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CIMON - PLC S

PROGRAMMABLE LOGIC CONTROLLER

CM3-SP32MDT/V/E/F/SD
CM3-SP16MDR/V/E/F

PLC-S Series



General Specifications

Items	Specification				Reference	
Ambient Temp	-10°C ~ 65°C					
Storage Temp	-25°C ~ 80°C					
Ambient Humidity	5 ~95%RH, (Non-condensing)					
Storage Humidity	5 ~95%RH, (Non-condensing)					
Vibration	Occasional vibration				IEC 61131-2	
	Frequency	Acceleration	Pulse width	Times		
	10 ≤ f < 57Hz	-	0.075mm	X,Y,Z Each direction, 10 times		
	57 ≤ f ≤ 150Hz	9.8m/s ² {1G}	-			
	Continuous vibration					
	Frequency	Acceleration	Pulse width			
	10 ≤ f < 57Hz	-	0.035mm			
	57 ≤ f ≤ 150Hz	4.9m/s ² {0.5G}	-			
Shocks	<ul style="list-style-type: none"> ● Peak acceleration : 147 m/S² ● Duration : 11ms ● Pulse wave type : Half-sine (3times each X,Y,Z 3 direction) 				IEC 61131-2	
Impulse Noise	Square wave impulse noise	±2,000 V			KDT Standard	
	Electrostatic discharge	Voltage :4kV (Contact discharge)			IEC 61131-2 IEC 1000-4-2	
	Radiated electromagnetic field noise	27 ~500 MHz, 10 V/m			IEC 61131-2 IEC 1000-4-3	
	Fast transient/Burst noise	P o w e r 2 k V	Digital I/O (24V or more)	Digital I/O(24V or less) Analog I/O Comm. Interface	IEC 61131-2 IEC 1000-4-4	
			2 kV	0.25 kV		
Voltage	2KV/1min		0.5KV/1min			
Operation ambience	Free from corrosive gases and excessive dust					
Altitude	2,000m or less					
Pollution degree	2 or less					
Cooling method	Air-cooling					

PLC-S CPU Performance Specification(Specifications)

Items	Specifications	
Power	DC24V	
Program Control Method	Stored Program, Process-Driven Interrupt, Time Driven Interrupt	
I/O Control Method	Indirect method, Directed by program instruction	
Program language	IL(Instruction List), LD(Ladder Diagram)	
Data Processing Method	32 Bit	
Instructions	Sequence	55 Instruction
	Application	389 Instruction
Processing speed (Sequence)	200ns / Step	
Program capacity	10K Step	
Max. I/O, Max. expansion	384 pts / 1 main Block + Max. 11 Block	
Operation mode	Run, Stop, Remote Run, Remote Stop	
Back-up method	Data which set up as retain	
Total program	128	
Program types	Scan	(127-Program block)
	Cyclic task	16
	Special	126
	Initial task	2 (_INIT, _H_INIT)
	Subroutine	126
Self-diagnosis	Detects errors of scan time, memory, I/O and power supply, battery error	
Re-start	Cold, Hot re-start	
Device memory capacity	X	1024 pts (X0000 - X063F)
	Y	1024 pts (Y0000 - Y063F)
	M	8192 pts (M0000 - M511F)
	L	4096 pts (L0000 - L255F)
	K	4096 pts (K0000 - K255F)
	F	2048 pts (F0000 - F127F)
	T	512 pts (T0000 - T0511)
	C	512 pts (C0000 - C0511)
	S	100 states x 100 set (00.00 - 99.99)
	D	10000 words (D0000 - D9999)
	Z	1024 words (Call Stack : Z0000 - Z0063, Z1000 - Z1063)
R	16 pts (Index)	
High Speed Counter	20Kpps, 2 Phase 2Ch.	
Positioning	Max. 100Kpps, 2 Axis, Linear interpolation	
PID	32 Channels, Auto-Tuning	
RTC	Embedded (Battery CR2032 Backup)	
Comm. Channel	Standard : USB Loader, Serial 1(RS232C) Optional : Serial 1Ch(RS485), Ethernet 1Ch	
Etc.		

Device & Address

► Device

- Input : X
- Sub Relay : M
- Timer : T
- Data Device : D
- Link Relay : L
- Special Relay : F
- Output : Y
- Keep Relay : K
- Counter : C
- Sub Data Device : @D
- Step control Relay : S
- Index register : R

► Device Address

- Bit Data: [Device]+[Card No.]+[Bit No.]

