

# Replacement Guide

for the transition from FL1E type to FL1F type IDEC SmartRelay

B-1833(1) Edition 1.3



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## Introduction

### ■ About this document

This document provides the guidance for your replacement of FL1E type with FL1F type. Please refer to it together with FL1F type catalog: EP1562-0, EF1005 and FL1F type User's Manual: FL9Y-B1789.

## Differences in hardware specifications

### ■ Replacement FL1F type and major changes

When you consider the replacement of FL1E type with FL1F type, please refer to the following comparison table.

There is no successor model provided for the communication modules.

		FL1E Type No. (Discontinued)		FL1F Type No. (Recommended)
<b>Base Module</b>		FL1E-H12SND	⇒	FL1F-H12SCD
		FL1E-H12RCE	⇒	FL1F-H12RCE
		FL1E-B12RCE	⇒	FL1F-B12RCE
		FL1E-H12RCA	⇒	FL1F-H12RCA
		FL1E-B12RCA	⇒	FL1F-H12RCA
		FL1E-H12RCC	⇒	FL1F-H12RCC
		FL1E-B12RCC	⇒	FL1F-B12RCC
<b>Expansion I/O Module</b>		FL1B-M08B1S2	⇒	FL1F-M08B1S2
		FL1B-M08B2R2	⇒	FL1F-M08B2R2
		FL1B-M08D2R2	⇒	FL1F-M08D2R2
		FL1B-M08C2R2	⇒	FL1F-M08C2R2
		FL1B-J2B2	⇒	FL1F-J2B2
		FL1D-K2BM2	⇒	FL1F-K2BM2
<b>Text Display</b>		FL1E-RD1	⇒	FL1F-RD1
<b>Communication Module</b>		FL1B-CAS2	⇒	There is no comparable product provided.
		FL1B-CL1C12	⇒	There is no comparable product provided.
<b>Cartridge</b>	<b>Memory Cartridge</b>	FL1E-PM4	⇒	Although there is no comparable product provided, some of the functions may be realized by the use of micro SD memory card.
	<b>Battery Cartridge</b>	FL1E-PB1	⇒	Although there is no comparable product provided, the real-time clock retention period of FL1F type is up to 20 days (ambient temperature: 25°C). The data backup is not specified, because non-volatile memory is used.
	<b>Memory/ Battery Cartridge</b>	FL1E-PG1	⇒	Although there is no comparable product provided, the real-time clock retention period of FL1F type is up to 20 days (ambient temperature: 25°C). The data backup is not specified, because non-volatile memory is used.

1. The dimensions and installation method for FL1F type are unchanged from FL1E type.
2. Power supply range for FL1F type, terminal arrangement and wirings to the input and output terminals, are unchanged from FL1E type.
3. The terminal tightening torque recommended for FL1F type is changed from FL1E type.
  - FL1E: 0.4 Nm to 0.5 Nm
  - FL1F: 0.5 Nm to 0.6Nm
4. The maximum number of input/output points of the Base Module with Expansion I/O Modules is changed.
  - FL1E Digital input: up to 24 points, Analog input: up to 8 points  
Digital output: up to 16 points, Analog output: up to 2 points
  - FL1F Digital input: up to 24 points, Analog input: up to 8 points  
Digital output: **up to 20 points**, Analog output: **up to 8 points**
5. The power/ current consumption of FL1F type is changed from FL1E type.  
For further details, refer to [Power supply specifications of the Base Module] and [Power supply specifications of the Expansion I/O Module, Text Display].
6. The input specifications of FL1F type are changed in part from FL1E type.  
For further details, refer to [Input specifications of the Base Module], [Input specifications of the Expansion I/O Module].
7. FL1F type does not require optional cartridges, such as Memory Cartridge: FL1E-PM4 type, Battery Cartridge: FL1E-PB1 type and Memory/ Battery Cartridge: FL1E-PG1 type.  
The following specifications are changed from FL1E type.

**[Program download/ upload by the use of Memory Cartridge]**

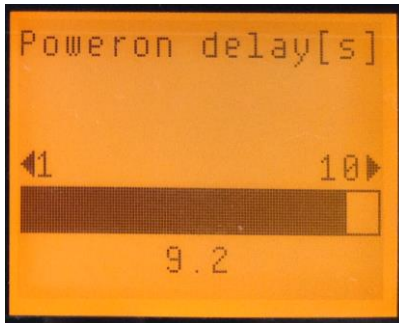
- FL1E: Use Memory Cartridge: FL1E-PM4 or Memory/ Battery Cartridge: FL1E-PG1
- FL1F: Use commercially available micro SD memory card.

For further details, refer to Appendix [User program uploading/ downloading by the use of micro SD memory card].

**[Real-time clock retention and data backup]**

- FL1E: up to 80 hours (in case of cartridge not used, at ambient temperature of 25°C)  
up to 2 years (in case of Battery Cartridge: FL1E-PB1 or Memory/ Battery Cartridge: FL1E-PG1 used, at ambient temperature of 25°C).
- FL1F: Real-time clock retention period: up to **20 days** (at ambient temperature of 25°C), without any option items.  
Data backup period: Not specified because **non-volatile memory is used**.

8. For the purpose of maintaining the compatibility of the system equipped with FL1E type, FL1F type can set the startup time after power on.



The after-powering-ON startup time may be set from the menu screen of the FL1F type Base Module in a range of 1 to 10 seconds at an increment of 0.2 seconds. The startup time may be delayed by the time setting.

\*LCD screen of the FL1F type Base Module

9. The method of connecting the Base Module and the Text Display is changed.
- FL1E: Using the exclusive cable: FL1E-RDC1 type, connect the Base Module with the Text Display.
  - FL1F: By the use of a commercially available Ethernet cable, connect the Base Module with the Text Display.

For the Ethernet cable, use Cat.5 STP (Category 5 shielded twisted pair cable).

10. With the Base Module equipped with LCD, the maximum number of characters displayed is changed.
- FL1E: 12 single-byte characters x 4 lines; 6 double-byte characters x 4 lines
  - FL1F: **16 single-byte characters x 6 lines; 8 double-byte characters x 6 lines**

For further details, refer to [Text message display on the Text Display].

11. With the Text Display, the maximum number of characters displayed is changed.
- FL1E: 12 single-byte characters x 4 lines; 6 double-byte characters x 4 lines
  - FL1F: **20 single-byte characters x 6 lines; 10 double-byte characters x 6 lines**

For further details, refer to [Text message display on the Text Display].

12. The method of communication with PC (user program download/ upload, etc.) is changed.
- FL1E: Communication by the use of exclusive cable: FL1E-PC2 type.
  - FL1F: Since the Ethernet communication (10/100 Mbit/s TCP/IP communication) is adopted, use Cat.5 STP (Category 5 shielded twisted pair cable) for the Ethernet cable.

For further details, refer to [Method of communication between the FL1F type Base Module and PC].

13. Since the program capacity of FL1F type is larger than that of FL1E type, you do not need to consider the program size when converting the user programs from FL1E type into FL1F type.

	<b>Program size</b>	<b>Number of programmable FBs</b>	<b>Messages displayed</b>	<b>REM</b>
<b>FL1E</b>	3,800 bytes	200 pcs.	50 pcs.	250 pcs.
<b>FL1F</b>	8,500 bytes	400 pcs.	50 pcs.	250 pcs.

14. There is no compatibility between FL1E Expansion Module and FL1F. It is not allowed to combination use with FL1E Base Module and FL1F Expansion Modules. In case of failure or damage on existing FL1E Expansion Module in FL1E system structure, it is required to replace it to new FL1E Expansion Module or to change from FL1E system structure to FL1E system structure, totally.

## ■ Power supply specifications of the Base Module

Note that there are the following differences in the current consumption and power consumption.

Power supply specifications of FL1E type Base Module.

Discontinued Type No.	Power supply	Current draw	Power consumption
<b>FL1E-H12SND</b>	Rated Power Voltage: 24V DC Allowable Voltage Range: 20.4 to 28.8V DC	40 to 75mA(24V DC)	1.0 to 1.8W(24V DC)
<b>FL1E-H12RCE</b> <b>FL1E-B12RCE</b>	Rated Power Voltage: 12/24V DC Allowable Voltage Range: 10.8 to 28.8V DC	60 to 175mA(12V DC) 40 to 100mA(24V DC)	0.7 to 2.1W(12V DC) 1.0 to 2.4W(24V DC)
<b>FL1E-H12RCA</b> <b>FL1E-B12RCA</b>	Rated Power Voltage: 24V AC/DC Allowable Voltage Range: 20.4 to 26.4V AC 20.4 to 28.8V DC	76 to 182mA(24V AC) 40 to 100mA(24V DC)	1.8 to 4.4VA(24V AC) 1.0 to 2.4W(24V DC)
<b>FL1E-H12RCC</b> <b>FL1E-B12RCC</b>	Rated Power Voltage: 100 to 240V AC/DC Allowable Voltage Range: 85 to 265V AC 20.4 to 28.8V DC	25 to 40mA(100V AC) 20 to 30mA(240V AC) 10 to 25mA(100V DC) 6 to 15mA(240V DC)	2.8 to 4.6VA(100V AC) 4.8 to 7.2VA(240V AC) 1.1 to 2.9W(100V DC) 1.4 to 3.6W(240V DC)

