Instruction manual

Setting device

For Neutron survey meter, NSN3

Version 1.03

(Unit : Sv)

2015-02

FORWARD

Thank you for purchasing the Neutron Survey Meter of Fuji Electric Co., Ltd.
This manual explains how to operate the device and the parts of the survey meter.
Please read this manual carefully to ensure correct operation before use.

Safety precaution

	**Stop using the device if smoke, unusual odor or abnormal sound are emitted.**
	**Use the dedicated USB cables.**
	**Do not disassemble, repair or make any modification.**

Table of contents

1. General

1.1 General

The setting device includes the function for reading out the setting values and trend data (historical data of dose rate and accumulated dose) from Neutron survey meter by communicating with the survey meter, and also the function for writing the data that was set on the screen into the Neutron survey meter. The setting device is capable of filing trend data that was read out from neutron survey meter as CSV format and exporting it. The associated application program (herein after called setting device) is applicable to Microsoft® Windows® operating system.

1.2 Production package

(1) Program for setting device and installation CD	1
(2) USB cable	1
(3) Instruction manual (This document)	1

2. Outline of the device

2.1 Basic specifications

(1) Basic function: Readout of the setting values from the neutron survey meter
Writing the setting values into the neutron survey meter
Readout and storage of the trend data

(2) Communication object: Neutron survey meter(NSN3 series)

(3) Temperature: 0 to 40 degree Centigrade

(4) Humidity: 30 to 85%

(5) Communication method: Serial communication with the accompanying USB cables

2.2 Operation environment of program for setting device

The following hardware and software are at least required.

(1) Hardware

PC/AT compatible machine and its peripherals (herein after called PC)

> PC	1 unit
> CPU	Pentium 1GHz or more
> Memory	512MB or more
>. HDD	Free space 20 MB or more
> Display	Resolution 800 × 600 or more
> Communication interface	USB 2.0 X 1 ch
< Other peripherals	Mouse and keyboard

(2) Software

Install the following software in the PC in the preceding item (1).

> Operating system : Windows ® XP/7/8/8.1

Note)

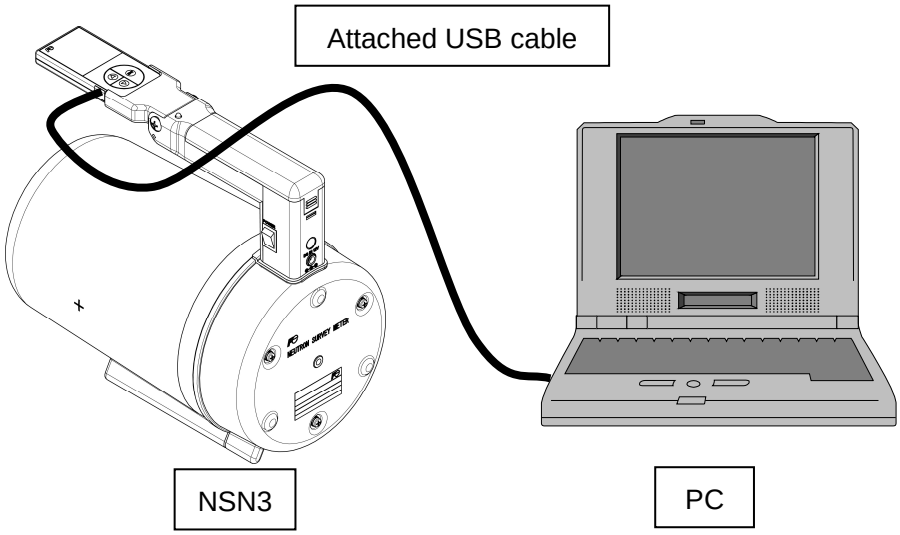
> **Microsoft®**, **Windows®**, **Windows logo®**, **Windows Start logo®** are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

> Screen images are provided in complying with the Microsoft Corporation's guideline.

3. Explanation of each part and setup method

3.1 System configuration

The setting device is used in the following system configuration.



System configuration

3.2 USB cable

A design of the attached cable is showed below.

3.3 Setup method

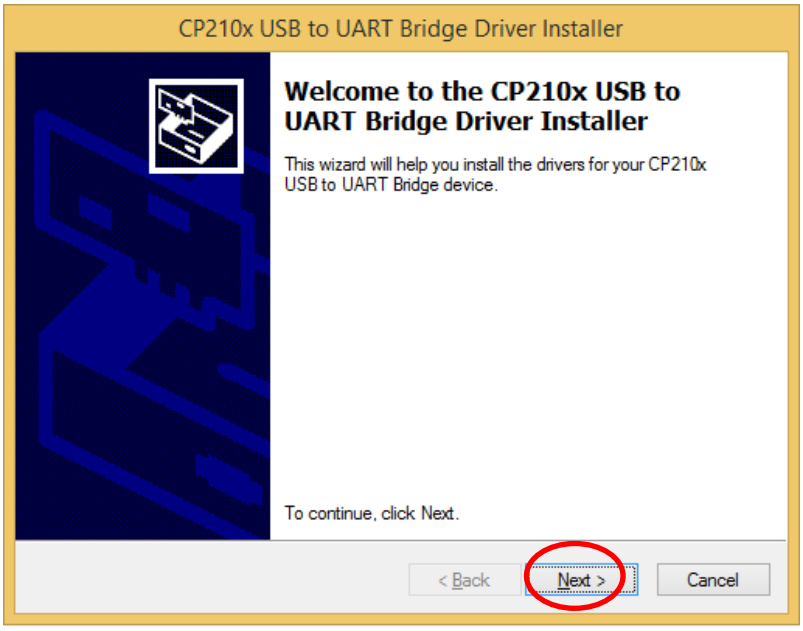
Install a USB driver (CP210X) and then control software. Do not connect the PC and neutron survey meter with USB cable.

3.3.1. Installation procedure for USB driver(CP210X)

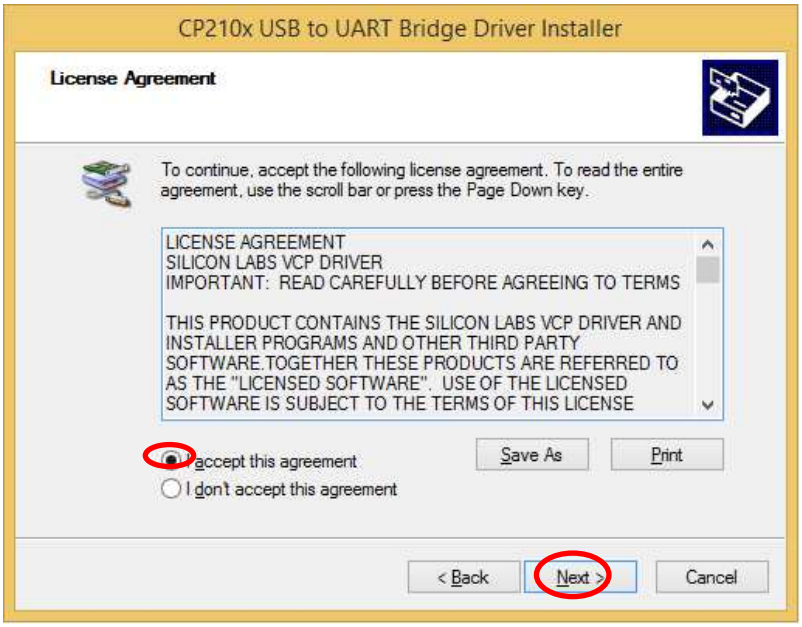
The procedure is also described in the CD jacket.

