# TEC (Peltier) Controller PLC-15V6A / PLC-24V6A Setting Software "PLC-24V6A Manager.exe" Operating Manual ( Rev.1.10 )

# Software Version: 1.1.0.0

## **Applicable Model List**

Model Number	Hardware Version	<b>Firmware Version</b>
PLC-15V6A	2.00 -	1.0.0.1 -
PLC-24V6A	2.00 -	1.0.0.1 -

## [IMPORTANT]

This software supports a product listed in the applicable model list. It is not available to older products.

When the hardware version and the firmware version of the your product is older than the listed version, please refer for a serial number displayed by the label of the main board.

And then please contact Kurag Electronics Peltier controller support .

### Kurag Electronics Peltier controller support E-Mail: kurag.tslab@biz.nifty.jp

\* The developer of original software "PELTIER\_MEAS.exe" is T. S. Laboratory Corporation.

# July 22, 2017 Kurag Electronics LLC



# Table of contents

1. General	 Page3
2. Install / Uninstall	 Page3
3. Connection	 Page4
4. Screen	 Page5
5. Board No.	 Page6
6. Preset	 Page7
7. Parameter	 Page8
8. Read Status	 Page11
9. Control Command	 Page12
10. File Operation	 Page13
Revision History	 Page16

## 1. General

This software is dedicated software for Peltier Controller PLC Series (PLC-15V6A, PLC-24V6A).

It can read and write various setting parameter of the PLC series by connecting the PLC series and a PC with a serial communication cable.

#### [IMPORTANT]

This software is designed for development or production use. Special technical knowledge about temperature control system is necessary in use. The PLC series may not work definitely when wrong operation or setting is executed.

# 2. Install / Uninstall

## System requirement

Microsoft Windows XP Microsoft Windows Vista (\*1) Microsoft Windows 7 (\*1)(\*2) Microsoft Windows 8 / 8.1 (\*1)(\*2) Microsoft Windows 10 (\*1)(\*2)

(\*1) When the program can not start, it may be solved with a compatible mode of Windows XP.

(\*2) When the program file is placed in "Program Files" folder, the program may not start.

In such case place the program file in the place except the "Program Files" folder.

### Software framework requirement

Microsoft .NET Framework 4

### Install

Copy the program file "PLC-24V6A Manager.exe" to HDD.

(\*)In the Windows 7/8/8.1/10 environment please place the program file in the place except the "Program Files" folder.

### Uninstall

Delete the program file "PLC-24V6A Manager.exe" from HDD.

### Version up

Overwrite by a new program file after terminating a program.

# **3.** Connection

Peltier Controller PLC Series Cable(attached) PC Serial port(Dsub 9pin)

Connect PLC Series and PC with attached communication cable.

(\*) When you extend a cable, please use the Dsub 9pin female – male straight connection cable.

If your PC does not have RS-232 Serial Port, please use a USB - Serial Converter.



# 4. Screen

K PLC-24V6A Manager Version 1.1.0.0	COM port selection Port Open/Close – – ×
COM COM5 CLOSE	Log Clear
Command Board No. Preset Parameter Read Status Control Command File Temperature / Timer Setting 5 Timer 3.5 Operating Mode Continuous	e Operation Clear button of communication message SET_TEMPERATURE IME_MIN SET_TIME_HOUR SET_TIMER
Temperature Control Pulldown menu SET_START SET_STOP	Command execution button
Temperature / Time Range DATA_READ Program Mode Temperature	
	SET_PROGRAM_TEMPERATURE
Receive Message Indication window of communication STE,OK STM,OK STT,OK STA,OK	message

## **Basic operation**

- 1) Select COM port and click [OPEN] button. Then the button changes from [OPEN] to [CLOSE].
- 2) Click command selection tab. Then operation window is appeared.
- 3) When you read a status or parameter from PLC Series, click the READ button which you want to read. Then command response is displayed in the communication message window.
- 4) When you send control command to PLC Series, input numerical value or select pull-down menu and click submit button. Then the control command is executed.
- 5) When you write a parameter to PLC Series, input numerical value or select pull-down menu or select radio button and and click submit button. Then the parameter is written to the EEPROM of PLC Series.
- 6) When you close communication, click [CLOSE] button. Then the button changes from [CLOSE] to [OPEN].

