

CIMON **PLCS**

Programmable Logic Controller



PROGRAMMABLE LOGIC CONTROLLER

SLIM, SMART, STRONG

The compact all-around PLC

CIMON PLC-S series is designed to be the most cost-effective unit in the PLC world. It provides high performance and rock-solid reliability for small sized industrial automation systems.

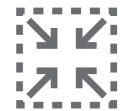
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CIMON
CIM3-SP04EOAI
SIN 800 MA/12.5V/15
AUXILIARY OUTPUT 40V
(COMMON)
cytron

PLCS PERFORMANCE

CIMON PLC-S provides extremely high reliability and expandability with various network modules, allowing easy maintenance of the process control systems.



SLIM

- Slim, without compromising strong performance
- Special instructions, programs, and function blocks available
- Supports flexible expansion



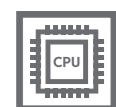
SIMPLE

- Easy to install with simple design
- Optimized usage of space with its compact size



SPEED

- Max. 32 PID loop control
- Equipped with 16Kpps high-speed counter



SMART

- Provides various network solutions
- Supports floating point arithmetic and automatically recognizes protocols



CPU PERFORMANCE

PLC-S CPU

Model	Input	Output	RS-232C	RS485	Ethernet	Note
CM3-SP32MDT	16pts	TR Sink type 16pts	O	X	X	SD/MMC (Optional)
CM3-SP32MDTV			O	O	X	
CM3-SP32MDTE			O	X	O	
CM3-SP32MDTF	16pts	TR Source type 16pts	O	O	O	SD/MMC (Optional)
CM3-SP32MDC			O	X	X	
CM3-SP32MDCV			O	O	X	
CM3-SP32MDCV	16pts	TR Source type 16pts	O	X	O	SD/MMC (Optional)
CM3-SP32MDCV			O	O	O	
CM3-SP32MDCF			O	O	O	
CM3-SP16MDR	8pts	Relay type 8pts	O	X	X	-
CM3-SP16MDRV			O	O	X	
CM3-SP16MDRE		Relay type 6pts	O	X	O	
CM3-SP16MDRF			O	O	O	

Type	Module	Description
Digital I/O Module	CM3-SP32EDO	DC24V Input 32 pts
	CM3-SP32EOT/EOC	TR(Sink) Output 32 pts
	CM3-SP16EOR	DO 16 pts (Relay) / expandable up to 4 modules
	CM3-SP32EDT	DI 16 pts (DC24V), DO 16 pts (TR(SINK))
	CM3-SP16EDR	DI 8 pts (DC24V), DO 8 pts (Relay)
Analog Module	CM3-SP04EAO	4ch for current / voltage input, 14bit
	CM3-SP04EAA	2ch for current / voltage input + 2ch for current / voltage Output, option for 16 bit or 14 bit
	CM3-SP04EOAI	4ch for current output, 14bit
	CM3-SP04EOAV	4ch for voltage output, 14bit
	CM3-SP04ERO	AI 4ch RTD
	CM3-SP04ETO	AI 4ch TC
	CM3-SP04EAM	Input signal MUX module (4x1) : RTD, compatible with TC module
Communication Module	CM3-SP01EET	Ethernet 1ch, 10/100Mbps
	CM3-SP02ERS	RS-232C 1ch, RS-485 1ch
	CM3-SP02ERR	RS-232C 2ch
	CM3-SP02ERSC	1ch for CDMA communication (RS232C) / 1ch for universal communication (RS-485)
	CM3-SP02ERRC	1ch for CDMA communication (RS232C) / 1ch for universal communication (RS232C)
	CM3-SP01OPC	OPC UA server, 10/100Mbps, UA TCP(opc,tcp)

CPU MODULE

• Specification



CM3-SP32MDT
CM3-SP32MDC



CM3-SP16MDR

General in PLC-S CPU CM3-SP32MDT/V/E/F | CM3-SP32MDC/V/E/F | CM3-SP16MDR/V/E/F

Item	Description	Note	
Power	DC12V~24V	-	
Program Control	Repetitive operation, Time Driven interrupt	-	
Method for Controlling Input Output	Indirect method, Direct method by instruction	-	
Program Language	IL(Instruction List), LD(Ladder Diagram), SFC(Sequential Function Chart) , FB (Function Block)	-	
Data Processing	32 Bit	-	
Number of Instruction	Sequence	55 Instructions	
	Application	389 Instructions	
Execution Processing Speed(Basic Instruction)	300 ns/Step	-	
Program Memory	10k Step	-	
Number of I/O Points	1024 pts	-	
Run Mode	Remote Run, Remote Stop	-	
Data Preservation Against Power Failure	Setting data and conservation (Latch) in K device	-	
Number of Program Block	128	-	
Type of Program	Scan	5 types including standard scan program (Subroutine, COLD / HOT initialization, periodic interrupts)	
	Periodic Interrupts	Able to register for scan program form up to 16 (Minimum period: 10ms)	
	Special Configuration	6 types including PID control program	
		(High-speed counter, Positioning control, Input module filtering, Initializing special card)	
	Communication	8 types including user protocol (Serial) communication	
(MODBUS/RTU Master, MODBUS/TCP Master, User protocol (Ethernet), Ethernet High (PLC Link), Security, Web Server			
Etc.	SFC program, FBD (Function Block Diagram)		
Self-diagnosis	Monitoring delay of processing, problems of memory, I/O / Battery / Power error	-	
Restarting	COLD, HOT Restart	-	
Expansion	1 CPU block + Maximum 11 expansion blocks	-	
Memory Device	X	1024 pts (X0000-X063F)	Bit
	Y	1024 pts (Y0000-Y063F)	Bit
	M	8192 pts (M0000-M511F)	Bit
	L	4096 pts (L0000-L255F)	Bit
	K	4096 pts (K0000-K255F)	Bit
	F	2048 pts (F0000-F127F)	Bit
	T	512 pts (T0000-T0511)	Word
	C	512 pts (C0000-C0511)	Word
	S	100 states x 100 set (00.00-99.99)	-
	D	10000 words (D0000-D9999)	Word
Z	1,024 words(Call Stack: Z0000-Z0063, Z1000-Z1063)	Word	
Q	8192 pts (Q0000-Q511F)	Bit	
R	16 pts (Index)	-	