(1) Insert the installation CD into CD-ROM drive of PC.
(2) Click **CP210x_VCP_Windows**" folder.
(3) Select following installer matching your computer and start it.
32 bit type : "**CCP210xVCPInstaller_x86.exe**"
64 bit type : "**CCP210xVCPInstaller_x64.exe**"

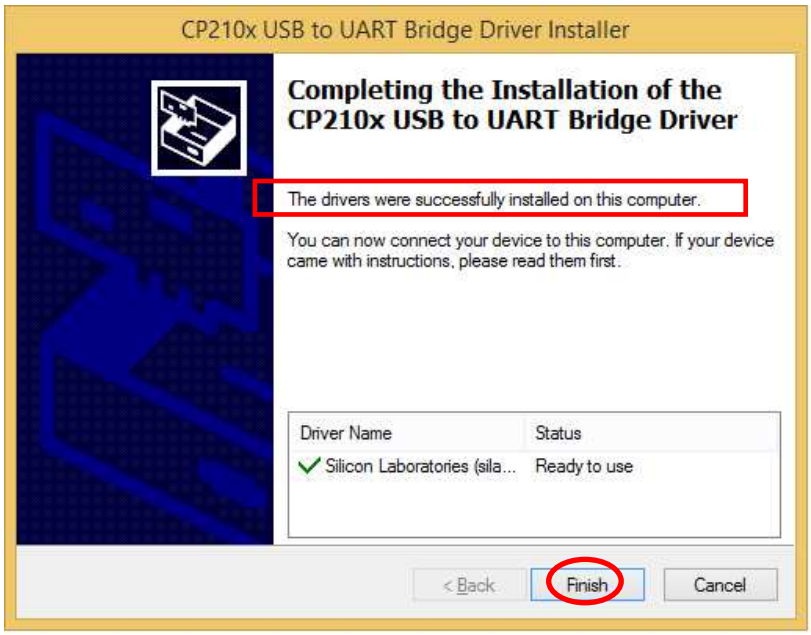
Click "**Next**".



Read the following agreement carefully, after the acceptance of the terms of license agreement, click "**Next".**



Click “**Finish**” after confirm the message “The drivers were successfully installed on the computer”.

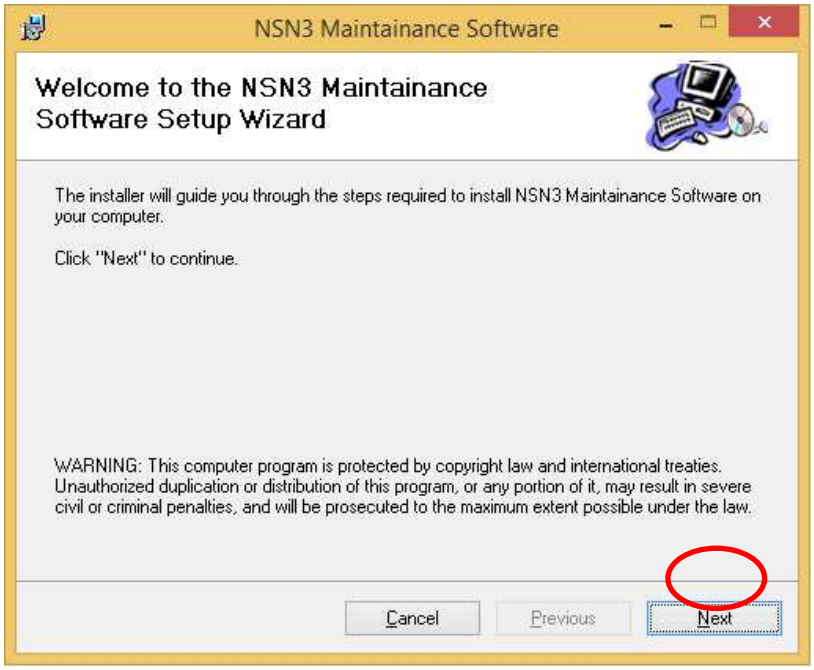


3.3.2. Installation procedure for the software

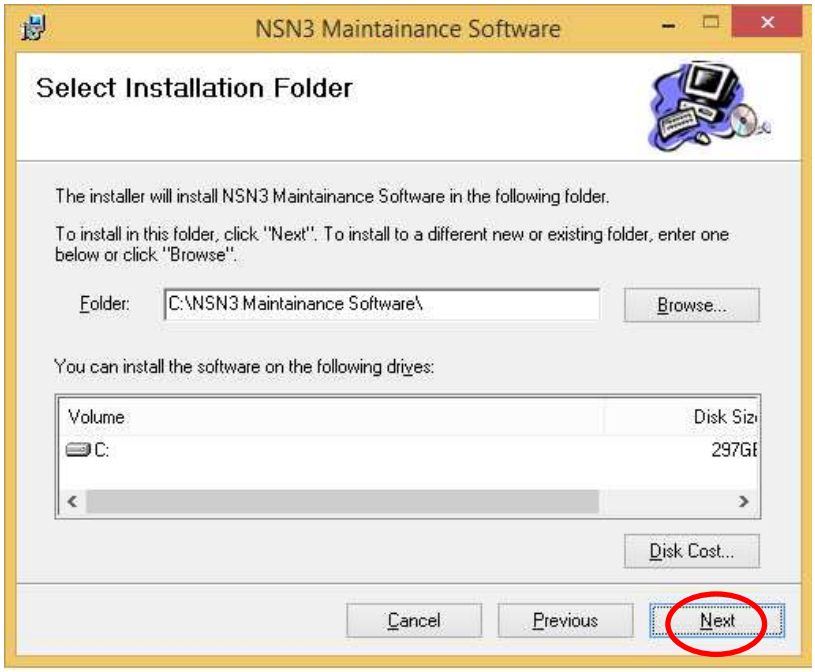
The procedure is also described in the CD jacket.

(1) Insert the Installation into CD-ROM drive of PC.
(2) Click “NSN3_ControlSoft_103”.
(3) Activate a file ”**Setup.exe**”.

