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Programmable Logic Controller

XGK/I/R Datalog Module

XGT Series

User's Manual

XGF-DL16A

Safety Instructions

- Read this manual carefully before installing, wiring, operating, servicing or inspecting this equipment.
- Keep this manual within easy reach for quick reference.

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Before using the product …

For your safety and effective operation, please read the safety instructions thoroughly before using the product.

- Safety Instructions should always be observed in order to prevent accident or risk with the safe and proper use the product.

- Instructions are separated into “Warning” and “Caution”, and the meaning of the terms is as follows;

⚠ **Warning**	This symbol indicates the possibility of serious injury or death if some applicable instruction is violated
⚠ **Caution**	This symbol indicates the possibility of slight injury or damage to products if some applicable instruction is violated

- The marks displayed on the product and in the user’s manual have the following meanings.

  ⚠ Be careful! Danger may be expected.

  ⚠ Be careful! Electric shock may occur.

- The user’s manual even after read shall be kept available and accessible to any user of the product.

Safety Instructions when designing

⚠Warning

- **Please, install protection circuit on the exterior of PLC to protect the whole control system from any error in external power or PLC module.** Any abnormal output or operation may cause serious problem in safety of the whole system.
  - Install applicable protection unit on the exterior of PLC to protect the system from physical damage such as emergent stop switch, protection circuit, the upper/lowest limit switch, forward/reverse operation interlock circuit, etc.
  - If any system error (watch-dog timer error, module installation error, etc.) is detected during CPU operation in PLC, the whole output is designed to be turned off and stopped for system safety. However, in case CPU error if caused on output device itself such as relay or TR can not be detected, the output may be kept on, which may cause serious problems. Thus, you are recommended to install an addition circuit to monitor the output status.

- **Never connect the overload than rated to the output module nor allow the output circuit to have a short circuit**, which may cause a fire.

- **Never let the external power of the output circuit be designed to be On earlier than PLC power**, which may cause abnormal output or operation.

- **In case of data exchange between computer or other external equipment and PLC through communication or any operation of PLC (e.g. operation mode change), please install interlock in the sequence program to protect the system from any error**. If not, it may cause abnormal output or operation.

Safety Instructions when designing

⚠ Caution

- **I/O signal or communication line shall be wired at least 100mm away from a high-voltage cable or power line.** If not, it may cause abnormal output or operation.

Safety Instructions when designing

⚠ Caution

- **Use PLC only in the environment specified in PLC manual or general standard of data sheet.** If not, electric shock, fire, abnormal operation of the product or flames may be caused.
- **Before installing the module, be sure PLC power is off.** If not, electric shock or damage on the product may be caused.
- **Be sure that each module of PLC is correctly secured.** If the product is installed loosely or incorrectly, abnormal operation, error or dropping may be caused.
- **Be sure that I/O or extension connecter is correctly secured.** If not, electric shock, fire or abnormal operation may be caused.
- **If lots of vibration is expected in the installation environment, don't let PLC directly vibrated.** Electric shock, fire or abnormal operation may be caused.
- **Don't let any metallic foreign materials inside the product**, which may cause electric shock, fire or abnormal operation.

Safety Instructions when wiring

⚠ Warning

- **Prior to wiring, be sure that power of PLC and external power is turned off.** If not, electric shock or damage on the product may be caused.

- **Before PLC system is powered on, be sure that all the covers of the terminal are securely closed.** If not, electric shock may be caused

⚠ Caution

- **Let the wiring installed correctly after checking the voltage rated of each product and the arrangement of terminals.** If not, fire, electric shock or abnormal operation may be caused.

- **Secure the screws of terminals tightly with specified torque when wiring.** If the screws of terminals get loose, short circuit, fire or abnormal operation may be caused.

- **Surely use the ground wire of Class 3 for FG terminals, which is exclusively used for PLC**. If the terminals not grounded correctly, abnormal operation may be caused.

- **Don't let any foreign materials such as wiring waste inside the module while wiring,** which may cause fire, damage on the product or abnormal operation.

Safety Instructions for test-operation or repair

⚠ Warning

- **Don't touch the terminal when powered**. Electric shock or abnormal operation may occur.
- **Prior to cleaning or tightening the terminal screws, let all the external power off including PLC power.** If not, electric shock or abnormal operation may occur.
- **Don't let the battery recharged, disassembled, heated, short or soldered**. Heat, explosion or ignition may cause injuries or fire.

⚠ Caution

- **Don't remove PCB from the module case nor remodel the module.** Fire, electric shock or abnormal operation may occur.
- **Prior to installing or disassembling the module, let all the external power off including PLC power.** If not, electric shock or abnormal operation may occur.
- **Keep any wireless installations or cell phone at least 30cm away from PLC**. If not, abnormal operation may be caused.

Safety Instructions for waste disposal

⚠ Caution

- **Product or battery waste shall be processed as industrial waste.** The waste may discharge toxic materials or explode itself.

Revision History

Version	Date	Remark	Chapter
V1.0	’12.03	First Edition	-

※ The number of User’s manual is indicated right part of the back cover.

Congratulations on purchasing PLC of LSIS Co.,Ltd.
Before use, make sure to carefully read and understand the User's Manual about the functions, performances, installation and programming of the product you purchased in order for correct use and importantly, let the end user and maintenance administrator to be provided with the User's Manual.

The User's Manual describes the product. If necessary, you may refer to the following description and order accordingly. In addition, you may connect our website (http://eng.lsis.biz/) and download the information as a PDF file.

Relevant User's Manuals

Title	Description	Serial No.
XG5000 User's Manual (for XGK, XGB)	XG5000 software user manual describing online function such as programming, print, monitoring, debugging by using XGK, XGB CPU	10310000512
XG5000 User's Manual (for XGI, XGR)	XG5000 software user manual describing online function such as programming, print, monitoring, debugging by using XGI, XGR CPU	10310000834
XGK/XGB Instructions & Programming User's Manual	User's manual for programming to explain how to use instructions that are used PLC system with XGK, XGB CPU.	10310000510
XGI/XGR Instructions & Programming User's Manual	User's manual for programming to explain how to use instructions that are used PLC system with XGI, XGR CPU.	10310000833
XGK CPU User's Manual (XGK-CPUA/CPUE/CPUH/CPUS/CPUU)	XGK-CPUA/CPUE/CPUH/CPUS/CPUU user manual describing about XGK CPU module, power module, base, IO module, specification of extension cable and system configuration, EMC standard	10310000820
XGI CPU User's Manual (XGI-CPUU)	XGI-CPUU user manual describing about XGK CPU module, power module, base, IO module, specification of extension cable and system configuration, EMC standard	10310000832
XGR redundant series User's Manual	XGR-CPUU user manual describing about XGR CPU module, power module, extension drive, base, IO module, specification of extension cable and system configuration, EMC standard	10310001059

Current user manual of XGF-DL16A is written based on the following version.

Related O/S version list

Product name	O/S version
XGK-CPUH, CPUS, CPUE, CPUU, CPUU/D	V3.90
XGI-CPUU, CPUH, CPUA, CPUS, CPUE	V3.50
XGR-CPUH/F, CPUH/T	V2.20
XG5000	V3.64

◎ Contents ◎

Chapter 1 Introduction

This user's manual describes Datalog module specification, sequence of functional operation and saving data.

If any program example introduced in this user's manual is used in the actual system, fully review if there is any control problem with the system.

In addition, in case of the datalog module, PLC device data collected through simple settings can be saved on CF card incorporated in the module and duplicated on USB memory.

1.1 Special Feature

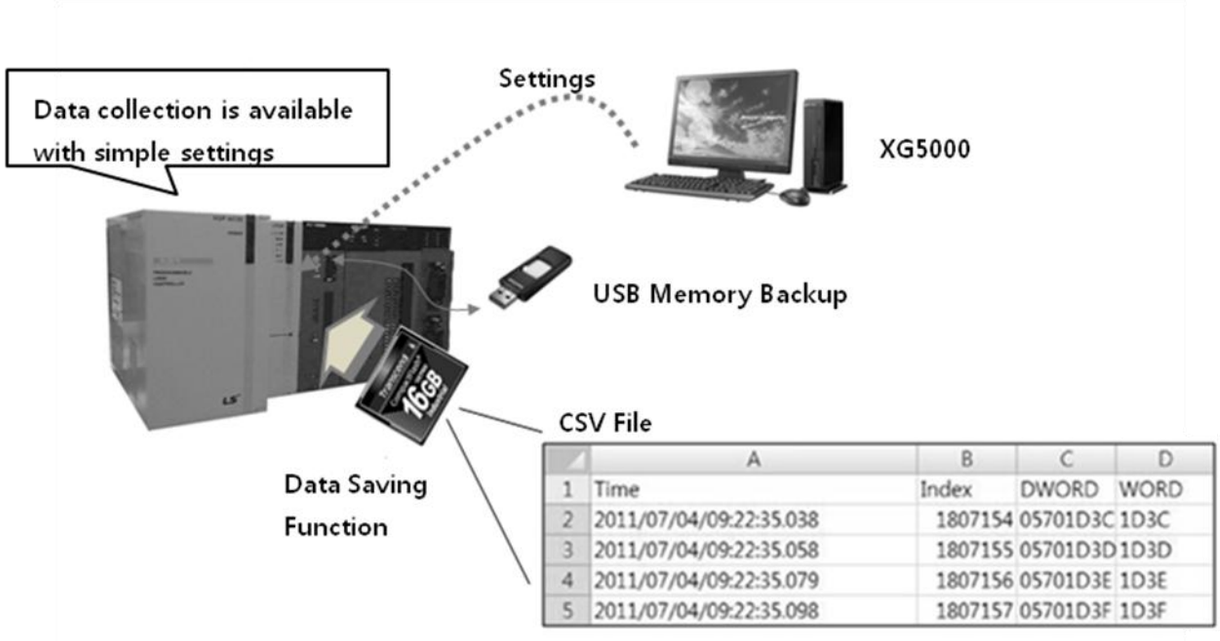
Special features of the datalog module are as follows:

1) Capable to easily save PLC device data without PC

PLC device can be saved without using PC.

It can save costs as well as it gives no need to worry about PC system's breakdown or cutting of cables.

That is, the collected data can be saved in a proper file type on CF card and USB memory.



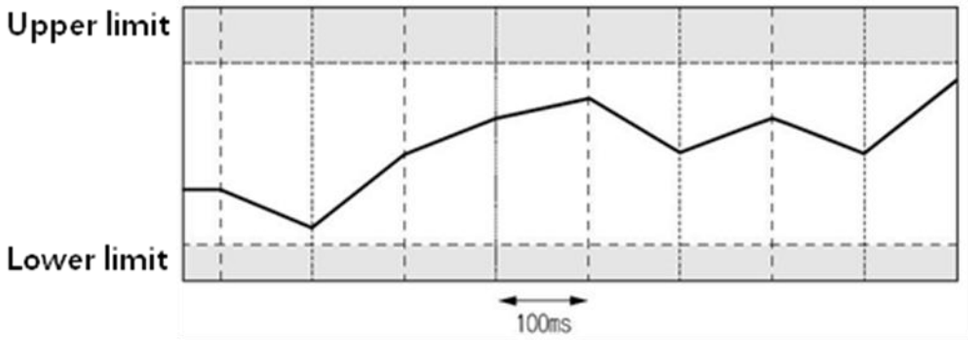
	A	B	C	D
1	Time	Index	DWORD	WORD
2	2011/07/04/09:22:35.038	1807154	05701D3C	1D3C
3	2011/07/04/09:22:35.058	1807155	05701D3D	1D3D
4	2011/07/04/09:22:35.079	1807156	05701D3E	1D3E
5	2011/07/04/09:22:35.098	1807157	05701D3F	1D3F

< Figure1.1 System Configuration of the Datalog Module>

2) Capable to save PLC control data without missing any change

Data can be saved whenever scanning is done or they can be saved at an interval of several ms(milliseconds).

It plays an important role in identifying causes of a trouble since it does not missing any control data that has been set when saving data.



< Figure1.2 Data saving at an Interval of 100ms >

3) Capable to save a large volume of data file

Long-term data saving is available since CF card and USB memory with a large volume of up to 16GB can be used.

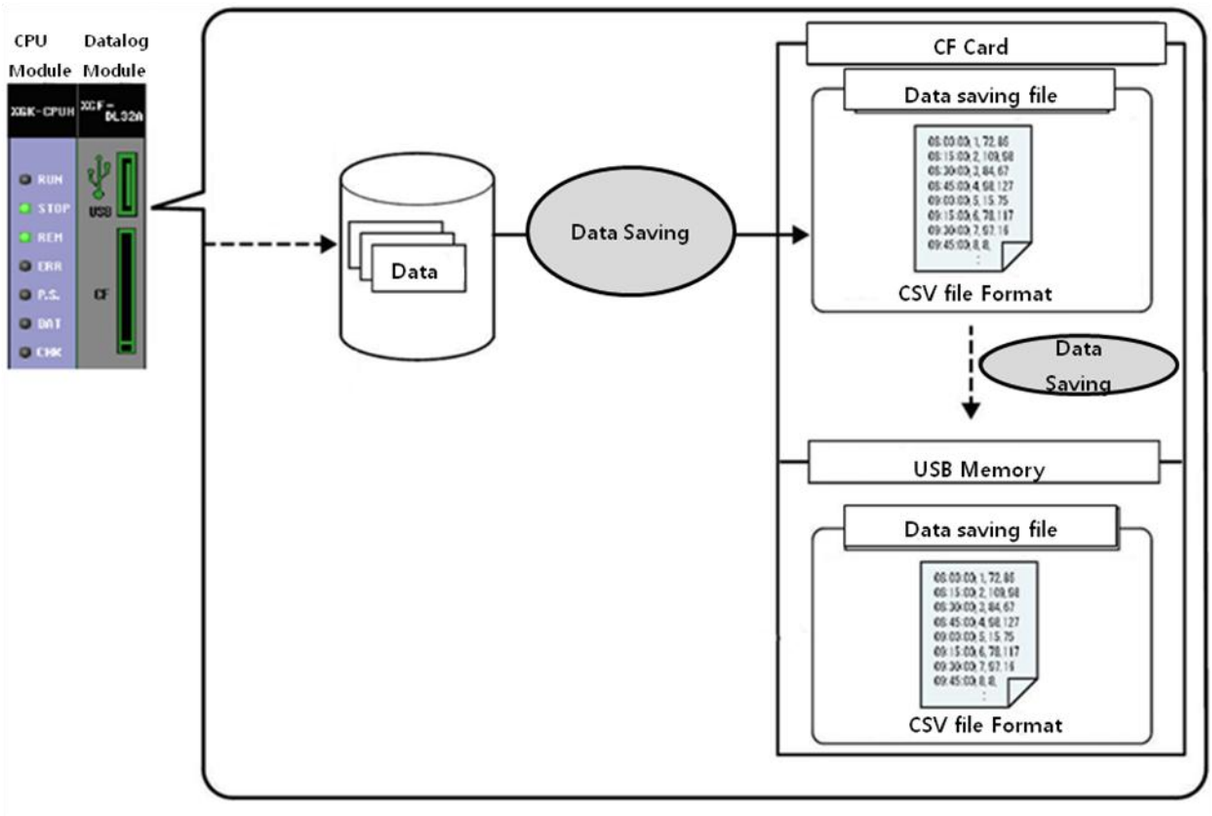
But, use industrial CF card manufactured by Transcend.

