Serial Port Monitor and Analyzer Series

Speed Detection Aid

Model: AKM-RSM-FS0

User's Manual

Version 1.3.0.0

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Caution:
    (1) You must not reprint all (or a part) of the contents of this manual without getting the permission of Akiyama Manufacturing.
    (2) The contents of this manual may be changed in the future without a notice.

Introduction

The Speed Detection Aid (Model: AKM-RSM-FS0) is the tool which does help of finding the communications condition when you don't know the communications condition of the target device to monitor.

This tool is the Add-on program started from the Serial Port Monitor and Analyzer (Model: AKM-RSM-100).
This tool analyzes the actual communications conditions of the target device. Then, this tool helps user's communications condition detection work by detecting the candidates of some communications conditions.

Typically, when you don't know the communications condition of the target device, the communications condition will be calculated by using oscilloscope or logic analyzer.

If you have oscilloscope or logic analyzer, use it.

However, when you have neither oscilloscope nor logic analyzer before the unknown communications system, you will have to find the communications condition by using the Line Monitor.

For such condition, we made the program of our detection procedure of the communications condition as much as possible.

> *Note: The communications condition means the Speed, the Data bits, and the Parity.
> *Note: Stop bit may not be able to be estimated.
> *Note: The contents of Protocol and Interface aren't understood in this tool.

This tool analyzes the actual communications conditions of the target device. Therefore, this tool doesn't work when there is no communications between the target devices.

Therefore, **we recommend that this tool is used by the Direct Connection**.

However, if data transmission is done regularly like the output of the unilateral log data, this tool may be able to use one of the target devices.

This tool is the tool which does the support which finds the candidate of the communications condition that communications can be monitored. Then, it is the tool which narrows the candidate of the communications condition.

Do the decision of the final communications condition by the visual observation surely.

This tool is the Add-on function of the AKM-RSM-100.
AKM-RSM-100 Professional Edition is necessary to use this tool.
(Not available in Basic Edition and Standard Edition of AKM-RSM-100.)

Precautions

(1) This tool **can be started from [Tools] menu of the AKM-RSM-100 Professional Edition**.
(Not available in Basic Edition and Standard Edition of AKM-RSM-100.)

(2) This tool is application software based on **.NetFramework4**.
If you are using the AKM-RSM-100 of the Version 4 series, confirm that .NetFramework4 is in your PC.
If .NetFramework4 is not in your PC, install it in advance before this tool is started.

(3) The candidate of the communications condition of the target device isn't surely always found with this tool.
Please accept it beforehand.
- When signaling speed between the target devices was out of range of the [Analysis Speed Area].
- When the suitability of the chip for the port was bad. (Wen the configuration of the [Port Type] was wrong.)
- When analysis couldn't be completed because traffic was small quantity.

(4) The candidates can't be detected when the target device doesn't transmit data.

(5) Don't give up even if candidates can't detect it at once. Execute it many times.
Especially, the communications of 600bps (or slower) will be hard to detect.

(6) This tool has the possibility that candidates are detected wrongly by the contents of the communications data between the target devices.
Don't be overconfident even if the first candidate is detected. Confirm all candidates just in case surely.
Then, **Do the decision of the final communications condition by the visual observation surely.**
When you had some doubts to the candidates, increase [The Number of Sampling Events]. Then, try it again.

(7) This tool is the tool which does the support which finds the candidates of the communications condition which can be monitored.
Even if the candidates can be detected and even if the communications can be monitored, the communications condition of the target device may be different from the proper communications condition.
For example, when 5760bps is detected, the target devices may be able to be monitored with that communications condition. However, an actual communications condition may be 5600bps.

(8) When the "! Lack of Received Events." is displayed on the [Analysis Situations and Detected Result] text box, set up [Sampling Time] long. Then, try it again.

(9) When too many candidates were detected, increase [The Number of Sampling Events]. Then, try it again.

(10) When the [Low-speed (Round-robin)] is used, the analysis doesn't stop until the check of all the speeds prepared for is completed.
Therefore, stop it by your manual operation if necessary.

Operational Conditions

(1) Start this tool in accordance with "How to Start" which is described later from [Tools] menu of AKM-RSM-100.

(2) This only 1 tool can be executed from the AKM-RSM-100.
Basically, multiple executions are not available.

(3) When this tool was started, following contents are taken over from the setting of the AKM-RSM-100.
· COM number information for Port 1
· COM number information for Port2

(4) When the AKM-RSM-100 Professional Edition is being used by the **User ID of the Trial edition**, though there is no limitation of the operating time. But the range of the analysis is limited to 4 kinds of the following.
9600bps, 4800bps, 2400bps, 1200bps

(5) In this manual, each procedure and each screen display are being described based on Windows 10.
In other OS, each procedure and each screen display are almost same as Windows 10.

System Configuration

This tool analyzes the actual communications conditions of the target device. Therefore, this tool doesn't work when there is no communications between the target devices.

Therefore, **we recommend that this tool is used by the Direct Connection**.

■ RS-232

DTE-DCE Connection: Direct Connection (Recommended 1)

Communications

DTE   **CABLE-A**   DCE

Serial Cable
(Connected by the straight cable)

Target Device
DTE device

Target Device
DCE device

Monitor

Port1   Port2

**PC which AKM-RSM-100
was installed in**
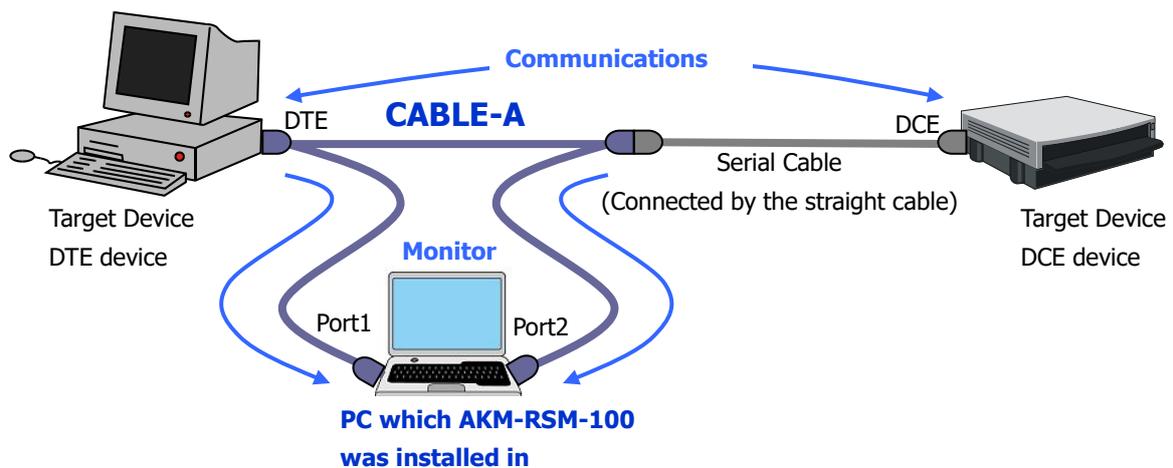
DTE-DTE Connection: Direct Connection (Recommended 2)

Communications

DTE   **CABLE-A**   DCE

Serial Cable
(Connected by the cross cable)

Target Device
DTE device

Target Device
DTE device

Monitor

Port1   Port2

**PC which AKM-RSM-100
was installed in**
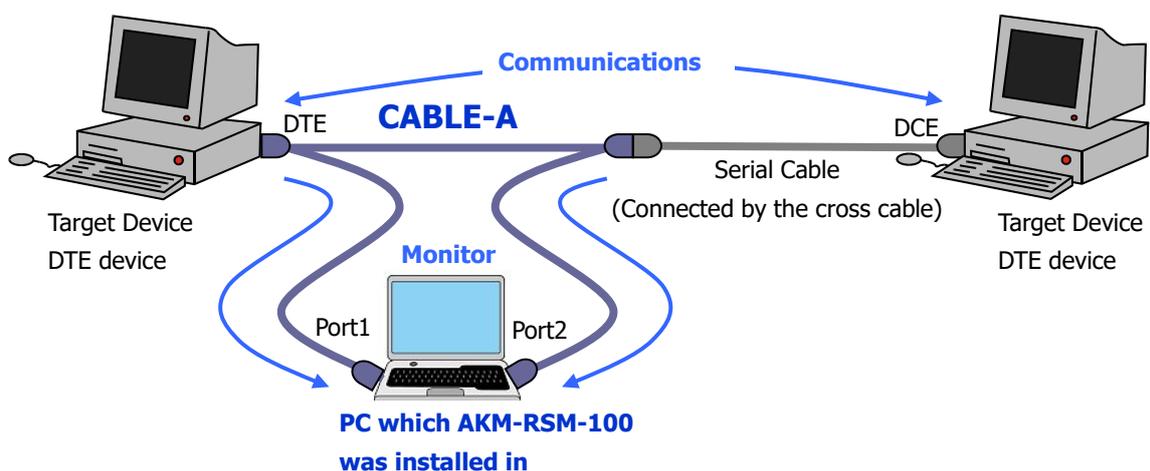
When the enough communication amount is obtained from one side of target device:

Target Device
DTE device

Serial Cable
(Connected by
the cross cable)
(CABLE-B)

**PC which AKM-RSM-100
was installed in**

Or

Serial Cable
(Connected by
the straight cable)

Target Device
DCE device

**PC which AKM-RSM-100
was installed in**
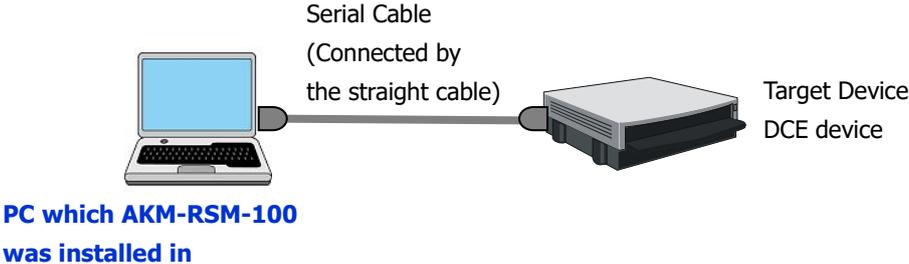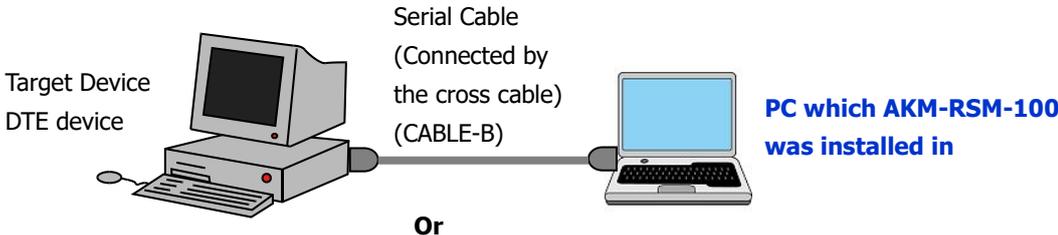
■ RS-422

Four-wire, Full-duplex communications, Point-to-Point connection:

[Explanatory notes]
— : Twisted-pair cable
● : Termination Point
◗ : USB-RS422 Converter
— : USB Cable
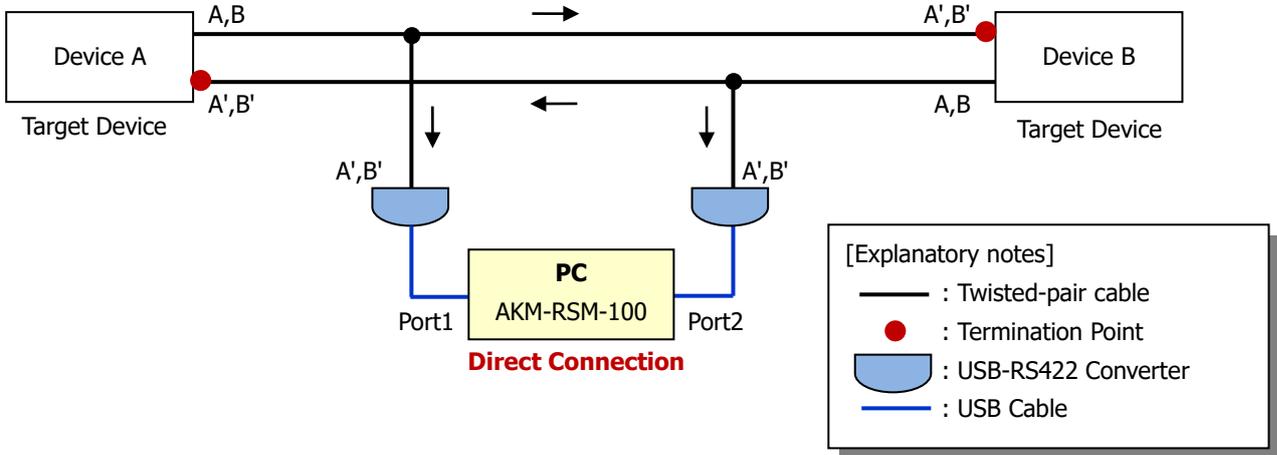
Two-wire, Multi-Receiver Operation

[Explanatory notes]
— : Twisted-pair cable
● : Termination Point
◗ : USB-RS422 Converter
— : USB Cable
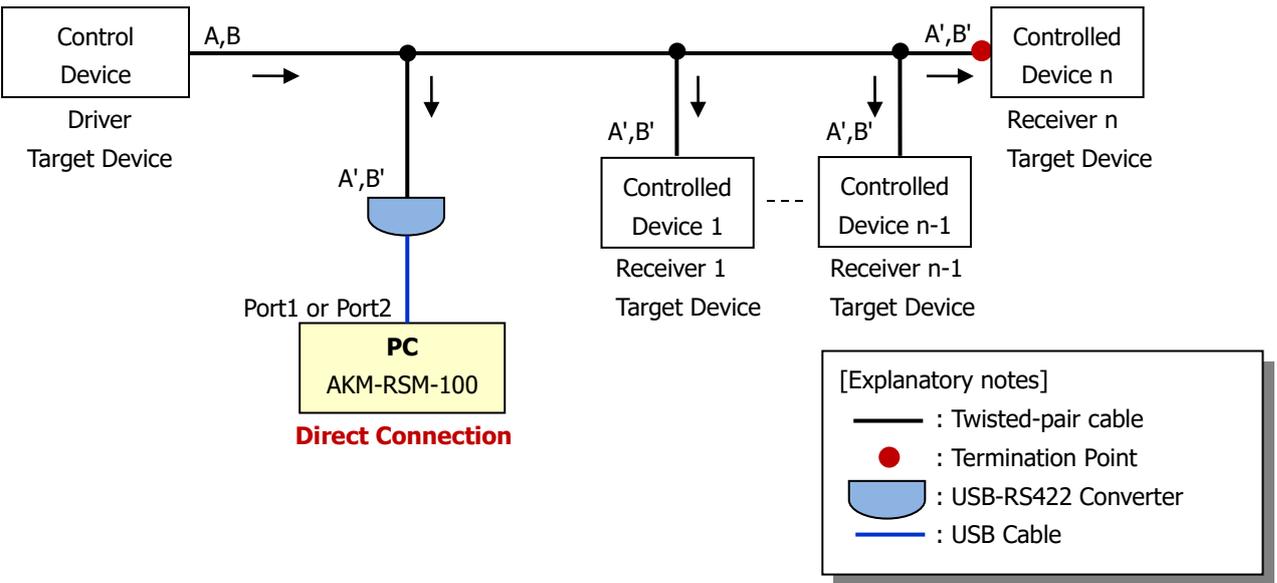
*Note: A, B, A', and B' may be displayed as TxD+, TxD-, RxD+, and RxD-.

*Note: The figures of this document are examples for the reference.
   Make the actual network by the Daisy Chain Network.

Tree Network   **In the actual network...**   **Daisy Chain Network**
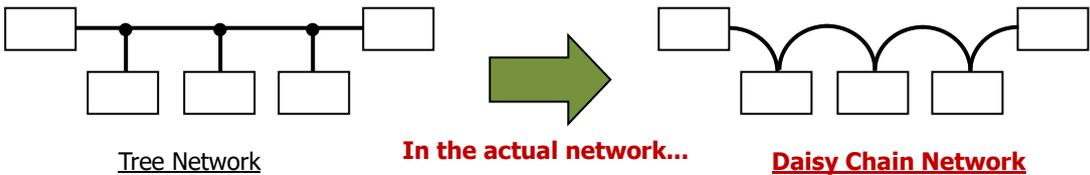
*Note: Use twisted-pair cable with RS-422.

■ RS-485

Four-wire, Full-duplex communications, Point-to-Multipoint connection:

[Explanatory notes]
—— : Twisted-pair cable
● : Termination Point
⬭ : USB-RS485 Converter
—— : USB Cable

Direct Connection

Two-wire, Half-duplex communications, Point-to-Multipoint connection:

[Explanatory notes]
—— : Twisted-pair cable
● : Termination Point
⬭ : USB-RS485 Converter
—— : USB Cable

Direct Connection

*Note: A and B may be displayed as T/R+ and T/R-.

*Note: The figures of this document are examples for the reference.
    Make the actual network by the Daisy Chain Network.

Tree Network   **In the actual network...**   **Daisy Chain Network**
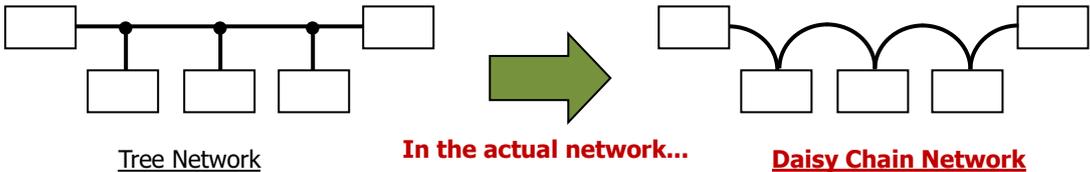
*Note: Use twisted-pair cable with RS-485.