Power supply specifications of FL1F type Base Module

Recommended Type No.	Power supply	Current draw	Power consumption
<b>FL1F-H12SCD</b>	Rated Power Voltage: 24V DC Allowable Voltage Range: 20.4 to 28.8V DC	<b>25 to 50mA</b> (24V DC)	<b>0.6 to 1.2W</b> (24V DC)
<b>FL1F-H12RCE</b> <b>FL1F-B12RCE</b>	Rated Power Voltage: 12/24V DC Allowable Voltage Range: 10.8 to 28.8V DC	<b>50 to 165mA</b> (12V DC) <b>25 to 90mA</b> (24V DC)	<b>0.6 to 2.0W</b> (12V DC) <b>0.6 to 2.2W</b> (24V DC)
<b>FL1F-H12RCA</b> <b>FL1F-B12RCA</b>	Rated Power Voltage: 24V AC/DC Allowable Voltage Range: 20.4 to 26.4V AC 20.4 to 28.8V DC	<b>60 to 185mA</b> (24V AC) <b>25 to 100mA</b> (24V DC)	<b>1.4 to 4.4W</b> (24V AC) <b>0.6 to 2.4W</b> (24V DC)
<b>FL1F-H12RCC</b> <b>FL1F-B12RCC</b>	Rated Power Voltage: 100 to 240V AC/DC Allowable Voltage Range: 85 to 265V AC 20.4 to 28.8V DC	<b>23 to 46mA</b> (100V AC) <b>15 to 25mA</b> (240V AC) <b>12 to 23mA</b> (100V DC) <b>5 to 15mA</b> (240V DC)	<b>2.3 to 4.6W</b> (100V AC) <b>3.6 to 6.0W</b> (240V AC) <b>1.2 to 2.3W</b> (100V DC) <b>1.2 to 3.6W</b> (240V DC)



## ■ Power supply specifications of the Expansion I/O Module, Text Display

Note that there are the following differences in the current consumption and power consumption.

### Power supply specifications of FL1E type Expansion I/O Module

Discontinued Type No.	Power supply	Current draw	Power consumption
<b>FL1B-M08B1S2</b>	Rated Power Voltage: 24V DC Allowable Voltage Range: 20.4 to 28.8V DC	30 to 45mA(24V DC)	0.8 to 1.1W(24V DC)
<b>FL1B-M08B2R2</b>	Rated Power Voltage: 12/24V DC Allowable Voltage Range: 10.8 to 28.8V DC	30 to 140mA(12V DC) 20 to 75mA(24V DC)	0.3 to 1.7VA(12V DC) 0.4 to 1.8W(24V DC)
<b>FL1B-M08D2R2</b>	Rated Power Voltage: 24V AC/DC Allowable Voltage Range: 20.4 to 26.4V AC 20.4 to 28.8V DC	120 to 146mA(24V AC) 20 to 75mA(24V DC)	2.4 to 4.3VA(24V AC) 0.4 to 1.8W(24V DC)
<b>FL1B-M08C2R2</b>	Rated Power Voltage: 100 to 240V AC/DC Allowable Voltage Range: 85 to 265V AC 100 to 253V DC	34 to 45mA(100V AC) 30 to 32mA(240V AC) 5 to 15mA(100V DC) 5 to 10mA(240V DC)	3.9 to 4.1VA(100V AC) 7.4 to 7.6VA(240V AC) 0.5 to 1.8W(100V DC) 1.2 to 2.4W(240V DC)
<b>FL1B-J2B2</b>	Rated Power Voltage: 12/24V DC Allowable Voltage Range: 10.8 to 28.8V DC	25 to 50mA	0.3 to 0.6W(12V DC) 0.6 to 1.2W(24V DC)
<b>FL1D-K2BM2</b>	Rated Power Voltage: 24V DC Allowable Voltage Range: 20.4 to 28.8V DC	35 to 90mA(24V DC)	0.9 to 2.2W(24V DC)

### Power supply specifications of FL1E type Text Display

Discontinued Type No.	Power supply	Current draw	Power consumption
<b>FL1E-RD1</b>	Rated Power Voltage: 24V AC/DC 12V DC Allowable Voltage Range: 20.4 to 26.4V AC 10.2 to 28.8V DC	65mA(12V DC) 40mA(24V DC) 90mA(24V AC)	-

Power supply specifications of FL1F type Expansion I/O Module

Recommended Type No.	Power supply	Current draw	Power consumption
<b>FL1F-M08B1S2</b>	Rated Power Voltage: 24V DC Allowable Voltage Range: 20.4 to 28.8V DC	<b>25 to 40mA</b> (24V DC)	<b>0.6 to 1.0W</b> (24V DC)
<b>FL1F-M08B2R2</b>	Rated Power Voltage: 12/24V DC Allowable Voltage Range: 10.8 to 28.8V DC	<b>20 to 90mA</b> (12V DC) <b>15 to 50mA</b> (24V DC)	<b>0.2 to 1.1W</b> (12V DC) <b>0.4 to 1.2W</b> (24V DC)
<b>FL1F-M08D2R2</b>	Rated Power Voltage: 24V AC/DC Allowable Voltage Range: 20.4 to 26.4V AC 20.4 to D28.8V DC	<b>40 to 110mA</b> (24V AC) <b>15 to 50mA</b> (24V DC)	<b>1.0 to 2.6W</b> (24V AC) <b>0.4 to 1.2W</b> (24V DC)
<b>FL1F-M08C2R2</b>	Rated Power Voltage: 100 to 240V AC/DC Allowable Voltage Range: 85 to 265V AC 100 to 253V DC	<b>23 to 46mA</b> (100V AC) <b>15 to 30mA</b> (240V AC) <b>12 to 29mA</b> (100V DC) <b>5 to 15mA</b> (240V DC)	<b>2.3 to 4.6W</b> (100V AC) <b>3.6 to 7.2W</b> (240V AC) <b>1.2 to 2.9W</b> (100V DC) <b>1.2 to 3.6W</b> (240V DC)
<b>FL1F-J2B2</b>	Rated Power Voltage: 12/24V DC Allowable Voltage Range: 10.8 to 28.8V DC	<b>25 to 30mA</b>	<b>0.3 to 0.4W</b> (12V DC) <b>0.6 to 0.7W</b> (24V DC)
<b>FL1F-K2BM2</b>	Rated Power Voltage: 24V DC Allowable Voltage Range: 20.4 to 28.8V DC	<b>30 to 82mA</b> (24V DC)	<b>0.7 to 2.0W</b> (24V DC)

Power supply specifications of FL1F type Text Display

Recommended Type No.	Power supply	Current draw	Power consumption
<b>FL1F-RD1</b>	Rated Power Voltage: 24V AC/DC 12V DC Allowable Voltage Range: 20.4 to 26.4V AC 10.2 to 28.8V DC	<b>150mA</b> (12V DC) <b>75mA</b> (24V DC) <b>145mA</b> (24V AC)	-

## ■ Input specifications of the Base Module

Note that there are the following differences in the operating range and input delay time.

### Input specifications of FL1E type Base Module

Discontinued Type No.	Operating range		Input delay time	
	OFF current	ON current	OFF -> ON	ON -> OFF
<b>FL1E-H12SND</b>	< 0.85mA (I3...I6) < 0.05mA (I1,I2,I7,I8)	≥ 2mA (I3...I6) ≥ 0.15mA (I1,I2,I7,I8)	1.5ms (Typ.) ≤ 1.0ms (I3...I6)	1.5ms (Typ.) ≤ 1.0ms (I3...I6)
<b>FL1E-H12RCE</b> <b>FL1E-B12RCE</b>	< 0.85mA (I3...I6) < 0.05mA (I1,I2,I7,I8)	≥ 1.5mA (I3...I6) ≥ 0.1mA (I1,I2,I7,I8)	1.5ms (Typ.) ≤ 1.0ms (I3...I6)	1.5ms (Typ.) ≤ 1.0ms (I3...I6)
<b>FL1E-H12RCA</b> <b>FL1E-B12RCA</b>	< 1.0mA	≥ 2.5mA	1.5ms (Typ.)	15ms (Typ.)
<b>FL1E-H12RCC</b> <b>FL1E-B12RCC</b>	< 0.03mA	≥ 0.08mA (AC) ≥ 0.12mA (DC)	100V AC: 50ms (Typ.) 240V AC: 30ms (Typ.) 100V DC: 25ms (Typ.) 240V DC: 15ms (Typ.)	100V AC: 65ms (Typ.) 240V AC: 105ms (Typ.) 100V DC: 95ms (Typ.) 240V DC: 125ms (Typ.)

### Input specifications of FL1F type Base Module

Recommended Type No.	Operating range		Input delay time	
	OFF current	ON current	OFF -> ON	ON -> OFF
<b>FL1F-H12SCD</b>	< <b>0.9mA</b> (I3...I6) < <b>0.07mA</b> (I1,I2,I7,I8)	≥ <b>2.1mA</b> (I3...I6) ≥ <b>0.18mA</b> (I1,I2,I7,I8)	1.5ms (Typ.) ≤ 1.0ms (I3...I6)	1.5ms (Typ.) ≤ 1.0ms (I3...I6)
<b>FL1F-H12RCE</b> <b>FL1F-B12RCE</b>	< <b>0.88mA</b> (I3...I6) < <b>0.07mA</b> (I1,I2,I7,I8)	≥ 1.5mA (I3...I6) ≥ <b>0.12mA</b> (I1,I2,I7,I8)	1.5ms (Typ.) ≤ 1.0ms (I3...I6)	1.5ms (Typ.) ≤ 1.0ms (I3...I6)
<b>FL1F-H12RCA</b> <b>FL1F-B12RCA</b>	< <b>1.2mA</b>	≥ <b>2.6mA</b>	1.5ms (Typ.)	15ms (Typ.)
<b>FL1F-H12RCC</b> <b>FL1F-B12RCC</b>	< <b>0.05mA</b> (AC) < <b>0.06mA</b> (DC)	≥ 0.08mA (AC) ≥ <b>0.13mA</b> (DC)	100V AC: <b>40ms</b> (Typ.) 240V AC: 30ms (Typ.) 100V DC: 25ms (Typ.) 240V DC: <b>20ms</b> (Typ.)	100V AC: <b>45ms</b> (Typ.) 240V AC: <b>70ms</b> (Typ.) 100V DC: <b>60ms</b> (Typ.) 240V DC: <b>75ms</b> (Typ.)

