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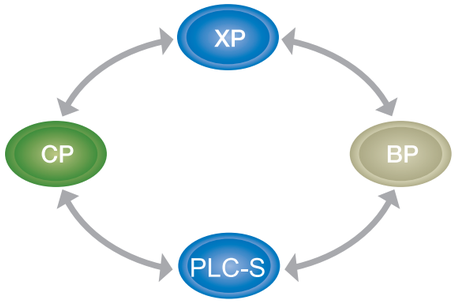
CIMON-PLC

THE FUTURE OF AUTOMATION

CIMON-PLC

- Performance and Reliability
- Supports Remote I/O and Expansion Modules
- Excellent Compatibility and Scalability
- Compact Size
- High Processing Speed
- Easy to use programming Software (CICON)

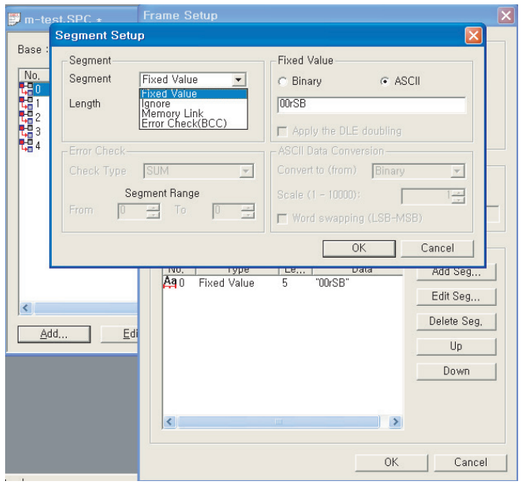
Features of CIMON-PLC

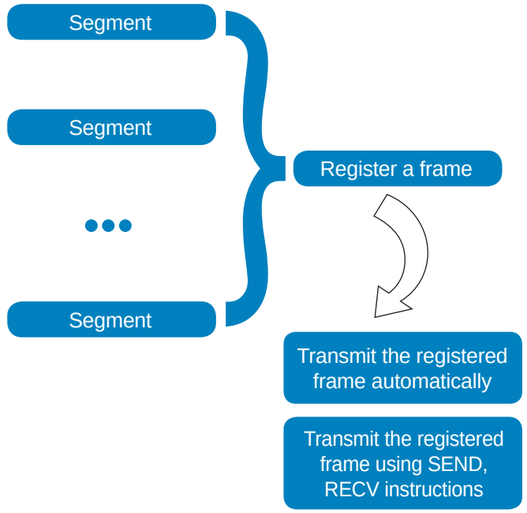


- High-speed CPU MPC (ASIC) - (75ns/step)
- Remote I/O through expansion modules
- All Cimon PLCs can be integrated into one network
- One development program covers all PLC types

- CICON programming software is compatible with XP, CP BP and PLC-S types of PLC
- Choose RAM or ROM mode through the integrated flash memory
- Analog modules provide high-resolution signal conversion range (1/16000 or 1/64000)
- Simple and user-friendly ladder program (PID program, Protocol program, PLC link program, etc.)
- Supports Ladder Diagram, Function Block, and Sequential Function Chart protocols

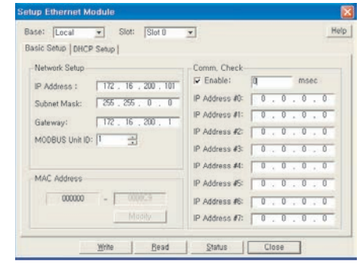
Protocol Program

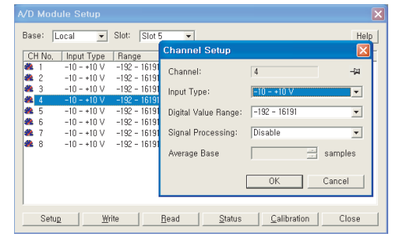


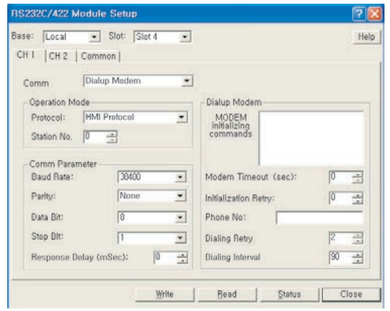


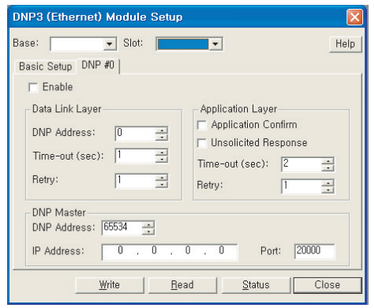
- Its simple and easy to set-up communication and analog modules

Special Module Set-Up



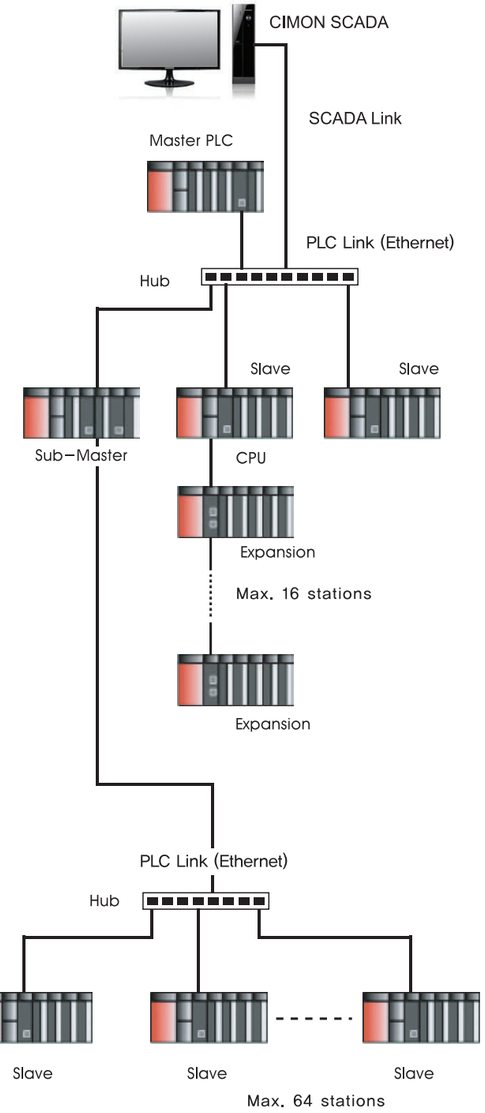






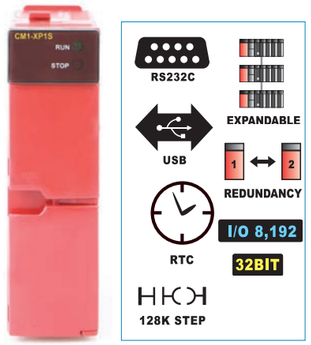
- Excellent expandability and compatibility (Ethernet standard)

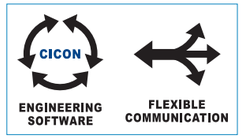
Network Configuration



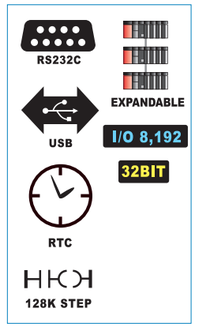
XP Series

CM1-XP1R(S)

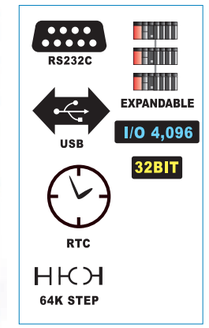




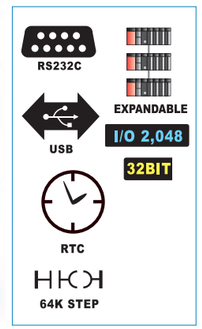
CM1-XP1A(B)



CM1-XP2A(B)



CM1-XP3A(B)



XP CPU

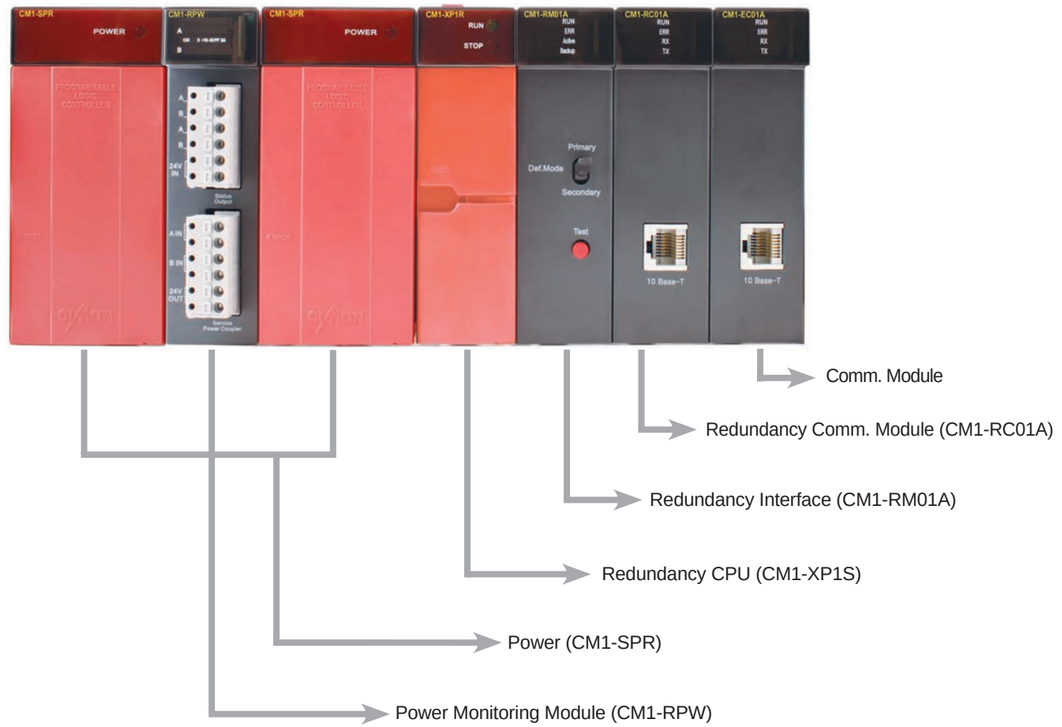
- MPU (ASIC) High speed processing speed (75ns/step)
- Over 400 instructions
- Large device capacity: I/O - maximum 8,192 points / Data - 32,000 word / (M,K,L) 16,000 points
- Compact size with exceptional performance
- Built-in USB 2.0 programming port
- Maximum base expansion : 16
- Maximum number of slots in one base: 12
- XP series include all the functions and features of CP series

Item		Specification		
		CM1-XP1A/R	CM1-XP2A(B)	CM1-XP3A(B)
Operation Method		Stored Program, Cyclic Operation, Time Driven Interrupt		
I/O Control Method		Interrupt system, Direct by Instructions, Scan Synchronous Batch Processing System.		
Program Language		LD (ladder diagram), IL (instruction list)		
Data Processing Method		32 bits		
No. of Instruction	Sequence	55 instructions		
	Application	389 instructions		
Processing Speed		75 ns/step		
Program Memory Capacity		128K steps	64K steps	64K steps
		2M bytes	2M bytes	2M bytes
Base Expansion		Maximum 16		
Data Memory Capacity		1M bytes		
Data Memory Capacity	X	8,192	4,096	2,048
	Y	8,192	4,096	2,048
	M	16,000		
	K	16,000		
	L	16,000		
	F	2,048		
	T	4,096 (10 ms,100 ms option)		
	C	4,096		
	S	100 card * 100 step		
	D	32,000		
	Z	1,024		
Timer	Type	On Delay, Off Delay, Integration, Monostable		
	Time Range	0.01 sec ~ 6,553.5 sec		
Counter	Type	Up Counter, Down Counter, Up-Down Counter, Ring Counter		
	Coefficient Range	-32,768 ~ +32,767		
No. of Program Blocks		128		
Operation Mode		RUN, STOP, PAUSE, REMOTE		
Self Diagnosis		Watch-Dog Timer, Memory Error, I/O Error, Battery Error, Power Error, etc.		
Restart Mode		COLD, HOT		
Battery Back-up		Over 3 years		
Built-in Function		- Computer Link (RS232C) - Clock (RTC) - Program Editable on Run Mode - PID Control (32 Loops) - I/O Reservation - USB 2.0 Port		
Redundancy		Yes (CM1-XP1R)	N/A	

Redundancy System

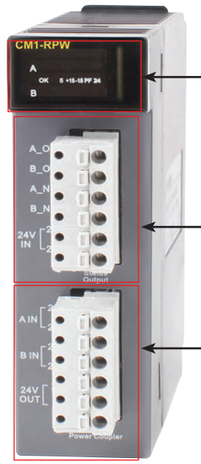
- CPU, power, base and communication redundancy available
- Redundancy configuration derived from the base structure
- In case of an error in the active CPU, the back-up CPU will switch to active status automatically
- Test button to easily check and maintain the system
- Less than 50ms to switch to back-up CPU

Redundancy Configuration



Redundancy Power Monitoring Module

- LED display to monitor operations
- Digital output (DC24V, Transistor, Sink)

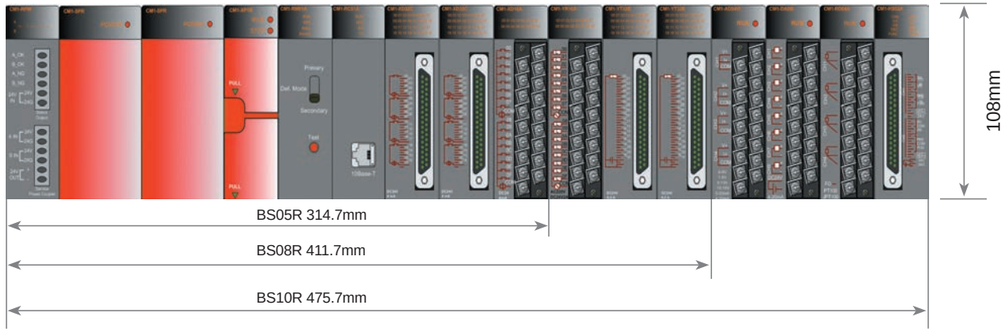


LED Status window
A Line = Status LEDs for Power “A”
B Line = Status LEDs for Power “B”
OK = ON when all powers are ok
5 = ON when main power output is ok
+15 = ON when analog power (+15V) is ok
-15 = ON when analog power (-15V) is ok
PF = ON when external power fails
24 = ON when service power (24V) is ok
(If there is any failure on each power the LED will blink)

Status output (1point 0.5A, 24V, TR Sink)
A_OK = ON when power_A is ok
B_OK = ON when power_B is ok
A_NG = ON when power_A fails
B_NG = ON when power_B fails

Service power coupler for 24V Redundancy

Dimensions



CM1-RPW	
Input	**Output**
DC24V	DC24V, Tr sink output
POWER A IN (24V, 24G)	A, B OK 2points
POWER B IN (24V, 24G)	A, B NG 2points

Base for Redundancy

Model	No. of slots	Size(mm)
CM1-BS05S	5 slots	329 x 110.8
CM1-BS08S	8 slots	425 x 110.8
CM1-BS10S	10 slots	488 x 110.8

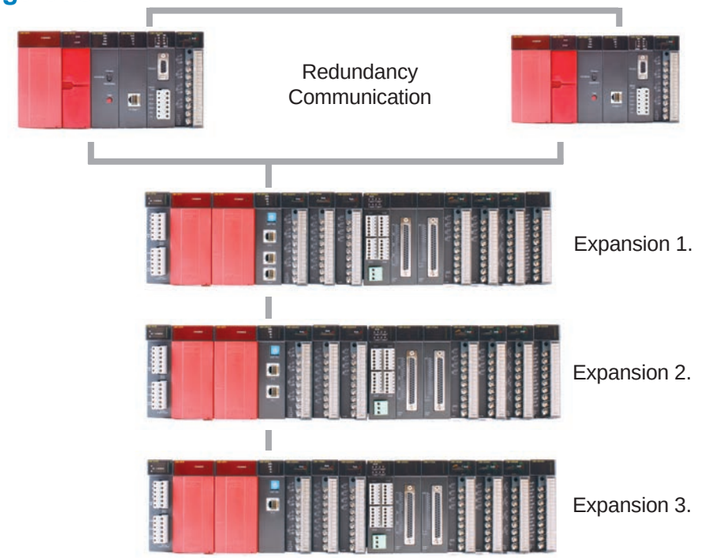
Required Items For Redundancy

Configuration	Unit	Model
Power Redundancy	BASE	CM1-BS05S or Redundancy BASE
	POWER	CM1-SPR
	Power Monitor	CM1-RPW
	CPU	All CPU types
System Redundancy	BASE	CM1-BS05A or etc.
	POWER	CM1-SPA or etc.
	CPU	CM1-XP1S
	Redundancy Interface	CM1-RM01A
	Redundancy Comm.	CM1-RC01A
	Redundancy Cable	CM0-CBE**
Power & System Redundancy	BASE	CM1-BS05S or Redundancy BASE
	POWER	CM1-SPR
	Power Monitor	CM1-RPW
	CPU	CM1-XP1S
	Redundancy Interface	CM1-RM01A
	Redundancy Comm.	CM1-RC01A
	Redundancy Cable	CM0-CBE

Expansion

Configuration	Unit	Model
Expansion	Expansion #1	CM1-EP03A
	Expansion #2 or more	CM1-EP02A or CM1-EP01A
	BASE	Power Redundancy: CM1-BS05S or etc.
		Single Power: CM1-BS03A or etc.
	POWER	Power Redundancy: CM1-SPR
		Single Power: CM1-SPC or etc.
	I/O	I/O modules

System Configuration



CP Series

CICON ENGINEERING SOFTWARE

FLEXIBLE COMMUNICATION

CM1-CP3A

32K STEP

EXPANDABLE

I/O 1,024

16BIT

CM1-CP3B

32K STEP

EXPANDABLE

RTC

I/O 1,024

16BIT

CM1-CP3P

32K STEP

EXPANDABLE

RTC

FLASH ROM PACK

I/O 1,024

16BIT

CM1-CP3U

32K STEP

EXPANDABLE

RTC

USB

I/O 1,024

16BIT

CM1-CP4A

16K STEP

I/O 384

16BIT

CM1-CP4B

16K STEP

RTC

I/O 384

16BIT

CM1-CP4C

RS232C

16K STEP

RTC

I/O 384

16BIT

CM1-CP4D

RS422/485

16K STEP

RTC

I/O 384

16BIT

CM1-CP4U

RS422/485

USB

16K STEP

RTC

I/O 384 16BIT

CP CPU

- Self-diagnosis finds errors easily
- Maximum 16 slot expansion base (except CP4 series)
- Additional integrated communication port. (CM1-CP4C:RS232C, CM1-CP4D/U:RS422/485)
- When CPU is replaced, CPU reads I/O and configuration automatically.
- Supports over 300 instructions
- Built-in USB 2.0 programming port (CP4U / CP3U only)
- Attachable flash memory for flexibility (CP3P only)
- Maximum 12 modules can be installed in a base