■ Caution about the System Configuration

(1) Voltage Level

Typically, there are the following 3 kinds of voltage levels of serial port.

(1) RS-232C levels : +5V~-+15V (0/Space/ON) / -5V~-15V (1/Mark/OFF)
(2) TTL levels   : +5V (0/Space/ON) / 0V (1/Mark/OFF)
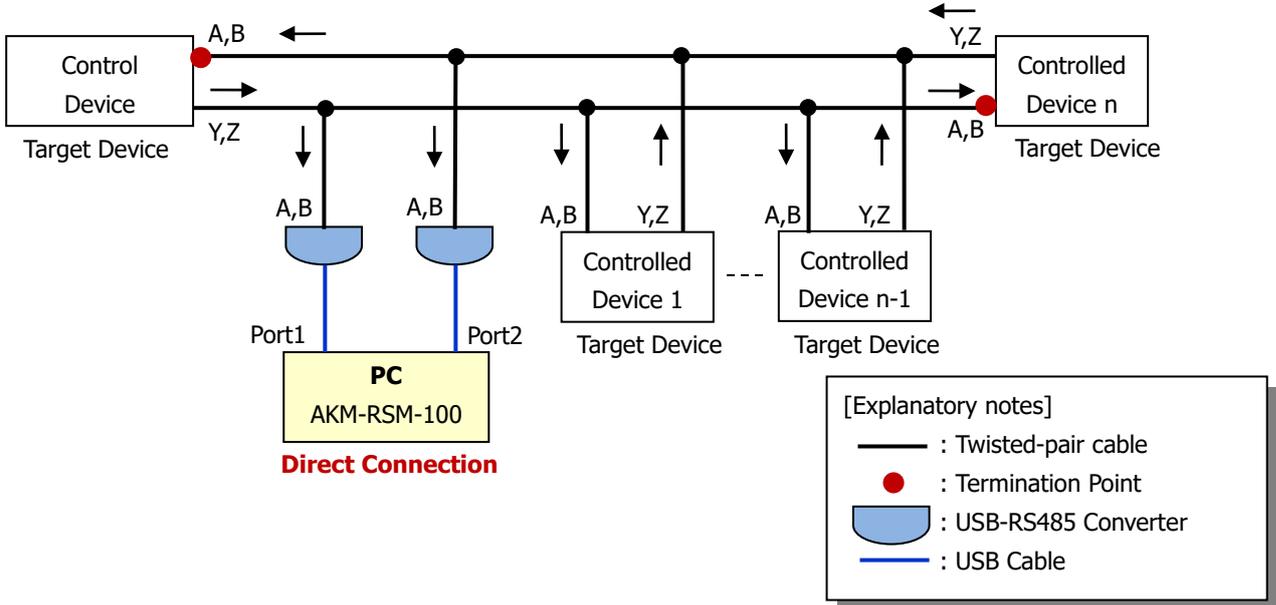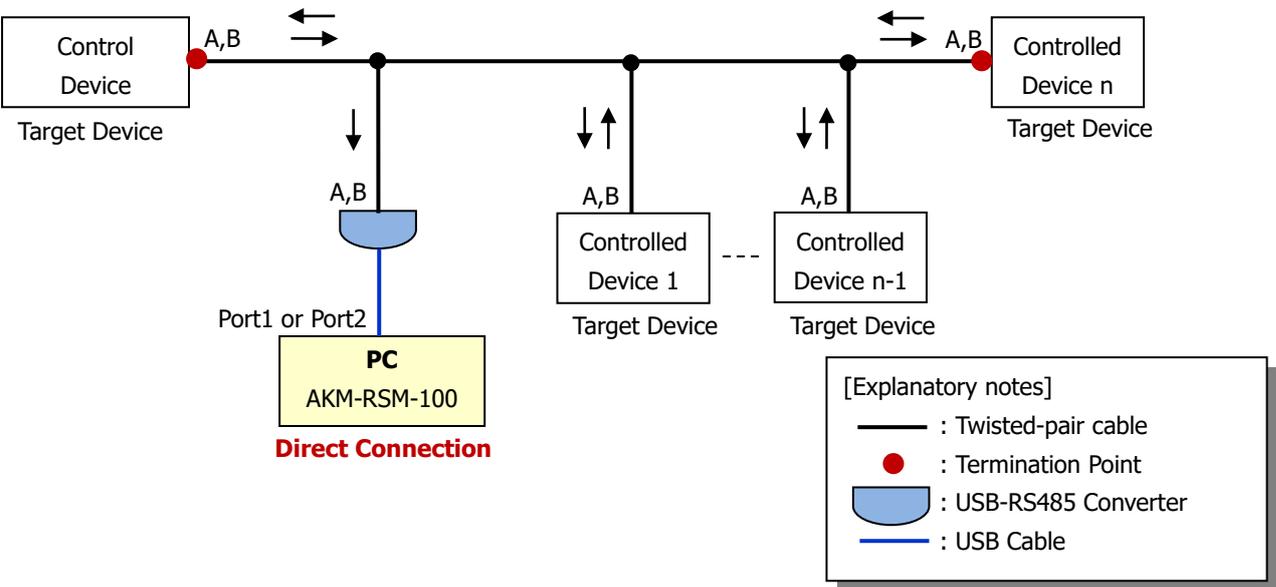(3) CMOS levels   : 0V (0/Space/ON) / +3.3V (1/Mark/OFF)

Even if it is the USB-Serial converter (conversion cable), if there was no specification of the "RS-232C" levels, you must examine voltage levels it is to be carefully.

Then when the device of the different voltage levels is connected, you not only can't communicate but also your system may be damaged.

Be fully careful to the voltage levels in RS-232, RS-422, and RS-485.

(1) Chip Type of the Ports

Chip Type which is the same as the target devices as much as possible should be used for the Port1 and Port2 of this tool Port1 and Port2 of the AKM-RSM-100).

· FTDI Chip (FT232 series)
· Prolific Chip (PL2303 series)
· Standard Serial Port (Standard COM Port) (16550A compatible)

When Chip Type of ports are different, the communications condition may not be detected, or the possibility that the wrong candidates of the communications condition are detected rises.

When Chip Type of ports in the target devices side is unknown, and **when the USB-Serial converter (conversion cable) is used for the Port1 and Port2 with this tool,** the use of the following USB-Serial converter (conversion cable) is recommended.

· The USB-Serial converter (conversion cable) which is using FTDI Chip.

FTDI Chip supports the continuous speed and the large area. (From 192bps to 6Mbps (and 8Mbps, and 12Mbps))

On the other hand, the strong point of the Prolific Chip is supported low speed (75bps, and 150bps). However, the kind of Speed (from 300bps to 921600bps) which can be used seems to be restricted very much.
(Refer to "Appendix B")

If you don't know it well, you should use the FTDI Chip. It is safe for you.

How to Start

The tool is the Add-on Program of the AKM-RSM-100.

Therefore, this tool is started from the [Tools] menu of the AKM-RSM-100.

First, this tool must be registered in advance in the [Tools] menu of the AKM-RSM-100.

When this tool is installed, "Add-on Menu Control" will be actuated. And, it will merge this tool to the [Tools] menu of the AKM-RSM-100. However, in the case of following, "Add-on Menu Control" will be not able to merge menu.

　　　　　· When AKM-RSM-100 isn't being installed.

　　　　　· When 10 kinds of Add-on is registered to the menu already.

　　　*Note: Data will be replaced when Add-on of same name was registered on the [Tools] menu.

In these cases, the menu of this tool must be registered by using [Tools]-[Management of Add-on] on the AKM-RSM-100 by the manual operation. Contents of registration by the manual operation are the followings.

　　　　　· Menu Name　　　　　　　: Speed Detection Aid

　　　　　· Execution File Name　　　: [Install Folder] ＼AKM-RSM-FS0.exe

　　　　　· CMD-line Argument　　　: <%datafile%>.aod

　　　　　· Data File Name　　　　　: AKM-RSM-FS0_<%date%>

　　　*Note: Usually, the default setting of Install Folder is the following.

　　　　　　[OS Drive]: ＼Program Files (x86) ＼Serial Port Monitor and Analyzer ＼Add-on ＼AKM-RSM-FS0 ＼

From now on, various descriptions will be described under the assumption that the registration of the Add-on menu is completed. Start this tool as follows from AKM-RSM-100.