• Features

Item	Description	Note
High-speed Counter	Maximum count speed: 16kpps (Maximum 4kpps when using 2 phase 2 channels)	-
Positioning	X-axis: Position / Velocity control 100kpps	-
	Y-axis: Position control 5kpps, Velocity control 100kpps	-
PID	32 channels, Auto-Tuning	-
RTC	Built-in battery (CR2032)	-
Communication Channel	[Basic] USB : 1 channel (CIMON Loader) / RS232C : 1 channel (Universal communication)	-
	[Option (Universal communication)] RS485 : 1ch / Ethernet : 1ch (10/100Mbps automatic identification)	-
Etc.	Real number arithmetic, modification of program during Run status	-

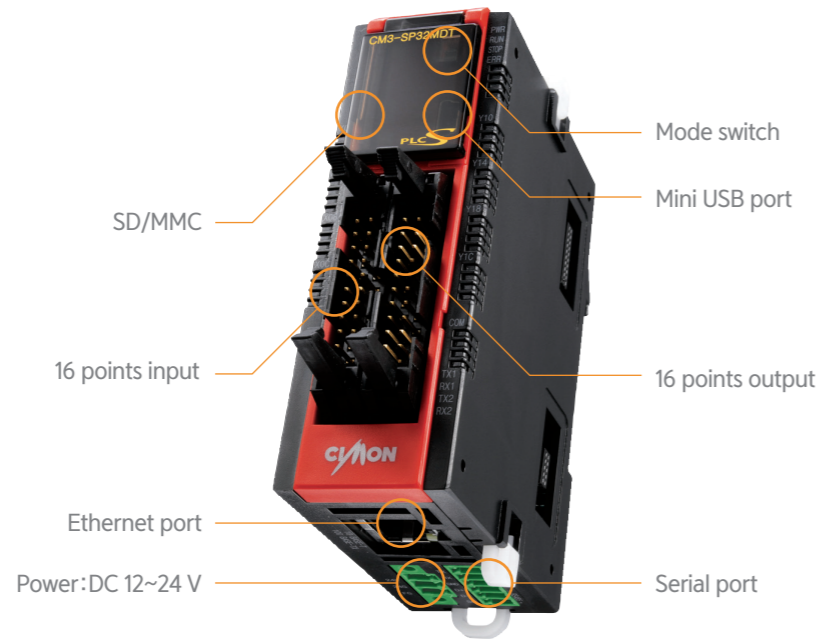
Built-in Functions

- PID Control
 - PID operation can be executed without an additional PID module.
- RTC
 - Reads the time from the RTC module and stores the value at F device memory location.
- I/O Reservation
 - Checks if a correct card was mounted in the assigned slot. Additionally, when expanding or exchanging parts, reservation to writing a program can be made without making changes to the I/O.
- Modification of program during RUN mode
 - Program can be modified while PLC is in the RUN mode.

Characteristics

- SD/MMC memory function has embedded – Scan program and firmware upgrade is available via SD memory card.
 - (After installing the memory card, set the operation mode switch to STOP. Turn the operation mode switch to RUN within 5 seconds of powering up. The firmware upgrade will proceed for 20 seconds and will indicate completion when the LEDs (RUN, STOP, and ERR) are turned on. Remove the SD memory and restore the power.)
- Contains 2 channels of high-speed counter
 - 16kpps as Maximum count speed (Maximum 4kpps when using 2 phase 2 channels)
 - Adopted the photocoupler insulation method
- Positioning control by 2-axis pulse output in 100kpps
 - Supports pulse + direction output, Position / velocity / velocity – position / position- velocity control
- Simultaneous communication via Ethernet and serial (RS232, RS485)
 - Supports various protocols such as CIMON HMI, MODBUS RTU/TCP, PLC Link, user protocol and loader protocol.
 - Program upload/download and remote access is available.
- Large capacity for program data
 - 10k steps of program memory is available for scan programs.
- Preserving data during power outage
 - Since the flash memory is used as the internal memory, any extra memory card or battery change is not necessary.

CPU MODULE



TR output (DC Power) Sink type CM3*

Model	SP32MDT	SP32MDT-SD	SP32MDTV	SP32MDTV-SD
Digital I/O	Digital input 16pts Digital output 16pts	Digital input 16pts Digital output 16pts	Digital input 16pts Digital output 16pts	Digital input 16pts Digital output 16pts
Mini USB	-	-	-	-
SD/MMC Card Slot	N/A	-	N/A	-
RS232C 1ch	-	-	-	-
RS485 1ch	N/A	N/A	-	-
Ethernet 1ch	N/A	-	N/A	N/A

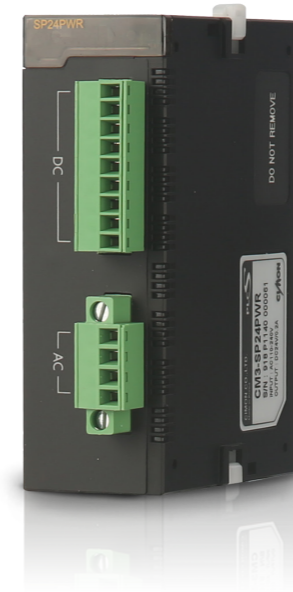
Model	SP32MDTE	SP32MDTE-SD	CM3-SP32MDTF	SP32MDTF-SD
Digital I/O	Digital input 16pts Digital output 16pts	Digital input 16pts Digital output 16pts	Digital input 16pts Digital output 16pts	Digital input 16pts Digital output 16pts
Mini USB	-	-	-	-
SD/MMC Card Slot	N/A	-	N/A	-
RS232C 1ch	-	-	-	-
RS485 1ch	N/A	N/A	-	-
Ethernet 1ch	-	-	-	-

Relay Output (DC POWER)

Model	SP16MDR	SP16MDRV	SP16MDRE	SP16MDRF
Digital I/O	Digital input 16pts Digital output 16pts	Digital input 16pts Digital output 16pts	Digital input 16pts Digital output 16pts	Digital input 16pts Digital output 16pts
Mini USB	-	-	-	-
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	-	-

POWER MODULE

• Specification



Item	CM3-SP24PWR	
Input	Input Voltage	AC88~264V, 50/60HZ
	Input Current	0.3A(110V), 0.2A(220V)
	Inrush Current	60A Peak
	Efficiency	60%
	Power Disturbance	10ms
Output	Output Voltage(Output Current)	+24V(0.4A)
	Voltage Indicator	LED ON when output voltage is normal

- Receives AC 88 ~ 264V power (DC 19 ~ 28V in CM1-SP2B, DC 70 ~ 130V in CM1-SPW) and supplies DC +5V, +24V, +15V and -24V for each PLC.
- Detects temporary power outage to prevent system malfunction and data corruption.