1.2 Introduction of Data Processing

The datalog module saves device values saved on PLC CPU in a form of file on CF card and USB memory.

A data saved for a certain period in a file can be saved in a data saving file. Therefore, it is possible to analyze the saved data in details by using this.

The following figure shows the flow of preparing a file.



< Figure1.3 Introduction of Data Processing>

Chapter 2 Product Specification

2.1 General Specifications

General specifications of XGT series are as follows.

<table>
<tr><th>No.</th><th>Items</th><th colspan="6">Specifications</th><th>Related standards</th></tr>
<tr><td>1</td><td>Ambient temperature</td><td colspan="6">0 ~ 55 °C</td><td></td></tr>
<tr><td>2</td><td>Storage temperature</td><td colspan="6">–25 ~ +70 °C</td><td></td></tr>
<tr><td>3</td><td>Ambient humidity</td><td colspan="6">5 ~ 95%RH (Non-condensing)</td><td></td></tr>
<tr><td>4</td><td>Storage humidity</td><td colspan="6">5 ~ 95%RH (Non-condensing)</td><td></td></tr>
<tr><td rowspan="8">5</td><td rowspan="8">Vibration resistance</td><td colspan="5">Occasional vibration</td><td>-</td><td></td></tr>
<tr><td>Frequency</td><td colspan="2">Acceleration</td><td>Amplitude</td><td>times</td><td rowspan="8">IEC61131-2</td></tr>
<tr><td>10 ≤ f < 57Hz</td><td colspan="2">–</td><td>0.075mm</td><td rowspan="6">10 times each directions (X, Y and Z)</td></tr>
<tr><td>57 ≤ f ≤ 150Hz</td><td colspan="2">9.8m/s^2(1G)</td><td>–</td></tr>
<tr><td colspan="4">Continuous vibration</td></tr>
<tr><td>Frequency</td><td colspan="2">Acceleration</td><td>Amplitude</td></tr>
<tr><td>10 ≤ f < 57Hz</td><td colspan="2">–</td><td>0.035mm</td></tr>
<tr><td>57 ≤ f ≤ 150Hz</td><td colspan="2">4.9m/s^2(0.5G)</td><td>–</td></tr>
<tr><td>6</td><td>Shock resistance</td><td colspan="6">• Peak acceleration: 147 m/s^2(15G)
• Duration: 11ms
• Half-sine, 3 times each direction per each axis</td><td>IEC61131-2</td></tr>
<tr><td rowspan="5">7</td><td rowspan="5">Noise resistance</td><td>Square wave Impulse noise</td><td colspan="5">±1,500 V</td><td>LSIS standard</td></tr>
<tr><td>Electrostatic discharge</td><td colspan="5">4kV (Contact discharge)</td><td>IEC61131-2
IEC61000-4-2</td></tr>
<tr><td>Radiated electromagnetic field noise</td><td colspan="5">80 ~ 1,000 MHz, 10V/m</td><td>IEC61131-2,
IEC61000-4-3</td></tr>
<tr><td rowspan="2">Fast transient/bust noise</td><td>Segment</td><td>Power supply module</td><td colspan="3">Digital/analog input/output communication interface</td><td rowspan="2">IEC61131-2
IEC61000-4-4</td></tr>
<tr><td>Voltage</td><td>2kV</td><td colspan="3">1kV</td></tr>
<tr><td>8</td><td>Environment</td><td colspan="6">Free from corrosive gasses and excessive dust</td><td></td></tr>
<tr><td>9</td><td>Altitude</td><td colspan="6">Up to 2,000 ms</td><td></td></tr>
<tr><td>10</td><td>Pollution degree</td><td colspan="6">2 or less</td><td></td></tr>
<tr><td>11</td><td>Cooling</td><td colspan="6">Air-cooling</td><td></td></tr>
</table>

[Table 2.1] General Specifications

Note

1) IEC (International Electrotechnical Commission):
An international nongovernmental organization which promotes internationally cooperated standardization in Electric/electronic field publishes international standards and manages applicable estimation system related with.

2) Pollution degree:
An index indicating pollution degree of the operating environment which decides insulation performance of the devices. For instance, Pollution degree 2 indicates the state generally that only non-conductive pollution occurs. However, this state contains temporary conduction due to dew produced.

2.2 Performance Specifications

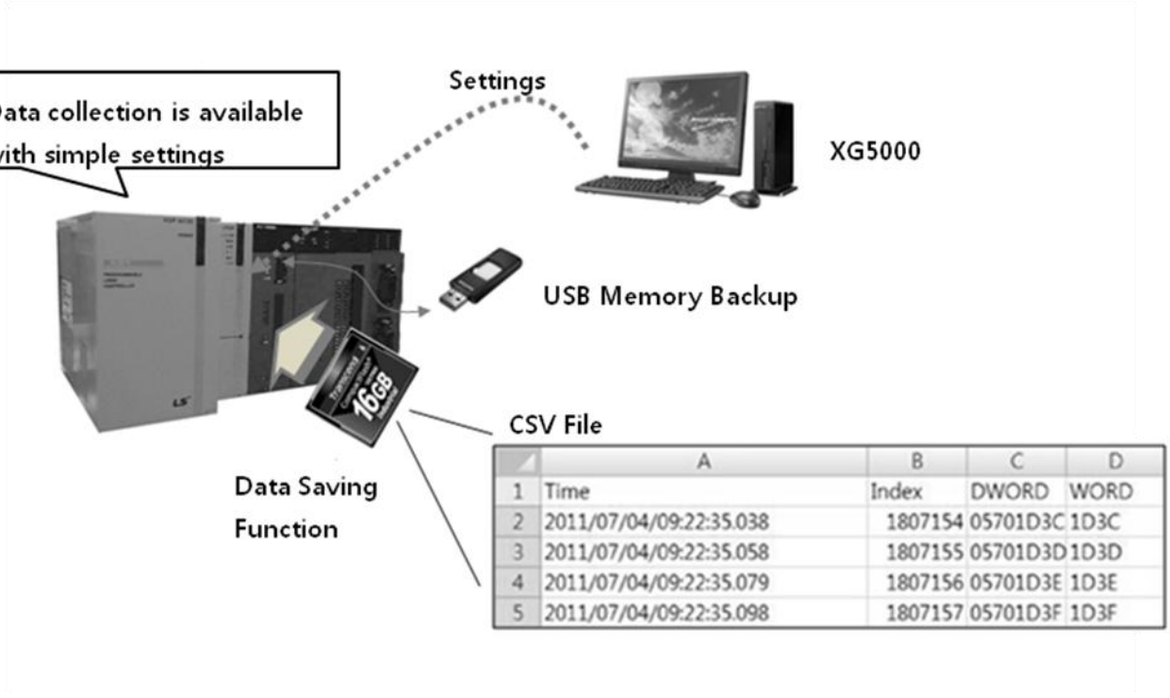
Item		Specification				
CF Card	Voltage of power supply	3.3V ± 5%				
	Card Type	CF200I(Transcend's Industrial CF card)				
	Compatibility Capacity	1,2,4,8,16Gbyte				
	Number of mountable cards	1				
	Caution	Use only industrial CF cards manufactured by Transcend				
USB Memory	Voltage of power supply	5.0V ± 5%				
	Memory Type	USB 2.0 (Host function)				
	Compatibility Capacity	1,2,4,8,16Gbyte (Please use USB capacity above CF card capacity)				
	Saving Method	Auto Saving through PnP function (Activation of PnP auto duplication: when USB is mounted, when power is supplied again)				
	Number of mountable memories	1(Unavailable to support USB extension cables)				
Data Type	BOOL	0 or 1				
	BYTE	00 ~ FF				
	WORD	0000 ~ FFFF				
	DWORD	00000000 ~ FFFFFFFF				
	LWORD	00000000 00000000 ~ FFFFFFFF FFFFFFFF				
	SINT	-128 ~ 127				
	INT	-32,768 ~ 32,767				
	DINT	-2,147,483,648 ~ 2,147,483,647				
	LINT	-576,460,752,303,423,488 ~ 576,460,752,303,423,487				
	USINT	0 ~ 255				
	UINT	0 ~ 65,535				
	UDINT	0 ~ 4,294,967,295				
	ULINT	0 ~ 1,152,921,504,606,846,975				
	REAL	-3.402823466e+038 ~ -1.175494351e-038 or 0 or 1.175494351e-038 ~ 3.402823466e+038				
	LREAL	-1.7976931348623157e+308 ~ -2.2250738585072014e-308 or 0 or 2.2250738585072014e-308 ~ 1.7976931348623157e+308				
	STRING	Fixed letters (Maximum 8 letters)				
Data Saving	Number of Settings	Maximum 8				
	Number of Data	Maximum 32				
	Saving Kind	Saved by the ladder program				
	File Type	CSV file(Extension: csv)				
	Number of Saving Files	Total 800 (when using 16Gbyte CF memory)				
Saving Speed	Processing Score(word)	4	16	64	256	1024
	Processing Speed(ms)	1	4	10	30	120
Time to Initialize CF card	Capacity(Gbyte)	1	2	4	8	16
	Time(s)	10	20	40	60	120
Collection Interval		1 ~ 9999999 ms (In consecutive saving)				
In/output Occupation Score		32 points 1 slot(Input 22 points, output 10 points)				
Clock		Synchronized at PLC CPU time whenever it is scanned				
DC5V Internal Consumption Current		0.53A				
External Size		98(H)[mm]×27(W)[mm]×90(D)[mm]				
Weight		0.13kg				

2.3 System Configuration

It describes the system configuration of the Datalog module.

2.3.1 System Configuration

The following shows configuration of the system when using the Datalog module.



< Figure2.1 Configuration of the Datalog module System >

2.3.2 Application System

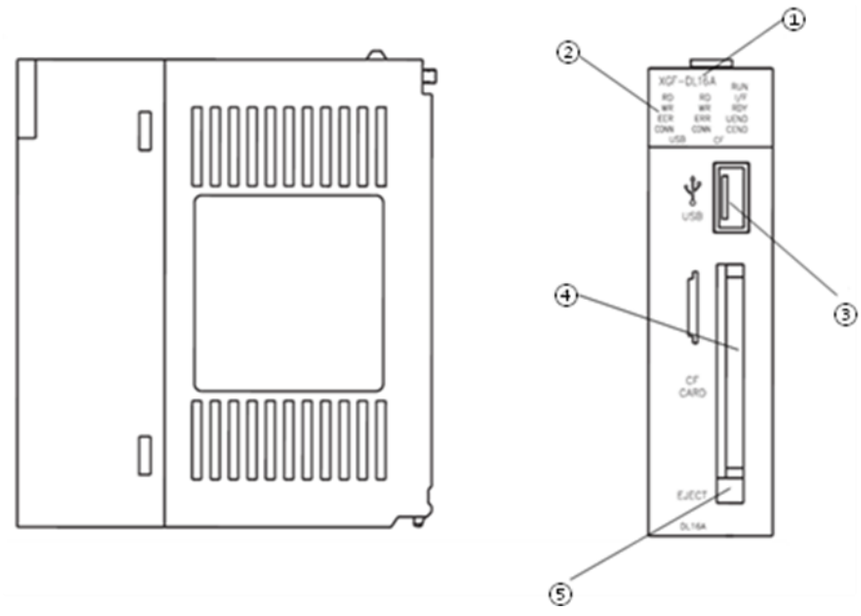
1) CPU module that can be mounted

Product name	OS version
XGK-CPUH, CPUS, CPUE, CPUU, CPUU/D	V3.90
XGI-CPUU, CPUH, CPUA, CPUS, CPUE	V3.50
XGR-CPUH/F, CPUH/T	V2.20
XG5000	V3.64

2.4 Part Name

Each part of the Datalog module has the following name.

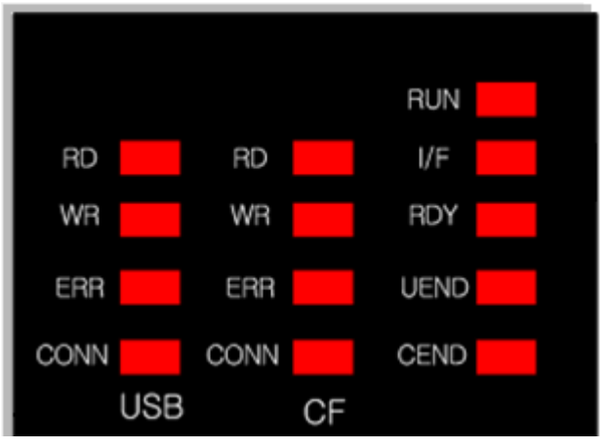
2.4.1 Part Name



< Figure2.2 Part Name of the Datalog Module >

	Name	Description
①	Product name	Display the name of the Datalog module's name(XGF-DL16A)
②	Display LED	Display LED according to the status of the system
③	USB Memory Slot	Slot to mount USB memory to the Datalog module
④	CF Card Slot	Slot to mount CF card to the Datalog module
⑤	EJECT Button	Button to disconnect CF card from the Datalog module

2.4.2 Contents of LED Display



< Figure2.3 LED Silk of the Datalog module>

Name	Description
RUN	On the Datalog module runs normally
I/F	Flashing sending/receiving between the Datalog module and the CPU module is normally processed.
RDY	On the Datalog module is completely ready for running.
CF RD	Flashing CF card's data is transferring to USB memory
CF WR	Flashing the Datalog module writes data to CF card
CF ERR	On an error takes place from CF card actions
CF CONN	On connecting CF card
USB RD	Flashing USB memory is first mounted and initialized
USB WR	Flashing CF card writes data to USB memory
USB ERR	On error takes place from USB memory's actions
USB CONN	On mounting USB memory
UEND, CEND	On disconnection is available since data saving is completed on CF card and USB memory

Ex) When connecting to the module after formatting CF card: RUN(On), I/F (On/Off repeated), CF CONN (On), CF WR (On)
When initializing after connecting USB memory: RUN(On), I/F (On/Off repeated), USB CONN (On), USB RD (On)
When processing/completing backup after connecting USB memory: RUN(On), I/F (On/Off repeated), USB CONN (On), CF CONN (On), CF RD (On), USB WR(On) → CF RD (Off) and USB WR(Off)

.

Chapter 3 Installation and Test Operation

3.1 Installation Environment

This product is of high reliance regardless of installation environment. However, for the sake of reliance and stability of the system, please pay attention to those precautions described below.

