Maple Systems

USER MANUAL

MAPLE MODULAR PLC

Terminal Block & Cables

- ACC-TB32M
- ACC-SCB15M
- ACC-SCB15E

1010-1157 REV 1.2

Contents

- For your safety and the safe operation of this product, please read this manual before using the product. The manual is subject to change without notice.
- Please review the product specifications in this manual to determine the suitability of this product for its intended use.
- For your safety only qualified persons should perform electrical and wiring attachments to this product.

Before You Start

This manual contains important information on the use and operation of this device. Please read all the information carefully for optimal performance and to prevent any damage or misuse of the device.

To keep products safe, all activities including product installation, wiring operation, and maintenance are required to be treated by trained personnel.

Safety symbols are classified into two categories, “WARNING” and “CAUTION”.

 Warning: This symbol describes situations that could cause major or fatal injury to the user.

 Caution: This symbol describes situations that may cause minor injury or damage to the device.

SAFETY SYMBOLS USED IN THIS PRODUCT MEAN:

 This symbol warns the user of potential hazards.

 This symbol warns the user of uninsulated voltage within the unit that can cause dangerous electric shock.

Keep this manual near the operating devices so it can be easily checked.

Design Precautions (⚠ Warning)

Please install a safety circuit to protect the entire control system in case of an unexpected power shutdown or PLC module malfunction. Such anomalies may severely compromise the integrity of the overall system.

External to the PLC, please install circuits and switches to safeguard the system from mechanical damages (ex. emergency stop, upper/lower limit switches, forward/reverse direction interlocking circuits, etc).

When the PLC detects either of the following failure conditions, it may stop operation and turn off all outputs.

- The overcurrent protection or overvoltage protection of the power supply module is activated.

- The PLC CPU detected a failure, such as the watchdog timer error or module installation failure, with its self-diagnostic function.

In addition, all outputs may be turned on when there is a failure that the PLC CPU cannot detect, such as in the relay or TR terminal. Build an extra monitoring circuit that will monitor any output signal that could cause serious accidents.

A greater than normal current passed through the PLC for an extended period of time, or a short-circuited load flowing through the output module may cause a fire.

Build a circuit that turns on the external power supply after the PLC power supply is turned on. If the external power supply is turned on first, it could result in output failure or malfunction.

In order to ensure that the system operates safely, please configure an interlock circuit in the scan program for the following situations:

- When exchanging data with computer or other devices.
- When operated by a computer or other devices.

Not doing so could result in output failure or malfunction.

Precautions for design (⚠ Caution)

Do not bundle the input/output signal or communications cables with the main circuit and power cables. They should be installed at least more than 100 mm (3.94 inches) apart. Not doing so could result in output failure or malfunction.

Precautions for mounting (⚠ Caution)

Use the PLC in an environment that meets the general specifications given in this manual.

Using this PLC in any environment outside the range of the general specifications could result in electric shock, fire, malfunction, or damage to or deterioration of the product.

Please ensure that each module is installed correctly in its place. Loosely or incorrectly installed pieces may result in malfunction, failure, or free-fall.

The PLC power supply should be turned off before mounting the module. Not doing so could cause an electric shock or damage to the device.

Install I/O devices or extension connectors correctly. If they are installed incorrectly, it may result in an input or output failure.

Do not convey direct vibration into the PLC. Doing so could cause electric shock, fire or malfunctions.

After wiring work, please make sure to close the terminal cover before turning on the power for the PLC system.

Precautions for wiring (⚠ Warning)

Make sure to check the device's rated voltage and circuit arrangement before wiring. Failure to do so may cause electric shock or damage to the device.

Make sure to close the terminal cover before turning on the power of the PLC system after wiring work. Failure to do so may cause electric shock.

Precautions for wiring (⚠ Caution)

Make sure to check the device's regular voltage and sequence of terminals. Failure to do so may cause fire, electric shock and malfunctions.

Make sure to tighten the screws with standard torque. Loose connections may cause short circuit, fire, or malfunctions.

When grounding the FG ground terminals, be sure to conduct the product with at least D type (Class 3) grounding. Not doing so could result in electric shock or malfunctions.