Current Consumption

Type	Model	Current Consumption (Main Power)	Current Consumption (Auxiliary Power)	Limit number of expansion
Main Block	CM3-SP32MDT	2.16W	-	-
	CM3-SP32MDT-SD	2.16W	-	-
	CM3-SP32MDTV	2.64W	-	-
	CM3-SP32MDTV-SD	2.64W	-	-
	CM3-SP32MDTE	2.64W	-	-
	CM3-SP32MDTE-SD	2.64W	-	-
	CM3-SP32MDTF	3.12W	-	-
	CM3-SP32MDTF-SD	3.12W	-	-
	CM3-SP16MDR	2.88W	-	-
	CM3-SP16MDRV	3.12W	-	-
	CM3-SP16MDRE	3.36W	-	-
	CM3-SP16MDRF	3.6W	-	-
Digital Expansion Block	CM3-SP32EDO	0.48W	-	-
	CM3-SP32EOT	0.48W	-	-
	CM3-SP32EOC	0.48W	-	-
	CM3-SP32EOR	2.16W	-	4ea
Analog Expansion Block	CM3-SP04EAO	0.36W	1.44W	-
	CM3-SP04EAA	0.36W	1.68W	-
	CM3-SP04EOAI	0.36W	1.68W	-
	CM3-SP04EOAV	0.36W	1.44W	-
	CM3-SP04ERO	0.48W	0.72W	-
Communication Block	CM3-SP04ETO	0.48W	0.72W	-
	CM3-SP02ERR	0.48W	-	-
	CM3-SP02ERS	0.48W	-	-
	CM3-SP01EET	0.72W	-	5ea

- CM3-SP16EOR can be used with up to 4 modules. The required capacity of SMPS (Switched mode power supply) is 24VDC 20W.
- Please be sure to check each PLC-S module's current consumption to ensure that it does not exceed the 10W limit.
- Please make sure to check safety factor of current consumption when using SMPS.

DIGITAL I/O

• Specification



Item	CM3-SP32EDO	CM3-SP32EOT	CM3-SP32EOC
I/O Type	Input 32pts	TR output 32pts	TR output 32pts
Input Voltage	DC 24 V	N/A	N/A
Output Voltage	N/A	DC 12 V / 24 V	DC 12 V / 24 V
Input Current	4 mA	N/A	N/A
Output Current	N/A	1 point 0.2A COM 2A	1 point 0.2A COM 2A
On Voltage / On Current	DC 19V / 3mA	N/A	N/A
Off Voltage / Off Current	DC 6V / 1mA	N/A	N/A
Response Time	Less than 3 ms	Less than 1 ms	Less than 1 ms
Operation Indication	LED On	LED On	LED On
Insulation Type	Photocoupler	Photocoupler	Photocoupler
Input method	SINK/SRC Compatibility	N/A	N/A
Output method	N/A	Sink	Source

Item	CM3-SP16EOR	CM3-SP32EDT	CM3-SP32EDR
I/O Type	Relay output 16pts	Input 16pts TR output 16pts	Input 8pts Relay output 8pts
Input Voltage	N/A	DC 24 V	DC 24 V
Output Voltage	AC 220 V / DC 24 V	DC 12 V / 24 V	DC 12 V / 24 V
Input Current	N/A	4 mA	4 mA
Output Current	1 point 2A COM 5A	1 point 0.2A COM 2A	1 point 2A COM 5A
On Voltage / On Current	N/A	N/A	DC19V / 3mA
Off Voltage / Off Current	N/A	N/A	DC6V / 1mA
Response Time	Less than 10 ms	Less than 1 ms	Less than 3 ms
Operation Indication	LED On	LED On	LED On
Insulation Type	Relay	Photocoupler	Photocoupler
Input method	N/A	SINK / SRC / Compatibility	SINK / SRC / Compatibility
Output method	Relay	Sink	Relay

※ Relay output in PLC-S series cannot use more than 64 points.
Ex) CM3-SP16EOR cannot be expanded with more than 4 modules.

Item	CM3-SP32PWM
Range of Pulse Frequency (DUTY Cycle preservation)	1pps ~ 4000pps
Maximum Frequency	65Kpps
DUTY Cycle Performance	0.0 ~ 100.0% (1/1000 Resolution)
RAMP Function	Available of simultaneous operation frequency RAMP and DUTY cycle RAMP

※ CM3-SP32PWM has the same specifications as a CM3-SP32EOC when used as a general digital output.

• Features

- Easy terminal block connection allows for easier maintenance.
- Photocoupler or relay insulation method can be used in the CM3-SP32PWM.
- ※ Note: Please be sure not to exceed 64 points of relay output.

ANALOG I/O

• Specification



Input (AD conversion)

Item	CM3-SP04EAO	
Number of Analog Input	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 Output	14 bit (0 ~ 16000)	
Rated Voltage / Current	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	1 nA
Accuracy	±0.1% (full scale)	
Conversion Speed	2.1 ms / 4 channels	
Absolute Max. Input	Voltage : ±15V, Current : ±30mA	
	Photocoupler between input terminal and PLC (No insulation between channels)	
Insulation Method	24VDC	
Power Supply	50mA	

- Provides various input types and range.
- High reliability demonstrated by ±0.05% error.
- Photocoupler insulation protects operation from interference.

Output (DA Conversion)

Item	CM3-SP04EOAV	CM3-SP04EOAI
Number of Analog Output	4 channels	4 channels
Analog Output	-10V ~ 10V / 0V ~ 10V (Selection with DIP switch)	4mA ~ 20mA
Digital Output	14 bit (0 ~ 16000)	
Rated Voltage / Current	1.25 mV	1.25 μA
Accuracy	±0.1 %	
Conversion Speed	10ms	
Absolute Max. Input	Voltage : ±15V	Current : ±24mA
Insulation Method	Photocoupler between input terminal and PLC	
Power Supply	24VDC	

- Provides various input types and range.
- High reliability demonstrated by ±0.05% error
- Photocoupler insulation protects operation from interference.