(1) Environmental Conditions

(a) To be installed on the control panel waterproof and dustproof.

(b) No continuous impact or vibration shall be expected.

(c) Not to be exposed to the direct sunlight.

(d) No dew shall be caused by rapid temperature change.

(e) Ambient temperature shall be kept 0-55℃.

(2) Installation Work

(a) No wiring waste is allowed inside PLC when wiring or drilling screw holes.

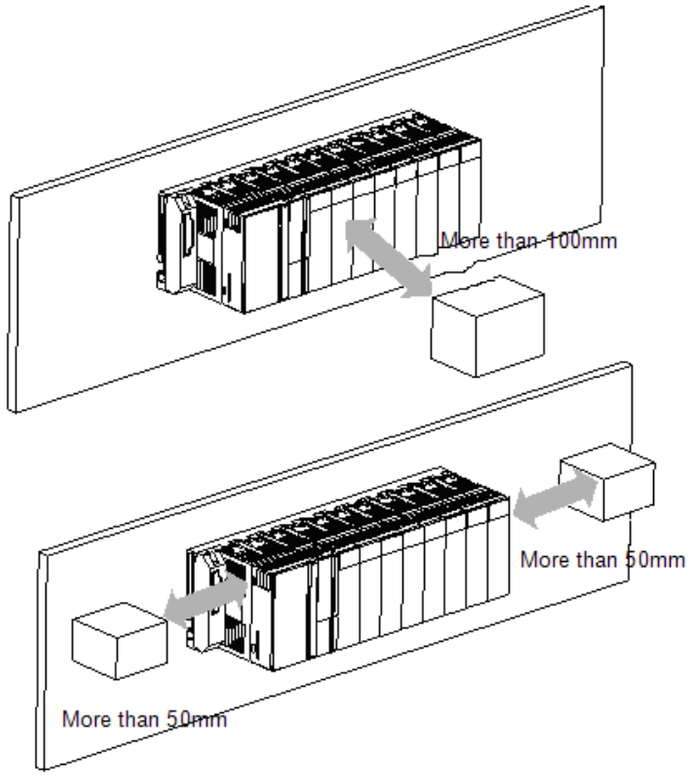
(b) To be installed on a good location to work on.

(c) Don't let it installed on the same panel as a high-voltage device is on.

(d) Let it kept at least 50 ㎜ away from duct or near-by module.

(e) To be grounded in an agreeable place free from noise.

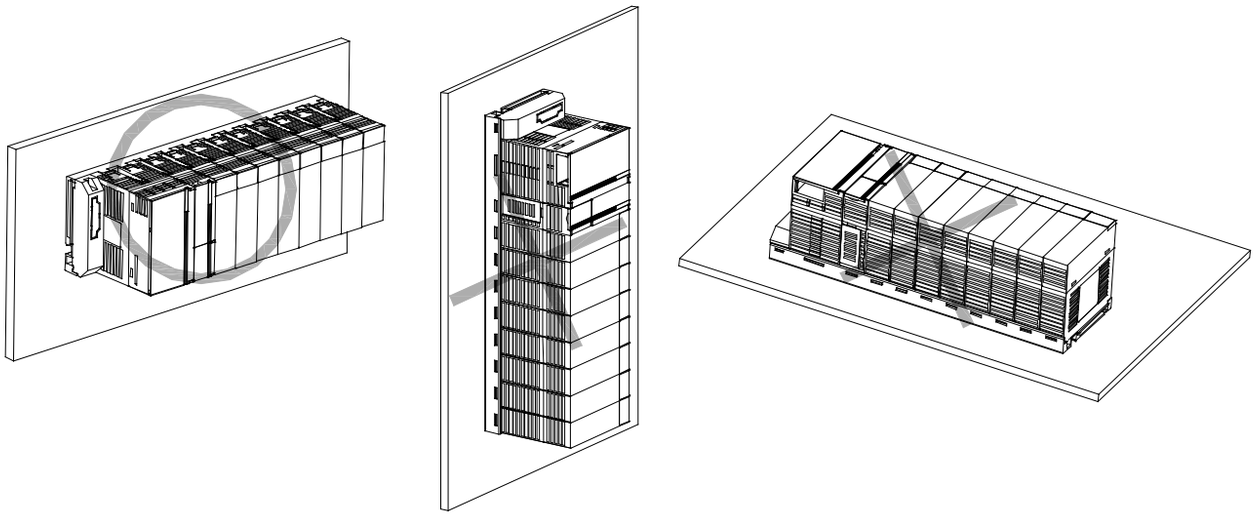
(f) Mount Ferrite Core when connecting power cables after completing



3.2 Precautions for Handling

The system configuration with Datalog module shall be performed under the following precautions.

1) Don't let it dropped or shocked hard.
2) Don't remove PCB from the case. It will cause abnormal operation.
3) Don't let any foreign materials including wiring waste inside the top of the module when wiring.
4) Get rid of foreign materials if any.
5) Don't install or remove the module while powered on.
6) Don't let wiring too close to hot device and material or in direct contact with oil for long, which will cause damage or abnormal operation due to short-circuit.

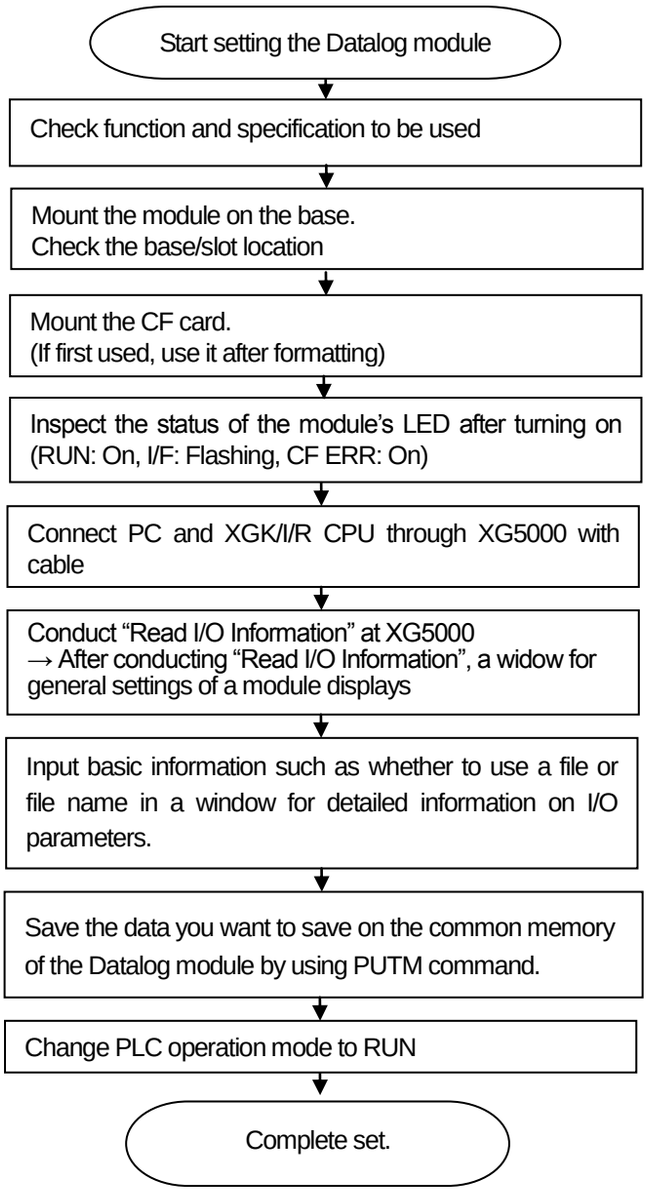


Chapter 4 Setting Sequence

This chapter describes setting sequence and method in the system using the Datalog module.

4.1 Sequence of Setting the Datalog Module

To operate the Datalog module, set the module as follows:

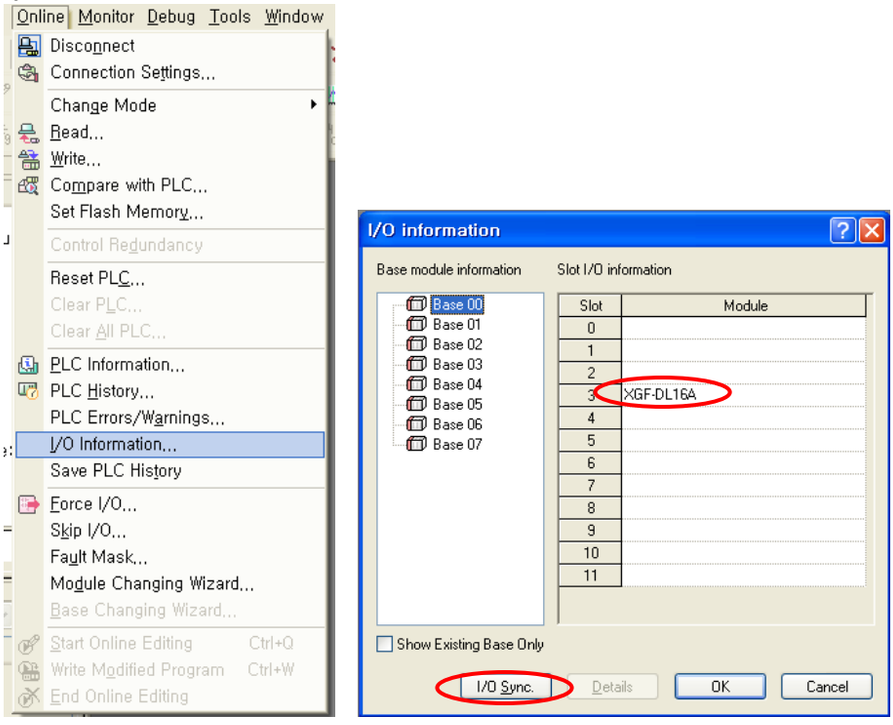


Note

1) For CF card and USB memory format, use format functions provided by Windows.
2) USB memory is used to duplicate the data saved on CF card.

4.2 Method to Set Datalog Module

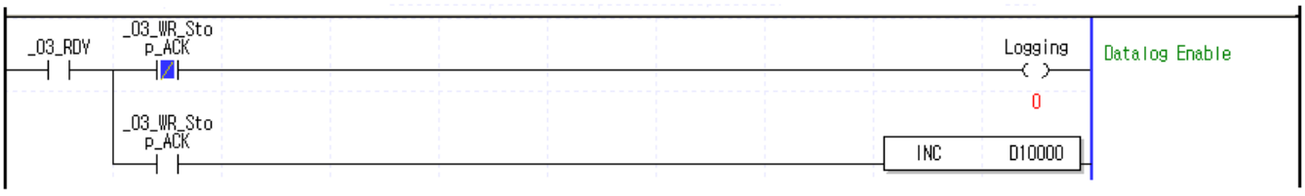
1) Turn on after mounting the Datalog module. Check whether the datalog module is recognized by CPU. It can be checked with I/O information. If you access to [Menu] – [Online] – [I/O Information], the following 'Base Module Information' window will be displayed.



<Figure4.1 Method to Check I/O Information>

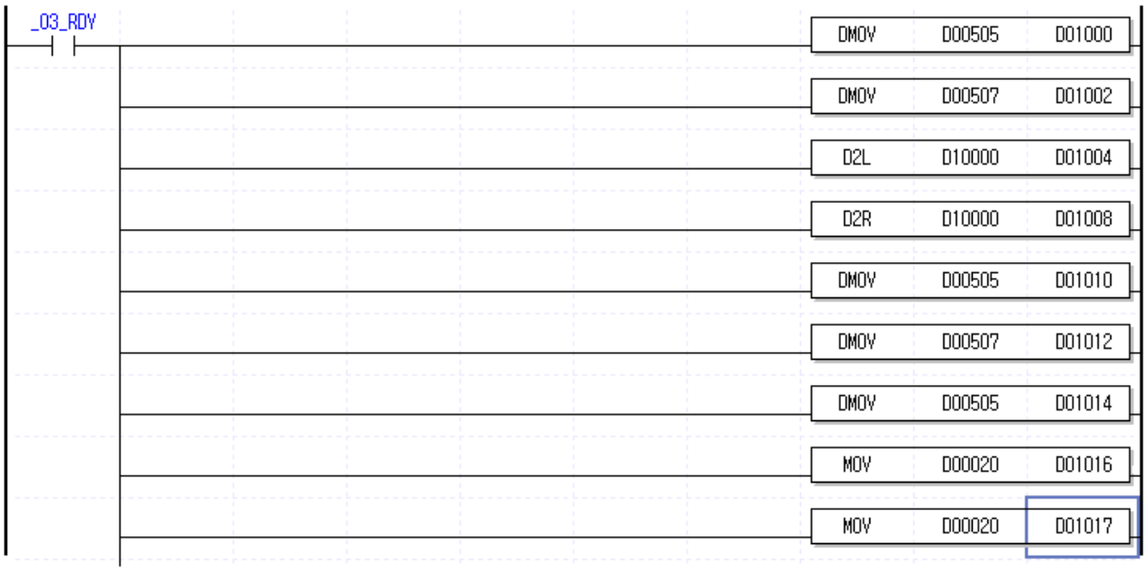
If nothing is recognized even the Datalog module is connected, reset CPU module. If something is wrong with the slot, select and modify I/O Synchronization.

2) If the Datalog module does not mount CF card, any data cannot be saved since the ready contact of the datalog module does not turn on. To use the module, Windows should mount CF card that has been formatted in FAT32.



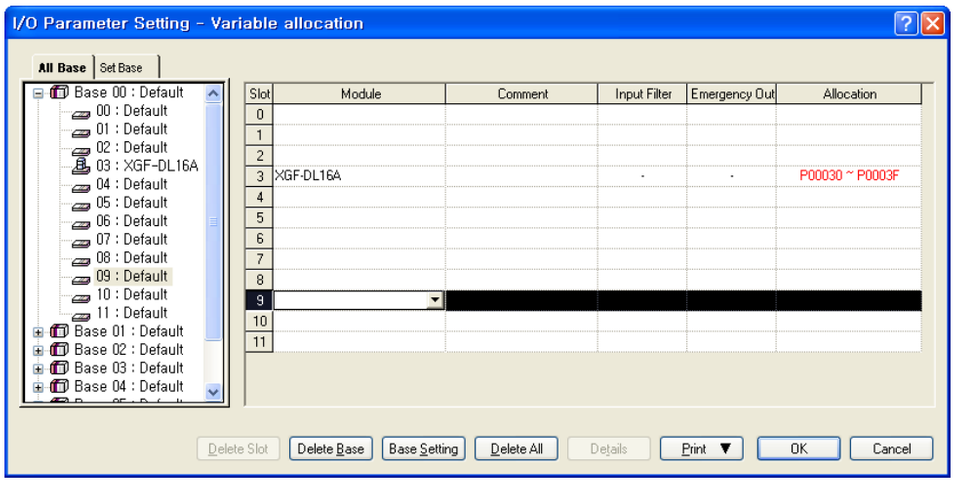
<Figure4.2 Data Saving Program >

3) After preparing a program, input parameter values of the Datalog module. Data based on the prepared program shall be inputted. The datalog module is saved in the unit of WORD, and if it is DWORD, data values shall be saved after they are assigned to two device areas and parameter values are set.