## ■ Input specifications of the Expansion I/O Module

Note that there are the following differences in the operating range and input delay time.

Input specifications of FL1E type Expansion I/O Module

Discontinued Type No.	Operating range		Input delay time	
	OFF current	ON current	OFF -> ON	ON -> OFF
FL1B-M08B1S2	< 0.85mA	≥ 2mA	1.5ms (Typ.)	1.5ms (Typ.)
FL1B-M08B2R2	< 0.85mA	≥ 1.5mA	1.5ms (Typ.)	1.5ms (Typ.)
FL1B-M08D2R2	< 1.0mA	≥ 2.5mA	1.5ms (Typ.)	15ms (Typ.)
FL1B-M08C2R2	< 0.03mA	≥ 0.08mA	100V AC: 50ms (Typ.) 240V AC: 30ms (Typ.) 100V DC: 25ms (Typ.) 240V DC: 15ms (Typ.)	100V AC: 65ms (Typ.) 240V AC: 105ms (Typ.) 100V DC: 95ms (Typ.) 240V DC: 125ms (Typ.)

Input specifications of FL1F type Expansion I/O Module

Recommended Type No.	Operating range		Input delay time	
	OFF current	ON current	OFF -> ON	ON -> OFF
FL1F-M08B1S2	< <b>0.88mA</b>	≥ <b>2.1mA</b>	1.5ms (Typ.)	1.5ms (Typ.)
FL1F-M08B2R2	< <b>0.88mA</b>	≥ 1.5mA	1.5ms (Typ.)	1.5ms (Typ.)
FL1F-M08D2R2	< <b>1.1mA</b>	≥ <b>2.63mA</b>	1.5ms (Typ.)	15ms (Typ.)
FL1F-M08C2R2	< <b>0.05mA (AC)</b> < <b>0.06mA (DC)</b>	≥ <b>0.08mA (AC)</b> ≥ <b>0.13mA (DC)</b>	<b>100V AC: 40ms (Typ.)</b> <b>240V AC: 30ms (Typ.)</b> <b>100V DC: 25ms (Typ.)</b> <b>240V DC: 20ms (Typ.)</b>	<b>100V AC: 45ms (Typ.)</b> <b>240V AC: 70ms (Typ.)</b> <b>100V DC: 60ms (Typ.)</b> <b>240V DC: 75ms (Typ.)</b>

## Differences in the operating methods

### ■ User program conversion methods

The user program conversion involves the following two (2) procedures.

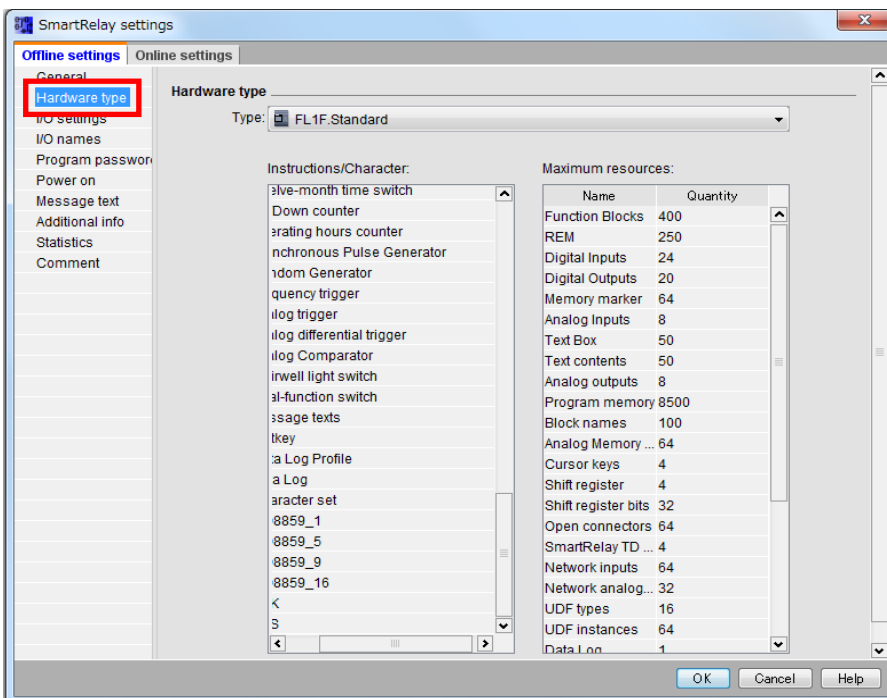
1. By the use of WindLGC Ver. 8, convert the FL1E type user program which stored on PC, into one for FL1F type.
2. By the use of WindLGC Ver. 8, convert the user program downloaded on FL1E type into one for FL1F type.

#### [1. By the use of WindLGC Ver. 8, convert the FL1E type user program, stored on PC, into one for FL1F type]

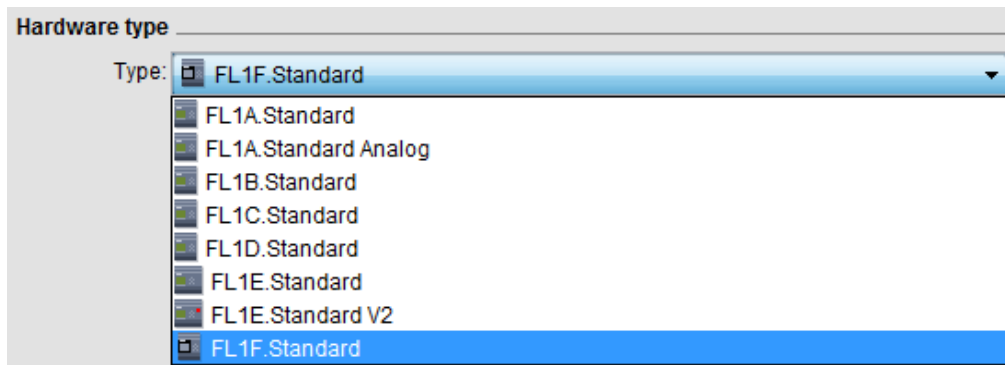
- (1) Open the FL1E type user program, from WindLGC Ver. 8 witch stored on PC.
- (2) Double-click the icon shown below, that is located at the bottom right of the WindLGC screen.



- (3) The following screen will be shown.  
Select [Hardware type].



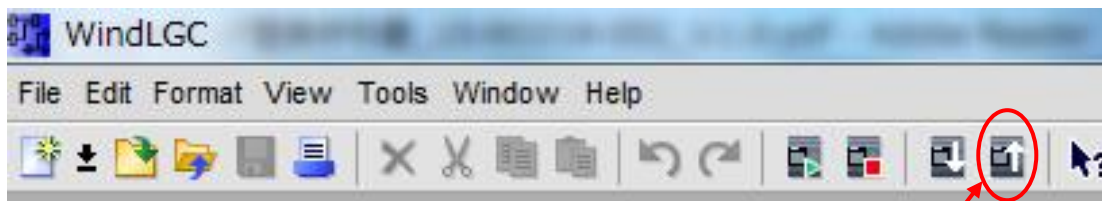
- (4) Click the hardware type selection tab.  
Select [FL1F.Standard] and click [OK].



- (5) Overwrite user program. That completes the conversion into FL1F type-compatible program.

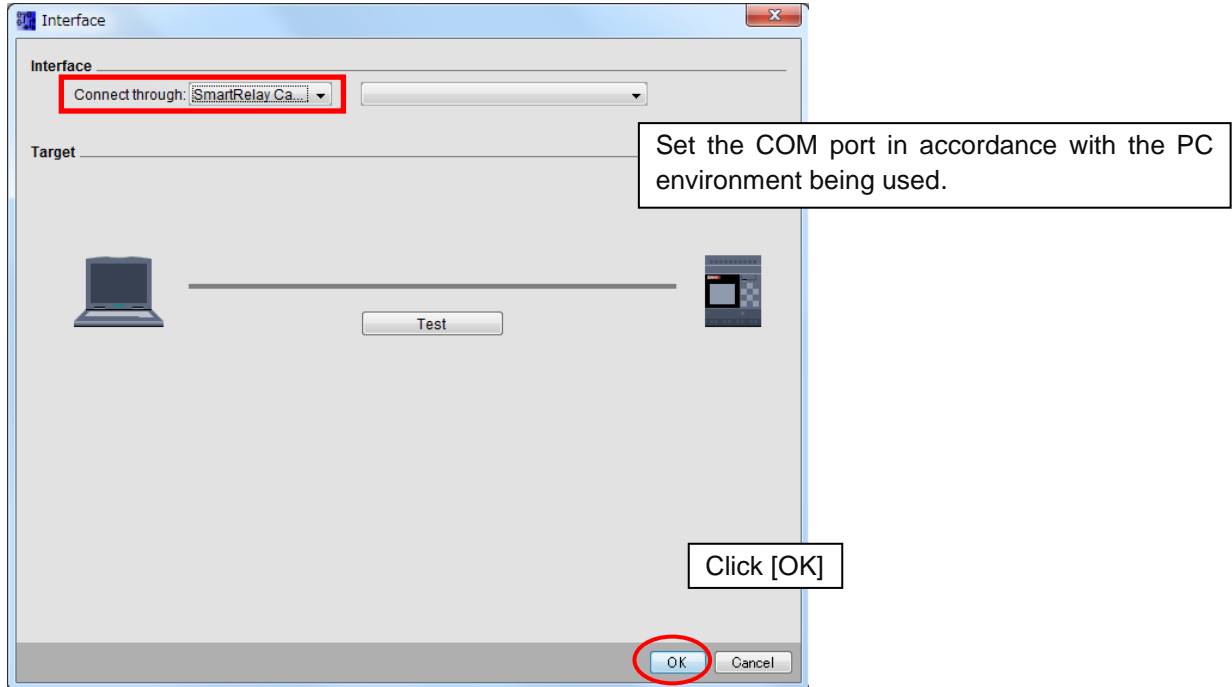
**[2. By the use of WindLGC Ver. 8, convert the user program downloaded on FL1E type into one for FL1F type]**

- (1) With the exclusive cable (FL1E-PC2 type) connect FL1E type with PC, and turn ON the power of FL1E type.
- (2) Click the icon, shown below, on the WindLGC.