Item		Specification	
		CM1-CP3A/B/P/U	CM1-CP4A/B/C/D/U
Operation Method		Stored Program, Cyclic Operation, Time Driven Interrupt	
I/O Control Method		Indirect, Direct by Instructions	
Program Language		IL (Instruction List) , LD (ladder diagram)	
Data Processing Method		16 bits	
No. of Instructions	Sequence	55 instructions	
	Application	389 instructions	
Processing Speed		200 ns/step	
Program Memory Capacity		32K step	16K step
		512K byte	256K byte
Base Expansion		Maximum 16	N/A
Data Memory Capacity		512K byte	256K byte
Data Memory Capacity	X	1,024	384
	Y	1,024	384
	M	8,192	
	K	2,048	
	L	2,048	
	F	2,048	
	T	1,024 (10 ms or 100 ms)	
	C	1,024	
	S	100 card * 100 step	
	D	10,000	5,000
	Z	1,024	
Timer	Type	On Delay, Off Delay, Integration, Monostable, Retriggerable	
	Time Range	0.01 ~ 6,553.5 sec	
Counter	Type	Up Counter, Down Counter, Up-Down Counter, Ring Counter	
	Coefficient Range	-32,768 ~ +32,767	
No. of Program Blocks		128	
Operation Mode		RUN, STOP, PAUSE, REMOTE	
Self Diagnosis		Watch-Dog Timer, Memory Error, I/O Error, Battery Error, Power Error, etc	
Restart Mode		Cold, Warm	
Battery Back-up		Over 3 years	
Built-in Function		- Computer Link (RS232C) - PID Control (32 Loops) - I/O Reservation - Program Editable on Run Mode - USB 2.0 Port (CM1-CP*U) - Clock (except CP*A type)	

Power

- The power supply for CIMON PLC XP/CP Series (AC100-240V convert to DC +5V, +24V, +15V, -15V)
- Internal power disturbance monitoring function prevents data damage or system malfunctions
- Use the following table to determine your power requirements

Output voltage	Function
+5V	Operating Power for All PLC Modules
+24V	Sensor and Switch Power, Analog Current Output Module
+15V	Operating Power for Analog Module (except current output)
-15V	Operating Power for Analog Module (except current output)

Items		CM1-SPA	CM1-SPC	CM1-SPR	CM1-SP2B	CM1-SPW
Input	Input Voltage	AC100-240V, 50/60Hz			DC19-28V	DC70-110V
	Input Current	0.25A MAX. For 220VAC			1.8A MAX. For 24VAC	1.6A MAX. For 100VDC
	Inrush Current	30A or less				
	Efficiency	70% or more (rated input / load)				
	Power Disturbance Susceptibility	20ms or less				
Output	Output Voltage/ (Output Current)	+5V (3.5A) +24V (0.3A)	+5V (3.5A) +24V (0.3A) +15V (0.5A) -15V (0.3A)		+5V (3.5A) +15V (0.5A) -15V (0.3A)	+5V (3.5A) +24V (0.3A) +15V (0.5A) -15V (0.3A)
Voltage Indicator		LED ON When Output Voltage Is OK				

※ Use CM1-SPC for Analog Input/output module.

Current Consumption

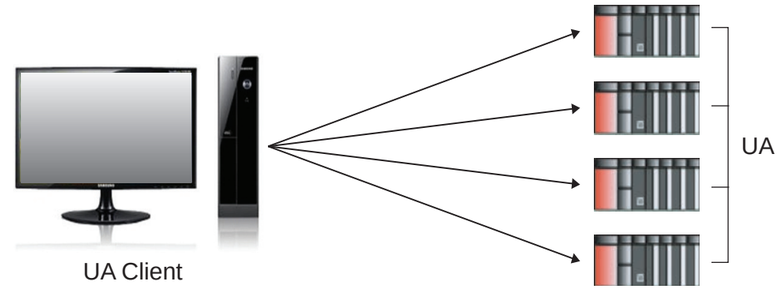
Item	Model	Current Consumption	Item	Model	Current Consumption
CPU Module	CM1-CP**	130mA	Analog Output Module	CM1-DA04V	40mA
	CM1-XP**	170mA		CM1-DA04VA	40mA
Redundancy Module	CM1-RM01A	70mA		CM1-DA08V	50mA
	CM1-RC01A	290mA		CM1-DA08VA	50mA
Expansion Module	CM1-EP**A	270mA		CM1-DA04I	40mA
Digital Input Module	CM1-XD16*	60mA		CM1-DA08I	50mA
	CM1-XD32*	100mA	RTD Module	CM1-RD04*	50mA
	CM1-XD64C	220mA	TC Module	CM1-TC04A	60mA
	CM1-XD16W	32mA	Thermistor Module	CM1-TH08A	60mA
			Load Cell Module	CM1-WG**	170mA
I/O Module	CM1-XY16DR	180mA	Positioning Module	CM1-PS02A	240mA
Relay Module	CM1-YR16A	250mA	Communication Module	CM1-SC02A	190mA
Digital Output Module	CM1-YT16*	110mA		CM1-SC01A	170mA
	CM1-YT32*	130mA		CM1-SC01B	170mA
				CM1-SC01DNP	170mA
High-Speed Counter Module	CM1-HS02*	290mA		CM1-EC01A	290mA
				CM1-EC10*	290mA
Analog Input Module	CM1-AD04VI	50mA		CM1-BN01A	290mA
	CM1-AD08V	50mA		CM1-EC**DNP	290mA
	CM1-AD08I	55mA		CM1-CN01*	60mA
	CM1-AD04W	430mA		CM1-LG32A	170mA

OPC UA Embedded Server Module

- CIMON OPC UA Embedded Module is the OPC UA micro embedded server device that provides a high performance and flexibility in terms of system configuration.
- This server device provides data that conform to OPC UA standards to OPC UA client. Classic OPC client can also access OPC UA Server through OPC UA Proxy.
- The 3rd party SCADA and HMI with OPC client can access CIMON PLC through OPC UA Embedded module.
- OPC UA module has an enhanced security feature by using encryption and certificate. That is, three types of encryption are supported; None, Basic128Rsa15 and Basic256. In addition, certificate or log-in process allows for only authorized device to access OPC UA server.
- 2000 node attributes can be read or written (Max. 4000). Node monitoring can be supported up to 100.
- CICON (Graphic Loader Program) provides a convenient user interface to connect with OPC UA embedded server, allowing easy module configuration.
- IoT Ready (Official member of OPC Foundation)

Model		CM1-EC10OPC
Media Interface		10BASE-T, 100BASE-TX
Transmission Speed		10/100M
Max. Distance		100 m
handling Nodes		2,000 (default, Max : 4,000)
Max monitoring Nodes		100
Module configuration tool		CICON software
Service Capacity	Protocol	UA TCP (opc.tcp)
	Max Connections	12
	Max Sessions	5
	Max Secure Channel	11

OPC UA Driving Down Connectivity Cost

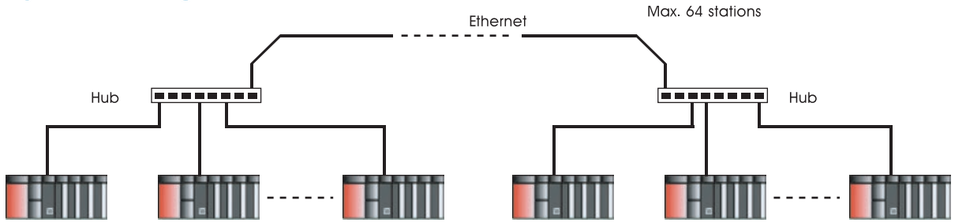


Ethernet Modules

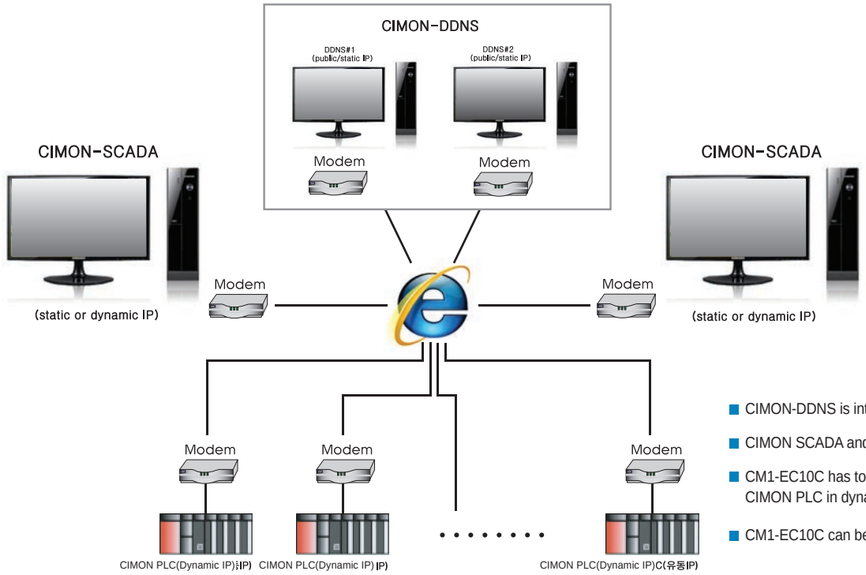
- IEEE 802.3
- Supported protocols (ARP, ICMP, IP, TCP, UDP)
- There are no limits to the number of Ethernet modules that can be installed
- High-speed linkage to simultaneously communicate along CIMON PLC's and up to 64 stations DNP 3.0 protocol (CM1-EC01DNP, CM1-EC04DNP)

	CM1-EC01A	CM1-EC10A	CM1-EC10B	CM1-EC10C	CM1-EC01DNP CM1-EC04DNP
Media interface	10BASE-T	10BASE-T 100BASE-TX	100BASE-FX	10BASE-T 100BASE-TX	10BASE-T
Transmission speed	10Mbps	10/100Mbps	100Mbps	10/100Mbps	10Mbps
Transmission Media	UTP/STP Category5	UTP/STP Category5 Auto MDIX	SC, Multi-Mode (1310mm)	UTP/STP Category5 Auto MDIX	UTP/STP Category5
Max. Distance (Node to Node)	100m		2Km	100m	
Service Capacity	UDP 9 Services TCP 9 Services	UDP 16 Services			EC01DNP : Single Host EC04DNP : 4 Hosts
Loader	Yes (UDP)				
HMI Protocol	Yes (TCP,UDP)				No
MODBUS/TCP SL.	Yes				
MODBUS/TCP MS.	No	Yes	Yes	No	
PLC Link(Private Net)	Yes	No	No	No	
PLC Link (Public Net)	Yes	Yes	Yes	No	
High-Speed Link	No	Yes	Yes	No	
DHCP	No	No	No	Yes	No
DNP3	No	No	No	No	Yes

System Configuration

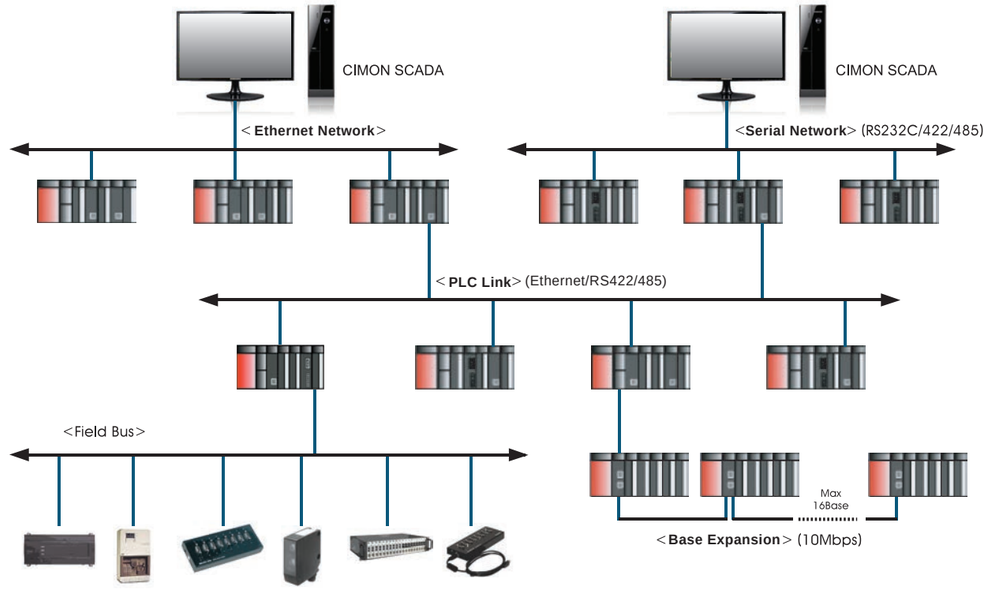


CIMON - Dynamic IP SYSTEM (CM1-EC10C)



- CIMON-DDNS is integrated within CIMON-SCADA
- CIMON SCADA and DDNS can be run on the same PC
- CM1-EC10C has to be installed in order to run the CIMON PLC in dynamic IP
- CM1-EC10C can be run under the IP sharer

CIMON Total Network



Serial Modules

- Maximum 32 unit communications available for multi-drop configuration
- Long distance communication via modem connection
- Baudrate speeds (300bps~76800bps)
- Loop back diagnostic functions
- RS232C / RS422(RS485) communication port using independent channel or linked channel
- 1:1 / 1:N / N:M communication (RS422 only)
- Full-Duplex (RS422) and Half-Duplex (RS485)
- RS485 Multi-Drop communication is available
- DNP 3.0 protocol (CM1-SC01DNP)
- Simultaneously link high-speed communication between CIMON PLCs and up to 32 stations

Model		CM1-SC02A	CM1-SC01A	CM1-SC02C	CM1-SC01B	CM1-SC01DNP
Interface		Ch1 : RS232C Ch2 : RS422/485	Ch1 : RS232C	Ch1 : RS232C Ch2 : RS232C	Ch2 : RS422/485	Ch1 : RS232C
Comm. Mode	HMI Mode	CIMON Protocol (1:n)				-
	Loader Mode	CICON Communication				-
	MODBUS	MODBUS RTU Mode (Slave / Master)				-
	PLC LINK	Communication between CIMON PLC's				-
	DNP	-				DNP 3.0 Protocol
	User defined mode	Protocol Program				-
Data Type	Data Bit	7 or 8 bit				
	Stop Bit	1 or 2 bit				
	Parity	Even / Odd / None				
Synchronization		Asynchronous				
Transmission Speed		300 / 600 / 1200 / 2400 / 4800 / 9600 / 19200 / 38400 / 76800				
Modem		Long Distance Communication by External Modem				

CIMON-NET Modules

About CIMON-NET

- CIMON-NET exchanges real time data with Remote I/O through the CANbus hardware.

Advantages of CIMON-NET

- Simple installation of CIMON-NET system configuration with easy maintenance
- Flexible processing reduces malfunctions and increases accurate data with reliable digital transmitting
- Reduces installation cost of I/O hardware by using one twisted pair cable.

Features of CIMON-NET

- Maximum 63 slave stations
- Maximum 1,400 bytes for each I/O data
- I/O Comm. Block: Maximum 16 modules
- Flexible communication speed set-up (10K,20K,50K,100K,125K,150K,500K,1000Kbps)
- Auto Scan to easily locate slave modules
- Built-in indicator LED to easily monitor network conditions
- Scan program: conveniently diagnose, monitor network condition and control communication flow (Start / Stop)
- Communication configuring software is integrated with CICON

CIMON-NET RIO

CIMON-NET Specifications

Model / Item	CM1-CN01M		CM1-CN01S
Network Type	CIMON-NET		
Interface	CANbus		
Standard	ISO11898		
Comm. Method	Bus		
Media Access	POLL		
Transmission Distance & Speed	BUS Length (m)	Cross Section (mm^2)	Bit Rate (kbps/s)
	0 ~ 40	0.25 ~ 0.34	1000 kbps / 40m
	40 ~ 300	0.34 ~ 0.6	500 kbps / 200m
	300 ~ 600	0.5 ~ 0.6	100 kbps / 500m
	600 ~ 1000	0.75 ~ 0.8	10 kbps / 1km
Max. Number of Slave per Segment	63 stations		
Cable	Twisted Pair Electric Cable		
Max. I/O data	2800 byte		512 byte
Parameter Set-up	Graphical Loader Program Only for CIMON		

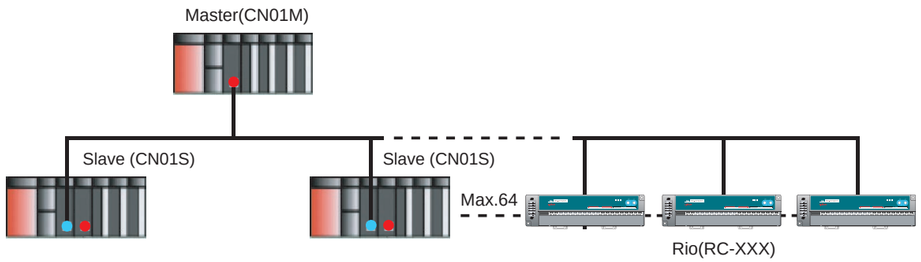
Cable Specification

Model	cable 1	cable 2
Impedance	108 ~ 132 Ω (f=3 to 20MHz)	68 ~ 102 Ω (f>800KHz)
Electrostatic capacity	< 30 nF/Km^2	< 70 nF/Km^2
Conductor cross section	≥ 0.34 mm^2 (22AWG)	≥ 0.34 mm^2 (22AWG)

Transmission Distance per Speed

Baud (kbps)	10	100	250	500	1000
Cable 1	1000	500	400	200	50
Cable 2	700	350	250	100	40

System Configuration



About CIMON-NET

Exchange real time data with CN01M module through the reliable CANbus Protocol

Specifications

- Real time control of diffused I/O
- Supports various I/O of 16 point and 32 point units
- Install up to a maximum of 64 devices
- Save on installation and maintenance costs
- Easy system set-up with a convenient system, repair and maintenance configurations
- Simple communication programming – special program of dialog form –Autoscan function is offered through CICON
- Integration of CPU, power, I/O, communication function in one module provides a convenient all-in-one solution
- Checks communication condition of long distance module through monitor
- Built-in Auto Baud Rate function so that an extra settings for communication speed is unnecessary
- Supports various communication speed (10K/20K/50K/80K/100K/125K/250K/500K/1000Kbps)
- Prevents noise from the communication line through insulation of communication diagnostic
- Built-in LED for diagnostic functions (Power, Module, Line condition)

Communication Specifications

Model		Performance Standard
Standard Transmission	Standard	ISO11898
	Interface	CAN BUS
	Media Access	POLL
	Topology	Bus method
	Cable	Twisted Pair Shielded Cable
	Comm. Distance	1000 m (10 kbps)
		500 m (100 kbps)
		200 m (500 kbps)
		40 m (1000 kbps)
	Max. Number of Node	63
	Max. I/O Data	8 byte