First, specify Ports of AKM-RSM-100.
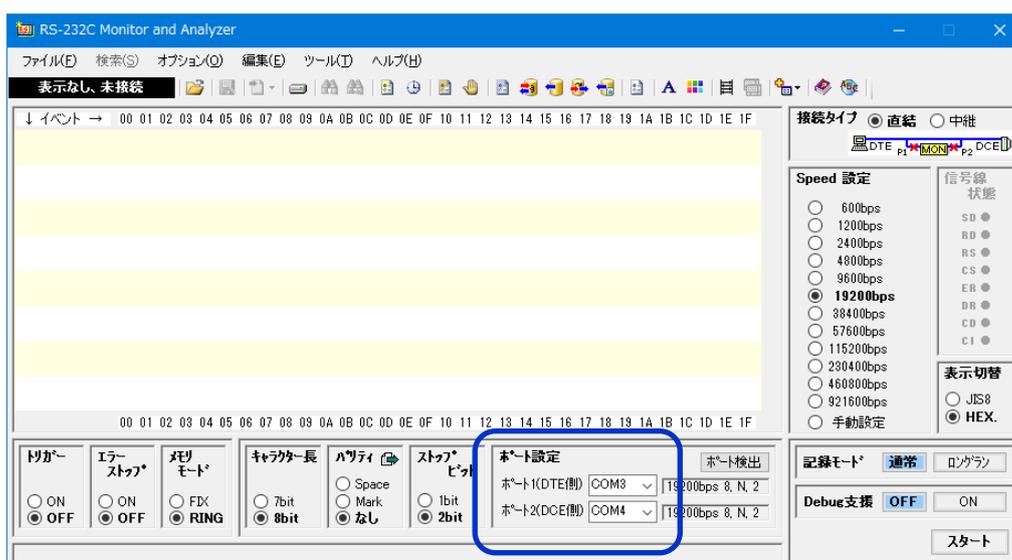
　　　*Note: The designation except for the Ports doesn't matter.

Next, start this tool from AKM-RSM-100 as follows.

How to start 1: Click on [Tools]-[Speed Detection Aid] of Menu bar.
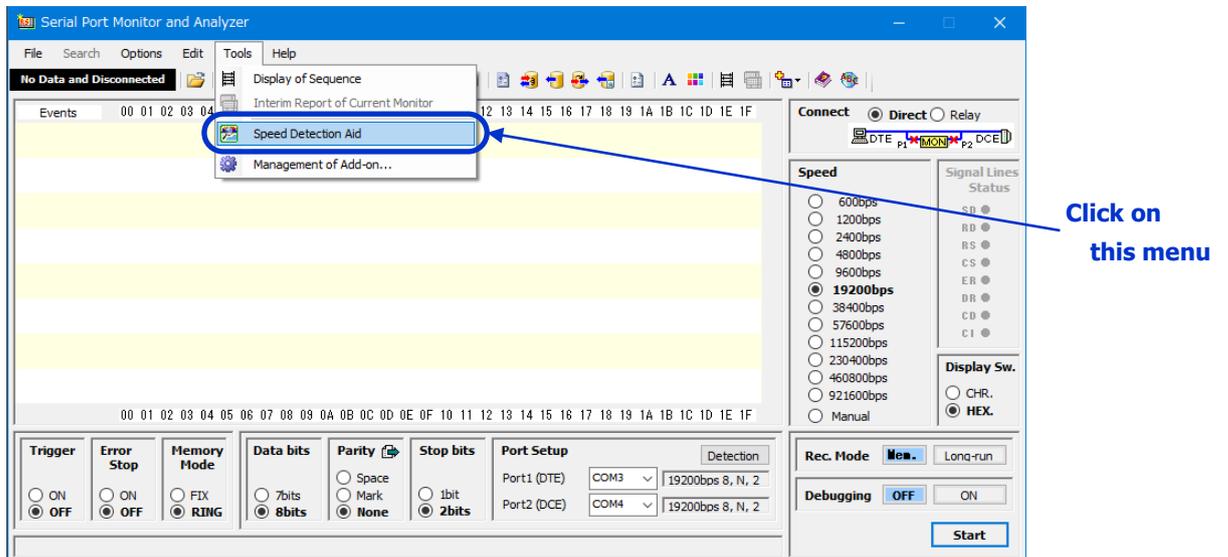
How to start 2: Drop down [icon] icon of Tool bar, and click on [Speed Detection Aid].
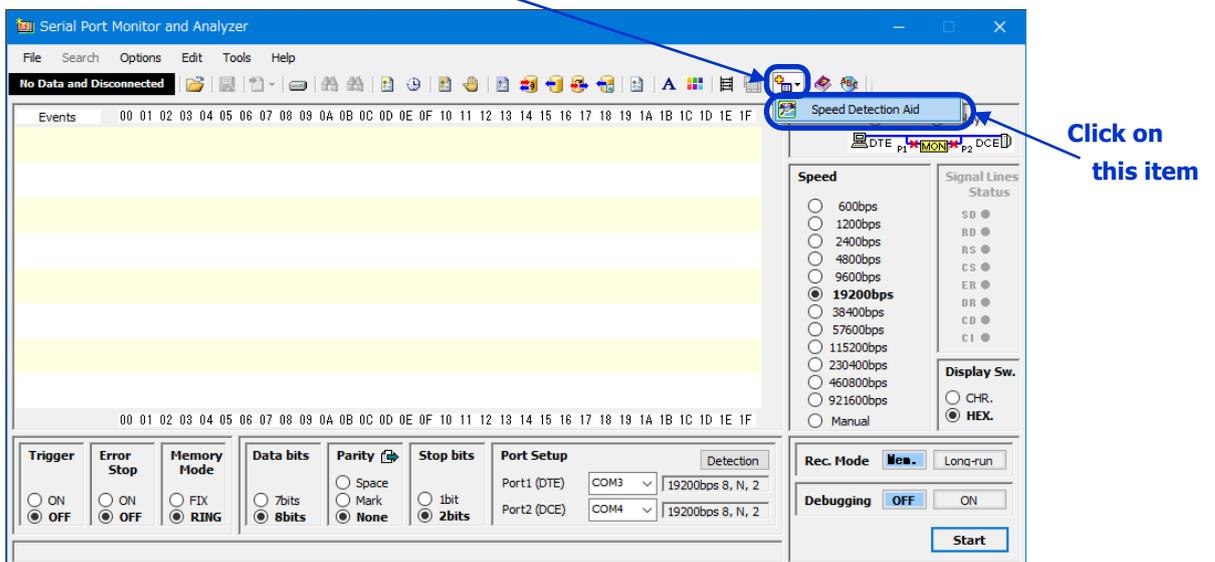
The start of this tool is available when the status of the AKM-RSM-100 is the following.

Displaying Monitor Result   Displaying File Contents
Displaying Monitor Result   Displaying File Contents

The execution of this tool is available when the status of the AKM-RSM-100 is following.

Displaying Monitor Result   Displaying File Contents

*Note: When Ports is being used by the AKM-RSM-100, this tool can't be executed.

How to Operate

■ Setting of Tool

When this tool is started, the following screen will be displayed.
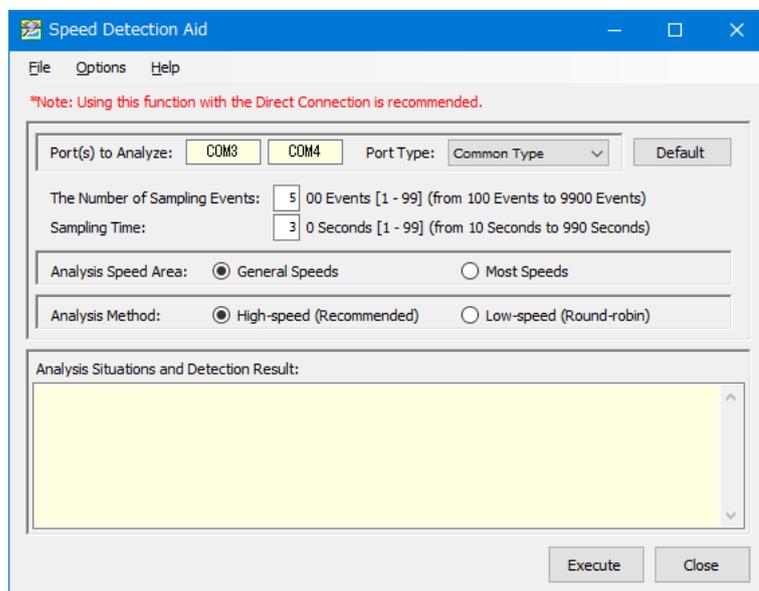
Set up each item in this screen.

[Port Type]: (Default: [Common Type])

Choose the Chip Type of the Ports being used with this tool from 4 kinds of the following.

(1) [Common Type]

Usually, choose this type.

However, if you can choose other type clearly, the accuracy of the detection will be improved.

When you don't know the type of the Ports well, choose this type.

(2) [FTDI Chip]

Choose this type when FTDI Chip (FT232 series) is being used for the USB-Serial conversion of the Ports

(3) [Prolific Chip]

Choose this type when Prolific Chip (PL2303 series) is being used for the USB-Serial conversion of the Ports

(4) [Standard Serial Port]

Choose this type when the Standard Serial Port (16550 or compatible UART) which is equipped to your PC is being used with this tool.

Chip Type which is the same as the target devices as much as possible should be used for the Port1 and Port2 of this tool Port1 and Port2 of the AKM-RSM-100).

*Note: When Chip Type of ports are different, the communications condition may not be detected, or the possibility that the wrong candidates of the communications condition are detected rises.

[The Number of Sampling Events]: (Default: 10 [1000 events])

Specify the number of the event (Communications data, Line Status Error, and so on) which takes the sample of the communications between the target devices.

