

CONPROSYS

Digital Input/Output Module

CPS-MC341-DS1 -111

Hardware Manual

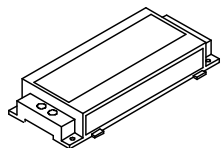
CONTEC CO.,LTD.

Check Your Package

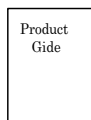
Thank you for purchasing the CONTEC product. The product consists of the items listed below. Check, with the following list, that your package is complete. If you discover damaged or missing items, contact your retailer.

Product Configuration List

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Product



Product Guide



Warranty Certificate



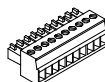
Serial number label



3pin Connector
(Power)



5pin Connector
(RS-422A/485)



10pin Connector
(Digital)

*This product was authenticated the standard with a power supply of our recommended. Accordingly, when you use other than power supply of our recommended, doing so may become non-standard. Information about recommended power supply, see the Contec's website.

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1. Before Using the Product

This chapter provides information you should know before using the product.

About the Unit

The product is an IoT/M2M controller with isolated RS-422A/485, isolated digital input, isolated digital output, Ethernet Hub. It is equipped with ARM®Cortex®-A8 processor (600MHz) and onboard 512MB DDR3-SDRAM. Boot device adopts onboard NOR-FLASH. The product realize all from development to utilize by operation on web browser. The product is equipped with function such as Web monitoring with I/O information, alarm processing by I/O information and task divergence and construct cloud system at low cost and in a short time.

Features

-Measurement, Collection

The product measures data by external sensor and sends data to a cloud server.

- Web Monitoring

The product has Web server (Java applet). It is able to monitor and renew by PC which is in a faraway place. Monitoring screen can be laid out freely with standard GUI parts (graphic, slider, button, etc.).

All operations completed only association with monitoring layout, I/O information, etc. on Web browser

- Web Task Script

A combination of Icons such as computing, conditional branch and data output, you can set the execution process and the process in the image that you write in the flowchart. All operations are completed only by the operation of the Web browser.

- Message Communication Function

Using RS-422A/RS-485 and Ethernet device (TCP/UDP), the product can do message communication setting 10 links maximum. The product can realize to send and receive message in Web task script.

- Compact Design

Compact design of 188.0(W), 78.0(D), 30.5(H) does not require special installation location.

- Supported Operating Temperature -20 to +60°C

Because the product supports -20 to + 60°C operating temperature environment, it can be used in a variety of environments.

- Ethernet Hub Function

It enables daisy chain connection to use the product as Ethernet Hub.

- A powerful platform in fan less motion

The product has ARM®Cortex®-A8 processor (600MHz) and DDR3 512MB system memory.

- Decrease in risk of malfunction and damaged by isolation and surge protection. (RS-422A/485, digital I/O)

Because between RS-422A/485 and CPU, digital I/O and CPU are isolated electrically, the product can prevent an electrical noise. In addition, the signal line has adopted a surge protection element.

Because it has been protected from surge by the adoption of communication IC having an input withstand voltage $\pm 70V$ in RS-422A / 485, risk of malfunction and damage by surges can reduce.

- A wide range of power supplies (12 to 24VDC) supported

As the product supports a wide range of power (10.8 to 31.2VDC), it can be used in a variety of power environments. Power connector is equipped with FG terminal.

- Adopted two pieces terminal and DIN rail installation

It is possible to remove terminal connector without screwdriver in a short time even if this product is failure. Because of DIN rail Installation, it is easy to exchange the product.

- Equipped LED for operation check

The product has LED for operation check so that you can confirm communication Status of each interface visually.

- Electrolytic capacitor and primary battery unused

Because the product is not used an electrolytic capacitor and a primary battery which are short-life components, it is a long life.

How to use

See the CPS-MC341 System Setup Guide for detail.

Customer Support

CONTEC provides the following support services for you to use CONTEC products more efficiently and comfortably.

Web Site

Japanese <http://www.contec.co.jp/>

English <http://www.contec.com/>

Chinese <http://www.contec.com.cn/>

Latest product information

CONTEC provides up-to-date information on products.

CONTEC also provides product manuals and various technical documents in the PDF.

Free download

You can download updated driver software and differential files as well as sample programs available in several languages.

Note! For product information

Contact your retailer if you have any technical question about a CONTEC product or need its price, delivery time, or estimate information.

Limited Two-Years Warranty

CONTEC products are warranted by CONTEC CO., LTD. to be free from defects in material and workmanship for up to two years from the date of purchase by the original purchaser.

Repair will be free of charge only when this device is returned freight prepaid with a copy of the original

invoice and a Return Merchandise Authorization to the distributor or the CONTEC group office, from which it was purchased.

This warranty is not applicable for scratches or normal wear, but only for the electronic circuitry and original products. The warranty is not applicable if the device has been tampered with or damaged through abuse, mistreatment, neglect, or unreasonable use, or if the original invoice is not included, in which case repairs will be considered beyond the warranty policy.

How to Obtain Service

For replacement or repair, return the device freight prepaid, with a copy of the original invoice. Please obtain a Return Merchandise Authorization number (RMA) from the CONTEC group office where you purchased before returning any product.

* No product will be accepted by CONTEC group without the RMA number.

Liability




The obligation of the warrantor is solely to repair or replace the product. In no event will the warrantor be liable for any incidental or consequential damages due to such defect or consequences that arise from inexperienced usage, misuse, or malfunction of this device.

Safety Precautions

Understand the following definitions and precautions to use the product safely.

Safety Information

This document provides safety information using the following symbols to prevent accidents resulting in injury or death and the destruction of equipment and resources. Understand the meanings of these labels to operate the equipment safely.

 DANGER	DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.

Handling Precautions

DANGER

- Do not use the product in locations exposed to a flammable or corrosive gas. It may cause explosion, fire, electrical shock, or malfunction.
 - Do not allow this device to come into contact with foreign substances (metal particles, flammable substances, liquids, etc.) This can cause fire or electrical shock.
 - Do not place this device in an unstable location or use incomplete mountings. This may cause the device to fall.
 - Be sure to connect the product to the stipulated power supply voltage. Connecting to a different voltage might cause a fire or electrical shock.
-

CAUTION

- Do not use or store this product in a location exposed to high or low temperature that exceeds range of specification or susceptible to rapid temperature changes.
Example: - Exposure to direct sun
- In the vicinity of a heat source
- Do not use this product in extremely humid or dusty locations. It is extremely dangerous to use this product with its interior penetrated by water or any other fluid or conductive dust. If this product must be used in such an environment, install it on a dust-proof control panel, for example.
- Do not use this product in the vicinity of devices that generate strong magnetic force or noise. Such products will cause this product to malfunction.
- Do not use or store this product in the presence of chemicals.
- CONTEC reserves the right to refuse to service a product modified by the user.
- In the event of failure or abnormality (foul smells or excessive heat generation), unplug the power cord immediately and contact your retailer.
- To connect with peripherals, use a grounded, shielded cable.
- To clean this product, wipe it gently with a soft cloth dampened with either water or mild detergent.

