

**MasterLogic-200
Fast Ethernet I/F Module**

**2MLL-EFMT
2MLL-EFMF**

10310000652 Printed in Korea

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Safety Precautions

- ▶ Safety Precautions is for using the product safe and correct in order to prevent the accidents and danger, so always follow the instructions.
 - ▶ The precautions explained here only apply to MasterLogic-200 Series.
For safety precautions on the PLC system, refer to FENet I/F User's manual.
 - ▶ The precautions are divided into 2 sections, 'Warning' and 'Caution'. Each of the meanings is represented as follows.
- Warning** If violated instructions, it may cause death, fatal injury or a considerable loss of property.
- Caution** If violated instructions, it may cause a slight injury or a slight loss of products.
- ▶ The symbols which are indicated in the PLC and User's Manual mean as follows.

- ▶ Give warnings and cautions to prevent from risk of injury, fire, or malfunction.
- ▶ Give warnings and cautions to prevent from risk of electric shock.
- ▶ Store this datasheet in a safe place so that you can take out and read whenever necessary. Always forward it to the end user

Warning

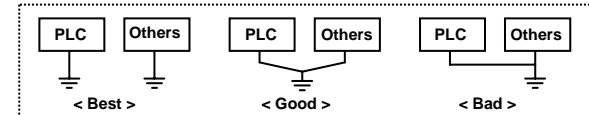
- ▶ **Do not contact the terminals while the power is applied.**
Risk of electric shock and malfunction.
- ▶ **Do not drop or insert any metallic object into the product.**
Risk of fire, electric shock and malfunction.
- ▶ **Do not charge, heat, short, solder and break up the battery.**
Risk of injury and fire by explosion and ignition.

Caution

- ▶ **Ensure to check the rated voltage and terminal arrangement for the module before wiring work.**
Risk of electric shock, fire and malfunction.
- ▶ **Tighten the screw of terminal block with the specified torque range.**
Risk of fire and electric shock if the terminal screw loosens.
- ▶ **Use the PLC in an environment that meets the general specifications contained in this datasheet.**
Risk of electrical shock, fire, erroneous operation and deterioration of the PLC.
- ▶ **Ensure that external load do not exceed the rating of output module.**
Risk of fire and erroneous operation.
- ▶ **Do not use the PLC in the environment of direct vibration**
Risk of electrical shock, fire and erroneous operation.
- ▶ **Do not disassemble, repair or modify the PLC.**
Risk of electrical shock, fire and erroneous operation.
- ▶ **When disposing of PLC and battery, treat it as industrial waste.**
Risk of poisonous pollution or explosion.

Precautions for use

- ▶ Do not install in any places other than PLC controlled place.
- ▶ Ensure that the FG terminal is grounded with class 3 grounding which is dedicated to the PLC. Otherwise, it may cause disorder or malfunction of PLC



- ▶ Connect expansion connector correctly when expansion module are needed,
- ▶ Do not detach PCB from the case of the module and do not modify the module.
- ▶ Turn off the power when attaching or detaching module.
- ▶ Cellular phone or walkie-talkie should be farther than 30cm from the PLC
- ▶ Input signal and communication line should be farther than minimum 100mm from a high-tension line and a power line in order not to be affected by noise and magnetic field.

Before handling the product

Read this data sheet carefully prior to any operation, mounting, installation or start-up of the product.

Materials for MasterLogic-200

Name	Item Code
2MLK-CPUH/CPUS	10310000648
MasterLogic-200 BASIC NSTRUCTION	10310000649
MasterLogic-200 SOFTWARE	10310000650

Name	Fast Ethernet(FENet I/F) I/F Module datasheet
Code	10310000652

Revision History

Publication	Version	Description
2005. 11	V1.0	The first edition
2006. 1	V1.1	Fiber-Optic Module(2MLL-EDMF) is added.

1. Introduction

This data sheet contains the brief information about the characteristics, configurations, and operating of MasterLogic-200 PLC Fast Ethernet I/F module (FENet I/F module).