[SmartRelay -> PC]  
When uploading the user program downloaded on the Base Module onto the PC, click this icon.

- (3) The interface selection screen, shown below, will appear. Select [SmartRelay Cable] for the connection interface and click [OK], and the program stored on the FL1E type proper will be uploaded.



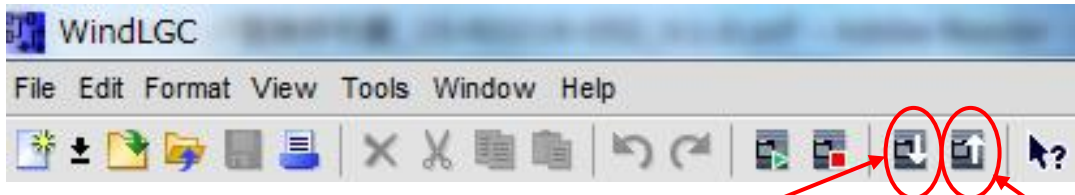
The conversion into the FL1F type-compatible user program is the same as with [1. By the use of WindLGC Ver. 8, convert the FL1E type user program, stored on PC, into one for FL1F type].

## ■ User program upload/ download

### 1. Start WindLGC (version 8.0 or later).

The following menu bar will appear. When uploading the user program, click the [PC -> SmartRelay] icon.

When downloading one, click the [SmartRelay -> PC] icon.



#### [PC -> SmartRelay]

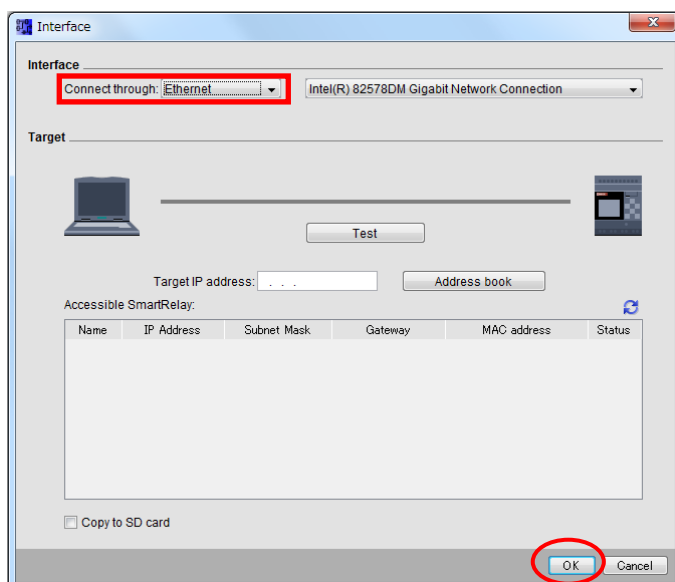
When downloading the user program, created on PC, onto the base module, click this icon.

#### [SmartRelay-> PC]

When uploading the user program Download on the base module onto the PC, Click this icon.

### 2. Select a connection interface.

- For uploading/ downloading user program for FL1A type through FL1E type, the exclusive cable (FL1E-PC2 type) is required. On WindLDR, select [SmartRelay Cable] for the connection interface.
- When uploading/ downloading user program for FL1F type, select [Ethernet] for the connection interface.



When uploading/ downloading user program onto or from FL1F type, see Appendix [PC network setting method].



## ■ Text message display on the Base Module

The number of characters that can be displayed on the Base Module LCD increases. (Only on type equipped with LCD)

- FL1E: 12 single-byte characters x 4 lines (6 double-byte characters x 4 lines)
- FL1F: **16 single-byte characters x 6 lines (8 double-byte characters x 6 lines)**

For that reason, if a program (message text) prepared for FL1E type is converted into that for FL1F type without any consideration, the message will be displayed on the FL1F type Base Module LCD as **located at the upper left part** of the screen.

- Sample display on the FL1E type Base Module (12 single-byte characters x 4 lines)

A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	A <sub>4</sub>	A <sub>5</sub>	A <sub>6</sub>	A <sub>7</sub>	A <sub>8</sub>	A <sub>9</sub>	A <sub>10</sub>	A <sub>11</sub>	A <sub>12</sub>
B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	B <sub>4</sub>	B <sub>5</sub>	B <sub>6</sub>	B <sub>7</sub>	B <sub>8</sub>	B <sub>9</sub>	B <sub>10</sub>	B <sub>11</sub>	B <sub>12</sub>
C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	C <sub>7</sub>	C <sub>8</sub>	C <sub>9</sub>	C <sub>10</sub>	C <sub>11</sub>	C <sub>12</sub>
D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	D <sub>7</sub>	D <sub>8</sub>	D <sub>9</sub>	D <sub>10</sub>	D <sub>11</sub>	D <sub>12</sub>

### ↓ When converted into FL1F type

- Sample display on the FL1F type Base Module

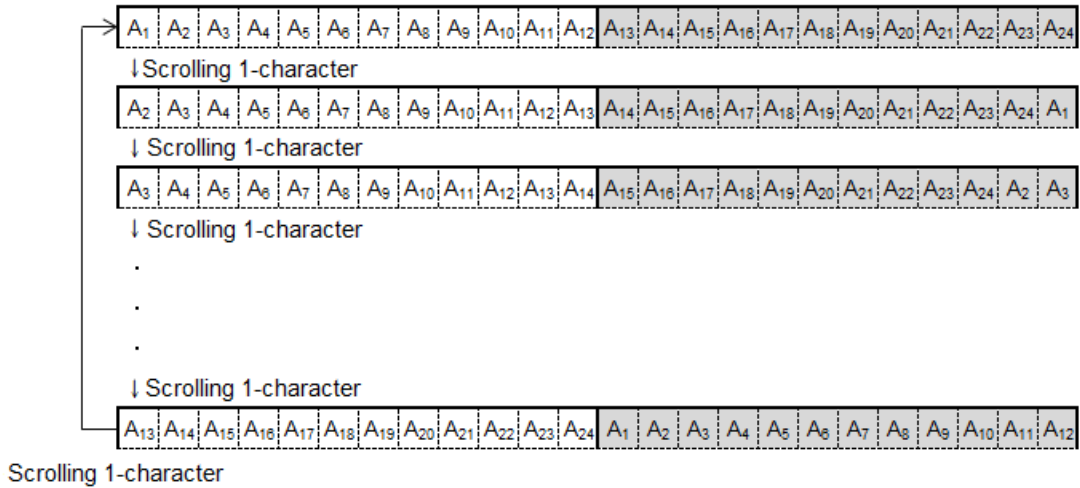
A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	A <sub>4</sub>	A <sub>5</sub>	A <sub>6</sub>	A <sub>7</sub>	A <sub>8</sub>	A <sub>9</sub>	A <sub>10</sub>	A <sub>11</sub>	A <sub>12</sub>				
B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	B <sub>4</sub>	B <sub>5</sub>	B <sub>6</sub>	B <sub>7</sub>	B <sub>8</sub>	B <sub>9</sub>	B <sub>10</sub>	B <sub>11</sub>	B <sub>12</sub>				
C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	C <sub>7</sub>	C <sub>8</sub>	C <sub>9</sub>	C <sub>10</sub>	C <sub>11</sub>	C <sub>12</sub>				
D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	D <sub>7</sub>	D <sub>8</sub>	D <sub>9</sub>	D <sub>10</sub>	D <sub>11</sub>	D <sub>12</sub>				

**(1) In case of a message text scrolling character by character**

In the case where a message text for FL1E type was set to scroll character by character, if it is directly converted into FL1F type, the display will differ, as shown below.