Configuration Range: 1 (100 events) ~ 99 (9900 events)

The accuracy of the detection will improve by enlarging this value.
However, processing will take time.

[Sampling Time]: (Default: 3 [30 seconds])

Specify the time to receive events which was specified in [The Number of Sampling Events].

Configuration Range: 1 (10 seconds) ~ 99 (990 seconds)

Increase this value in the case of following.

(a) When no candidate is detected
(b) When "! Lack of Received Events." was displayed in the [Analysis Situations and Detection Result] text box
(c) When traffic between the target devices is a small quantity.

[Analysis Speed Area]: (Default: [General Speeds])

Choose the area of the Speed from 2 kinds of the following.

(1) General Speeds]:

Speeds being used typically will be checked in accordance with the [Port Type].

(2) [Most Speeds]

Speeds of the wide area will be checked further in accordance with the [Port Type].

Refer to the "Appendix A" for the Speeds which are actually checked.

[Analysis Method]: (Default: [High-speed (Recommended)])

Choose the analysis method from 2 kinds of the following.

(1) [High-speed (Recommended)]

The main purpose of this method is to show the candidates of the concrete communications condition.

This method will be analyzed at high speed. But, the communications condition may not be able to detect by the communications conditions between the target devices. In such a case, try the [Low-speed (Round-robin)].

(2) [Low-speed (Round-robin)]

The main purpose of this method is to show the rough area of the Speed.

This method detects the communications condition of the target devices from the fast Speed by the round-robin.
Because this method is the round-robin, processing will take time. But, the possibility that the candidates of the communications condition are detected is high.

In addition, the [Default] button is used to return to the default setting of the following item.

[Port Type]
[The Number of Sampling Events]
[Sampling Time]
[Analysis Speed Area]
[Analysis Method]

■ Procedure of Analysis and Detection

After the above "Setting of Tool" is completed, click on [Execute] button to execute the tool.
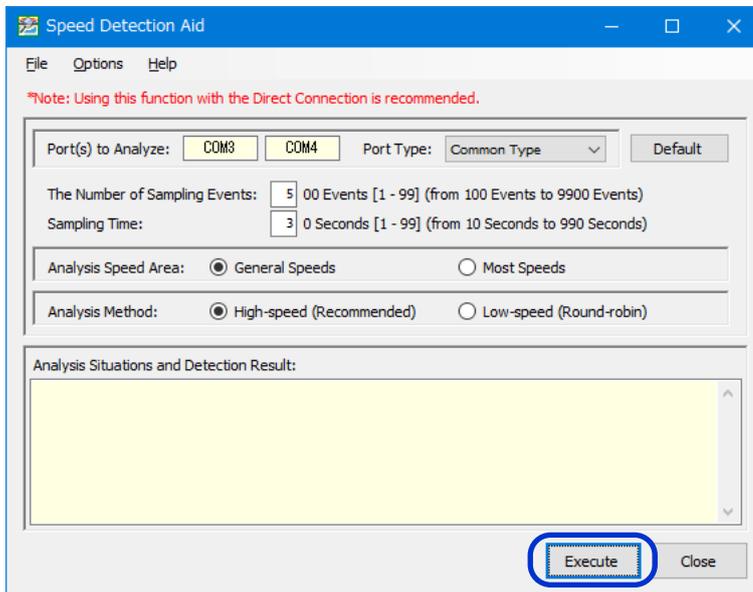
The following screen is displayed by to execute it.
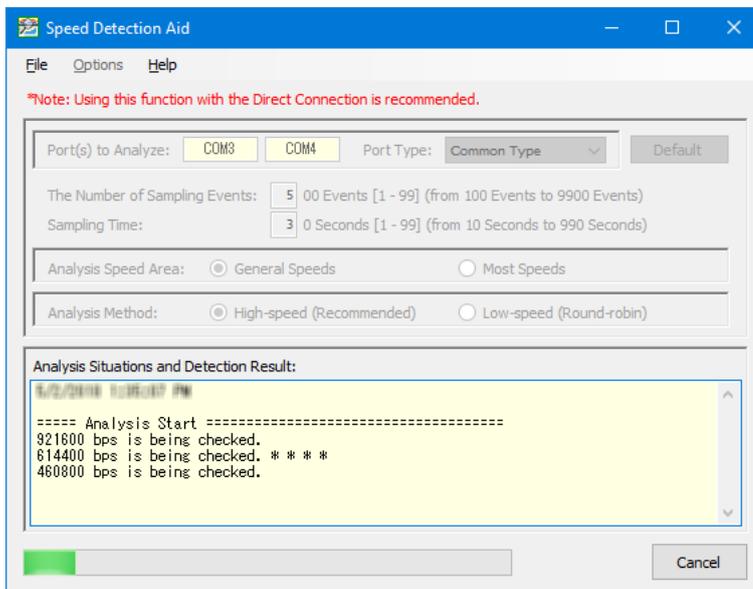
Wait until analysis processing is completed.

*Note: While execution of this tool, by clicking on [Cancel] button, analysis processing will be canceled.

■ About the Detection Result

When an analysis is completed, the following Detection Result message is displayed.
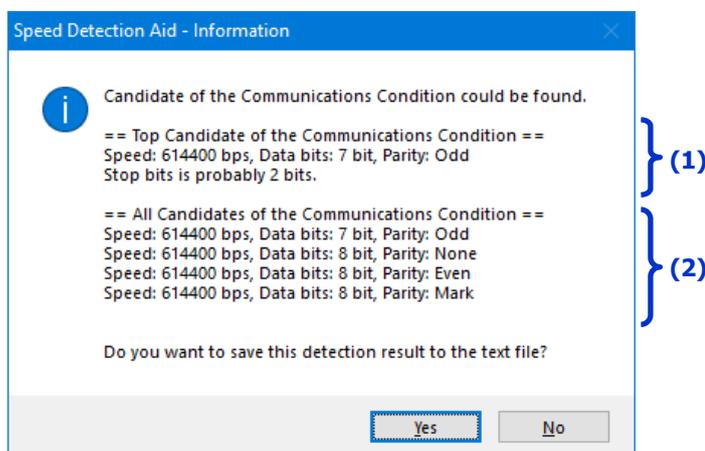
Basically, Detection Result message is composed of 2 blocks.

    (1) Top Candidate of the Communications Condition

        This is the leading candidate.

        The [Top Candidate of the Communications Condition] is displayed only when the [Analysis Method] is set up in the [High-speed (Recommended)].

        *Note: Wrong information may be displayed by actual contents of communications of the target devices, and by the setting of the [Port Type].

        The following is displayed when the [Top Candidate of the Communications Condition] isn't found.

        "The Top Candidate couldn't be narrowed down."

        When there are multiple candidates which is hard distinction, multiple candidates may be displayed.

    (2) All Candidates of the Communications Condition

        These are all detected communications conditions.

        The leading candidate is also included here.

        Basically, try all the candidates displayed here. Then, decide the final communications condition by the visual observation.

In addition, Stop bits may be able to be presumed by actual contents of communications.
When the Stop bits could be presumed, the Stop bits would also be shown to this message.

        There are the following 3 kinds of Stop bits information.

            (1) Stop bits couldn't be detected.

            (2) Stop bits is probably 1 bit.

            (3) Stop bits is probably 2 bits.

■ Contents and Coping Method of the Message

(1) The following message may be displayed **at the time of start and execution** of this tool.
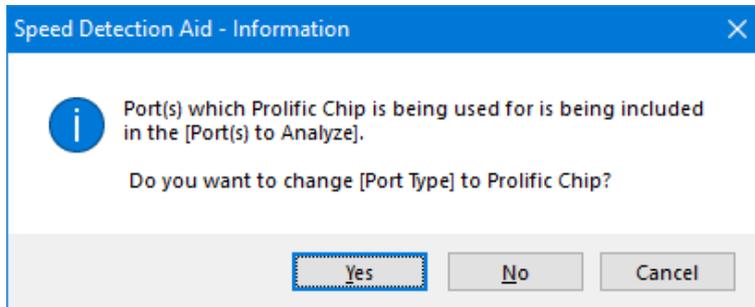
This message means that the USB-Serial converter (conversion cable) of the Prolific Chip is being used in the [Port(s) to Analyze] (the communications ports which this tool uses).

If there is no special reason, click on [Yes] usually. ([Port Type] is changed to the [Prolific Chip] automatically.)

(2) The following message may be displayed **at the time of execution** of this tool.
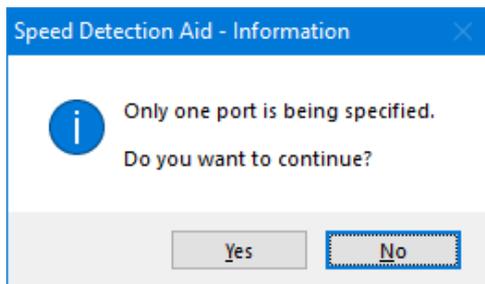
This message means that the number of port of the [Port(s) to Analyze] is only 1 port.