When wiring, make sure that wiring debris does not enter the module. Failure to do so may cause fire, equipment damage, or malfunctions.

Precautions for test run and repair (⚠Warning)

Please do not touch the terminals when the power is on. Doing so could cause an electric shock or malfunctions.

When cleaning or tightening the screws, turn off the power of the PLC and all other systems. Failure to do so could cause an electric shock or malfunctions.

Do not charge, disassemble, heat up, short, or solder the battery. Doing so could cause the battery to heat up, rupture or ignite thereby harming the user.

Precautions for test run and repair (⚠Caution)

Do not dissociate the PCB from the module's casing or make any modifications to the device. Doing so may cause fire, electric shock or malfunction.

When mounting or separating the module, make sure to turn off power to the PLC and all other devices. Failure to do so could cause an electric shock or malfunctions.

Use radio, walkie-talkie, or cellphone devices at least 30 cm away from the PLC. Not doing so could result in malfunction.

Precautions for disposal (⚠Caution)

When the product is disposed of, it should be done according to your country's regulations for similar types of industrial waste. Not doing so may cause an occurrence of toxic substances or explosions.

Contents

Items	Part Number
Terminal Block	ACC-TB32M
Cables	ACC-SCB15M
	ACC-SCB15E

Specification

Items		Specifications
Applicable Cable		UL20276
Conductor Construction		7/0.127 mm (AWG 28)
External Diameter of Insulation		0.12 mm^2
External Diameter of Cable		7.2 mm
Rated Current		1 A (MAX)
Conductor Resistance		Less than 0.223 Ω/m
Insulation Voltage		500 V AC 50/60 Hz per a minute
Insulation Resistance		More than 15 MΩ/km
Environment	Ambient Temperature	-15–55˚C
	Ambient Humidity	35–75% RH

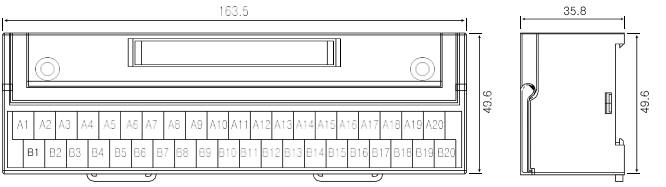
▶ The operating conditions for use should not be in freezing or condensation environments.

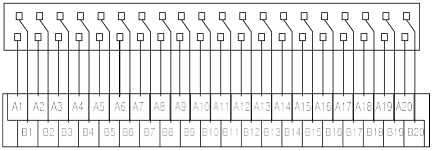
▶ The color of the applicable cable is black.

▶ The value of the conductor resistance is based on 20˚C.

Terminal Block Dimensions

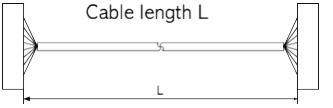
(Unit: mm)





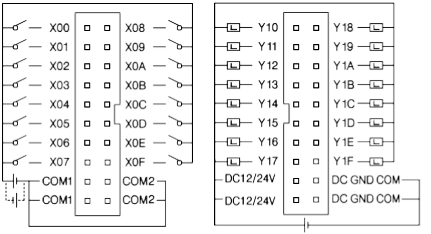
Dimensions & Wiring (PLC-ES1616P)

1. Wiring (ACC-SCB15M)

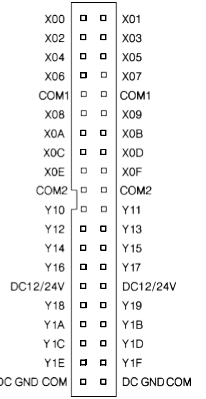


Part Number	Cable Length
ACC-SCB15M	1.5 M

▶ **PLC Connection**



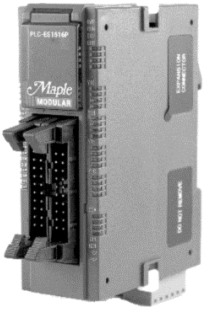
▶ **Terminal Block Connection**

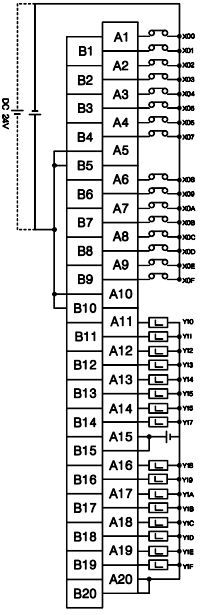


Dimensions & Wiring (PLC-ES1616P)