- Sample display on the FL1E type Base Module (message output of 24 single-byte characters per line)

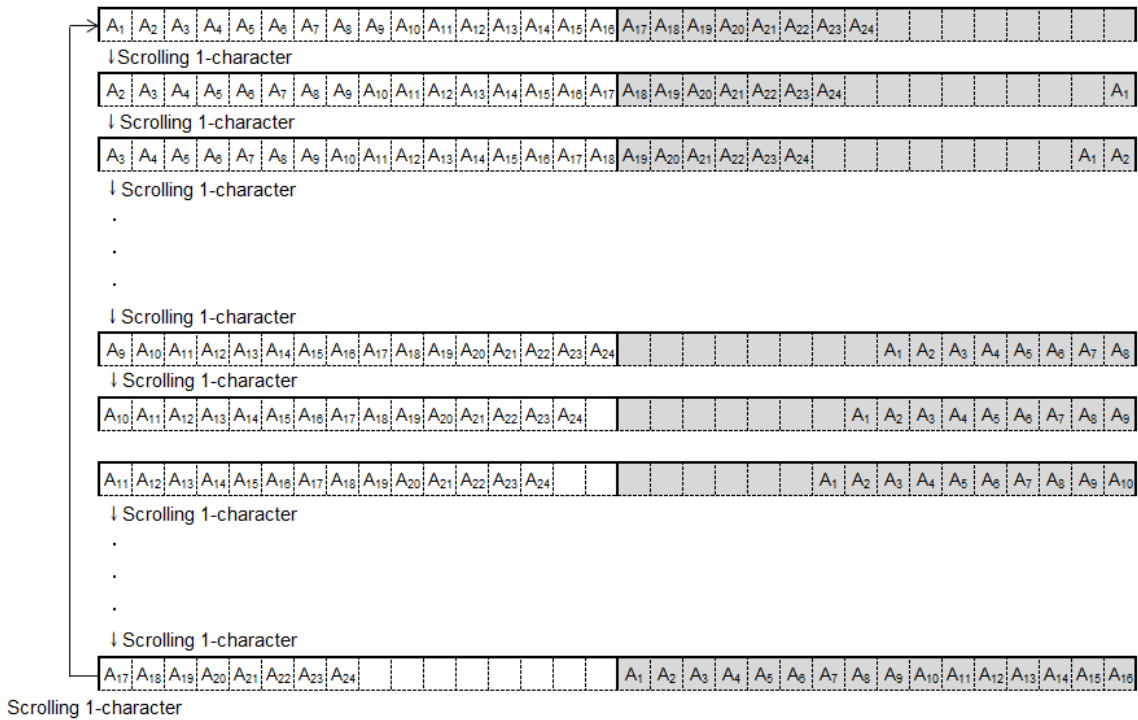
\*Gray represents un-displayed part



**↓ When converted into FL1F type**

- Sample display on the FL1F type Base Module

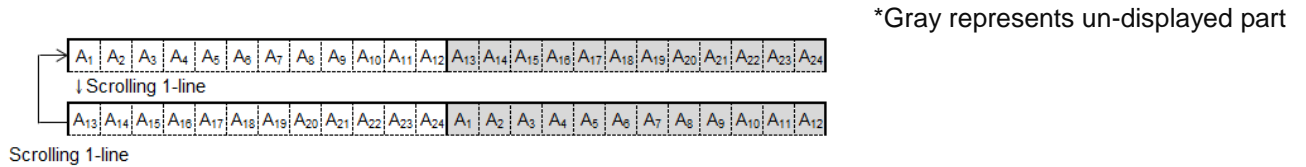
\*Gray represents un-displayed part



## (2) In case of a message text scrolling line by line

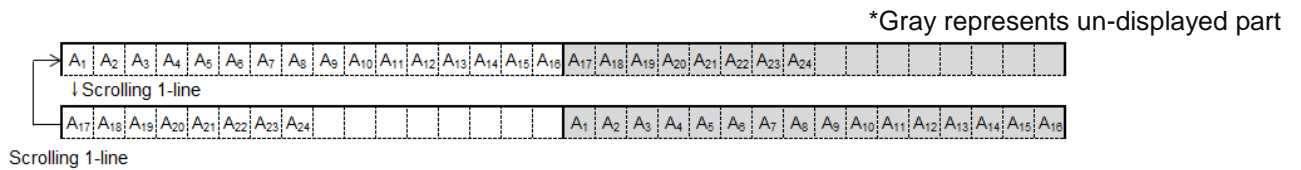
In the case where a message text for FL1E type was set to scroll line by line, if it is directly converted into FL1F type, the display will differ, as shown below

- Sample display on the FL1E type Base Module (message output of 24 single-byte characters per line)



### ↓ When converted into FL1F type

- Sample display on the FL1F type Base Module



■ Text message display on the Text Display

With the Text Display, the maximum number of characters displayed is increased.

- FL1E: 12 single-byte characters x 4 lines (6 double-byte characters x 4 lines)
- FL1F: **20 single-byte characters x 6 lines (10 double-byte characters x 6 lines)**

For that reason, if a program (message text) prepared for FL1E type is converted into that for FL1F type without any consideration, the message will be displayed on the FL1F type Text Display LCD as **located at the upper left part** of the screen.

- Sample display on the FL1E type Text Display (12 single-byte characters x 4 lines)

A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	A <sub>4</sub>	A <sub>5</sub>	A <sub>6</sub>	A <sub>7</sub>	A <sub>8</sub>	A <sub>9</sub>	A <sub>10</sub>	A <sub>11</sub>	A <sub>12</sub>
B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	B <sub>4</sub>	B <sub>5</sub>	B <sub>6</sub>	B <sub>7</sub>	B <sub>8</sub>	B <sub>9</sub>	B <sub>10</sub>	B <sub>11</sub>	B <sub>12</sub>
C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	C <sub>7</sub>	C <sub>8</sub>	C <sub>9</sub>	C <sub>10</sub>	C <sub>11</sub>	C <sub>12</sub>
D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	D <sub>7</sub>	D <sub>8</sub>	D <sub>9</sub>	D <sub>10</sub>	D <sub>11</sub>	D <sub>12</sub>

↓ When converted into FL1F type

- Sample display on the FL1F type Text Display

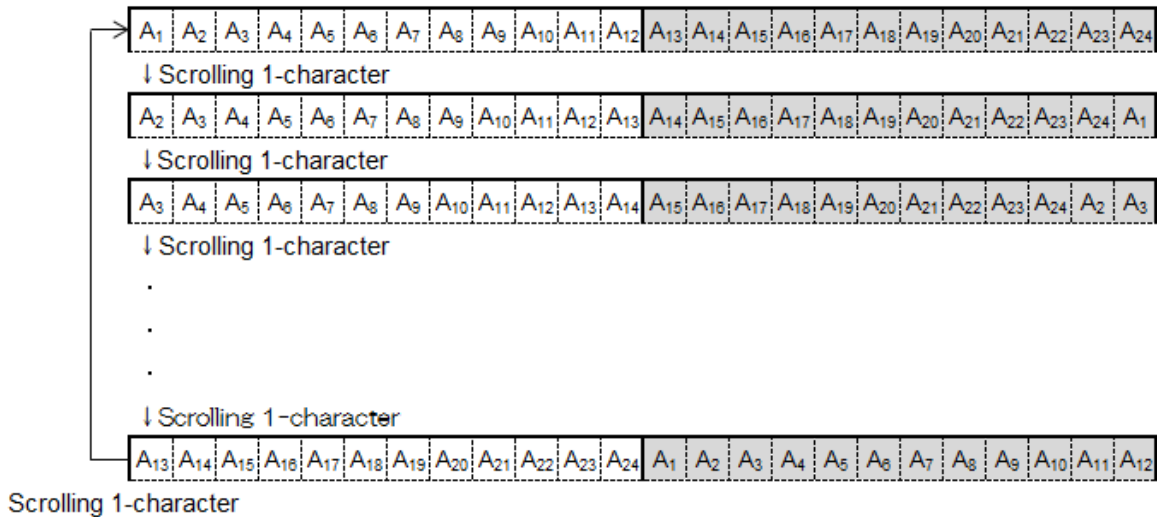
A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	A <sub>4</sub>	A <sub>5</sub>	A <sub>6</sub>	A <sub>7</sub>	A <sub>8</sub>	A <sub>9</sub>	A <sub>10</sub>	A <sub>11</sub>	A <sub>12</sub>										
B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	B <sub>4</sub>	B <sub>5</sub>	B <sub>6</sub>	B <sub>7</sub>	B <sub>8</sub>	B <sub>9</sub>	B <sub>10</sub>	B <sub>11</sub>	B <sub>12</sub>										
C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	C <sub>7</sub>	C <sub>8</sub>	C <sub>9</sub>	C <sub>10</sub>	C <sub>11</sub>	C <sub>12</sub>										
D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	D <sub>7</sub>	D <sub>8</sub>	D <sub>9</sub>	D <sub>10</sub>	D <sub>11</sub>	D <sub>12</sub>										

### (1) In case of a message text scrolling character by character

In the case where a message text for FL1E type was set to scroll character by character, if it is directly converted into FL1F type, the display will differ, as shown below.

- Sample display on the FL1E type Text Display (message output of 24 single-byte characters per line)