Do not use chemicals or a volatile solvent, such as benzene or thinner, to prevent peeling or discoloration of the paint.

- Avoid using or storing this product in locations subject to shock or vibration that exceeds range of specification.
 - Avoid transporting this products state to shock or vibration that exceeds range of specification.
Impact resistance: 15G (11ms) below
 - Use the product in the specified operating condition (temperature, humidity, vibration and shock)
 - Please be grounded (earth) always.
 - Please adjust the air current to prevent the reject heat from the product staying around the product.
 - When connecting cables, first check the shapes of connectors (such as USB connectors), and then insert them in the correct orientation. After they are connected, do not put too much load on the connected part. Doing so may result in poor contact or damage to this product and the connected part.
 - Do not touch metal parts or terminals of the product with your hands in operation. Otherwise, this product may malfunction, overheat, or cause a failure.
 - To avoid electric shock, please do not touch the system with a wet hand.
 - The specification of this product is subject to change without notice for enhancement and quality improvement. Even when using this product continuously, be sure to read the manual of CONTEC's website and understand the contents.
 - If you want to use in places where the influence of the overcurrent or overvoltage is, please select appropriate surge protection device for all of the route (Power line, signal line, earth, etc.)
 - Regardless of the foregoing statements, CONTEC is not liable for any damages whatsoever (Including damages for loss of business profits) arising out of the use or inability to use this CONTEC product or the information contained herein.
 - When disposing this product, please follow an instruction of government.
-

FCC PART15 Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference at his own expense.

WARNING TO USER

Change or modifications not expressly approved the manufacturer void the user's Authority to operate this equipment.

2. Setup

Before using the product for the First Time

Follow the next steps to set up this product.

STEP1 Switch Setup

STEP2 Installation procedure

In accordance with Installation procedure of this product, please install correctly it.

STEP3 Cable connection

STEP4 Turn on the power. After verifying that you have correctly followed steps 1 and 3, turn on the power. If you find any abnormality after turning on the power, turn it off and check to see if the setup has been performed properly.

Switch Setup

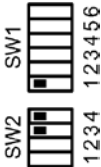
Switching Half-duplex and full-duplex is available by the setup switch for data transfer mode of this product.

Please set data transmission mode according to the external device connected with the product.

Please refer to Chapter 3 for more information on the switch position.

RS-422A/485 Half duplex setup

Table 2.1. RS-422A/485 Half Duplex Switch Setup

data transmission mode	Half duplex	
Setup method		TX is only used for data transmission; the sending and receiving modes should be switched over using RTS.

Setting the Terminator

When inserting a terminator, use the terminator setting switch. Set the terminator depending on the external device to which to connect this product. This product contains a 100Ω resistor as a terminator.

SW-bit one is for TX.

To set the terminal to a resistor other than 100Ω, set the terminator setting switch to OFF and insert an external terminator.

Half-duplex

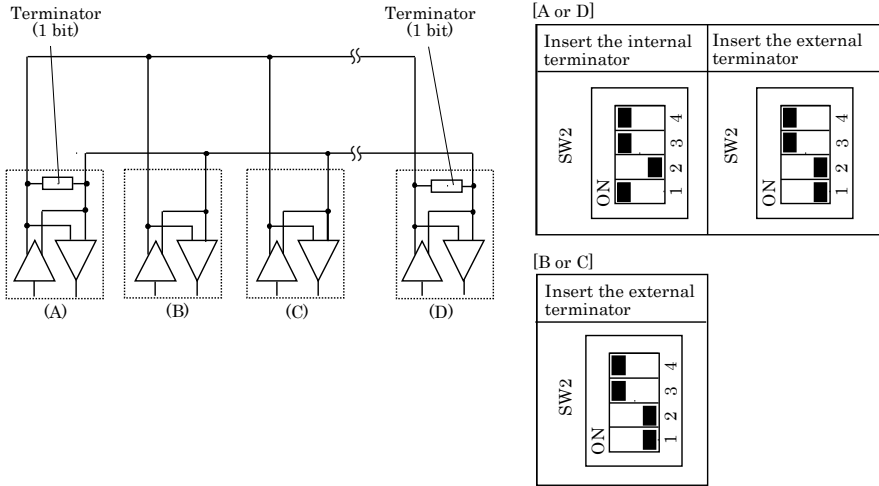
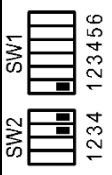


Figure 2.1. Half duplex connection (Party line connection)

RS-422A/485 Full duplex setup

Table 2.2. RS-422A/485 Switch setup for full duplex

Data transmission mode	Full duplex
Setup method	<p>By the RTS signal of this product be become activate, CTS signal becomes active.</p> 

Setting the Terminator

When inserting a terminator, use the terminator setting switch. Set the terminator depending on the external device to which to connect this product. This product contains a 100Ω resistor as a terminator.

Each bit corresponds to each signal line, SW-bit 1 is for TX and SW-bit 2 is for RX.

To set the terminal to a resistor other than 100Ω, set the terminator setting switch to OFF and insert an external terminator.

Full-duplex

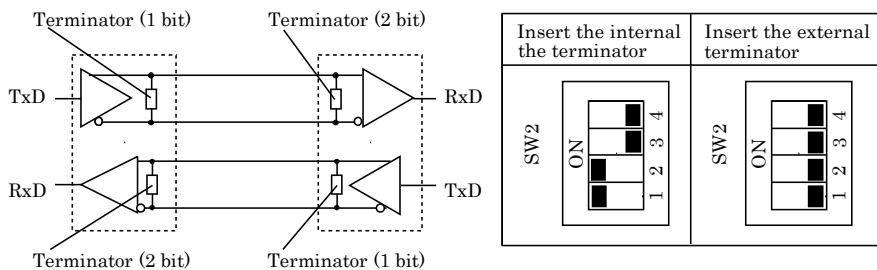


Figure 2.2. Full-duplex connection

Installation

Mounting on a DIN Rail

Mounting procedure

- (1) Push the fixing hook up using a slotted screwdriver to make it unlockable.