I/O Specification

Item		Input		Mixed Module		Output	
		DC (Sink / Source)		DC (Sink / Source)	TR (Sink)	TR (Sink)	Relay
Model		RC-XD16A	RC-XD32A	RC-XY32DT		RC-YT32A	RC-YR16A
Point		16 points	32 points	16 points	16 points	32 points	16 points
Power		DC24V					
I/O Voltage / Current		DC24V / 7mA		DC24V / 7mA	DC24V / 0.5A	DC24V / 0.5A	DC24V / 2A , AC220 / 2A
Response	Off → On	3ms or less		3ms or less	2ms or less	2ms or less	10ms or less
	On → Off	3ms or less		3ms or less	2ms or less	2ms or less	5ms or less
Common Method		16 points / COM		16 points / COM		32 points / COM	8 points / COM
Current Consumption		300mA		400mA		350mA	500mA
External Connection Type		Terminal Connector					
Status Signal		Input On, LED On		Input On, LED On	Output On, LED On	Output On, LED On	
Inner Circuit		Photo Coupler					

※ RC-XD32A and RC-YT32A modules are custom-built modules

CIMON-NET RIO

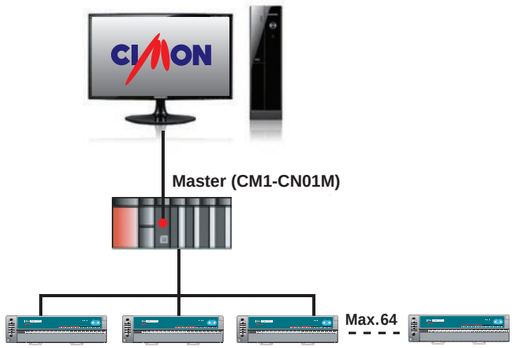
Cable Standard

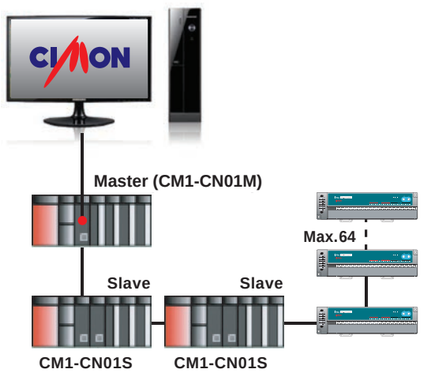
Features of Cable	Cable #1	Cable #2
Impedance	108 ~ 132 Ω (f = 3 to 20 MHz)	68 ~ 102 Ω (f > 800 KHz)
Electrostatic capacity	< 30 nF/Km^2	< 70 nF/Km^2
Conductor sectional area	≥ 0.34 mm^2 (22 AWG)	≥ 0.34 mm^2 (22 AWG)

Transmission Distance

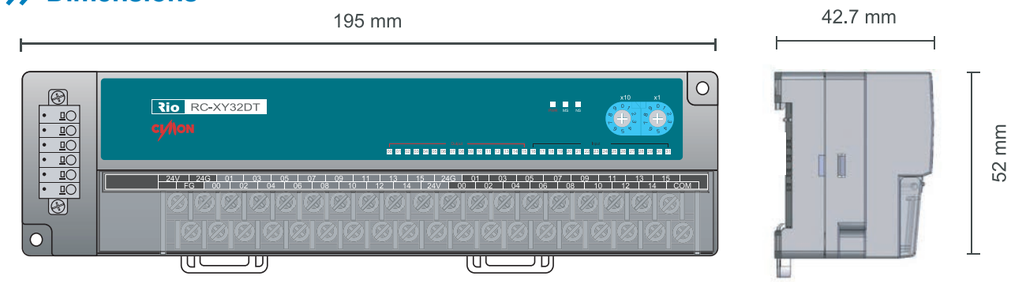
Baud (Kbps)	10	100	250	500	1000
Cable #1	1000	500	400	200	50
Cable #2	700	350	250	100	40

System Configuration





Dimensions



XP/CP Series

BACnet Module

About BACnet Protocol

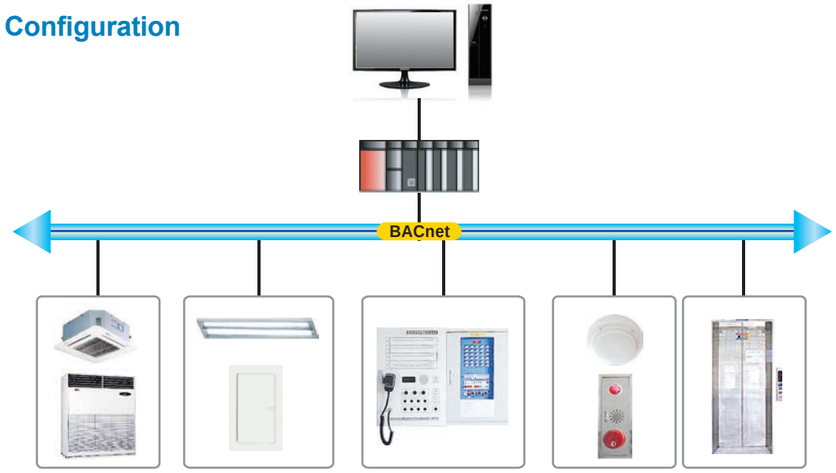
- BACnet stands for Building Automation and Control Network.
- BACnet supports building utilities such as HVAC, lighting, security and elevator control systems

Features of BACnet Module

- Easy modify and expand with to use of standard protocol
- Supports BACnet class 3 servers
- Uses Ethernet for communication physical layer (BACnet IP)

Model	CM1-BN01A
Size of Protocol	ANSI / ASHRAE 135-1995 (KS X 6909)
Stack of Protocol	UDP / IP
Standard of Physical Layer	ISO / IEC8802-3 (IEEE 802.3, CSMA / CD, 10Base-T)
Speed of Data Transmitting	10 Mbps
Transmitting Method	Base Band
Max. Length of Segment	100m
Max. I/O Data Slave	244 byte
Support Service	Loader, BACnet / IP, PLC Link (public Net)

System Configuration



PROFIBUS Module

Features of Profibus DP Module

- Communicates between master automation device and the slave I/O device
- Flexible communication speed (9.6Kbps~12Mbps)
- RS485 interface
- Twisted pair cable allows for easy installation
- Maximum 127 slave stations available (32 stations per segment)
- Network setup via Sycon-PB configuration tool
- 1 Kbyte transferred in 2ms
- Data transferred with an order or without an order
- Single or multi-master network function

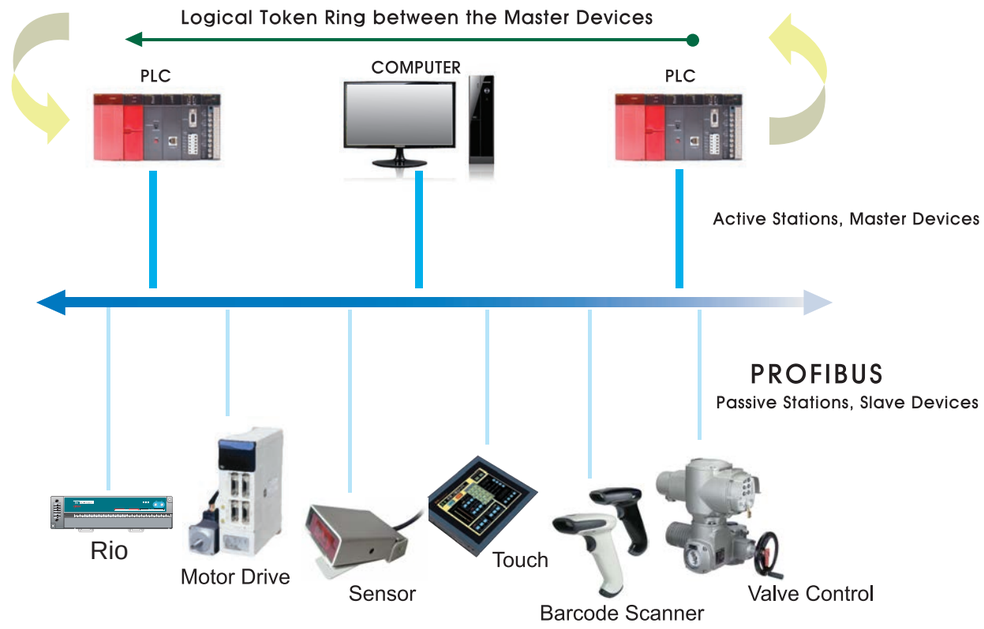
Model	CM1-PD01A
Interface	RS-485
Network	Profibus DP
Media Access	Token Passing & Polling
Cable	Two Wire Shielded Twisted Pair Cable
Max. No. of Slave per Network / Network	127 stations
Max. No. of Slave per Segment/ Network	32 stations
Max. I/O Data Slave	244 byte
Max. I/O Data	I/O 3,584 each
Configuration Tool	Sycon-PB
Configuration Port	RS-232C
Comm. Parameter Setting	High-speed Linked Parameter Communication Setting

Transmission	9.6K(bps)	19.2K	93.75K	187.5K	500K	1,500K	12,000K
Distance	1200m	1200m	1200m	1000m	400m	200m	100m

System Configuration

ITEM		Input		Mixed Module		Output	
		DC (Sink / Source)		DC(Sink/Source)	TR(Sink)	TR(Sink)	
Model		RP-XD32A	RP-XD16A	RP-XY32DT		RP-YT32A	RP-YT16A
I/O point		32 points	16 points	16 points	16 points	32 points	16 points
Power		DC24V					
I/O Voltage/Current		DC24V / 7mA		DC24V / 0.5A	DC24V / 0.5A	DC24V / 0.5A	
Response Time	Off → On	3ms or less		3ms or less	2ms or less	2ms or less	
	On → Off	3ms or less		3ms or less	2ms or less	2ms or less	
Common Type		16points / COM		16points / COM		16points / COM	
Current Consumption		300mA		400mA		350mA	
External Connection Type		Terminal Connector					
Status Signal		Input On, LED On		Input On, LED On	Output On, LED On	Output On, LED On	
Insulation		Photo Coupler					

System Configuration



Digital I/O Modules

- Photo-coupler contact and relay contact
- LED display to monitor running conditions
- Terminal block type: Easy maintenance and installation

DC Input Module

Model		DC Input					
		CM1-XD16A	CM1-XD32C	CM1-XD64C	CM1-XD16B	CM1-XD32B	CM1-XD16W
Input Points		16 points	32 points	64 points	16 points	32 points	16 points
Rated Input Voltage		DC 24 V					DC 100 V
Rated Input Current		4 mA					
On Voltage / On Current		DC 19 V / 4 mA			DC 15 V / 4 mA		60 V / 4 mA
Off Voltage / Off Current		DC 11 V / 1 mA			DC 12 V / 1 mA		40 V / 1 mA
Response Time	Off -> On	5 ms or less					
	On -> Off	5 ms or less					
Common Type		8 points / 1com		32 points / com	8 points / com		
Operation Indication		LED will be ON when the Input is ON					
Insulation Type		Photo Coupler Insulation					
Input Type		Sink / Source					

I/O Mixed Module

Model		I/O Mixed	
		CM1-XY16DR	
No. of I/O points		8 points	8 points
		SINK / SRC	Relay
Rated I/O Voltage		DC24V	DC12 / 24V
		N/A	AC 220V
Rated I/O Current		4mA	2A
On Voltage / On Current		DC 19V / 4mA	-
Off Voltage / Off Current		DC 11V / 1mA	-
Response Time	Off → On	5ms or less	5ms or less
	On → Off	5ms or less	5ms or less
Common Type		8 points	8 points
Operation Indication		LED will be ON when the Input is ON	
Insulation Type		Photo Coupler Insulation	Relay Insulation

Relay Output Module

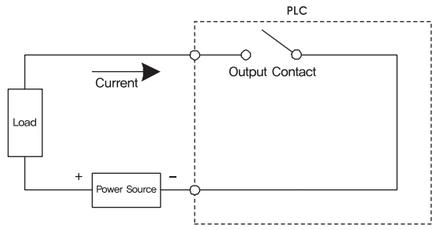
Model		Relay Output
		CM1-YR16A
Output Points		16 points
Rated I/O Voltage		DC12 / 24V
		AC 220V
Rated I/O Current	1 Point	2 A
	1 Com	5 A
Response Time	Off → On	10 ms or less
	On → Off	5 ms or less
Common Type		8 points
Operation Indication		LED will be ON when the Input is ON
Insulation Type		Relay Insulation

※ If this module is used as an inductive load switch, it will shorten the life of the module. please use transistor output module for this purpose.

Transistor Output Modules

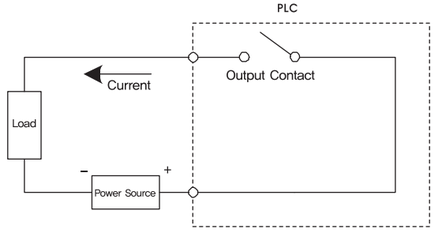
Model		Transistor Output				
		CM1-YT16A	CM1-YT16B	CM1-YT32A	CM1-YT32B	CM1-YT64A
Output Points		16 points Sink	16 points Source	32 points Sink	32 points Soure	64 points Sink
Rated Load Voltage		DC12 ~ 24V	DC12 ~ 24V	DC12 ~ 24V	DC12 ~ 24V	DC12 ~ 24V
Rated I/O Current	1 Point	0.5 A	0.5 A	0.2 A	0.2 A	0.2 A
	1 Com	4 A	4 A	4 A	4 A	4 A
Response Time	Off → On	1 ms or less	1 ms or less	1 ms or less	1 ms or less	1 ms or less
	On → Off	1 ms or less	1 ms or less	1 ms or less	1 ms or less	1 ms or less
Common Type		16 points	16 points	32 points	32 points	32 points
Operation Indication		LED will be ON when the Input is ON				
Insulation Type		Photo Coupler Insulation				

Sink Type



※ CM1-YT16A, CM1-YT32A, CM1-YT64A are Sink Type

Source Type



※ CM1-YT16B, CM1-YT32B are Source Type

AD Modules

Analog Input Modules

- 4 and 8 channels of A/D conversion with one module
- Voltage or current input can be selected from each channel (CM1-AD04VI only)
- High resolution of 1/64000 (CM1-AD04W only) and 1/16000

Items	CM1-AD04VI	CM1-AD08V	CM1-AD08I
Analog Input point	4 points	8 points	8 points
Analog Input	0 ~ +5V(0~20mA) 1 ~ +5V(4~20mA) 0 ~ +10V / -10V ~ +10V	0 ~ +5V 1 ~ +5V 0 ~ +10V -10V ~ +10V	0 ~ 20mA 4 ~ 20mA
Digital Output	Unsigned value : -192~16191 (0~16000) Signed value : -8192~8191 (-8000~8000) Percentage : -12000~10119 (0~10000) Measured value : depending on type of input signal		
Maximum Resolution	1/16000		
Accuracy	±0.3% (Full Scale)		
Conversion Speed	5ms / 1ch		
Absolute Max.Input	Voltage : ± 12V Current : ± 25mA	Voltage : ± 12V	Current : ± 25mA
Insulation	Photo-coupler insulation between input terminal and PLC (No insulation between channels)		
I/O points occupied	16 points		
Connection Terminal	18 points Terminal Block		
Consumption current (mA)	50	50	50
	40	40	40
	35	20	20

Input signal	Minimum value	Measured value	Maximum value
4~20 mA	3,808	4,000~20,000	20,191
0~20 mA	-240	0~20,000	20,239
1~5V	952	1,000~5,000	5,047
0~5V	-60	0~5,000	5,059
-10~10V	-12,000	-10,000~10,000	10,119
0~10V	-10,240/-240	0~10,000	10,239

Input	Analog Input Range	Max. resolution	Digital Output
Voltage	0 ~ +5V	312.5 μV	0~16000 -8000~8000
	1 ~ +5V	250 μV	
	0 ~ +10V	625 μV	
	-10V ~ +10V	1.25 mV	
Current	0 ~ 20mA	1.25 μV	
	4 ~ 20mA	1.0μV	

Item	CM1-AD04W
Analog input points	4 channels
Analog input range	0~+5V(0~20mA) 1~+5V(4~20mA) 0 ~ +10V-10V ~ +10V
Digital output	► Voltage input

	0~5V	1~5V	0~10V	-10~10V
Raw value	-32000~32000			
Measuring value	0~5000	1000 ~5000	0~10000	-10000 ~10000
Percentile value	0~10000			

► Current input

	0~5V	1~5V	0~10V	-10~10V
Raw value	-32000~32000			
Measuring value	0~5000	1000 ~5000	0~10000	-10000 ~10000
Percentile value	0~10000			

Item	CM1-AD04W		
Maximum Resolution	Analog input range		Resolution
	Voltage	0 ~ +5 V	78.1 μV
		1 ~ +5 V	62.5 μV
		0 ~ +10 V	156.3 μV
		-10V ~ +10 V	312.5 μV
	Current	0 ~ 20 mA	312.5 nA
		4 ~ 20 mA	250 nA
Accuracy	±0.05% (Full Scale)		
Conversion rate	2.1ms / 4ch		
Absolute maximum input	Voltage : ±15V , Current : ±30mA		
Insulation specification	Between input terminal and PLC : Photo Coupler Insulation Between Channels : Transformer		
Occupied IO	16 points		
Contact terminal	18-point terminal block		
Internal current consumption	430 mA		
Weight	187 g		

DA Modules

Analog Output Modules

- D/A converting module is used to convert a digital value to an analog signal
- D/A converting of 4 to 16 channels is possible with one module
- No quantity restrictions within a base

Model	DA14bit / Voltage Output		DA14bit / Voltage Output	
	CM1-DA04V	CM1-DA08V	CM1-DA04VA	CM1-DA08VA
Analog Output point	4 channels	8 channels	4 channels	8 channels
Digital Input	14 bit Binary Value (0~16000 or -8000~8000)			
Analog Output	-10 ~ 10V		-10 ~ 10V	
Max. Resolution	1.25mV		0.625mV	
Accuracy	Within ±0.1%			
Max. Conversion Rate	10 ms	16 ms	10 ms	16 ms
Absolute Max. Output	±12 V		-0.5 ~ 10.5 V	
Insulation Type	Insulation between Photo Coupler and Channel, Non-Insulation between Channels			

Model	DA14Bit / Current Output	
	CM1-DA04I	CM1-DA08I
Analog Output point	4 channels	8 channels
Digital Input	14 bit Binary Value (0~16000 or -8000~8000)	
Analog Output	4~20mA	
Max. Resolution	1.0μA	
Accuracy	Within ±0.1%	
Max. Conversion Rate	10ms	16ms
Absolute Max. Output	±21mA	
Insulation Type	Insulation between Photo Coupler and Channel, Insulation Type Non-Insulation between Channels	

RTD Modules

- Using a platinum-coated thermometer (Pt100, JPt100, Pt1000 or Ni1000) converts RTD temperature sensors digital value
- One module can connect with Pt100, JPt100 or Pt1000, Ni1000 with 4 point and 8 point
- Detects a wire disconnection from each channel and detects the excess range of input temperature

		CM1-RD04A	CM1-RD04B
Available RTD		Pt100 (JIS C1640-1989, DIN 43760-1980) JPt100 (KS C1603-1991, JIS C 1604-1981)	Pt1000 (DIN EN 60751)
Range of Temperature Input		Pt100: -200.0°C to 600°C (18.48 to 313.59Ω) JPt100: -200.0°C to 600°C (17.14 to 317.28Ω)	Pt1000:-200.0°C to 600°C (185.20 to 3137.08Ω) Ni1000 (DIN 43760): -50°C to 160°C (742.6 to 1986.3Ω) Ni1000 (TCR 5000): -50°C to 160°C (790.0 to 1799.3Ω)
Digital Output		Digital converted value : 0~16,000(-8000~8000) Detected temperature value: -2000~6000 (First decimal place value X 10 times)	
Detecting the breaking of wires		3 wires per channel	
Accuracy		±0.1% [Full Scale]	
Max.Conversion Rate		50ms / 1ch.	
Number of Temperature Inputs		4 Ch. / 1 module	
Insulation		Between input terminal and PLC Power : Photo-Coupler Between channels : No	
Contact terminal		18-points Terminal Block	
No. of Occupied Points		16 Points	
Internal Current (mA)	+5V	50	
	+15V	30	
	-15V	10	

TC Module

- Converts THC temperature data to a digital value by connecting temperature sensors
- Data can be processed to the first decimal point as a digital value
- One module can connect with 4 points of temperature sensors
- Detects if the temperature exceeds the measuring range

1) CIMON TC modules are non-insulated between channels and use FG in common.
2) The FG connection is recommended. If the measured values are severely shaken, FG reinforcement is highly recommended.
3) Simultaneous connection between TC sensor and another device may cause electrical interference, which is the main cause of abnormal measurement.