When you want to execute in this device configuration, click on the [Yes].

When you want to change the device condition, shut this tool down. And, change the port setting of the AKM-RSM-100 again. Then, start this tool again.

(3) The following message may be displayed **at the time of execution** of this tool.
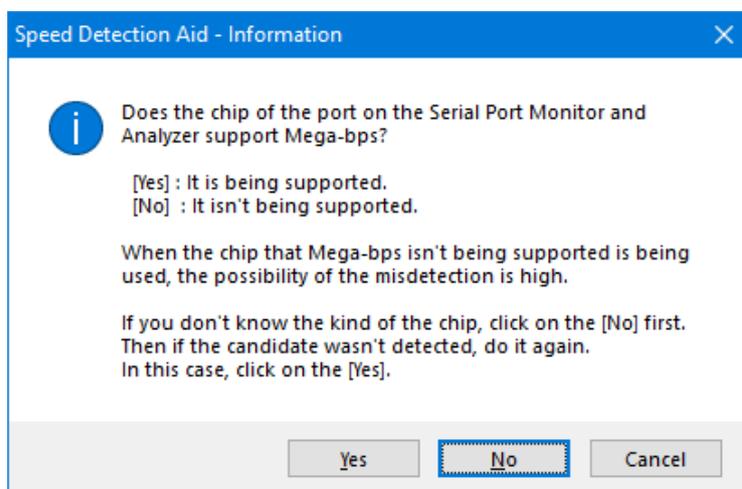
This message will be displayed when the [Port Type] and the [Analysis Speed Area] are being set up as follows.

    [Port Type]: [Common Type], [FTDI Chip], or [Prolific Chip]
    [Analysis Speed Area]: [Most Speeds]

The analysis is started from 12Mbps in the case of the above setting.
If the [Port(s) to Analyze] (the communications ports which this tool uses) doesn't support the Mega-bps, the possibility that the proper candidates aren't detected is high. Therefore, it is confirmed just in case.

When the [Port(s) to Analyze] (the communications ports which this tool uses) supports Mega-bps, start the analysis by clicking on [Yes].

When you don't know whether Mega-bps is being supported, start the analysis by clicking [No.] at first.
If the candidates weren't detected at the first analysis, execute this tool again. Then, click on the [Yes] at that time.

    [Yes]   : The analysis is started from 12Mbps.
    [No]   : The analysis is started from 921600bps.

(4) The following message may be displayed in the [Analysis Situations and Detection Result] text box **while being executed** of this tool.

"! Lack of Received Events."

This message means that the events of [The Number of Sampling Events] couldn't be received at the [Sampling Time].

In this case, increase the set value of the [Sampling Time]. Then, execute this tool again.
(There is the method which makes the value of [The Number of the Sampling Events] decrease, too. But, in this case, the accuracy of the detection will be down.)

The case which can't detect the candidates

In the following case of communications of the target devices, the proper communications condition may not be able to detect it.

    (1) When only data on the same value are transmitted.
          The communications that only &h00 is transmitted.
          The communications that only &h01 is transmitted.
                  :
          The communications that only &hFF is transmitted.

    (2) When only data on the same number of the bit are transmitted.
          The communications that data only on the Even bit (&h00, &h03, &h05,&h06, ...) are transmitted.
          The communications that data only on the Odd bit (&h01, &h02, &h04,&h07, ...) are transmitted.

    (3) When the USB-Serial conversion device (cable) which doesn't have the detection function of the Line Error is being used.

    (4) When data are being transmitted continually from one port of the target device.

    (5) When the break signal is being used as a procedure of the communications between the target devices.

In the case which the candidate can't detect, the following message will be displayed.
Or, it won't be able to be detected at all. (Or, there can be misdetection, too.)

Speed Detection Aid - Information

Candidate of the Communications Condition could be found.

== Top Candidate of the Communications Condition ==
The Top Candidate couldn't be narrowed down.

== All Candidates of the Communications Condition ==
Speed: 921600 bps, Data bits: 8 bit, Parity: None
Speed: 921600 bps, Data bits: 8 bit, Parity: Even
Speed: 921600 bps, Data bits: 8 bit, Parity: Mark
Speed: 921600 bps, Data bits: 7 bit, Parity: None
Speed: 921600 bps, Data bits: 7 bit, Parity: Odd
Speed: 921600 bps, Data bits: 7 bit, Parity: Mark

Speed: 614400 bps, Data bits: 8 bit, Parity: None
Speed: 614400 bps, Data bits: 8 bit, Parity: Odd
Speed: 614400 bps, Data bits: 8 bit, Parity: Mark
Speed: 614400 bps, Data bits: 7 bit, Parity: None
Speed: 614400 bps, Data bits: 7 bit, Parity: Even
Speed: 614400 bps, Data bits: 7 bit, Parity: Mark

Stop bits couldn't be detected.

This result has the possibility that candidates aren't being displayed in the right order.

Candidates may be able to be narrowed down by increasing the Number of Sampling Events.

Do you want to save this detection result to the tex

Yes

This result has the possibility that candidates aren't being displayed in the right order.

When the number of the candidate is too many, the middle part of the message may be omitted.
However, when it is saved to the file, the whole candidates are saved.

In such a case, give up the detection of the concrete communications condition in this tool.

(The rough area of the speed will be able to be shown in this tool.)

Other Function

*Caution: When OS is Windows XP, character corruption will occur in this function.
        This function shouldn't be used with Windows XP.

This tool copes with both of Japanese and English. At first, this tool is started in the language which is the same as the language of the AKM-RSM-100.
Then, Detection Result File is made in the language which is the same as the display language.

However, the display language of this tool can be changed in the [Option] menu.
This function will be useful when the detection result file is provided to the Japanese technician.

By clicking on this menu...

Changed to Japanese edition
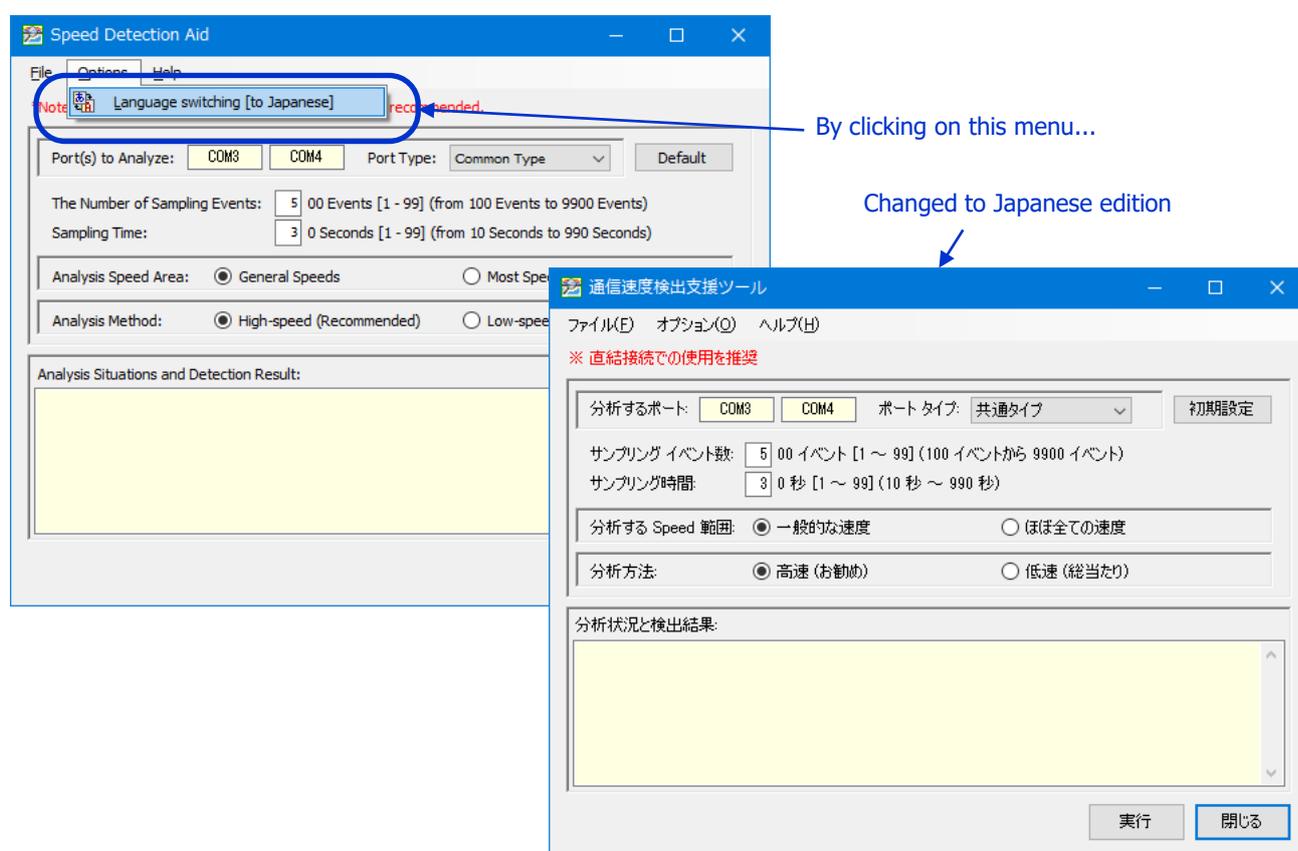
*Note: After it is changed to Japanese edition, it is returned to English edition by the same operation.