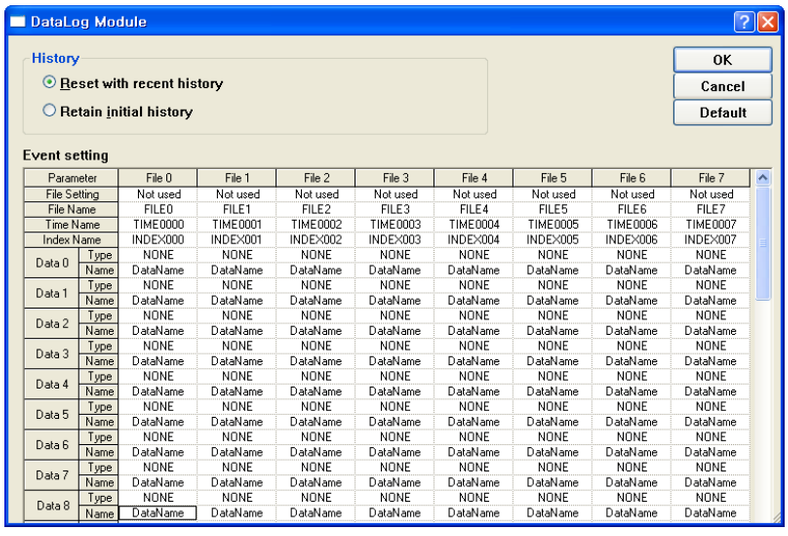
<Figure 4.3 Program to Save Data>

4) To input parameters, press [Project Window]-[I/O Parameter] and make a window as seen in <Figure 4.4> below appear.



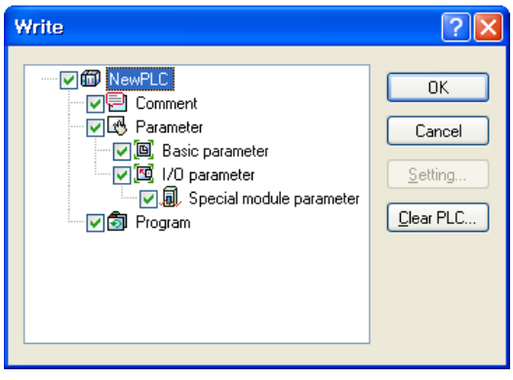
<Figure 4.4 Screen to Set the Datalog Module I/O Parameters>

5) If the Datalog module mounted to the slot is clicked, a window as seen <Figure 4.5> below will appear.



<Figure 4.5 Screen to set the Datalog module parameters>

6) Set based on the prepared program when inputting parameter. Set according to whether to use total 8files and it is also possible to save data per file. Each data type and data saving name can be set.



<Figure 4.6 Screen to Write XG5000 File>

7) After inputting parameters, make sure to select [Write] menu and input parameter values to PLC. If this process is omitted, the module does not run normally since any parameter value does not apply to PLC.

Chapter 5 Input/Output Signal of Datalog module

5.1 Input/Output Signal of Datalog module

5.1.1 Input/Output Signal

Input/Output signal statement of Datalog module for PLC CPU is shown as in the following table.
Input the number of the slot mounted to the Datalog module to'y' when using XGK/I/R CPU.

Variable Name	Type	Device Allocation		Description	Read /Write	Signal Direction
		XGK	XGI/R			
_0y_ERR	BIT	U0y.00.0	%UX0.y.0	Module error	Read	XGF-DL16A → CPU
_0y_WR_Stop_ACK	BIT	U0y.00.4	%UX0.y.4	CF Write Stop ACK		
_0y_CF_Exist	BIT	U0y.00.5	%UX0.y.5	Whether to mount CF card		
_0y_USB_Exist	BIT	U0y.00.6	%UX0.y.6	Whether to mount USB memory		
_0y_USB_Write_End	BIT	U0y.00.7	%UX0.y.7	Completion of USB memory backup		
_0y_RDY	BIT	U0y.00.F	%UX0.y.15	module Ready		
_0y_File0_Full	BIT	U0y.01.0	%UX0.y.16	File #0 error(Excessive capacity, etc)		
_0y_File1_Full	BIT	U0y.01.1	%UX0.y.17	File #1 error(Excessive capacity, etc)		
_0y_File2_Full	BIT	U0y.01.2	%UX0.y.18	File #2 error(Excessive capacity, etc)		
_0y_File3_Full	BIT	U0y.01.3	%UX0.y.19	File #3 error(Excessive capacity, etc)		
_0y_File4_Full	BIT	U0y.01.4	%UX0.y.20	File #4 error(Excessive capacity, etc)		
_0y_File5_Full	BIT	U0y.01.5	%UX0.y.21	File #5 error(Excessive capacity, etc)		
_0y_File6_Full	BIT	U0y.01.6	%UX0.y.22	File #6 error(Excessive capacity, etc)		
_0y_File7_Full	BIT	U0y.01.7	%UX0.y.23	File #7 error(Excessive capacity, etc)		
_0y_File_S_Done	BIT	U0y.01.8	%UX0.y.24	Search is completed		
_0y_File_S_Fail	BIT	U0y.01.9	%UX0.y.25	Search is failed		
_0y_File0_OV_Num	WORD	U0y.02	%UW0.y.2	File #0 Write OVER CNT		
_0y_File1_OV_Num	WORD	U0y.03	%UW0.y.3	File #1 Write OVER CNT		
_0y_File2_OV_Num	WORD	U0y.04	%UW0.y.4	File #2 Write OVER CNT		
_0y_File3_OV_Num	WORD	U0y.05	%UW0.y.5	File #3 Write OVER CNT		
_0y_File4_OV_Num	WORD	U0y.06	%UW0.y.6	File #4 Write OVER CNT		
_0y_File5_OV_Num	WORD	U0y.07	%UW0.y.7	File #5 Write OVER CNT		
_0y_File6_OV_Num	WORD	U0y.08	%UW0.y.8	File #6 Write OVER CNT		
_0y_File7_OV_Num	WORD	U0y.09	%UW0.y.9	File #7 Write OVER CNT		
_0y_File0_CNT	WORD	U0y.10	%UW0.y.10	File #0 Write Count		
_0y_File1_CNT	WORD	U0y.11	%UW0.y.11	File #1 Write Count		
_0y_File2_CNT	WORD	U0y.12	%UW0.y.12	File #2 Write Count		
_0y_File3_CNT	WORD	U0y.13	%UW0.y.13	File #3 Write Count		
_0y_File4_CNT	WORD	U0y.14	%UW0.y.14	File #4 Write Count		
_0y_File5_CNT	WORD	U0y.15	%UW0.y.15	File #5 Write Count		
_0y_File6_CNT	WORD	U0y.16	%UW0.y.16	File #6 Write Count		
_0y_File7_CNT	WORD	U0y.17	%UW0.y.17	File #7 Write Count		
_0y_Search_Num	DWORD	U0y.18	%UD0.y.18	Index number detected by RTC		
_0y_ONE_ROW_SIZE	WORD	U0y.20	%UW0.y.20	One row size		

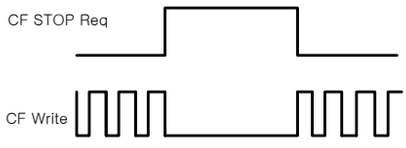
Variable Name	Type	Device Allocation		Description	Read /Write	Signal Direction
		XGK	XGI/R			
_0y_File0_W_Req	BIT	U0y.22.0	%UX0.y.352	Request to write File #0	Write	CPU → XGF-DL16A
_0y_File1_W_Req	BIT	U0y.22.1	%UX0.y.353	Request to write File #1		
_0y_File2_W_Req	BIT	U0y.22.2	%UX0.y.354	Request to write File #2		
_0y_File3_W_Req	BIT	U0y.22.3	%UX0.y.355	Request to write File #3		
_0y_File4_W_Req	BIT	U0y.22.4	%UX0.y.356	Request to write File #4		
_0y_File5_W_Req	BIT	U0y.22.5	%UX0.y.357	Request to write File #5		
_0y_File6_W_Req	BIT	U0y.22.6	%UX0.y.358	Request to write File #6		
_0y_File7_W_Req	BIT	U0y.22.7	%UX0.y.359	Request to write File #7		
_0y_WR_Stop_Req	BIT	U0y.22.8	%UX0.y.360	Request to stop writing CF card		
_0y_USB_Write_Req	BIT	U0y.22.9	%UX0.y.361	Request to write USB memory		
_0y_File_Index_Req	BIT	U0y.22.A	%UX0.y.362	Request to search INDEX conditions		
_0y_File_RTC_Req	BIT	U0y.22.B	%UX0.y.363	Request to search RTC conditions		
_0y_File_S_Kind	WORD	U0y.23	%UW.y.23	Selet File (Group No. 0~7)		
_0y_File_S_INDEX	DWORD	U0y.24	%UD.y.24	Index input		
_0y_File_S_YEAR	WORD	U0y.26	%UW.y.26	RTC input(year/month)		
_0y_File_S_DAY	WORD	U0y.27	%UW.y.27	RTC input(date)		
_0y_File_S_MINUTE	WORD	U0y.28	%UW.y.28	RTC input(minute/second)		
No flag	WORD	U0y.29	%UW.y.29	Year/month/day		
	WORD	U0y.30	%UW.y.30	second / ms		
	WORD	U0y.31	%UW.y.31	hour/minute		

5.1.2 Description of Input/Output Signals

Input/Output signal names of the Datalog module are as following.

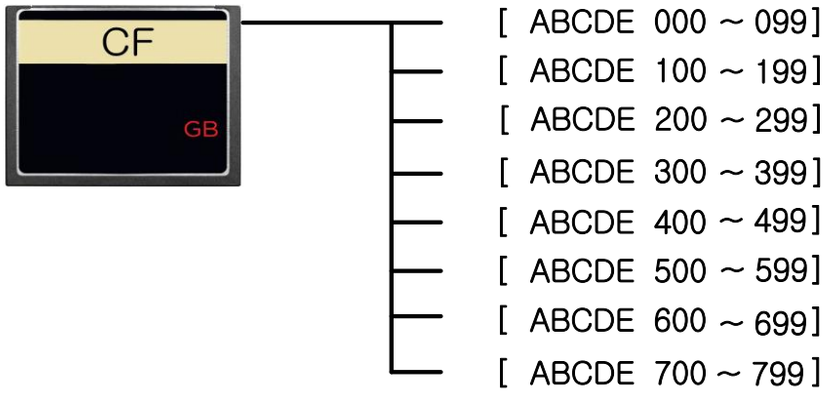
1) Description of Input/Output Signals

Device No. (XGK)		Signal Name	Description
Common	U0y.00.0	Module error	On: A module error takes place
	U0y.00.5	Whether to mount CF card	On/ Off: Contact to check the connection status of CF card
	U0y.00.6	Whether to mount USB memory	On/ Off: Contact to check the connection status of USB memory
	U0y.00.F	Module Ready	On: Module is ready, Check the Datalog module for its normal action
	U0y.01.0~7	File error	On: A file error takes place (Exceeding the reference saving time)
	U0y.01.8	Search is completed	On: Search is successfully completed
	U0y.01.9	Search is failed	On: When search is failed
	U0y.22.A	Request to search INDEX conditions	On: File search upon request for searching index conditions
	U0y.22.B	Request to search RTC conditions	On: File search upon request for searching RTC conditions
	U0y.23	Designate a search group	Designate a relevant group to search a file
	U0y.24~28	Data parameter to be searched	Input data parameters to be searched
	U0y.20	One row size	The size of a data row whose search is completed appears
	U0y.18	Index number	Index number appears as a result of RTC search

Device No.(XGK)		Signal Name	Description
CF & USB	U0y.22.0~7	Request to write File	Request to write File #NO.
	U0y.02~09	File Write OVER CNT	If there is insufficient scan time of the current using group, the counter begins to go up. More than 40Kbyte data per counter cannot be saved on CF card. If this counter increases, extend the scan time to prevent the counter from increasing.
	U0y.10~17	Number of the saved data files	Number of files used until now
	U0y.22.0	CF Write Stop Request	If turning CF Write Stop Request on while writing CF card, writing data on CF card is not allowed anymore and if turning this signal Off once again, writing a file can be written on CF card. 

5.2 File Configuration

The figure below shows file configuration of CF card and USB memory mounted to the Datalog module.



<Figure 5.1 File Configuration of CF Card>

File name is displayed without any additional directory. Total 800 files can be produced at maximum by distinguishing Group #0~7. (CF card capacity: Maximum 16Gbyte, File: Maximum 16Mbyte)

5.3 CSV File Format

5.3.1 Format Specification of CSV File

Item Name	Description
Distinguishing Letter	Comma (,)
Row Shift Code	CR, LF(0x0D, 0x0A)
Letter Code	ASCII code
Field Data	Double quotation mark (“) or comma (,) cannot be used for each date.
File Size	Maximum 16Mbyte(per file)

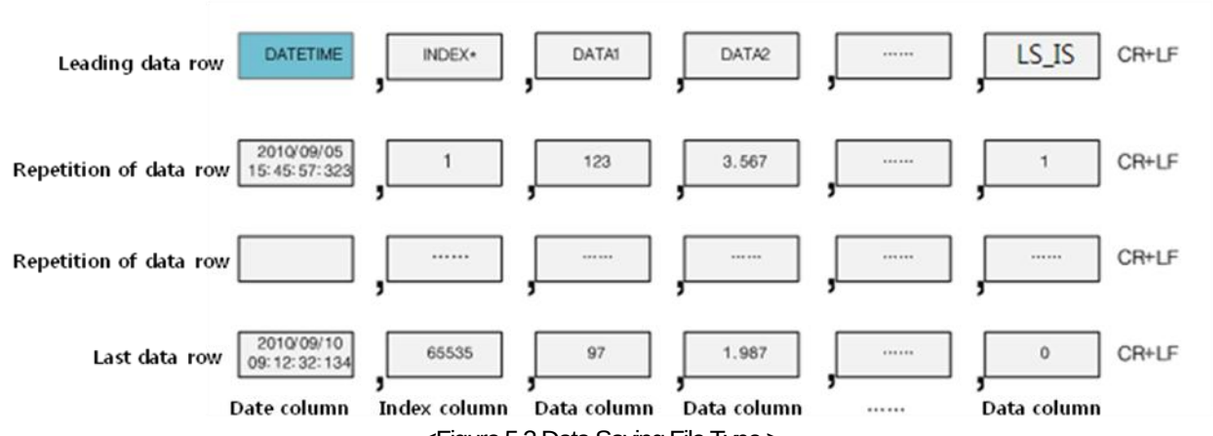
Note

1) If the size of a file is maximum 16Mbyte or higher, data is saved after the next file name.