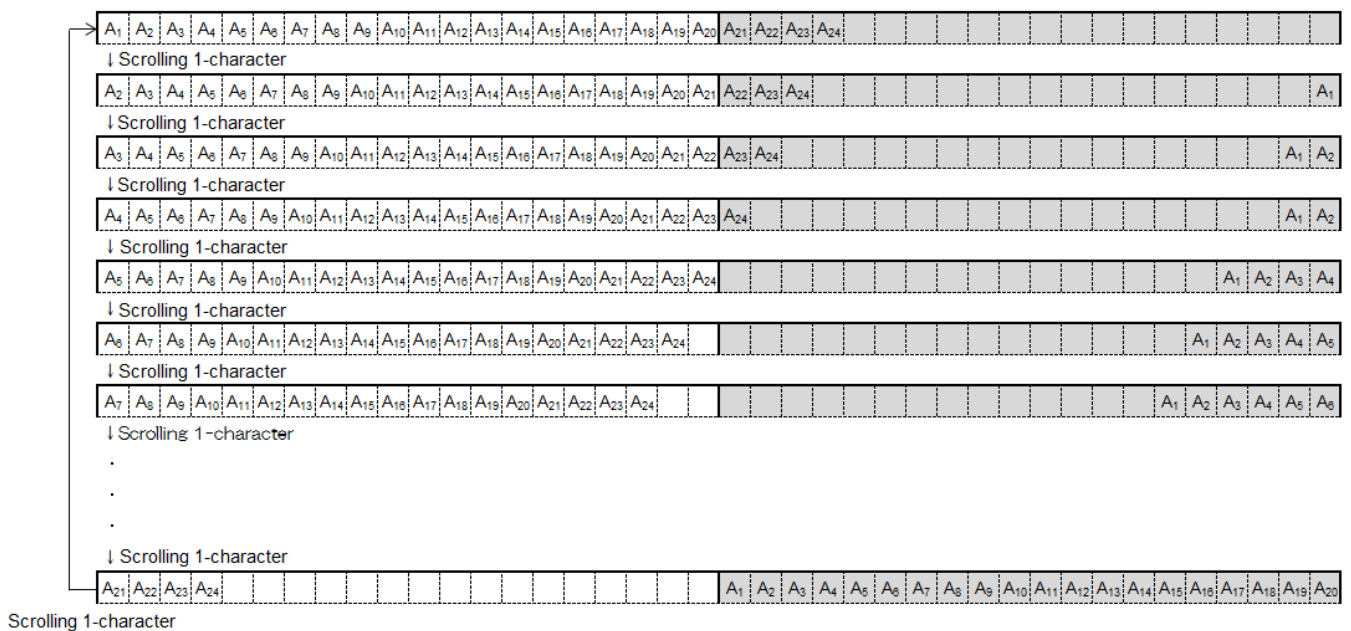
\*Gray represents un-displayed part



### ↓ When converted into FL1F type

- Sample display on the FL1F type Text Display

\*Gray represents un-displayed part

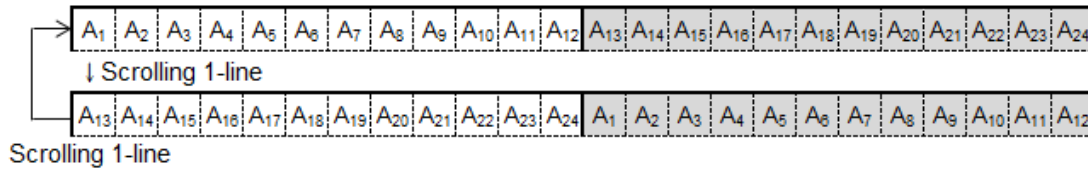


**(2) In case of a message text scrolling line by line**

In the case where a message text for FL1E type was set to scroll line by line, if it is directly converted into FL1F type, the display will differ, as shown below.

- Sample display on the FL1E type Text Display (message output of 24 single-byte characters per line)

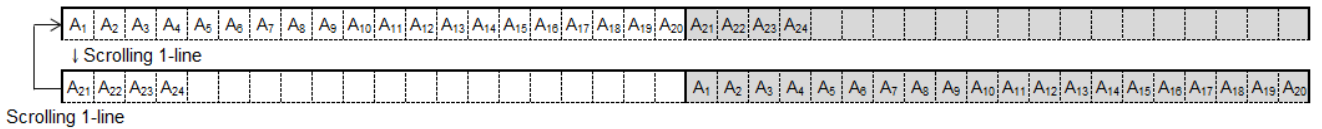
\*Gray represents un-displayed part



**↓ When converted into FL1F type**

- Sample display on the FL1F type Text Display

\*Gray represents un-displayed part



## Appendix

### ■ Upgrade to WindLGC version 8

Just as FL1E type, FL1F type uses “WindLGC”: FL9Y-LP1CDW type as the programming software. FL1F type is compatible only with version 8.0 and later of WindLGC.

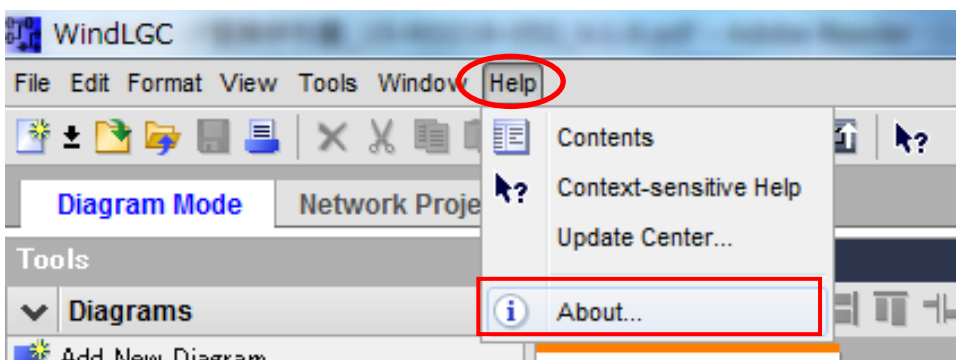
The update file to the latest version is available on our web site. When performing the program conversion, always use the latest version of “WindLGC”, which is version 8.0 or later.

<https://www.idec.com/jpja/member/member.html>

\*The disclosure of WindLGC Ver. 8.0 is scheduled for mid October.

### Method of identifying the WindLGC version

1. Click the [Help] tab on WindLGC, and [About] will show up. Click it.



2. Click [About] and the following screen will be shown. WindLGC version will be displayed at the marked part of the screen.



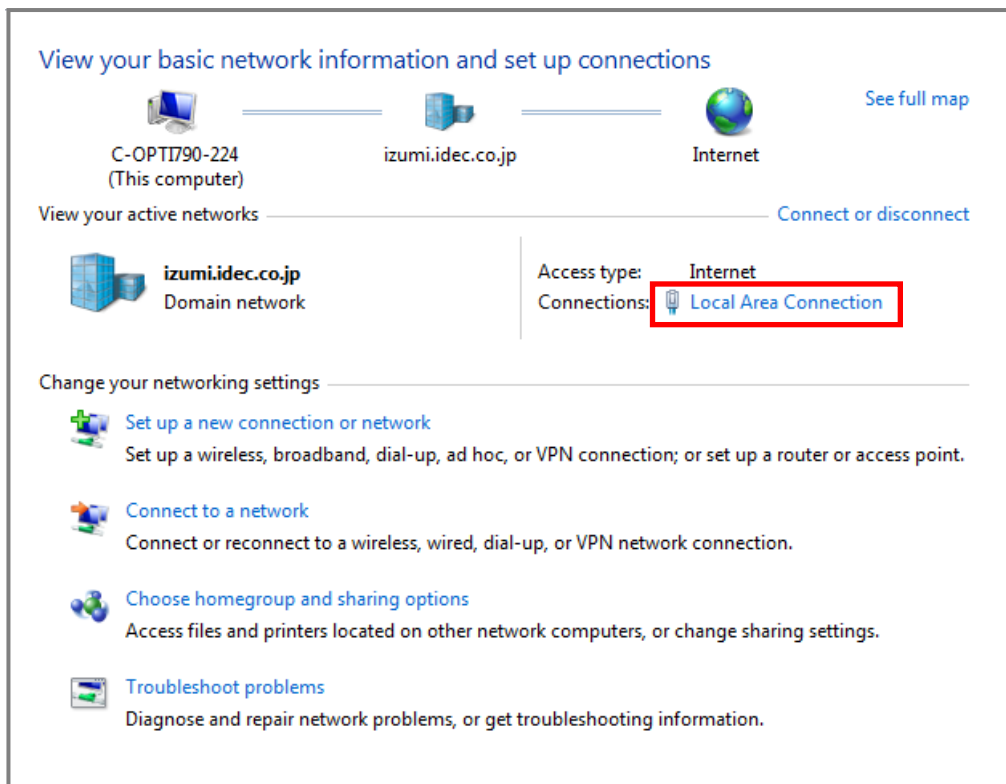
WindLGC version is shown.

## ■ PC network setting method

This part discusses the method of connecting PC running on Windows 7 with the FL1F type Base Module.

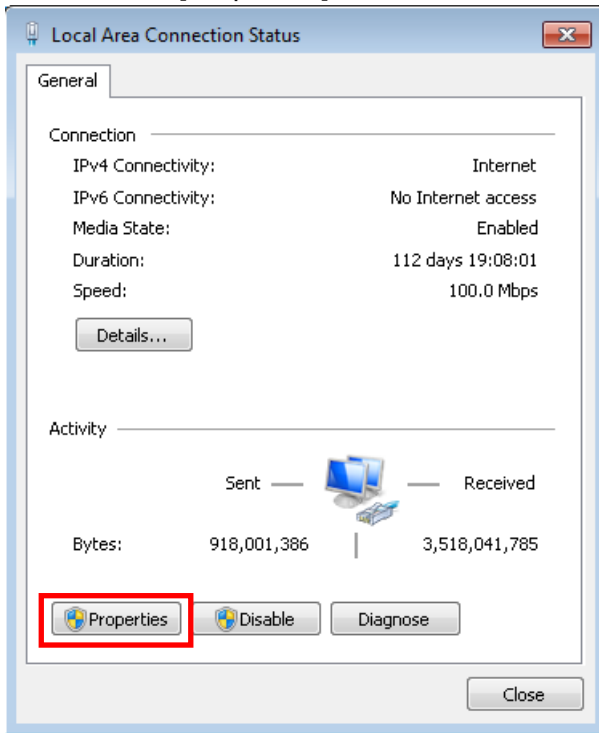
### PC local area connection setting

1. Connect the Base Module that is run with PC via Ethernet cable.
2. Through the following operation on PC, the following screen will show up.  
[Control Panel] => [All Control Panel Items] => [Network and Sharing Center]