# 5. Board No.

Write and read the board ID number.

t COM5	~ c			
COM5	~ C			
		LOSE	Log Clea	r
d				
Preset Parameter	Read Status Contro	ol Command File Operati	ion	
lo. Setting				
d No.		057	0540	
		SET	READ	
lo. Activation				
word				
		ОК		
lessage				
lessage )3045				
lessage )3045				
	Preset Parameter lo. Setting d No. lo. Activation word	Preset Parameter Read Status Control lo. Setting d No. lo. Activation word	Preset Parameter Read Status Control Command File Operations SET	Preset Parameter Read Status Control Command File Operation           Io. Setting           Id No.           SET           READ             Io. Activation             Word             OK

Item	Button	Description
Read board number	READ	Read the board number from EEPROM of PLC Series.
Write board number	SET	Write the board number to EEPROM of PLC Series.
Password	OK	Password to input the board number.

# 6. Preset

Setting of various functions of PLC Series.

K PLC-24V6A Manager Version 1.1.0.0		– 🗆 🗙
Serial Port		
COM COM5 ~ CL	OSE	Log Clear
Command		
Board No. Preset Parameter Read Status Control	Command File Operation	
Sensor Alarm		
● ON ○ OFF	READ_ALARM_SENSOR	WRITE_ALARM_SENSOR
Current Alarm		
ON OFF	READ_ALARM_CURRENT	WRITE_ALARM_CURRENT
Paverse Protection		
	READ ALARM VOLT	WRITE ALARM VOLT
Fan Alarm		
ON OFF	READ_ALARM_FAN	WRITE_ALARM_FAN
Reverse Protection Reference		
Reference Value	READ VOLT STANDARD	WRITE VOLT STANDARD
19		
Temperature Range		
Min. Max.	READ_TEMP_STANDARD	WRITE_TEMP_STANDARD
100		
Receive Message		
WAF,OK		~
RAF,1		
1) Check [Fan Alarm] rad	to button in OFF and click [	WRITE_ALARM_FAN] button
2) Click [READ ALARN	I FAN] button.	
Command response: RA	AF,x	
x=1:Fan Alarm ON, x=	0:Fan Alarm OFF	

(\*) It is able to save or read settings of this screen at once. (Refer to section 10. File Operation)

Item	Button	Command Response
Sensor Alarm	READ_ALARM_SENSOR WRITE_ALARM_SENSOR	RAS,x (x=1:ON,x=0:OFF) WAS,OK
Current Alarm	READ_ALARM_CURRENT WRITE_ALARM_CURRENT	RAC,x (x=1:ON,x=0:OFF) WAC,OK
Reverse Protection	READ_ALARM_VOLT WRITE_ALARM_VOLT	RAV,x (x=1:ON,x=0:OFF) WAV,OK
Fan Alarm	READ_ALARM_VOLT WRITE_ALARM_VOLT	RAF,x (x=1:ON,x=0:OFF) WAF,OK
Reverse Protection Reference	READ_VOLT_STANDARD WRITE_VOLT_STANDARD	RVS,xx (xx: A/D converter value of voltage detector) WVS,OK
Temperature Range	READ_TEMP_STANDARD WRITE_TEMP_STANDARD	RTS,-1000,8000 (ex10° to 80°C ) WTS,OK

# 7. Parameter

Setting of various parameters of PLC Series.

#### [IMPORTANT]

If you set wrong parameter, temperature control operation may be unstable or malfunctioning. Please do not change parameter carelessly. More detail, please refer technical manuals.

# 1) Read present parameters

Reau present parameters		
K PLC-24V6A Manager Version 1.1.0.0		– 🗆 🗙
Serial Port		
COM COM5		Log Clear
[Caution]		
Command The values in the num	eric input fields are not	the read values from PLC
Board No. Preset Parameter Rea The read values are in	dicated in the lower indi	cation window.
NTC Sensor		
4200 0.001943 3 -0.00043	READ_NTC_SENSOR	WRITE_NTC_SENSOR
4200 0.001043 0 0.00043		
Pt Sensor		
Coef. A Coef. B	READ PT SENSOR	WRITE PT SENSOR
10/1 0.03642		
PI Control		
Kp Ki		
300 0.005	KEAD_PI_CONTROL	WRITE_FI_CONTROL
Current Alarm Reference		
Lower Current Upper Current		
0.5 🖨 6.5 🖨 READ_CORRENT_AD	READ_CORRENT	WRITE_CORRENT
Zero Adjustment for Reverse Protection		
ADC Value @Zero Voltage		
511 READ_VOLT_AD	READ_VOLT	WRITE_VOLI
Receive Message		
RSN,4200,0.001843,3,-0.00048		^
RPT.1071.0.03642		
RPI 300 0 005		
RPI,300,0.005 RCU,0.5,6.5		
RPI,300,0.005 RCU,0.5,6.5 RVO,511		
RPI,300,0.005 RCU,0.5,6.5 RV0,511	READ PT SENSORI I	READ PL CONTROLL
RPI,300,0.005 RCU,0.5,6.5 RV0,511 Click [READ_NTC_SENSOR], [F [READ_CURRENT] and [READ	READ_PT_SENSOR], [ VOLT] button.	READ_PI_CONTROL],