Device : X, Y, M, K, L, F, Card No. : 10Dec(Decimal). 3 Characters

Bit No. : 16Hex. 1 Character

Ex) X0100 -> 10Dec. (word) + 16Hex(Last Bit)

: [10th Address and 0th bit]

- Word Data: [Device]+[Card No.]

Device : D, Z, T, C, Card No. : 10Dec. 4Characters

Ex) D0100 -> 10Dec. (Word) : [100th word Address]

- Timer, Counter Output: [Device]+[Bit No.]

Device : T, C, Bit No. : 10Dec. 4Characters

Ex) T0100 -> 10Dec. (Word) : [T 100th Bit Address]

- Step Controller I/O: [Device]+[Card No.]+[.] + [Step No.]

Device : S

Card No. : 10Dec. 2Characters, Step No. : 10Dec. 2Characters

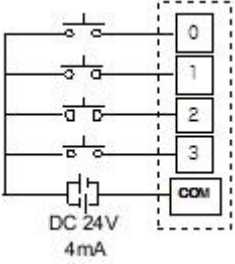
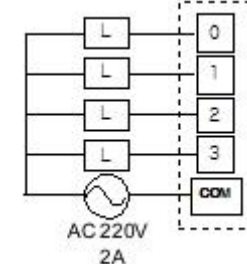
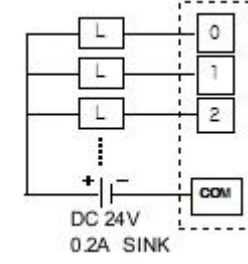
Ex) Sxx.xx -> xx is 10Dec. (0~99)

- assign Bit Device to Word: [Device]+[Card No.]+[0]

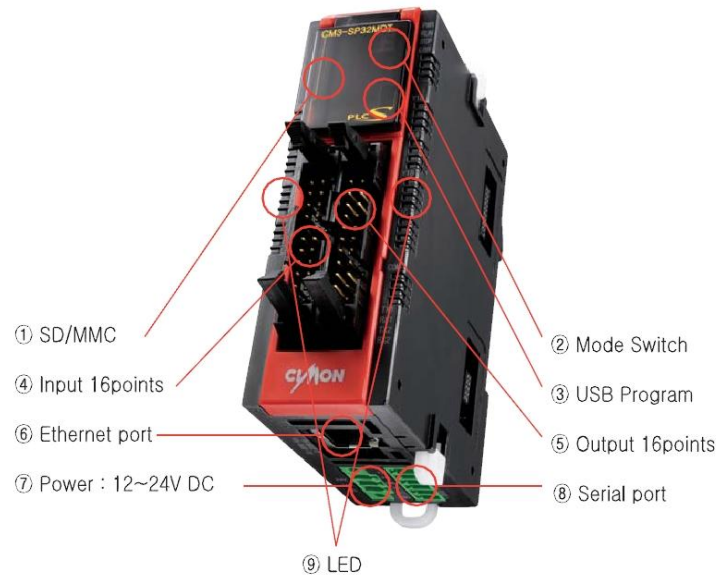
Device : X, Y, M, K, L, F, Card No. : 10Dec. 3Characters

Ex) X010 -> 10Dec. (Word), [X 10th Address]

I/O Specification

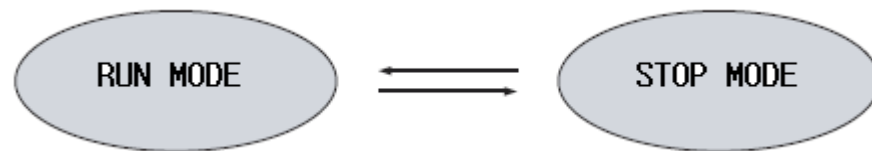
Items	DC Input	Relay Output	TR Output
Rated I/O Voltage	DC 24V	AC 220V / DC 24V	DC 12V / 24V
Rated I/O Current	4mA	1point 2A / COM 5A	1point 0.2A, COM 2A
On V/A	DC19V / 3mA	-	-
Off V/A	DC6V / 1mA	-	-
Response time	3ms or less	10ms or less	1ms or less
Operation indicator	Input ON, LED ON	Input ON, LED ON	Input ON, LED ON
Insulation method	Photo coupler insulation	Relay Insulation	Photo coupler insulation
Input method	SINK/SRC	-	-
Output method	-	Relay	Sink
Circuit Diagram			

Names of Part and Mode Change



- ▶ Slot number is assigned in order from left.
- ✓ Max. expansion modules are 11 except CPU.