5.3.2 Data Saving File

1)Format Introduction

It shows a data saving type.



<Figure 5.2 Data Saving File Type >

Note

1) Index represents the number of the saved data.
2) DATA1, DATA2, …, DATA32 shows data names.

2)Item Description

(1) Leading Data Row

Column Name	Output Content	Size (Word)
Date Column	Express date and time with fixed letters	5
Index Column	The number of data to be saved appears	2
Data Column	Output 「Data Name」 designed in data setting	1~32 (Follow parameter settings)

(2) Repetition of Data Row

Column Name	Output Content		Size (Byte)
Date Column	Date in an output format that has been set when setting CSV output is outputted. Ex) 2011/11/15 10:15:20:243		24
Index Column	Values counted starting from 0 in ascending order are outputted.		8
Data Column	BOOL	0 or 1	2
	BYTE	00~FF	3
	WORD	0000~FFFF	5
	DWORD	00000000 ~ FFFFFFFF	9
	LWORD	00000000 00000000 ~ FFFFFFFF FFFFFFFF	17
	SINT	-128 ~ 127	5
	INT	-32,768 ~ 32,767	7
	DINT	-2,147,483,648 ~ 2,147,483,647	12
	LINT	-576,460,752,303,423,488 ~ 576,460,752,303,423,487	21
	USINT	0 ~ 255	4
	UINT	0 ~ 65,535	6
	UDINT	0 ~ 4,294,967,295	11
	ULINT	0 ~ 1,152,921,504,606,846,975	20
	REAL	-3.402823466e+038 ~ -1.175494351e-038 or 0 or 1.175494351e-038 ~ 3.402823466e+038	17
	LREAL	-1.7976931348623157e+308 ~ -2.2250738585072014e-308 or 0 or 2.2250738585072014e-308 ~ 1.7976931348623157e+308	24
	STRING	Fixed letters (Maximum 8 letters)	9

Chapter 6 Data Saving Function

This chapter describes data saving function of the datalog module.

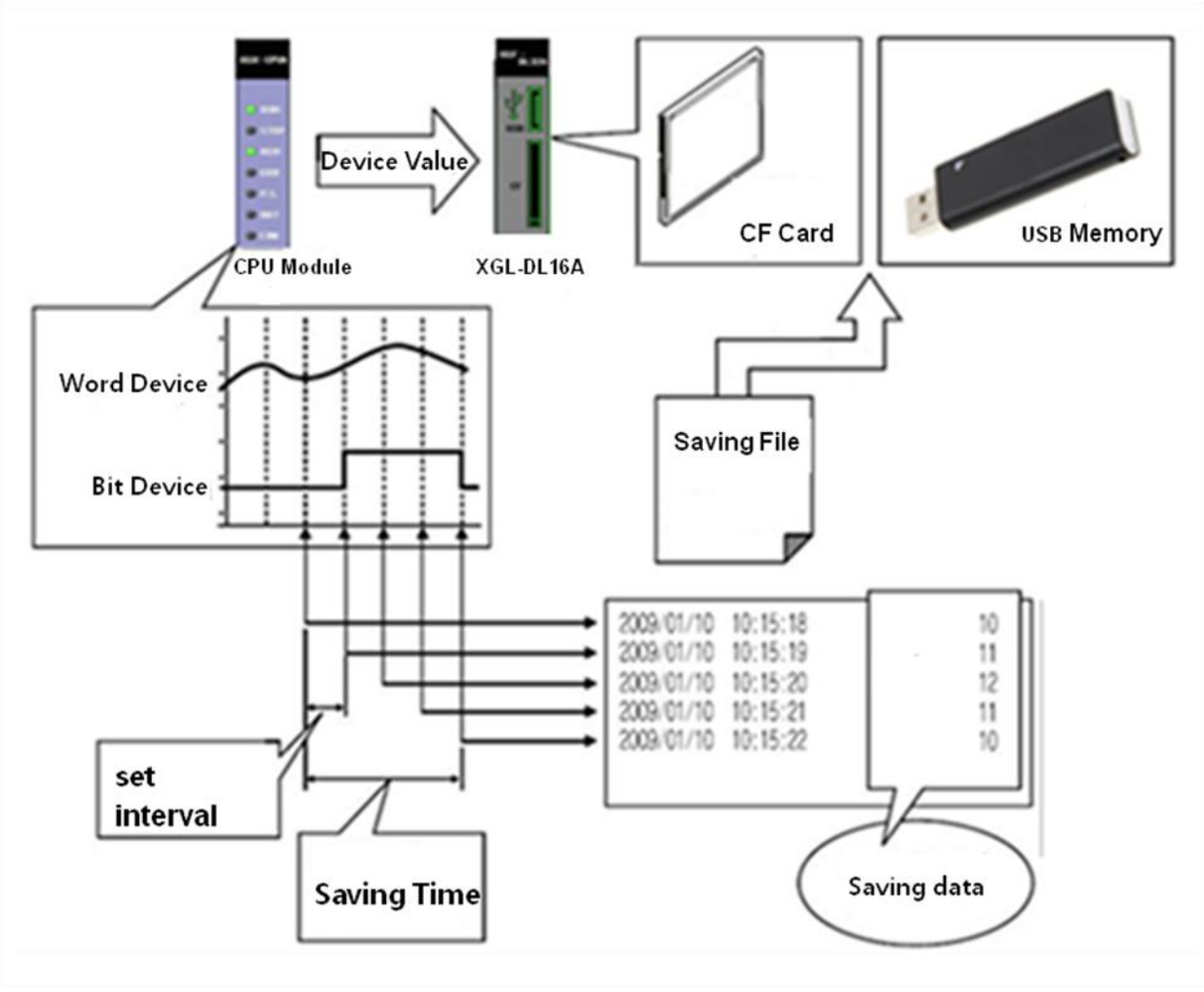
Item Name	Description
Data Saving	PLC CPU's device values are saved at a set interval. Function to save data in a form of CSV type on CF card and USB memory.
Saving through Ladder program	Function to save PLC CPU's device values on the ladder program at a set interval.

* When use fixed cycle, Please check execution speed of instruction.

Data saving is a function to save PLC CPU's device values at a set interval.

Relevant data are saved on CF card mounted to the datalog module.

(USB memory is used to duplicate data that has been saved on CF card)



<Figure 6.1 Introduction of Saving Functions of the Datalog Module >

6.1 Saving Data

Saving data and data type are described.

1) Saving Data

Data to be saved on CF card and USB memory

2) Data Type

Saving data can be saved in the data type below.

Data Type	Size (BYTE including ‘,’)
BIT	2
BYTE	3
WORD	5
DWROD	9
LWORD	17
SINT	5
INT	7
DINT	12
LINT	21
USINT	4
UINT	6
UDINT	11
ULINT	20
REAL	17
LREAL	24
STRING	9

When REAL and LREAL are inputted, WORD and DWORD are converted to INT and DINT values respectively and then that are saved..

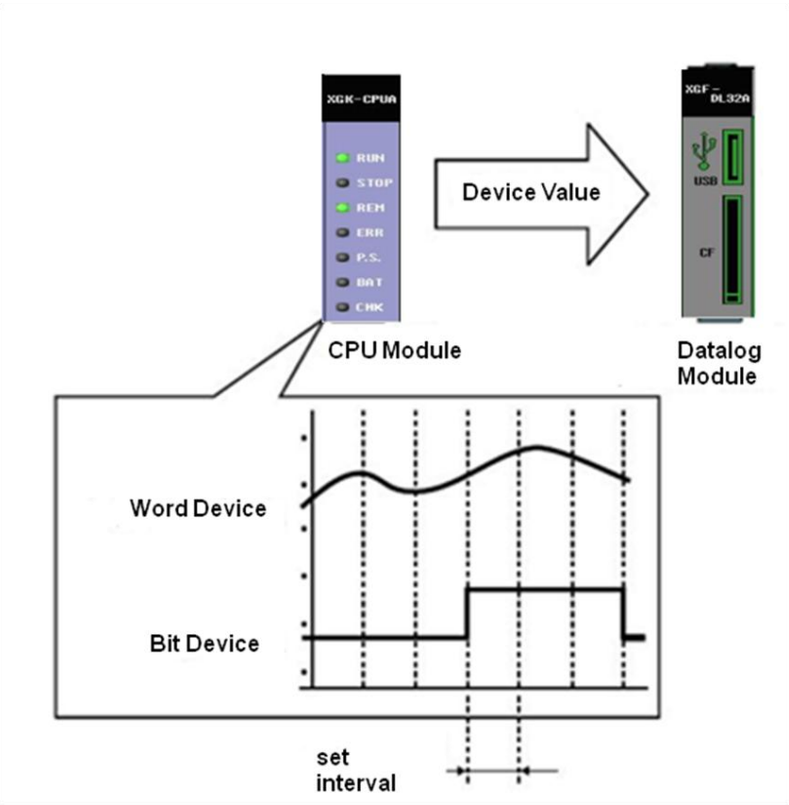
During STRING conversion, only capital letters and numbers are converted and other strings are saved as blanks.

6.2 Data Saving

It describes saving methods and timing of data.

6.2.1 Data Saving Method

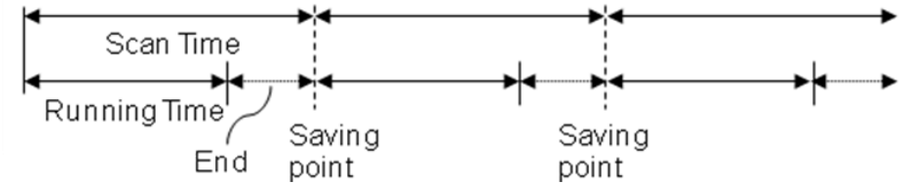
Saving Method	Introduction
Saving by the ladder program	Designate a scan time by the PLC ladder program to save data. Data can be saved by making them into a ladder program.



<Figure 6.2 Data Saving Interval>

6.2.2 Scan Time Data Saving

Compared with scan time, timing to save data is as following:

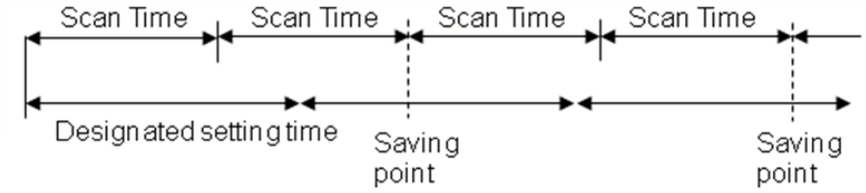


<Figure 6.3 Data Saving Timing>

6.2.3 Data Saving at a task Interval

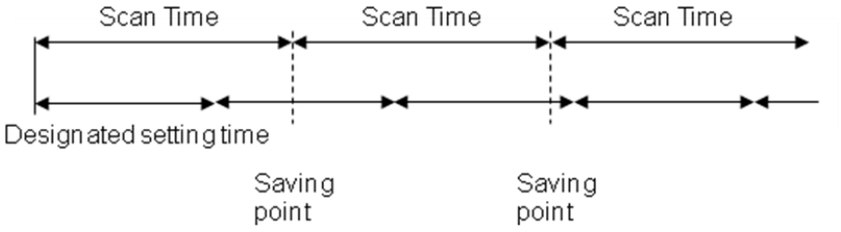
Data are saved at a designated interval (A task interval) scan on PLC CPU.

1) In case scan time is shorter than the designated interval



<Figure 6.4 Data Saving Timing (Scan Time< Setting Interval Time)>

2) In case scan time is longer than the designated interval

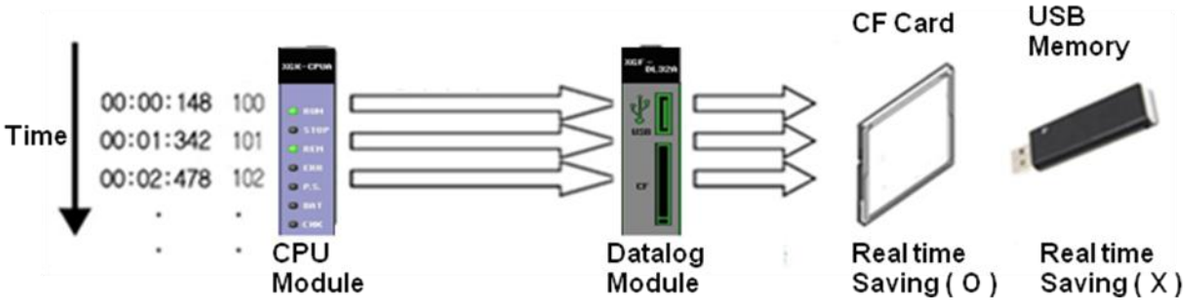


<Figure 6.5 Data Saving Timing (Scan Time> Setting Interval Time)>

6.3 Saving Method

6.3.1 Saving Designated by the Ladder program

CPU module's device values are consecutively saved at a designated interval by the ladder program.
If USB file backup is connected with USB memory, files on CF memory can be duplicated on USB memory.
(USB backup is impossible in high vibration environments and it is necessary to check data directly through CF memory)
But, only the files written until the time when connection is available can be duplicated and CF file saving speed may be getting a little bit slower than normal times during the USB file backup.



<Figure 6.6 Data Saving Process (Real-Time Saving)>

6.4 Data Saving File

It describes data saving files.

6.4.1 Saving Type of Data Saving File

Data saving files can be saved in csv file type.

· CSB file type (extension: *.csv)

CSV file type is a file type that can be opened through universal applications such as Excel and memo pad.

6.4.2 Saving Method of Data Saving File

The datalog module saves relevant data on CF card mounted to the datalog module.

USB memory has a function to backup the contents of CF card, which is being saved in real-time whenever the user wants.

6.4.3 Saving CF Card Initialized File

Assign a saving area by making a file that will hide 0Kbyte only limited to CF card if the user formats CF card and then connects with the datalog module. The number of file s to be generated may vary depending on CF card capacity and also generation time may be different.

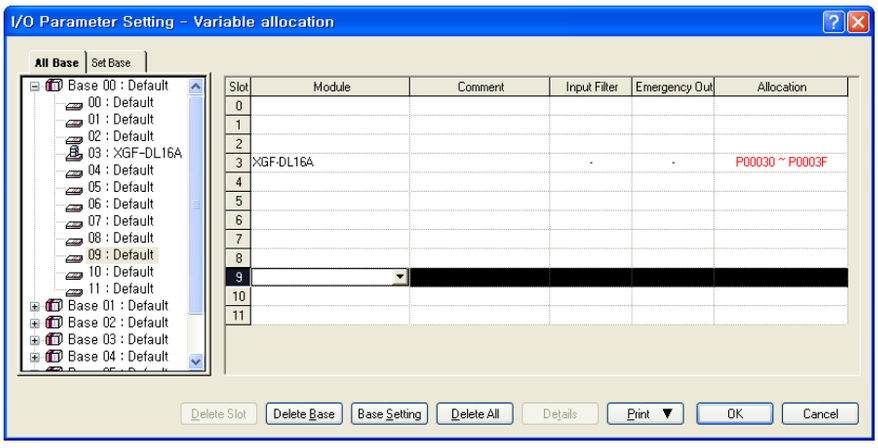
The table below shows the number of files and generation time of initialized files according to capacity.