(\*) It is able to save or read settings of this screen at once. (Refer to section 10. File Operation)

Item	Button	Description
NTC Sensor	READ_NTC_SENSOR	Temperature conversion factor for NTC thermistor
Pt Sensor	READ_PT_SENSOR	Temperature conversion factor for Pt sensor
PI Control	READ_PI_CONTROL	PI control Kp: Proportion coefficient Ki: Integral coefficient
Current Alarm Reference	READ_CURRENT	Threshold of current alarm detection Lower limit and upper limit (Unit: A)
Zero Adjustment Reverse Protection	WRITE_VOLT	Reference of voltage detection (A/D converter value)

## 2) Write new parameters

Input or select value and click [WRITE] button. Then parameters are written to EEPROM of PLC Series.

K PLC-24V6A Manager Version 1.1.0.0	– 🗆 🗙		
Serial Port			
COM COM5  CLOSE	Log Clear		
Command			
Board No. Preset Parameter Read Status Control Command File Operation			
NTC Sensor			
Coef. A Coef. B Coef. S Coef. M			
4200 0.001843 3 -0.00043 READ_NTC_SENSOR	WRITE_NTC_SENSOR		
Pt Sensor			
Coef. A Coef. B			
1071 0.03642 READ_PT_SENSOR	WRITE_PT_SENSOR		
BLControl			
300 0.005 READ_PI_CONTROL	WRITE_PI_CONTROL		
Current Alarm Reference			
0.5 A 6.5 READ_CURRENT_AD READ_CURRENT	WRITE_CURRENT		
Zero Adjustment for Reverse Protection			
ADC Value @Zero Voltage READ_VOLT_AD READ_VOLT	WRITE_VOLT		
511			
Receive Message			
	^		
1) Set PI control parameters (Kp=300, Ki=0.005)			
2) Click [WRITE_PI_CONTROL] button.			
Command response; WPI,OK			
3) Click [READ_PI_CONTROL] button.			
Command response: Kr1,300,0.003			
	~		
	*		

Item	Button	Description
NTC Sensor	WRITE_NTC_SENSOR	Temperature conversion factor for NTC thermistor
Pt Sensor	WRITE_PT_SENSOR	Temperature conversion factor for Pt sensor
PI Control	WRITE_PI_CONTROL	PI control Kp: Proportion coefficient Ki: Integral coefficient
Current Alarm Reference	WRITE_CURRENT	Threshold of current alarm detection Lower limit and upper limit (Unit: A)
Zero Adjustment Reverse Protection	WRITE_VOLT	Reference of voltage detection (A/D converter value)

K PLC-24V6A Manager Version 1.1.0.0		– 🗆 🗙
Serial Port		
COM COM5 V CLOSE		Log Clear
Command		
Board No. Preset Parameter Read Status Control Command	d File Operation	
NTC Sensor		
Coer. A         Coer. B         Coer. S         Coer. M           4200         0.001843         3         -0.00043	READ_NTC_SENSOR	WRITE_NTC_SENSOR
Pt Sensor		
Coef. A Coef. B 1071 0.03642	READ_PT_SENSOR	WRITE_PT_SENSOR
PI Control		
Kp Ki 300 0.005	READ_PI_CONTROL	WRITE_PI_CONTROL
Current Alarm Pafaranca		
Lower Current Upper Current		
0.5 0.5 CREAD_CURRENT_AD	READ_CURRENT	WRITE_CURRENT
Zero Adjustment for Reverse Protection		
ADC Value @Zero Voltage 511 READ_VOLT_AD	READ_VOLT	WRITE_VOLT
Receive Message		
RCA,257		<u>^</u>
1) Click [READ_CURRENT_AD] but	ton.	
2) Command response: RCA, (A/D con	nvertion value)	
		~

## **3) Read A/D converter value of Peltier current and voltage** Read Peltier current and voltage for alarm and protection.