• Specification



I/O (AD/DA module)

Item	CM3-SP04EAA	
Number of Analog Input	Input : 2 Channels, Output: 2 Channels	
Analog Input	Voltage	0 ~ 5 V / 1 ~ 5 V / 0 ~ 10 V / -10 ~ 10 V
	Current	0 ~ 20 mA / 4 ~ 20 mA
Digital Output	Selection between 14 bit (0 ~ 16000) / 16 bit (0 ~ 64000)	
Rated Voltage / Current	0V ~ 5 V	78.1 μV
	1V ~ 5 V	62.5 μV
	0V ~ 10 V	156.3 μV
	-10V ~ 10 V	312.5 μV
	0mA ~ 20 mA	312.5 nA
	4mA ~ 20 mA	250 nA
Accuracy	±0.05 % (full scale)	
Conversion Speed	2.1 ms / 4 channels	
Absolute Max. Input	Voltage : ±15V, Current: ±30mA	
Insulation Method	Photocoupler between input terminal and PLC (No insulation between channels)	
Power Supply	24VDC	

- Provides various input types and range.
- High resolution of 16 bit digital conversion is available.
- High reliability demonstrated by ±0.05% error.
- Photocoupler insulation protects operation from interference.

• Features

- CM3-SP04EAO is the AD module used to input 4 channels of voltage and current.
- CM3-SP04EOAV is the DA module used to output 4 channels of voltage (-10 ~ 10V, 0~10V).
- CM3-SP04EOAI is the DA module used to output 4 channels of current (4 ~ 20mA).
- CM3-SP04EAA is the AD / DA module used to input 2 channels of voltage and current, and output 2 channels of voltage and current.
- The DA module is used to convert digital value into the analog signal (voltage or current output). It converts the digital value of 0~16000(-8000~8000) / 0~64000(-32000~32000) into the analog value of 0~20mA, 4~20mA, -10~10V, 0~5V, 0~10V and 1~5V.
- There are two AD conversion methods that the user can choose: average processing and digital filtering.
- With the Hold/Clear setting the user can select what should happen when the operation mode changes from RUN to STOP mode. The Clear selection will change the output signal of the 4mA or 10V signal to its offset value. The Hold selection will maintain the 4mA or 10V signal to the last known value.
- The channel on which conversion is prohibited outputs the minimum value in each output mode (0mA, 4mA, -10V, 0V, 1V).
- The LED lights on normal condition and blinks at 0.5 second intervals in error condition.

TEMPERATURE

• Specification



RTD Module

Item	CM3-SP04ERO	
Available RTD	PT100, JPT100, PT1000, Ni1000 (DIN 43760), Ni1000 (TCR 5000)	
Range of Temperature Input	PT100 : -200.0 °C to 600 °C (18.48 to 313.59 Ω) JPT100 : -200.0 °C to 600 °C (17.14 to 317.28 Ω) PT1000 : -200.0 °C to 600 °C (184.8 to 3135.9 Ω) Ni1000 (DIN 43760): -50.0 °C to 160 °C (742.6 to 1986.3 Ω) Ni1000 (TCR 5000): -50.0 °C to 160 °C (790.9 to 1799.3 Ω)	
Digital Output	Digital Value : 0 ~ 16,000 (-8000 ~ 8000) Temp : -200.0 °C ~ 600.0 °C (floating point x 10)	
Detecting Broken Wires	3 wires for each channel	
Accuracy	± 0.1 % (full scale)	
Max. Conversion Speed	50 ms / 4 Channels	
Number of Temperature Input	4 channels	
Insulation Method	Photocoupler between input terminal and PLC (No insulation between channels)	
Power Supply	24VDC	
Internal Current Consumption (mA)	+24V	60
External Current Consumption (mA)	+5V	30

- The module can detect a broken wire and out of range measurement.
- The module supports most resistance temperature detectors.
- The module provides full scale accuracy.
- Digital temperature measurement in 0.1°C increments is possible.
- The temperature value can be converted into a 14-bit digital value.

• Features

- By using the platinum resistance temperature sensor, Pt100, JPt100 or Pt1000, Ni1000, the temperature value (°C or °F) can be processed as digital values (0~16000) with one decimal point.
- RTD module converts temperature from -200°C to 600°C (PT100/1000/JPT100) or from -50°C to 160°C (Ni1000) into digital value of 0~16000 (-8000~8000).
- It can show temperature -250°C~650°C (PT100/PT1000/JPT100) or -60°C~170°C (Ni1000). These values may change into digital value in -192~16191(-8192~8191).
- If the operator sets the minimum and the maximum temperature values, it converts the minimum temperature value to 0 (-8000) and the maximum temperature value to 16000 (8000).
- Wire disconnection and exceeding measurement range can be detected by each channel.
- A single module has 4 channels for thermocouples.
- The LED lights on normal condition and blinks at 0.2 second intervals in error condition.
- The temperature-sensing resistance is a sensor that measures temperature in the form of resistance.
- The platinum temperature-sensing resistance PT100 and JPT100 outputs 100.0Ω for 0°C. PT1000 outputs 1000.00Ω for 0°C. The nickel temperature-sensing resistance Ni1000 outputs 1000.00Ω for 0°C.

• Specification



TC Module

Item	CM3-SP04ETO	
Available TC	Type K,J,E,T,B,R,S,N	
Digital Output	Converted digital value: 0 ~ 16,000 (-8000 ~ 8000) Converted temperature value: °C, °F (0.1°C Resolution)	
Detecting Broken Wires	3 wires per each channel	
Accuracy	±0.3 % (Full Scale) ±1°C (Error for base compensation)	
Max. Conversion Speed	50ms / 4 Channels	
Compensation Type	Automatic compensation	
Number of Input Channel	4 channels / 1 module	
Insulation Method	Photocoupler between input terminal and PLC (No insulation between channels)	
Power Supply	24VDC	
Internal Current Consumption (mA)	+24V	60
External Current Consumption (mA)	+5V	30

Range of Input Temperature

Type of TC	Standard	Range of Measured Temp. (°C)	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 ~ 18612
N		-200.0 ~ 1250.0	-3990 ~ 43846

- TC module can measure high temperature values.
 - The module supports various thermocouples.
 - The module provides ±0.3% of accuracy.
 - Digital temperature measurement in 0.1°C increments is possible.
 - Wire disconnection and exceeding measurement range can be detected.
 - Channels in TC module are uninsulated. FG is commonly used in the module installation.
 - FG reinforcement is strongly recommended when the measured values highly fluctuate.
 - Simultaneous connection with TC sensor and another device is not recommended as abnormal measurements and/or diminished performance can occur.
- ※ If you have to use TC module with third-party device, FG must be connected between the products.