Item \ Capacity	1Gbyte	2Gbyte	4Gbyte	8Gbyte	16Gbyte
The number of Initialized Files	40	80	200	400	800
File Generation Time	10 seconds	20 seconds	40 seconds	60 seconds	120 seconds

Data specified in the table above are the ones measured based on Transcend's industrial CF card and they contain time to take for importing CF card file system before writing a new file. Even through time may different according to CF card, the number of initialized files shall not be changed.

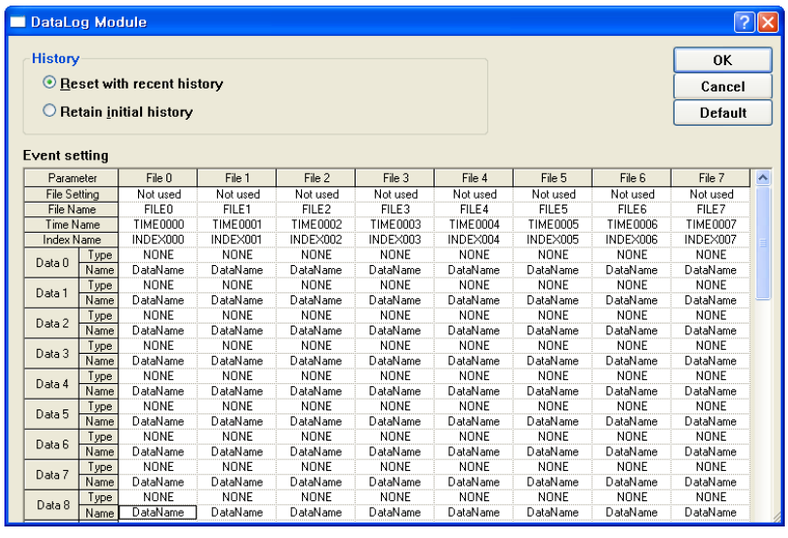
6.4.4 Inputting I/O Parameter

To save data on the datalog module, input I/O parameters. If I/O parameters are executed, the following window will appear. Once slots connected with the datalog module are displayed, select a slot and then double click or press the detailed menu to input parameters.



<Figure 6.7 Screen to Set I/O Parameters>

(Note) When inputting I/O parameters, If any parameter is inputted without mounting the datalog module or inputting is tried through activating additional modules, parameter errors may take place. For example, if a module is mounted to No. 3 slot and parameter values are inputted only for No. 3 slot, it will work normally. But, if a module is activated and then parameter values are inputted in other slots, error may take place.



<Figure 6.8 Screen to Input Parameter>

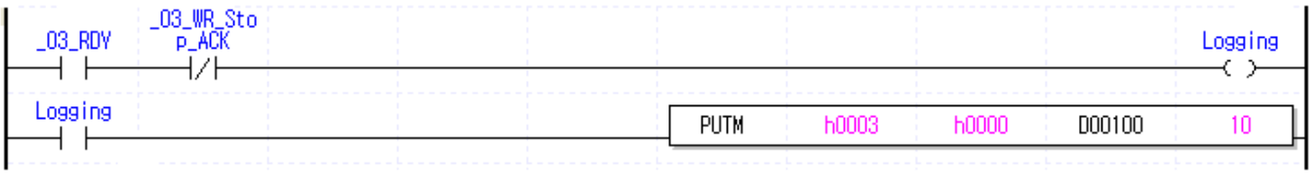
A screen to input parameters is as seen in Figure 6.8 and it is divided into setting a file to be saved, name and data.
For file setting, up to files can be set to be saved at the same time and for data, data is selectable for each type specified earlier. Since the extent to which saving is performed may vary according to data types, the parameter type inputted shall be matched with the ladder program.
Basically, use capital letters when inputting parameters. Special letters are not allowed. In addition, use up to 5 letters to input a file name and if small letters or less than 5 letters are inputted, small letters are automatically converted to capital letters and '_'is written in any empty space to fill up 5 letters instead of inputting less than 5 letters.

For inputting parameters, even though it is possible to save data after setting at first, saving is performed with the modified file next to the saved one after changing and applying parameter values during the operation. That is, if parameters are changed, the next file will be saved even though the file does not exceed 16Mbyte..

6.5 Application Example

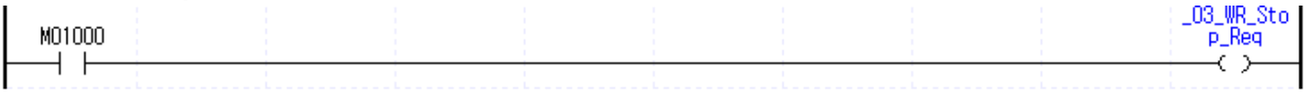
Ex1) Process to Write a File on CF card

Contact: _0y_RDY (U0y.00.F). _0y_WR_Stop_ACK (U0y.00.4)
Request for writing file #0 ~7. Requesting for writing in bit is repeated while data are saved.
If contact is On, input slot, address, data saving values and saving scope through PUMT commands to save data. Address numbers are divided h0000, h0040, h0080, h00C0, H0100, H0140 and h01C0 based on NO. 0 group as mentioned earlier and they are divided as much as 64 Byte in Hex values.



Ex2) Stop Writing a File

Contact: 0y_WR_Stop_Req(U0y.22.8)
As CF Write Stop ACK, the datalog module does not receive any data. If this bit is 1, writing is stopped and if it is 0, writing is resumed.



Ex3) File Backup on USB memory

USB backup works once USB memory is mounted to the datalog module. If CF card has many data to save, USB memory's initialization time may be longer and also initialization time may vary according to USB capacity.

Ex4) Checking the current number of files

Contact: _0y_File0_CNT
The number of files for each group of the current CF card can be known. The number of files written on the module mounted to NO. 3 slot can be checked as seen in the figure below.

1	NewPLC	WORD	U03.10	HEX	_03_File0_CNT	Datalog Module : The Number of File #0 Write

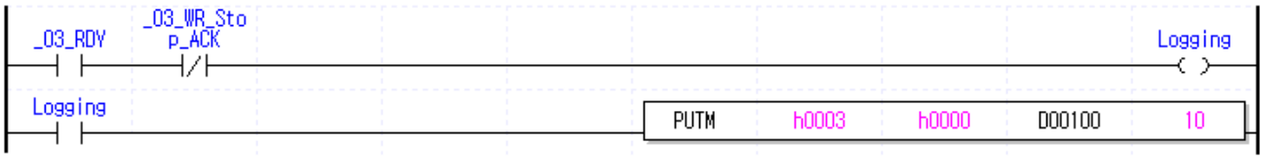
Ex5) Checking whether data is delayed due to insufficient scan time when saving data.

Contact: _0y_File0_Full
It expresses cases when CF card is not properly written since scan time during the data saving is less sufficient than the time to take to save data.
If this contact value increases, it means that time to save data is insufficient. Therefore, extend a saving interval to secure a plenty of time to save data.

2	NewPLC	WORD	U03.02	HEX	_03_File0_OV_Num	Datalog Module : Overflow Size of File #0 Write

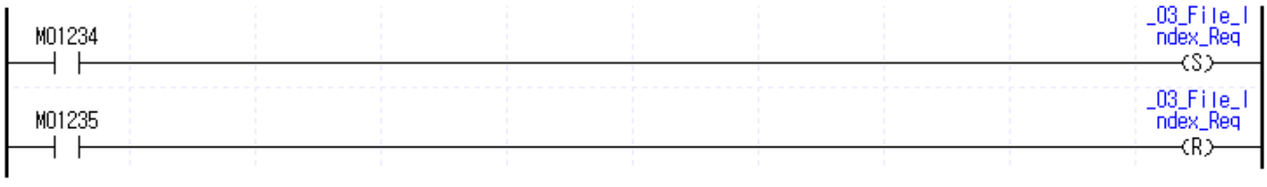
Ex6) Stop saving data when CF memory is not mounted

Contact: _0y_RDY
It does not work when CF card is not mounted. Only when CF card is mounted, RDY contact is On.

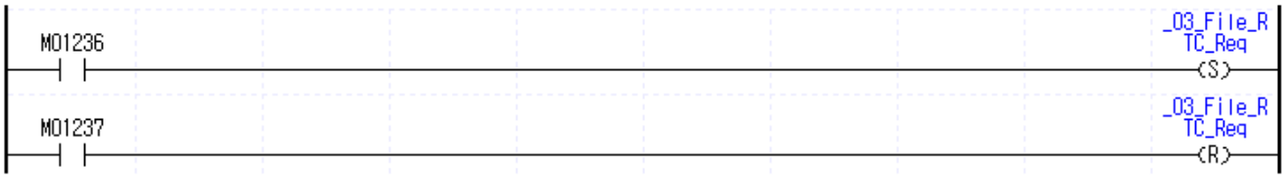


Ex7) Selecting Index, RTC File search mode

Contact: _0y_File_Index_Req(U0y.22.A), _0y_File_RTC_Req(U0y.22.B)
When searching data with index values, turn on Index Search Mode U contact On.



When searching data with RTC values, turn on RTC Search Mode U contact On.



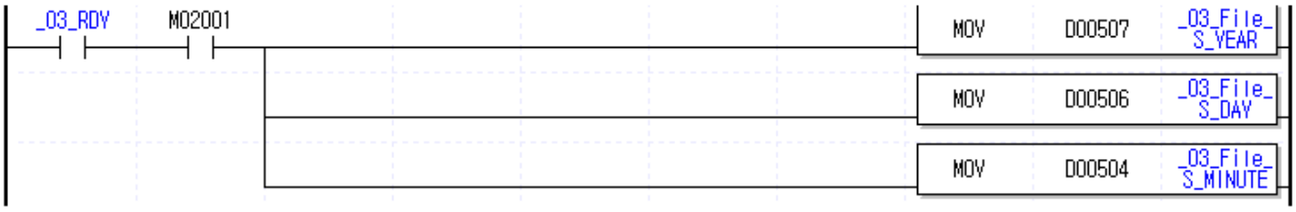
Ex8) Selecting a relevant group when searching a file

Contact: _0y_File_S_Kind(U0y.23)
When searching a file, select one group among file #0 ~7 groups and execute searching a file.

Ex9) Index and RTC values the user wants to search

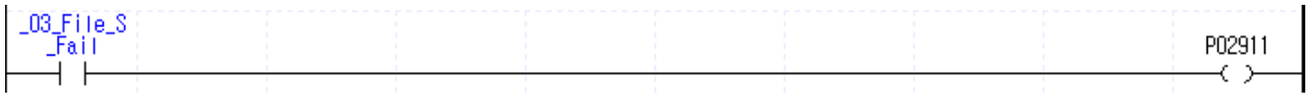
Needed contact: _0y_File_S_INDEX (U0y.24) _0y_File_S_YEAR, _0y_File_S_DAY, _0y_File_S_MINUTE (U0y.26~28)
If index, RTC values of the data the user want to search are inputted, CF card data search and display the relevant data values.
In case of index search : input the values to U0y.24 (Index values(DWORD): 12345678 -> 12345678)

In case of RTC: Use U26, U27 and U28(Ex: RTC 2011/05/04/ 17:30:35) Input Hex values.
-> Input Hex values in h1105(year/month), h0417(day/hour), h3035(minute/second)



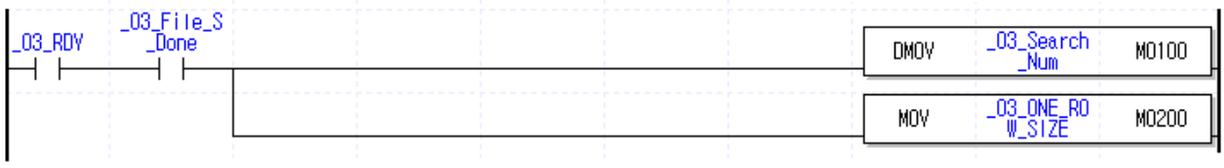
Ex10) Checking that search is failed

If data values saved on CF card are beyond the designated range or parameter values that do not exist are inputted, 'Search is Failed' contact is On.



Ex11) Checking the searched data Index values and its size values

If parameters are inputted to relevant U areas and search is requested, search is proceeding until search is completed and U0y.01.8(File_S_Done) contact is On. If the contact above is On, it is possible to check the searched index values and its data size through U0y.18, U0y.20 contact.



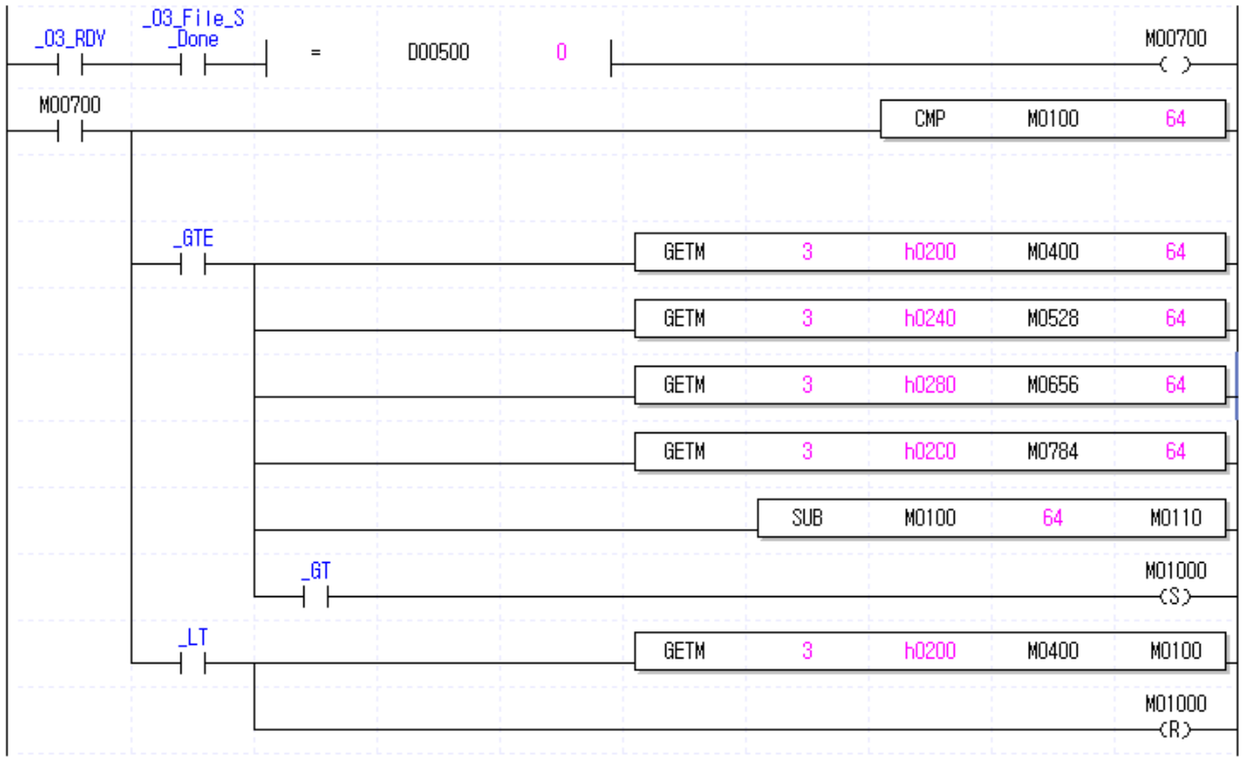
Ex12) Caution in Inputting Search Parameter

It describes actions when index values and RTC values do not match with CF card's data in searching data.

