

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.

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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 interfaceUSB	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**".

icense Agre	ement		
Ń	To continue, accept the following agreement, use the scroll bar or pr	license agreement. To read ess the Page Down key.	the entire
	LICENSE AGREEMENT SILICON LABS VCP DRIVER IMPORTANT: READ CAREFULI THIS PRODUCT CONTAINS TH INSTALLER PROGRAMS AND C SOFTWARE.TOGETHER THES AS THE "LICENSED SOFTWARE SOFTWARE IS SUBJECT TO TH	LY BEFORE AGREEING TO E SILICON LABS VCP DRIV DTHER THIRD PARTY E PRODUCTS ARE REFER E". USE OF THE LICENSE HE TERMS OF THIS LICENSE	TERMS VER AND RED TO D SE
C	accept this agreement I don't accept this agreement	<u>S</u> ave As	<u>P</u> rint

Click "Finish" after confirm the message "The drivers were successfully installed on the computer".

CP210x U	JSB to UART Bridge Driv	er Installer
	Completing the In CP210x USB to UA	stallation of the RT Bridge Driver
	The drivers were successfully in	stalled on this computer.
	rou can now connect your dev came with instructions, please re	ce to this computer. If your device ad them first.
	Driver Name	Status
	V Silicon Laboratories (sila	Ready to use
	< <u>B</u> ack	Finish Cancel

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"

退	NSN3 Maintainance Software	- 🗆 ×
Select In	stallation Folder	
The installer To install in th below or click	will install NSN3 Maintainance Software in the following folder. nis folder, click "Next". To install to a different new or existing f «"Browse".	older, enter one
<u>F</u> older:	C:\NSN3 Maintainance Software\	Browse
You can insta	all the software on the following drives:	Disk Siz
@C:		297GE
<		>
P		<u>D</u> isk Cost
	<u>C</u> ancel <u>Previous</u>	Next

Click "Next".



Previous

Close

Cancel

- 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.

Read out measured data	COM Port COM3
Read out trend data	Select COM Port befo
Read out check data	
Operation setting	

Main Menu screen



(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
Are you sure you want to exit the Application.
Yes No

Confirmation screen of program termination

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3.4.2. Main Menu

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

Read out measured data	COM Port COM3
Read out trend data	Select COM Port befor select Menu.
Read out check data	
Operation setting	

$Main\ Menu\ \textbf{screen}$

<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.

Read out	meas	sured	data	l			2015/02/	20 15:4
)isplay items		~					Transm	ission
Serial No.	419896	1	Date	2015/	02/20 15	:47:16		
Period	1	Sec.	1.	Sec.	Update		Message	
Dose rate	0.08	uSv/h	Accum, d	lose [0.01	uSv	Process	ed fully.
Battery Voltage	12.12	- v	Remainin	ng time	599037	Sec.		
Setting items								
Status	ON		ON -		Update			
Accum. time	9999	min.	9999	min.	Update			
Веер	OFF		OFF -		Update			
Trend period	10	Sec.	10 -	Sec.	Update			
Time const.	A		A •		Update			
D +++	2015/02	/20 15.47	2015	2 / 20	15 .47	Update	Dana Mari	Manu

Figure A-1 : Data readout screen

<Display item>

Item	Definition/range and u	nit 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,	0, 1, 10, 60, 600 s	0: the data is not
	accumulate dose and battery		automatically
	voltage value on "Data list		updated.
	screen".		
Dose rate	Present dose rate	0.000~9.999 mrem/h	Automatically
		10.0~9999.9 mrem/h	updated
Accum. Dose	Present accumulated dose	0.000~9.999 mrem	Automatically
		10.0 \sim 99999.9 mrem	updated
Battery voltage	Present battery voltage	6.5V to 12.50V	Automatically
	(AC adapter voltage is displayed		updated
	when AC adapter is connected,)		
Remaining time	Remaining time of the	0 to 599940	Automatically
	accum. dose measurement.		updated

<Setting item>

Item	Definition/range and unit of the	e 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
Веер	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	М
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	See figure
	displays the list on the screen.	A-2
	(The data in the list is updated in accordance with the time	
	interval for the readout.)	
Menu	Return to Main Menu screen.	

Dat	a list							2015/02/20 15:4
easu Sei	red data					c	lear	Transmission
No.	Date	Dose rate	units	Accum. Dose	units	Remaining time	Mod	Message
1	2015/02/20 15:49:54	0.14	uSv/h	0.02	uSv	598879	ON	successfully.
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	1
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	
		0.10	0.00000	0.00	Surger.	500055	our al	

Figure A-2 : Measured data list

ltem	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.