2. ACC-TB32M ↔ PLC-ES1616P Wiring

▶ **Module : PLC-ES1616P**



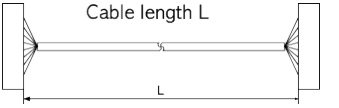


ACC-TB32	PLC-ES1616P
A1	X00
B1	X01
A2	X02
B2	X03
A3	X04
B3	X05
A4	X06
B4	X07
A5	COM1
B5	COM1
A6	X08
B6	X09
A7	X0A
B7	X0B
A8	X0C
B8	X0D
A9	X0E
B9	X0F
A10	COM2
B10	COM2
A11	Y10
B11	Y11
A12	Y12
B12	Y13
A13	Y14
B13	Y15
A14	Y16
B14	Y17
A15	DC12/24V
B15	DC12/24V
A16	Y18
B16	Y19
A17	Y1A
B17	Y1B
A18	Y1C
B18	Y1D
A19	Y1E
B19	Y1F
A20	DC GND
B20	DC GND

▶ Input point can be divided into 8 points for each COM1, COM2.

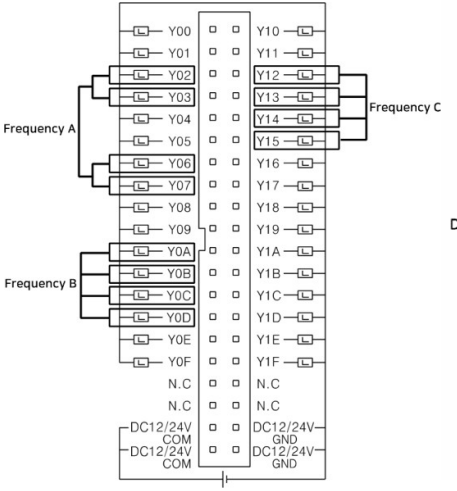
Dimensions & Wiring (IO-SD0032PPWM)

1. Wiring (ACC-SCB15E Cable)

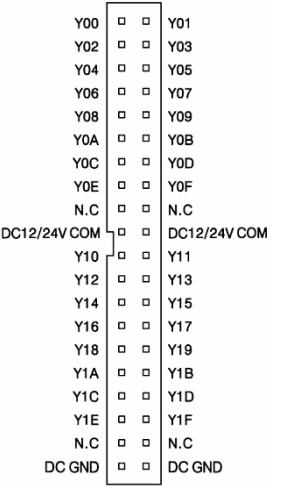


Part Number	Cable Length
ACC-SCB15E	1.5 M

▶ **IO-SD0032PPWM Module Connection**



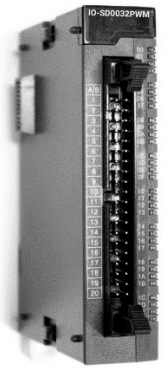
▶ **Terminal Block Connection**

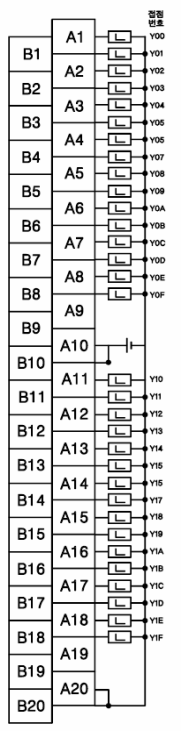


Dimensions & Wiring (IO-SD0032PPWM)

