

MiCAT

Mitutoyo Intelligent Computer Aided Technology

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metrology software

FORM

No. 99MBB500A1

RA-10/120 USB Communication

User's Manual

Read this User's Manual thoroughly
before operating the instrument. After reading,
retain it close at hand for future reference.

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CONVENTIONS USED IN THIS MANUAL

Safety Precautions

To ensure that instruments are operated correctly and safely, Mitutoyo manuals use various safety symbols (Signal Words and Safety Alert Symbols) to identify and warn against hazards and potential accidents.

The following signs indicate general warnings:



Indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death.



Indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.



Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage.

The following signs indicate specific warnings or prohibited actions, or indicate a mandatory action:



Alerts the user to a specific hazardous situation. The given example means "Caution, risk of electric shock".



Prohibits a specific action. The given example means "Do not disassemble".



Specifies a required action. The given example means "Ground".

CONVENTIONS USED IN THIS MANUAL

Types of Notes

The following types of notes are used in this manual to help the operator obtain reliable measurement data through correct instrument operation.

-
- IMPORTANT**
- An important note provides information essential to the completion of a task. You cannot disregard this note to complete the task.
 - An important note is a type of precaution, which if neglected could result in a loss of data, decreased accuracy or instrument malfunction/failure.
-

NOTE A note emphasizes or supplements important points of the main text. It also supplies information about specific situations (e.g., memory limitations, equipment configurations, or details that apply to specific versions of a program).

TIP A tip is a type of note that helps the user apply the techniques and procedures described in the text to his or her specific needs.

It also provides reference information associated with the topic being discussed.

Mitutoyo assumes no liability to any party for any loss or damage, direct or indirect, caused by use of this instrument not conforming to this manual.

Information in this document is subject to change without notice.

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Warranty

In the event that the Mitutoyo data processing unit should prove defective in workmanship or material, within one year from the date of original purchase for use, it will be repaired or replaced, at our option, free of charge upon its prepaid return to us.

If the unit fails or is damaged for any of the following reasons, it will be subject to a repair charge, even if it is still under warranty.

- 1 Failure or damage owing to inappropriate handling or unauthorized modification.
- 2 Failure or damage owing to transport, dropping, or relocation of the instrument after purchase.
- 3 Failure or damage owing to fire, salt, gas, abnormal voltage, or natural disaster.

This warranty is effective only where the instrument is properly installed and operated in conformance with the instructions in this manual.

Export Control Compliance

This Product falls into the Catch-All-Controlled Goods or Program under the Category 16 of the Separate Table 1 of the Export Trade Control Order or the Category 16 of the Separate Table of the Foreign Exchange Control Order, based on the Foreign Exchange and Foreign Trade Law of Japan.

Further, this User's Manual also falls into the Catch-All-Controlled Technology for use of the Catch-All-Controlled Goods or Program, under the Category 16 of the Separate Table of the Foreign Exchange Control Order.

If you intend re-exporting or re-providing the product or technology to any party other than yourself, please consult with Mitutoyo prior to such re-exporting or re-providing.

Disposal of Old Electrical & Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems)



This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. To reduce the environmental impact of WEEE (Waste Electrical and Electronic Equipment) and minimize the volume of WEEE entering landfills, please reuse and recycle.

For further information, please contact your local dealer or distributors.

Contents

CONVENTIONS USED IN THIS MANUAL.....	i
Warranty.....	iii
Export Control Compliance.....	iii
isposal of Old Electrical & Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems).....	iii
Contents.....	iv
1 RA-10/120 USB Communication Install.....	1-1
2 RA-10/120 USB Communication Starting.....	2-1
2.1 Before starting	2-1
2.2 Method of starting	2-1
3 RA-10/120 Summary of USB Communication	3-1
3.1 Overall view.....	3-1
3.2 Operation procedure	3-2
3.3 Generating an inspection certificate	3-3
4 RA-10/120 Method of USB Communication Usage	4-1
4.1 Reading.....	4-1
4.2 Print.....	4-2
4.3 Print preview	4-3
4.4 Export	4-3
4.5 Language setting	4-5
4.6 Comment settings	4-6
4.7 Print settings.....	4-7
4.8 Paper selection	4-7
4.9 Figure.....	4-7
4.10 Quit.....	4-7
5 USB Communication Performance Environment.....	5-1