Item	Button	Description
Current Alarm Reference	READ_CURRENT_AD	Peak value of Peltier current
Zero Adjustment Reverse Protection	READ_VOLT_AD	Voltage of Peltier element (*) It is only effective under non-operation.

# 8. Read Status

#### Read present status.

K PLC-24V6A Manager Version 1.1.0.0	– 🗆 🗙			
Serial Port				
COM COM5 ~ CLOSE	Log Clear			
Command				
Board No. Preset Parameter Read Status Control Command File Operation				
Temperature				
READ_STATUS_TEMPERATURE				
Operating Status				
READ_STATUS_MOTION				
Alarm				
READ_STATUS_ALARM				
Timer				
READ_STATUS_TIMER				
Condition				
READ_STATUS_CONDITION				
Firmware Version				
READ_VERSION_INFO				
Receive Message				
RTP;500,968 RST,RUN,COOL,CONT RAL,GOOD RTM,MIN,35,35 RCO,START,TIMER RVR,1.0.1.4 1) Click button 2) Status is indicated	^			
	~			

Item	Button	Response
Temperature	READ_STATUS_TEMPERATURE	RTP,(setting value),(present value) (ex.) 1725: 17.25°C
Operating Status	READ_STATUS_MOTION	RTP,(operation),(polarity),(timer/continuous)
Alarm	READ_STATUS_ARARM	RAL,(alarm status) GOOD/SENSOR/CURRENT/FAN/VOLTAGE
Timer	READ_STATUS_TIMER	RTM,(minute/hour),(setting time),(remain time)
Condition	READ_STATUS_CONDITION	RCO,(START/STOP),(CONT/TIMER) (*) Switch status on PLC Series.
Firmware Version	READ_VERSION_INFO	RVR,(version) (*) Firmware version of PLC Series

# 9. Control Command

Send control command for temperature control.

K PLC-24V6A Manager Version 1	1.1.0.0							×
Serial Port								
COM COM5	~	CLO	DSE			L	og Clear	
Command								
Board No. Preset Parameter	Read Statu	s Control	Command	File Operatio	n			
- Temperature / Timer Setting -								
Temperature						SET_TEMP	ERATURE	
D Timor								
3.5			SET	_TIME_MIN		SET_TIM	E_HOUR	
Operating Mode						OFT 1		
Continuous ~						SEI_I	IMER	
Temperature Control								
		<u>ест ет</u>	OP					
SET_START		SE1_51	0F					
Temperature / Time Range								
DATA_READ								
Program Mode Temperature								
SET PROGRAM TEMPERATURE								
Receive Message								
STM,OK								
STT,OK STA OK								

Item	Button	Description
Temperature	SET_TEMPERATURE	Enter in 0.1°C increments
Timer(minute)	SET_TIME_MIN	Enter in 0.1 minute increments
Timer(hour)	SET_TIME_HOUR	Enter in 0.1 hour increments
Operating Mode	SET_TIMER	Select Continuous Mode / Timer Mode
Temperature Control	SET_START/SET_STOP	START / STOP of temperature control operation
Temperature / Time Range	DATA_READ	Read temperature range and time range RLD,(temperature min),(temperature max),(minute min),(minute max),(hour min),(hour max) (ex.) RLD,-1000,8000,1,9999,1,7200 Temperature: -10°C - 80°C, Time(minute):0.1min - 999.9min, Time(hour):0.1hour - 720hour
Program Mode Temperature	SET_PROGRAM_TEMPER ATURE	Temperature setting command for program mode (SPT command - Do not write to EEPROM) Enter in 0.1°C increments

(\*) Error message is displayed when you input a value out of the set range.

# **10. File Operation**

Read EEPROM data of PLC Series at once. And save the values and parameters to PC file. Also write the values and parameters to EEPROM of PLC Series at once.