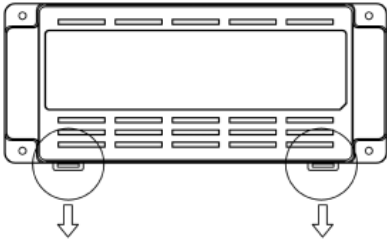


Figure2.3. Mounting on a DIN Rail < 1 / 3 >

- (2) Hook the product from the upper part of the DIN rail, and press the lower part on to the DIN rail.

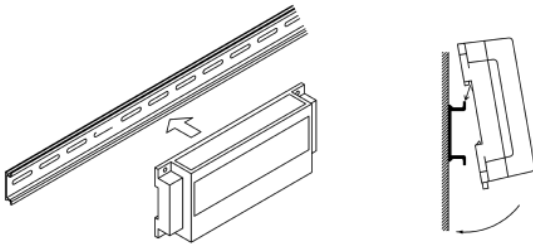


Figure2.3. Mounting on a DIN Rail < 2 / 3 >

- (3) Push the fixing hook up using a slotted screwdriver to make it lockable.

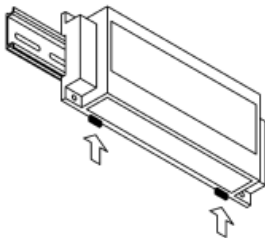


Figure2.3. Mounting on a DIN Rail < 3 / 3 >

Removal procedure

- (1) Pull down the fixing hook of the unit to unlock it.

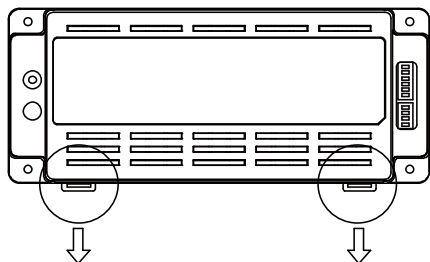


Figure 2.4. Removing the unit from the DIN Rail < 1 / 3 >

- (2) With the fixing hook unlocked, pull the lower part of this unit toward you.

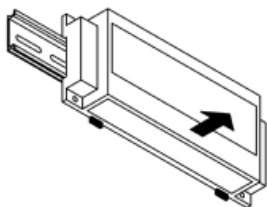


Figure 2.4. Removing the unit from the DIN Rail < 2 / 3 >

- (3) By lifting this unit, you can easily remove it from the DIN rail.

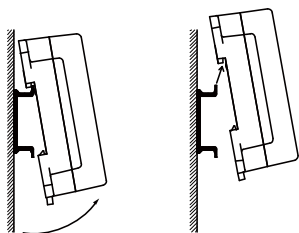


Figure 2.4. Removing the unit from the DIN Rail < 3 / 3 >

Wall Installation

To mount the product on the wall, purchase the commercially available screw (fitting for $\phi 3.5$) separately.

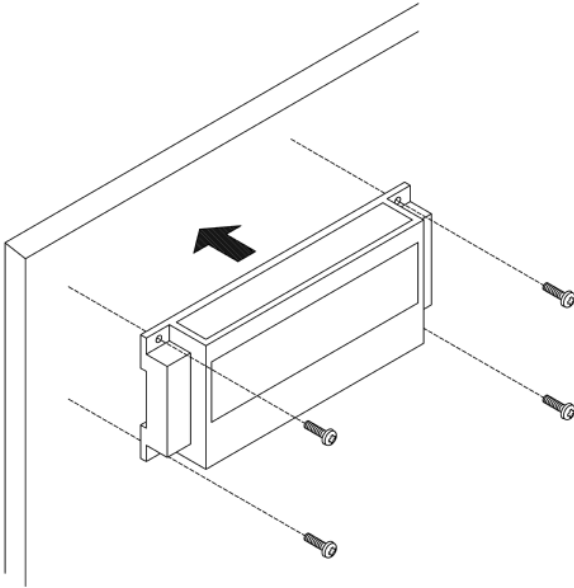


Figure 2.5. Wall Installation

Installation Conditions

Installation orientation

This product can be installed as the following installation orientation. Avoid other orientation it might not adequately dissipate heat. In addition, take appropriate measures so that the ambient temperature falls within the range of installation environment conditions, such as keeping the system unit well-ventilated and sufficiently spaced its surroundings

DIN rail fixation

Vertical installation (Installation angle 0°)

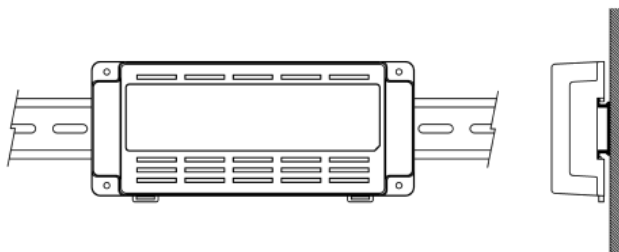


Figure 2.6. DIN rail fixation

Screws fixation

Vertical installation (Installation angle 0°)

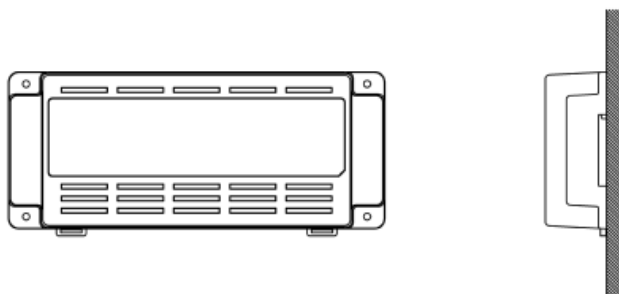


Figure 2.7 Screws fixation

Be sure that the ambient temperature is within the range specified in the installation environment requirement by making space between the product and device that generates heat or exhaust air.

Installed angle which is recommended

Installed angle of this product which is recommended is 0°. Except for that, the temperature specification of this product might not be filled.

Ambient temperature

In this product, the ambient temperature is decided from the multiple measurement points which is to a distance of 50mm from case.