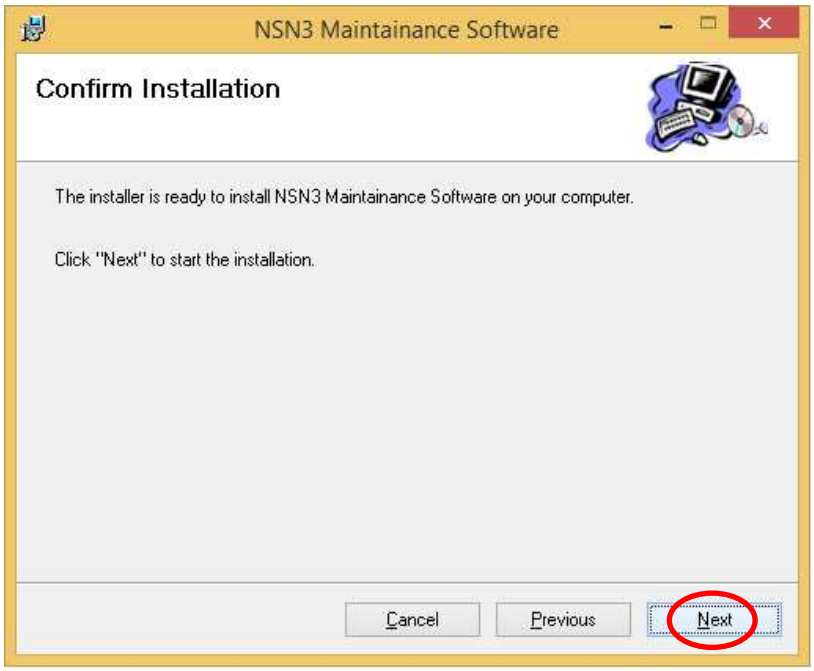
Click “Next”.



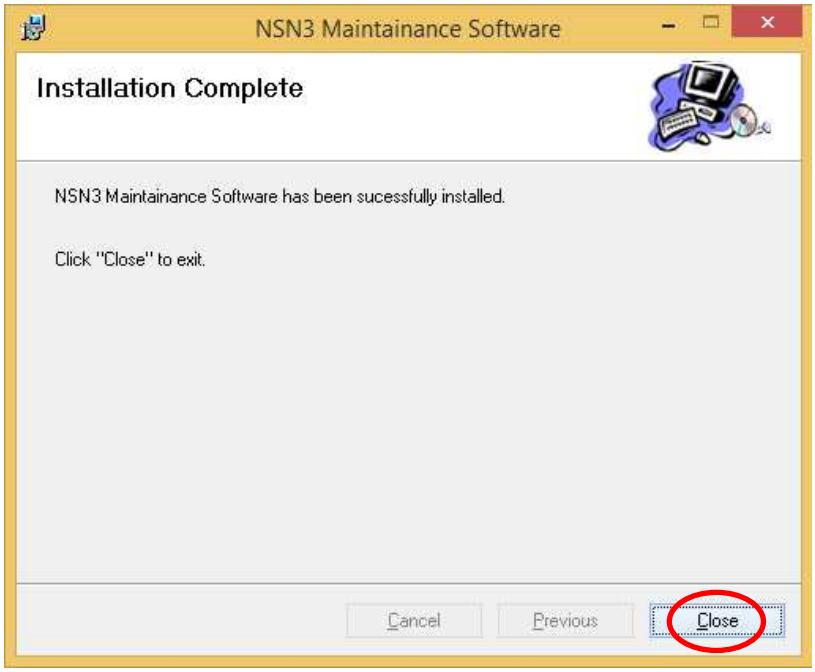
Choose an installation directory, and then click “**Next**”



Click “Next”.

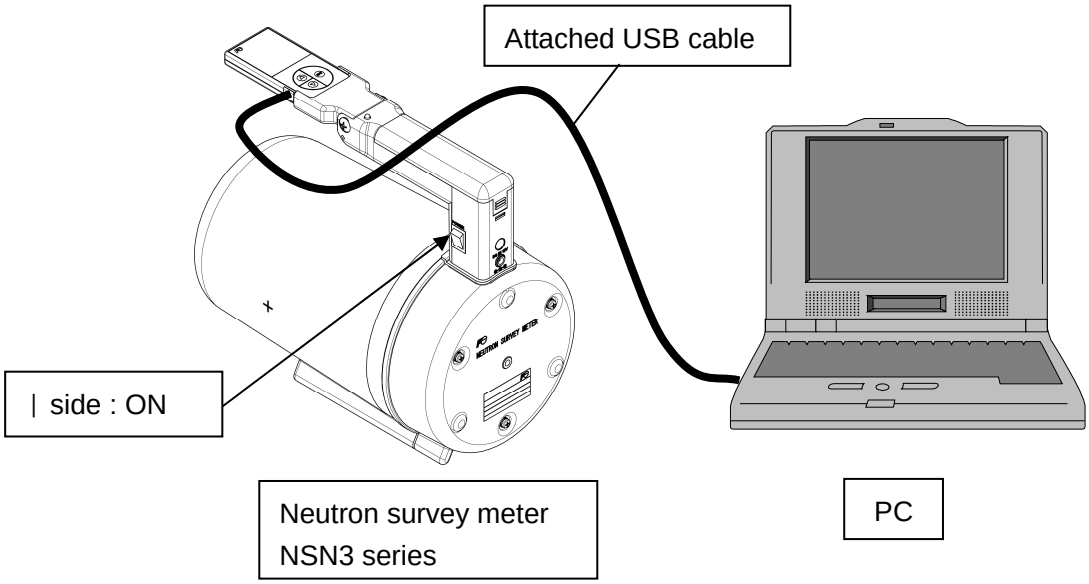


Click “Close”.



3.3.3. Setup procedure for hardware

(1) Connect a cable to USB port.
(2) Remove a rubber cap that is put on the side surface of the display in the neutron survey meter and connect the attached USB cable (mini-B side) to the surface side.
(3) Turn on the neutron survey meter.



