3)**.
- Transmission Rate and current setting to be measured are the same settings as the **MM-122A**.

Example)

Current setting to be measured: AC
 Transmission Rate: 9600bps
 Communication Port No.: COM2

When the settings are as above,

copy “\excel_receive\ac mode\mon_ac_96_com2.xls”.

① AC Mode

When the current setting to be measured on the **MM-122A** is set to [AC], [AC---] or [dccyc], copy one of the following files.

- When Transmission Rate is 9600bps
 - Communication Port 1: \excel_receive\ac mode\mon_ac_96_com1.xls
 - Communication Port 2: \excel_receive\ac mode\mon_ac_96_com2.xls
 - Communication Port 3: \excel_receive\ac mode\mon_ac_96_com3.xls
 - Communication Port 4: \excel_receive\ac mode\mon_ac_96_com4.xls
- When Transmission Rate is 19200bps
 - Communication Port 1: \excel_receive\ac mode\mon_ac_192_com1.xls
 - Communication Port 2: \excel_receive\ac mode\mon_ac_192_com2.xls
 - Communication Port 3: \excel_receive\ac mode\mon_ac_192_com3.xls
 - Communication Port 4: \excel_receive\ac mode\mon_ac_192_com4.xls

② DC Mode

When the current setting to be measured on the **MM-122A** is set to [ACSEC] or [dcSEC], copy one of the following files.

- When Transmission Rate is 9600bps
 - Communication Port 1: \ excel_receive\ dc mode\ mon_dc_96_com1.xls
 - Communication Port 2: \ excel_receive\ dc mode\ mon_dc_96_com2.xls
 - Communication Port 3: \ excel_receive\ dc mode\ mon_dc_96_com3.xls
 - Communication Port 4: \ excel_receive\ dc mode\ mon_dc_96_com4.xls
- When Transmission Rate is 19200bps
 - Communication Port 1: \ excel_receive\ dc mode\ mon_dc_192_com1.xls
 - Communication Port 2: \ excel_receive\ dc mode\ mon_dc_192_com2.xls
 - Communication Port 3: \ excel_receive\ dc mode\ mon_dc_192_com3.xls
 - Communication Port 4: \ excel_receive\ dc mode\ mon_dc_192_com4.xls

③ Transistor Mode

When the current setting to be measured on the **MM-122A** is set to [dcSSc], copy one of the following files.

- When Transmission Rate is 9600bps
 - Communication Port 1: \ excel_receive\ transistor mode\ mon_tr_96_com1.xls
 - Communication Port 2: \ excel_receive\ transistor mode\ mon_tr_96_com2.xls
 - Communication Port 3: \ excel_receive\ transistor mode\ mon_tr_96_com3.xls
 - Communication Port 4: \ excel_receive\ transistor mode\ mon_tr_96_com4.xls
- When Transmission Rate is 19200bps
 - Communication Port 1: \ excel_receive\ transistor mode\ mon_tr_192_com1.xls
 - Communication Port 2: \ excel_receive\ transistor mode\ mon_tr_192_com2.xls
 - Communication Port 3: \ excel_receive\ transistor mode\ mon_tr_192_com3.xls
 - Communication Port 4: \ excel_receive\ transistor mode\ mon_tr_192_com4.xls

④ Capacitor Mode

When the current setting to be measured on the **MM-122A** is set to [CAP-S] or [CAP-L], copy one of the following files.