2. General Specifications

No.	Item	Specification	Standard				
1	Operating temperature	0 ~ 55℃					
2	Storage temperature	-25 ~ 70℃					
3	Operating Humidity	5 ~ 95%RH, non-condensing					
4	Storage humidity	5 ~ 95%RH, non-condensing					
5	Vibration	Occasional vibration		10 times in each direction for X, Y, Z	IEC61131-2		
		Frequency	Acceleration			Amplitude	Sweep count
		10sf ≤ 57 Hz	-			0.075 mm	-
		57 sf ≤ 150 Hz	9.8 m/s ² (1G)			-	-
		Continuous vibration					
		Frequency	Acceleration	Amplitude			
		10sf ≤ 57 Hz	-	0.035 mm			
		57 sf ≤ 150 Hz	4.9 m/s ² (0.5G)	-			
6	Shocks	*Maximum shock acceleration: 147 m/s ² (15G) *Duration time :11 ms *Pulse wave: half sine wave pulse (3 times in each of X, Y and Z directions)	IEC61131-2				
7	Noise immunity	Square wave impulse noise	±1,500 V				
		Electrostatic discharge	Voltage :4kV(contact discharge)	IEC61131-2 IEC61000-4-2			
		Radiated Electromagnetic field	27 ~ 500 MHz, 10 V/m	IEC61131-2 IEC61000-4-3			
		Fast transient burst noise	Severity Level	All power modules	Digital, Analog I/Os communications	IEC61131-2 IEC61000-4-4	
		Voltage	2 kV	1 kV			
8	Atmosphere	Free from corrosive gases and excessive dust					
9	Altitude for use	Up to 2,000m					
10	Pollution degree	2 or lower					
11	Cooling method	Self-cooling					

3. Performance Specification

Following presents performance specification of Fast Ethernet module.

Items	Performance spec.		
	100BASE-FX	10/100BASE-TX	
Speed	100Mbps	10/100Mbps	
Transfer System	Base Band		
Max. extended distance of Station-to-Station	2km	-	
Max. Segment Length.		100m (Node-Hub)	
Max. Node No.	30 Nodes/Segment	Able to link to 9 hub stages (Recommended)	
Node Interval	Multiple of 0.5m	-	
Max. Protocol Vol.	1,500 Byte		
Excess Method of Communication Range	CSMA/CD		
Frame Error Check	CRC16 = X ¹⁵ + X ¹⁴ + X ¹³ + ... + X ² + X + 1		
Number of Max. Installation module	12		
Base	Basic and Expansion base		
Basic Spec	Power Consumption	600	410
	Weight (g)	110	105

4. Cable specification

▶ **10/100BASE-TX(UTP)**

Item	Unit	Value	
Conductor resistance(Max)	Ω/km	93.5	
Insulation resistance(Min)	MΩ·km	2500	
Voltage resistance	V/min	AC 500	
Characteristic impedance	Ω(1~100MHz)	100 ± 15	
Decrement	dB/100m or less	10MHz	6.5
		16MHz	8.2
		20MHz	9.3
Near-end crosstalk decrement	dB/100m or less	10MHz	47
		16MHz	44
		20MHz	42

▶ **Fiber Optic(100Mbps)**

Item	SC type	
	PC Polish	APC Polish
Attenuation	Less than -45dB,X=-47dB	Less than -45dB,X=-47dB
Connection Loss	Less than 0.5dB ,X=0.2dB	
Connection Durability	Less than 0.2dB	
Operating Temp.	Less than ±0.2dB (-40℃ ~ +75℃)	

* 2 core multimode: 62.5/125 fiber optic cable

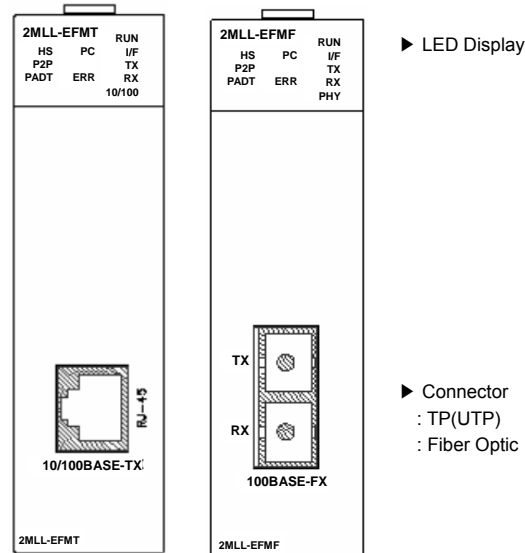
* Connector: SC type

Remark

1) Connecting cable for communication module is different from system configuration and environment. So, consult with expert before the installation.