ANALOG MUX

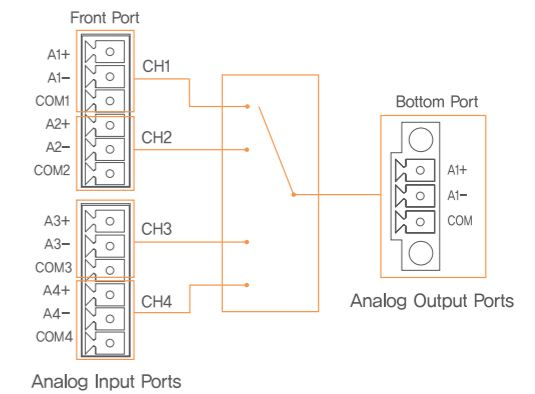
• Specification



Item	CM3-SP04EAM
Number of Analog Input	3 wire, 4 channels
Analog Input	Voltage, RTD, TC
Relay Min/Max ON TIME	Min.: 0.1sec, Max.: 1000sec
Insulation Method	Relay
Capacity	16pts
Access Terminal	Input: 12pts terminal block, Output: 3pts terminal block
Relay Life-Expectancy	Number of operation of 10 ⁸

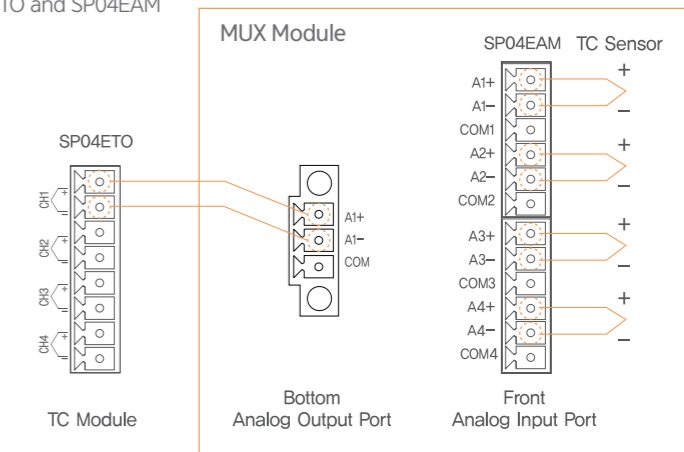
Concept Diagram

Concept Diagram of SP04EAM



Wiring Example

Wiring Diagram Between SP04ETO and SP04EAM



• Features

- Analog MUX module receives 4 channel analog signals and switches them sequentially to an output port by a set time interval.
- Channels can be enabled or disabled and channel information can be easily checked.
- Relay ON time can be selected by 0.1 ~ 1000.0sec intervals.
- Relay life expectancy can be checked through the relay counter function.
- User can select automatic or manual mode.
- The LED blinks at 0.5 second intervals in error condition.
- The Analog MUX module is not suitable for current signals since the signal switches repeatedly.

COMMUNICATION

• Specification



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

• Features

- This module follows IEEE 802.3 and supports ARP, ICMP, IP, TCP, and UDP protocols.
- The module provides CIMON DHCP server allowing dynamic IP address allocation.
- MODBUS TCP Master special program allows communication with various devices.
- High-speed linkage to the CIMON PLCs to simultaneously communicate with up to 64 stations.

• Specification



• Features

Serial Module

CM3*

Item	SP02ERS	SP02ERR	SP02ERC	SP02ERSC
Interface	RS232C:1CH RS422/485:1CH	RS232C: 2CH	RS232C: 1CH	RS232C:1CH RS422/485:1CH
Communication Method	Null Modem	O	O	O
	Leased Line Modem	O	O	O
	CDMA Modem	O	O	O
Operation Mode	Protocol Special Program	Communication via user-defined protocol program		
	HMI Protocol	Communication via CIMON-PLC HMI protocol		
	MODBUS Protocol	Communication via Modbus RTU protocol		
	Graphic Loader Protocol	Controlling PLC through connection function in CIMON software		
	MODBUS Master Protocol	Communicate with slave device that using MODBUS RTU protocol		
Data Type	Data Bit	8 bit		
	Stop Bit	1 or 2 bit		
	Parity	Even / Odd / None		
Synchronization Mode	Asynchronous			
Transmission Speed (bps)	300 / 600 / 1200 / 2400 / 4800 / 9600 / 19200 / 38400			
Insulation Method	RS232C: No insulation, RS422/485: photocoupler			

- Independent operations are possible for each channel by creating third party protocols for RS-232C and RS422 / 485 channels.
- Data can be read or written via the HMI protocol.
- Maximum of 32 units for HMI communication are supported (RS422/485)
- Modem communication is built into some serial modules to control the PLC remotely. (RS232C)
- Provides a wide range of communication speed (1200bps ~ 38400bps)
- RS232C and RS422/485 communication port can be used as independent channel or linked channel.
- 1:1 / 1:N / n:M (in case of RS422/485) communication is available.
- RS422 supports Full-Duplex, and RS485 supports Half-Duplex (RS485).
- Setting RS485 as default will enable a multi-drop communication channel.
- The module supports universal protocols.
- MODBUS RTU Master function helps data acquisition from third party device (MODBUS Slave).
- The RS422/485 channels are isolated from the internal circuitry to prevent communication quality degradation due to noise.

- This module follows IEEE 802.3 and supports ARP, ICMP, IP, TCP, UDP, and DHCP protocols.
- Ethernet communication module can be expanded on a single base without limits.
- The communication module can be installed on the extension base.
- The module provides DHCP system by communicating with CIMON-SCADA.
- MODBUS TCP Master function provides full compatibility with various devices.
- High-speed linkage to the CIMON PLCs to simultaneously communicate with up to 64 stations.
- Up to 4 Ethernet modules can be expanded for PLC link communication.