▶ Mode change



- ▶ Operation mode is changed by mode switch.
- ▶ The mode can be changed through CICON but when power reset,
- ✓ RUN/STOP mode is decided through switch position.

Features of CPU

▶ Built-in Functions

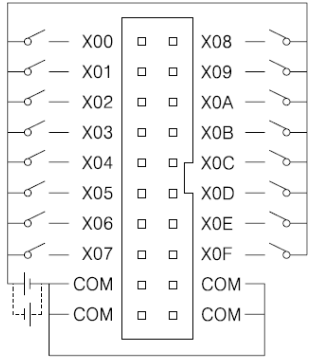
- ✓ **PID Control**
It operates 32LOOP PID without PID module.
- ✓ **RTC**
It reads time from RTC and save it in F device address.
- ✓ **I/O reservation.**
It scans module at designated slot.
It refers to reservation function which writes a program without I/O change in case of expansion, damage or replacement.
- ✓ **Online Edit**
Program can be edited while Run mode.

▶ Features

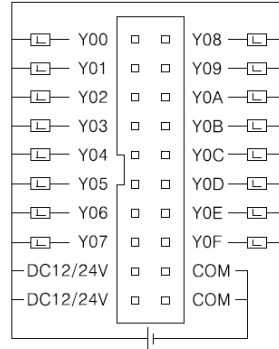
- ✓ SD/MMC Built-in.
Scan program or firmware can be upgraded by SD memory card.
(Stop mode → Power off → Insert SD card → Run → Stop → Run → Stop : firmware will be upgrade automatically.)
- ✓ 20Kpps High Speed Counter (2Channel) Built-in.
2PH. 2/4Multi. Input mode possible, Voltage input type (Open collector)
- ✓ 100Kpps 2axis Pulse Output built-in. (Positioning)
Pulse+Direction Output, Position/Speed/Speed-Position, Position-Speed Control.
- ✓ Max. 3 communications can work simultaneously. (Ethernet, RS232, RS485)
CICON HMI, MODBUS RTU/TCP, PLC Link, Protocol program(user protocol), Loader protocol support, Remote access & up/down load support.
- ✓ Abundant memory (10K Step)
- ✓ Data reserved in case of Power cut
Built-in Flash memory enabling permanent backup of program without any separate battery.

CPU I/O Pin Map

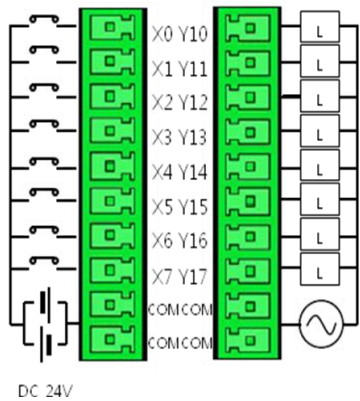
▶ MDT Input



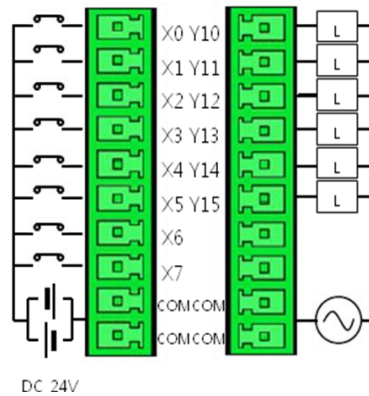
▶ MDT Output



▶ SP16MDR, SP16MDRV I/O



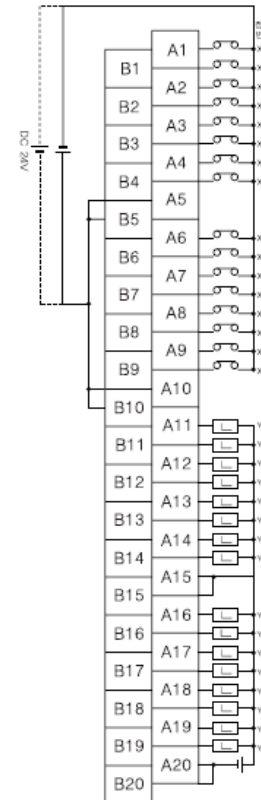
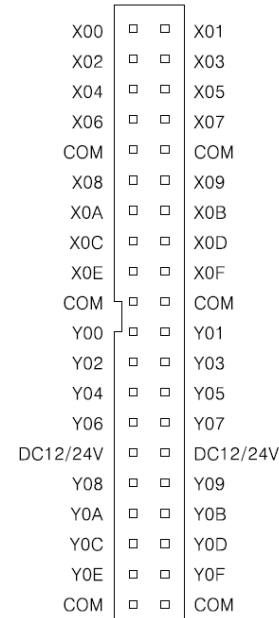
▶ SP16MDRE, SP16MDRF I/O



▶ In case of SP16MDRE and SP16MDRF, relay output is 6 points.