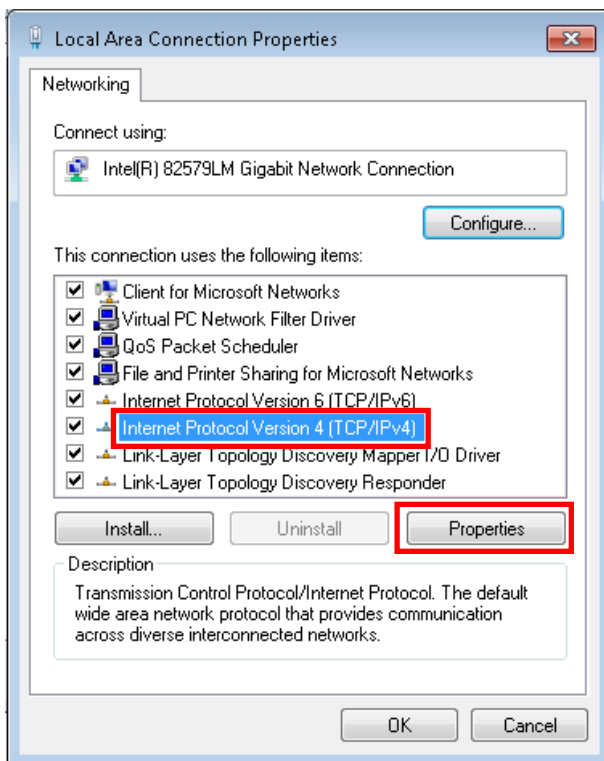




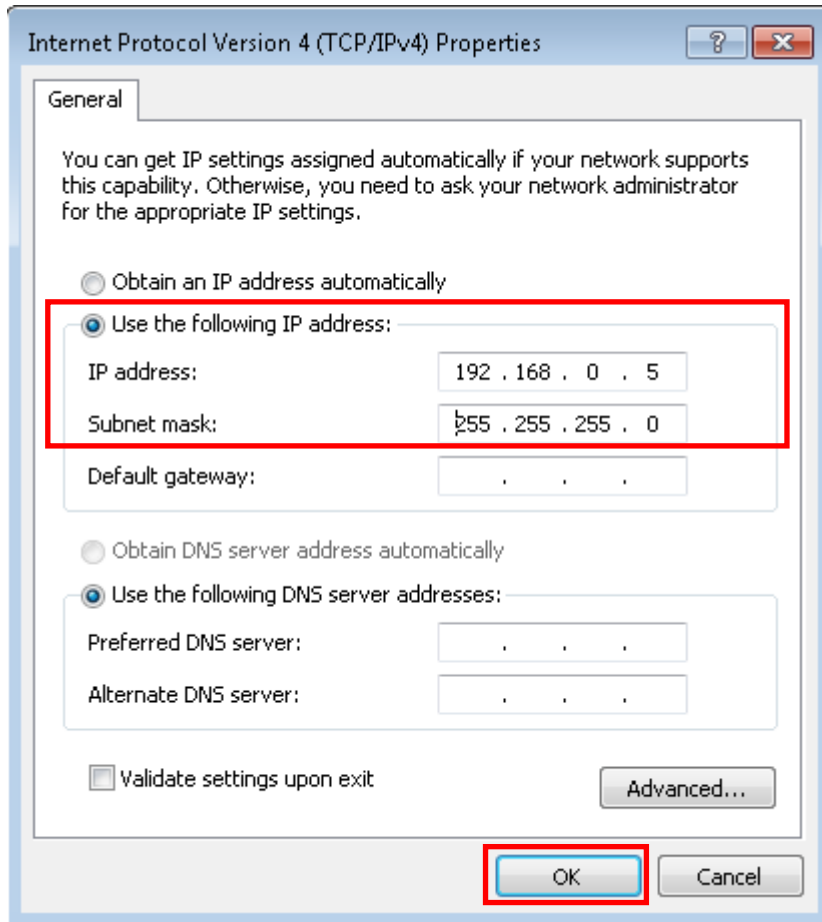
3. Click [Local Area Connection] highlighted on the screen shown above. The following screen will be shown. Click [Properties].



4. The following screen will be shown. Select [Internet Protocol Version 4 (TCP/IPv4)], and click [Properties].



5. The following screen will be shown.  
Select [Use the following IP address] and enter the IP address and subnet mask at the section highlighted on the figure.  
In this example, IP address is set at [192.168.0.5] and subnet mask [255.255.255.0]. Once the entry has been completed, click [OK].

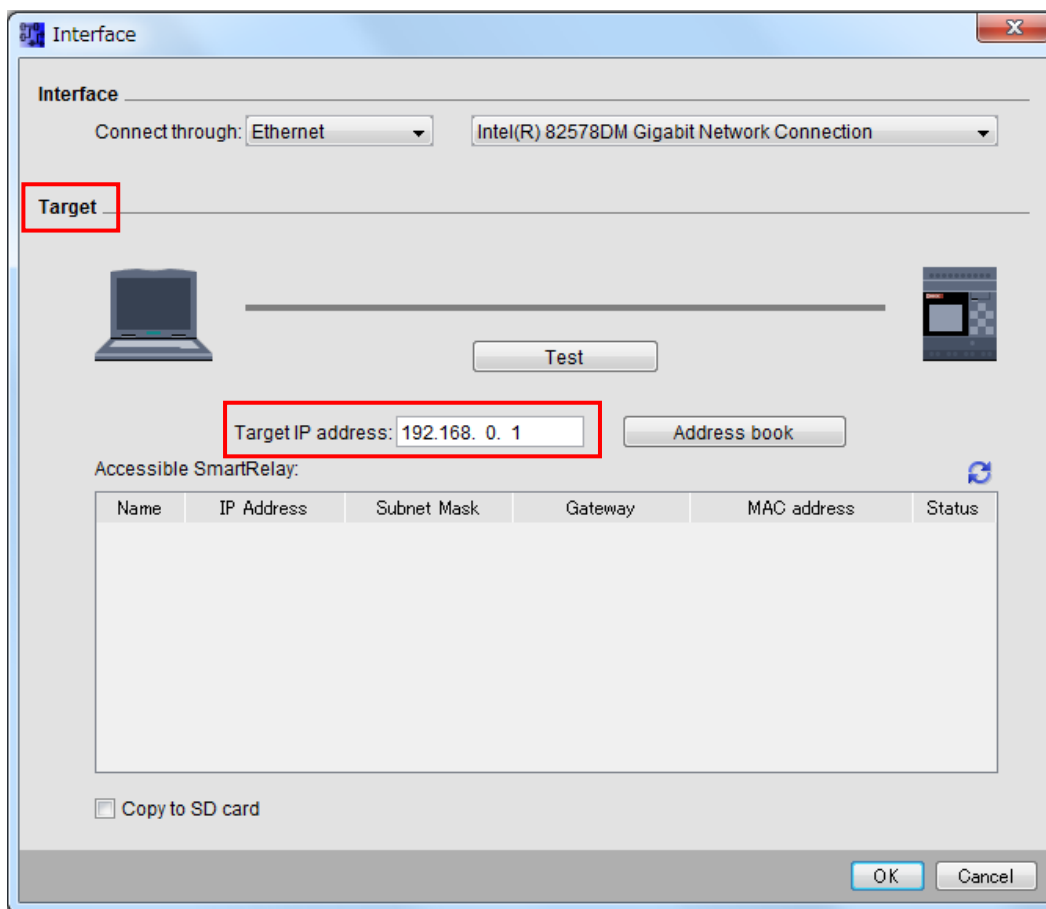


Now, the local area connection setting on PC is completed.

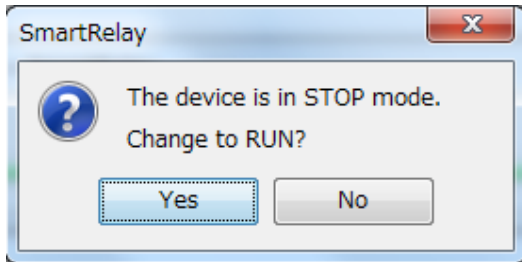
## ■ Method of communication between the FL1F type Base Module and PC

This part is explained the case of downloading user program on PC to the Base Module.

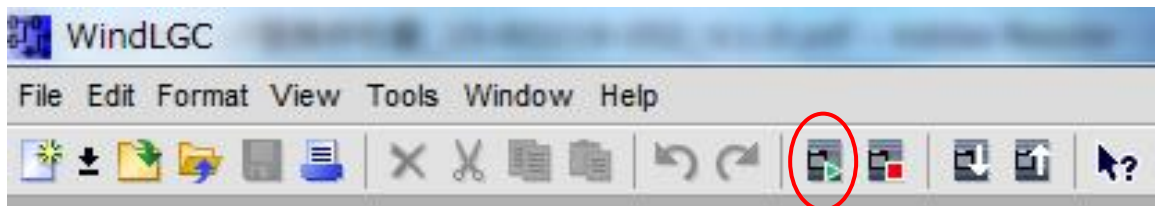
1. Open the user program to download.
2. Click the [PC -> SmartRelay] icon. (When uploading user program from the Base Module, click the [SmartRelay -> PC] icon.)  
The following screen [Interface] will show up. Select [Ethernet] for the connection interface. Subsequently, enter the IP address for the destination of the program download (Base Module). (The default IP address is set at [192.168.0.1] at the time of product shipment.)



- Click [OK] on the above-shown screen, connection confirmation is performed and the following screen will be displayed.  
If the operating state of the destination (Base Module) is RUN mode, the following confirmation screen will show up. Make sure that the operating state may be changed to the stopped state and then click [Yes]. (Unless the operating state of the destination is changed to the stopped state, the program cannot be downloaded.)



- The download of the user program will get started.  
The download status bar will show up and, once the download completes, the status bar will automatically disappear.
- After the download, the operating state of the destination (Base Module) will be in the stopped state.  
To change to the operating state, click the icon (circled on the figure) on the menu bar.



- The above-mentioned screen [Interface] will be shown. In the same way as in the case of the user program download, select [Ethernet] for the connection interface, enter onto [Target IP Address], and click [OK]. And, just as stated before, the destination (Base Module) will transition to the operating state.

## ■ Micro SD memory card formatting method

- Formatting micro SD memory card usable on FL1F type

The only file system of micro SD memory card usable on FL1F type is “FAT32”.

When uploading/ downloading program by the use of micro SD memory card, the formatted micro SD memory card must be used.