- When Transmission Rate is 9600bps
 - Communication Port 1: \ excel_receive\ capacitor mode\ mon_cp_96_com1.xls
 - Communication Port 2: \ excel_receive\ capacitor mode\ mon_cp_96_com2.xls
 - Communication Port 3: \ excel_receive\ capacitor mode\ mon_cp_96_com3.xls
 - Communication Port 4: \ excel_receive\ capacitor mode\ mon_cp_96_com4.xls
- When Transmission Rate is 19200bps
 - Communication Port 1: \ excel_receive\ capacitor mode\ mon_cp_192_com1.xls
 - Communication Port 2: \ excel_receive\ capacitor mode\ mon_cp_192_com2.xls
 - Communication Port 3: \ excel_receive\ capacitor mode\ mon_cp_192_com3.xls
 - Communication Port 4: \ excel_receive\ capacitor mode\ mon_cp_192_com4.xls

(3) Reading the Measured Value

① Security Setting of Microsoft Excel

Since the **MA-716A** uses the macro function of Microsoft Excel, the security^{*1} setting of Microsoft Excel 2003 is required.

Select Tool → Macro → Security from the menu bar. Set the security level to Middle^{*2} or Low^{*3}.

^{*1} When the security level is set to Middle or Low, defense against a virus using the macro function weakens. Use software for virus so that it does not cause any trouble if a virus invades macro.

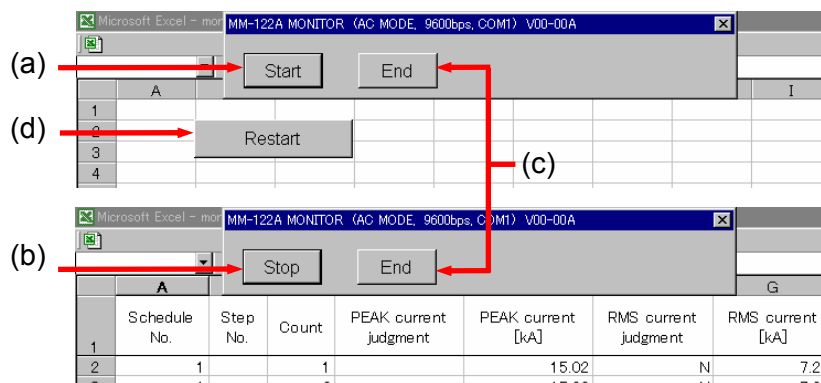
^{*2} When the security level is set to Middle, a warning message for macro appears when you open a file.

^{*3} When the security level is set to Low, a warning message does not appear. If a file which is not using macro is infected by a virus, a warning message is not displayed.

② Opening a File

Open the file copied in **Chapter 4 (2)** on Microsoft Excel.^{*4}

When the security level is set to Middle, a warning message for macro appears when you open a file. Select Validate Macro.



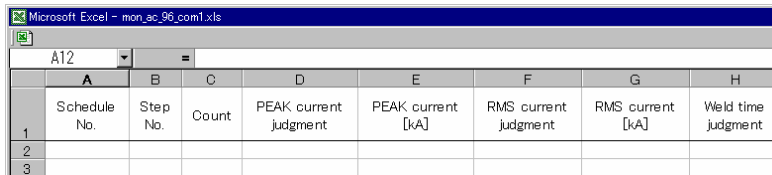
(Remarks)

- (a) Start (Starts reading the measured value)
- (b) Stop (Stops reading the measured value)
- (c) End (Ends the measured-value-reading software)
- (d) Restart (Restarts the measured-value-reading software)

^{*4} For how to open files, see the operation manual for Microsoft Excel.

③ Starting reading the measured value

Pressing button starts reading the measured value.



	A	B	C	D	E	F	G	H
	Schedule No.	Step No.	Count	PEAK current judgment	PEAK current [kA]	RMS current judgment	RMS current [kA]	Weld time judgment
1								
2								
3								

- Schedule No.
- Step No.
- Count
- PEAK current judgment *⁵
- PEAK current
- RMS current judgment *⁵
- RMS current
- Weld time judgment *⁵
- Weld time
- Conduction angle
- TP time judgment *⁵
- TP time
- TH time judgment *⁵
- TH time
- Preset count up *⁶
- Step end *⁶
- No-current error *⁶
- Pulsation error *⁶

*⁵ The result of judgment is [NOMAL:N], [LOW:L], [HIGH:H] or [No Judgment:_P(space)].