1

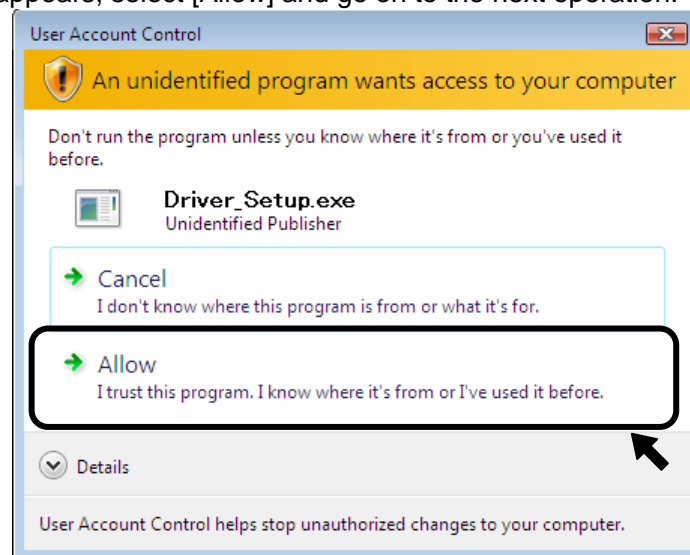
RA-10/120 USB Communication Install

This chapter explains regarding “USB Communication Install” procedure.

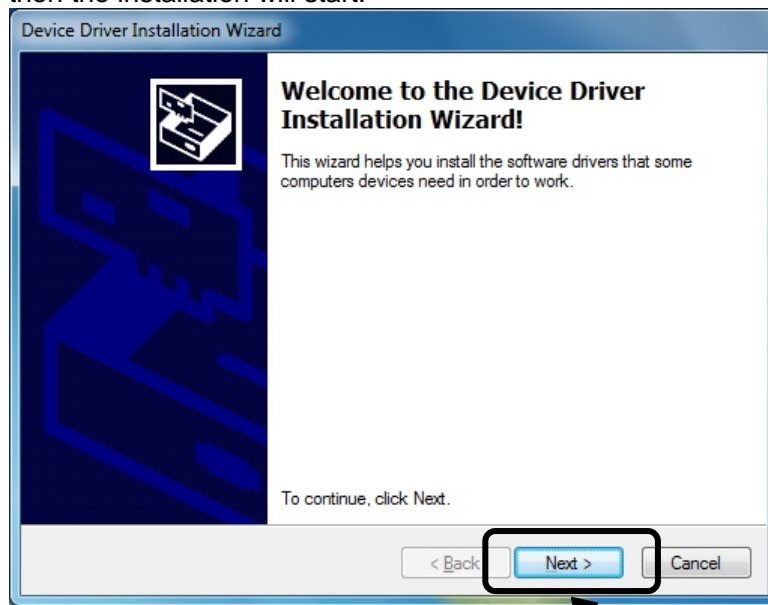
It is necessary to install a RA-10/120 communication driver to use “USB Communication”.

Set the CD-ROM including the application into the CD-ROM drive. Execute [Driver_Setup.exe] in the driver folder in the CD-ROM. Execute install with following the guidance.

1. After executing [Driver_Setup.exe], the below message appears occasionally according to user account control. If it appears, select [Allow] and go on to the next operation.



-
2. Then a confirmation message of [Device Driver Installation Wizard] appears.
Click [NEXT], and then the installation will start.



Here, the message on the right appears occasionally. If it appears, click [Install this driver software anyway] at the bottom.