When making use of the product, the air current should be adjusted to prevent that all the temperatures measured at the measurement points exceed the specified temperature.

CAUTION

- Note that even though the ambient temperature is within the specified range, an operational malfunction may occur if there is other device generating high heat; the radiation will influence the product to increase its temperature.
 - Do not install this product into the fully-sealed space except the case in which the internal temperature is adjustable by equipment such as air conditioner. Troubles such as operational malfunctions could be occurred by the temperature increase caused by long-term usage.
 - In case of using the product in high-temperature environment, please do forced air cooling, because Product life will be shorter.
-

Spacing between the system unit and any surrounding objects (reference)

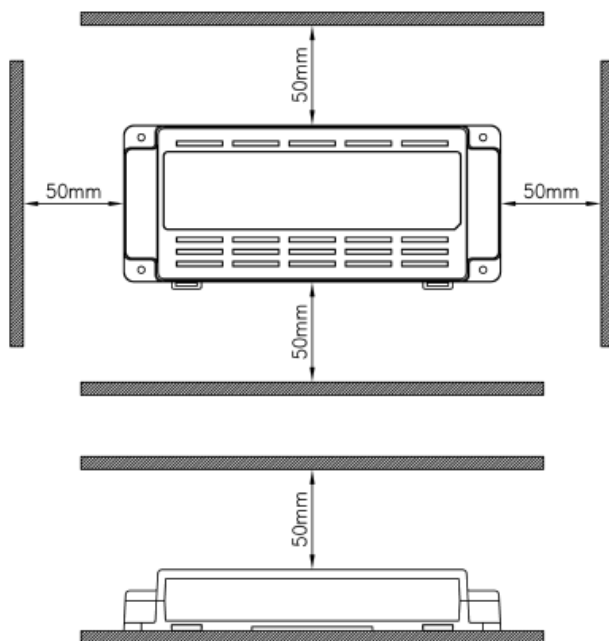


Figure 2.8. Spacing between the system unit and any surrounding objects (reference)

How to set and remove the SD cover

In the case of using the SD slot, it is need to set and remove the SD cover which is on upside the product

- How to set

- (1) Insert the catch of the SD cover into the opening at tip of the arrow 1
- (2) Slide the SD cover in the direction of the arrow 2.
- (3) Drive a SD cover screw.

(SD cover screw: Pan head screw M2.6*5, Tightening torque: 3.5 kgFcm)

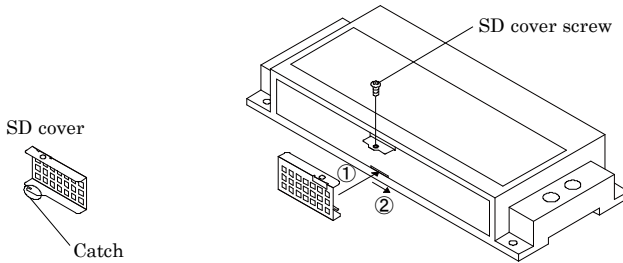


Figure 2.9. Setting the SD Cover

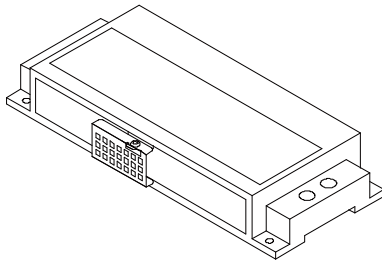


Figure 2.10. After setting the SD Cover

- How to remove

Procedure of How to set is reversed to that of How to remove.

- (1) Remove a SD cover screw.
- (2) Slide the SD cover opposite the direction of the arrow 2, and remove the SD cover.

Cable Connection

Power

Power Cable

Please elect the power cable which is following specifications.

- Cable: Twisted pair cable (In case of using a single wire, please twist the wires of V + and V-)
- Cable Diameter: AWG24-16(0.2mm² -1.25mm²)
- Cable Length: 3m or less

FG Cable

Please elect the FG cable which is following specifications.

- Cable Diameter: AWG18-16(0.75mm² -1.25mm²)

Specification of external power supply

This product in a typical Configuration is designed to operate at least 15W power supply. In addition, the power supply must satisfy the following requirements.

- Build up time time of up to a voltage 12V: within 2ms - 30ms

Recommended power supply is CPS-PWD-15AW12-01(CONTEC).



CAUTION

If the maximum output current of the external power supply can not afford compared with the maximum current consumption of this product, the abnormal operation by inrush current and the load variation during start-up and start-up failure by and aging of the external power supply might be caused.

LAN (LAN A, LAN B)

Please elect the LAN cable which is following specifications.

- Category: Category 5 or more
- Cable Length: 100m or less

RS-422A/485 (COM A)

RS-422A/485 Cable

- Cable: Twisted pair cable with the shield
- Cable Diameter: AWG28-16(0.08mm² -1.25mm²)
- Cable Length

Affected by the communication speed (baud rate) between this product and the external device. Please do not exceed the cable length indicated in the following table. Communication abnormality may occur even if less than length which is shown on the following table because attenuation may be different by the material of the cable. The following table does not guarantee communication speed with the cable length.

Table 2.3. Estimated cable length and the communication speed

Cable Length (m)	Communication speed (bps)
300	115,200
600	57,600
900	19,200
1,200	9,600

The baud rate that you can set with this product is the following table.

Table 2.4. Baud Rate List

Baud Rate(bps)	Error(%)
300	0.00
600	0.00
900	0.00
1,200	0.00
2,400	0.00
4,800	0.00
9,600	0.16
14,400	0.16
19,200	0.16
28,800	0.16
38,400	0.16
57,600	0.16
115,200	0.16

- Half Duplex

Half duplex need three or more pairs of twisted-pair.

One set is signal lines, other free line is for the signal ground (SG).

Please connect TX + and TX- so that it becomes a pair of twisted pair wire.

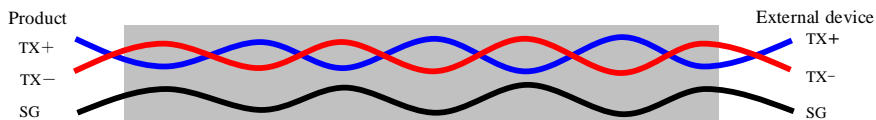


Figure 2.11. RS-422A/485 Half Duplex Communication

- Full Duplex

Full duplex need three or more pairs of twisted-pair.