*⁶ [NG] is displayed when a trouble occurs.

④ Stopping reading the measured value

Pressing button stops reading the measured value.

When reading the measured value again, press button.

⑤ Exiting from the measured-value-reading software

Press button to exit.

Operation such as saving a file should be done after ending the software.

When using this software again, change the worksheet to [Communication] and press button.

5. Changing the Setting

(1) Setting of the MM-122A

Set the communication method of the **MM-122A**.

When connecting with RS-232C, set to [232Fr].

One **MM-122A** is connected per host computer.

When connecting with RS-485, set to [485Fr].

Up to thirty-one **MM-122As** can be connected per host computer.

Set the transmission rate to [9600bps] or [19200bps].

For details, see the operation manual for the **MM-122A**.

(2) Copying the Setting-Changing Software

Copy the setting-changing software to [My Documents] on the hard disk using Explorer.

The file to be copied depends on the Transmission Rate and Communication Port No. to be measured. Copy a proper file.

- Communication Port No. is the setting checked in **Chapter 3 (3)**.
- Transmission Rate and current setting to be measured are the same settings as the **MM-122A**.

Example)

Transmission Rate: 9600bps
Communication Port No.: COM1

When the settings are as above,
copy "\excel_schchange\schchg_96_com1.xls".

- ① When Transmission Rate is 9600bps
 - Communication Port 1: \excel_schchange\schchg_96_com1.xls
 - Communication Port 2: \excel_schchange\schchg_96_com2.xls
 - Communication Port 3: \excel_schchange\schchg_96_com3.xls
 - Communication Port 4: \excel_schchange\schchg_96_com4.xls
- ② When Transmission Rate is 19200bps
 - Communication Port 1: \excel_schchange\schchg_192_com1.xls
 - Communication Port 2: \excel_schchange\schchg_192_com2.xls
 - Communication Port 3: \excel_schchange\schchg_192_com3.xls
 - Communication Port 4: \excel_schchange\schchg_192_com4.xls

(3) Changing the Setting

- ① Security Setting of Microsoft Excel
Since the **MA-716A** uses the macro function of Microsoft Excel, the security^{*1} setting of Microsoft Excel 2003 is required.

Select Tool → Macro → Security from the menu bar. Set the security level to Middle *² or Low *³.

*¹ When the security level is set to Middle or Low, defense against a virus using the macro function weakens. Use software for virus so that it does not cause any trouble if a virus invades macro.

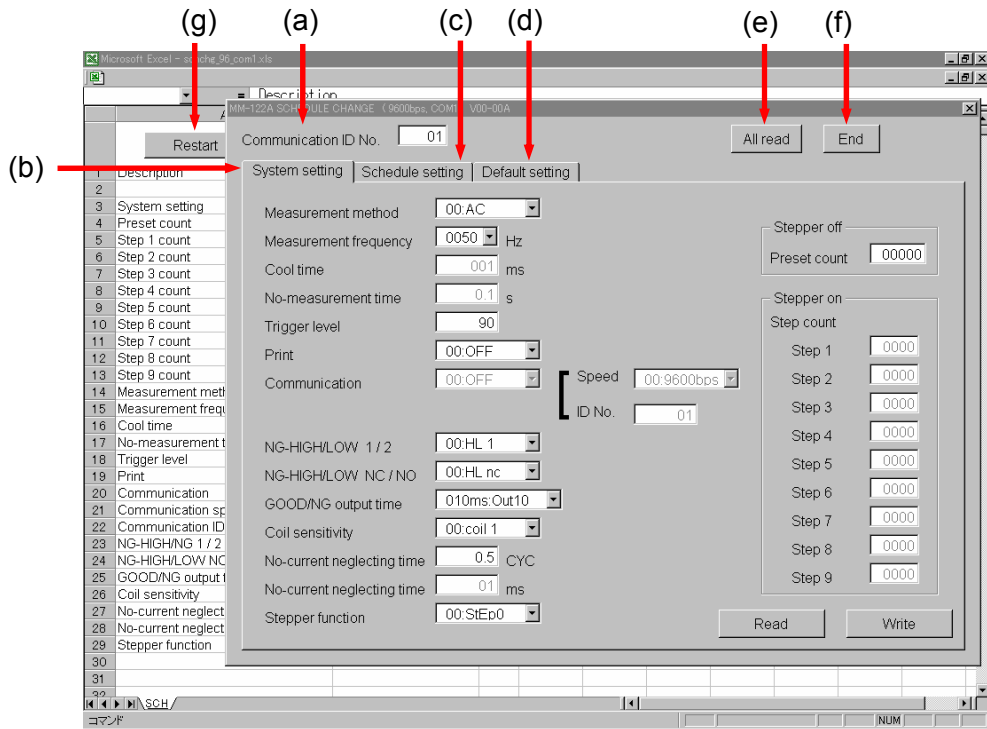
*² When the security level is set to Middle, a warning message for macro appears when you open a file.