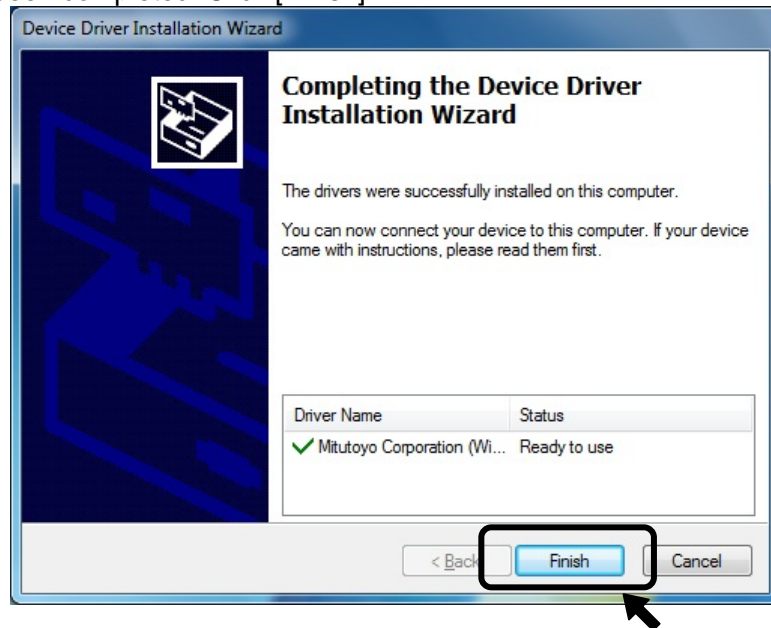


TIP

In the case of V1.001 or later, the following message may be appeared several times. If it appears, tick [Always trust software from "MITUTOYO CORPORATION"] and click [Install].



3. When the message of [Completing the Device Driver Installation Wizard] appears, the installation of USB driver has been completed. Click [Finish].



2

RA-10/120 USB Communication Starting

This chapter explains regarding the method of starting USB communication.

2.1 Before starting

(1) Excel manufactured by Microsoft (from U.S.A) has to be installed to start the program. Regarding the performance environment, refer to [Chapter 5].

(2) Connect a USB cable.

USB cable (part №12AAD510) is not included in this product. It is necessary to arrange separately. Please prepare the type-AB if you get it on the market.

2.2 Method of starting

(1) Copy all the Application folders in the CD-ROM to arbitrary place on the hard disc.

(2) Double-click [RA-120COM_USB.exe] in the application folder



MEMO

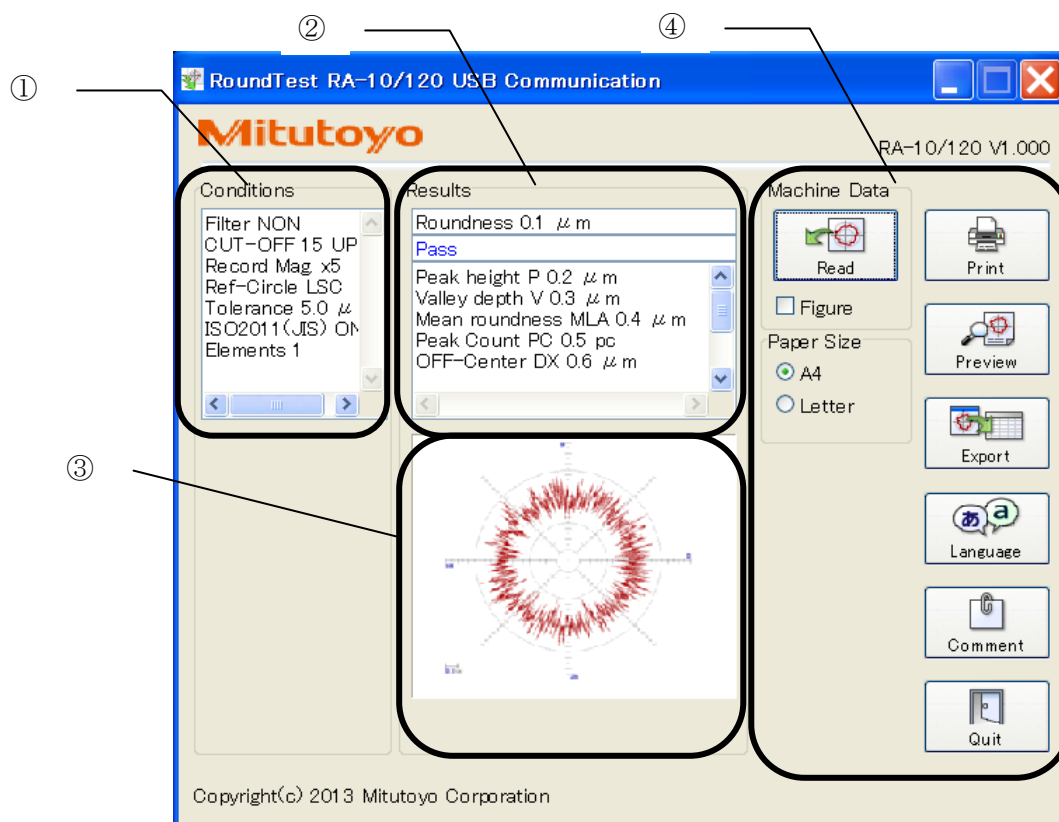
3

RA-10/120 Summary of USB Communication

This chapter explains regarding the summary of USB Communication.