Two sets is signal lines, other free line is for the signal ground (SG).

Please connect TX + and TX-, RX + and RX- respectively so that each becomes a pair of twisted pair wire.

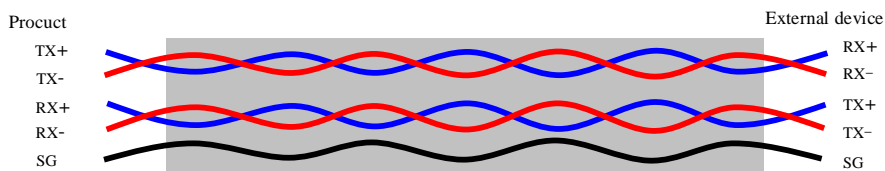


Figure 2.12. RS-422A/485 Full Duplex Communication

Notice of the shield connection

- Please ground Shield to the frame ground (FG) of the external device.
- Shield is not used as the signal ground (SG).
- If there is no terminal and place for ground, please use an unshielded cable
- Do not ground to Power GND.



CAUTION

Shielded cable is not done correctly wiring ground, or shield which becomes an antenna pick up the noise and shield might becomes a source of noise.

If there is influence by noise, please remove the grounding of the shield.

- Wiring Specifications

Please connect RS-422A/485 according to the specifications of the external device.

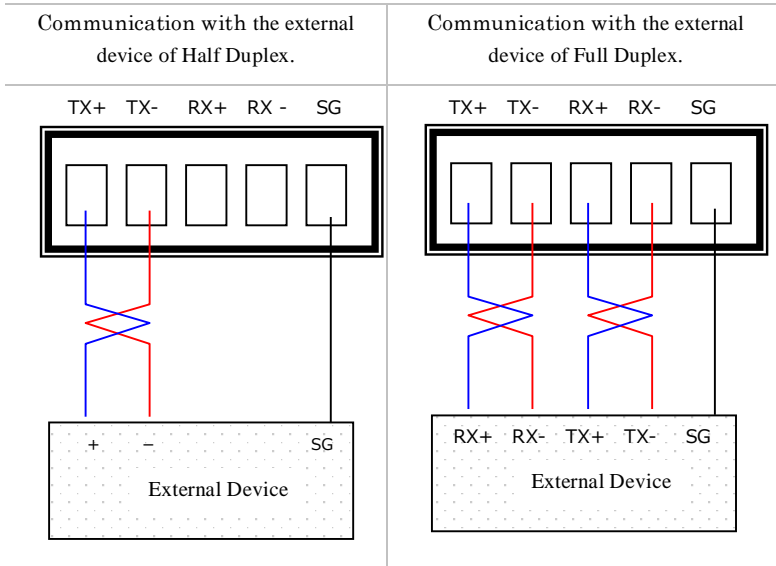


Figure 2.13. Wiring Specifications

Digital Input (DI)

Input equivalent circuit of digital / counter input interface unit is shown in Figure 2.12. DI connects to a device which can be current-driven such as switch or transistor output device. Input the ON / OFF state of a device which can be current-driven as digital value. The signal input unit is Photocoupler isolated input (Corresponded to current sink output).

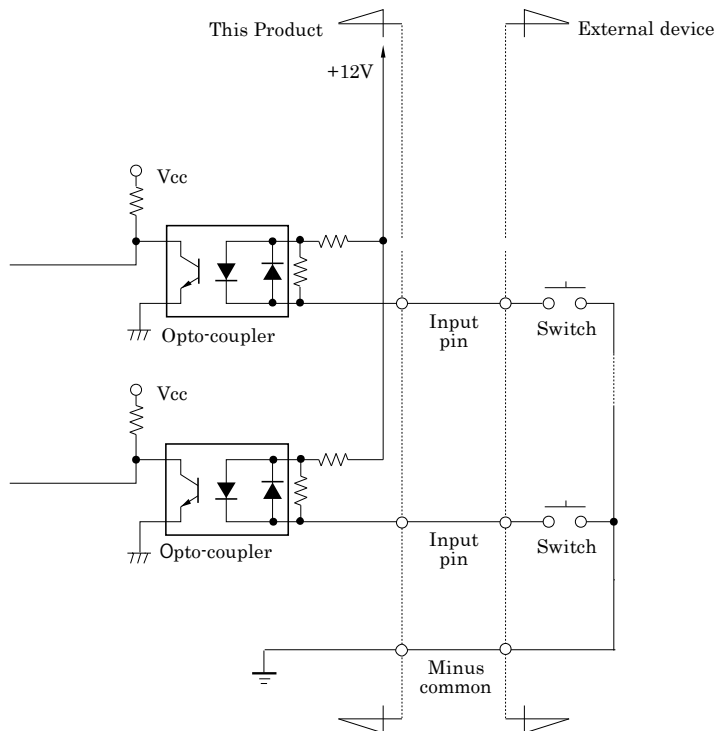


Figure 2.14. Digital Input Circuit

Examples of Connecting the Product to an External Device

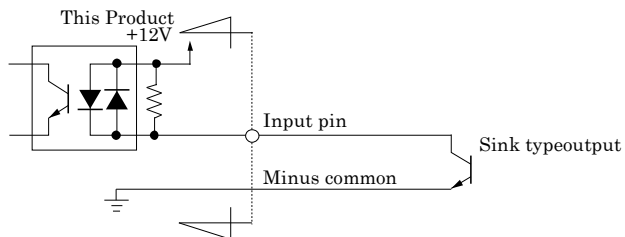


Figure 2.15. Connecting the input to the sink type output

Digital output (DO)

DO connect to the device controlled by the current drive, such as control a relay or LED.

The connection requires an external power supply to supply current.

ON / OFF of the device to be controlled by the current drive is controlled by digital value.

The rated of output current is up to 100mA per point.