*³ When the security level is set to Low, a warning message does not appear. If a file not using macro is infected by a virus, a warning message is not displayed.

② Opening a File

Open the file copied in **Chapter 5 (2)** on Microsoft Excel. *⁴

When the security level is set to Middle, a warning message for macro appears when opening a file. Select Validate Macro.



(Remarks)

- (a) Communication ID No.
- (b) System setting
- (c) Schedule setting
- (d) Default setting
- (e) All read (Reads all settings)
- (f) End (Ends the setting-changing software)
- (g) Restart (Restarts the setting-changing software)

*⁴ For how to open files, see the operation manual for Microsoft Excel.

③ Setting the Communication ID

Set the communication ID [Communication ID No.] at the upper left portion of the window to the same setting as the **MM-122A**.

④ Reading from the **MM-122A**

To read settings from the **MM-122A**, use or button.

When changing the settings and schedules, be sure to change the Schedule after reading the system setting from the **MM-122A**.

If the system setting is not read, the setting on PC side and that of the **MM-122A** side become inconsistent, and a trouble occurs when writing in the **MM-122A**.

- button reads all settings from the **MM-122A**.
- buttons are on both the system setting screen and the schedule setting screen.
 button on the system setting screen reads the system settings from the **MM-122A**.
 button on the schedule setting screen reads the schedule specified as system setting from the **MM-122A**.

⑤ Writing to the **MM-122A**

To write settings to the **MM-122A**, use button.

- buttons are on the system setting screen and the schedule setting screen.
 button on the system setting screen writes the system settings from the **MM-122A**.
 button on the schedule setting screen writes the schedule specified as system setting from the **MM-122A**.

⑥ Exiting from the Setting-Changing Software

Press button to exit.

The setting data before exiting is on the worksheet ^{*5}. The settings can be saved by saving this file.

When saving the settings, read the settings and schedules with button.