1) In case that index values do not match: Search is failed, contact is On and search is not performed.
2) In case that RTC values that are not saved on CF card are inputted: Search Fail Contact is On and search is not completed.
3) In case that search is requested within RTC range saved on CF card: RTC values requested for search are drawn as search results. But, search up to second unit is available.

Ex13) Importing the searched data(From CF card to XG5000 device)

If search is completed after parameters are inputted, it is possible to monitor searched data.
When importing search results, they can be monitored through the following programs. The searched data on CF Card are saved in common memory h0200, h240, h280 and h2C0 respectively. It is possible to monitor the results only after the values saved on common memory are imported to GETM.

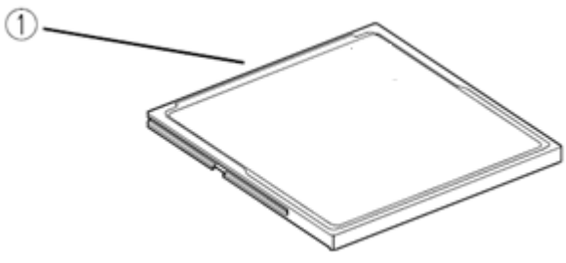


Chapter 7 CF Card

7.1 CF card

Item	Description
Type Name	CF200I(Transcend's Industrial CF card)
Memory Capacity	1, 2, 4, 8, 16(Gbyte) (Caution: CF card of more over 16Gbyte cannot be used)
Times of Mounting/disconnecting	10,000 times

7.2 Name of CF Card Part



NO.	Name	Description
①	Connector	For connecting with CF memory interface It consists of 50 pins

7.3 Cautions in Using CF Card

When using CF card, the following cautions shall be taken:

7.3.1 CF Card /Folder Name

Do not prepare file or folder within CF card on PC.
In case that a file or folder is prepared on PC's CF card and then it is mounted to the datalog module, CF ERR LED may be turned on.
When mounting for the first time, mount it after formatting on Windows.

7.3.2 When Disconnecting or Replacing CF Card

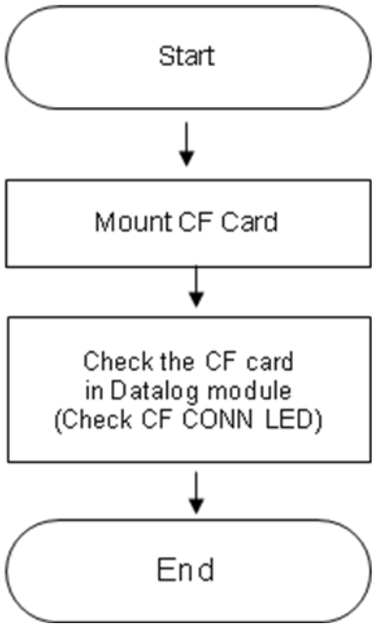
Make sure to stop file accessing to a file before disconnecting or replacing CF card.
If the sequence specified in 7.5 is not complied, it may cause damage to the processing data or accessing data on USB memory or some errors may take place from the file system.

7.3.3 CF Card Capacity

Access speed for CF card is affected by the saved file capacity.
Especially, if a file is saved up to the limit of CF card's capacity, access speed becomes excessively slow.
Secure an empty space of more than 10% of CF card's capacity to operate.

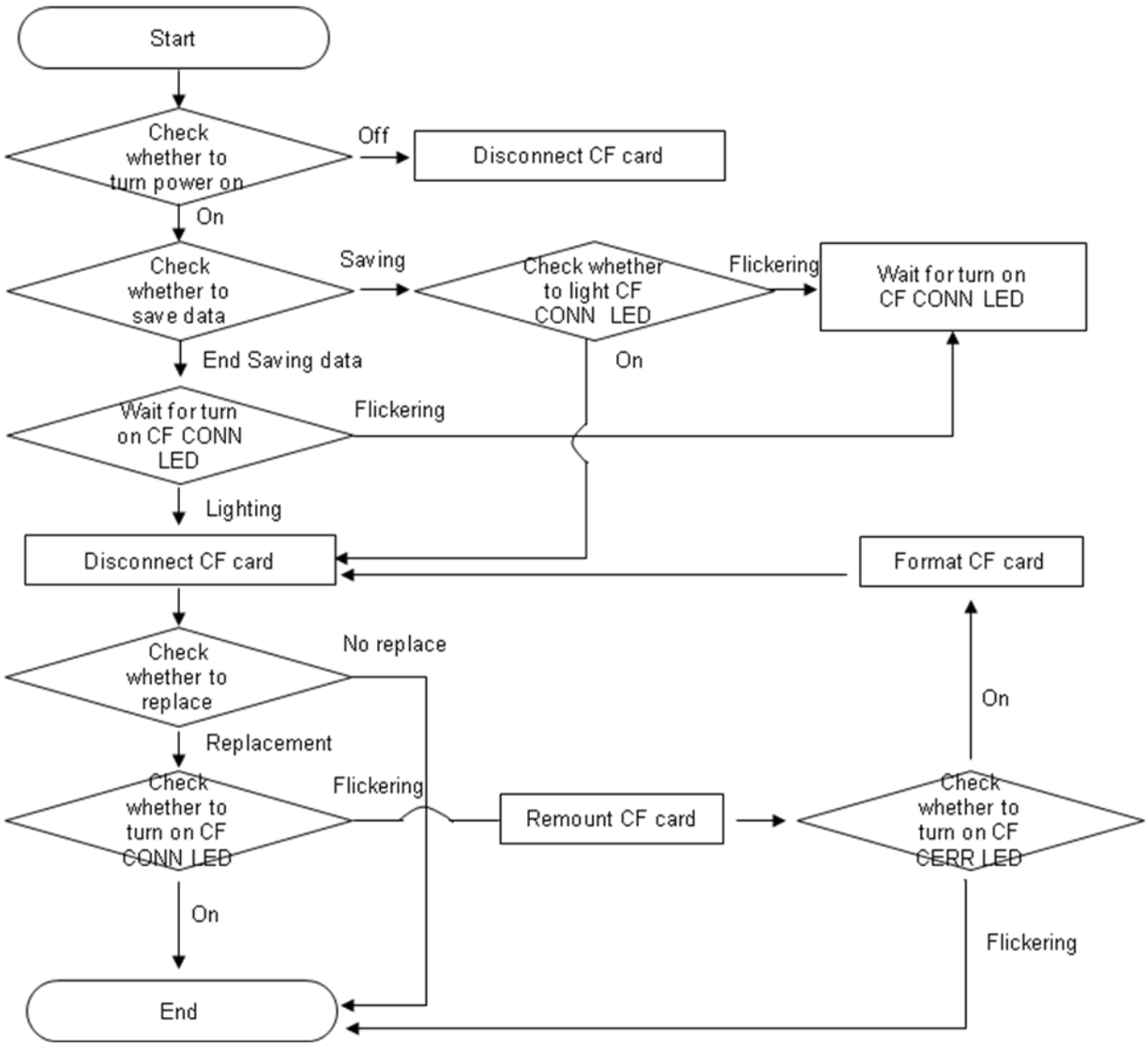
7.4 Manipulation in Mounting CF Card

How to mount CF card is described.
Check if CF card is appropriately mounted to the module.



7.5 Manipulation in Disconnect or Replace CF Card

Make sure to stop accessing to a file according to the following sequence when disconnecting or replacing CF card.



7.6 Lifetime of CF Card

CF card has a certain amount of lifetime (writing limit). How to calculate lifetime is described.
CF card shall be used within its lifetime.

7.6.1 Calculation of Lifetime

CF card's lifetime is calculated as following

	Formula
Lifetime of CF card(year)	Total Writable Size (GB) /Writing Size per year(byte/year) $\times 10^9$

7.6.2 Total Writable Size

Total writable size of CF card is as following

Type Name	Formula
Transcend Industrial Memory	16GB × 100,000 = 1,600,000

7.7 Processing Time

7.7.1 Processing Time

This chapter measures processing time needed for data saving under the following conditions and shows measuring results.
But, processing time may be longer according to the following factors

- Scan Time
- Values of relevant data (In case of CSV files, output size may vary according to the size of values)
- CF card type
- The number of files, file capacity on CF card

Measuring results shall be used based on processing time.

1) Saving by the Ladder Program

Item		Description
Access Counterpart CPU	Scan Time	More than 1ms
Data Saving Setting	Saving Kind	Consecutive Saving, Scan Time Saving
	Data	Data saving by using PUTM Data type: All of data types supported by parameters
	Saving	Timing for file conversion: 16Mbyte capacity or when reapplying parameters
	Available CF card	CF200I(Transcend's Industrial CF card)

File Type	Device Score (CF Card)				
	1ms	4ms	10ms	30ms	120ms
CSV file	4Word	16Word	64Word	256Word	1024Word
Caution	Data may be damaged if the time corresponding to device scores exceeds.				

Chapter 8 USB Memory

8.1 Caution in Using USB Memory

This chapter describes cautions in using USB memory.

8.1.1 USB Memory/Folder Name

Do not prepare file or folder within USB memory on PC.
In case that a file or folder is prepared on PC's USB memory and then it is mounted to the datalog module, CF ERR LED may be turned on. For USB backup, mount to the datalog module after formatting on Windows.

8.1.2 When Disconnecting or Replacing USB memory

1) Make sure to stop file accessing to a file before disconnecting or replacing USB memory.
2) If the sequence specified in 8.3 is not complied, it may cause damage to the processing data or accessing data on USB memory or some errors may take place from the file system.

8.1.3 USB Memory Backup

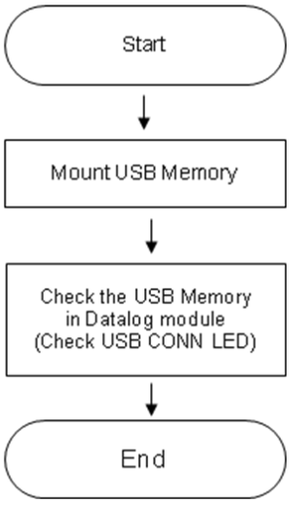
USB memory shall use larger capacity than CF card.
In USB backup, methods to use USB extension cables are not supported.
Access speed for USB memory is affected by the saved file capacity.
Secure an empty space of more than 10% of USB memory's capacity to operate.
Especially, if a file is saved as much as USB memory's capacity, access speed becomes excessively slow.

8.1.4 Use of USB memory in Vibration Environments

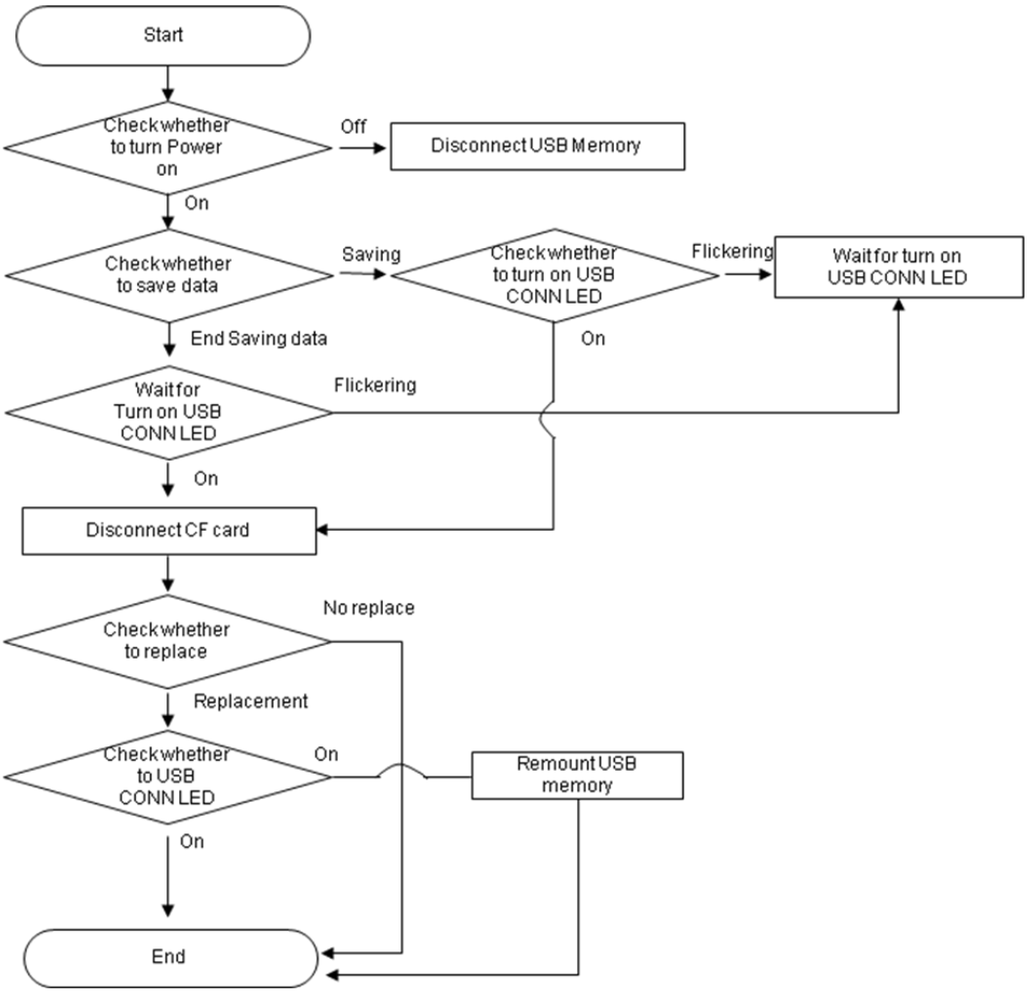
USB backup function may not work beyond the scope of vibration resistance among general standards specified in 2.1 and even though it works, any backup data on USB memory is not reliable.
When USB backup function is not performed due to excessive vibration, directly check the data saved on CF card by taking out CF card
.