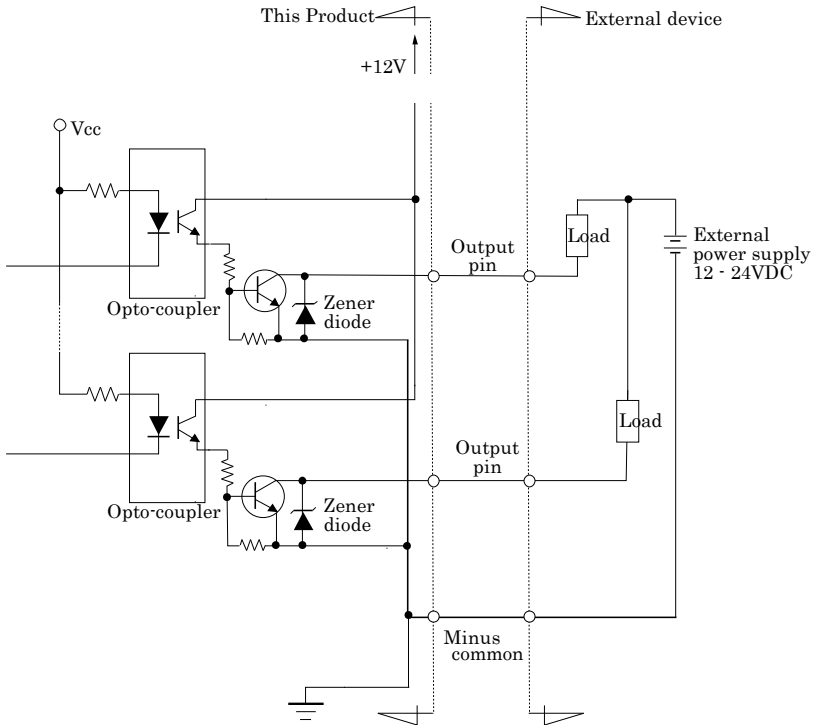


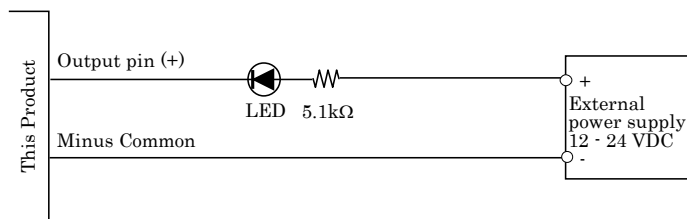
Figure 2.16. Digital Output Circuit



CAUTION

When the power is turned on, all output will be OFF.

Connection to the LED



When “1” is output to a relevant bit, the corresponding LED comes on.

When “0” is output to the bit, in contrast, the LED goes out.

Figure 2.17. An Example of connection to the LED

Examples of Connecting the Product to an External Device

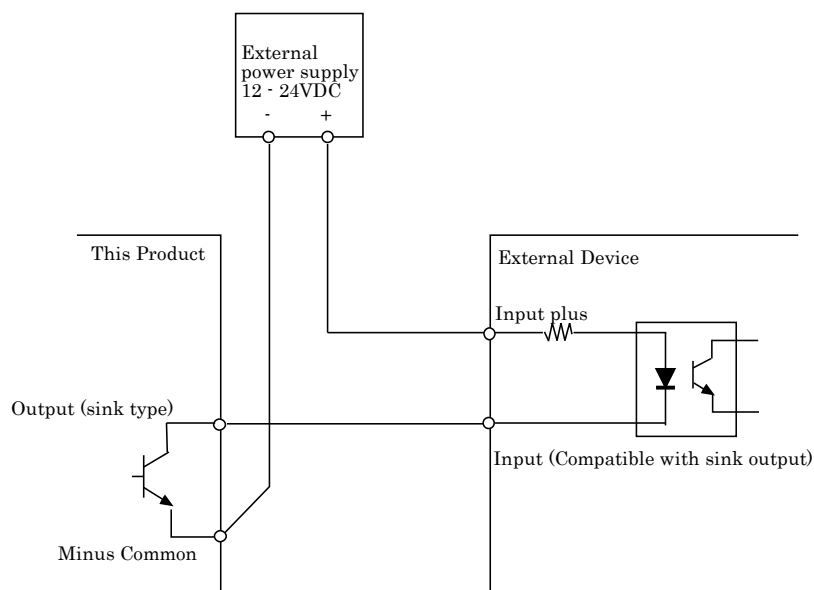


Figure 2.18. Connecting the Output to the Sink Output Acceptable Input

Software Setup

See the CPS-MC341 System Setup Guide for details.

3. Component Name and Function

Component Name

Component name of the products is shown in Figure 3.1.

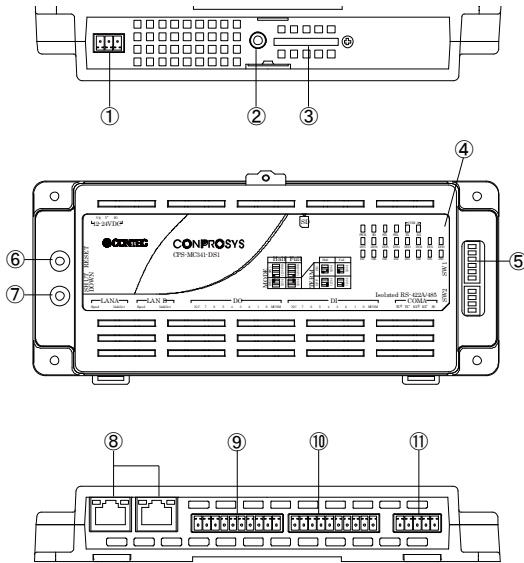


Figure 3.1. Component Name of CPS-MC341-DS1-111

- (1) Power Connector : It uses the attached 3pin connector.
- (2) Debug Connector : Please do not use it.
- (3) SD Card Slot : It is for data storage.
- (4) LED : It indicate status of this product.
- (5) DIP Switch : It is used for System setup.RS-422A/485 setup
- (6) Reset Switch : It reset this product.
- (7) Shut Down Switch : It shut down this product.
- (8) LAN : It is a Connector for LAN.
- (9) Digital Output(DO) : It uses the attached 10pin connector.
- (10) Digital Input(DI) : It uses the attached 10pin connector.
- (11) RS-422A/485 : It uses the attached 5pin connector.

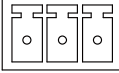
Component Function

Power Connector (12-24VDC)

It uses the attached connector.

Connector type: PHOENIX CONTACT MC 1,5/3-ST-3,5 (Equivalent product)

Table 3.1. Power Connector

	
1 2 3	
Pin No.	Signal name
1	FG
2	V-(GND)
3	V+(12-24VDC)

Debug Connector

Please do not use it.

SD slot

Insert the SD card and use to store such data.