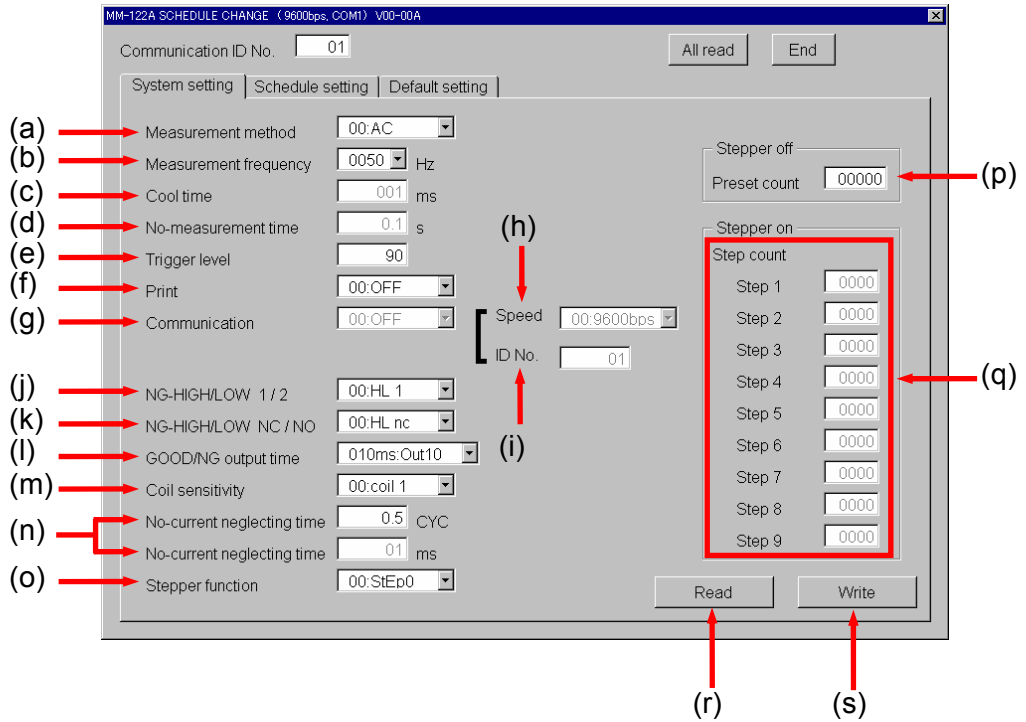
When using this software again, change the worksheet to [SCH] and press button.

^{*5} Do not change the data on worksheet.

⑦ System Setting Method

When changing the settings, read the system setting from the **MM-122A**.
 If the system setting is not read, the setting on PC side and that of the **MM-122A** side become inconsistent and a trouble occurs when writing in the **MM-122A**.

Select [System setting] tab to display the system setting screen.



(Remarks)

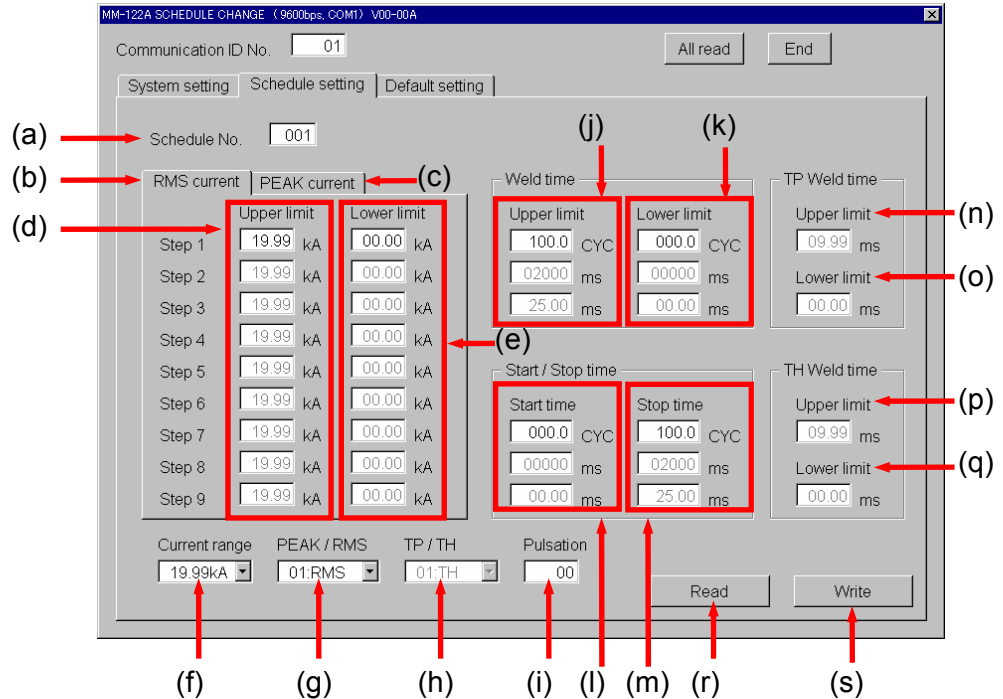
- (a) Measurement method
- (b) Measurement frequency
- (c) Cool time
- (d) No-measurement time
- (e) Trigger level
- (f) Print
- (g) Communication (Not changeable)
- (h) Communication Speed (Not changeable)
- (i) Communication ID No. (Not changeable)
- (j) NG-HIGH/LOW 1/2
- (k) NG-HIGH/LOW NC/NO
- (l) GOOD/NG output time
- (m) Coil sensitivity
- (n) No-current neglecting time
- (o) Stepper function
- (p) Preset count
- (q) Step count (Counts for Step1 to 9)
- (r) Read
- (s) Write