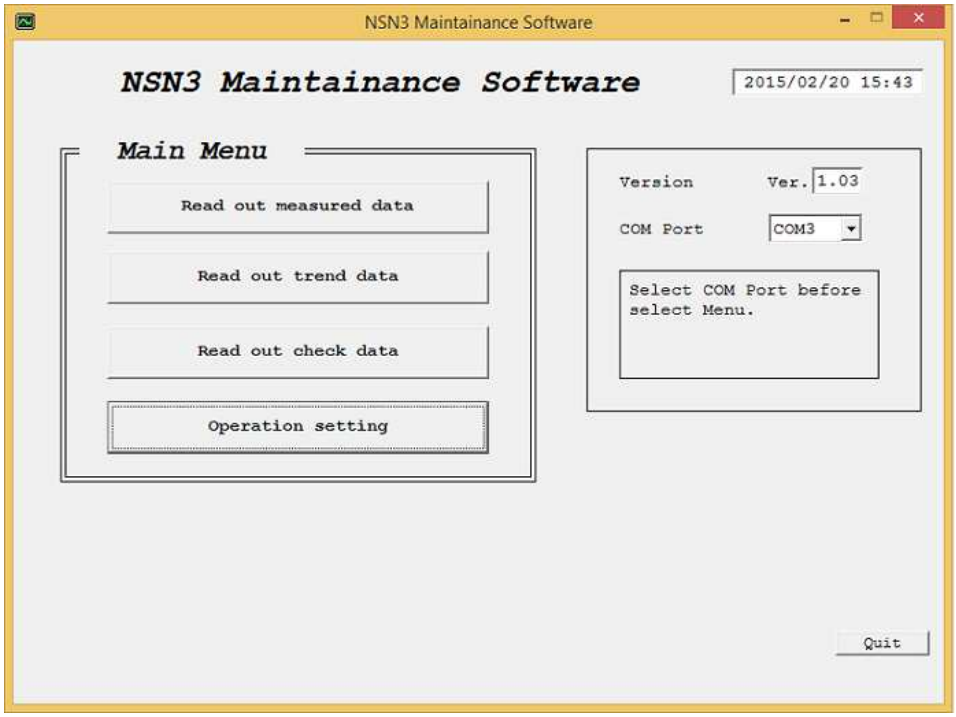
3.4 Operating instructions

3.4.1. Start-up and end methods of the setting program

(1) Start icon “NSN3 Maintenance Software” of desktop.

Icon “NSN3 Maintenance Software” of desktop

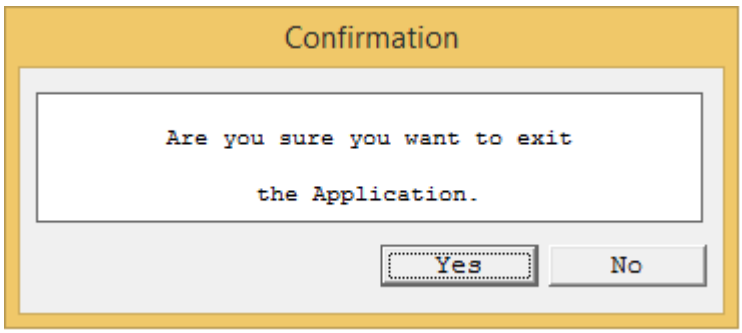
(2) Start up the program of the setting device to display Main Menu screen as below.
Select connection port(click lower ▼).If only COM1 is displayed, restart NSN3 control software.



Main Menu screen

⚠ Attention	Serial No. of Serial port (COM1, COM2) on PC is allocated to connection port No. (e.g. from COM3).

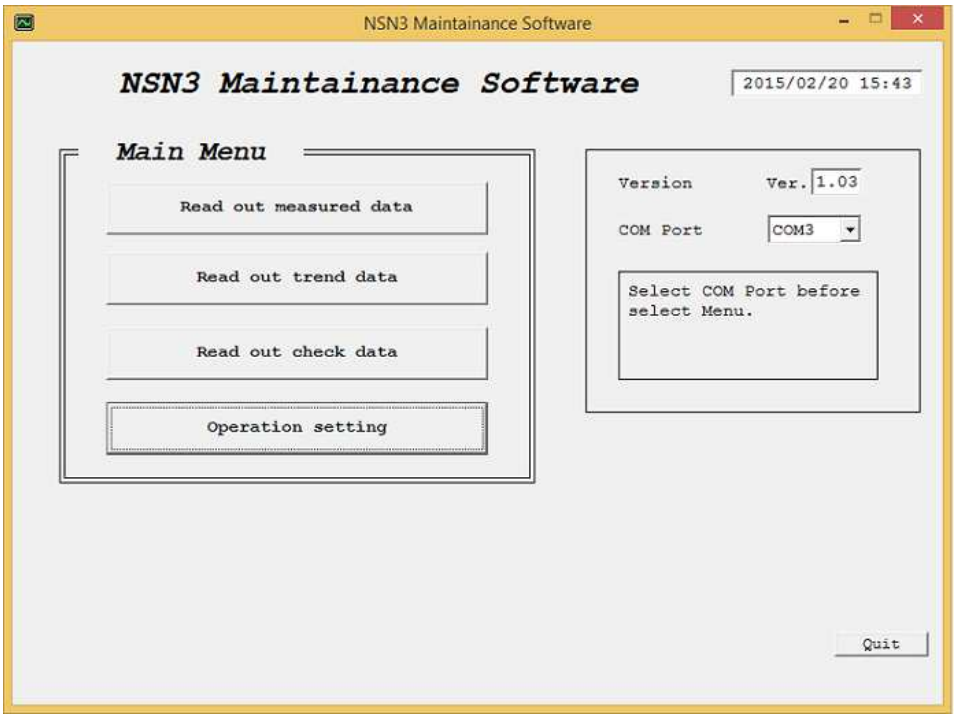
(3) Click “**Quit**” to display the confirmation screen for program termination and click ”**Yes**” to terminate the program. Click “No” to return to Main Menu screen.



Confirmation screen of program termination

3.4.2. Main Menu

Select a function from command menu to switch each display screen.



Main Menu **screen**

<Command Menu button>

Read out measured data	Switches to next display. : Figure. A in section 3.4.3
Read out trend data	Switches to next display. : Figure. B in section 3.4.4
Read out check data	Switches to next display. : Figure. C in section 3.4.5
Operation setting	Switches to next display. : Figure. D in section 3.4.6

3.4.3. Read out of the measured data

The measurement data read out from neutron survey meter is displayed.
The display items and setting items can be modified, and the setting items can be written into the Neutron survey meter.