Shutdown method

Shut this tool down in either next method.

When this tool is not being executed...

Method 1: Click on [Close] of the lower right part
Method 2: Click on [File]-[Exit] of Menu bar
Method 3: Click on [--] of Title bar
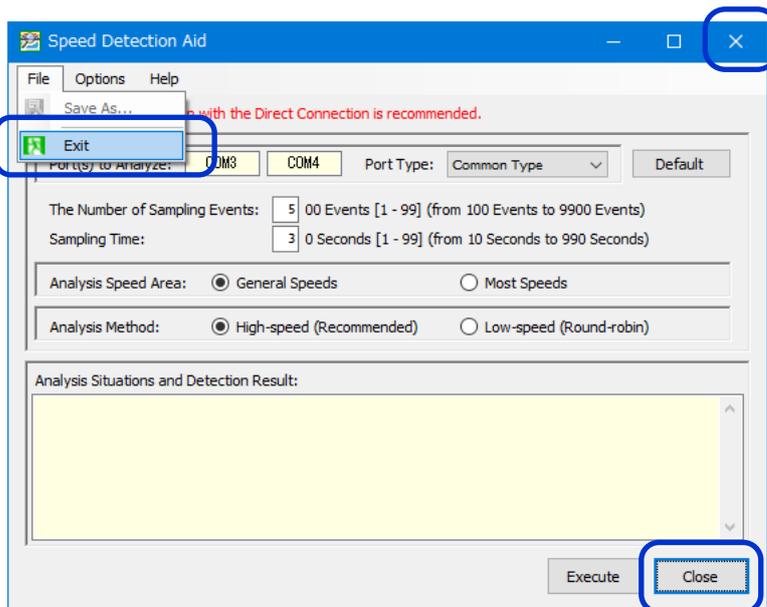
Appendix A: List of the Speed checked in this tool

X : It is checked,   -- : It isn't checked

Speed	Common Type		FTDI Chip		Prolific Chip		Standard Serial	
	General	Most	General	Most	General	Most	General	Most
50	X	X	--	--	--	--	X	X
60	--	X	--	--	--	--	--	X
64	--	X	--	--	--	--	--	X
72	--	X	--	--	--	--	--	X
75	X	X	--	--	--	X	X	X
80	--	X	--	--	--	--	--	X
90	--	X	--	--	--	--	--	X
96	--	X	--	--	--	--	--	X
100	--	X	--	--	--	--	--	X
110	X	X	--	--	--	--	X	X
120	--	X	--	--	--	--	--	X
128	--	X	--	--	--	--	--	X
134	--	X	--	--	--	--	--	X
144	--	X	--	--	--	--	--	X
150	X	X	--	--	--	X	X	X
160	--	X	--	--	--	--	--	X
180	--	X	--	--	--	--	--	X
192	--	X	--	X	--	--	--	X
200	--	X	--	X	--	--	--	X
225	--	X	--	X	--	--	--	X
240	--	X	--	X	--	--	--	X
256	--	X	--	X	--	--	--	X
288	--	X	--	X	--	--	--	X
300	X	X	X	X	X	X	X	X
320	--	X	--	X	--	--	--	X
360	--	X	--	X	--	--	--	X
384	--	X	--	X	--	--	--	X
400	--	X	--	X	--	--	--	X
450	--	X	--	X	--	--	--	X
480	--	X	--	X	--	--	--	X
512	--	X	--	X	--	--	--	X
576	--	X	--	X	--	--	--	X
600	X	X	X	X	X	X	X	X
640	--	X	--	X	--	--	--	X
720	--	X	--	X	--	--	--	X
768	--	X	--	X	--	--	--	X
800	--	X	--	X	--	--	--	X
900	--	X	--	X	--	--	--	X
960	--	X	--	X	--	--	--	X

X : It is checked,　　-- : It isn't checked

Speed	Common Type		FTDI Chip		Prolific Chip		Standard Serial	
	General	Most	General	Most	General	Most	General	Most
1024	--	X	--	X	--	--	--	X
1152	--	X	--	X	--	--	--	X
1200	X	X	X	X	X	X	X	X
1280	--	X	--	X	--	--	--	X
1440	--	X	--	X	--	--	--	X
1536	--	X	--	X	--	--	--	X
1600	--	X	--	X	--	--	--	X
1800	X	X	X	X	X	X	X	X
1920	--	X	--	X	--	--	--	X
2048	--	X	--	X	--	--	--	X
2304	--	X	--	X	--	--	--	X
2400	X	X	X	X	X	X	X	X
2560	--	X	--	X	--	--	--	X
2880	--	X	--	X	--	--	--	X
3072	--	X	--	X	--	--	--	X
3200	--	X	--	X	--	--	--	X
3600	X	X	X	X	X	X	X	X
3840	--	X	--	X	--	--	--	X
4096	--	X	--	X	--	--	--	X
4608	--	X	--	X	--	--	--	X
4800	X	X	X	X	X	X	X	X
5120	--	X	--	X	--	--	--	X
5760	--	X	--	X	--	--	--	X
6144	--	X	--	X	--	--	--	--
6400	--	X	--	X	--	--	--	X
7200	X	X	X	X	X	X	X	X
7680	--	X	--	X	--	--	--	X
8192	--	X	--	X	--	--	--	X
9216	--	X	--	X	--	--	--	--
9600	X	X	X	X	X	X	X	X
10240	--	X	--	X	--	--	--	--
11520	--	X	--	X	--	--	--	X
12288	--	X	--	X	--	--	--	--
12800	--	X	--	X	--	--	--	X
14400	X	X	X	X	X	X	X	X
15360	--	X	--	X	--	--	--	--
16384	--	X	--	X	--	--	--	X
18432	--	X	--	X	--	--	--	--
19200	X	X	X	X	X	X	X	X
20480	--	X	--	X	--	--	--	--

X : It is checked,   -- : It isn't checked

Speed	Common Type		FTDI Chip		Prolific Chip		Standard Serial	
	General	Most	General	Most	General	Most	General	Most
23040	--	X	--	X	--	--	--	X
24576	--	X	--	X	--	--	--	--
25600	--	X	--	X	--	--	--	--
28800	X	X	X	X	X	X	--	X
30720	--	X	--	X	--	--	--	--
32768	--	X	--	X	--	--	--	--
36864	--	X	--	X	--	--	--	--
38400	X	X	X	X	X	X	--	X
40960	--	X	--	X	--	--	--	--
46080	--	X	--	X	--	--	--	--
49152	--	X	--	X	--	--	--	--
51200	--	X	--	X	--	--	--	--
57600	X	X	X	X	X	X	--	X
61440	--	X	--	X	--	--	--	--
73728	--	X	--	X	--	--	--	--
76800	X	X	X	X	--	--	--	--
81920	--	X	--	X	--	--	--	--
92160	--	X	--	X	--	--	--	--
98304	--	X	--	X	--	--	--	--
102400	--	X	--	X	--	--	--	--
115200	X	X	X	X	X	X	--	X
122880	--	X	--	X	--	X	--	--
135785	--	X	--	X	--	X	--	--
147465	--	X	--	X	--	--	--	--
153600	X	X	X	X	--	--	--	--
163840	--	X	--	X	--	X	--	--
184320	--	X	--	X	--	--	--	--
204800	--	X	--	X	--	X	--	--
230400	X	X	X	X	X	X	--	--
245760	--	X	--	X	--	--	--	--
256000	--	X	--	X	--	X	--	--
265928	--	X	--	X	--	X	--	--
294912	--	X	--	X	--	--	--	--
307200	X	X	X	X	--	--	--	--
368640	--	X	--	X	--	--	--	--
409600	--	X	--	X	--	X	--	--
460800	X	X	X	X	X	X	--	--
491520	--	X	--	X	--	X	--	--
614400	X	X	X	X	X	X	--	--
737280	--	X	--	X	--	--	--	--
819200	--	X	--	X	--	X	--	--
921600	X	X	X	X	X	X	--	--

X : It is checked,   -- : It isn't checked

Speed	Common Type		FTDI Chip		Prolific Chip		Standard Serial	
	General	Most	General	Most	General	Most	General	Most
1000000	--	X	--	X	--	--	--	--
1100000	--	X	--	X	--	--	--	--
1200000	--	X	--	X	--	--	--	--
1228800	--	--	--	--	--	X	--	--
1300000	--	X	--	X	--	--	--	--
1400000	--	X	--	X	--	--	--	--
1500000	--	X	--	X	--	--	--	--
1625000	--	X	--	X	--	--	--	--
1750000	--	X	--	X	--	--	--	--
1875000	--	X	--	X	--	--	--	--
2000000	--	X	--	X	--	X	--	--
2200000	--	X	--	X	--	--	--	--
2400000	--	X	--	X	--	--	--	--
2457600	--	--	--	--	--	X	--	--
2600000	--	X	--	X	--	--	--	--
2800000	--	X	--	X	--	--	--	--
3000000	--	X	--	X	--	X	--	--
3250000	--	X	--	X	--	--	--	--
3500000	--	X	--	X	--	--	--	--
3750000	--	X	--	X	--	--	--	--
4000000	--	X	--	X	--	X	--	--
4250000	--	X	--	X	--	--	--	--
4500000	--	X	--	X	--	--	--	--
4750000	--	X	--	X	--	--	--	--
5000000	--	X	--	X	--	X	--	--
5250000	--	X	--	X	--	--	--	--
5500000	--	X	--	X	--	--	--	--
5750000	--	X	--	X	--	--	--	--
6000000	--	X	--	X	--	X	--	--
8000000	--	X	--	X	--	X	--	--
12000000	--	X	--	X	--	X	--	--

Appendix B: List of the Available Speed in each Chip

X : Available,   -- : Not available   *Note: This result is our own opinion.