∗ If you must inevitably use another brand model, our module must be connected to the FG of the other brand model.

Model	CM1-TC04A			
TC Type	K, J, E, T, B, R, S, N			
Range of Input Temperature	Type of TC	Standard	Range of measured temperature(℃)	Range of measured voltage(μV)
	K	ITS-90	-200.0 ~ 1200.0	-5891 ~ 48828
	J		-200.0 ~ 800.0	-7890 ~ 45498
	E		-200.0 ~ 600.0	-8824 ~ 45085
	T		-200.0 ~ 400.0	-5602 ~ 20869
	B		400.0 ~ 1800.0	786 ~ 13585
	R		0.0 ~ 1750.0	0 ~ 21006
	S		0.0 ~ 1750.0	0 ~ 21006
	N		-200.0 ~ 1250.0	-3990 ~ 43846
Digital Output	Digitally Converted Value : 0 ~ 16,000 (-8000 ~ 8000) Converted Temperature Value : ℃, ℉ (0.1℃ Resolution)			
Compensation Type	Automatic Compensation			
Breakdown Detection	Detection by Channels			
Accuracy	±0.3 % (full scale), ±1℃ (error for base contact compensation)			
Max. Conversion Rate	50 ms / 1 channels			
No. of Input Channel	4 channels / module			
Connection Terminal	18 point Terminal			
Internal Current Consumption (mA)	+5 V	60 mA		
	+15 V	30 mA		
	-15 V	10 mA		

Thermistor Module

- Maximum of 8 channels NTC (Negative Temperature Coefficient) measuring thermistor with one module
- Temperature data (°C) is accurately measured down to the first decimal place
- Can detect disconnection with each channel and also adjusts if the temperature exceeds the measuring range
- The thermistor temperature resistance table is able to input desired minimum, medium and maximum temperature

Model	CM1-TH08A	
Range of Thermistor Input	NTC Type	
Range of Thermistor Input Resistance	0~1MΩ	
Resolving Power of Thermistor Input Resistance	0Ω ~ 40kΩ : 1Ω	
	40kΩ ~ 400kΩ : 10Ω	
	400kΩ ~ 1MΩ : 30Ω	
Cover Range	Temperature Convert Value	℃,℉ (0.1℃ Resolution)
	Digital Value	0 ~ 16000, -8000 ~ 8000
Resistance - Temperature Calculation	Steinhart-Hart Thermistor Polynomial	
Accuracy	±0.3% (full scale)	
Max. Conversion Rate	1 sec (8 channel)	
Temperature Input Point	8 points	
Insulation Method	CPU and Analog Arithmetic Operation Photo Coupler Insulation	
Connection Terminal	18 points Terminal	

Load Cell Modules

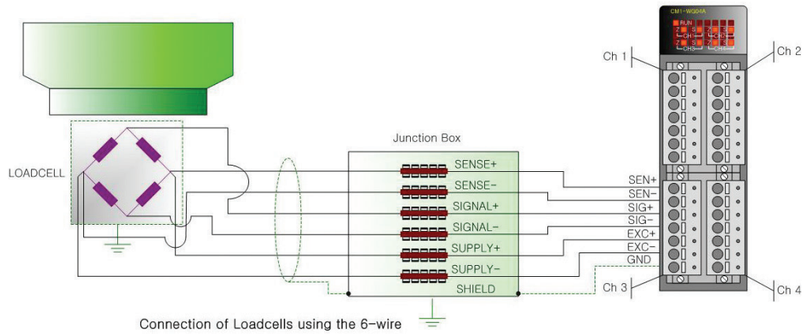
CM1-WG02A
CM1-WG04A

CM1-WG02C
CM1-WG02D
CM1-WG02E

- 2 or 4 channels per module
- The unit is compatible with various applicable fields such as Unload Scale, Bin Scale, Mixing Scale, Filling Scale(packaging) etc.
- 24 bit sigma delta AD conversion provides high resolution digital values
- Supports built-in programs such as input and discharge measurements
- WG02D model can be in dynamic measurements by getting external 24V DC input.

Model	CM1-WG02A	CM1-WG04A	CM1-WG02C	CM1-WG02D	CM1-WG02E
Channel	2 channels	4 channels	2 channels	2 channels	2 channels
Load Cell	Strain Gage Method				
Insulation Type	Photo-Coupler				
External Power	DC24V				
Load Cell Approval Voltage	Maximum 350Ω Cell of 4 Parallel Connection is Possible per Channel				
A/D Conversion Method	Sigma Delta				
Max. Output of Load Cell	3.6 mV/V		2 mV/V	2 mV/V	2 mV/V
Max. Resolving Power	1 / 10,000		1 / 40,000	1 / 40,000	1 / 40,000
A/D Conversion Speed (each channel)	10 times / sec		1,000 times / sec (standard form)	1,000 times / sec (dynamic measurement form)	1,000 times / sec (wide range)

Operating Introduction



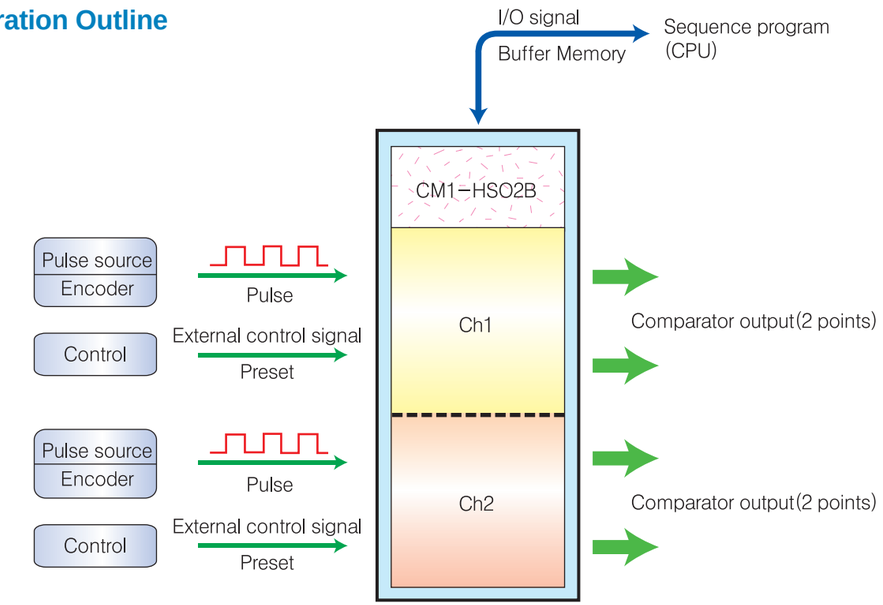
Connection of Loadcells using the 6-wire

High-Speed Counter Module

- 1-Phase input: Up / Down count by a program or B-phase
- 2-Phase input: Up / Down count by Phase difference
- Enables adding and subtracting functions for 2-phase difference
- 1-multiple, 2-multiple, 4-multiple functions for 2-phase input
- Preset function by external input signal or a program
- Outputs comparison signal by comparing the base value and the current value through the built-in transistor
- Enables ring counting, sampling counting, periodic pulse counting and latch function

MODEL		CM1-HS02C	CM1-HS02F	CM1-HS02E
Channel		2 Channels		
Counting Input Signal	Signal	1 Phase Input / 2 Phase Input		
		PNP	NPN	Line Drive Input
	Level of Signal	DC 5 / 12 / 24V, 10~12mA		RS-422A (Line Drive)
Range of Counting		32 bit (-2,147,483,648 ~ 2,147,483,647)		
Counting rate		200kpps		500kpps
Form		UP / DOWN Linear Counting + Ring Counting		
External Output	Type	Comparison (>,=,<)		
	Form of Signal	Open Collector Output		

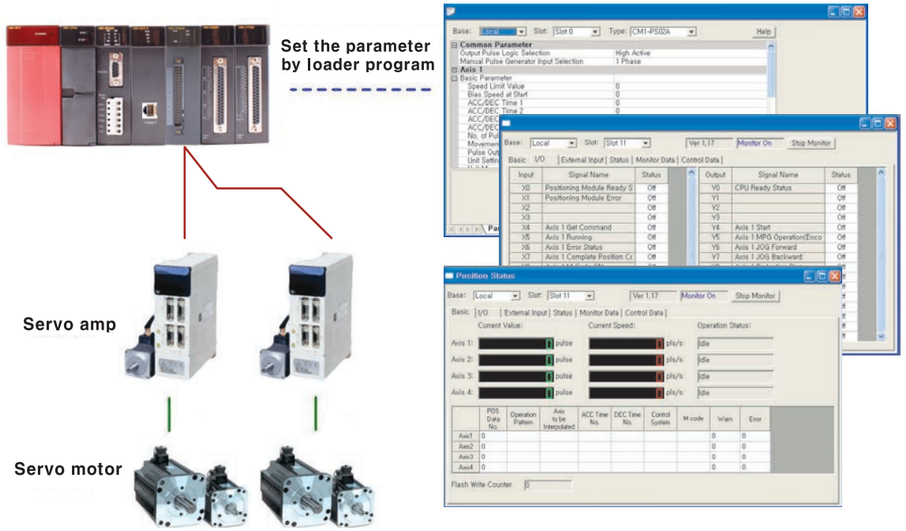
Operation Outline



Positioning Module

- Enable to set a maximum of 600 positioning data
- Position control and speed control
- Positioning control of one axis: linear interpolation, separate/synchronous operation
- Positioning control of two axes: speed control, arc/linear interpolation, separate/synchronous operation
- Origin point return method
  - Search origin point after near zero point is off
  - Search origin point after reducing speed when near zero point is on
  - Search origin point by detecting the origin point and upper/lower limit
  - Enable to set an absolute origin point

Operation Outline



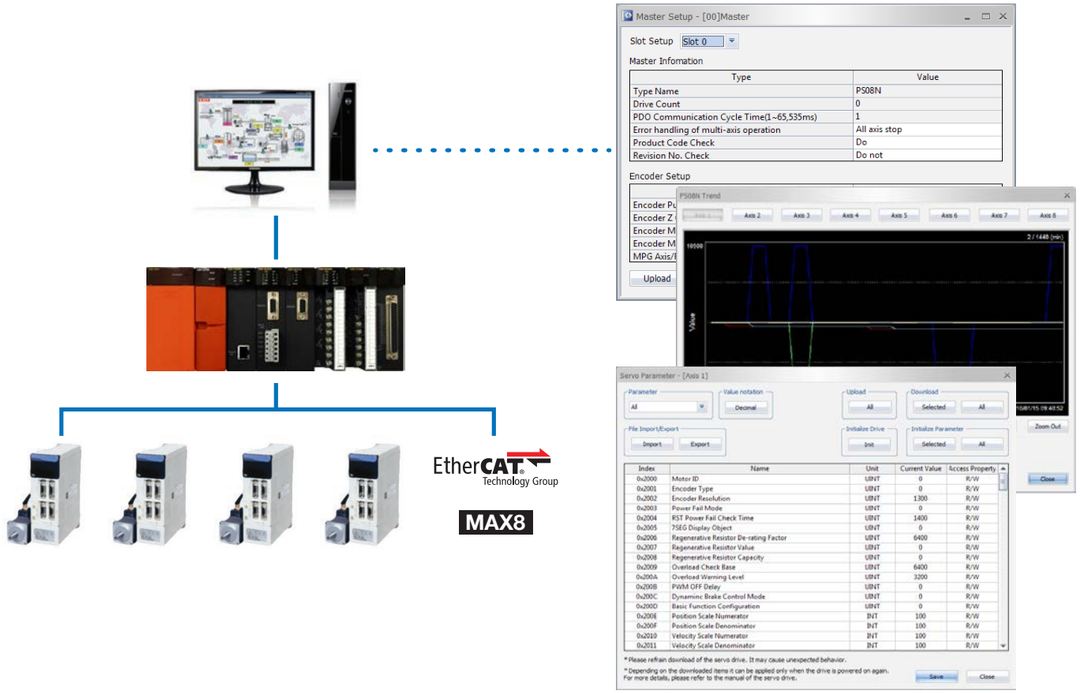
Specifications

Model		CM1-PS02A
Number of Axis		2 axis
Interpolation		2-axis Linear Interpolation, 2-axis Circular Interpolation
Control Method		Position, Locus, Speed, Speed / Position, Position / Speed Control
Control Unit		pulse, mm, inch, degree
Positioning Data		600 ea / axis
Positioning Method		Absolute or Relative Method
Backup		Flash Rom Backup (parameter, positioning data, block data, condition data)
Positioning	Positioning Method	Position Control Absolute / Relative Coordinate Method
		Position / Speed Switching Control - Relative Coordinate Method
		Speed / Position Switching Control - Absolute / Relative Coordinate Method
		Locus Control - Absolute / Relative Coordinate Method
	Positioning Range	▪ Absolute Coordinate Method
		-214748364.8 ~ 214748364.7 μm
		-21474.83648 ~ 21474.83647 inch
		0 ~ 359.9999 degree
		-2147483648 ~ 2147483647 pulse
		▪ Relative Coordinate Method
		-214748364.8 ~ 214748364.7 μm
		-21474.83648 ~ 21474.83647 inch
		-21474.83648 ~ 21474.83647 degree
		-2147483648 ~ 2147483647 pulse
		▪ Speed / Position Switching Control (relative coordinate method), Position / Speed Switching Control
		0 ~ 214748364.7 μm
		0 ~ 21474.83647 inch
		0 ~ 21474.83647 degree
		0 ~ 2147483647 pulse
		▪ Speed / Position Switching Control (absolute coordinate method)
		0 ~ 359.9999 degree
	Control Speed	0.01 ~ 20,000,000.00 (mm / min)
		0.001 ~ 2,000,000.000 (inch / min)
		0.001 ~ 2,000,000.000 (degree / min)
		1 ~ 1,000,000 (pulse / sec)
	Acceleration/Deceleration Pattern	Trapezoidal / S-curve
	Acceleration/Deceleration Time	125 ~ 1x106 PPS/sec
External Disconnection Method		40 pin Connector
Connector for External		40 pin Male
Max. Output Pulse		1 MPPS (line driver pulse output)
Max. Distance		10 m
Number of Flash Rom Saving		25 times After Power ON

EtherCAT Positioning Module

- Enable to directly connect 8 servo drives
- Various control methods (Speed/Position, Position/Speed)
- Parameters and operation data are stored in Flash Memory(No battery required)
- Enable to operate independent axis via position control, speed control and feed control
- Absolute positioning system can be implemented when using absolute encoder type
- Enable to control multi-axis simultaneously
- Supports linear interpolation (2~8 axis) and circular interpolation (2 axis)
- Supports Driver that follows the CiA402 Profile Standard
  (LS Mecapion L7N, OMRON R88D Series, Beckhoff Ax51xx Series, etc).