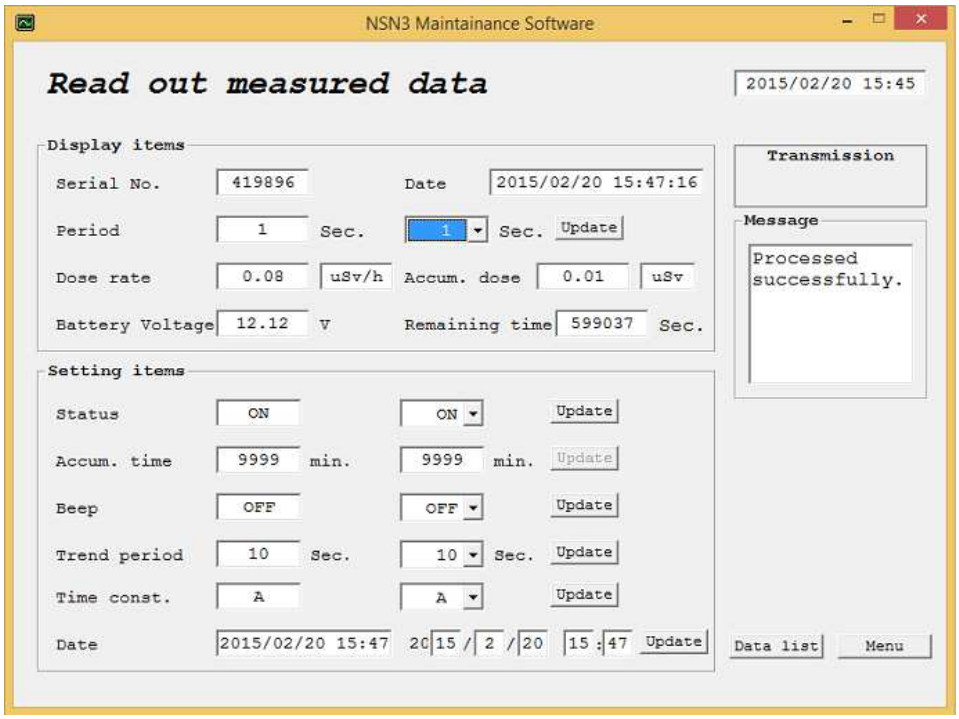


Figure A-1 : Data readout screen

<Display item>

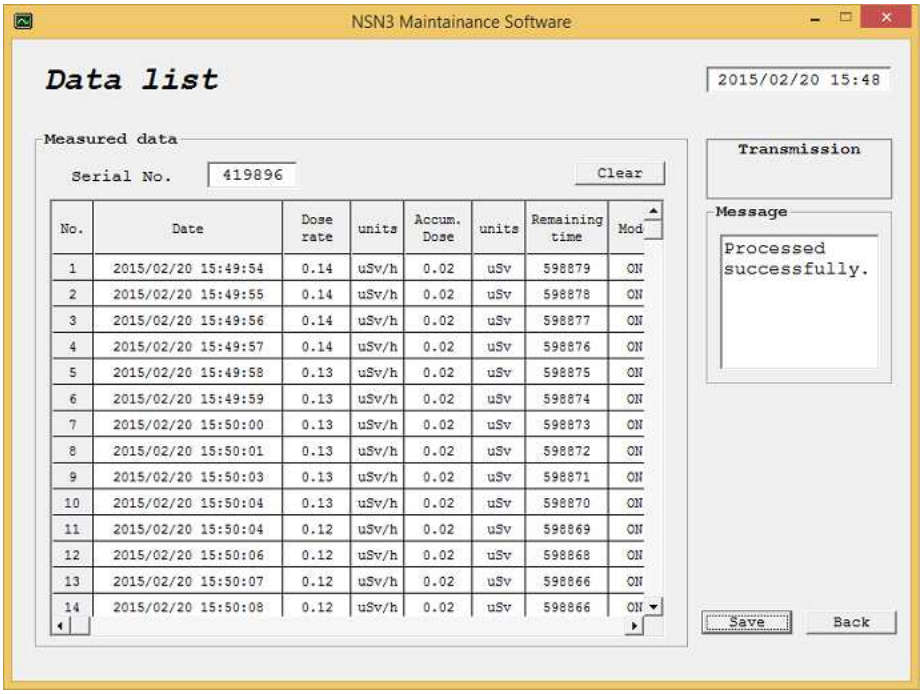
Item	Definition/range and unit of the value		Remarks
Serial No.	ID No. of NSN3	000001 to 999999	Can be modified in accordance with the operation setting
Date	Present date and time	to 2099/12/31 23:59:59	Automatically updated
Period	Update time of dose rate, accumulate dose and battery voltage value on “Data list screen”.	0, 1, 10, 60, 600 s	0: the data is not automatically updated.
Dose rate	Present dose rate	0.000～9.999 mrem/h 10.0～9999.9 mrem/h	Automatically updated
Accum. Dose	Present accumulated dose	0.000～9.999 mrem 10.0～9999.9 mrem	Automatically updated
Battery voltage	Present battery voltage (AC adapter voltage is displayed when AC adapter is connected,)	6.5V to 12.50V	Automatically updated
Remaining time	Remaining time of the accum. dose measurement.	0 to 599940	Automatically updated

<Setting item>

Item	Definition/range and unit of the value		Default
Status	Time for sounding audible alarm	OFF /ON	ON
Accum. time	Accumulated time for dose (It can be modified the integration condition is OFF.)	1 to 9999 min	9999 min
Beep	Sets whether the monitoring sound is generated or not.	OFF / ON	ON
Trend period	Periodic time interval for recording the trend data on the internal memory.	0, 10, 20, 30, 60, 120, 300, 600 sec	60s
Time const.	Time constant used for the calculation of dose rate	S, M, L, A	M
Date	Setting or modification of present time		

<Others>

Item	Definition/range and unit of the value	Remarks
Data List	Lists the currently displayed measurement data and displays the list on the screen. (The data in the list is updated in accordance with the time interval for the readout.)	See figure A-2
Menu	Return to Main Menu screen.	



No.	Date	Dose rate	units	Accum. Dose	units	Remaining time	Mod
1	2015/02/20 15:49:54	0.14	uSv/h	0.02	uSv	598879	ON
2	2015/02/20 15:49:55	0.14	uSv/h	0.02	uSv	598878	ON
3	2015/02/20 15:49:56	0.14	uSv/h	0.02	uSv	598877	ON
4	2015/02/20 15:49:57	0.14	uSv/h	0.02	uSv	598876	ON
5	2015/02/20 15:49:58	0.13	uSv/h	0.02	uSv	598875	ON
6	2015/02/20 15:49:59	0.13	uSv/h	0.02	uSv	598874	ON
7	2015/02/20 15:50:00	0.13	uSv/h	0.02	uSv	598873	ON
8	2015/02/20 15:50:01	0.13	uSv/h	0.02	uSv	598872	ON
9	2015/02/20 15:50:03	0.13	uSv/h	0.02	uSv	598871	ON
10	2015/02/20 15:50:04	0.13	uSv/h	0.02	uSv	598870	ON
11	2015/02/20 15:50:04	0.12	uSv/h	0.02	uSv	598869	ON
12	2015/02/20 15:50:06	0.12	uSv/h	0.02	uSv	598868	ON
13	2015/02/20 15:50:07	0.12	uSv/h	0.02	uSv	598866	ON
14	2015/02/20 15:50:08	0.12	uSv/h	0.02	uSv	598866	ON

Figure A-2 : Measured data list

Item	Definition	Remarks
Clear	Clears the measurement data.	
Save	Saves the currently displayed data list as csv format.	
Back	Returns to the measurement data readout screen.	

3.4.4. Readout of the trend data

The trend data (historical data recorded in internal memory) that is read out from neutron survey meter is displayed. The trend data recorded in the display (NHV1) is displayed when the Display is selected.

The trend data that is read out can be saved as csv file format.

The trend data is not displayed when the trend data is not recorded.