Before change the values and parameters, it is recommended to save to PC file for recover
---

Serial Port       COM       COM5       CLOSE       Log Clear         Command       Board No.       Preset       Parameter       Read Status       Control Command       File Operation         Save EEPROM Settings to File       Save the EEPROM settings on the device to the file "peltier.frm".       SAVE EEPROM PARAMETER         Write Settings to EEPROM       Write all settings on this application software to the EEPROM.       WRITE ALL PARAMETER         Save Settings to File       Save all settings on this application software to a file "*.xml".       SAVE ALL PARAMETER         Load Settings from File       Open       SET ALL/EEPROM PARAMETER         Load settings from the specified settings file to this application software.       Save EEPROM Settings as CSV File         Save the EEPROM Settings on the device to the CSV file " <board-no.>.csv'.       SAVE EEPROM CSV         Receive Message       A</board-no.>	K PLC-24V6A Manager Version 1.1.0.0	– 🗆 🗙
COM       CLOSE       Log Clear         Command       Board No. Preset Parameter Read Status Control Command File Operation         Save EEPROM Settings to File       Save the EEPROM settings on the device to the file "petiterftrm".         Save settings to EEPROM       Write all settings on this application software to the EEPROM.         Write settings to File       Save Settings to File         Save Settings to File       Save all settings on this application software to a file "*.xml".         Save Settings from File       Open         Open       Save EEPROM PARAMETER         Load settings from the specified settings file to this application software.       Save EEPROM PARAMETER         Save the EEPROM settings on the device to the CSV file " <board-no.>.csv".       SAVE EEPROM CSV         Receive Message       ^^</board-no.>	Serial Port	
Command Board No. Preset Parameter Read Status Control Command File Operation Save EEPROM Settings to File Save the EEPROM settings on the device to the file "pettier.frm". SAVE EEPROM PARAMETER Write all settings on this application software to the EEPROM. Write all settings on this application software to a file "*.xml". SAVE ALL PARAMETER Load Settings from File Open Save EEPROM Settings on the specified settings file to this application software. Save the EEPROM Settings on the device to the CSV file " <board-no.>.csv". SAVE EEPROM CSV Receive Message</board-no.>	COM COM5 V CLOSE	Log Clear
Board No.       Preset       Parameter       Read Status       Control Command       File Operation         Save EEPROM Settings to File       Save the EEPROM settings on the device to the file "pettier.frm".       SAVE EEPROM PARAMETER         Write Settings to EEPROM       Write all settings on this application software to the EEPROM.       WRITE ALL PARAMETER         Save Settings to File       Save all settings on this application software to a file "*.xml".       SAVE ALL PARAMETER         Load Settings from File       Open       Set ALL/EEPROM PARAMETER         Load settings from the specified settings file to this application software.       Save EEPROM Settings as CSV File         Save the EEPROM Settings on the device to the CSV file " <board-no.>.csv".       SAVE EEPROM CSV</board-no.>	Command	
Save the EEPROM settings on the device to the file "petitier.frm".       SAVE EEPROM PARAMETER         Write settings to EEPROM       WRITE ALL PARAMETER         Save Settings to File       Save all settings on this application software to a file "*.xml".       SAVE ALL PARAMETER         Load Settings from File       Open       SET ALL/EEPROM PARAMETER         Load settings from the specified settings file to this application software.       SET ALL/EEPROM PARAMETER         Save EEPROM Settings as CSV File       Save the EEPROM settings on the device to the CSV file " <board-no.>.csv".         Save the EEPROM settings on the device to the CSV file "<board-no.>.csv".       SAVE EEPROM CSV</board-no.></board-no.>	Board No. Preset Parameter Read Status Control Command File Operation Save EEPROM Settings to File	
Write Settings to EEPROM       WRITE ALL PARAMETER         Save Settings to File       Save all settings on this application software to a file "*.xml".       SAVE ALL PARAMETER         Load Settings from File       Open       SET ALL/EEPROM PARAMETER         Load settings from the specified settings file to this application software.       Save EEPROM Settings as CSV File         Save the EEPROM settings on the device to the CSV file " <board-no.>.csv".       SAVE EEPROM CSV</board-no.>	Save the EEPROM settings on the device to the file "peltier.frm".	SAVE EEPROM PARAMETER
Write all settings on this application software to the EEPROM.       WRITE ALL PARAMETER         Save Settings to File       SAVE ALL PARAMETER         Load Settings from File       Open         Dopen       SET ALL/EEPROM PARAMETER         Load settings from the specified settings file to this application software.       SET ALL/EEPROM PARAMETER         Save the EEPROM Settings as CSV File       Save the EEPROM settings on the device to the CSV file " <board-no.>.csv".         SAVE EEPROM Settings on the device to the CSV file "<board-no.>.csv".       SAVE EEPROM CSV</board-no.></board-no.>	Write Settings to EEPROM	
Save Settings to File Save all settings on this application software to a file "*.xml". SAVE ALL PARAMETER Load Settings from File Open SET ALL/EEPROM PARAMETER Load settings from the specified settings file to this application software. Save EEPROM Settings as CSV File Save the EEPROM settings on the device to the CSV file " <board-no.>.csv". SAVE EEPROM CSV Receive Message</board-no.>	Write all settings on this application software to the EEPROM.	WRITE ALL PARAMETER
Save all settings on this application software to a file "*.xml".       SAVE ALL PARAMETER         Load Settings from File       Open         Open       SET ALL/EEPROM PARAMETER         Load settings from the specified settings file to this application software.       SET ALL/EEPROM PARAMETER         Save EEPROM Settings as CSV File       Save the EEPROM settings on the device to the CSV file " <board-no.>.csv".         SAVE EEPROM CSV       SAVE EEPROM CSV</board-no.>	Save Settings to File	
Load Settings from File Open SET ALL/EEPROM PARAMETER Load settings from the specified settings file to this application software. Save EEPROM Settings as CSV File Save the EEPROM settings on the device to the CSV file " <board-no.>.csv". SAVE EEPROM CSV Receive Message</board-no.>	Save all settings on this application software to a file "*.xml".	SAVE ALL PARAMETER
Open       SET ALL/EEPROM PARAMETER         Load settings from the specified settings file to this application software.       Save EEPROM Settings as CSV File         Save the EEPROM settings on the device to the CSV file " <board-no.>.csv".       SAVE EEPROM CSV         Receive Message       ^</board-no.>	Load Settings from File	
Set ALL/EEPROM PARAMETER         Load settings from the specified settings file to this application software.         Save EEPROM Settings as CSV File         Save the EEPROM settings on the device to the CSV file " <board-no.>.csv".         SAVE EEPROM CSV</board-no.>	Open	
Load settings from the specified settings file to this application software. Save EEPROM Settings as CSV File Save the EEPROM settings on the device to the CSV file " <board-no.>.csv". SAVE EEPROM CSV Receive Message</board-no.>		SET ALL/EEPROM PARAMETER
Save EEPROM Settings as CSV File Save the EEPROM settings on the device to the CSV file " <board-no.>.csv". SAVE EEPROM CSV Receive Message</board-no.>	Load settings from the specified settings file to this application software.	
Save the EEPROM settings on the device to the CSV file " <board-no.>.csv". SAVE EEPROM CSV Receive Message</board-no.>	Save EEPROM Settings as CSV File	
Receive Message	Save the EEPROM settings on the device to the CSV file " <board-no.>.csv".</board-no.>	SAVE EEPROM CSV
	Receive Message	
		~
		~