Operation Outline



Specifications

Model		CM1 -PS08N		
Number of controlled axes		8 axes		
Control type		Position control, Speed control, Linear interpolation, Circular interpolation		
Control units		pulse, mm, inch, degree		
Position data setting		Configured by CICON		
CM1-CPU	Connector	RS-232C or USB port		
	Setting Data	Common, Basic, Expansion, Manual operation, Servo parameter Operation data, Cam data, Command data(*)		
	Monitor	Operation Data, Trace, Input terminal Data, Error Data		
Back-up		Parameter, operation data saved in flash memory (without battery)		
Functions	Positioning type	Absolute Positioning / Incremental Positioning		
	Position command values		Absolute movements	Incremental movements	Interpolation movement
		mm	-214,748,364.8 ~ 214,748,364.7	-214,748,364.8 ~ 214,748,364.7	-214,748,364.8 ~ 214,748,364.7
		inch	-21,474.83648 ~ 21,474.83647	-21,474.83648 ~ 21,474.83647	-21,474.83648 ~ 21,474.83647
		degree	-21,474.83648 ~ 21,474.83647	-21,474.83648 ~ 21,474.83647	-21,474.83648 ~ 21,474.83647
		pulse	-21,474.83648 ~ 21,474.83647	21,474.83648 ~ 21,474.83647	-21,474.83648 ~ 21,474.83647
	Speed command values	mm	1 ~ 20,000,000.00(mm/min)		
		inch	1 ~ 2,000,000.000(inch/min)		
		degree	1 ~ 2,000,000.000(degree/min)		
		pulse	1 ~ 20,000,000(pulse/sec)		
		RPM	1 ~ 100,000.0(RPM)		
	ACC/DEC type	Trapezoidal type, S shape type		
	ACC/DEC times	1~2,147,483,647ms, ACC pattern 4types / DEC pattern 4types		
Manual operation		Jogging / Inching		
Homing types		Total 15 types supported by CiA402 Profile		
Interpolation		2~8 axes linear interpolation, 2 axes circular interpolation		
Velocity units		Value / percentage (*)		
Torque units		percentage		
Absolute position system		Available (when using absolute encoder type servo driver)		
Comm. period		1 ~ 65,535ms		
Max. Distance		Maximum distance 100m between module and Servo Driver		
Comm. cable		Over CAT.5 STP(Shielded Twisted pair) cable		
Error indicator		LED on the module		
Comm. Status indicator		LED on the module		
IO points		16 points		
Consumable current		136mA		

Data Logger Module

- Capacity with non-combustible log memory (32MB)
- Real time data sampling & storing
- Built in HMI protocol: no optional communication card needed
- Self-diagnostic function: communication error, memory error, capacity check, etc.
- Triggers logging by sequence program
- Provides event logging (COS, VOC)
- Includes special program for downloading the collected data

Model		CM1-LG32A
Comm. Mode	HMI Mode	CIMON SCADA Protocol (HMI protocol)
	Terminal Mode	Text Transmission
Data Type	Data Bit	7 / 8
	Stop Bit	1 / 2
	Parity	Even / Odd / None
Synchronous		Asynchronous
Transmission Speed		300 / 600 / 1200 / 4800 / 9600 / 19200 / 38400
Comm. Method		RS232C
Modem Connection		Cable Modem or Dial Up Modem
Log Memory Capacity		32 Mbytes
Sampling Interval		10 msec ~ 327,670 msec
Max. Logging Data Size		32 words
Log Data		Block Sampling or Event Data
Logging Method		Periodic, Trigger, Event (COS / VOC)
Built-in Function		Memory Condition Check, Communication Error Check, Memory Capacity Check

Base

Base Model

The CIMON PLC is made up of six kinds of slot bases such as 3/4/5/8/10/12 so that the suitable configuration is available according to the capacities

(Unit:mm)

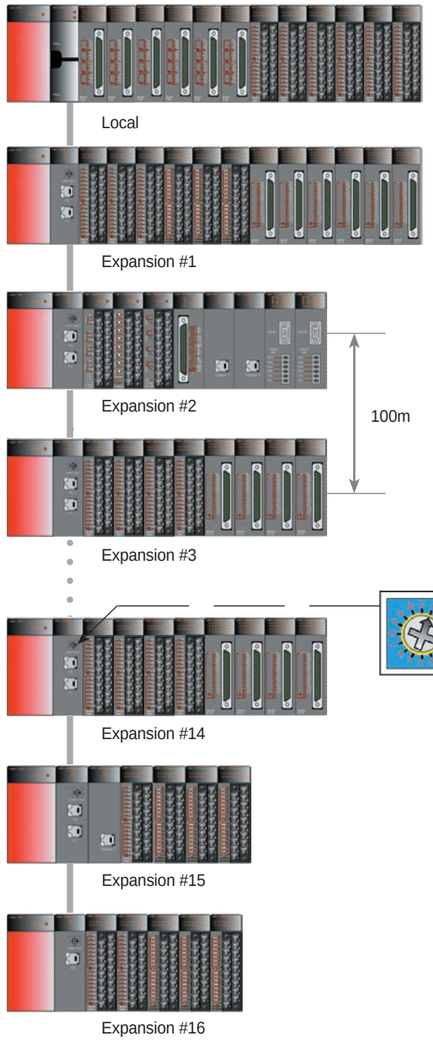
Model name	Slot no. of IO	Size
CM1-BS03A	3 slot	183 x 108
CM1-BS04A	4 slot	216 x 108
CM1-BS05A	5 slot	247 x 108
CM1-BS08A	8 slot	344 x 108
CM1-BS10A	10 slot	408 x 108
CM1-BS12A	12 slot	473 x 108

Minimize the Mounting Space

Expansion

Model	CM1-EP01A	CM1-EP02A	CM1-EP03A
Comm. port	1 Expansion Port	2 Expansion Port	3 Expansion Port
Interface	10 BASE-T		
Comm. speed	10 Mbps		
Max. Distance	100m (Node to Node)		
Max. Base expansion	16 Base		

- Maximum number of base expansion is 16



- High-speed expansion communication of 10BASE-T (10 Mbps)
- Maximum length between the segments: 100m

- Built-in network repeater
- Extension of remote I/O function setting available
- Maximum distance between the expanded segments: 100m
- Maximum total extension length: 1600m

- Expansion rank of each base can be differentiated by rotary switches

CPU Modules

TR(Sink) TYPE

TR(Source) TYPE

RELAY TYPE

CPU Features

- TR Output (DC 24V) / Relay Output
- 200 nsec/step
- 32 pts. digital I/O (16 inputs and 16 outputs)
- Sufficient memory for 10K Step
- Data memory 10,000 words
- Expansion: Max. 11 modules (max. 384 pts.)
- Compact size of 30 x 90 x 61mm / 120g
- 3 built-in Comm. Ports (RS232C, RS422/485, Ethernet)
- USB loader port and SD card slot
- Built-in 20Kpps High Speed Counter (2ch)
- Built-in 100Kpps 2 axis Pulse Output (positioning)
- Built-in PID 32 loop
- Floating point arithmetic
- Run time editing, LD/IL language
- Built-in flash memory

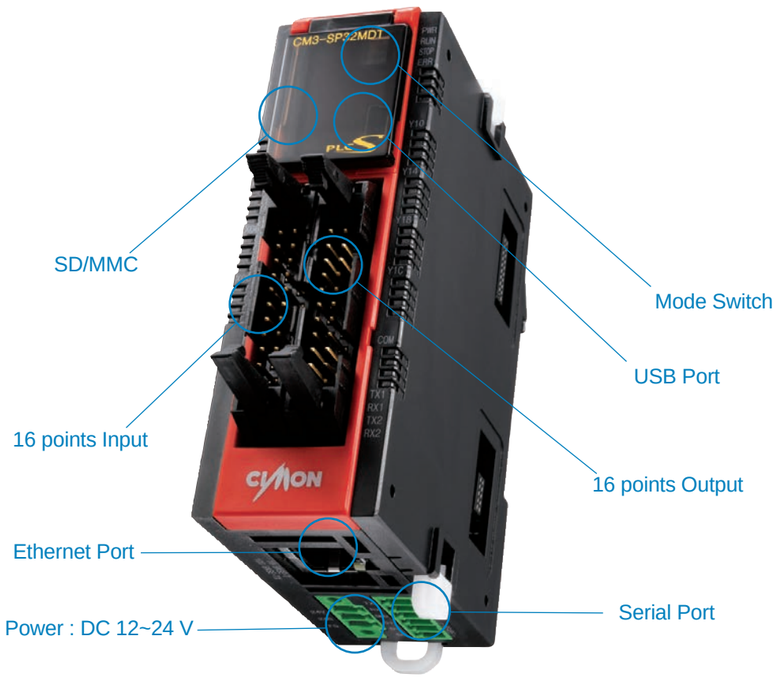
PLC-S delivers fast performance and rock solid reliability for industrial automation systems in a small size and at a low cost. This is a small size PLC and yet it has the ability to perform like more Expensive PLC's.

PLC-S is very cost-effective. The CPU module has several functions built in such as high-speed counter, positioning control function, floating point arithmetic, 3-way simultaneous communications and PID auto-tuning.

This unit can also be configured with other special expansion modules (up to 11 modules) to provide a wide variety of functions. In addition, there's a USB port and a slot for SD cards for convenient program downloads.

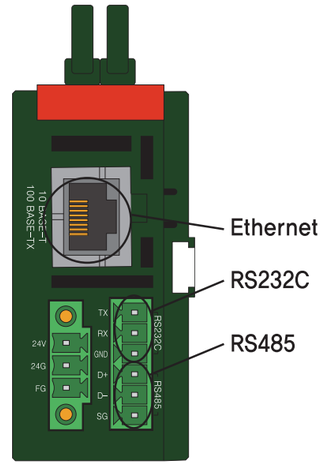
This PLC is especially suitable for small to medium performance tasks. PLC-S is one of the most flexible, reliable, powerful but simplest Micro-PLC in the industrial world.

COMPACT BUT POWERFUL ALL-IN-ONE PLC



Specification	
Maximum Expansion	11
Program Capacity	10k steps
Operation Rate	200 ns/step
I/O Points	Maximum 384 points
High Speed Counter	2 Phase 2 channels
Pulse Output	Maximum 100 kpps 2 axis, Linear Interpolation
Programming Tool	CICON Software
PID	32 channels, Auto-Tuning
RTC	Built-In (battery : CR2032)
ETC.	Floating Point Arithmetic On-line Editing
Power	DC 24 V
Size & Weight	30 X 90 X 61 mm / 120 g

Specifications



Communication Protocol	
Ethernet	MODBUS TCP Slave, CICON (loader) CIMON-HMI (TCP,UDP), High Speed PLC Link
RS232C/485	MODBUS RTU Master, MODBUS RTU Slave, CICON (loader), CIMON-HMI, Protocol Program

Built-In Functions (High-Speed Counter)	
Counter Input Signal	Voltage Input (open collector)
Maximum Counting Speed	Maximum 20 kpps (In case of 2 channels use : 10kpps each)
Number of Channels	2 channels (1 phase+direct signal)
Counting Range	Signed 32 bit (-2,147,483,648 ~ 2,147,483,647)

Built-In Functions (Positioning)	
Number of Control Axis	2 axis
Interpolation	2 axis Linear Interpolation
Pulse Output Type	Open Collector (DC 24 V)
Pulse Output	Pulse + Direction
Control Mode	Position Control Speed Control Speed / Position Switching Control, Position / Speed Switching Control
Maximum Output Speed	100 kpps

PLC-S Main-Block Options

TR(Sink) DC Power (Source Type: CM3-SP32MDC/V/E/F)

Model	CM3-SP32MDT	CM3-SP32MDT-SD	CM3-SP32MDTV	CM3-SP32MDTV-SD
Digital Input/Output	16 Digital Input 16 Digital Output	16 Digital Input 16 Digital Output	16 Digital Input 16 Digital Output	16 Digital Input 16 Digital Output
USB Loader	■	■	■	■
SD/MMC Card Slot	N/A	■	N/A	■
RS232C 1ch	■	■	■	■
RS485 1ch	N/A	N/A	■	■
Ethernet 1ch	N/A	N/A	N/A	N/A

Model	CM3-SP32MDTE	CM3-SP32MDTE-SD	CM3-SP32MDTF	CM3-SP32MDTF-SD
Digital Input/Output	16 Digital Input 16 Digital Output	16 Digital Input 16 Digital Output	16 Digital Input 16 Digital Output	16 Digital Input 16 Digital Output
USB Loader	■	■	■	■
SD/MMC Card Slot	N/A	■	N/A	■
RS232C 1ch	■	■	■	■
RS485 1ch	N/A	N/A	■	■
Ethernet 1ch	■	■	■	■

Relay Output (DC Power)

Model	CM3-SP16MDR	CM3-SP16MDRV	CM3-SP16MDRE	CM3-SP16MDRF
Digital Input/Output	8 Digital Input 8 Digital Output	8 Digital Input 8 Digital Output	8 Digital Input 6 Digital Output	8 Digital Input 6 Digital Output
USB Loader	■	■	■	■
SD/MMC Card Slot	N/A	N/A	N/A	N/A
RS232C 1ch	■	■	■	■
RS485 1ch	N/A	■	N/A	■
Ethernet 1ch	N/A	N/A	■	■

Digital I/O Modules

Features

- External terminal block for easy installation and maintenance
- Insulated photo-coupler and relays block interference

Model	CM3-SP32EDO	CM3-SP32EOT	CM3-SP32EOC	CM3-SP16EOR	CM3-SP32EDT	CM3-SP16EDR
Type	32points Input	32points TR Output	32points TR Output	16Points Relay Output	16points Input 16points TR Output	8Points Input 8Points Relay Output
Input Voltage	DC24V	N/A	N/A	N/A	DC24V	DC24V
Output Voltage	N/A	DC12V / 24V	DC12V / 24V	AC 220V / DC24V	DC 12V / 24V	AC 220V / DC24V
Input Current	4m/A	N/A	N/A	N/A	4mA	4mA
Output Current	N/A	1 Point 0.2A, COM 2A	1 Point 0.2A, COM 2A	1 Point 2A, COM 5A	1 Point 0.2A, COM 2A	1 Point 2A, COM 5A
On Voltage / Currnet	DC19V / 3mA	N/A	N/A	N/A	N/A	DC19V / 3mA
Off Voltage / Current	DC6V / 1mA	N/A	N/A	N/A	N/A	DC6V / 1mA
Response Time	Less than 3ms	Less than 1ms	Less than 1ms	Less than 10ms	Less than 1ms	Less than 3ms Less than 10ms
Indication Lamp	LED On	LED On	LED On	LED On	LED On	LED On
Insulation Type	Photo Coupler Insulation			Relay Insulation	Photo Coupler Insulation	Photo Coupler Insulation Relay Insulation
Input Method	SINK/SRC,Compatible	N/A	N/A	N/A	SINK/SRC,Compatible	SINK/SRC,Compatible
Output Method	N/A	Sink	Source	Relay	Sink	Relay

AD Module

Analog Input Modules

Features

- Wide input range
- Reliable with less than ±0.05% of error
- Protected from interference by the photo coupler

Specification		
Model		CM3-SP04EAO
Analog Input Point		4 channels
Analog Input	Voltage	0 ~ 5 V 1 ~ 5 V 0 ~ 10 V -10 ~ 10 V
	Current	0 ~ 20 mA 4 ~ 20 mA
Digital Conversion		14 bit (0 ~ 16000)
Maximum Resolution	0V ~ 5 V	312.5 mV
	1V ~ 5 V	250 mV
	0V ~ 10 V	625 mV
	-10V ~ 10 V	1250 mV
	0mA ~ 20 mA	1.25 nA
	4mA ~ 20 mA	2 nA
Accuracy		±0.1% (full scale)
Maximum Conversion Rate		2.1 ms / 4 channels
Absolute Maximum Input		Voltage: ± 15 V, Current: ± 30 mA
Insulation Type		Photo Coupler Insulation between Input Ports and PLC (non-insulation between channels)
Access Terminal		12 points

DA Modules

Analog Output Modules

Features

- Wide output range
- Reliable with less than ±0.1% of error
- Protected from interference by the photo coupler insulation between input ports and the PLC

Specification		
Model	CM3-SP04EOAV	CM3-SP04EOAI
Number of Analog Output Channel	4 channels	4 channels
Analog Output	-10 V ~ 10 V / 0 V ~ 10 V (selected by DIP switch)	4 mA ~ 20 mA
Digital Conversion	14 bit (0 ~ 16000)	
Max. Resolution	1.25 mV	1.25 μA
Accuracy	±0.1 %	
Maximum Conversion Rate	10ms	
Absolute Maximum Output	Voltage: ± 15 V	Current: ± 24 mA
Insulation Type	Photo Coupler Insulation between Input Ports and PLC	
Access Terminal	8 points	

AD/DA Module

Analog I/O Modules

Features

- Wide input/output range
- 16 bit conversion for high resolution measurement
- Reliable with less than ±0.05% of error
- Protected from interference by the photo coupler insulation between input ports and the PLC

Specification		
Model		CM3-SP04EAA
Number of Analog Channel		Input: 2 channels, Output: 2 channels
Analog Input / Output	Voltage	0 ~ 5 V 1 ~ 5 V 0 ~ 10 V -10 ~ 10 V
	Current	0 ~ 20 mA 4 ~ 20 mA
Digital Conversion		14 bit (0 ~ 16000) / 16 bit (0 ~ 64000)
Maximum Resolution	0 V ~ 5 V	78.1 µV
	1 V ~ 5 V	62.5 µV
	0 V ~ 10 V	156.3 µV
	-10 V ~ 10 V	312.5 µV
	0 mA ~ 20 mA	312.5nA
	4 mA ~ 20 mA	250nA
Accuracy		± 0.05 % (full scale)
Maximum Conversion Rate		2.1 ms / 4 channels
Absolute Maximum Input		Voltage: ± 15 V, Current: ± 30 mA
Insulation Type		Photo Coupler Insulation Between Input Ports and PLC (non-insulation between channels)
Access Terminal		12 points

RTD Module

Features

- Detects disconnected cables from each channel
- Supports most RTD's
- 4 channels and ±0.1% accuracy
- Ability to detect the values out of range
- Digital temperature measurements in 0.1 degree increments
- Converts input data to 16 bit digital value

Specification		
Model		CM3-SP04ERO
RTD Type		PT100,JPT100,PT1000, Ni1000 (DIN 43760), Ni1000 (TCR 5000)
Range of Temperature Input		PT100 : -200.0°C to 600°C (18.52 to 313.71Ω) JPT100 : -200.0°C to 600°C (17.14 to 317.31Ω) PT1000 : -200.0°C to 600°C (185.2 to 3137.1Ω) Ni1000 (DIN 43760): -50.0°C to 160°C (742.6 to 2065.9Ω) Ni1000 (TCR 5000): -50.0°C to 160°C (790.9 to 1863.6Ω)
Digital Output		Digital converted value : 0 ~ 16,000 (-8000~8000) Detected Temp. value : -2000~6000 (First decimal place value X 10)
Detecting of wires disconnection		3 wires available from each channels
Accuracy		±0.1 % (Full Scale)
Max. Conversion Rate		50ms / 4 Channel
Temperature Input points		4 Channels / 1 Module
Insulation Type		Between input terminal and PLC : Photo coupler insulation Between channels : No Insulation
Terminal Block		12 points Terminal Block
Internal Current (mA)	+5 V	50
	+15V	30
	-15V	10

TC Module

Features

- Measures wide range of temperature
- Supports many different types of TC's
- Supports 4 channels and ±0.3% accuracy
- Converts analog temperature to digital data
- Input data can be processed to first decimal point as digital value
- Detects cable disconnection and values out of range

1) CIMON TC modules are non-insulated between channels and use FG in common.
2) The FG connection is recommended. If the measured values are severely shaken, FG reinforcement is highly recommended.
3) Simultaneous connection between TC sensor and another device may cause electrical interference, which is the main cause of abnormal measurement.

∗ If you must inevitably use another brand model, our module must be connected to the FG of the other brand model.

Specification		
Model		CM3-SP04ETO
Thermocouple Type		K, J, E, T, B, R, S, N Type
Digital Output		Digitally converted value : 0 ~ 16000 (-8000~8000)/-192~16191 (-8192~8191) Converted temperature value: Range of measured temperature (one digit after the decimal point X 10)
Range of Temperature Input		Type of Thermocouple / DIN Code / Range of measured Temp.(℃) / Range of measured Voltage (μV) K / ITS-90 / -250.0 ~ 1390.0 / -6035 ~ 50644 J / ITS-90 / -200.0 ~ 1010.0 / -8095 ~ 48715 E / ITS-90 / -250.0 ~ 960.0 / -9036 ~ 49116 T / ITS-90 / -250.0 ~ 400.0 / -5753 ~ 20872 B / ITS-90 / 0 ~ 1800.0 / 596 ~ 13591 R / ITS-90 / -40.0 ~ 1750.0 / -226 ~ 20877 S / ITS-90 / -40.0 ~ 1750.0 / -236 ~ 18503 N / ITS-90 / -250.0~1250.0 / -4083 ~ 45694
RJC		Automatic
Detecting the breaking of wires		By channels
Accuracy		± [(Full Scale) x0.3%+1°C (RJC Error)]
Max. converted rate		50ms / Channel
No. of Input Channels		4 Channels / Module
Type of Insulation		Between Input terminal and PLC : Photo Coupler Insulation Between channels : No Insulation
Connection Terminal		9-point Terminal
Current Consumption (mA)	+5V	60
	+15V	30
	-15V	10

Analog Mux Module

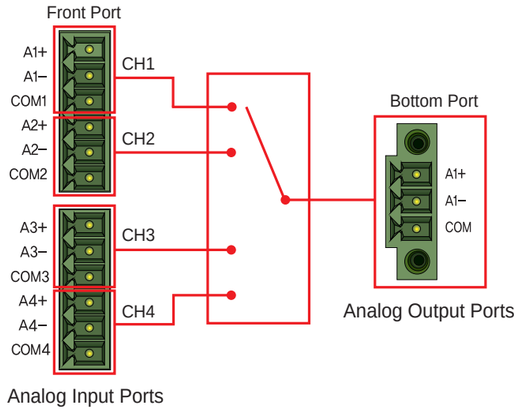
Features

Analog Mux Module receives 4 channel analog signals and switches them sequentially to an output port by a set time interval. By connecting up to 4 mux modules with 1 analog module (AD, RTD, TC, etc.), maximum 16 channels of analog expansions can be achieved.