Rea	ad out tre	nd d	dat.	a					2015/02/20 15:4
ispl Bourd	ay trend data	Rea	d	Sei	rial N	o. [4198	96	Transmission
Page	Measured date	Dose rete	Units	Accum. Dose	Units	Dose rate	Units		Message
1	2015/02/19 16:24:2	0.01	uSv/h	0.02	uSv	0.001	mrem/h	-	successfully.
1	2015/02/19 16:24:37	0.01	uSv/h	0.02	uSv	0.001	mrem/h		
1	2015/02/19 16:24:47	0.01	uSv/h	0.02	uSv	0.001	mrem/h	-	
1	2015/02/19 16:24:57				_	0.001	mrem/h		
1	2015/02/19 16:25:07	D	etect	tor	*	0.001	mrem/h		
2	2015/02/19 16:25:17					0.001	mrem/h		
2	2015/02/19 16:25:27		etec	tor		0.001	mrem/h		
2	2015/02/19 16:25:37		ispla	iy		0.001	mrem/h		
2	2015/02/19 16:25:47	0.01	uSv/h	0.02	uSv	0.001	mrem/h		
2	2015/02/19 16:25:57	0.01	uSv/h	0.02	uSv	0.001	mrem/h		
3	2015/02/19 16:26:07	0.01	uSv/h	0.02	uSv	0.001	mrem/h		
3	2015/02/19 16:26:17	0.01	uSv/h	0.02	uSv	0.001	mrem/h		
3	2015/02/19 16:26:27	0.01	uSv/h	0.02	uSv	0.001	mrem/h	<u>, 1</u>	
	2015/02/19 16-26-37	0.01	uSv/h	0.02	uSv	0.001	mrem/h	-	

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

Rea	ad out tre	nd d	dat	a					2015/02/20	0 15:48	
ispl Bourd	ay trend data	Rea	d	Sei	rial N	o.	4198	96	Transmi	ssion	1
Page	Measured date	Dose rete	Units	Accum. Dose	Units	Dose rate	Units		Message	d	
1	2015/02/19 16:24:27	0.01	uSv/h	0.02	uSv	0.001	mrem/h	-	successf	ully.	
1	2015/02/19 16:24:37	0.01	uSv/h	0.02	uSv	0.001	mrem/h	-			
1	2015/02/19 16:24:47	0.01	uSv/h	0.02	uSv	0.001	mrem/h	-			
1	2015/02/19 16:24:57	0.01	uSv/h	0.02	uSv	0.001	mrem/h				
1	2015/02/19 16:25:07	0.01	uSv/h	0.02	uSv	0.001	mrem/h		The t	rend d	lata list is saved a
2	2015/02/19 16:25:17	0.01	uSv/h	0.02	uSv	0.001	mrem/h				
2	2015/02/19 16:25:27	0.01	uSv/h	0.02	uSv	0.001	mrem/h		CSV fil	le forn	nat.
2	2015/02/19 16:25:37	0.01	uSv/h	0.02	uSv	0.001	mrem/h				100
2	2015/02/19 16:25:47	0.01	uSv/h	0.02	uSv	0.001	mrem/h				Return to Main
2	2015/02/19 16:25:57	0.01	uSv/h	0.02	uSv	0.001	mrem/h				Neturn to Main
3	2015/02/19 16:26:07	0.01	uSv/h	0.02	uSv	0.001	mrem/h				Menu screen.
3	2015/02/19 16:26:17	0.01	uSv/h	0.02	uSv	0.001	mrem/h				
3	2015/02/19 16:26:27	0.01	uSv/h	0.02	uSv	0.001	mrem/h	Ľ.,			
3	2015/02/19 16:26:37	0.01	uSv/h	0.02	uSv	0.001	mrem/h	-		-	

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.

Items	419896	Transmission
Display No.	100204	Message
Softwarel Ver.	Ver. 1.18	Processed
Software2 Ver.	Ver. 1.23	
Software3 Ver.	Ver.	
Battery voltage	12.12 v	

Figure C-1: Check data read out screen

Item	Definition	Remarks
Serial No.	Products No. of NSN3	Can be modified in
Display No.	Products No. of NHV1	accordance with the
		operation setting.
Software1 ver.	Revision number of software for the neutron	Is determined before
	survey meter	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	Is updated using
	(Ac adapter voltage is indicated when AC	read button.
	adapter is connected.)	
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.

	Present value	New value	
Serial No.	419896	419896 Update	Message
Display No.	100204	100204 Update	Processed successfully
Calibration factor	100	100 Update	
Correction Factor	1.00	1.00 Update	
Unit	Sv	Sv 💌 Update	

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	60 to140
	carried out.	
Correction factor	Modify it (0.01 to 99.99) according to operation.	1.00
Unit	Switches display unit of the display between Sv and	Sv
	rem.	
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.