It is available to create a “simple inspection certificate” with “RA-10/120 USB Communication” based on the calculation result of RA-10/120.

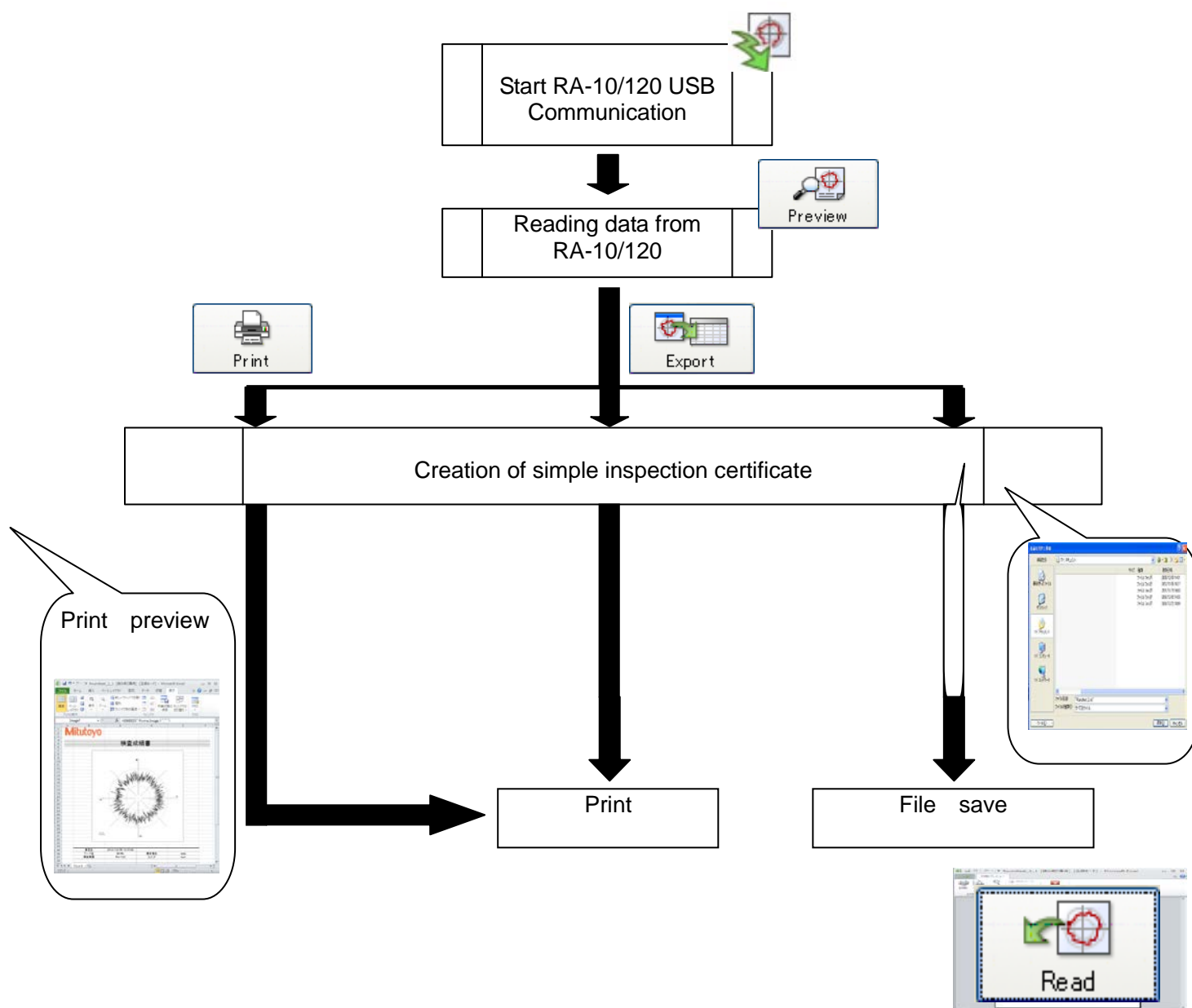
3.1 Overall view



- ① Condition list : Display the condition of the data taken from RA-10/120.
- ② Result list : Display the result of the data taken from RA-10/120.
- ③ Figure window : Display the figure of the data taken from RA-10/120.
- ④ Operation button : Reading the data from RA-10/120, creation of a simple inspection certificate..
Regarding the details, refer to [Chapter 4]