Item	Button	Description
Save EEPROM Setting to File	SAVE EEPROM PARAMETER	Read EEPROM data of PLC Series at once. And save temporary PC file.
Write setting to EEPROM	WRITE ALL PARAMETER	Write all values and parameters which set this software to EEPROM of PLC Series at once.
Save Setting to File	SAVE ALL PARAMETER	Save all values and parameters which set this software to PC file (xml format) at once.
Load Setting from File	SET ALL/EEPROM PARAMETER	Load fall values and parameters which saved file to this software.
Save EEPROM Setting as CSV File	SAVE EEPROM CSV	Read EEPROM data of PLC Series at once. And save csv format file.

### **Operating procedure**

#### 1) Save EEPROM setting to PC file

Click [SAVE EEPROM PARAMETER] button.Read EEPROM data of PLC Series at once. And save temporary PC file (named "peltier.frm").

- (\*) Can not change file name. When "peltier.frm" already exists, it is overwritten.
- (\*) At this timing, the set values and parameters are not reflected to screens of this software. It is necessary reading operation from PC file to let you reflect it to this software.

#### 2) Load setting from PC file

Load temporary file(peltier.frm) or setting application file(file extension: .xml). And reflect to to screens of this software.

Click [OPEN] button.

Select file and open.

Click [SET ALL/EEPROM PARAMETER] button.