- Channels can be enabled/disabled and easy channel information check
- Relay ON time can be selected by 0.1~1000.0 sec interval
- Relay life expectancy can be checked through the relay counter function
- Auto/Manual mode selectable
- Not suitable for current signal use since this module only switches analog signals repeatedly

Specification	
Model	CM3-SP04EAM
Number of Analog Channel	3-wire, 4 channels
Analog Input	Voltage, RTD, TC
Relay Min/Max ON TIME	Minimum : 0.1 sec, Maximum : 1000 sec
Insulation Type	Relay
Capacity	16 points
Access Terminal	12 points
Relay Life-Expectancy	Number of Operation of 10^8

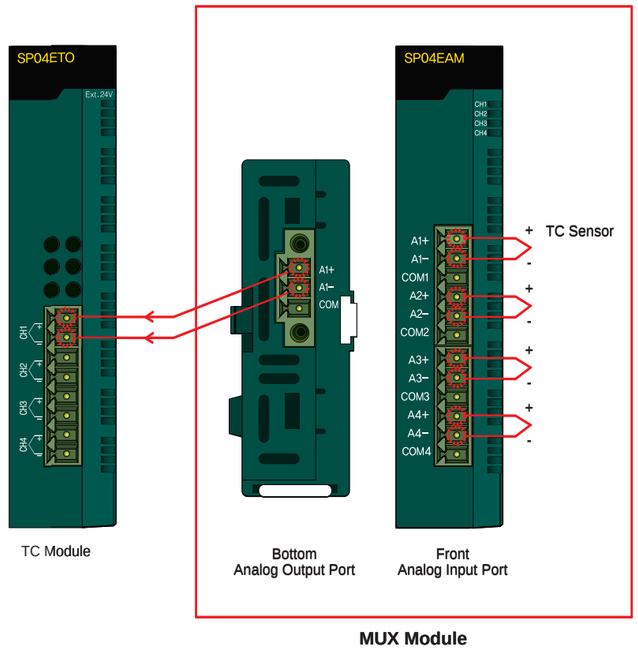
Concept Diagram



<SP04EAM Concept Diagram>

Wiring Example

SP04ETO Module and SP04EAM Module Wiring Diagram

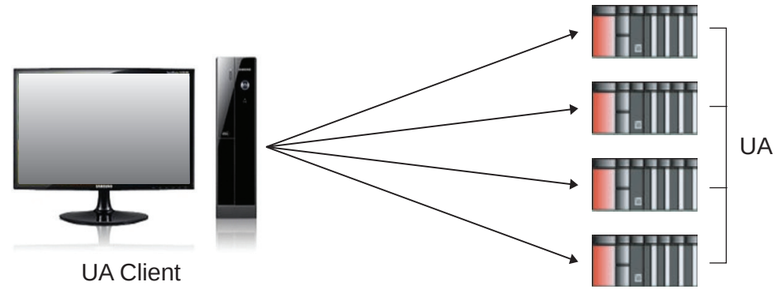


OPC UA Embedded Server Module

- CIMON OPC UA Embedded Module is the OPC UA micro embedded server device that provides a high performance and flexibility in terms of system configuration.
- This server device provides data that conform to OPC UA standards to OPC UA client. Classic OPC client can also access OPC UA Server through OPC UA Proxy.
- The 3rd party SCADA and HMI with OPC client can access CIMON PLC through OPC UA Embedded module.
- OPC UA module has an enhanced security feature by using encryption and certificate. That is, three types of encryption are supported; None, Basic128Rsa15 and Basic256. In addition, certificate or log-in process allows for only authorized device to access OPC UA server.
- 2000 node attributes can be read or written (Max. 4000). Node monitoring can be supported up to 100.
- CICON (Graphic Loader Program) provides a convenient user interface to connect with OPC UA embedded server, allowing easy module configuration.
- IoT Ready (Official member of OPC Foundation)

Model		CM3-SP01OPC
Media Interface		10BASE-T, 100BASE-TX
Transmission Speed		10/100M
Max. Distance		100 m
handling Nodes		2,000 (default, Max : 4,000)
Max monitoring Nodes		100
Module configuration tool		CICON software
Service Capacity	Protocol	UA TCP (opc.tcp)
	Max Connections	12
	Max Sessions	5
	Max Secure Channel	11

OPC UA Driving Down Connectivity Cost



Ethernet Module

Features

- Follows IEEE802.3 standard and supports ARP, ICMP, IP, TCP, UDP protocols
- Operates with CIMON-SCADA to support DHCP
- Supports MODBUS TCP Master function to communicate with third-party devices
- High-speed linkage to communicate along CIMON PLC's and supports up to 64 simultaneous communications

Specification

Model		CM3-SP01EET
Media Interface		10BASE-T 100BASE-TX
Transmission Speed		10/100M
Max. Distance (Node to Node)		100m
Service Capacity		UDP, TCP : 12 Service
Service	Loader	Yes (UDP)
	HMI Protocol	Yes (TCP, UDP)
	MODBUS TCP Slave	Yes
	MODBUS TCP Master	Yes
	High-Speed PLC Link	Yes
	DHCP	Yes

Serial Module

Features

- Read and write data by HMI protocol
- Up to 32 units communication available for Multi-Drop configuration (RS422/485)
- Supports wide range of communication speed (300 bps ~ 38400 bps)
- Full-Duplex (RS422) and Half-Duplex (RS485)
- Supports 1:1 / 1:N / 1:M communication for RS422 and R485
- RS232C/422/485 communication ports are available by setting up independent channel or linked channel
- RS422 and RS485 channels are properly insulated to prevent any outer interference
- Supports universal protocol
- MODBUS RTU Master function is built-in for an easy acquisition of data from third-party devices (MODBUS RTU Slave)

Specification

Model		CM3-SP02ERS
Interface		RS232C 1Ch, 422/485 1Ch
Comm. Method	Null Modem	Direct Communication between Each Ports (RS-232C/RS422)
Operation Mode	Protocol Special Program	Use Protocol Special Program to Communicate
	HMI Protocol	Use CIMON-PLC HMI Protocol to Communicate
	MODBUS Protocol	Use MODBUS RTU Protocol to Communicate
	Graphic Loader Protocol	Use Connect Function in CICON to Control PLC
	MODBUS Master Program	Communicate with Slave Devices that Uses MODBUS RTU Protocol
Data Type	Data Bit	8 bits
	Stop Bit	1 or 2 bit
	Parity	Even / Odd / None
MODBUS TCP Slave		Asynchronous
MODBUS TCP Master		300 / 600 / 1200 / 2400 / 4800 / 9600 / 19200 / 38400
Insulation Type		RS232C : N/A RS422/485 : Photo Coupler Insulation

Serial Module

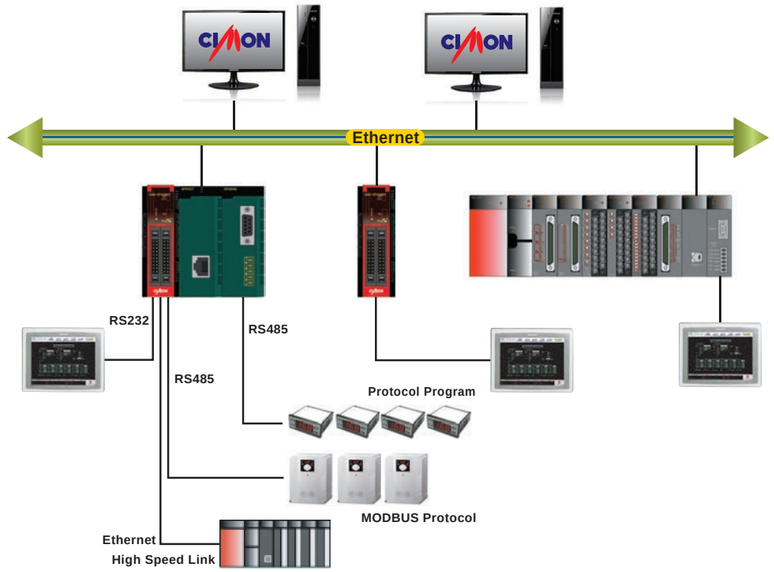
Features

- 2 Channels of RS-232C
- Read and write data by HMI protocol
- Supports wide range of communication speed (300 bps ~ 38400 bps)
- RS232C communication ports are available by setting up independent channel or linked channel
- Supports universal protocol
- MODBUS RTU Master function is built-in for an easy acquisition of data from third-party devices (MODBUS RTU Slave)

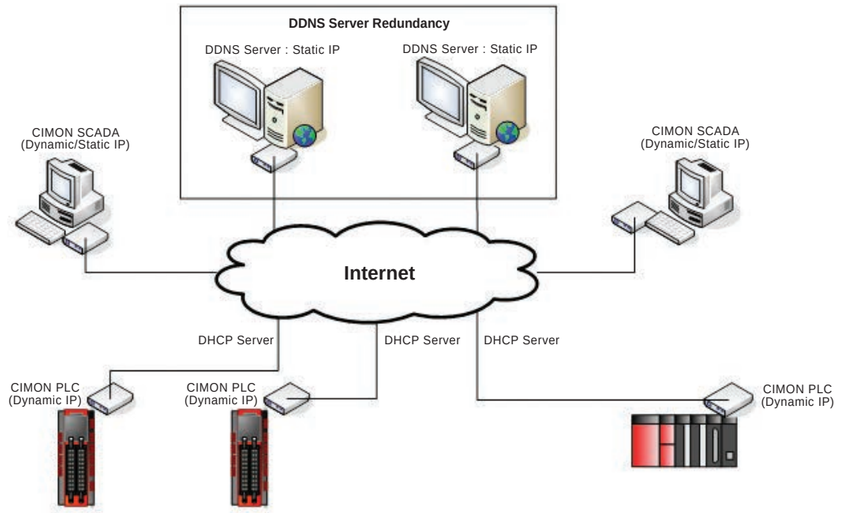
Specification		
Model		CM3-SP02ERR
Interface		RS232C 2 channels
Comm. Method	Null Modem	Direct Communication between Each Ports
Operation Mode	Protocol Special Program	Use Protocol Special Program to Communicate
	HMI Protocol	Use CIMON-PLC HMI Protocol to Communicate
	MODBUS Protocol	Use MODBUS RTU Protocol to Communicate
	Graphic Loader Protocol	Use Connect Function in CICON to Control PLC
	MODBUS Master Program	Communicate with Slave Devices that Uses MODBUS RTU Protocol
Data Type	Data Bit	8 bits
	Stop Bit	1 or 2 bit
	Parity	Even / Odd / None
Synchronization		Asynchronous
Transmission Speed (bps)		300 / 600 / 1200 / 2400 / 4800 / 9600 / 19200 / 38400

System Configuration

Total Network Solution



Dynamic IP System



Micro-S PLC

CM3-SB16MDT & CM3-SB16MDTV

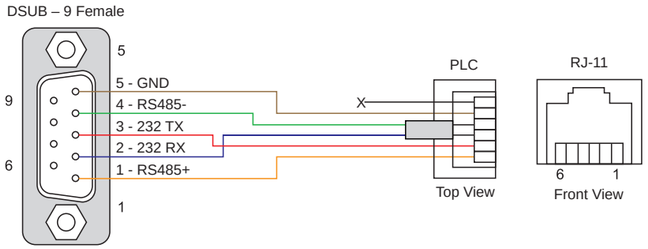
The Block type of PLC-S series, is designed for small size applications and simple systems such as machine level control applications.

- TR Output (DC24V)
- 10K step Program memory
- Flash memory built-in
- Floating point arithmetic
- High Speed Counter 20Kpps (2 Channels)
- Expansion is not possible.
- Built in serial communication port

CPU Specification

Specification		
Model	CM3-SB16MDT	CM3-SB16MDTV
Digital I/O	DI8 / DO8	
USB Loader	1 port	
RS232C	1CH	
RS422/485	N/A	1CH
Expansion	Not expandable	

Communication Wiring



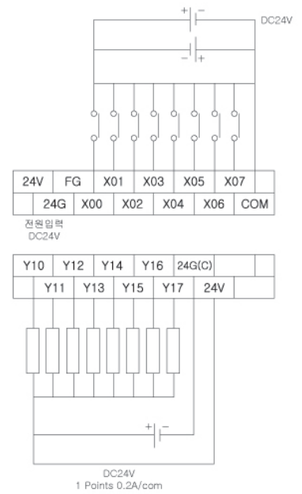
DSUB-9

PIN	NAME
1	RS485+
2	232 RX
3	232 TX
4	RS485-
5	GND
6	N.C

PLC

PIN	NAME
1	RS485+
2	232 TX
3	232 RX
4	RS485-
5	GND
6	N.C

Wiring



CM3-SB16MDT CPU Specifications

Items		Specification	Remark
Power		DC12-24V / 2.16W (In case of maximum expansion)	
Program Control Method		Cyclic execution of stored program, Time Driven Interrupt	
I/O Control Method		Indirect method, Directed by program instruction	
Program language		LD (Ladder Diagram), IL (Instruction List), SFC (Sequential Function Chart)	
Data Processing Method		32 Bit	
Instructions	Sequence	55 Instruction	
	Application	389 Instruction	
Processing speed (Sequence)		300ns / Step	
Program capacity		15K Step	
Maximum I/O points		DI 8points / DO 8points	
Operation mode		Run, Stop, Remote Run, Remote Stop	
Back-up method		K address by (Latch) parameter	
Total program		128	
Program types	Scan	Scan, Subroutine, Periodic Interrupts	
	Periodic Interrupts	Maximum 16 scan program (Minimum period: 10ms)	
	Special	HSC, I/O Input Filter	
	Communication	Serial, Ethernet, MODBUS/RTU Master, MODBUS TCP, High Speed Link	
	Etc.	SFC, FBD (Funtion Block Diagram: under development)	
Self-diagnosis function		Detects delay of scan time, memory, I/O, Battery, Power supply	
Device memory	X	8 points (X00 – X07)	Bit
	Y	8 points (Y10 – Y17)	Bit
	M	8192 points (M0000 – M511F)	Bit
	L	4096 points (L0000 – L255F)	Bit
	K	4096 points (K0000 – K255F)	Bit
	F	2048 points (F0000 – F127F)	Bit
	T	512 points (T0000 – T0511)	Word
	C	512 points (C0000 – C0511)	Word
	S	100 states x 100 set (00.00 - 99.99)	
	D	10000 words (D0000 - D9999)	Word
	Z	1024 words (Call Stack : Z0000 - Z0063, Z1000 - Z1063)	Word
	R	16 points (Index)	
High Speed Counter		20Kpps, 2 Phase 2Ch. (in case of operating 2 Ch simultaneously 10kpps) 1Phase pulse Input + Direction signal	
Comm. Channel		Standard : USB Loader, Serial (RS232C) Option : Serial 1Ch (RS485)	

Accessories

CM0-DM

Dummy Module for Empty slot

CM1-FM512

Flash Memory Pack

CM0-BAT

CPU battery for Data back up

RP-DPC014

Remote I/O Connector

CM0-CBL15/30

Loader Cable

CM0-CBE05/10/15

Expansion Cable for XP/CP Series

CM0-SCM15M

IO 16/16 Cable for PLC-S

CM0-SCB15E

IO 16/16 Cable for PLC-S

CM0-SCB15I

I/O 32points Cable for XP/CP Series

CM0-TB32M

32points Terminal

CM0-CBHE05/10/15

Expansion Cable for XP/CP Series

Cable Configurations

Cable Model	Applied Module	Terminal Block
CM0-SCB15M	CM3-SP32MDT	CM0-TB32M
	CM3-SP32EDT	
CM0-SCB15E	CM3-SP32EDO	
	CM3-SP32EOT	
CM0-SCB15I	CM1-XD32C	
	CM1-YT32A	
	CM1-YT32B	
	CM1-HS02*	

PLC Specifications

CIMON PLC General Specifications

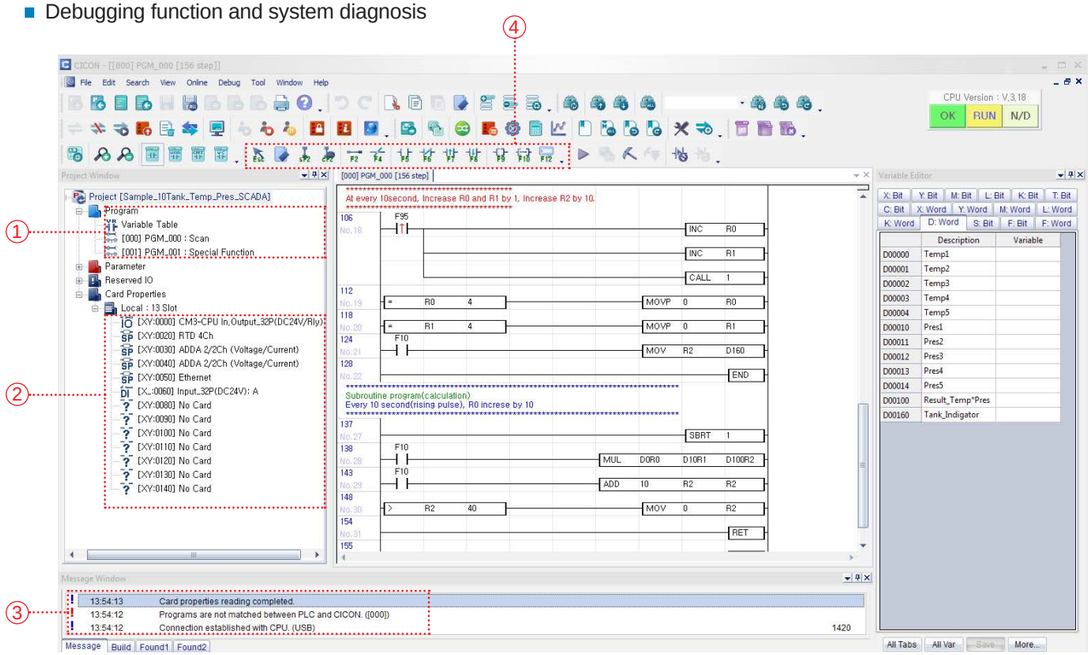
No.	Items	Specification				Standards
1	Ambient Temp.	-10°C~70°C				-
2	Storage Temp.	-25°C~80°C				-
3	Ambient Humidity	5~95%RH, (Non-condensing)				-
4	Storage Humidity	5~95%RH, (Non-condensing)				-
5	Vibration	For discontinuous vibration				IEC 61131-2
		Frequency	Acceleration	Amplitude	Times	
		10≤f<57Hz	-	0.075mm	X,Y,Z Each direction, 10 times	
		57≤f≤150Hz	9.8m/s^2{1G}	-		
		Contionuous vibration				
		Frequency	Acceleration	Amplitude		
		10≤f<57Hz	-	0.035mm		
		57≤f≤150Hz	4.9m/s^2{1G}	-		
6	Shocks	· Max. impact acceleration: 147m/S^2 (15G) · Authorized time : 11ms · Pulse wave : Sign half-wave pulse (3 times each in X, Y, Z)				IEC 61131-2
7	Noise	Square wave impulse noise	± 2,000V			CIMON standard
		Electrostatic discharge	Voltage : 4kV (contact discharging)			IEC 61131-2 IEC 1000-2
		Radiated electromagnetic field noise	27~500 MHz,10V/m			IEC 61131-2 IEC 1000-4-3
		Fast Transient Burst noise	Power module	Digital I/O (24V or more)	Digital I/O (less than 24V) Analog I/O Comm. interface	IEC 61131-2 IEC 1000-4-4
			2 kV	2 kV	0.25 kV	
		Voltage	2 kV/1min		0.5 kV/1min	
8	Ambient conditions	No corrosive gas or dust				
9	Cooling type	Natural air cooling				

Reference

- IEC (International Electrotechnical Commission): The IEC is the world's leading organization that publishes international standards for all electrotechnical and related technologies
- Pollution degree 2 is nonconductive pollution of the sort where occasionally a temporary conductivity caused by condensation must be expected.