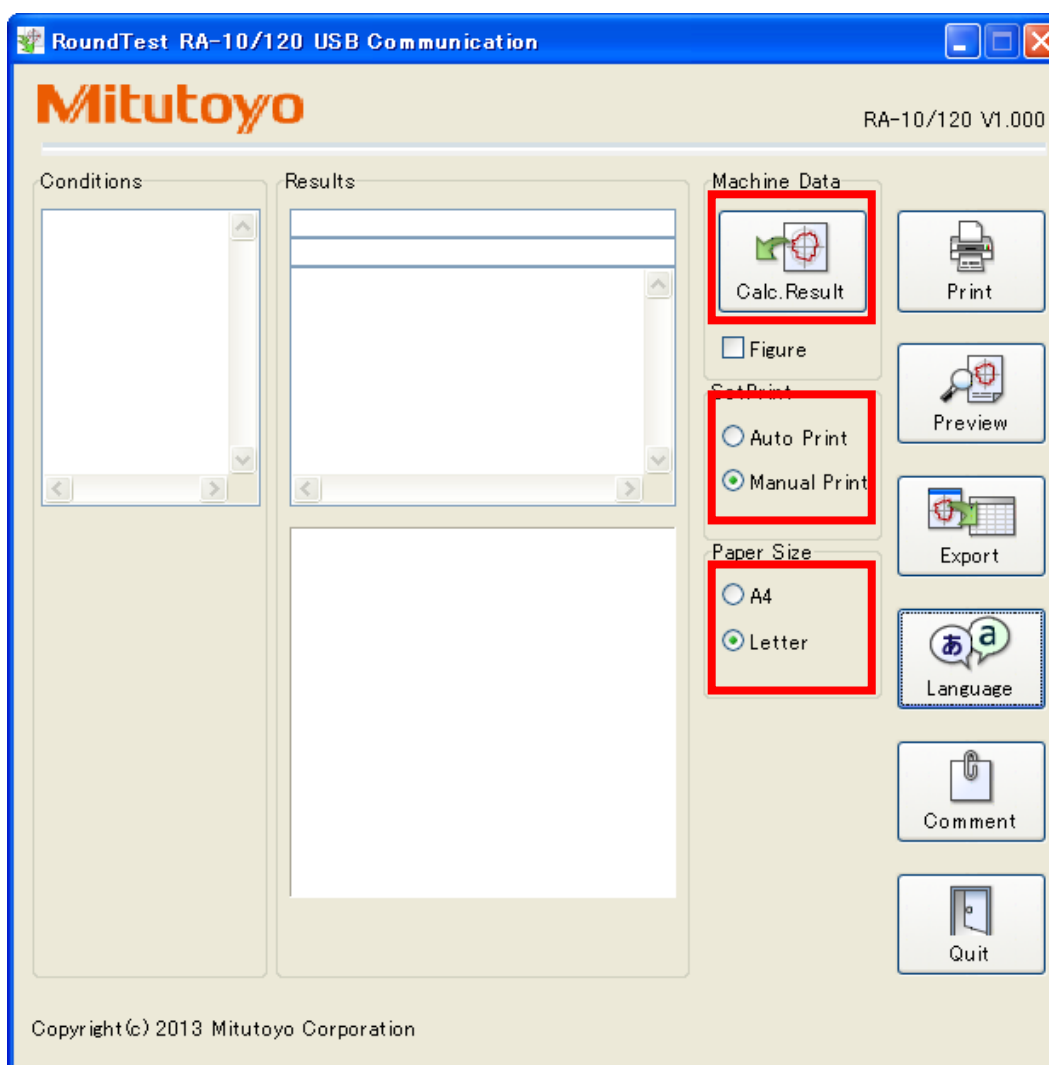
3.2 Operation procedure

This section explains regarding the procedure in the case of using “RA-10/120 USB Communication”.
Operation method for the main function is as below.