K Open					×
	Program → KE → PLC-24V6A Manager → v110	00En 🗸 (	Search v1100En		δ
Organize 🔻 New folder					?
This PC	Name	Date modified	Туре	Size	
E. Desktop	PELTIER_MEAS.xml	2017/07/22 15:58	XML Document	1 K	В
🔮 Documents	$\mathbf{X}$				
🖊 Downloads	Select file				
👌 Music	Select life				
Pictures					
📔 Videos					
🟪 ТІЗ1064000В (С:)					
DATA1 (D:)					
DATA2 (E:)	Select file type	ltion from			
INSTALL (F:)	Setting application	file * xml			
🕳 AP-U64 (J:) 🗸	betting appreation	intexim			
File nar	me: PELTIER_MEAS.xml		<ul> <li>Application Set</li> <li>Application Set</li> <li>Firmware Settin</li> <li>All Files(*.*)</li> </ul>	tings Files(*.xn tings Files(*.xn ngs Files(*.frm)	זו) אין זו) :

### 3) Save application setting to PC file

Click [SAVE ALL PARAMETER] button

Save all values and parameters which set this software to PC file (xml format) at once. (\*) Default file name is "PELTIER MEAS.xml". It is able to change the file name.

(\*) Saved values and parameters in this operation are values and parameters which set this software. It is not EEPROM data of PLC Series.

#### PLC-24V6A Manager Operating Manual (Rev.1.10)

K Save settings to			×
$\leftarrow \rightarrow \cdot \cdot \uparrow$	« MyProgram → KE → PLC-24V6A Manager → v1100En     ✓		٩
Organize 🔻 Ne	w folder		?
This PC	Name     Date modified     Type	Size	
Desktop	No items match your search.		
Documents			
J Music			
Pictures			
Videos			
🟪 ТІЗ1064000В (	(C:)		
🔜 DATA1 (D:)	It is able to change the file name.		
DATA2 (E:)	Do not change file extension.		
INICTALL (CA			
File name:	PELTIER_MEAS.xml		~
Save as type:	Application Settings Files(*.xml)		$\sim$
∧ Hide Folders	Application Settings Files(*.xml) Firmware Settings Files(*.frm) All Files(*.*)		

### 4) Write to EEPROM

Click [WRITE ALL PARAMETER] button. Write all values and parameters which set this software to EEPROM of PLC Series at once.

## Procedure to restore the changed setting to the original setting

- 1) Save EEPROM data by [SAVE EEPROM PARAMETER] button before changing.
- 2) Load "peltier.frm" by [SET ALL/EEPROM PARAMETER] button to reflect to screens of this software.
- 3) Change value or parameter. Save values and parameters by [SAVE ALL PARAMETER] button as necessary.
- 4) If you restore the setting, reload "peltier.frm" by [SET ALL/EEPROM PARAMETER] button.
- 5) Write original setting to EEPROM by [SET ALL/EEPROM PARAMETER] button.