• Specification



OPC UA

Item	CM3-SP01OPC	
Standard	10BASE-T, 100BASE-TX	
Transmission Speed	10/100M	
Max. Distance	100m	
Number of Nodes	2,000 (default, Max : 4,000)	
Max. Monitoring Nodes	100	
Configuration Tool	CICON software	
Service	Protocol	UA TCP (opc.tcp)
	Max. Connections	12
	Max. Sessions	5
	Max. Security Channels	11
	Max. Message Size	65535

Features in the Module

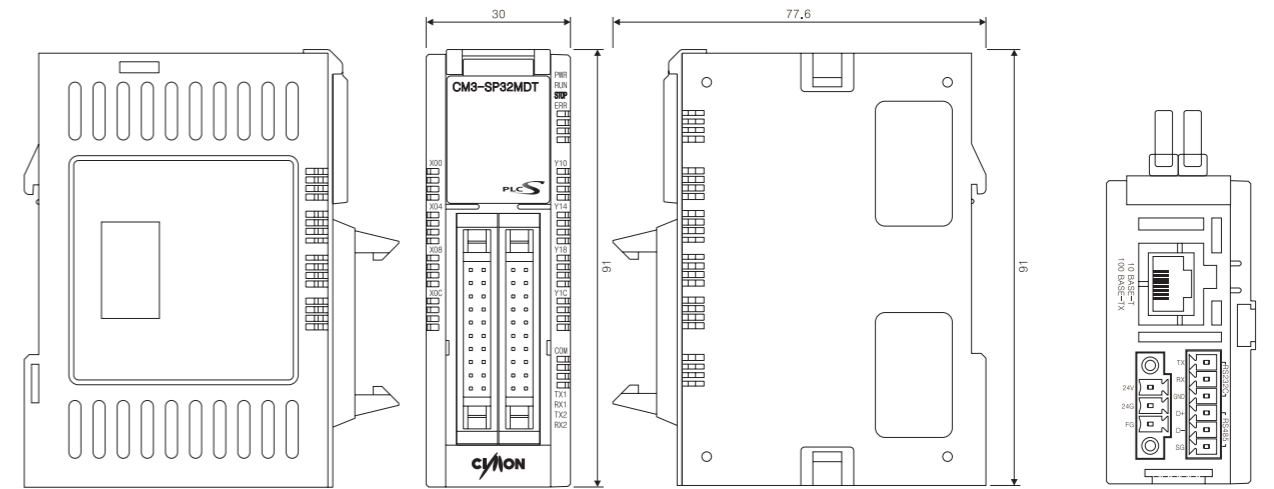
Item	CM3-SP01EET	
Standard	10BASE-T, 100BASE-TX	
Transmission Speed	10/100Mbps	
Max. Distance	100m	
Service Capacity	UDP, TCP : 12 Service	
Service	Loader	Yes (UDP)
	HMI Protocol	Yes (TCP, UDP)
	MODBUS/TCP SI.	Yes
	MODBUS/TCP Ms.	Yes
	PLC Link (Private)	No
	PLC Link (Public)	No
	High-speed PLC Link	Yes
	DHCP	Yes

Cable – Twisted Pair (UTP)

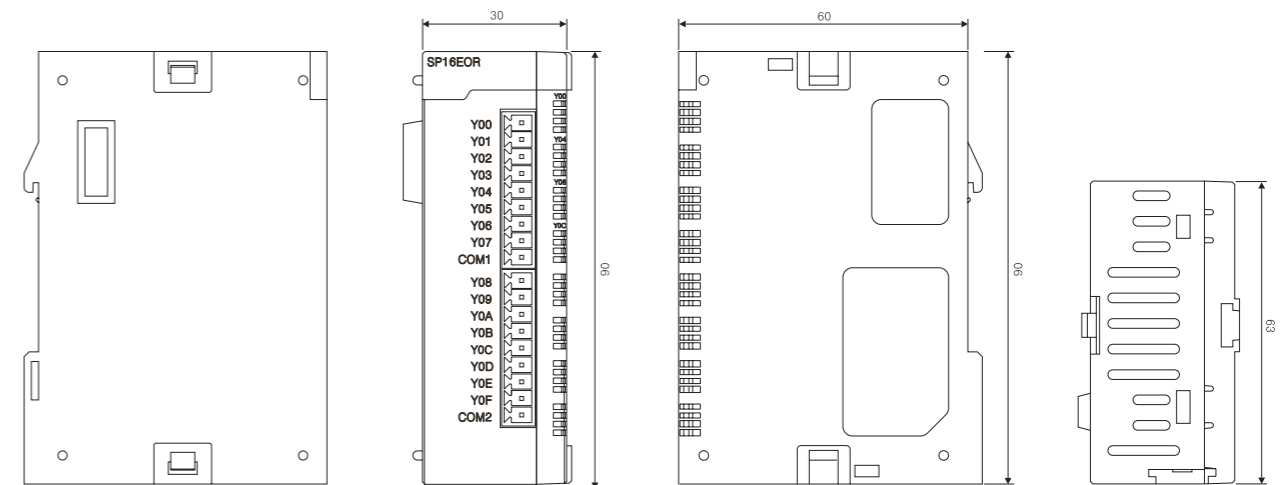
Item	Unit	Value	
Conductor Resistance (Max)	Ω / km	93.5	
Insulation Resistance (Min)	$M\Omega$ / km	2500	
Withstanding Voltage	V / min	AC 500	
Impedance	Ω (1 ~ 100MHz)	100±15	
Attenuation	dB / 100m	10	6.5
		16	8.2
		20	9.3
Near-end Crosstalk Attenuation	dB / 100m	10	47
		16	44
		20	42

※ Since the cable type can differ depending on the system configuration and environment, please contact an expert for establishing a connection.

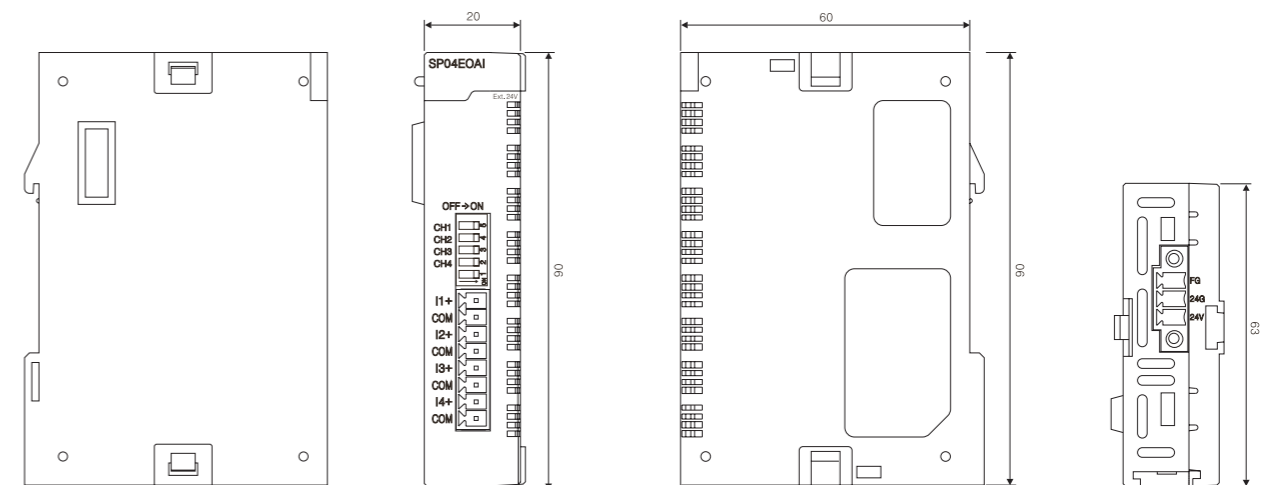
DIMENSIONS



※ CM3-SP32MDT / CM3-SP32MDO (Sizes are the same in the CPU line.)