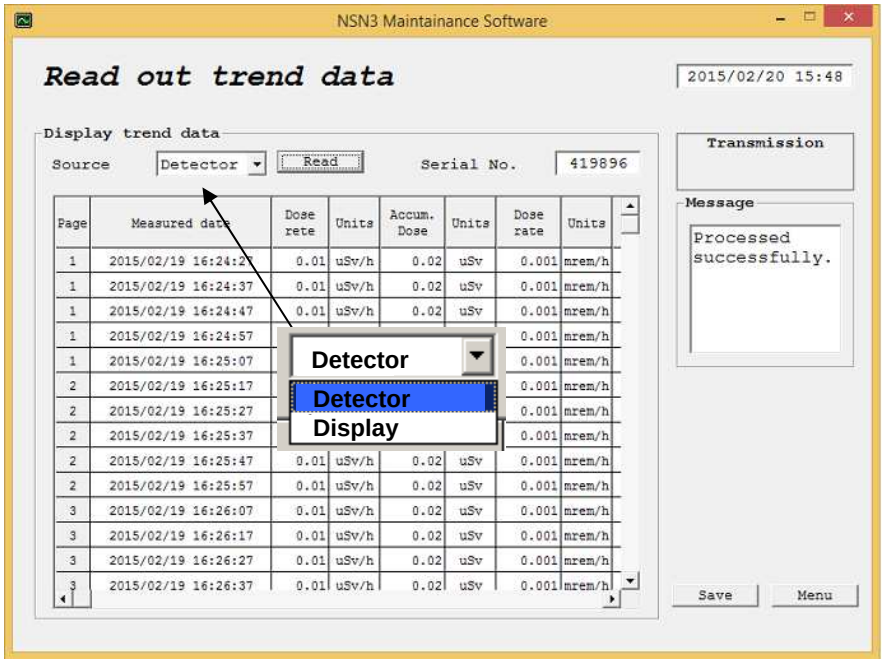


Figure B-1 : Trend data readout screen

Click “Read” button to display the following data. Up to 1200 data items (240 pages) are stored. As for the stored data, refer to section 4

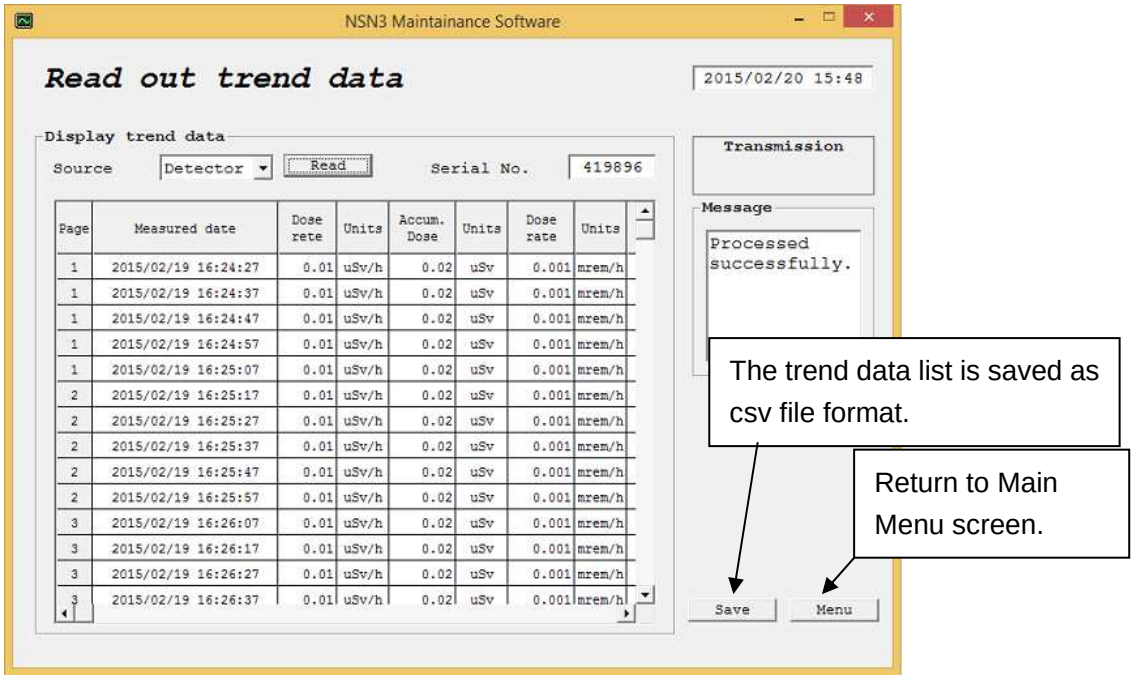


Figure B-2 : Trend data readout screen

3.4.5. Readout of check data

The revision number of the software used for the neutron survey meter is displayed.

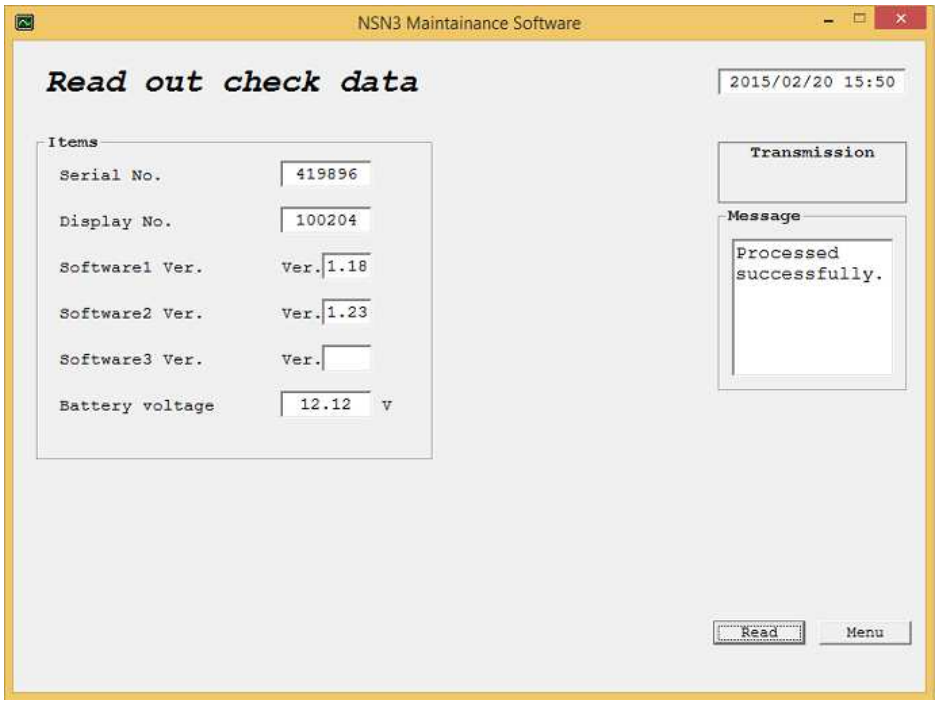


Figure C-1: Check data read out screen

Item	Definition	Remarks
Serial No.	Products No. of NSN3	Can be modified in accordance with the operation setting.
Display No.	Products No. of NHV1	
Software1 ver.	Revision number of software for the neutron survey meter	Is determined before shipment.
Software2 ver.		Is determined before shipment.
Software3 ver.	Revision number of software for the display.	Is determined before shipment.
Battery voltage	Present battery voltage (Ac adapter voltage is indicated when AC adapter is connected.)	Is updated using read button.
Read	Update all items on this screen.	
Menu	Return to Main Menu screen.	