1.0007/29/2010Initial releaseY.1.0108/10/2010Software Ver1.0.0.1 Add [READ_VERSION_INFO] button in [Read Status] tab.Y.1.0309/03/2010Software Ver1.0.0.3 Add [File operation] tab. Add current alarm lower limit in [Parameter] tab. (FW1.0.0.3 - )Y1.0412/09/2010Software Ver1.0.0.4 Add coefficient M in NTC sensor parameter of [Parameter] tab.Y.1.0504/06/2011Software Ver1.0.0.5 Support all Firmware version (Auto detection)Y.1.0610/17/2011Change the name of product from "PLC-15V6A" to "PLC Series"Y.1.0702/26/2015Software Ver1.0.1.3 Support English language Add explanation of [NTC Reference Temperature] tab.Y.1.0804/17/2015Software Ver1.0.1.4 Modification about CSV export of EEPROM setting value.Y.1.0904/07/2017Change the support window from T.S.LaboratoryY.	cription Editor
1.0108/10/2010Software Ver1.0.0.1 Add [READ_VERSION_INFO] button in [Read Status] tab.Y.1.0309/03/2010Software Ver1.0.0.3 Add [File operation] tab. Add current alarm lower limit in [Parameter] tab. (FW1.0.0.3 - )Y1.0412/09/2010Software Ver1.0.0.4 Add coefficient M in NTC sensor parameter of [Parameter] tab.Y.1.0504/06/2011Software Ver1.0.0.5 Support all Firmware version (Auto detection)Y.1.0610/17/2011Change the name of product from "PLC-15V6A" to "PLC Series"Y.1.0702/26/2015Software Ver1.0.1.3 Support English language Add explanation of [NTC Reference Temperature] tab.Y.1.0804/17/2015Software Ver1.0.1.4 Modification about CSV export of EEPROM setting value.Y.1.0904/07/2017Change the support window from T.S.LaboratoryY.	Y.O
1.0309/03/2010Software Ver1.0.0.3 Add [File operation] tab. Add current alarm lower limit in [Parameter] tab. (FW1.0.0.3 - )Y1.0412/09/2010Software Ver1.0.0.4 Add coefficient M in NTC sensor parameter of [Parameter] tab.Y.1.0504/06/2011Software Ver1.0.0.5 Support all Firmware version (Auto detection)Y.1.0610/17/2011Change the name of product from "PLC-15V6A" to "PLC Series"Y.1.0702/26/2015Software Ver1.0.1.3 Support English language Add explanation of [NTC Reference Temperature] tab.Y.1.0804/17/2015Software Ver1.0.1.4 Modification about CSV export of EEPROM setting value.Y.1.0904/07/2017Change the support window from T.S.LaboratoryY.	outton in [Read Status] tab.
1.0412/09/2010Software Ver1.0.0.4 Add coefficient M in NTC sensor parameter of [Parameter] tab.Y.1.0504/06/2011Software Ver1.0.0.5 Support all Firmware version (Auto detection)Y.1.0610/17/2011Change the name of product from "PLC-15V6A" to "PLC Series"Y.1.0702/26/2015Software Ver1.0.1.3 Support English language Add explanation of [NTC Reference Temperature] tab.Y.1.0804/17/2015Software Ver1.0.1.4 Modification about CSV export of EEPROM setting value.Y.1.0904/07/2017Change the support window from T.S.LaboratoryY.	Parameter] tab.
1.0504/06/2011Software Ver1.0.0.5 Support all Firmware version (Auto detection)Y.1.0610/17/2011Change the name of product from "PLC-15V6A" to "PLC Series"Y.1.0702/26/2015Software Ver1.0.1.3 Support English language Add explanation of [NTC Reference Temperature] tab.Y.1.0804/17/2015Software Ver1.0.1.4 Modification about CSV export of EEPROM setting value.Y.1.0904/07/2017Change the support window from T.S.LaboratoryY.	parameter of [Parameter] tab.
1.0610/17/2011Change the name of product from "PLC-15V6A" to "PLC Series"Y.1.0702/26/2015Software Ver1.0.1.3 Support English language Add explanation of [NTC Reference Temperature] tab.Y.1.0804/17/2015Software Ver1.0.1.4 Modification about CSV export of EEPROM setting value.Y.1.0904/07/2017Change the support window from T.S.LaboratoryY.	to detection) Y.O
1.0702/26/2015Software Ver1.0.1.3 Support English language Add explanation of [NTC Reference Temperature] tab.Y.1.0804/17/2015Software Ver1.0.1.4 Modification about CSV export of EEPROM setting value.Y.1.0904/07/2017Change the support window from T.S.LaboratoryY.	"PLC-15V6A" to "PLC Series" Y.O
1.0804/17/2015Software Ver1.0.1.4 Modification about CSV export of EEPROM setting value.Y.1.0904/07/2017Change the support window from T.S.LaboratoryY.	Y.O Y.O
1.09 04/07/2017 Change the support window from T.S.Laboratory Y	f EEPROM setting value.
to KURAG ELECTRONICS Change the name of product from "PLC Series" to "PLC-15V6A / PLC-24V6A"	T.S.Laboratory Y.O "PLC Series" to
1.10       07/22/2017       Software Ver1.1.0.0 Change program name from "PELTIER_MEAS" to "PLC-24V6A Manager". Change icon and copylight from TSL to KE. Change window size (720x720), Delete NTC standard temperture tab.       Y.	TIER_MEAS" to "PLC-24V6A CSL to KE. Delete NTC standard temperture tab.

# **Revision History**

# TEC (Peltier) Controller PLC-15V6A / PLC-24V6A Setting Software "PLC-24V6A Manager.exe" Operating Manual

(Rev.1.10)

July 22, 2017

Kurag Electronics LLC URL: http://kurag.o.oo7.jp/kurag-el/