Speed	Prolific		FTDI		WCH	標準シリアル
	PL2303 (RS-232C) 3.4.25.218	PL2303HXD (CMOS) 3.8.18.0	FT232 (RS-232C) 2.12.24.0	FT232HL (CMOS) 2.12.24.0	CH340 (TTL) 3.4.2014.8	UTC 75232L (RS-232C) 10.0.17134.1
50	--	--	--	--	X	X
60	--	--	--	--	X	X
64	--	--	--	--	X	X
72	--	--	--	--	X	X
75	X	X	--	--	X	X
80	--	X	--	--	X	X
90	--	--	--	--	X	X
96	--	--	--	--	X	X
100	--	--	--	--	X	X
110	--	X	--	--	X	X
120	--	--	--	--	X	X
128	--	--	--	--	X	X
134	--	--	--	--	X	X
144	--	--	--	--	X	X
150	X	X	--	--	X	X
160	--	--	--	--	X	X
180	--	--	--	--	X	X
192	--	--	X	X	X	X
200	--	X	X	X	X	X
225	--	--	X	X	X	X
240	--	--	X	X	X	X
256	--	--	X	X	X	X
288	--	--	X	X	X	X
300	X	X	X	X	X	X
320	--	--	X	X	X	X
360	--	--	X	X	X	X
384	--	--	X	X	X	X
400	--	--	X	X	X	X
450	--	--	X	X	X	X
480	--	--	X	X	X	X
512	--	--	X	X	X	X
576	--	--	X	X	X	X
600	X	X	X	X	X	X
640	--	--	X	X	X	X
720	--	--	X	X	X	X
768	--	--	X	X	X	X
800	--	--	X	X	X	X
900	--	--	X	X	X	X
960	--	--	X	X	X	X

X : Available,　　　-- : Not available　　　***Note: This result is our own opinion.**

Speed	Prolific		FTDI		WCH	標準シリアル
	PL2303 (RS-232C) 3.4.25.218	PL2303HXD (CMOS) 3.8.18.0	FT232 (RS-232C) 2.12.24.0	FT232HL (CMOS) 2.12.24.0	CH340 (TTL) 3.4.2014.8	UTC 75232L (RS-232C) 10.0.17134.1
1024	--	--	X	X	X	X
1152	--	--	X	X	X	X
1200	X	X	X	X	X	X
1280	--	--	X	X	X	X
1440	--	--	X	X	X	X
1536	--	--	X	X	X	X
1600	--	--	X	X	X	X
1800	X	X	X	X	X	X
1920	--	--	X	X	X	X
2048	--	--	X	X	X	X
2304	--	--	X	X	X	X
2400	X	X	X	X	X	X
2560	--	--	X	X	X	X
2880	--	--	X	X	X	X
3072	--	--	X	X	X	X
3200	--	--	X	X	X	X
3600	X	X	X	X	X	X
3840	--	--	X	X	X	X
4096	--	--	X	X	X	X
4608	--	X	X	X	X	X
4800	X	X	X	X	X	X
5120	--	--	X	X	X	X
5760	--	X	X	X	X	X
6144	--	--	X	X	X	--
6400	--	--	X	X	X	X
7200	X	X	X	X	X	X
7680	--	X	X	X	X	X
8192	--	X	X	X	X	X
9216	--	X	X	X	X	--
9600	X	X	X	X	X	X
10240	--	X	X	X	X	--
11520	--	--	X	X	X	X
12288	--	--	X	X	X	--
12800	--	--	X	X	X	X
14400	X	X	X	X	X	X
15360	--	X	X	X	X	--
16384	--	--	X	X	X	X
18432	--	--	X	X	X	--
19200	X	X	X	X	X	X
20480	--	--	X	X	X	--

X : Available,   -- : Not available   ***Note: This result is our own opinion.**

Speed	Prolific		FTDI		WCH	標準シリアル
	PL2303 (RS-232C) 3.4.25.218	PL2303HXD (CMOS) 3.8.18.0	FT232 (RS-232C) 2.12.24.0	FT232HL (CMOS) 2.12.24.0	CH340 (TTL) 3.4.2014.8	UTC 75232L (RS-232C) 10.0.17134.1
23040	--	--	X	X	X	X
24576	--	--	X	X	X	--
25600	--	--	X	X	X	--
28800	X	X	X	X	X	X
30720	--	--	X	X	X	--
32768	--	X	X	X	X	--
36864	--	--	X	X	X	--
38400	X	X	X	X	X	X
40960	--	--	X	X	X	--
46080	--	--	X	X	X	--
49152	--	--	X	X	X	--
51200	--	X	X	X	X	--
57600	X	X	X	X	X	X
61440	--	--	X	X	X	--
73728	--	--	X	X	X	--
76800	--	--	X	X	X	--
81920	--	X	X	X	X	--
92160	--	--	X	X	X	--
98304	--	--	X	X	X	--
102400	--	--	X	X	X	--
115200	X	X	X	X	X	X
122880	X	X	X	X	X	--
135785	X	X	X	X	X	--
147465	--	--	X	X	X	--
153600	--	--	X	X	X	--
163840	X	X	X	X	X	--
184320	--	--	X	X	X	--
204800	X	X	X	X	X	--
230400	X	X	X	X	X	--
245760	--	--	X	X	X	--
256000	X	X	X	X	X	--
265928	X	X	X	X	X	--
294912	--	X	X	X	X	--
307200	--	--	X	X	X	--
368640	--	X	X	X	X	--
409600	X	X	X	X	X	--
460800	X	X	X	X	X	--
491520	X	X	X	X	X	--
614400	X	X	X	X	X	--
737280	--	--	X	X	X	--
819200	X	X	X	X	X	--
921600	X	X	X	X	X	--

X : Available,   -- : Not available   ***Note: This result is our own opinion.**

Speed	Prolific		FTDI		WCH	標準シリアル
	PL2303 (RS-232C) 3.4.25.218	PL2303HXD (CMOS) 3.8.18.0	FT232 (RS-232C) 2.12.24.0	FT232HL (CMOS) 2.12.24.0	CH340 (TTL) 3.4.2014.8	UTC 75232L (RS-232C) 10.0.17134.1
1000000	--	X	--	X	X	--
1228800	--	X	--	X	X	--
1474560	--	X	--	X	X	--
1500000	--	X	--	X	X	--
1843200	--	X	--	X	--	--
2000000	--	X	--	X	X	--
2457600	--	X	--	X	--	--
2500000	--	X	--	X	--	--
2800000	--	--	--	X	--	--
2949120	--	--	--	X	--	--
3000000	--	X	--	X	X	--
3200000	--	X	--	X	--	--
3500000	--	--	--	X	--	--
3686400	--	--	--	X	--	--
4000000	--	X	--	X	--	--
4500000	--	X	--	X	--	--
4800000	--	--	--	X	--	--
5000000	--	X	--	X	--	--
5500000	--	X	--	X	--	--
6000000	--	X	--	X	--	--
6500000	--	--	--	X	--	--
7000000	--	--	--	--	--	--
7500000	--	--	--	--	--	--
8000000	--	X	--	X	--	--
8500000	--	--	--	--	--	--
9000000	--	--	--	--	--	--
9500000	--	--	--	--	--	--
10000000	--	--	--	--	--	--
11000000	--	--	--	--	--	--
12000000	--	X	--	X	--	--

[Complements]   "Available" is meaning that it is actuated in the set up Speed.

"Not available" is meaning the 2 kinds of the following.

    (1) Port can't be opened.

    (2) It is actuated at the speed which is different from the set up Speed.

       (For example, it is actuated in 9600bps even if 5760bps is set up.)

*Note: Number of the field in the Chip Name is the version number of the device driver.

*Note: The difference of the actuation (to 921600bps from 50bps) of the PL2303 and the PL2303HXD will be the difference of the device driver.

*Note: M-02746 of AKIZUKI DENSHI TSUSHO CO., LTD. was used for the **PL2303 (RS-232C)**.

*Note: SRC06USB of Arvel (almost, BSUSRC06 of Buffalo) was used for the **FT232 (RS-232C)**.