3.3 Generating an inspection certificate

- (1) This program can generate a simplified inspection certificate based on calculation results and evaluation profile data.
- (2) Click "RA-120COM_USB.exe" to start "RA-10/120 USB Communication".
- (3) Select [Automatic Print] from the Print Method box.
- (4) Select either A4-size or letter-size print sheet.
- (5) Following steps can be performed automatically by clicking [Calc. Result]:
Loads data from the control unit → Creates an inspection certificate → Prints an inspection certificate
- (7) The evaluation conditions and calculation results of loaded data can be also confirmed on the screen of RA-10/120 USB Communication.



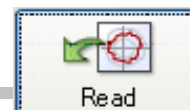
MEMO

4

RA-10/120 Method of USB Communication Usage

This chapter explains regarding the method of USB Communication usage.

4.1 Reading



Press the [Read] button to read the measurement data. The taken data are displayed on [Condition list], [Result list], and [Figure window].

The contents displayed on each list are as below.

(1) Condition list

	Item	Contents	
1	Filter	NON, 2CR50, 2CR75, 2CRPC50, 2CRPC75, Gaussian (*1)	Any one
2	CUT-OFF	15pc/r, 50pc/r, 150pc/r, 500pc/r, 15-150pc/r, 15-50pc/r, 50-500pc/r, NON (*1)	Any one
3	Record Mag.	x5, x10, x20, x50, x100, x200, x500, x1k, x2k, x5k, x10k	Any one
4	Ref-Circle	LSC, LSCI, MZC, MZCI, MIC, MICI, MCC, MCCI, LS, LSPL, MZ, MZPL, NON	Any one
5	Tolerance	○.○○○○ [Unit]	
6	ISO2011(JIS)	ON, OFF	Any one
7	Elements	○	

(2) Result list

	Item	Contents	
1	Analysis item	Roundness, RONT, Coaxiality, Concentricity, Runout(RDL), Runout(AXL), Squareness(AXS), Squareness(PLN), Thickness-DV, Flatness, FLTt, Parallelism, Parallel(Runout), Cylindricity, Simple Cylind, Mean Cylind (*1)	Any one
2	Result	OK, NG	Any one
3	Relevant analysis result	(*2)	

(* 1) If the analysis condition does not comply with the standards, each item is followed by *.
(Ex. 2CR50 *)

(*2) It depends on the analysis item.

	Item	Contents (Some are not printed out depends on RA-120 settings.)
1	Roundness	P,V,MLA,PC,DX,DY,DL,DA
2	RONt	RONp,RONv,RONq,PC,DX,DY,DL,DA
3	Coaxiality	DX,DY,DL,DA
4	Concentricity	DX,DY,DL,DA
5	Runout(RDL)	MAX,MIN,A1,A2
6	Runout(AXL)	MAX,MIN,A1,A2
7	Squareness(AXS)	ANG
8	Squareness(PLN)	ANG
9	Thickness-DV	MAX,MIN,A1,A2
10	Flatness	P,V,MLA,PC,DX,DY
11	FLTt	FLTp,FLTv,FLTq,PC,DX,DY
12	Parallelism	ANG
13	Parallel(Runout)	
14	Cylindricity	DX,DY,DL,DA
15	Simple Cylind.	DX,DY,DL,DA
16	Mean Cylind.	DX,DY,DL,DA

(3) Figure window

It displays the same figure as the one printed out through RA-10/120. (In case of A4 setting)

4.2 Print



Press the [Print] button to print a “simple inspection certificate”.
Regarding the contents of printing, refer to [4.4 Export].

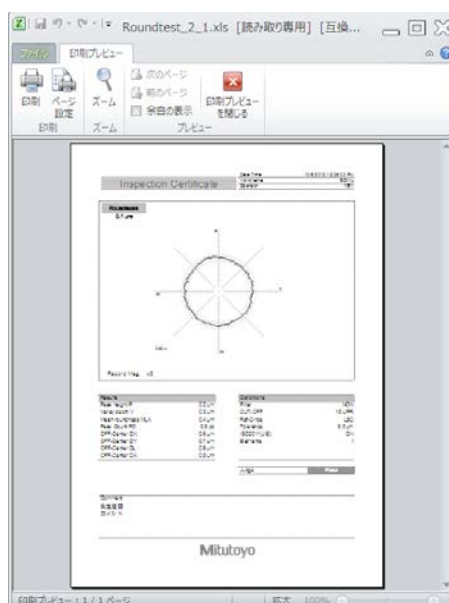
4.3 Print preview



Press the [Preview] button to display the print preview of the “simple inspection certificate”. It is possible to print out after checking the print preview.