※ CM3-SP16EOR (Sizes are the same in the Digital I/O line.)



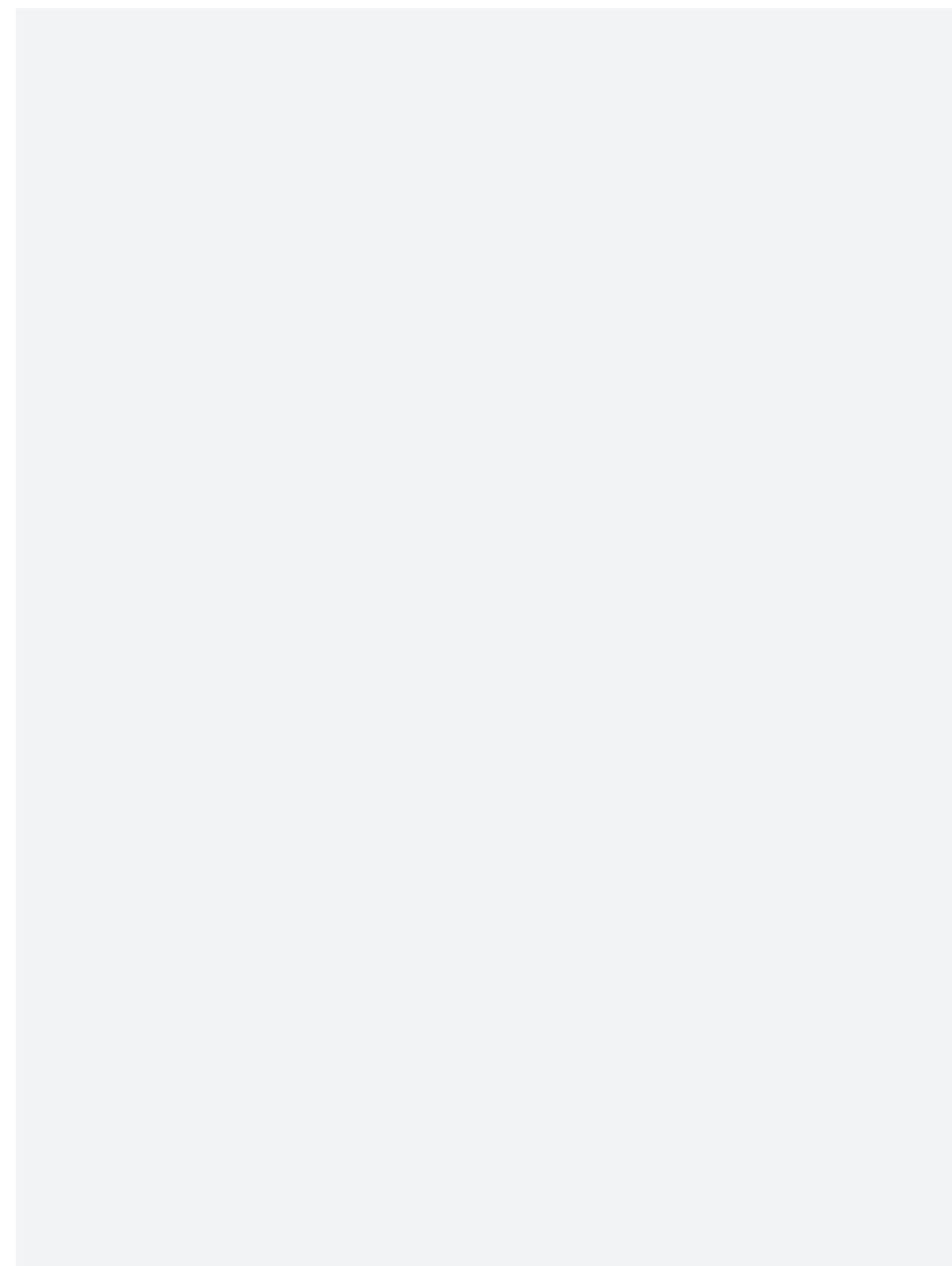
※ CM3-SP04EOAI (Sizes are the same in the Analog I/O line.)