For details, see the operation manual for the **MM-122A**.

⑧ Schedule Setting Method

When changing the schedules, read the system setting from the **MM-122A**. If the system setting is not read, the setting on PC side and that of the **MM-122A** side become inconsistent and a trouble occurs when writing in the **MM-122A**.

Select [Schedule setting] tab to display the schedule setting screen.

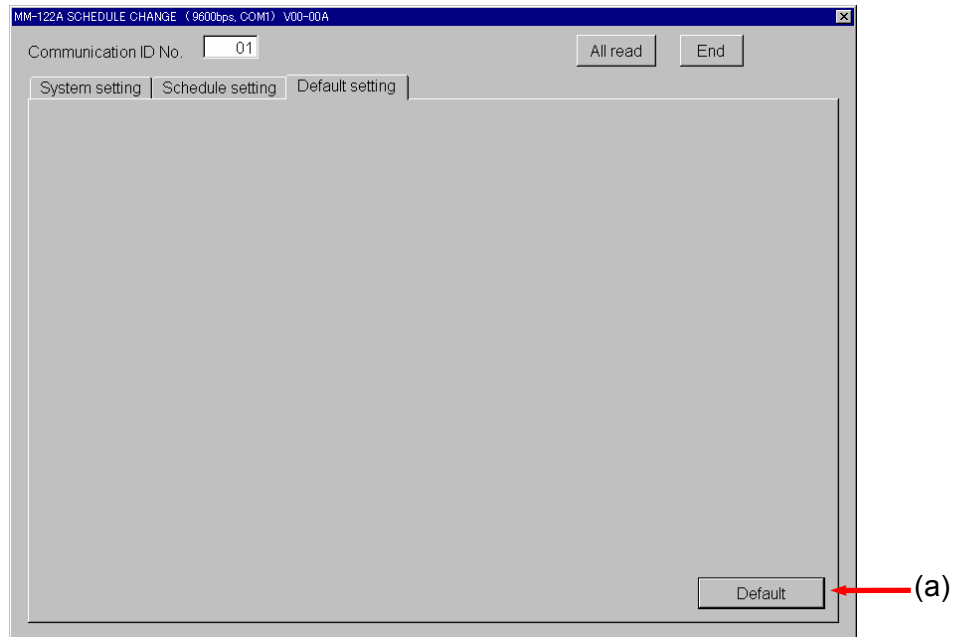


- (a) Schedule No.
- (b) RMS current
- (c) PEAK current
- (d) Current Upper limit
- (e) Current Lower limit
- (f) Current range
- (g) PEAK/RMS
- (h) TP/TH
- (i) Pulsation
- (j) Weld time Upper limit
- (k) Weld time Lower limit
- (l) Start time
- (m) Stop time
- (n) TP Weld time Upper limit
- (o) TP Weld time Lower limit
- (p) TH Weld time Upper limit
- (q) TH Weld time Lower limit
- (r) Read
- (s) Write

For details, see the operation manual for the **MM-122A**.

⑨ Initializing Method

Select [Default setting] tab and press button to initialize the settings.



(a) Default

(Remarks)

(Initializes settings)