【Ex. excel 2010】

Regarding the contents of print preview, refer to [4.4 Export].

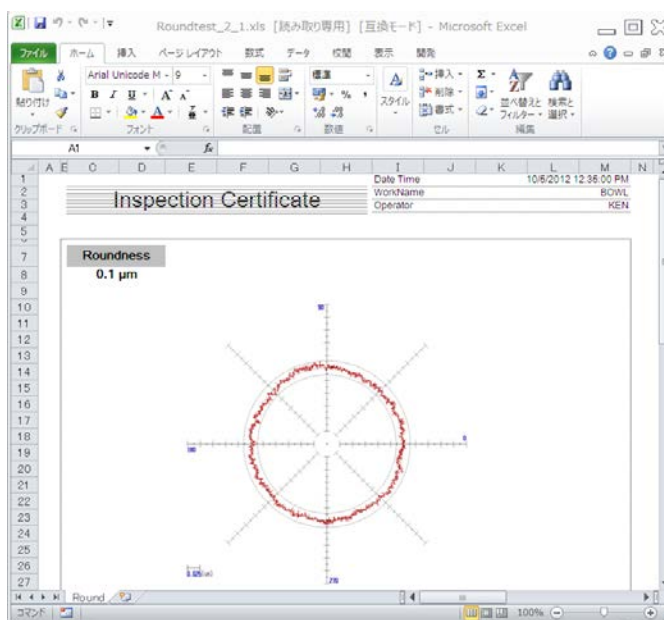


4.4 Export



Press the [Export] to create the “simple inspection certificate”. It is possible to save anywhere.

【Ex. excel 2010】



(1) The format of the “Simple inspection certificate” is as below.

Inspection Certificate

Date Time: 10/20/2012 12:25:00 PM
Work Name: SMTL
Serial: 1001

Roundness
0.1 μm

Record Mag. x5

Result	Unit
Peak height P	0.2 μm
Valley depth V	0.3 μm
Mean roundness MLR	0.4 μm
Peak Count PC	0.5 pc
Off-Center DX	0.6 μm
Off-Center DY	0.7 μm
Off-Center DL	0.8 μm
Off-Center DA	0.9 μm

Conditions	Value
Filter	NON
OUT-OFF	15 UPR
Ref-Circle	LSC
Tolerance	5.0 μm
ISO2011(JIS)	ON
Elements	1

Comment:
Judge

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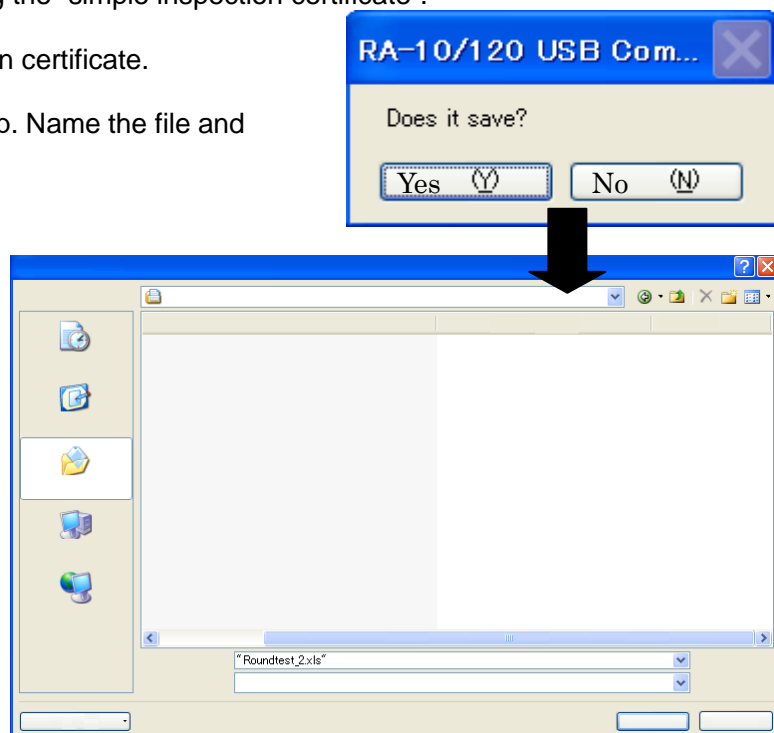
- ① Figure window : The contents of [③, 3.1 Overall view] is displayed.
(It does not display in the case of [NO figure].)
- ② Result list. : The contents of [② 3.1 Overall view] is displayed.
- ③ Condition list : The contents of [① 3.1 Overall view] is displayed.
- ④ Contents window : The contents set at [4.6. Comment settings].
(Regarding measurement date, it indicates the date included in the measured date taken from PA-120.)