3.4.6. Operation setting

The each equipment number of neutron survey meter or display, calibration factor, unit can be set or modified.

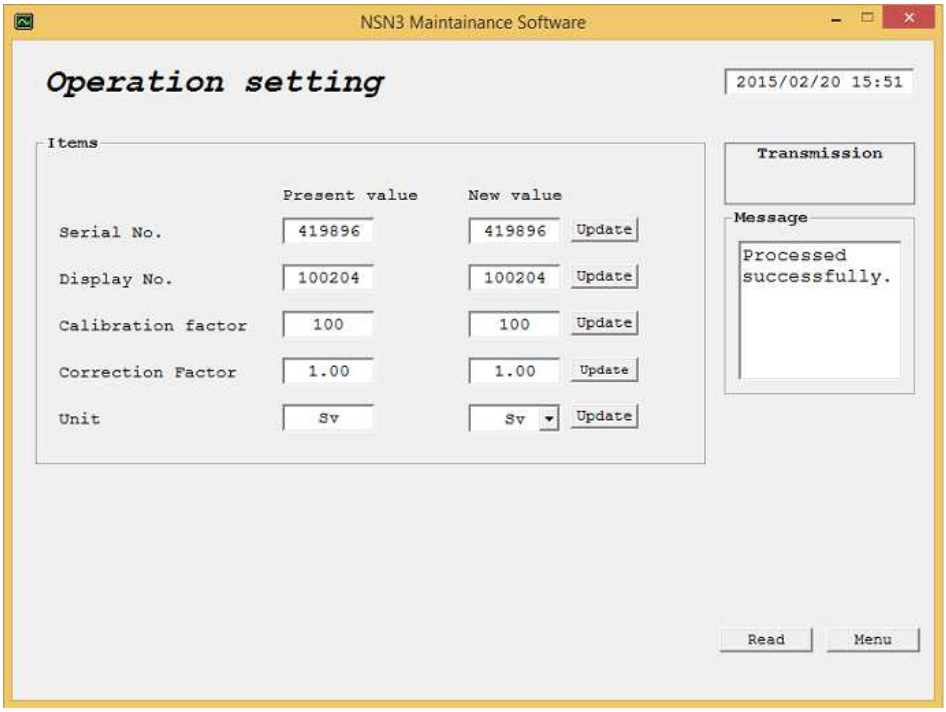


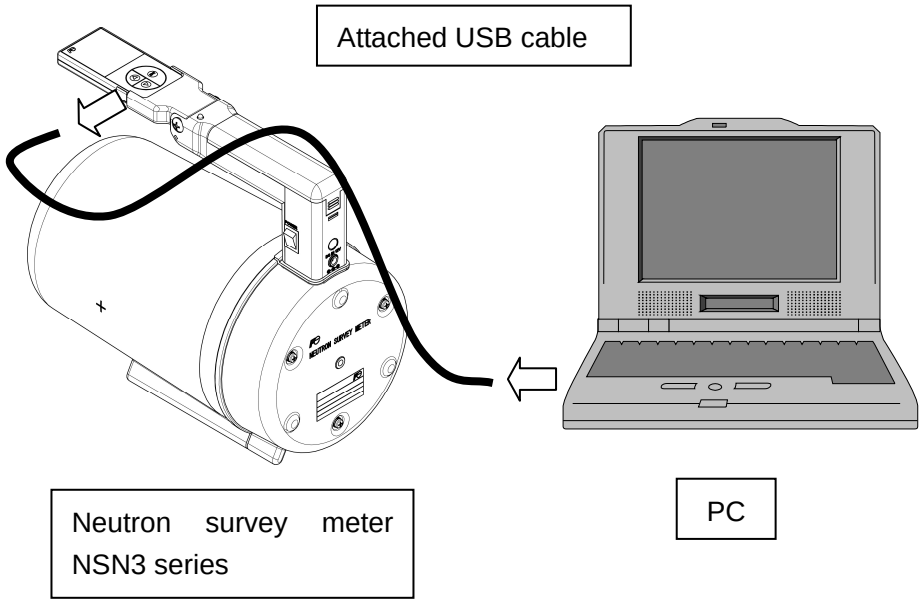
Figure D-1: Operation setting screen

Item	Definition/range and unit of the value	Default
Update	Sets the values or items input in the writing column for the Neutron survey meter.	
Serial No.	ID No. of NSN3	Remain the same.
Display No.	ID No. of NHV1	
Calibration factor	Modify it (1 to 999) when the calibration is carried out.	60 to140
Correction factor	Modify it (0.01 to 99.99) according to operation.	1.00
Unit	Switches display unit of the display between Sv and rem.	Sv
Readout	Read the operation setting data.	
Menu	Return to Main Menu screen.	

Correction factor is modified according to operation.
Before calibration of the neutron survey meter, correction factor should be changed to “1.00”.

3.5 Termination of the communication

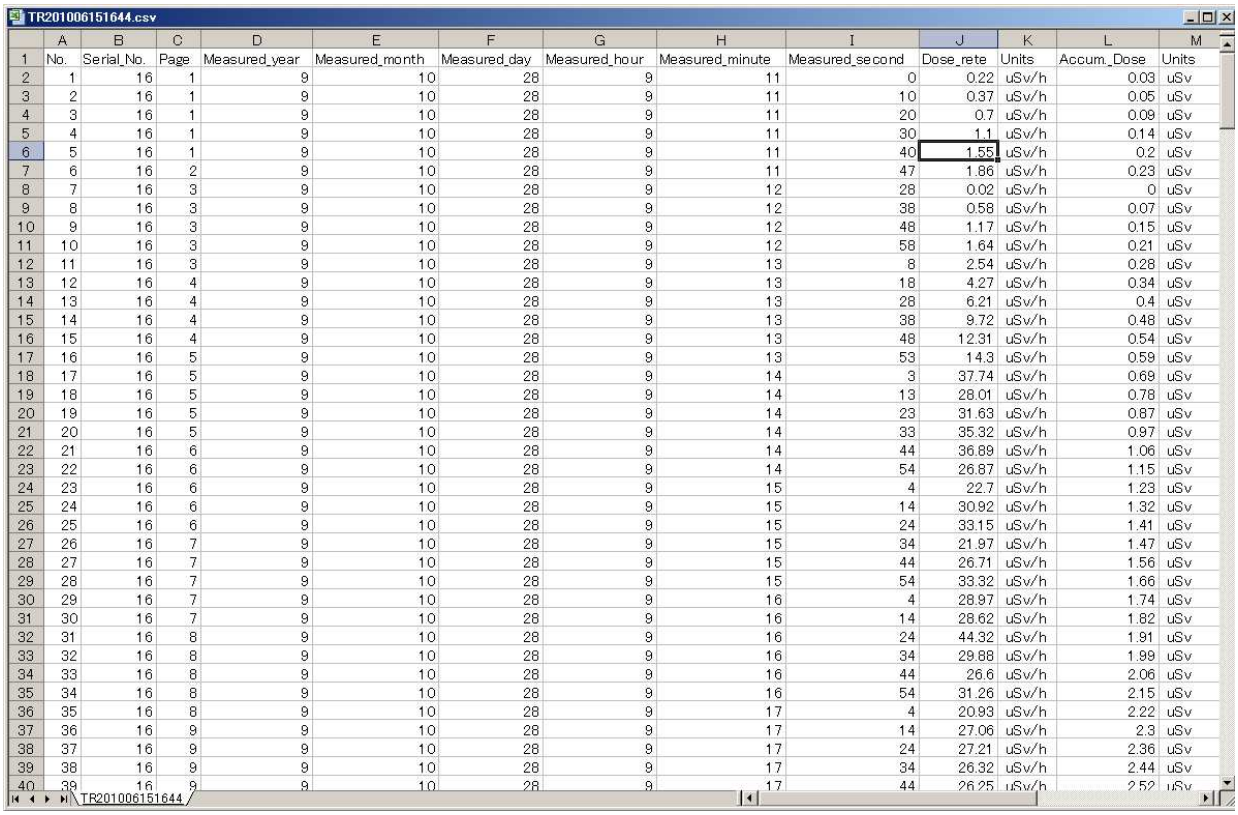
Take off the USB cable connected to the neutron survey meter and PC.