LED Indicator

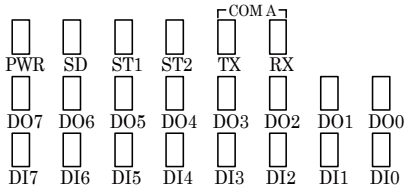


Figure 3.2. LED Indicator

Table 3.2. LED Indicator (top)

LED	Operation	Meaning
PWR(Green)	ON	Be supplied Power.
	OFF	Be not supplied Power.
SD(Yellow)	Blinking	It blinks at the SD access.
	OFF	It put the lights out at the not SD access.
ST1(Green)	-	Please refer to the software manual.
ST2(Red)	-	Please refer to the software manual.
COM A-TX(Yellow)	Blinking	It blinks at the transmission of the RS-422A / 485.
	OFF	It put the lights out at the time of not transmission of the RS-422A / 485.
COM A-RX(Yellow)	Blinking	It blinks at the time of reception of the RS-422A / 485.
	OFF	It put the lights out at the not reception of the RS-422A / 485.
DO1-DO7(Yellow)	ON	It will light if there is output.
	OFF	It will put the lights out if there is not output.
DI0-DI7(Yellow)	ON	It will light if there is an input.
	OFF	It will put the lights out if there is not input.

Reset Switch

It reset this product.

Shut Down Switch

It shut down OS of this product.

DIP Switch (SW1, SW2)

DIP switch for system setup and RS-422A/485 setup of COM A.

Table 3.3. DIP Switch

SW	SW NO.	Operation	Meaning
SW1	6	-	System Reservation : Please be OFF always.
	5	-	System Reservation : Please be OFF always.
	4	-	System Reservation : Please be OFF always.
	3	-	System Reservation : Please be OFF always.
	2	-	System Reservation : Please be OFF always.
	1	ON	RTS Communication Mode : Half Duplex
	OFF	RTS Communication Mode : Full Duplex	
SW2	4	ON	Internal connection state of TX- and RX- : Short(Half Duplex)
		OFF	Internal connection state of TX- and RX- : Open(Full Duplex)
	3	ON	Internal connection state of TX+ and RX+ : Short(Half Duplex)
		OFF	Internal connection state of TX+ and RX+ : Open(Full Duplex)
	2	ON	RX Terminator Enabled
		OFF	RX Terminator Disabled
	1	ON	TX Terminator Enabled
		OFF	TX Terminator Disabled



LAN Port (LAN A, LAN B)

This product has 2 port of Ethernet.

Because the LAN port of this product is set in HUB mode, it is recognized as one port from OS.

- Network type : 100BASE-TX/10BASE-T
- Transmission speed : 100M/10M bps
- Max. Network path length : 100m/segment

Table 3.4. LAN port

Pin No.	Signal Name	Meaning
1	TX+	Transmission data(+)Output
2	TX-	Transmission data (-)output
3	RX+	Received data (+)Input
4	N.C.	Not connected
5	N.C.	Not connected
6	RX-	Received data (-)Input
7	N.C.	Not connected
8	N.C.	Not connected

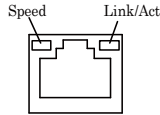


Table 3.5. LED Indicator (Side, LAN ports)

LED	Operation	Meaning
Speed(Orange)	ON	Indicate that LAN port is connected by 100Mbps.
	OFF	Indicate that LAN port is connected by 10Mbps or a non-connection state
Link /Act(Green)	ON	Indicate that LAN port is a connection state
	Blinking	Indicate that LAN port transmits and receives data with connected external device
	OFF	Indicate that LAN port is a non-connection state

⚠ CAUTION

- HUB mode of this product might reduced speed and throughput as compared to the normal switching HUB product.
- If a large amount of data and high-speed response is required, you will prepare a switching HUB to the outside.

Isolation Digital Output Connector


(DO0, DO1, DO2, DO3 DO4, DO5, DO6, DO7)

This product has 8 channel of digital output.

It uses the attached connector.

Connector type: PTR MESSTECHNIK AK1550/10-3.5-GREEN (Equivalent product)

Table 3.6. Digital Output Connector



Pin No.	Signal Name
1	N.C
2	DO7
3	DO6
4	DO5
5	DO4
6	DO3
7	DO2
8	DO1
9	DO0
10	MCOM

Isolation Digital Input Connector

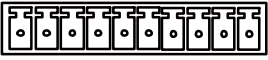
(DI0, DI1, DI2, DI3 DI4, DI5, DI6, DI7)

This product has 8 channel of digital Input.

It uses the attached connector.

Connector type: PTR MESSTECHNIK AK1550/10-3.5-GREEN (Equivalent product)

Table 3.7. Digital Input Connector

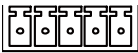
									
1 2 3 4 5 6 7 8 9 10									
Pin No.	Signal Name								
1	N.C								
2	DI7								
3	DI6								
4	DI5								
5	DI4								
6	DI3								
7	DI2								
8	DI1								
9	DI0								
10	MCOM								

Isolated RS-422A/485 Connector (COM A)

This product has 1port of RS-422A/485 communication. It uses the attached communication connector.

Connector type: PTR MESSTECHNIK AK1550/5-3.5-GREEN (Equivalent product)