8.2 Manipulation to Mount USB memory

1) How to mount USB memory is described.



2) Processes to replace USB memory are described.



8.3 Lifetime of USB Memory

USB memory has a certain amount of lifetime (writing limit). How to calculate lifetime is described.
USB memory shall be used within its lifetime.

8.3.1 Calculation of Lifetime

USB memory's lifetime is calculated as following

	Formula
Lifetime of USB memory(year)	Total Writable Size (GB) /Writing Size per year(byte/year) $\times 10^9$

8.3.2 Total Writable Size

Total writable size of USB memory is as following

	Formula
Universal USB memory	16GB × 100,000 = 1,600,000

8.4 Processing Time

8.4.1 Processing Time

This clause measures processing time needed for data saving under the following conditions and shows measuring results. But, processing time may be longer according to the following factors:

- Scan Time
- Values of relevant data(In case of CSV files, output size may vary according to the size of values)
- USB memory kind
- The number of files on USB memory, file capacity
  Measuring results shall be used based on processing time.

1) Saving by the Ladder Program

Item		Description
Data Saving Setting	Scan Time	More than 1ms
	Saving Type	Consecutive Saving, Scan Time Saving
	Data	Duplication of data in CF memory Data type: All of data types supported by parameters
	Saving	Timing for file change: 16Mbyte
	Available USB	Universal USB memory(Memorette, Sony, MelRose's USB)

USB initialization time is within 3 minutes and it takes about 1 or 2 minutes to save data of a file based on 16Mbyte.

Chapter 9 Troubleshooting

The chapter describes types of potential errors that occur while operating the system, causes of errors, how to detect them and corrective measures.

9.1 Basic Troubleshooting Procedure

To improve the reliability of a system, it is important to take a corrective measure promptly if a trouble occurs as well as to use highly reliable devices. To operate a system immediately, it is the most important to quickly detect potential causes of a trouble and take corrective measures. To troubleshoot the system correctly, make sure to take the following cautions and procedures.

(1) Check by visual inspection

Please check the followings visually.

- Operation status(Stop, Run)
- Power On/Off status
- I/O device status
- Check the status of each display(RUN, I/F, RDY, UEND, CEND, CF RD, CF WR, CF ERR, CF CONN, USB RD, USB WR, USB ERR, USB CONN) connect to peripherals and check the operation condition and program.

(2) Check any abnormality

Please observe how a fault changes by executing the followings.

- Check whether CF memory (FAT32) is formatted.

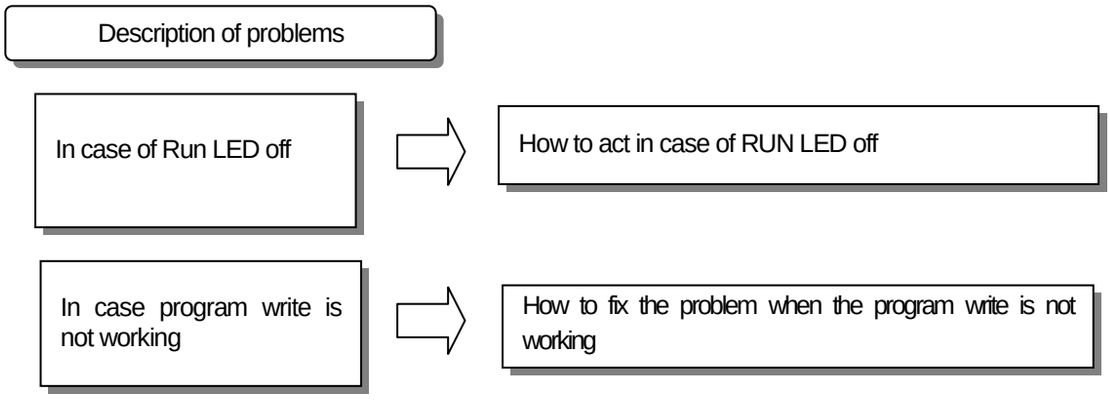
(3) Restricting Range

Estimate by which factor a fault occurs by the following methods.

- PLC Module?
- Is it from the external factor?
- I/O module or others?
- PLC program?
- etc.

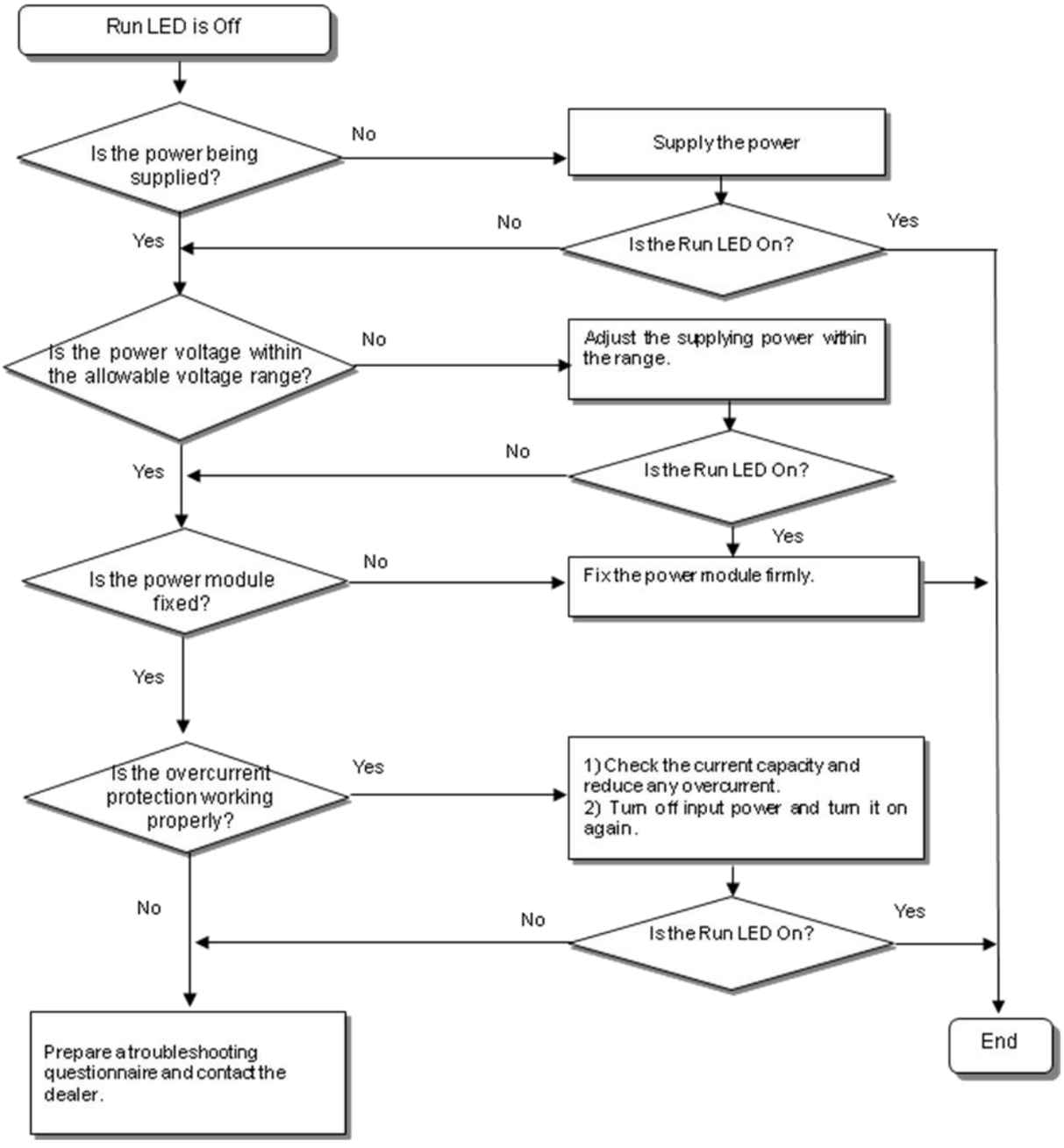
9.2 Troubleshooting

This chapter describes method to defect the problems above and error contents and remedies for each error code by categorizing them according to their symptoms.



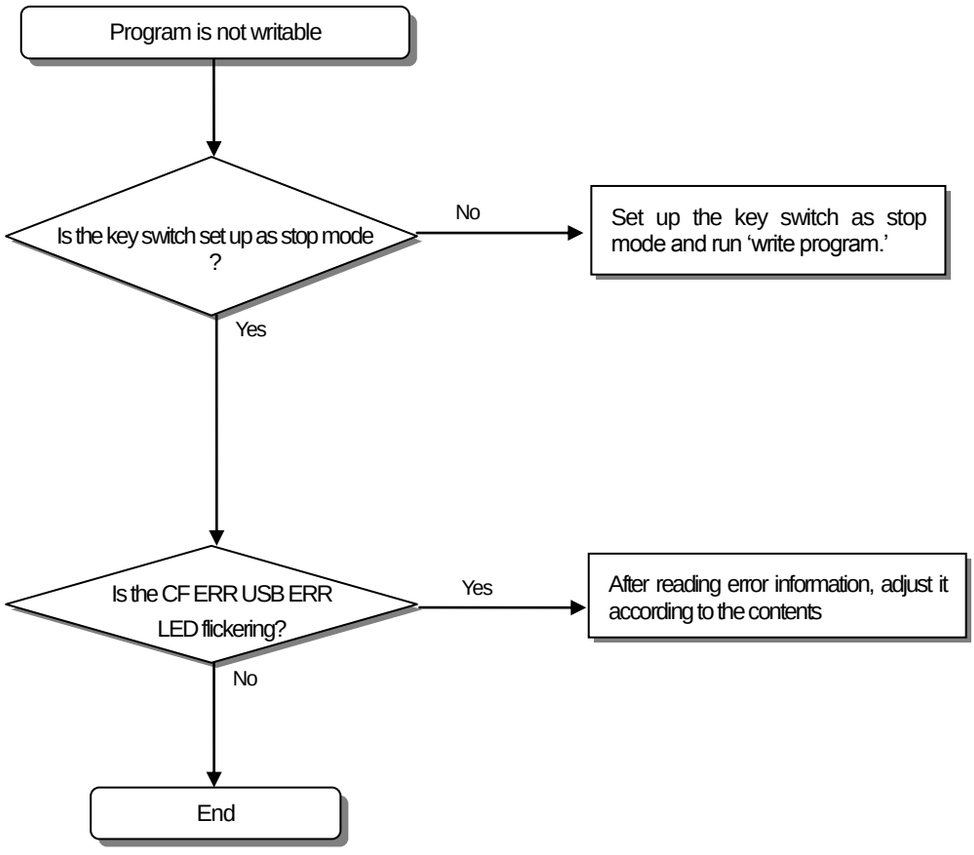
9.2.1 Response to RUN LED off

It describes sequences of how to respond to RUN LED off when power supply is turned on or during the operation.



9.2.2 Response when program is not written

It describes sequences of how to respond when program is not written on CPU part.



9.3 Troubleshooting Questionnaires

If any trouble is found while using the XGI series, please fill out the form and call to fax it to us.

• For an error relating to special/communication modules, fill out the questionnaires attached in the user's manual of the product.

1. Customer's Contact Number: TEL) _____
FAX) _____

2. Model : ( )

3. Details of the Product
   – Details of the CPU module :
   – OS version ( ),
   – Product's serial number ( )
   – XG5000 Version number used for program compiling : ( )

4. Brief description of a device and system :

5. Modules using the Network module :

6. STOP LED On of the CPU module? Yes( ), No( )

7. Error message generated from the XG5000 :

8. Measures taken against the error code in the above 7 :

9. Other troubleshooting measures against the error :

10. Features of the error
   • Reiterative( ) : Periodic( ), Relating to a specific sequence level( )
     Relating to the environment( )
   • Intermittent( ) : Approx. interval of the error occurrence :

11. Detail description for the erroneous phenomena :

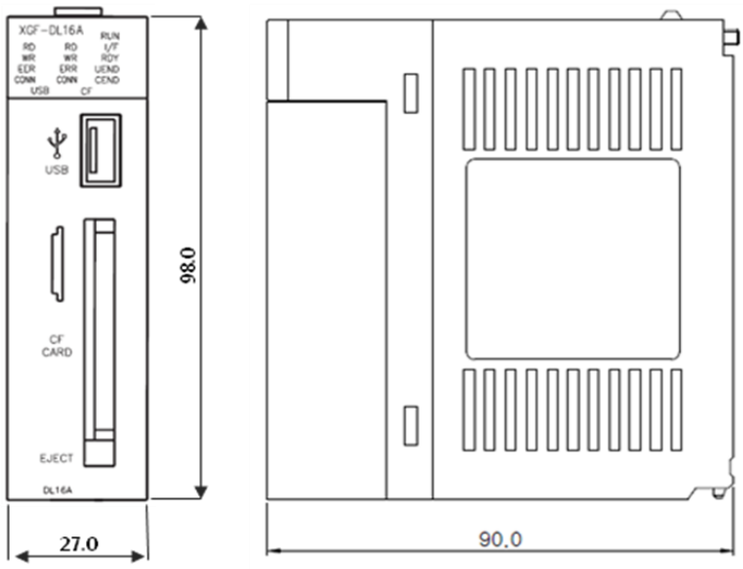
12. Configuration of the applied system :

Appendix

A.1 Dimension

Unit: mm

• XGF-DL16A



Warranty

1. Warranty Period

The product you purchased will be guaranteed for 18 months from the date of manufacturing.

2. Scope of Warranty

Any trouble or defect occurring for the above-mentioned period will be partially replaced or repaired. However, please note the following cases will be excluded from the scope of warranty.

(1) Any trouble attributable to unreasonable condition, environment or handling otherwise specified in the manual,
(2) Any trouble attributable to others' products,
(3) If the product is modified or repaired in any other place not designated by the company,
(4) Due to unintended purposes
(5) Owing to the reasons unexpected at the level of the contemporary science and technology when delivered.
(6) Not attributable to the company; for instance, natural disasters or fire

3. Since the above warranty is limited to PLC unit only, make sure to use the product considering the safety for system configuration or applications.

Environmental Policy

LSIS Co., Ltd supports and observes the environmental policy as below.

Environmental Management

LSIS considers the environmental preservation as the preferential management subject and every staff of LS Industrial Systems use the reasonable endeavors for the pleasurably environmental preservation of the earth.

About Disposal

LSIS's PLC unit is designed to protect the environment. For the disposal, separate aluminum, iron and synthetic resin (cover) from the product as they are reusable.

LS values every single customers.

Quality and service come first at LSIS.

Always at your service, standing for our customers.

http://eng.lsis.biz

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※ LS Industrial Systems constantly endeavors to improve its product so that information in this manual is subject to change without notice.

2012. 4