CICON Engineering Software

- User-friendly interface for editing and modifying the programs
- Supports RS232C/422/485 and Ethernet communications
- Debugging function and system diagnosis

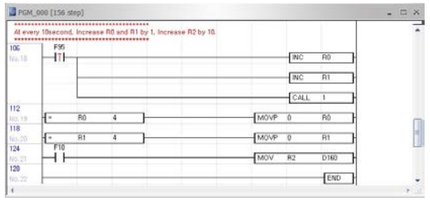


① Easy management of project files

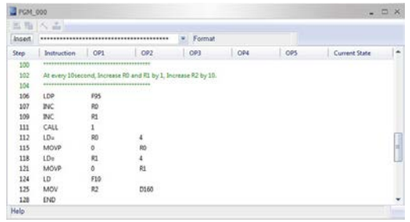
② Automatically detects special cards info

③ Present processing condition shown in the message window

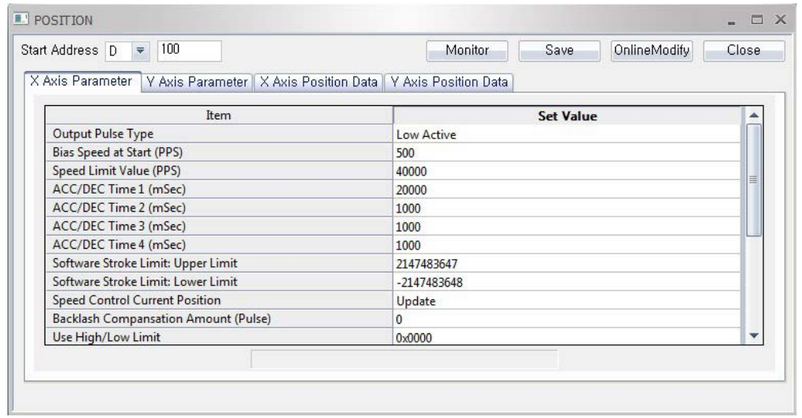
④ Convenient editing by keyboard shortcuts

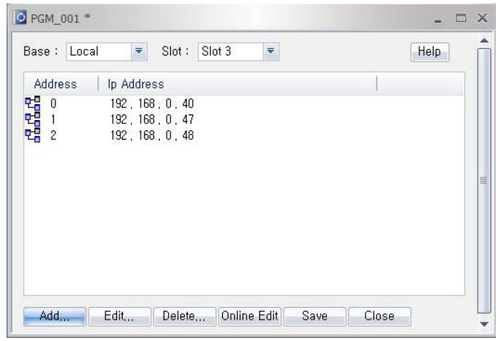


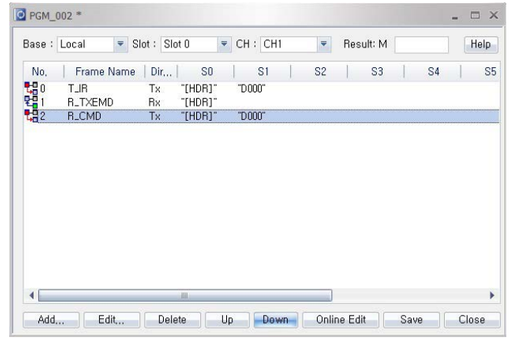
Program conversion between IL-LD



- Easy to use programming, simply set up a dialog box for special functions instead of writing a complicated ladder program. (communication set-up, positioning, PID, protocol program, etc.)



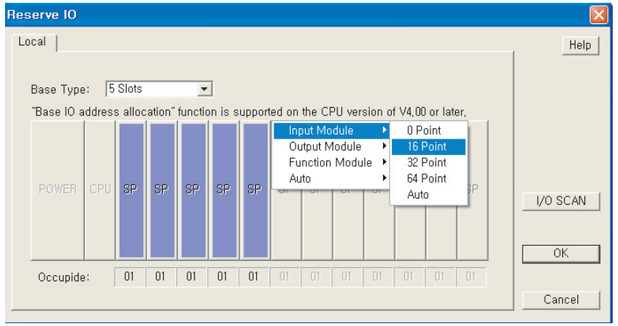




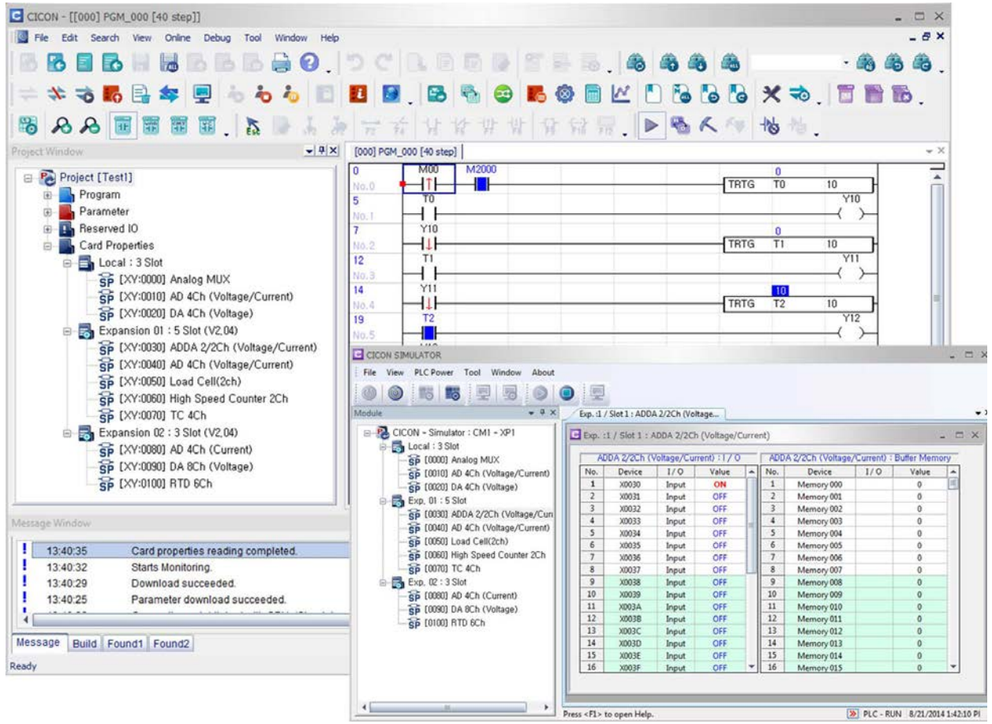
CICON Engineering Software

- Constant monitoring of the PLC status
- Fast and accurate error dectection for each cards

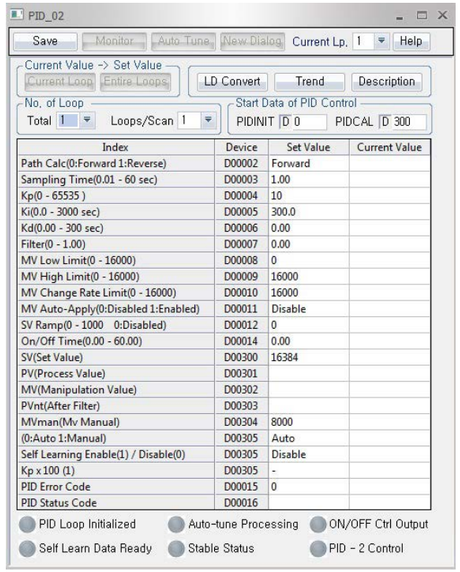
- Reserving the I/O
  Compares and detects a card and checks if the card is inserted or not



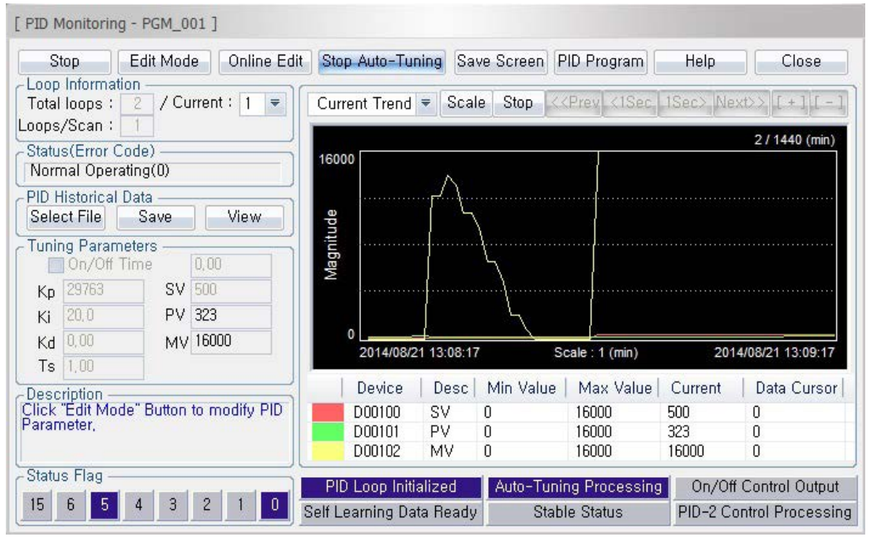
- Testing functions and programs are possible without connecting to a physical PLC by CICON Simulator



- PID auto tuning
  Check PID input and current values constantly in dialog box.



- PID operation condition shows as a trend type.
- PID tuning is available by controlling ON-OFF.



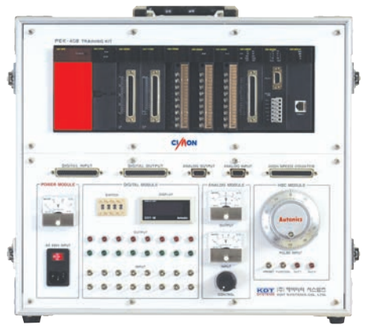
Training Kit

Training Kit

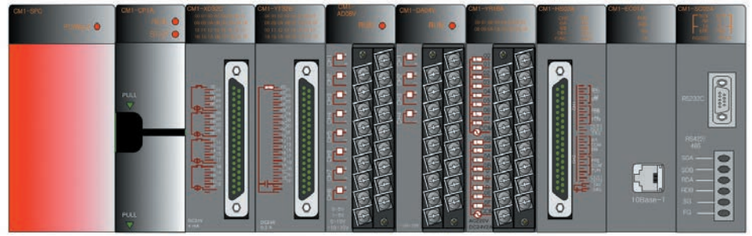
- Learn the basics of a PLC
- Improves ability to operate a PLC used in an actual setting
- Learn the data link system usage between PLC to PLC
- Improves ability to apply PLC instructions
- Learn controlling ability of analog signals
- Understand different configuration methods (RS232C / RS422 / RS485 / Ethernet)
- Trains the user to configure field surveillance control and management features

Features

- PEK-408 uses CP-series PLC modules and PEK-308 uses PLC-S series PLC modules
- Experiment with different types of high performance modules
- Using CICON, user can practice various functions
- Extra devices are not needed to operate the training kit
- PEK-408 includes toggle switches, push buttons, output lamps and a simulation load display
- PEK-308 includes 4” Xpanel HMI, toggle switches, output lamps and servo motor
- PID control exercise available
- Remote control and monitoring through the HMI software
- Handbook and practice exercises
- Understand different configuration methods (RS232C / RS422 / RS485 / Ethernet)
- Built-in level meter to check the input and output of analog signals (PEK-408)
- High-speed counter to control the RPM detection (PEK-408)
- Experiement with temperature measurement functions with a built-in RTD module (PEK-308)
- Servo motor for practicing positioning function of the PLC (PEK-308)



PEK-408 Training Kit Configuration



MODULE	Model	Function
CPU	CM1-CP4A	16k step Program Memory Capacity
Power	CM1-SPC	Voltage Output 5 V / 24 V / +15 V / -15 V
Base	CM1-BS08A	8 slot Base
Digital Input	CM1-XD32C	32 point Input
Digital Output	CM1-YT32B	32 point Source Output
	CM1-YR16A	16 point Relay Output
Analog Input	CM1-AD08V	14 bit 8 ch Voltage Analog Input
Analog Output	CM1-DA04V	14 bit 4 ch Votage Analog Output
Communication	CM1-SC02A	RS232C / RS422 / RS485
	CM1-EC01A	10 Mbps Ethernet
High-Speed Counter	CM1-HS02C	200 kpps 2 ch

Training Kit PLC Composition (PEK-308)

MODULE	MODEL	FUNCTION
Xpanel	CM-XT04CD-DE	32 Points Source Output
CPU	CM3-SP32MDTF	Power 24V DC, Ethernet, RS232C, RS485
		16 Points Input / 16 Points Output
Digital Input / Output	CM3-SP32EDT	16 Points Input, 16 TR Output
Analog Input / Output	CM3-SP04EAA	Analog Input 2CH (Current, Voltage)
		Analog Output 2CH (Current, Voltage)
RTD	CM3-SP04ERO	Analog Input 4CH RTD
Relay Output	CM3-SP16EOR	16 points Relay Output

Included Accessories (PEK-408)

- Power Cable
- CM0-CBL15 1.5m Loader Cable
- User Manual
- RS 232C Cable, Cross Cable
- Installation CD (CICON, XpanelDesigner, Sample Programs)

Included Accessories (PEK-308)

- Power Cable
- USB Loader Cable
- CM0-TB32M PLC-S Terminal Block
- CM0-SCB15M Main Block I/O Cable
- User Manual
- Installation CD (CICON, XpanelDesigner, Sample Programs)

CIMON-PLC Line-up

CIMON-XP/CP Series

Redundancy

Type	Model	Description
CPU	CM1-XP1R(S)	128k step, 32bit, 75ns, 8192pts, RTC, Floating point, Redundancy, Expandable
Redundancy Comm.	CM1-RC01A	10Mbps Redundancy data Sync module
Redundancy MMI	CM1-RM01A	Redundancy setting module(Primary/Secondary, test mode)
Expansion	CM1-EP03A	10Mbps CPU redundancy expansion (3Port built-in)
Redundancy Base	CM1-BS05S	5 slot Dual power base
	CM1-BS08S	8 slot Dual power base
	CM1-BS10S	10 slot Dual power base
Redundancy Power	CM1-SPR	Redundancy Power supply, 5V 3A, +15V 0.5A, -15V 0.2A, 24V 0.2A AC100V~240V
	CM1-RPW	Redundancy Power supply monitoring module

CPU Module

Type	Model	Description
High-end CPU	CM1-XP1A(B)	128K step, 32bit, 75ns, 8192pts, RTC, USB port, Floating point, Expandable
	CM1-XP2A(B)	64K step, 32bit, 75ns, 4096pts, RTC, USB port, Floating point, Expandable
	CM1-XP3A(B)	64K step, 32bit, 75ns, 2048pts, RTC, USB port, Floating point, Expandable
CPU	CM1-CP3A	32K step, 16bit, 1024pts, Expandable
	CM1-CP3B	32K step, 16bit, 1024pts, RTC, Expandable
	CM1-CP3U	32K step, 16bit, 1024pts, RTC, USB port, Expandable
	CM1-CP3P	32K step, 16bit, 1024pts, RTC, Flash ROM pack, Expandable
	CM1-CP4A	16K step, 16bit, 384pts, Not expandable
	CM1-CP4B	16K step, 16bit, 384pts, RTC, Not expandable
	CM1-CP4C	16K step, 16bit, 384pts, RTC, RS232C port, Not expandable
	CM1-CP4D	16K step, 16bit, 384pts, RTC, RS422-485 port, Not expandable
	CM1-CP4U	16K step, 16bit, 384pts, RTC, RS422-485 port, USB port, Not expandable

Power Module

Type	Model	Description
Power supply	CM1-SPA	Input : AC 100-240V, 40W/ Output : 5V 3.5A, 24V 0.3A
	CM1-SPC	Input : AC 100-240V, 60W/ Output : 5V 3.5A, +15V 0.5A, -15V 0.3A, 24V 0.3A
	CM1-SP2B	Input : DC 19-28V, 50W/ Output : 5V 3.5A, +15V 0.5A, -15V 0.3A
	CM1-SPW	Input : DC 70-110V, 60W/ Output : 5V 3.5A, +15V 0.5A, -15V 0.3A, 24V 0.3A

Expansion Module

Type	Model	Description
Expansion	CM1-EP01A	10 Mbps 1 port (Single expansion module)
	CM1-EP02A	10 Mbps 2 port (Multi-expansion module)

Base

Type	Model	Description
Base	CM1-BS03A	3 slot Base
	CM1-BS04A	4 slot Base
	CM1-BS05A	5 slot Base
	CM1-BS08A	8 slot Base
	CM1-BS10A	10 slot Base
	CM1-BS12A	12 slot Base

Digital I/O Module

Type	Model	Description
Digital Input	CM1-XD16A	DC 24V Input, 16pts, Sink & Source, ON voltage 19V, OFF voltage 11V
	CM1-XD16B	DC 24V Input, 16pts, Sink & Source, ON voltage 15V, OFF voltage 12V
	CM1-XD16W	DC 100V Input, 16pts, Sink & Source, ON voltage 60V, OFF voltage 40V
	CM1-XD32B	DC 24V Input, 32pts, Sink & Source, ON voltage 15V, OFF voltage 12V
	CM1-XD32C	DC 24V Input, 32pts, Sink & Source, ON voltage 19V, OFF voltage 11V
	CM1-XD64C	DC 24V Input, 64pts, Sink & Source, ON voltage 19V, OFF voltage 11V
Digital Output	CM1-YR16A	Relay Output, 16 pts, 2A
	CM1-YT16A	TR Output, 16 pts, 0.5A SINK
	CM1-YT16B	TR Output, 16 pts, 0.5A SOURCE
	CM1-YT32A	TR Output, 32 pts, 0.2A SINK
	CM1-YT32B	TR Output, 32 pts, 0.2A SOURCE
	CM1-YT64A	TR Output, 64 pts, 0.2A SINK
DI/DO	CM1-XY16DR	DC 24V Input 8 pts, Relay Output 8 pts 2A