Terminal I/O Pin Map

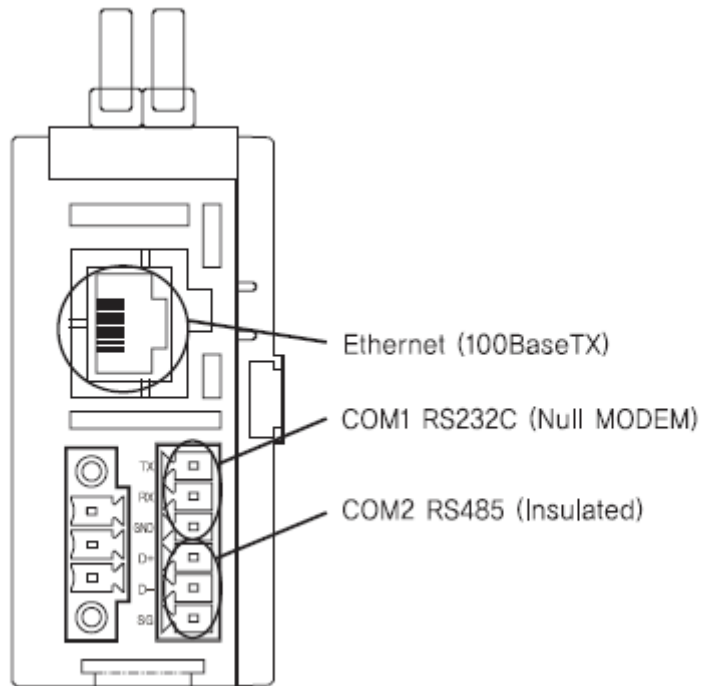
▶ Terminal (CM0-TB32M)



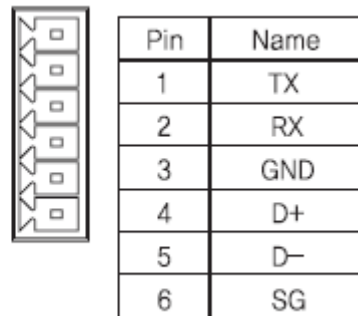
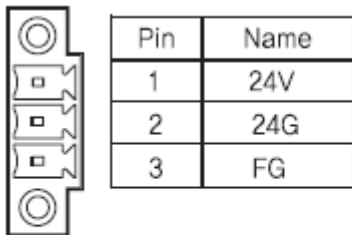
CM0-TB32M	CM3-SP32MDT
A1	X00
B1	X01
A2	X02
B2	X03
A3	X04
B3	X05
A4	X06
B4	X07
A5	COM
B5	COM
A6	X08
B6	X09
A7	X0A
B7	X0B
A8	X0C
B8	X0D
A9	X0E
B9	X0F
A10	COM
B10	COM
A11	Y10
B11	Y11
A12	Y12
B12	Y13
A13	Y14
B13	Y15
A14	Y16
B14	Y17
A15	DC12/24V
B15	DC12/24V
A16	Y18
B16	Y19
A17	Y1A
B17	Y1B
A18	Y1C
B18	Y1D
A19	Y1E
B19	Y1F
A20	COM
B20	COM

