

**MasterLogic-200
Profibus-DP Master I/F Module**

2MLL-PMEA

10310000654 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 Profibus-DP Master 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

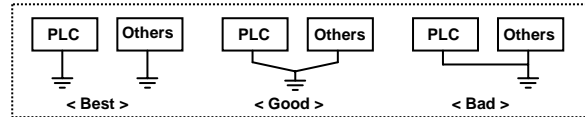
- ▶ **Do not contact the terminals while the power is applied.**
Risk of electric shock and malfunction.
- ▶ **Do not drop or insert any metallic object into the product.**
Risk of fire, electric shock and malfunction.
- ▶ **Do not charge, heat, short, solder and break up the battery.**
Risk of injury 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.
- ▶ Make sure 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 modules 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	Code
2MLK-CPUH/CPUS	10310000648
MasterLogic-200 BASIC INSTRUCTION	10310000649
MasterLogic-200 SOFTWARE	10310000650

Name	Profibus-DP Master I/F Module datasheet
Code	10310000654

1. Introduction

This data sheet contains the brief information about the characteristics, configurations, and operating MasterLogic-200 Profibus-DP I/F module (Pnet I/F Module).

2. General Specifications

No.	Item	Specification	Standard				
1	Operating temperature	0 ~ 55 °C					
2	Storage temperature	-25 ~ 70 °C					
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 ms ² (1G)			-	-
		Continuous vibration					
		Frequency	Acceleration	Amplitude			
		10sf ≤ 57 Hz	-	0.035 mm			
		57sf ≤ 150 Hz	4.9 ms ² (0.5G)	-			
6	Shocks	*Maximum shock acceleration: 147 ms 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 Pnet I/F module.

Items	Name	2MLL-PMEA
Module Type		Master
Network Type		Profibus-DP
Standard		EN50170/DIN19245
Communication method		RS-485
Topology		Bus
Modulation method		NRZ
MAC		Logical Token Ring
Communication distance		1200m(9.6k~187kbps)
		400m(500kbps)
		200m(1.5Mbps)
		100m(3M~12Mbps)
Max. Node/network		126 Station
Max. Node/segment		32 Station
Communication cable		Shielded Twisted Pair
Max. I/O data		6kbyte
Current consumption(mA)		550
Weight(g)		114

4. Cable Specification

A **Shielded Twisted Pair Cable** should be used for the Profibus-DP communication.

• Cable Specification

Cable Specification	Type A
Impedance	135 – 165 Ω (f= 3 to 20 MHz)
Capacity	< 30 pF/m
Resistance	< 110 Ω/Km
Conductor Area	>= 0.34 mm ² (22 AWG)

• Communication distance

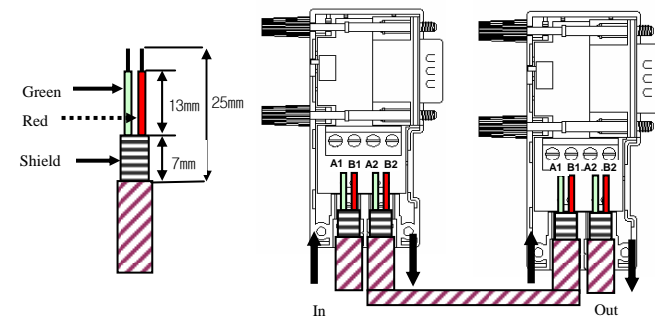
Baud rate (kbit/s)	9.6	19.2	93.75	187.5	500	1500	3000	6000	12000
distance	1200	1200	1200	1000	400	200	100	100	100

5. Wiring of Communication Cable

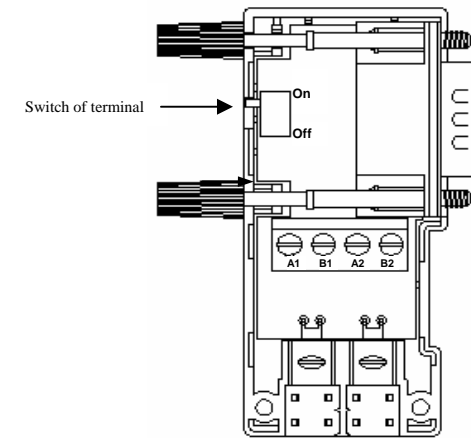
- Cabling

Signal Line	Line Color	Connection	Terminal of Connection
In	Green	→	A1
	Red	→	B1
	Shield	→	Clamp
Out	Green	→	A2
	Red	→	B2
	Shield	→	Clamp

- Please use cable of over 80% shield density
- The terminal resistance should be connected to each ends of the segment.
- When connecting more than one segment, repeaters are necessary. (at this time, refer to the datasheet of repeater)

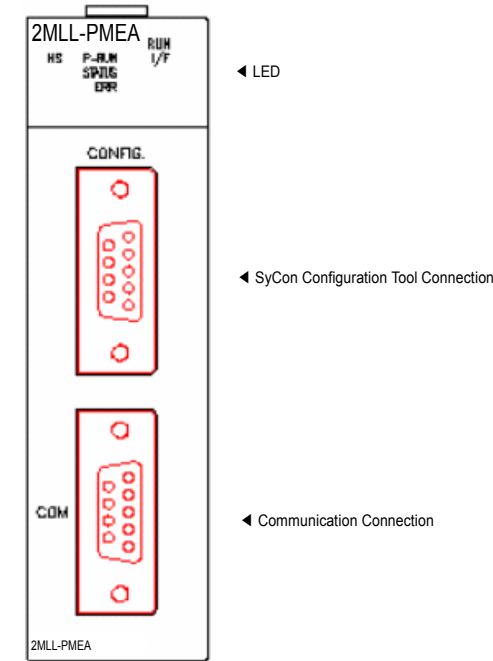


6. Terminal Switch



	Description
Terminal Switch Up	Terminal resistor is in operation
Terminal Switch Down	Terminal resistor is not in operation

7. Each Part Name and Description



► SyCon Configuration Tool Connector Connection

9Pin Male	Connection	9Pin Female
3	→	2
2	→	3
5	→	5

► LED Silk Description

SILK	LED	Description
RUN	On	Good
	Off	Critical Error
I/F	Flickering	Good
	On /Off	Critical Error
HS	On	Communication Enable
	Off	Communication Disable
P-RUN	On	Good
	Off	Check Slave Module
STAT	On	Good
	Off	Critical Error
ERR	On	Check Slave
	Off	Good

8. Precaution on installation

- 1) Station No. of Pnet I/F Module must be set by 'SyCon Configuration Tool'. The parameter downloaded by 'SyCon Configuration Tool' is saved to the CPU. Hence, if you change the CPU, you should backup the program.
- 2) Use cable complied with specification of this data sheet. Otherwise, it can cause serious communication error.
- 3) Ensure that communication cable connector fastened firmly. Otherwise, it can cause serious communication error.
- 4) Improper cable connection (snarled cable, redundant connection, etc) may cause communication error.
- 5) Do not place communication cable near power cable or inductive noise source.
- 6) Ensure that shield wire is connected to the metal case of 9-pin connector.
- 7) Do not mount or dismount module while power is applied to the module. Therefore, turn off the module before repairing or replacement.

• When you use the module

Item	Name	Description	Others
Software	SyCon	Set the Stations, bps, slaves	-
	GSD	Need to configure in the SyCon	-
	SoftMaster-200	Programming Tool in the PLC	-
	SoftMaster-PD	Tool of data communication	-
Accessory	Connector	Communication Connector	-

9. Dimension