5. Parts Name and Descriptions

▶ 2MLL-EFMT/2MLL-EFMF

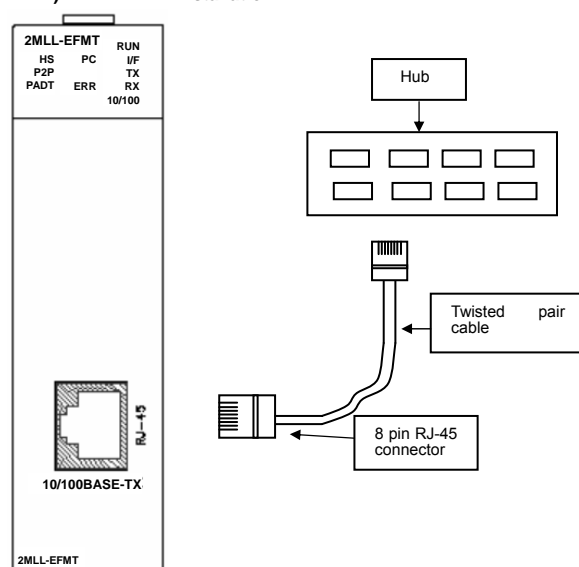


▶ LED Discription

SILK	LED Status	Discription	How to manage
RUN	On	Normal	
	OFF	ON when a fatal error occurs	Check at center
I/F	Blink	Normal	
	Off, On	ON when a fatal error occurs	Check at center
HS	On	On during HS Link service	
	Off	HS Link service is off	SOFTMASTER-PD setting check
P2P	On	On P2P service	
	Off	P2P service is off	SOFTMASTER-PD setting check
PADT	On	On remote service	
	Off	Remote service is off	SOFTMASTER5000 setting check
PC	On	On dedicated service use	
	Off	Dedicated service is off	MMI(HMI) setting check
ERR	On	ON when a fatal error occurs	Check at center
	Off	Normal	
TX	On	Blinks when sending	
	Off	ON when a fatal error occurs	Check at center
RX	On	Blinks when receiving	
	Off	ON when a fatal error occurs	Check at center
10/100	On	100Mbps	
	Off	10Mbps	Media check
PHY	On	Media Connected	
	Off	No Connected	Media check

6. Installation and Wiring

1) 2MLL-EFMT Installation



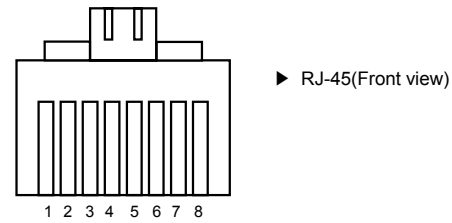
Max. segment length of 10/100BASE-TX is 100m(between this module and the hub). Generally the straight cable is used which is made as twisted with TD and RD inside. If only 2 communication modules are connected 1 to 1, the cross cable type shall be applied.

Pin No.	Signal name	Straight cable between Hub & Module	1:1 cross cable
1	TD+	1 — 1	1 — 3
2	TD-	2 — 2	2 — 6
3	RD+	3 — 3	3 — 1
6	RD-	6 — 6	6 — 2
4, 5, 7, 8	N/A		

▶ Pin diagram for RJ-45 UTP Jack

Refer to the following pin number for Ethernet cable connection using UTP RJ-45 connector.