Analog I/O Module

Type	Model	Description
Analog Input	CM1-AD04VI	AD 14bit, 4 CH, Current & Voltage Input
	CM1-AD08V	AD 14bit, 8 CH, Voltage Input
	CM1-AD08I	AD 14bit, 8 CH, Current Input
	CM1-AD04W	AD 16bit, 4 CH, Voltage & Current Input, Channel to Channel Isolation
Analog Output	CM1-DA04V	DA 14bit, 4 CH, Voltage Output (-10~+10V)
	CM1-DA04VA	DA 14bit, 4 CH, Voltage Output (0~+10V)
	CM1-DA08V	DA 14bit, 8 CH, Voltage Output (-10~+10V)
	CM1-DA08VA	DA 14bit, 8 CH, Voltage Output (0~+10V)
	CM1-DA04I	DA 14bit, 4 CH, Current Output (4~20mA)
	CM1-DA08I	DA 14bit, 8 CH, Current Output (4~20mA)

CIMON-PLC Line-up

RTD & TC Module

Type	Model	Description
RTD	CM1-RD04A	Pt100, JPt100, 4 CH
	CM1-RD04B	Pt1000, Ni1000, 4 CH
TC	CM1-TC04A	Thermocouple (K, J, E, T, B, R, S, N) 4 CH
Thermistor	CM1-TH08A	NTC Thermistor, 8 CH

Special Module

Type	Model	Description
HSC	CM1-HS02C	2 CH, 200kpps, PNP Open Collector
	CM1-HS02E	2 CH, 500kpps, Line Drive input
	CM1-HS02F	2 CH, 200kpps, NPN open collector
Load Cell	CM1-WG02A	2 CH, Strainguage type, Resolution 1/10000, 3.6mV/V input
	CM1-WG04A	4 CH, Strainguage type, Resolution 1/10000, 3.6mV/V input
	CM1-WG02C	2 CH, Strainguage type, Resolution 1/40000, 2mV/V input (Standard type)
	CM1-WG02D	2 CH, Strainguage type, Resolution 1/40000, 2mV/V input (Dynamic type)
	CM1-WG02E	2 CH, Strainguage type, Resolution 1/40000, 3.6mV/V input (Wide range)
Data Logger	CM1-LG32A	32 Mbytes On-line data logging module, RS232C 1port (CIMON SCADA)
Positioning	CM1-PS02A	2 Axes, Linear & Circular interpolation, 1Mpps, Line Driver output

Communication Module

Type	Model	Description
Serial (RS232C/422/485)	CM1-SC02A	Port 1 : RS232C, Port 2 : RS422/485
	CM1-SC01A	Port 1 : RS232C, Port 2 : None
	CM1-SC01B	Port 1 : None, Port 2 : RS422/485
	CM1-SC02C	Port 1 : RS232C, Port 2 : RS232C (Null Modem)
ETHERNET	CM1-EC01A	10Base T (10Mbps), UDP/IP 9 service, TCP/IP 9 service
	CM1-EC10A	100Base TX (100Mbps), UDP/IP 16 service, TCP/IP 16 service
	CM1-EC10B	100Base FX (100Mbps. Optical Comm.), UDP/IP 16 service, TCP/IP 16 service
	CM1-EC10C	100Base TX (100Mbps), UDP/IP 16 service, TCP/IP 16 service, DHCP (Dynamic IP)
DNP 3.0	CM1-SC01DNP	DNP3.0 protocol, Level 2 Slave, RS232C 1 port
	CM1-EC01DNP	1DNP3.0 protocol, Level 2 Slave, 10BaseT (10Mbps), TCP/IP, UDP/IP
	CM1-EC04DNP	Ethernet, 10Mbps, DHP3.0, MultiHost (Max.4)
Profibus	CM1-PD01A	Profibus DP Master (RS485), I/O capacity : 3.584Bytes
BACnet	CM1-BN01A	BACnet / IP, Class 3 Slave, 10BaseT (10Mbps)
CIMON-Net	CM1-CN01M	CIMON-Net Master, CANbus, I/O capacity : 1,400Byte
	CM1-CN01S	CIMON-Net Slave, CANbus, I/O capacity : 255Byte
OPC UA	CM1-EC10OPC	100 Base TX(100Mbps), UA TCP 12 service

Accessories

Type	Model	Description
Dummy	CM0-DM	Dummy module
Memory	CM1-FM512	Flash Memory Pack for CM1-CP3P (512 kbytes)
Loader Cable	CM0-CBL15	Programming cable (RJ11-DB9 connector 1.5m)
	CM0-CBL30	Programming cable (RJ11-DB9 connector 3m)
Expansion Cable	CM0-CBE05	Expansion cable for CP/XP series, (RJ45-RJ45, 0.5m)
	CM0-CBE10	Expansion cable for CP/XP series, (RJ45-RJ45, 1m)
	CM0-CBE15	Expansion cable for CP/XP series, (RJ45-RJ45, 1.5m)
Terminal Block	CM0-TB32M	Terminal Block, 32points, screw type (used with CM0-SCB15□ cable)
I/O Cable	CM0-SCB15M	I/O cable, 1.5m (used with CM0-TB32M, CM3-SP32MDT, CM3-SP32EDT)
	CM0-SCB15E	I/O cable, 1.5m (used with CM0-TB32M, CM3-SP32EDO, CM3-SP32EOT)
	CM0-SCB15I	I/O cable, 1.5m (used with CM0-TB32M, CM1-XD32C, YT32A, YT32B, HS02C, HS02E)
Battery	CM0-BAT	Battery Ass'y for XP/CP CPU (3V Lithium, CR 1/2 AA)
Profibus I/O adaptor	RP-DPC01A	Profibus connector Ass'y (used with CM1-PD01A, Remote I/O)

CIMON-PLC Line-up

CIMON-PLC-S Series

CPU Module

No.	Model	Type	Description
1	CM3-SP32MD▪	Transister	DI16/DO16, USB loader, RS232C 1CH
2	CM3-SP32MD▪V		DI16/DO16, USB loader, RS232C 1CH, RS485 1CH
3	CM3-SP32MD▪E		DI16/DO16, USB loader, RS232C 1CH, Ethernet 1CH
4	CM3-SP32MD▪F		DI16/DO16, USB loader, RS232C 1CH, RS485 1CH, Ethernet 1CH.
5	CM3-SP32MD▪▪-SD		DI16/DO16, USB loader, SD/MMC card slot
6	CM3-SB16MDT	Micro S	DI8/DO8, USB loader, RS232 1CH
7	CM3-SB16MDTV		DI8/DO8, USB loader, RS232 1CH, RS485 1CH
8	CM3-SP16MDR	Relay	DI8/DO8, USB loader, RS232 1CH
9	CM3-SP16MDRV		DI8/DO8, USB loader, RS232 1CH, RS485 1CH
10	CM3-SP16MDRE		DI8/DO6, USB loader, RS232 1CH, Ethernet 1CH
11	CM3-SP16MDRF		DI8/DO6, USB loader, RS232 1CH, RS485 1CH, Ethernet 1CH

※ ▪= Output option ("T" : Transister Sink output, "C" : Transister Source output)

Digital I/O Module

No.	Model	Type	Description
1	CM3-SP32EDO	DI 32	DC 24V Input, 32pts, Sink & Source, ON voltage 19V, OFF voltage 6V
3	CM3-SP32EOT	DO 32	TR output 32pts, Sink, DC12V /24V 0.2A
4	CM3-SP32EOC		TR output 32pts, Source, DC12V / 24V 0.2A
5	CM3-SP32EDT	DI16 / DO16	DC 24V Input 16 pts, TR Output 16pts, Sink
6	CM3-SP16EDR	DI8 / DO8	DC 24V Input 8 pts, Relay output 8 pts 2A
7	CM3-SP16EOR	DO 16	Relay Output 16 pts, 2A (Maximum expansion : 4modules)

Analog I/O Module

No.	Model	Type	Description
1	CM3-SP04EAO	AI 4CH	AD 14bit, 4CH, Voltage & Current Input
2	CM3-SP04EAA	AI 2CH, AO 2CH	AD 16bit, 2CH, Voltage & Current Input / DA 16bit, 2CH, Voltage & Current output
3	CM3-SP04ETO	TC 4CH	4 CH 14bit, K, J, E, T, B, R, S, N type
4	CM3-SP04ERO		4 CH 14bit, Pt100, JPt100, Pt1000, Ni1000 (DIN43760), NI1000 (TCR5000)
5	CM3-SP04EOAV	AO 4CH	DA 14bit, 4CH, Voltage output (0~+10V, -10V~+10V)
6	CM3-SP04EOAI		DA 14bit, 4CH, Current output (4~20mA)
7	CM3-SP04EAM	MUX 4CH	4CH Multiplexer (Relay type)

Communication Module

No.	Model	Type	Description
1	CM3-SP01EET	Ethernet	100Base TX (100Mbps), UDP/IP, TCP/IP 12 service, DHCP (Dynamic IP)
2	CM3-SP02ERS	Serial	Port 1 : RS232C, Port 2 : RS422-485
3	CM3-SP02ERR		Port 1 : RS232C, Port 2 : RS232C (Null Modem)
4	CM3-SP01OPC	OPC UA	100 Base TX(100Mbps), UA TCP 12 service

Training Kit

Type	Model	Description
Training Kit	PEK-408	CP/XP Series PLC Training Kit
	PEK-308	PLC-S + Xpanel Training Kit

Remote I/O

CIMON-NET

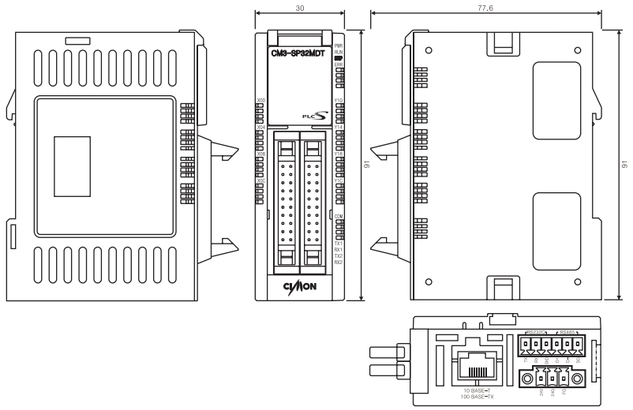
Type	Model	Description
RC-XY32DT	Mixed I/O	Input/Output, DC 24V 16pts (Sink & Source), 0.5Amp, TR Sink 16pts, 0.5Amp
RC-XD16A	Input	Input, DC 14V 16pts (Sink & Source)
RC-XD32A		Input, DC 14V 32pts (Sink & Source)
RC-YR16A	Output	Output, Relay 16pts, AC 220V 2Amp
RC-YT16A		Output, TR Sink 16pts, 0.5Amp
RC-YT32A		Output, TR Sink 32pts, 0.5Amp

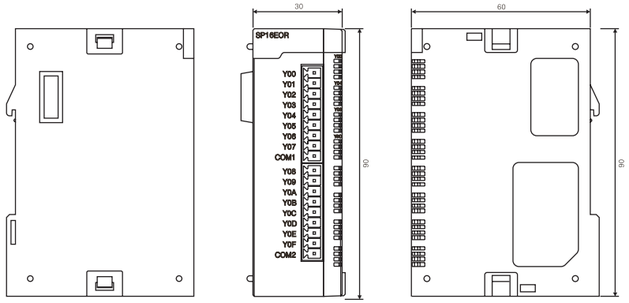
Profibus

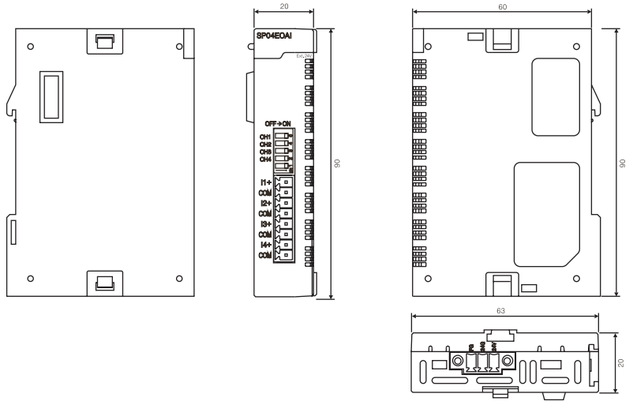
Type	Model	Description
RP-XY32DT	Mixed I/O	Input/Output, DC 24V 16pts (Sink & Source), 0.5Amp, TR Sink 16pts, 0.5Amp
RP-XD16A	Input	Input, DC 14V 16pts (Sink & Source)
RP-XD32A		Input, DC 14V 32pts (Sink & Source)
RP-YR16A	Output	Output, Relay 16pts, AC 220V 2Amp
RP-YT16A		Output, TR Sink 16pts, 0.5Amp
RP-YT32A		Output, TR Sink 32pts, 0.5Amp

CIMON-PLC Dimensions

PLC-S



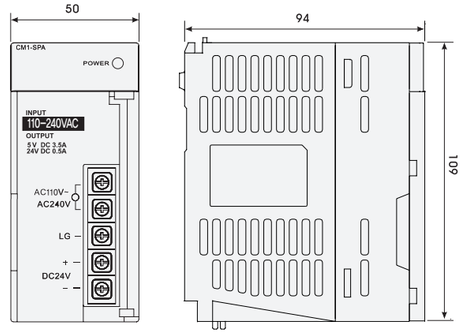




XP/CP

Power Module

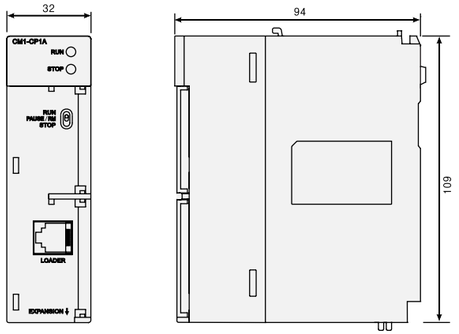
Unit : mm



Model	Weight
CM1-SP*	278.3g
CM1-SP2B	270.5g

CPU Module

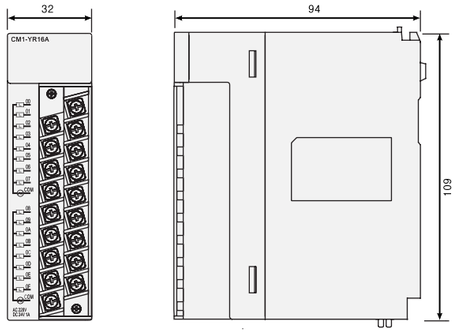
Unit : mm



Model	Weight
CM1-CP**	132g

I/O Module

Unit : mm



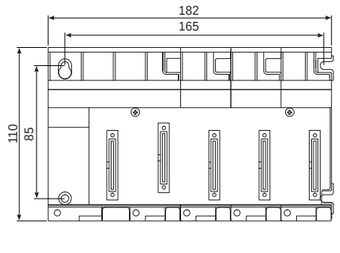
Model	Weight	Model	Weight
CM1-XD16A	158g	CM1-AD08I	195.5g
CM1-XD32C	121g	CM1-AD08V	194.5g
CM1-YR16A	202g	CM1-DA08I	219g
CM1-YT16*	159.5g	CM1-DA08V	197.5g
CM1-YT32*	122g	CM1-RD04A	194.5g
CM1-EC***	111.5g	CM1-TC04A	200.5g
CM1-AD04VI	193.5g	CM1-SC***	118.5g

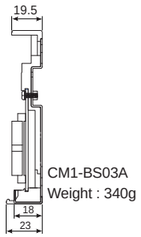
※ Comm. module and other module's dimension is same as IO module.

CIMON-PLC Dimensions

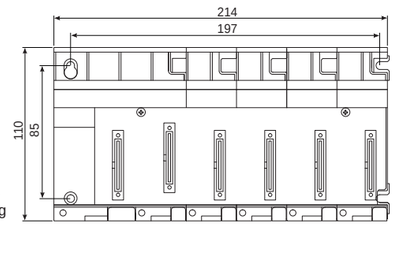
XP/CP Base

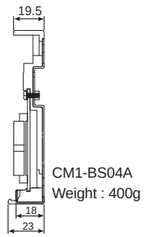
Unit : mm



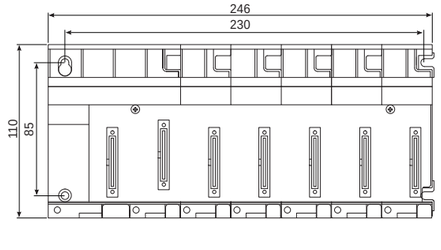


CM1-BS03A
Weight : 340g

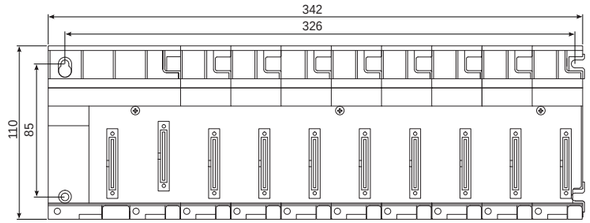




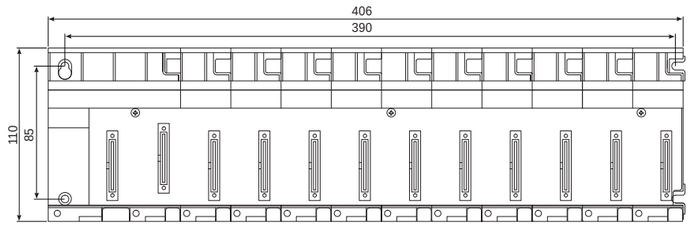
CM1-BS04A
Weight : 400g



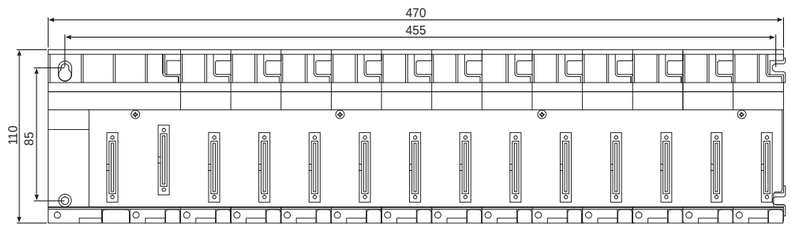
CM1-BS05A
Weight : 460g



CM1-BS08A
Weight : 640g



CM1-BS10A
Weight : 760g



CM1-BS12A
Weight : 880g

MEMO

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