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4. Explanation of stored trend data (csv file)

N	A				i i i i i i i i i i i i i i i i i i i	F	-	1.11	Ť		12	1	1.00	-
	Lac a	B	C	U	E	F	G	H		J	K	L	M	
100	10.	Serial_No.	Page	Weasured_year	Weasured_month	Measured_day	Weasured_nour	Measured_minute	ivieasured_second	Dose_rete	Units	Accum_Dose	Units	
	0	10	4	9	10	20	9	11	10	0.22	usv/h	0.03	USV	
	2	10		9	10	20	9	11	10	0.37	uSv/n	0.05	usv	
<u>es</u> 50	3	10		9	10	20	9	11	20	0.7	uSv/h	0.09	usv	
	9	16	4	9	10	20	9	11	30	1.1	uav/n	0.14	USV	
7	6	16	0	9	10	20		11	40	1.00	uSv/h	0.2	USV	
5	7	16	2	9	10	20	9	12	47	0.02	uSv/h	0.23	USV	
2	8	16	3	9	10	20	9	12	20	0.02	uSv/h	0.07	USV	
0	a	16	3	9	10	20	9	12	48	1.17	uSv/h	0.07	USY	
1	10	16	3	9	10	20	9	12		1.64	uSv/h	0.13	USV	
2	11	16	3	9	10	20	9	12		254	uSv/h	0.21	uSv	
9	12	16	4	9	10	20	9	13	18	4.27	uSv/h	0.20	USV	
2	13	16	4	9	10	28	9	13	28	6.21	uSv/h	0.04	USY	
5	14	16		9	10	28	9	10	20	9.72	uSv/h	0.48	USY	
6	15	16	4	9	10	28	9	13	48	1231	uSv/h	0.40	uSv	
7	16	16	5	9	10	20	9	13	53	14.3	uSv/h	0.54	USY	
8	17	16	5	9	10	28	9	14	3	37.74	uSu/h	0.69	uSir	
9	18	16	5	9	10	28	9	14	13	28.01	uSv/h	0.30	USV	
ő	19	16	5	9	10	28	ů ů	14	23	31.63	uSu/h	0.70	uSir	
1	20	16	5	9	10	28	9 9	14	33	35.32	uSv/h	0.07	USY	
2	21	16	6	9	10	28	9	14	44	36.89	uSv/h	1.06	USV	
3	22	16	6	9	10	28	9	14	54	26.87	uSv/h	115	USV	
4	23	16	6	9	10	28	9 9	15	4	227	uSu/h	1.23	uSir	
5	24	16	6	9	10	28	9	15	14	30.92	uSv/h	1.32	USV	
6	25	16	6	9	10	28	9	15	24	33.15	uSv/h	1 41	USV	
7	26	16	7	9	10	28	9	15	34	21.97	uSv/h	1 47	USV	
8	27	16	7	9	10	28	9	15	44	26.71	uSv/h	1.56	USV	
9	28	16	7	9	10	28	9	15	54	33.32	uSy/h	1.66	USV	
0	29	16	7	9	10	28	9	16	4	28.97	uSv/h	1.74	USV	
1	30	16	7	9	10	28	9	16	14	28.62	uSv/h	1.82	USV	
2	31	16	8	9	10	28	9	16	24	44.32	uSv/h	1.91	uSv	
3	32	16	8	9	10	28	9	16	34	29.88	uSv/h	1.99	uSv	
4	33	16	8	9	10	28	9	16	44	26.6	uSv/h	2.06	USV	
5	34	16	8	9	10	28	9	16	54	31.26	uSv/h	215	USV	
6	35	16	8	9	10	28	9	17	4	20.93	uSv/h	2.22	uSv	
7	36	16	9	9	10	28	9	17	14	27.06	uSv/h	2.3	uSv	
8	37	16	9	9	10	28	9	17	24	27.21	uSv/h	2.36	uSv	
9	38	16	9	9	10	28	9	17	34	26.32	uSv/h	2.44	uSv	
~	39	16	9	9	10	28	, Å	17	44	26.25	uSv/h	2.52	USV	-

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

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	Up to 240 pages		
	(This is incremented by 1 when the power	(Up to 5 items for each		
	supply is ON/ OFF or accumulated time is	page)		
	modified.			
Measured	The date and time			
year/month /day				
Measured	2010/ April/ 8 🗲 10, 4, 8	Last 2 digits of the year		
time/minute/second	pm 8 : 36 : 49 🔿 20, 36, 49	24-hour display		
Dose rate, units	Recorded dose rate, unit when the data was	Sv or rem		
	recorded.			
Accum. Dose, units	Recorded accumulate dose, unit when the	Sv or rem		
	data was recorded.			
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	The voltage is +12V when		
	was recorded.	dedicated AC adapter is		
	(AC adapter voltage is displayed when AC	used.		
	adapter is used.)			
HV		Not applicable for the		
	N/A	Neutron survey meter		
		NSN31041-YYYYY-Z.		