4. RA-10/120 Method of USB Communication Usage

(2) This section explains regarding saving the “simple inspection certificate”.

Click [Yes] to save the simple inspection certificate.

The dialog of “Name and save” shows up. Name the file and Click [Save].



4.5 Language setting



It is possible to set language of the screen or the “simple inspection certificate”.
Applicable languages are as below.

Japanese	TRAD. Chinese
English	SIMP. Chinese
German	Czech
French	Polish
Italian	Hungarian
Spanish	Turkish
Portuguese	Swedish
Korean	Dutch

* This language setting does not match with the language of RA-10/120 settings.



4.6 Comment settings



It is possible to add “Comment” to the “simple inspection certificate”.

Addible items are as below.

Date Time	10/5/2012 12:35:00 PM
WorkName	BOWL
Operator	KEN

Comment	
Machine	RA-120
Comment	TEST

WorkName	BOWL
Operator	KEN
Machine	RA-120
Comment	TEST

① WorkName :

If the WorkName is set on RA-10/120, it displays the WorkName.

It is possible to set the WorkName as you like if it is not set on RA-10/120 (the column is blank).

In this case, it displays “WorkName”, but it is possible to set any text.

② Operator :

If the Operator is set on RA-10/120, it displays the Operator..

It is possible to set the Operator as you like if it is not set on RA-10/120 (the column is blank).

In this case, it displays “Operator”, but it is possible to set any text.

③ Machine :

Regardless of RA-10/120 settings, it is possible to set as you like.

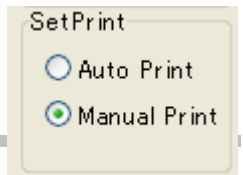
In this case, it displays “Machine”, but it is possible to set any text.

④ Comment :

Regardless of RA-10/120 settings, it is possible to set as you like.

In this case, it displays “Comment”, but it is possible to set any text.

4.7 Print settings

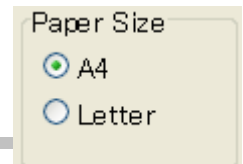


4.1. It is possible to print at the same time of reading.

Auto print : print at the same time of reading

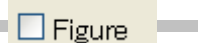
Manual print : only reading

4.8 Paper selection



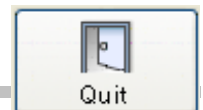
It is possible to select paper size at the operation of [4.2. Print], [4.3. Print Preview], [4.4. Export].

4.9 Figure



It is possible to read figure by checking [Figure]. If you don't check it, it does not display figure on the "simple inspection certificate".

4.10 Quit



Finish USB communication

MEMO

5

RA-10/120 USB Communication Performance Environment

RA-10/120 USB Communication performance environment is as below.

OS	Windows XP-SP3/Vista/Windows7(32Bit/64bit)/Windows10
Excel	Excel 2010/2016
Display	Equal or more than 1024×768 dots, High color (equal or more than 16Bit)

- NOTE**
- As for “over Windows Vista Business/Windows7/Windows10”, please use as a controller.
 - In the case that a security level of Excel is high, it does not work appropriately occasionally.
 - The language displayed on the software is in the system font of the PC currently used. Even though it does not display appropriately (gibberish text) or all the text can not be displayed on the screen depending on the language occasionally, there are no problems with the performance.

- (1) Windows is a registered brand of Microsoft (U.S.A).
- (2) Excel is a registered brand of Microsoft (U.S.A).
- (3) Other company names or product names mentioned on this manual are registered brand of the company for each.

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*As of October 2016

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