2. ACC-TB32 ↔ IO-SD0032PPWM Wiring

▶ **Module: IO-SD0032**

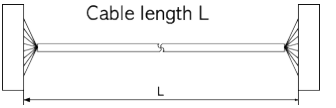




ACC-TB32	SD0032PPWM
A1	Y00
B1	Y01
A2	Y02
B2	Y03
A3	Y04
B3	Y05
A4	Y06
B4	Y07
A5	Y08
B5	Y09
A6	Y0A
B6	Y0B
A7	Y0C
B7	Y0D
A8	Y0E
B8	Y0F
A9	N.C
B9	N.C
A10	DC12/24VCOM
B10	DC12/24VCOM
A11	Y10
B11	Y11
A12	Y12
B12	Y13
A13	Y14
B13	Y15
A14	Y16
B14	Y17
A15	Y18
B15	Y19
A16	Y1A
B16	Y1B
A17	Y1C
B17	Y1D
A18	Y1E
B18	Y1F
A19	N.C
B19	N.C
A20	DC GND
B20	DC GND

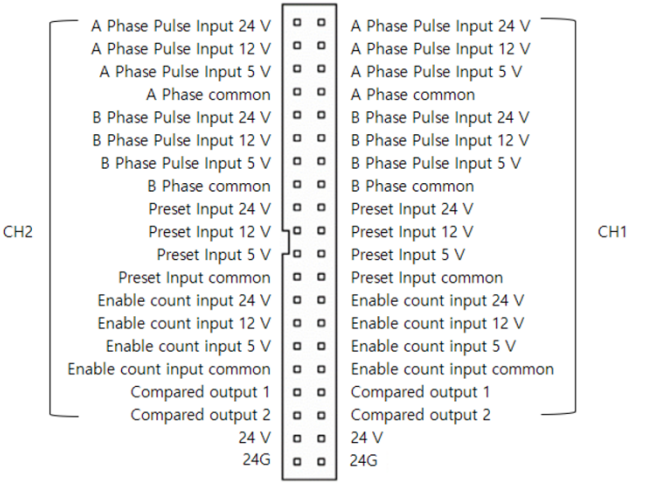
Dimensions & Wiring (IO-SHSC02)

1. Wiring (ACC-SCB15E Cable)



Part Number	Cable Length
ACC-SCB15E	1.5 M

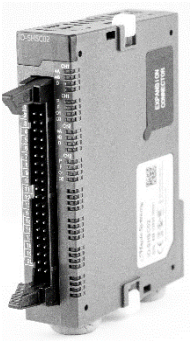
▶ PLC Connection



Dimensions & Wiring (IO-SHSC02)

1. ACC-TB32 ↔ IO-SHSC02 Wiring

▶ Module: IO-SHSC02



ACC-TB32M	IO-SHSC02 Module	
Pin Number	**Signal**	**Channel**
A1	A Phase Pulse Input 24 V	CH2
B1	A Phase Pulse Input 12 V	
A2	A Phase Pulse Input 5 V	
B2	A Phase COM	
A3	B Phase Pulse Input 24 V	
B3	B Phase Pulse Input 12 V	
A4	B Phase Pulse Input 5 V	
B4	B Phase COM	
A5	Preset Input 24 V	
B5	Preset Input 12 V	
A6	Preset Input 5 V	
B6	Preset Input COM	
A7	Enable Count Input 24 V	
B7	Enable Count Input 12 V	
A8	Enable Count Input 5 V	
B8	Enable Count Input COM	
A9	Output Compare 1	
B9	Output Compare 2	
A10	24 V	
B10	24G	
A11	A Phase Pulse Input 24 V	CH1
B11	A Phase Pulse Input 12 V	
A12	A Phase Pulse Input 5 V	
B12	A Phase COM	
A13	B Phase Pulse Input 24 V	
B13	B Phase Pulse Input 12 V	
A14	B Phase Pulse Input 5 V	
B14	B Phase COM	
A15	Preset Input 24 V	
B15	Preset Input 12 V	
A16	Preset Input 5 V	
B16	Preset Input COM	
A17	Enable Count Input 24 V	
B17	Enable Count Input 12 V	
A18	Enable Count Input 5 V	
B18	Enable Count Input COM	
A19	Output Compare 1	
B19	Output Compare 2	
A20	24 V	
B20	24G	

Product Warranty

Warranty Statements are included with each unit at the time of purchase and are available at www.maplesystems.com.

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