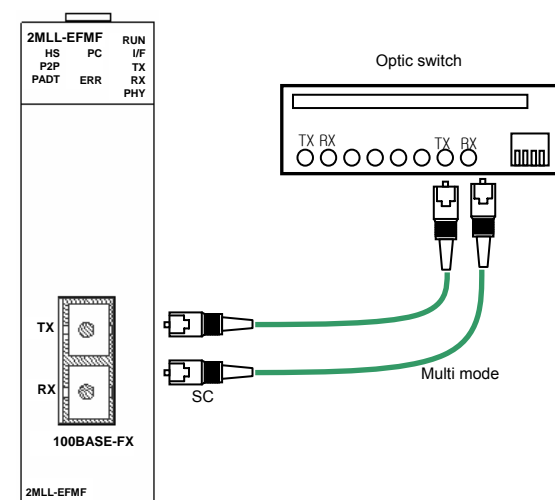
To make the cable, use RJ-45 (cutter and stripper hand tool for RJ-45) and when it completed, check the wiring and contact with wiring check inspector if the connection is right.



Remark

- Since 10/100 BASE-TX cable structure is weak in external noise, the cable of No.1 & 2 which are TD+ & TD- and No.3 & 6 which are RD+ & RD shall be twisted respectively to be strong against noise.
- Hub power shall be with countermeasures against noise as separated from PLC power.
- The cable shall be installed min. 50 mm away from high current line such as power line, etc.
- Contact an expert for terminal work, manufacture and installation of cable.

2) 2MLL-EFMF installation



100BASE-FX must use with 2 cored multimode 62.5/123 cable (SC connector) for normal communication. It can access by optic switching hub and optic converter. Refer to user's manual for detailed information.

7. Precautions for system configuration

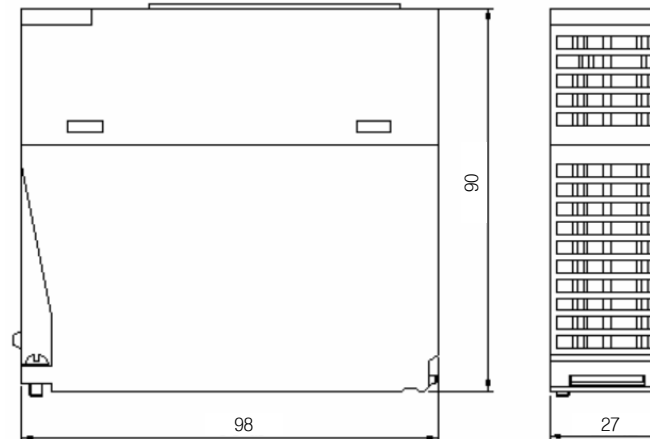
For system configuration through FENet I/F module, carefully make sure of the following items prior to installation.

- IP addresses shall be surely different from each other including this module. If connected via the repeated addresses, communication error may occur, leading to communication trouble. HS link station No. of all stations also shall be different from each other to use HS link service.
- Use the communication cable as specified only. If not, serious error may occur to communication.
- Check communication cable if disconnected or shorted prior to installation.
- Tighten up communication cable connector until connected firmly. If cable connection is unstable, serious error may occur to communication.
- If remote communication cable is connected, keep the cable far away from power line or inductive noise.
- If the cable is bent at a right angle or transformed compulsorily, cable disconnection or connector damage in communication module will be caused.

8. Outward Dimension

2MLL-EFMF's dimension is same as 2MLL-EFMT.

Unit : mm



9. Warranty

1) Warranty period

Honeywell 12-month-warranty for new MasterLogic PLC systems and 90-day-warranty for spare parts, from the date of delivery.

2) Warranty conditions

For troubles within the warranty period, Honeywell will replace the entire PLC or repair the troubled parts free of charge except the following cases.

- The troubles caused by improper condition, environment or treatment except the instructions of Honeywell.
- The troubles caused by external devices.
- The troubles caused by remodeling or repairing based on the user's own discretion.
- The troubles caused by improper usage of the product.
- The troubles caused by the reason which exceeded the expectation from science and technology level when Honeywell manufactured the product.
- The troubles caused by natural disaster.

3) This warranty is limited to the PLC itself only. It is not valid for the whole system which the PLC is attached to.