▶ Terminal(CM0-TM32M) has its own Terminal Cable.
Terminal Cable : CM0-SCB15M

Communication Interface



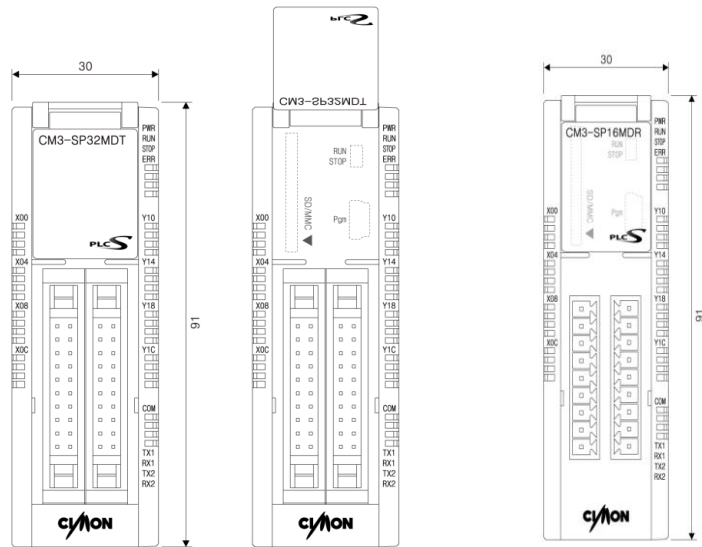
► Power and RS232/485 Terminal map



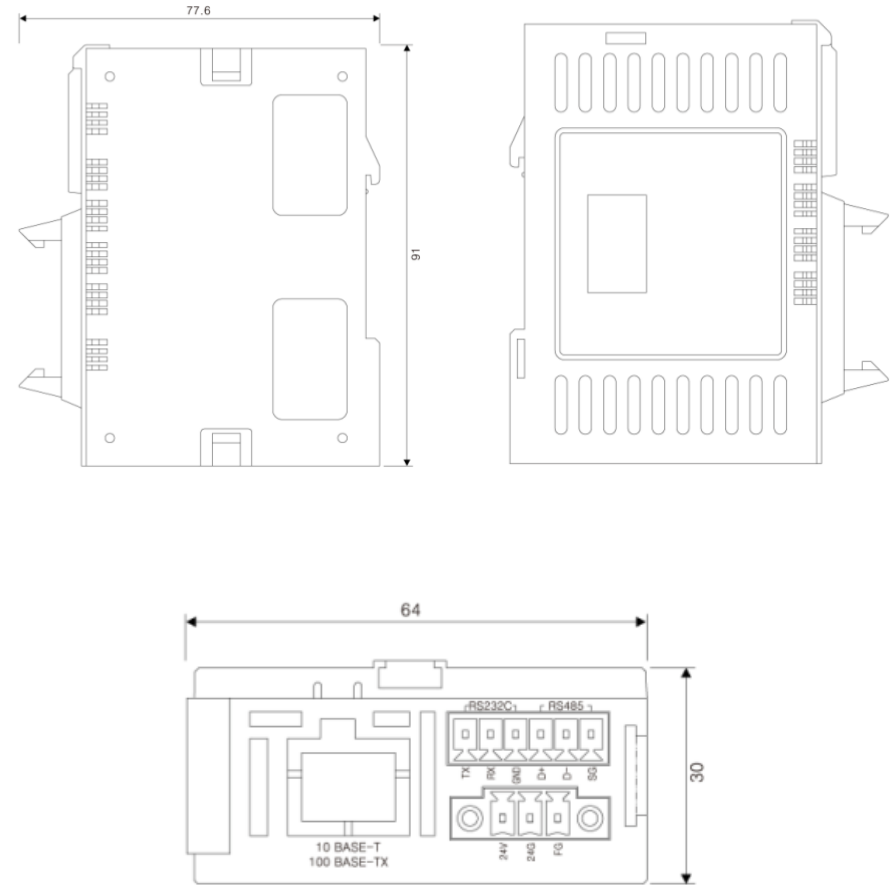
Built-in Comm. Specification

Items	RS232C	RS422/485	Ethernet	
Power	Supplied by CPU			
Comm. Mode	Dedicated protocol	HMI protocol (1:n)		
	Loader protocol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	User defined protocol	<input type="checkbox"/>	<input type="checkbox"/>	
	MODBUS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	PLC Link			<input type="checkbox"/>
	DHCP			<input type="checkbox"/>
Types	Data Bit	8Bit		
	Stop Bit	1 or 2Bit		
	Parity	Even / Odd / None		
Synchronization	Asynchronous			
Transmission speed	300~38400		10/100Mbps	
Modem	Long distance comm. is possible by external modem			

Dimension



Dimension



Safety Instructions

- ▶ Use PLC only in the environment specified in PLC manual or general standard of data sheet.
- ▶ Do not let any metallic foreign materials inside the products which may cause electric shock, fire or abnormal operation.
- ▶ Do not touch or install the module when PLC power is on.
- ▶ Do not disassemble or remodel the module.
- ▶ When F3,4(Special relay address for battery error) is on, change the battery

MEMO