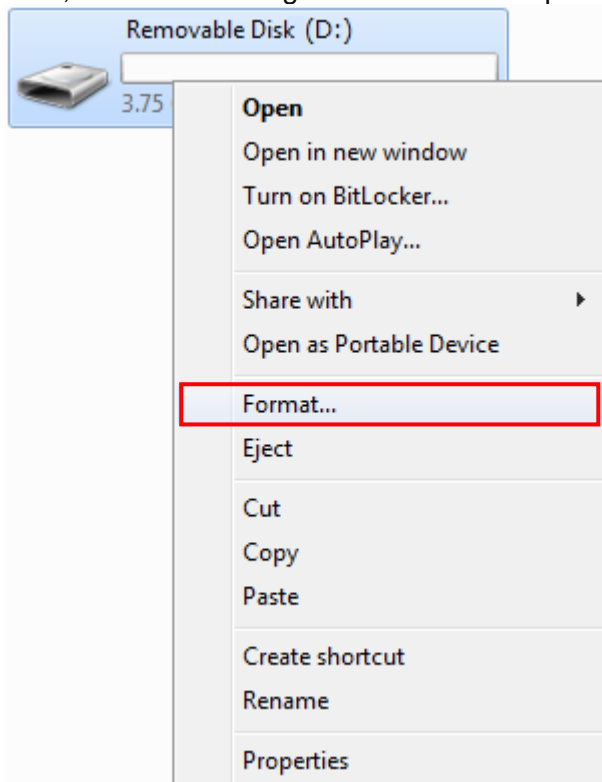
- Micro SD memory card formatting method

This part discusses the formatting method by the use of Window 7-compatible PC.

Running the formatting deletes data stored on the micro SD memory card.

If any saved data is stored on the micro SD memory card, copy it to other storage device.

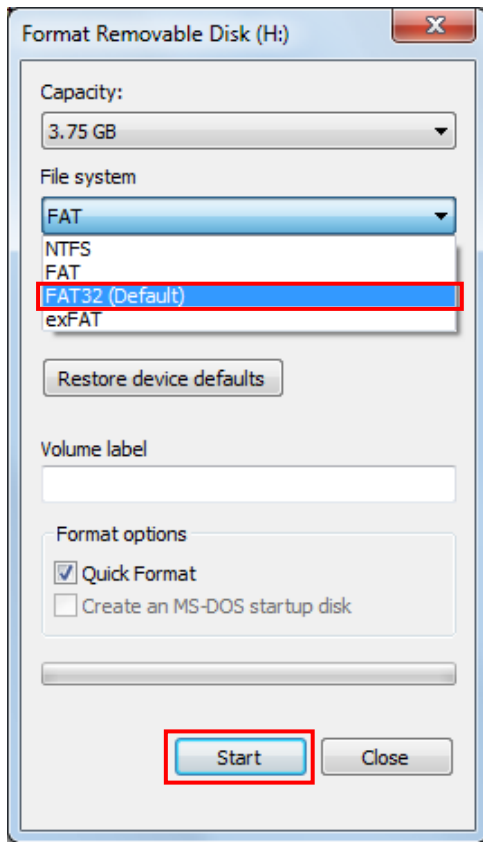
1. Insert the micro SD memory card into a proper port of the PC.
2. Click the [Computer] button of Windows and then right-click on the relevant micro SD memory card, and the following screen will show up. At this time, click [Format].



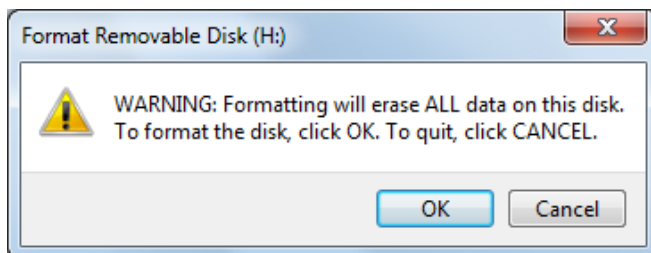
- Here is the recommended Micro SD memory cards which has been verified.

Maker	Type Number and Description
SAMSUNG	8GB Class6 TF (Micro SD)
SAMSUNG	32GB Class6 T F (Micro SD)
SanDisk	MicroSDHC (TF) 4G-Class6-30MB/s
SanDisk	MicroSDHC UHS-I8GB Class10 48Mb/s
SanDisk	MicroSDHC (TF) 4G-Class6-30MB/s

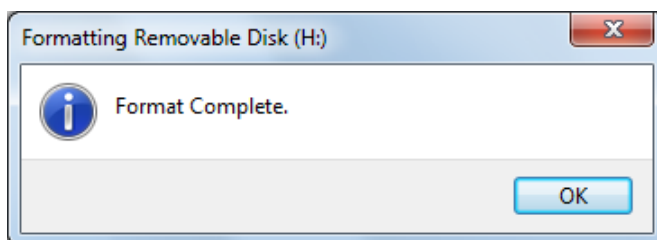
3. The following screen will be shown.  
On the file system selection menu, select [FAT32] and click the [Start] button.



4. The warning message will be displayed on the following screen. Click [OK] only when the data stored on the micro SD memory card may be deleted. Formatting will get started.



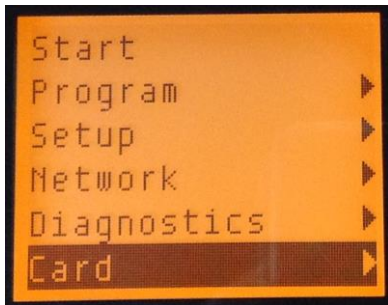
5. Once the following screen is shown, the formatting of the micro SD memory card is now completed.



■ User program uploading/ downloading by the use of micro SD memory card

**[User program upload from FL1F type to micro SD memory card]**

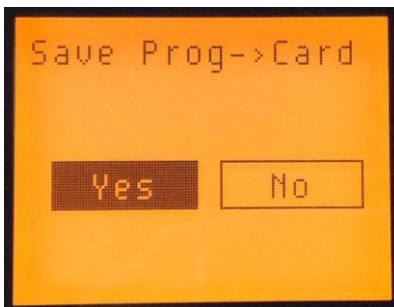
1. Insert the micro SD memory card into the micro SD memory card port of FL1F type.
2. Press [Card] on the menu screen of FL1F type.



3. The following screen will be shown. Press [Save Prog -> Card].



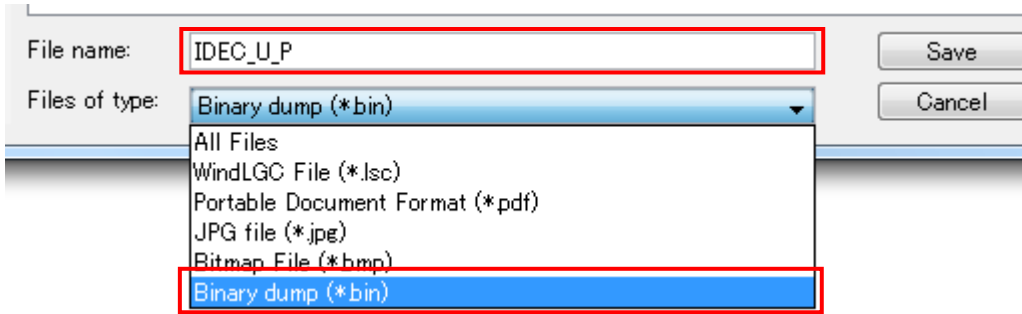
4. The following screen will show up. Then, press [Yes].  
The user program will be saved onto the micro SD memory card.



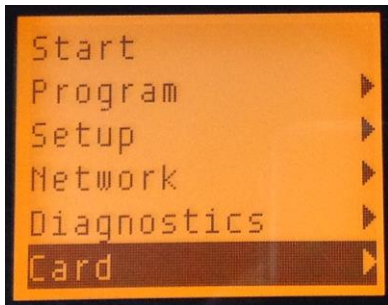
By the operations so far made, the user program is saved on the micro SD memory card.

**[User program download from micro SD memory card to FL1F type]**

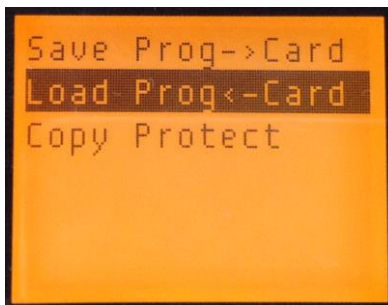
1. Select [File] -> [Save As] on WindLGC to save the user program onto the micro SD memory card. (The micro SD memory card must be inserted in the PC.)  
At that time, select [Binary dump (\*.bin)] for the file type and set the file name to [IDEC\_U\_P].  
Otherwise, FL1F type cannot recognize the program.



2. Insert the micro SD memory card that stores the user program into the micro SD memory card port of FL1F type.
3. Press [Card] on the menu screen of FL1F type.

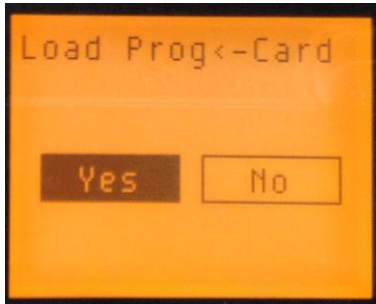


4. The following screen will be shown.  
Press [Load Prog<-Card].





5. The following screen will show up. Then, press [Yes].  
The user program will be downloaded from the micro SD memory card to FL1F type.



6. While the saving is in progress, the data transfer screen will be shown and, once the download completes, FL1F type will be automatically restarted.

Attention: When downloading user program to FL1F type, FL1F type will transition to a stopped state.  
Sufficiently assure the safety of the surrounding area when downloading the user program.



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