CIMON-PLCS LINE-UP

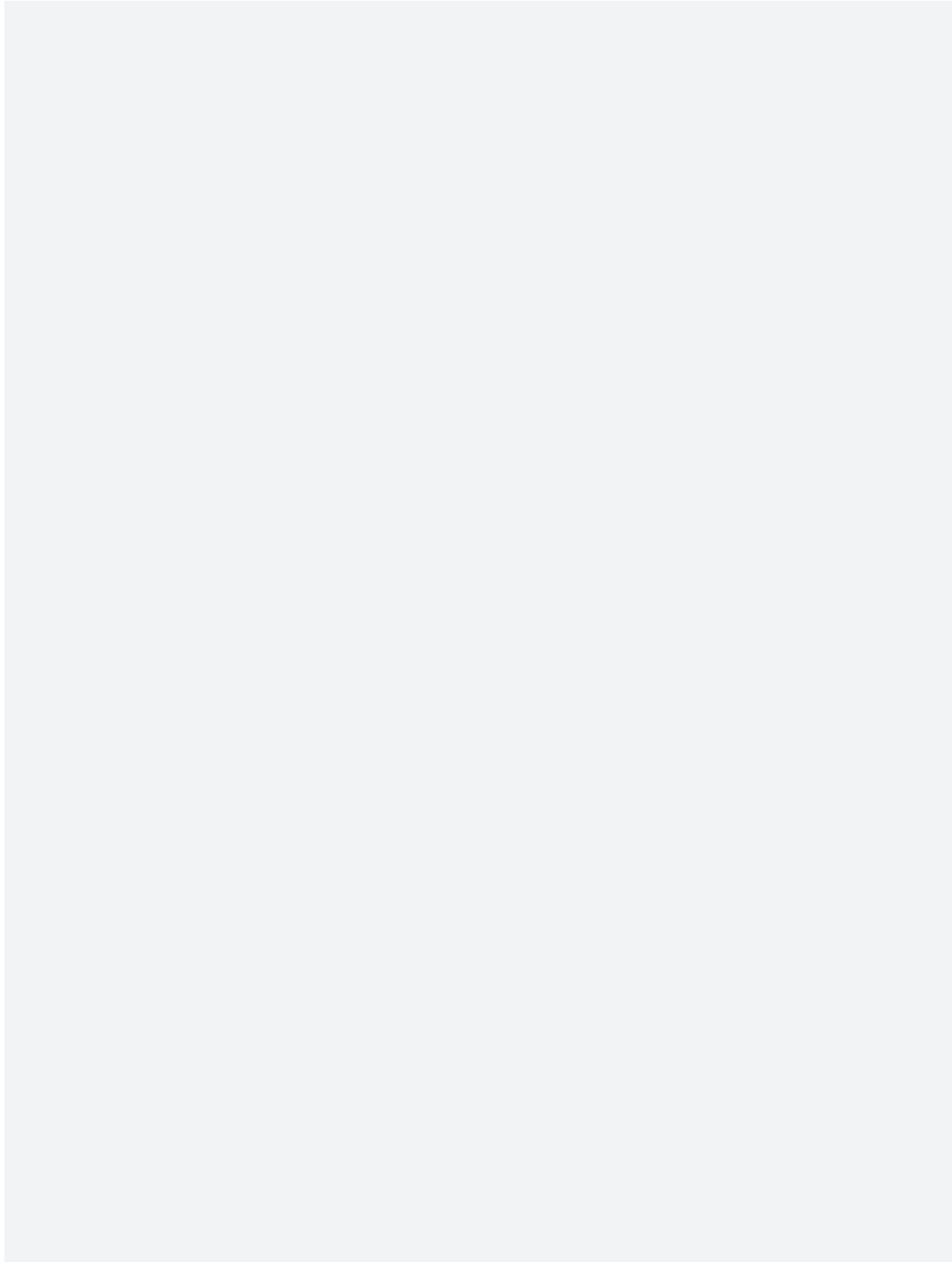
Item	Model	Specification	
Power Base	CM3-SP24PWRH	Input:100-240VAC, 36W, Output:24V, 1.5A	
	CM3-SP32MDT/MDC	DI16/DO16, USB Loader, RS232C 1ch, SFC Language	
	CM3-SP32MDT-SD	DI16/DO16, USB Loader, SD/MMC Card Slot, RS232C 1ch, SFC Language, Web Server	
	CM3-SP32MDTV	DI16/DO16, USB Loader, RS232C 1Ch, RS485 1ch, SFC Language	
	CM3-SP32MDTV-SD	DI16/DO16, USB Loader, SD/MMC Card Slot, RS232C 1ch, RS485 1ch, SFC Language, Web Server	
	CM3-SP32MDTE	DI16/DO16, USB Loader, RS232C 1Ch, Ethernet 1ch, SFC Language	
	CM3-SP32MDTE-SD	DI16/DO16, USB Loader, SD/MMC Card Slot, RS232C 1ch, Ethernet 1ch, SFC, Web Server	
	CM3-SP32MDTF	DI16/DO16, USB Loader, RS232C 1ch, Ethernet 1ch, RS485 1ch, SFC Language	
	CM3-SP32MDTF-SD	DI16/DO16, USB Loader, SD/MMC Card Slot, RS232C 1ch, Ethernet 1ch, RS485 1ch, SFC Language, Web Server	
	Relay Output (DC Power)	CM3-SP16MDR	DI 8/DO 8(Relay), USB Loder/RS232 1ch
		CM3-SP16MDRV	DI 8/DO 8, USB Loder, RS232 1ch, RS485 1ch
		CM3-SP16MDRE	DI 8/DO 6, USB Loader, RS232C 1ch, Ethernet 1ch
		CM3-SP16MDRF	DI 8/DO 6, USB Loader, RS232C 1ch, Ethernet1ch, RS485 1ch
	Digital Expansion	DI-32	CM3-SP32EDO DI 32pts, DC 24V
DO-32		CM3-SP32EOT DO 32pts, DC 24V (TR)Sink	
DO-32		CM3-SP32EOC DO 32pts, DC 24V (TR)Source	
DO-16		CM3-SP16EOR DO 16pts, Relay Output	
DI-8 / DO-8		CM3-SP16EDR DI 8pts, Relay Output	
DI-16 / DO-16		CM3-SP32EDT DI 16pts, DO 16pts, (TR)Sink	
Analog Expansion	AI-4	CM3-SP04EAO AI 4ch voltage and current, 14bit	
	AIO-2/2	CM3-SP04EAA AI 2ch voltage and current /AO 2ch voltage and current, 16bit, 14bit	
	AO-4	CM3-SP04EOAI	AO 4ch current, 14bit
		CM3-SP04EOAV	AO 4ch voltage, 14bit
	MUX	CM3-SP04EAM AI 4ch(RTD,TC Available)	
Temperature	AI-4	CM3-SP04ERO AI 4ch RTD	
		CM3-SP04ETO AI 4ch TC	
Communication Block	Ethernet	CM3-SP01EET Ethernet 1ch, 10/100Mbps	
	Serial	CM3-SP01ERC RS232C 1ch CDMA	
	Serial	CM3-SP02ERRC RS232C 1ch CDMA / RS232C 1ch	
	Serial	CM3-SP02ERS RS232C 1ch, RS422/485 1ch	
	OPCUA	CM3-SP01OPC Opcua server, 10/100Mbps, UA TCP(opc,tcp)	
	Serial	CM3-SP02ERR RS232C 2ch	
Accessories	SP32MDT	CM0-TB32M Multi-Terminal	
	SP32MDT	CM0-SCB15M Main Block 1.5M Cable	
	SP32EDO	CM0-SCB15E I/O 32pts. 1.5M Cable	
	SP32EOT		

* Firmware upgrade is available for all PLC-S models

MEMO



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