Table 3.8. Communication Connector

				
1 2 3 4 5				
Pin No.	Signal Name			
1	TX+			
2	TX-			
3	RX+			
4	RX-			
5	SG			

4. System Reference

Specification

Table 4.1. Function specification

Item		CPS-MC341-DS1-111
CPU		ARM Cortex-A8 600MHz
Memory		On Board 512MB DDR3 SDRAM
ROM		On-Board 32MB NOR Flash for OS
LAN	Transmission standard	10BASE-T/100BASE-TX
	The number of channels	2ch
	Connector	RJ-45 Connector
	LED	Speed (Yellow), Link / Act (Green)
RS-422A/485	Transmission scheme	Asynchronous Serial Transmission(Full Duplex/Half Duplex)
	The number of channels	1ch
	Isolation	Bus Isolation/500VDC(Not mounted surge protective parts between SG and FG)
	Baud Rate	300bps - 115.2kbps
	Connector	2 piece 3.5mm pitch 5pin Terminal (TX+, TX-, RX+, RX-, SG)
	Applicable wire	AWG28 - 16
	LED	Transmission (Yellow), receive (Yellow)
	Switch	DIP Switch (Full Duplex / Half Duplex, Terminator (ON/OFF))
	Surge protection element each signal - SG	Interactive TVS Diode Stand off voltage : $\pm 13V$, Peak pulse power : 400W(1ms)
	Surge protection element SG - FG	gas discharge tube arrester Discharge voltage : $\pm 300V$, impulse current tolerance : 2000A(8/20us, 10 times)
SD Card slot	Standard	SD standard follow
	Connector	SD Memory Card slot
	LED	Read/Write (Yellow)
	Input type	Non-voltage input (negative logic* 1)
Digital Input	Isolation	Photocoupler Isolation/1000V
	Open-circuit Impedance	10k Ω or more
	Short-circuit Impedance	500 Ω or less
	Input Resistance	3.3k Ω
	The number of channels	8ch
	LED	DI0 - DI7 (Yellow)
	Connector	2 piece 3.5mm pitch 10pin Terminal (MCOM, DI0, DI1, DI2, DI3 DI4, DI5, DI6, DI7, N.C)
	Applicable wire	AWG28 - 16
	Output type	Open Collector Output (Compatible with current sink) (Negative logic *1)
Digital Output	Isolation	Opto-isolation /1000V
	Maximum Output dielectric strength / Current	24V/100mA
	Residual Voltage with Output ON	0.5V or less (Output current $\leq 50mA$), 1.0V or less (Outputcurrent $\leq 100mA$)
	The number of channels	8ch
	LED	DO0 - DO7 (Yellow)
	Connector	2 piece 3.5mm pitch 10pin Terminal (MCOM, DO0, DO1, DO2, DO3 DO4, DO5, DO6, DO7, N.C)
	Applicable wire	AWG28 - 16
	LED	Power(Green)/Status 1(Green)/Status2(Red)
Switch	Reset SW, Shut Down SW, Full Duplex/Half Duplex Switching SW	

Item		CPS-MC341-DS1-111
RTC		RTC equipped (Not equipped battery)
Power supply *2	Rated input voltage	12 - 24VDC
	input voltage range	10.8 - 30VDC
	power consumption	12V 0.7A (Max.), 24V 0.4A (Max.)
	Connector	2 piece 3.5mm pitch 3pin Terminal (V+, V-, FG)
	Applicable wire	AWG24 - 16
	Surge protection element	Interactive TVS Diode
V+ - V-, V- - FG		Stand off voltage : $\pm 30V$, Peak pulse power : 400W(1ms)
External dimensions (mm)		188.0(W) \times 78.0(D) \times 30.5(H) (not include projection)
Weight		250g
Installation method		One-touch connection to 35mm DIN rails Mounting to the wall using the screws*3
OS		Linux kernel 3.2

*1 Data 0 corresponds to High level and Data 1 corresponds to Low level.

*2 Please use power cable with 3m or less.

*3 It requires a mounting screws on the market.

Table 4.2. Installation Environment Requirements

Item		CPS-MC341-DS1-111
Operating / non-operating ambient Temperature		-20 to +60°C
Operating / non-operating ambient Humidity		10 to 90%RH (No condensation)
Floating dust particles		Not to be excessive
Corrosive gases		None
Noise resistance	Line noise	AC Line/ $\pm 2kV$ *4 Signal Line/ $\pm 1kV$ (IEC61000-4-4 Level 3, EN61000-4-4 Level 3)
	Static electricity resistance	Touch / $\pm 4kV$ (IEC61000-4-2 Level 2, EN61000-4-2 Level 2) Air/ $\pm 8kV$ (IEC61000-4-2 Level 3, EN61000-4-2 Level 3)
Vibration resistance	Sweep resistance	10 - 57Hz / semi-amplitude Vibration 0.15mm, 57 - 150Hz / 2.0G 40minutes each in X, Y, and Z directions (JIS C60068-2-6-compliant, IEC60068-2-6-compliant)
Shock resistance		15G half-sine shock for 11ms in X, Y, and Z directions JIS C60068-2-27-compliant, IEC60068-2-27-compliant)
Ground		Class D grounding (previous class 3 grounding), SG-FG/ non-conduction

*4 use a CPS-PWD15AW12-01(option product)

Power Requirements

Your system requires a clean, steady power source for reliable performance of the high frequency CPU on the product, the quality of the power supply is even more important.

CAUTION

- If the fluctuation of power supply voltage is beyond the product specifications, please connect a constant voltage transformer.
 - If the noise is large, please connect an isolation transformer (a noise cut transformer).
 - Power supply cable and the input and output signal lines are avoid absolutely bundle wire proximity and parallel wiring.
 - If lightning serge measures is required, please connect surge protective device (SPD).
 - Please consult separately the ground of this product and the ground of surge protective device (SPD).
 - Please select the ones which do not exceed the maximum allowable circuit voltage of surge protective device (SPD) at rising the power supply voltage.
 - If you want to restart the power, please provided the power OFF time for more than 1 second.
 - Instantaneous voltage drop allowed time at the combination of the CPS-PWD-15AW12-01 (CONTEC) will be 20ms or less.
-

External dimensions (CPS-MC341-DS1-111)

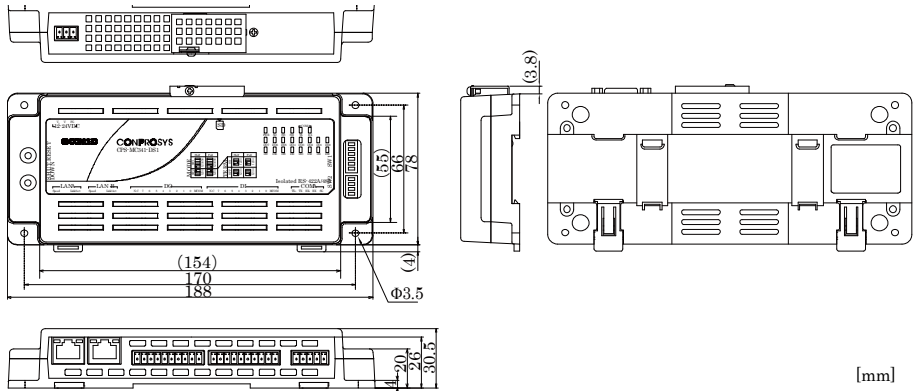


Figure 4.1. External dimensions

5. List of Option

Power supply

- CPS-PWD-15AW12-01 : Power supply 15[w]

SD card

- SD-2GB-B : SD card 2GB

*Information about the option products, see the Contec's website.

CPS-MC341-DS1-111

Hardware Manual

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