Fit the rubber cover to the side surface of the display.

4. Explanation of stored trend data (csv file)

The trend data is stored as csv file format and displayed as below.



TR201006151644.csv

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	No.	Serial_No.	Page	Measured_year	Measured_month	Measured_day	Measured_hour	Measured_minute	Measured_second	Dose_rete	Units	Accum._Dose	Units
2	1	16	1	9	10	28	9	11	0	0.22	uSv/h	0.03	uSv
3	2	16	1	9	10	28	9	11	10	0.37	uSv/h	0.05	uSv
4	3	16	1	9	10	28	9	11	20	0.7	uSv/h	0.09	uSv
5	4	16	1	9	10	28	9	11	30	1.1	uSv/h	0.14	uSv
6	5	16	1	9	10	28	9	11	40	1.55	uSv/h	0.2	uSv
7	6	16	2	9	10	28	9	11	47	1.86	uSv/h	0.23	uSv
8	7	16	3	9	10	28	9	12	28	0.02	uSv/h	0	uSv
9	8	16	3	9	10	28	9	12	38	0.58	uSv/h	0.07	uSv
10	9	16	3	9	10	28	9	12	48	1.17	uSv/h	0.15	uSv
11	10	16	3	9	10	28	9	12	58	1.64	uSv/h	0.21	uSv
12	11	16	3	9	10	28	9	13	8	2.54	uSv/h	0.28	uSv
13	12	16	4	9	10	28	9	13	18	4.27	uSv/h	0.34	uSv
14	13	16	4	9	10	28	9	13	28	6.21	uSv/h	0.4	uSv
15	14	16	4	9	10	28	9	13	38	9.72	uSv/h	0.48	uSv
16	15	16	4	9	10	28	9	13	48	12.31	uSv/h	0.54	uSv
17	16	16	5	9	10	28	9	13	53	14.3	uSv/h	0.59	uSv
18	17	16	5	9	10	28	9	14	3	37.74	uSv/h	0.69	uSv
19	18	16	5	9	10	28	9	14	13	28.01	uSv/h	0.78	uSv
20	19	16	5	9	10	28	9	14	23	31.63	uSv/h	0.87	uSv
21	20	16	5	9	10	28	9	14	33	35.32	uSv/h	0.97	uSv
22	21	16	6	9	10	28	9	14	44	36.89	uSv/h	1.06	uSv
23	22	16	6	9	10	28	9	14	54	26.87	uSv/h	1.15	uSv
24	23	16	6	9	10	28	9	15	4	22.7	uSv/h	1.23	uSv
25	24	16	6	9	10	28	9	15	14	30.92	uSv/h	1.32	uSv
26	25	16	6	9	10	28	9	15	24	33.15	uSv/h	1.41	uSv
27	26	16	7	9	10	28	9	15	34	21.97	uSv/h	1.47	uSv
28	27	16	7	9	10	28	9	15	44	26.71	uSv/h	1.56	uSv
29	28	16	7	9	10	28	9	15	54	33.32	uSv/h	1.66	uSv
30	29	16	7	9	10	28	9	16	4	28.97	uSv/h	1.74	uSv
31	30	16	7	9	10	28	9	16	14	28.62	uSv/h	1.82	uSv
32	31	16	8	9	10	28	9	16	24	44.32	uSv/h	1.91	uSv
33	32	16	8	9	10	28	9	16	34	29.88	uSv/h	1.99	uSv
34	33	16	8	9	10	28	9	16	44	26.6	uSv/h	2.06	uSv
35	34	16	8	9	10	28	9	16	54	31.26	uSv/h	2.15	uSv
36	35	16	8	9	10	28	9	17	4	20.93	uSv/h	2.22	uSv
37	36	16	9	9	10	28	9	17	14	27.06	uSv/h	2.3	uSv
38	37	16	9	9	10	28	9	17	24	27.21	uSv/h	2.36	uSv
39	38	16	9	9	10	28	9	17	34	26.32	uSv/h	2.44	uSv
40	39	16	9	9	10	28	9	17	44	26.25	uSv/h	2.52	uSv

TR201006151644

An example of stored trend data

Item	Definition/range and unit of the value	Remarks
No	The number of the data item	Up to 1200 data items
Serial No.	ID No. of NSN3	
Page	The page number (This is incremented by 1 when the power supply is ON/ OFF or accumulated time is modified.	Up to 240 pages (Up to 5 items for each page)
Measured year/month /day	The date and time 2010/ April/ 8 ➔ 10, 4, 8 pm 8 : 36 : 49 ➔ 20, 36, 49	
Measured time/minute/second		Last 2 digits of the year 24-hour display
Dose rate, units	Recorded dose rate, unit when the data was recorded.	Sv or rem
Accum. Dose, units	Recorded accumulate dose, unit when the data was recorded.	Sv or rem
Accum. mode	The condition of integration mode	The accum. mode is automatically start (ON) immediately after the power activation.

Period	The time interval of the trend data acquisition	
Count	Count rate when the data was recorded.	
Battery voltage	Battery voltage is displayed when the data was recorded. (AC adapter voltage is displayed when AC adapter is used.)	The voltage is +12V when dedicated AC adapter is used.
HV	N/A	Not applicable for the Neutron survey meter NSN31041-YYYYY-Z.